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Conservation  
Service

In cooperation with  
Phelps County Soil and  
Water Conservation District;  
Missouri Department of  
Natural Resources; United  
States Department of  
Agriculture, Forest Service;  
Missouri Agricultural  
Experiment Station; and  
Missouri Department of  
Conservation

# Soil Survey of Phelps County, Missouri



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# How to Use This Soil Survey

## General Soil Map

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

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

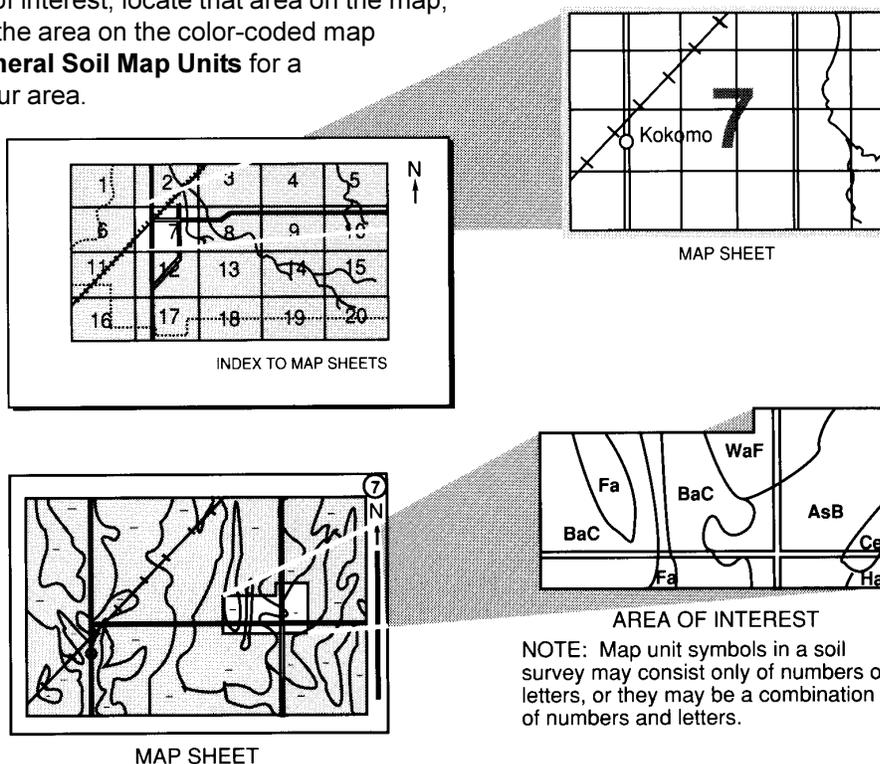
## Detailed Soil Maps

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

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

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

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



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This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of Agriculture, Forest Service; the Missouri Agricultural Experiment Station; and the Missouri Department of Conservation. The Missouri Department of Natural Resources provided soil scientists to assist with the fieldwork. The survey is part of the technical assistance furnished to the Phelps County Soil and Water Conservation District.

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

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**Cover: Relfe Spring is one of the numerous springs in Phelps County.**

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# Contents

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<b>Cover</b> .....	1	73094—Gatewood very gravelly silt loam, 15 to 35 percent slopes, stony .....	30
<b>How to Use This Soil Survey</b> .....	3	73098—Plato silt loam, 1 to 3 percent slopes ..	30
<b>Contents</b> .....	5	73135—Union silt loam, 3 to 8 percent slopes .....	30
<b>Foreword</b> .....	9	73136—Union silt loam, 1 to 3 percent slopes .....	31
General Nature of the County .....	11	73159—Yelton silt loam, 3 to 8 percent slopes .....	31
Climate .....	11	73160—Hobson loam, 8 to 15 percent slopes, bench .....	31
History and Development .....	12	73161—Alred-Rueter complex, 3 to 15 percent slopes .....	31
Physiography, Relief, and Drainage .....	12	73162—Alred-Rueter complex, 15 to 35 percent slopes, very stony .....	32
Geology .....	12	73163—Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky .....	32
How This Survey Was Made .....	13	73164—Bender-Rock outcrop complex, 35 to 65 percent slopes, extremely stony ...	33
Table 1.—Temperature and Precipitation .....	16	73165—Knobby-Rock outcrop-Bardley complex, 35 to 75 percent slopes, extremely stony .....	33
Table 2.—Freeze Dates in Spring and Fall .....	17	73166—Viburnum-Tonti complex, 1 to 8 percent slopes .....	34
Table 3.—Growing Season .....	17	73168—Swiss gravelly silt loam, 3 to 15 percent slopes, stony .....	34
<b>General Soil Map Units</b> .....	19	73169—Beemont-Gatewood complex, 15 to 35 percent slopes, stony .....	35
Soil Descriptions .....	19	73170—Beemont-Gatewood complex, 3 to 15 percent slopes, stony .....	35
1. Bender-Tonti-Poynor Association .....	19	73171—Plato silty clay loam, 3 to 8 percent slopes, eroded .....	36
2. Alred-Bardley Association .....	20	73172—Rosati silt loam, 1 to 5 percent slopes .....	36
3. Cedargap-Kaintuck-Razort Association .....	21	73173—Lily-Yelton complex, 3 to 8 percent slopes .....	36
4. Gatewood-Useful Association .....	22	73174—Lily-Yelton complex, 8 to 15 percent slopes .....	37
5. Union-Beemont-Gatewood Association .....	23	73175—Poynor-Bendavis complex, 1 to 8 percent slopes .....	37
6. Rosati-Glensted Association .....	24	73176—Bendavis-Poynor complex, 8 to 15 percent slopes, stony .....	38
<b>Detailed Soil Map Units</b> .....	25		
Soil Descriptions .....	26		
66014—Haymond silt loam, 0 to 3 percent slopes, frequently flooded .....	26		
70028—Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony .....	26		
73013—Lowassie silt loam, 0 to 3 percent slopes, frequently ponded .....	26		
73032—Gatewood very gravelly silt loam, 3 to 15 percent slopes, stony .....	27		
73039—Glensted silt loam, 1 to 3 percent slopes .....	27		
73053—Lily-Bender complex, 3 to 15 percent slopes .....	27		
73066—Bender very cobbly fine sandy loam, 3 to 15 percent slopes, stony .....	28		
73067—Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony .....	28		
73080—Alred-Bardley-Rock outcrop complex, 15 to 60 percent slopes, very stony .....	28		
73087—Celt silt loam, 1 to 3 percent slopes .....	29		
73089—Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony .....	29		

73178—Bendavis very gravelly silt loam, 15 to 35 percent slopes, stony .....	38	75414—Wideman sand, 0 to 3 percent slopes, frequently flooded .....	47
73179—Viraton-Wilderness complex, 3 to 15 percent slopes .....	39	99000—Pits, quarries .....	47
73180—Gatewood-Gasconade complex, 3 to 15 percent slopes, stony, very rocky ..	39	99001—Water .....	47
73181—Useful-Gatewood complex, 8 to 15 percent slopes .....	40	99003—Miscellaneous water .....	47
73182—Lebanon silt loam, 1 to 3 percent slopes .....	40	Table 4.—Acreage and Proportionate Extent of the Soils .....	48
73183—Scholten-Tonti complex, 3 to 15 percent slopes .....	40	<b>Prime Farmland</b> .....	49
73184—Knobby-Rock outcrop complex, 8 to 35 percent slopes, extremely stony ....	41	<b>Use and Management of the Soils</b> .....	51
73186—Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky, karst .....	41	Crops and Pasture .....	51
73187—Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony, karst .....	42	Woodland Management and Productivity .....	58
73188—Bendavis-Poynor complex, 3 to 15 percent slopes, stony, karst .....	42	Forest Productivity and Management .....	59
73189—Useful-Gatewood complex, 3 to 8 percent slopes .....	43	Windbreaks and Environmental Plantings .....	61
74634—Hartville silt loam, 3 to 8 percent slopes .....	43	Recreational Development .....	61
74652—Lecoma silt loam, 1 to 8 percent slopes .....	44	Wildlife Habitat .....	62
74653—Raccoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded .....	44	Engineering .....	65
74656—Deible silt loam, 1 to 5 percent slopes, rarely flooded .....	44	Table 5.—Land Capability and Yields per Acre of Crops and Pasture .....	74
75375—Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded .....	45	Table 6.—Pasture and Hayland Suitability Groups .....	78
75376—Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded .....	45	Table 7.—Forest Productivity .....	80
75388—Kaintuck-Relfe complex, 0 to 3 percent slopes, frequently flooded .....	45	Table 8a.—Forestland Management .....	88
75391—Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded .....	45	Table 8b.—Forestland Management .....	102
75398—Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded .....	46	Table 9.—Windbreaks and Environmental Plantings .....	115
75412—Razort silt loam, 0 to 3 percent slopes, occasionally flooded .....	46	Table 10.—Recreational Site Development .....	120
75413—Relfe very gravelly sandy loam, 0 to 3 percent slopes, frequently flooded .....	46	Table 11a.—Wildlife Habitat Suitability .....	131
		Table 11b.—Wildlife Habitat Suitability .....	147
		Table 12.—Building Site Development .....	161
		Table 13.—Sanitary Facilities .....	177
		Table 14.—Construction Materials and Excavating .....	193
		Table 15.—Water Management .....	209
		Table 16.—Waste Management .....	225
		<b>Soil Properties</b> .....	241
		Engineering Index Properties .....	241
		Physical Properties .....	242
		Chemical Properties .....	244
		Water Features .....	244
		Soil Features .....	245
		Table 17.—Engineering Index Properties .....	246
		Table 18.—Physical Properties of the Soils .....	261
		Table 19.—Chemical Properties of the Soils .....	271
		Table 20.—Water Features .....	278
		Table 21.—Soil Features .....	282

---

<b>Classification of the Soils</b> .....	287	Moko Series .....	303
Soil Series and Their Morphology .....	287	Plato Series .....	304
Alred Series .....	287	Possumtrot Series .....	305
Bardley Series .....	288	Poynor Series .....	305
Beemont Series .....	289	Racoon Series .....	306
Bendavis Series .....	290	Razort Series .....	307
Bender Series .....	290	Relfe Series .....	308
Cedargap Series .....	291	Rosati Series .....	308
Celt Series .....	292	Rueter Series .....	309
Deible Series .....	293	Scholten Series .....	310
Freeburg Series .....	293	Swiss Series .....	311
Gasconade Series .....	294	Tonti Series .....	312
Gatewood Series .....	295	Union Series .....	313
Glensted Series .....	295	Useful Series .....	314
Hartville Series .....	296	Viburnum Series .....	315
Haymond Series .....	297	Viraton Series .....	316
Hobson Series .....	298	Wideman Series .....	317
Horsecreek Series .....	299	Wilderness Series .....	317
Kaintuck Series .....	299	Yelton Series .....	318
Knobby Series .....	300	Table 22.—Classification of the Soils .....	320
Lebanon Series .....	300	<b>Formation of the Soils</b> .....	321
Lecoma Series .....	301	<b>References</b> .....	325
Lily Series .....	302	<b>Glossary</b> .....	327
Lowassie Series .....	302		



# Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

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

Roger A. Hansen  
State Conservationist  
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# Soil Survey of Phelps County, Missouri

By Scott E. Larsen, Natural Resources Conservation Service

Fieldwork by Scott E. Larsen and Grant P. Butler, Natural Resources Conservation Service; and Robert Rouse, Jackson Bostic, Tom Markowski, and Kenneth Anderson, Missouri Department of Natural Resources

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with  
Phelps County Soil and Water Conservation District; Missouri Department of Natural Resources; United States Department of Agriculture, Forest Service; Missouri Agricultural Experiment Station; and Missouri Department of Conservation

PHELPS COUNTY is in the south-central part of Missouri in the Ozark region (fig. 1). The county has an area of 431,347 acres, or about 674 square miles. Rolla, the county seat, is in the central part of the county.

Phelps County is bordered on the north by Maries and Gasconade Counties, on the east by Pulaski County, on the south by Texas and Dent Counties, and on the west by Crawford and Dent Counties.

Farming is the main enterprise in Phelps County. Beef and dairy cattle are raised in the county. Cool-season grasses and shallow rooted legumes, such as fescue and red clover, are the main forage crops grown for pasture and hay. Most of the pasture and hayland occur on the gently to moderately sloping uplands and bottomlands. A small acreage of row crops and small grain crops are grown in the county. The deeply dissected uplands support most of the woodland in the county.

## General Nature of the County

This section describes climate; history and development; physiography, relief, and drainage; and geology.

## Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Rolla in the period 1961 to 1990. Table 2 shows probable



Figure 1.—Location of Phelps County in Missouri.

dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 33 degrees F and the average daily minimum temperature is 23 degrees. The lowest temperature on record, which occurred on January 12, 1918, is -21 degrees. In

summer, the average temperature is 76 degrees and the average daily maximum temperature is 87 degrees. The highest recorded temperature, which occurred on July 16, 1954, is 113 degrees.

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

The total annual precipitation is about 42 inches. Of this, 28 inches, or 66 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 7 inches on December 3, 1982. Thunderstorms occur on about 52 days each year, and most occur between May and August.

The average seasonal snowfall is about 17 inches. The greatest snow depth at any one time during the period of record was 17 inches. On the average, 17 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 66 percent of the time possible in summer and 48 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 12 miles per hour, in March.

## History and Development

The Shawnee and Osage Native Americans were early inhabitants of the area now known as Phelps County. Evidence of their presence can still be found in and around caves in the area.

The first white families started settling in the Phelps County area sometime before 1820. In 1826, work started on Maramec Iron Works, an iron works factory, at the site of what is now known as Maramec Spring. This was the first iron furnace in Missouri and the demand for its products grew rapidly. Around 1855, a flood of settlers moved to this area. Many came looking for work at the iron works factory while others wanted to start farming (Phelps County Genealogical Society, 1994).

Phelps County was officially created by an act of state legislature on November 13, 1857. The county seat of Rolla, founded in 1858, was an important Union railhead during the Civil War. The southwest

branch of the Pacific Railroad ended at Rolla from 1860 until 1867. Large amounts of supplies for the war were stored at and distributed from Rolla. The town contained two Union forts, Fort Wyman and Fort Dette, and at times hosted as many as 20,000 Union troops (Phelps County Genealogical Society, 1994).

Activities of current economic importance in the survey area include beef cattle production, grape and wine production, light manufacturing, and the University of Missouri at Rolla. Other communities of economic significance include St. James, Doolittle, Newburg, and Edgar Springs.

## Physiography, Relief, and Drainage

The uplands of Phelps County primarily consist of Ozark Hills and Ozark Border. In the south and west portions of the county, a thin layer of loess occurs on the more stable landforms with soils derived from highly fractured sandstone and dolomite bedrock on steeper side slopes. An area of moderate to steeply sloping hills dotted with many cedar glades covers the north-central portion of the county. In the north and northeast parts of the county, gently to moderately sloping hills have a layer of loess on broad ridges overlying side slopes of cherty clay residuum from dolomite, sandstone, and shale. Several areas of gently rolling uplands around St. James, Elk Prairie, Edgar Springs, and Flat were originally native prairies.

The major rivers in the county are the Gasconade, Big Piney, Bourbeuse, and Meramec. Several smaller streams exist, including Little Piney Creek, Dry Fork Creek, Norman Creek, and Spring Creek.

## Geology

John W. Whitfield, geologist, Missouri Department of Natural Resources, helped prepare this section.

The majority of Phelps County is situated on the Salem Plateau. There are isolated knobs and hills, higher in elevation, that are remnants of the Springfield Plateau.

Bedrock in the county consists mostly of sedimentary cherty dolomite, sandstone, and clay that range from Ordovician to Pennsylvanian in age. A layer of loess and erosional deposits, generally 1 foot to 2 feet thick, covers bedrock or stony residual material.

The bedrock has a gentle regional dip of 2 to 3 degrees to the north or northwest. The county has no known major fault systems, although smaller local

faults do exist. These faults are old geologically and have no record of "recent" movement.

The subsurface formations are composed of massive layers of dolomite, cherty dolomite, and sandstone and lesser amounts of limestone, shale, and siltstone. These sediments rest on Precambrian-age igneous rocks, which are approximately 1,400 feet beneath the surface.

Sinkholes are present in Phelps County and are more numerous in the south and southeastern portions of the county where the Roubidoux Formation is deeply weathered.

Sinkholes are an indication that the underlying bedrock is weathered and contains enlarged joints and caves. Surface water enters the sinkholes, which percolates downward through openings in the soil and bedrock and eventually recharges the ground-water aquifer. Ground water that supplies the many wells and springs in the county can be affected by contaminants, such as trash or garbage, that are dumped into sinkholes.

From the oldest to the youngest, bedrock formations exposed in the county are Gasconade Dolomites, Roubidoux Formation, Jefferson City-Cotter Dolomites, and Pennsylvanian System deposits. Several small, isolated occurrences of Devonian and Mississippian limestones are present on the uplands in the central part of the county.

The Gasconade Dolomites are 260 to 330 feet thick and consist of thick beds of brown to light gray dolomite with beds of white to gray chert. Massive bluffs of Gasconade Dolomite can be seen along the Gasconade River, Little Piney Creek, Mill Creek, and Norman Creek.

The Roubidoux Formation is 95 to 150 feet thick and is composed of brown to brownish-red, sandy dolomite, cherty dolomite, and sandstone. In Phelps County, this formation commonly crops out as sandstone and sandy dolomite bluffs and ledges on hillslopes along small stream valleys and road cuts. The land surface is generally covered by an abundance of chert and sandstone coarse fragments.

The Jefferson City-Cotter Dolomites are 125 to 200 feet thick and consist of gray to brown dolomite with numerous interbedded chert, sandstone, and shale layers. Rock outcrops are scattered because in most places the formation is covered by soil on gently rolling land surfaces. There are exceptions; for example, in places, a massive brown crystalline dolomite layer, called the "quarry ledge," crops out on upland hillslopes and forms small bluffs. There are also small areas of glades where soil cover is absent or very thin.

In Phelps County, the youngest bedrock,

Pennsylvanian clay and sandstone, is present in the north part of the county. The clay deposits are mostly white to purple and are confined, along with the sandstone, to the broad upland divides. The clay is often mined as a raw material to be used in the manufacture of refractory products (fig. 2). Pennsylvanian sandstone frequently crops out as an isolated amorphous mass that projects 5 to 10 feet above the land surface.

Small, isolated outcrops of Mississippian limestone occur on several of the higher hilltops in the central part of the county. The rock can be easily identified by the presence of fossil impression and its limestone composition. Several limestone boulders, believed to be Devonian in age, have been described in a sink structure in central Phelps County.

## How This Survey Was Made

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

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

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only



**Figure 2.—Abandoned refractory clay pit in an area of Swiss gravelly silt loam, 3 to 15 percent slopes, stony.**

a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each

taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of

some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

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

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

Table 1.--Temperature and Precipitation  
(Recorded in the period 1961-90 at Rolla, Missouri)

Month	Temperature						Precipitation					
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average	
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--			
<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>	<u>In</u>	<u>In</u>		
January-----	40.2	20.7	30.5	71	-10	8	1.77	0.58	2.75	4	4.4	
February-----	44.2	24.3	34.2	76	-3	18	2.16	0.97	3.18	4	4.2	
March-----	54.4	34.4	44.4	82	11	73	3.53	2.12	4.80	7	2.7	
April-----	66.5	45.4	56.0	89	25	233	3.75	2.39	4.98	7	0.5	
May-----	75.4	54.6	65.0	90	36	456	4.92	3.07	6.59	7	0.0	
June-----	83.4	63.0	73.2	95	48	685	3.89	1.43	5.94	6	0.0	
July-----	88.7	67.8	78.3	101	53	852	3.90	1.93	5.62	5	0.0	
August-----	87.4	65.8	76.6	102	51	792	3.83	1.83	5.55	5	0.0	
September---	78.9	58.1	68.5	96	39	541	3.63	1.97	5.09	5	0.0	
October-----	68.4	46.8	57.6	88	28	264	3.56	1.80	5.10	5	0.0	
November----	55.6	36.9	46.3	78	14	82	3.50	1.54	5.18	5	1.1	
December----	42.4	24.8	33.6	72	-4	16	3.16	1.34	4.70	5	3.5	
Yearly: Average	65.5	45.2	55.3	---	---	---	---	---	---	---	---	
Extreme	108	-19	---	102	-12	---	---	---	---	---	---	
Total-----	---	---	---	---	---	4,021	41.61	27.20	49.37	65	16.5	

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall  
(Recorded in the period 1961-90 at Rolla, Missouri)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 5	April 10	April 25
2 years in 10 later than--	March 31	April 6	April 20
5 years in 10 later than--	March 21	March 28	April 10
First freezing temperature in fall:			
1 year in 10 earlier than--	November 3	October 24	October 16
2 years in 10 earlier than--	November 8	October 29	October 20
5 years in 10 earlier than--	November 17	November 8	October 28

Table 3.--Growing Season  
(Recorded in the period 1961-90 at Rolla, Missouri)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	220	206	186
8 years in 10	227	212	192
5 years in 10	240	225	203
2 years in 10	253	237	214
1 year in 10	259	244	219



# General Soil Map Units

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

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

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other

structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The descriptions, names, and delineations of the soils on the general soil map of this survey do not fully agree with those on the general soil map of surveys of adjacent counties published at a different date. Differences may be the result of additional soil data, variations in the intensity of mapping, and correlation decisions that reflect local conditions.

## Soil Descriptions

### 1. Bender-Tonti-Poynor Association

#### *Extent of the association:*

53 percent of the survey area

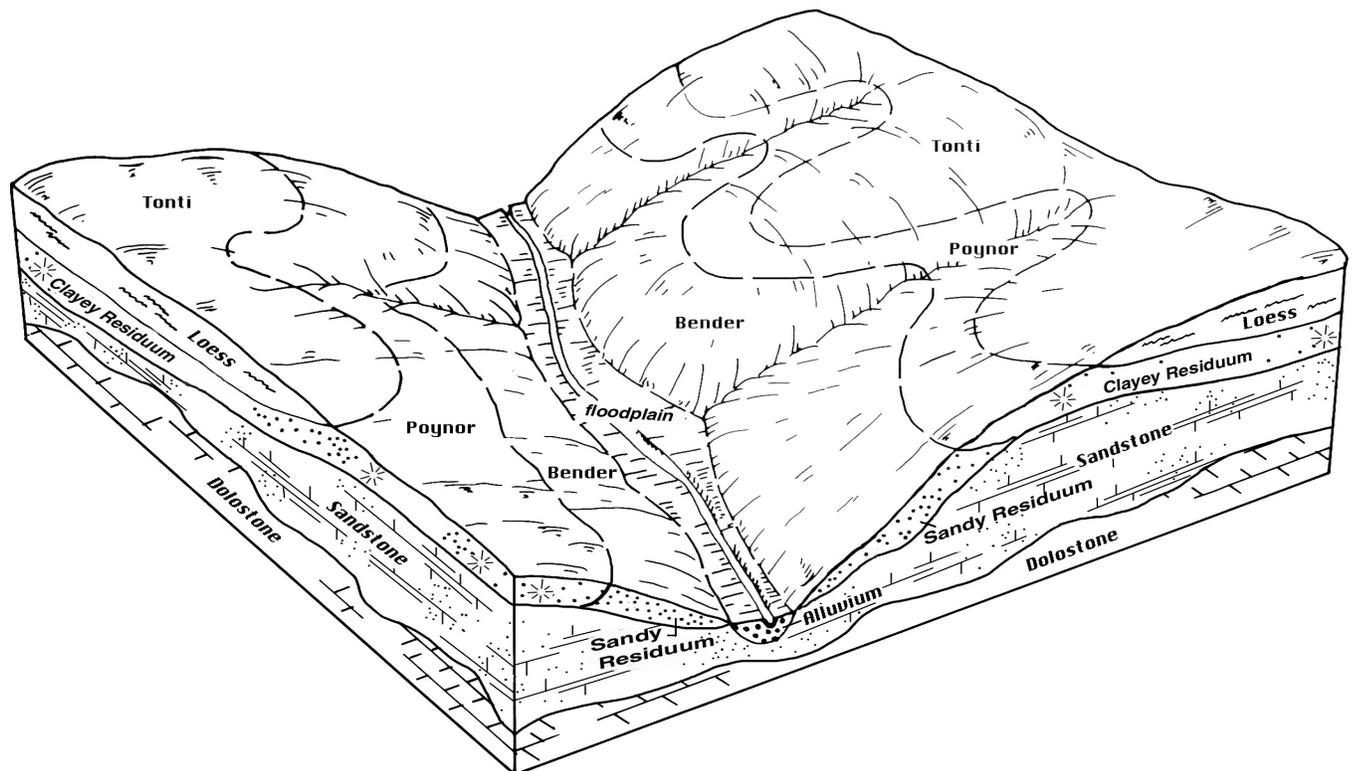


Figure 3.—Typical pattern of soils and parent material in the Bender-Tonti-Poynor association.

**Composition:**

Bender and similar soils—55 percent  
 Tonti and similar soils—16 percent  
 Poynor and similar soils—14 percent  
 Minor soils—15 percent (Gasconade, Lcoma,  
 and Viburnum)

**Landscape** (fig. 3):

Bender—side slopes  
 Tonti—ridgetops  
 Poynor—side slopes

**Parent materials:**

Loess and residuum

**Slope range:**

1 to 65 percent

**Slope configuration:**

Convex and complex

**2. Alred-Bardley Association****Extent of the association:**

6 percent of the survey area

**Composition:**

Alred and similar soils—84 percent  
 Bardley and similar soils—6 percent  
 Minor soils—10 percent (Gasconade and  
 Lcoma)

**Landscape** (fig. 4):

Alred—side slopes  
 Bardley—side slopes

**Parent materials:**

Residuum

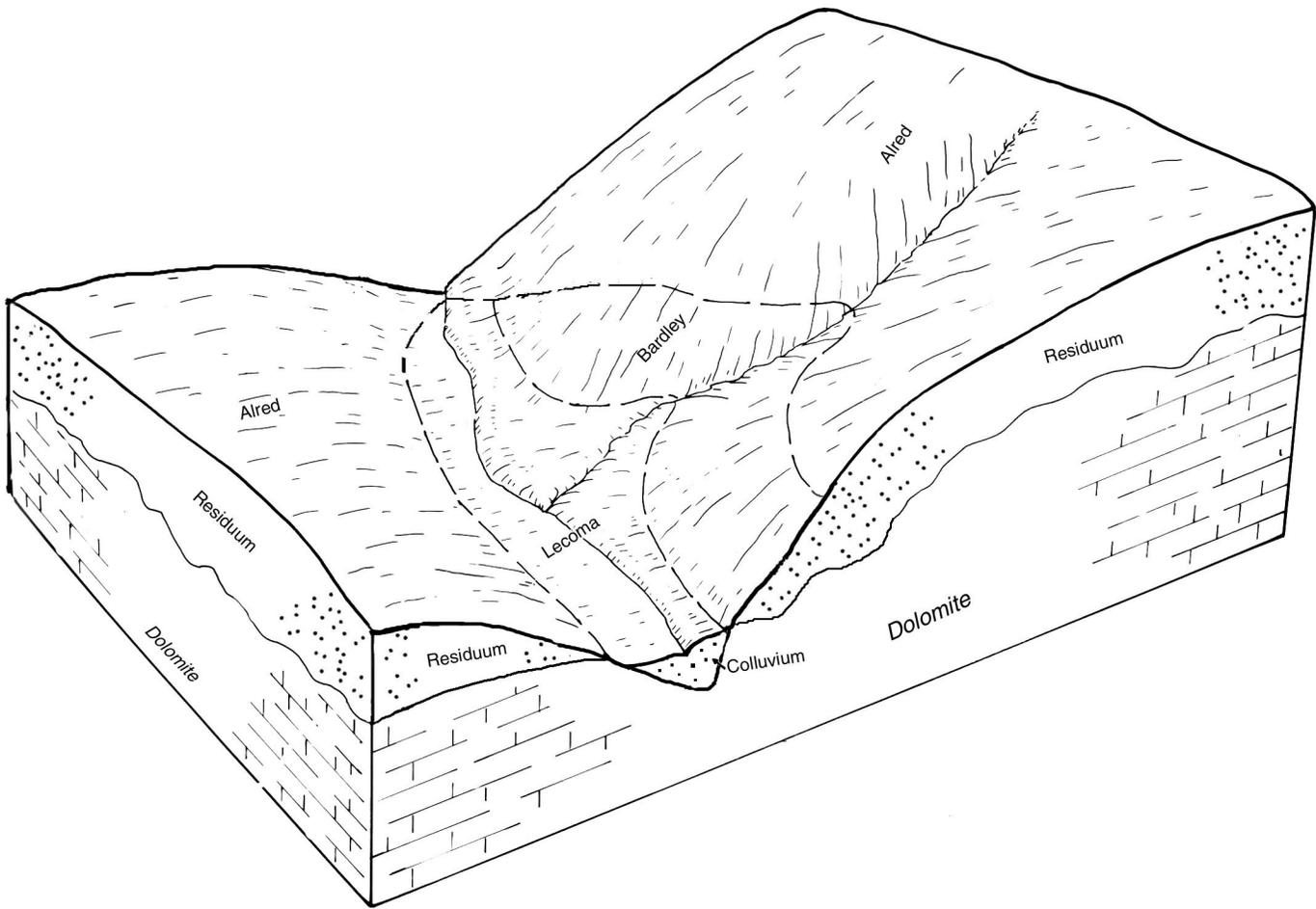


Figure 4.—Typical pattern of soils and parent material in the Alred-Bardley association.

**Slope range:**  
3 to 75 percent

**Slope configuration:**  
Convex and complex

### 3. Cedargap-Kaintuck-Razort Association

**Extent of the association:**  
11 percent of the survey area

**Composition:**  
Cedargap and similar soils—40 percent  
Kaintuck and similar soils—35 percent  
Razort and similar soils—20 percent  
Minor soils—5 percent (Raccoon)

**Landscape (fig. 5):**  
Cedargap—flood plains  
Kaintuck—flood plains  
Razort—flood plains

**Parent materials:**  
Alluvium

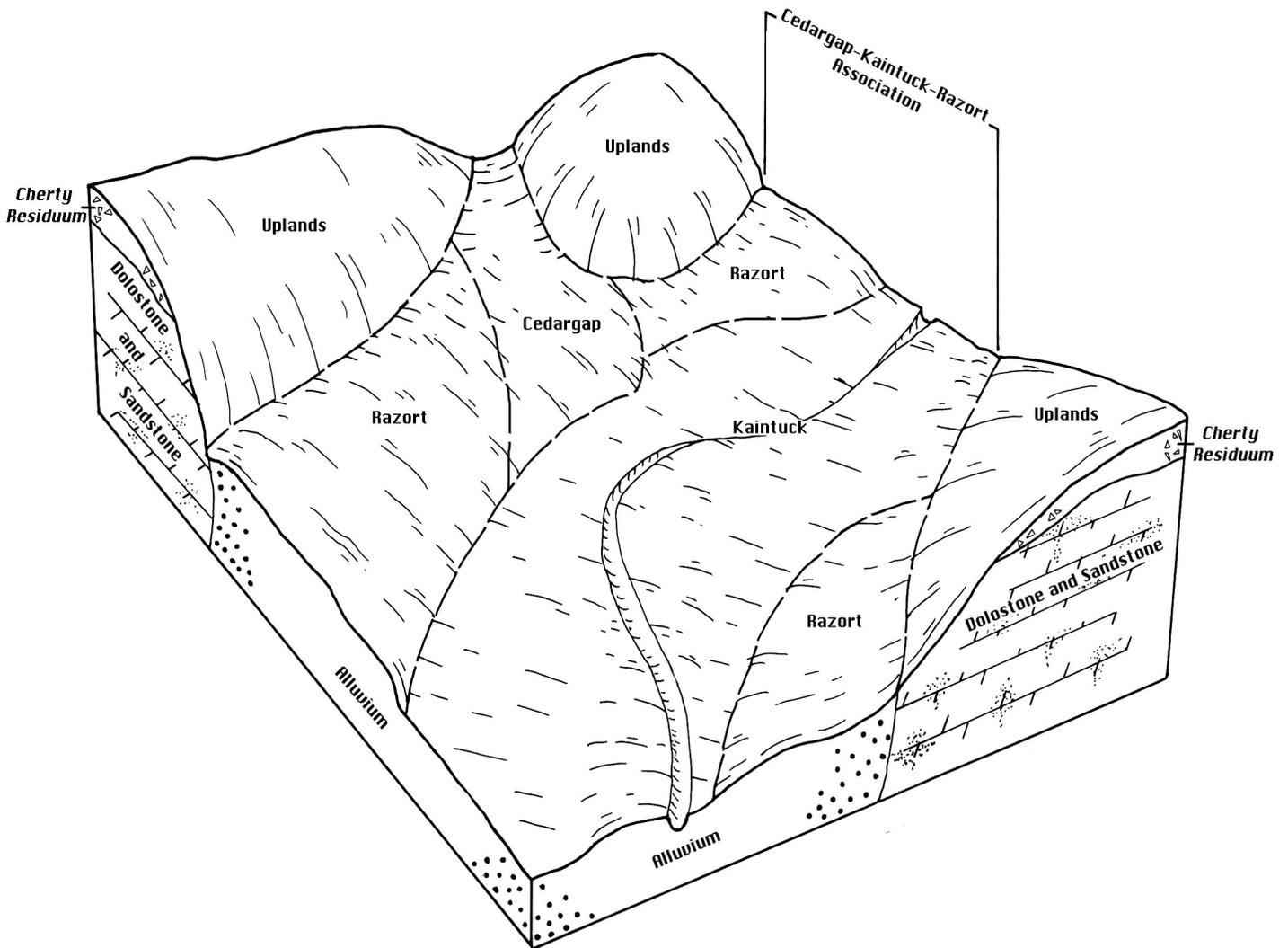


Figure 5.—Typical pattern of soils and parent material in the Cedargap-Kaintuck-Razort association.

**Slope range:**

0 to 3 percent

**Slope configuration:**

Linear and complex

**4. Gatewood-Useful Association****Extent of the association:**

5 percent of the survey area

**Composition:**

Gatewood and similar soils—58 percent

Useful and similar soils—25 percent

Minor soils—17 percent (Beemont and Hartville)

**Landscape (fig. 6):**

Gatewood—narrow ridgetops and side slopes

Useful—ridgetops

**Parent materials:**

Loess and residuum

**Slope range:**

3 to 35 percent

**Slope configuration:**

Convex and complex

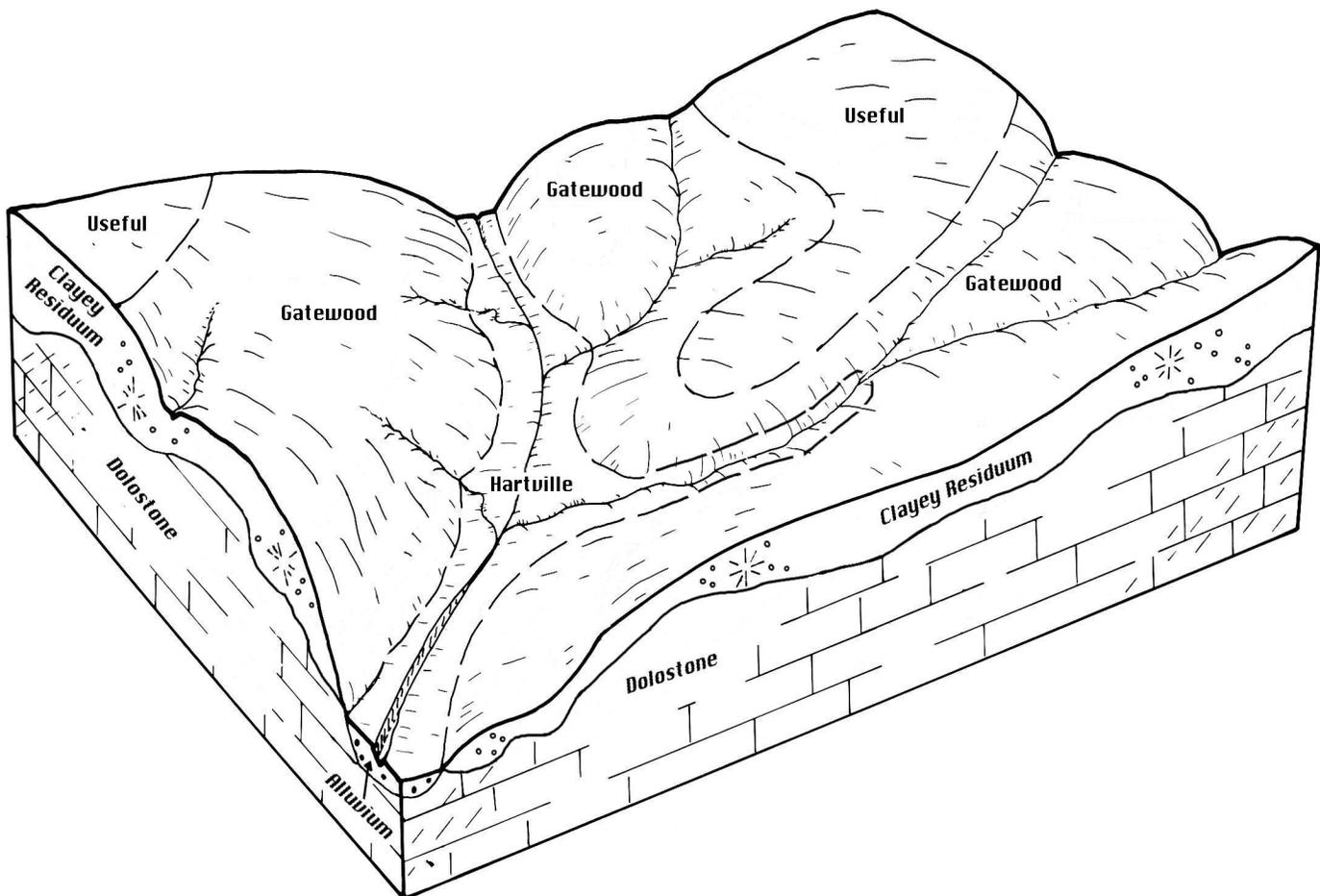


Figure 6.—Typical pattern of soils and parent material in the Gatewood-Useful association.

### 5. Union-Beemont-Gatewood Association

**Extent of the association:**

24 percent of the survey area

**Composition:**

Union and similar soils—45 percent  
Beemont and similar soils—28 percent  
Gatewood and similar soils—17 percent  
Minor soils—10 percent (Cedargap, Deible, and Hartville)

**Landscape (fig. 7):**

Union—ridgetops  
Beemont—side slopes  
Gatewood—side slopes

**Parent materials:**

Loess and residuum

**Slope range:**

1 to 35 percent

**Slope configuration:**

Convex and complex

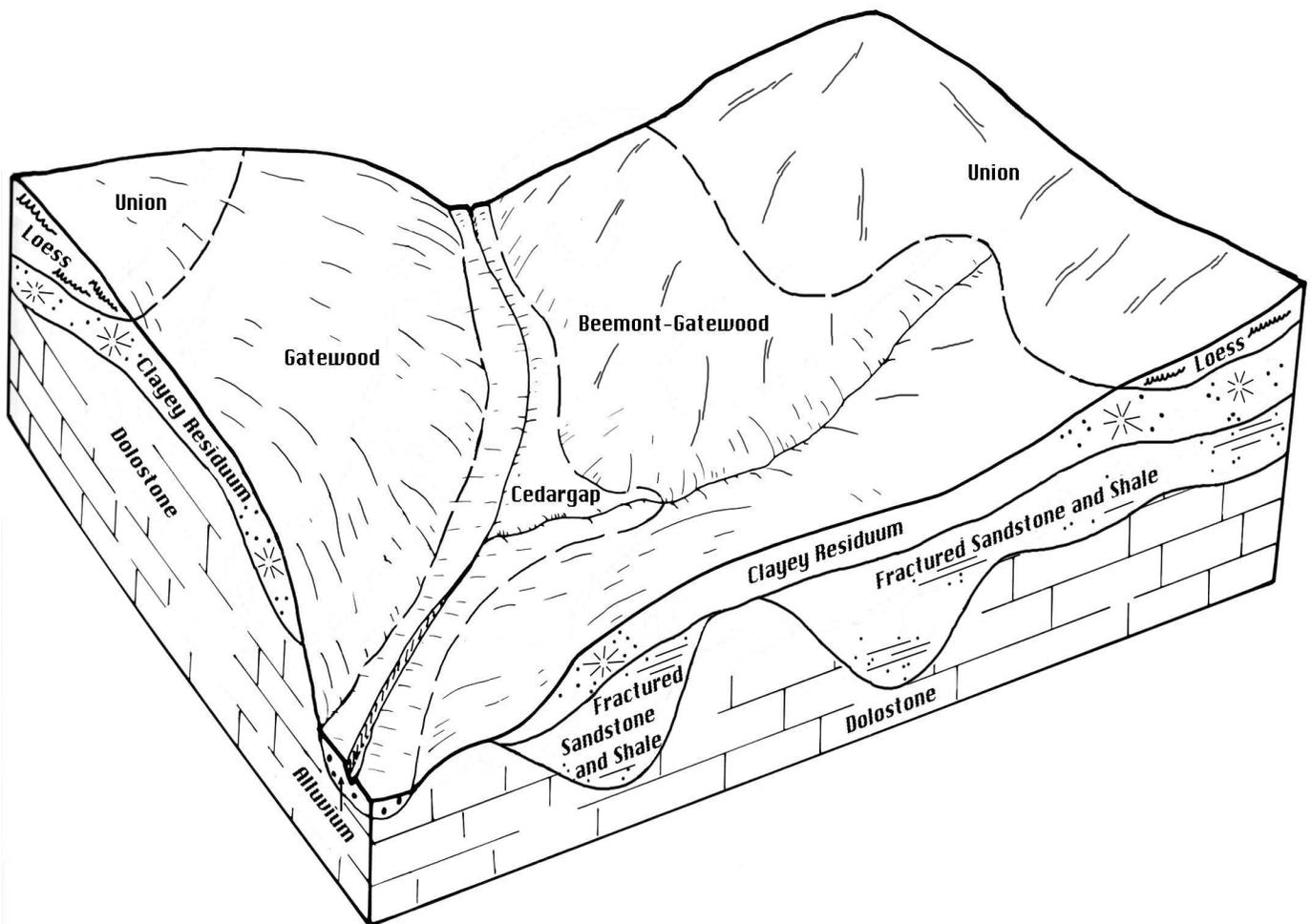


Figure 7.—Typical pattern of soils and parent material in the Union-Beemont-Gatewood association.

## 6. Rosati-Glensted Association

### **Extent of the association:**

1 percent of the survey area

### **Composition:**

Rosati and similar soils—72 percent  
 Glensted and similar soils—26 percent  
 Minor soils—2 percent (Hartville and Swiss)

### **Landscape (fig. 8):**

Rosati—ridgetops  
 Glensted—side slopes

### **Parent materials:**

Loess and residuum

### **Slope range:**

1 to 8 percent

### **Slope configuration:**

Convex and complex

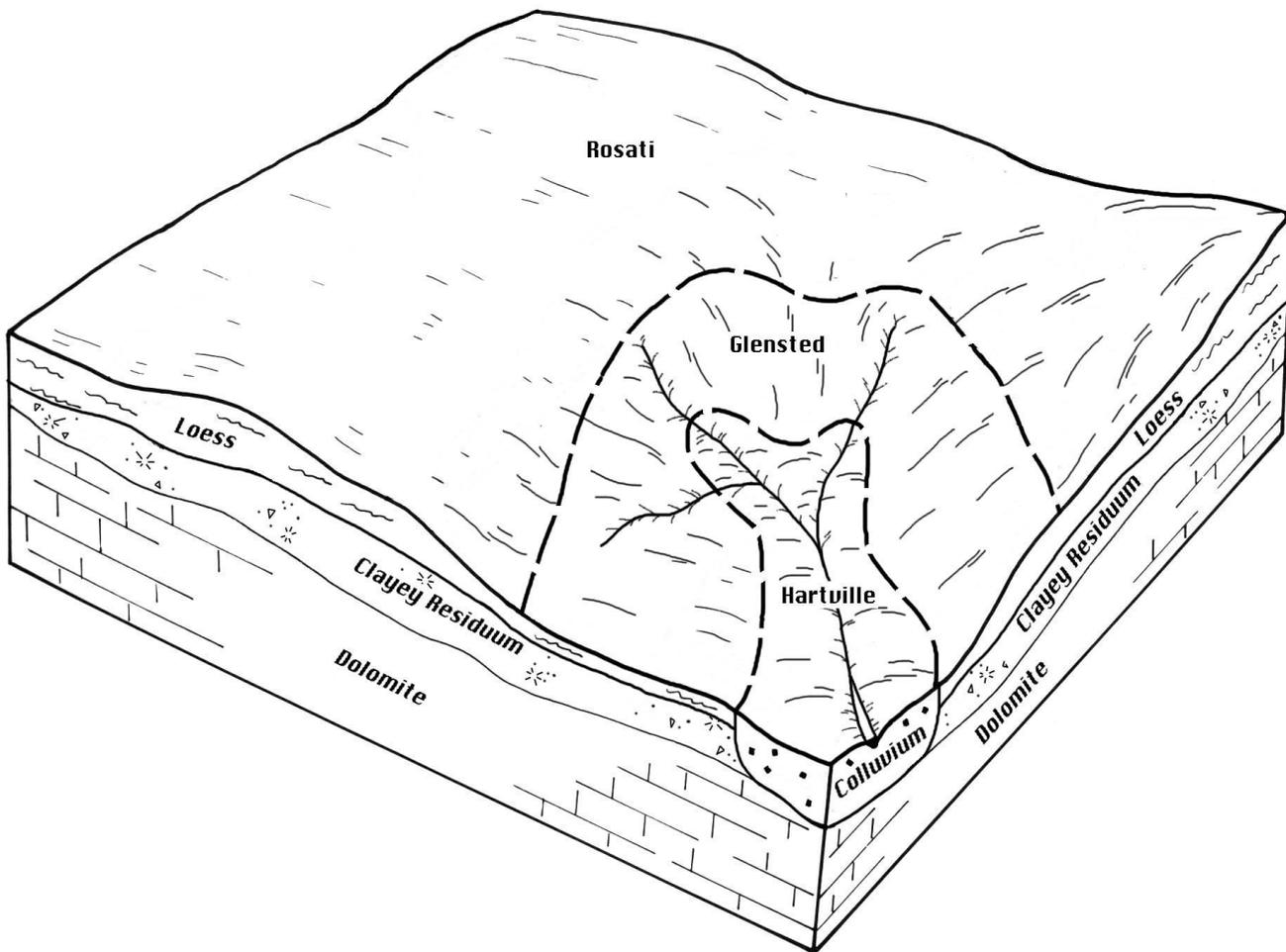


Figure 8.—Typical pattern of soils and parent material in the Rosati-Glensted association.

# Detailed Soil Map Units

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

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

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

all the soils and miscellaneous areas on the landscape.

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Plato silt loam, 1 to 3 percent slopes, is a phase of the Plato series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Lily-Bender complex, 3 to 15 percent slopes, is an example.

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

## Soil Descriptions

### 66014—Haymond silt loam, 0 to 3 percent slopes, frequently flooded

#### *Setting*

*Landform:* Flood plain  
*Parent material:* Coarse-silty alluvium  
*Slope configuration:* Linear

#### *Composition*

Haymond and similar soils—90 percent  
Minor components—10 percent  
Gravel bars—in drains  
Kaintuck—adjacent to drains  
Possumtrot—similar landforms

#### *Soil Properties and Qualities*

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Low  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Well drained

#### *Typical Profile*

A—0 to 6 inches; silt loam  
Bw—6 to 41 inches; silt loam  
2C—41 to 80 inches; fine sandy loam

### 70028—Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony

#### *Setting*

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Moko—gravelly residuum weathered from dolostone; Rock outcrop—no data  
*Slope configuration:* Moko—convex; Rock outcrop—no data

#### *Composition*

Moko and similar soils—80 percent  
Rock outcrop—15 percent  
Minor components—5 percent  
Bardley—lower backslopes

#### *Soil Properties and Qualities*

*Depth to bedrock:* Moko—very shallow and shallow (4 to 20 inches); Rock outcrop—no data  
*Runoff:* Moko—very high; Rock outcrop—no data  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Moko—well drained; Rock outcrop—no data  
*Percent area covered by surface coarse fragments:* Moko—0.10 to 3 subrounded stones; Rock outcrop—no data  
*Depth to restrictive feature (bedrock (lithic):* Moko—4 to 20 inches; Rock outcrop—no data

#### *Typical Profile*

#### **Moko**

A1—0 to 3 inches; gravelly loam  
A2—3 to 8 inches; very gravelly loam  
R—8 to 60 inches; unweathered bedrock

### 73013—Lowassie silt loam, 0 to 3 percent slopes, frequently ponded

#### *Setting*

*Landform:* Sinkhole  
*Position on the landform:* Summit  
*Parent material:* Silty loess over silty and clayey slope alluvium  
*Slope configuration:* Concave

#### *Composition*

Lowassie and similar soils—90 percent  
Minor components—10 percent  
Celt—edges of delineations  
Viburnum—edges of delineations

#### *Soil Properties and Qualities*

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Negligible  
*Flooding:* None  
*Ponding:* Frequent  
*Water table:* Above the soil surface to 12 inches  
*Drainage class:* Poorly drained

**Typical Profile**

Ap—0 to 10 inches; silt loam  
 BE—10 to 18 inches; silty clay loam  
 Btg1—18 to 36 inches; silty clay  
 2Btg2—36 to 80 inches; silt loam and silty clay loam

**73032—Gatewood very gravelly silt loam, 3 to 15 percent slopes, stony****Setting**

*Landform:* Hillside and ridge  
*Position on the landform:* Backslope, shoulder, and summit  
*Parent material:* Clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Gatewood and similar soils—90 percent  
 Minor components—10 percent  
 Moko—slope breaks  
 Useful—lower backslopes

**Soil Properties and Qualities**

*Depth to bedrock:* Moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 18 to 36 inches  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (bedrock (lithic):*  
 20 to 40 inches

**Typical Profile**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**73039—Glensted silt loam, 1 to 3 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit and shoulder  
*Parent material:* Clayey loess over clayey residuum weathered from cherty limestone  
*Slope configuration:* Linear

**Composition**

Glensted and similar soils—90 percent  
 Minor components—10 percent  
 Glensted silty clay loam surface—eroded areas  
 Plato—concave areas  
 Rosati—convex areas  
 Union—convex areas

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* High  
*Flooding:* None  
*Water table:* 6 to 18 inches  
*Drainage class:* Poorly drained  
*Depth to restrictive feature (abrupt textural change):*  
 6 to 10 inches

**Typical Profile**

Ap—0 to 9 inches; silt loam  
 Btg1—9 to 14 inches; silty clay  
 2Btg2—14 to 33 inches; silty clay  
 2Cg—33 to 60 inches; silty clay loam

**73053—Lily-Bender complex, 3 to 15 percent slopes****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Lily—fine-loamy residuum weathered from sandstone; Bender—loamy residuum weathered from sandstone  
*Slope configuration:* Convex

**Composition**

Lily and similar soils—45 percent  
 Bender and similar soils—40 percent  
 Minor components—15 percent  
 Rock outcrop—slope breaks  
 Scholten—heads of drains  
 Yelton—summits

**Soil Properties and Qualities**

*Depth to bedrock:* Moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Lily—well drained;  
 Bender—somewhat excessively drained  
*Depth to restrictive feature (bedrock (lithic):*  
 20 to 40 inches

**Typical Profile****Lily**

A—0 to 3 inches; loam  
 E—3 to 8 inches; loam  
 Bt1—8 to 15 inches; loam  
 Bt2—15 to 21 inches; gravelly loam  
 C—21 to 23 inches; gravelly loam  
 R—23 to 60 inches; unweathered bedrock

**Bender**

A—0 to 4 inches; very cobbly fine sandy loam  
 BE—4 to 12 inches; very cobbly fine sandy loam  
 Bt—12 to 23 inches; extremely gravelly sandy loam  
 2R—23 to 60 inches; unweathered bedrock

**73066—Bender very cobbly fine sandy loam, 3 to 15 percent slopes, stony****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit and shoulder  
*Parent material:* Loamy residuum weathered from sandstone  
*Slope configuration:* Convex

**Composition**

Bender and similar soils—85 percent  
 Minor components—15 percent  
 Yelton—summits  
 Areas with boulders—slope breaks  
 Soils less than 20 inches to bedrock—similar landforms

**Soil Properties and Qualities**

*Depth to bedrock:* Moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Somewhat excessively drained  
*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (bedrock (lithic)):*  
 20 to 40 inches

**Typical Profile**

A—0 to 4 inches; very cobbly fine sandy loam  
 BE—4 to 12 inches; very cobbly fine sandy loam  
 Bt—12 to 23 inches; extremely gravelly sandy loam  
 2R—23 to 60 inches; unweathered bedrock

**73067—Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Bender—loamy residuum weathered from sandstone; Rock outcrop—no data  
*Slope configuration:* Bender—convex; Rock outcrop—no data

**Composition**

Bender and similar soils—70 percent  
 Rock outcrop—10 percent  
 Minor components—20 percent  
 Bendavis—similar landforms  
 Lily—less sloping areas  
 Poynor—shoulders  
 Slopes greater than 35 percent  
 Soils less than 20 inches to bedrock—slope breaks  
 Vertical bluffs—slope breaks

**Soil Properties and Qualities**

*Depth to bedrock:* Bender—moderately deep (20 to 40 inches); Rock outcrop—no data  
*Runoff:* Bender—very high; Rock outcrop—no data  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Bender—somewhat excessively drained; Rock outcrop—no data  
*Percent area covered by surface coarse fragments:*  
 Bender—0.10 to 3 subrounded stones; Rock outcrop—no data  
*Depth to restrictive feature (bedrock (lithic)):*  
 Bender—20 to 40 inches; Rock outcrop—no data

**Typical Profile**

A—0 to 4 inches; very cobbly fine sandy loam  
 BE—4 to 12 inches; very cobbly fine sandy loam  
 Bt—12 to 23 inches; extremely gravelly sandy loam  
 2R—23 to 60 inches; unweathered bedrock

**73080—Alred-Bardley-Rock outcrop complex, 15 to 60 percent slopes, very stony****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope

*Parent material:* Alred and Bardley—gravelly colluvium over clayey residuum weathered from dolostone;  
Rock outcrop—no data

*Slope configuration:* Alred and Bardley—convex;  
Rock outcrop—no data

### **Composition**

Alred and similar soils—35 percent  
Bardley and similar soils—35 percent  
Rock outcrop—15 percent  
Minor components—15 percent  
Gasconade—near rock outcrops

### **Soil Properties and Qualities**

*Depth to bedrock:* Alred—very deep (more than 60 inches); Bardley—moderately deep (20 to 40 inches); Rock outcrop—no data

*Runoff:* Alred and Bardley—very high; Rock outcrop—no data

*Flooding:* None

*Water table:* None

*Drainage class:* Alred and Bardley—well drained;  
Rock outcrop—no data

*Percent area covered by surface coarse fragments:*  
Alred and Bardley—0.10 to 3 subangular stones;  
Rock outcrop—no data

*Depth to restrictive feature:* Alred—strongly contrasting textural stratification (15 to 39 inches); Bardley—bedrock (lithic) (20 to 40 inches); Rock outcrop—no data

### **Typical Profile**

#### **Alred**

A—0 to 4 inches; extremely cobbly loam  
Bt1—4 to 17 inches; extremely gravelly silt loam  
Bt2—17 to 27 inches; extremely cobbly silty clay loam  
2Bt3—27 to 60 inches; clay

#### **Bardley**

A—0 to 4 inches; extremely cobbly loam  
E—4 to 8 inches; extremely gravelly silt loam  
2Bt—8 to 27 inches; clay  
2R—27 to 60 inches; unweathered bedrock

### **73087—Celt silt loam, 1 to 3 percent slopes**

#### **Setting**

*Landform:* Ridge

*Position on the landform:* Summit

*Parent material:* Clayey loess over clayey residuum weathered from dolostone

*Slope configuration:* Concave

### **Composition**

Celt and similar soils—90 percent  
Minor components—10 percent  
Lebanon—convex areas  
Viburnum—concave areas

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* High

*Flooding:* None

*Water table:* 12 to 24 inches

*Drainage class:* Somewhat poorly drained

*Depth to restrictive feature (fragipan):* 20 to 36 inches

### **Typical Profile**

Ap—0 to 4 inches; silt loam

Btg—4 to 22 inches; silty clay

2Btx—22 to 39 inches; gravelly silt loam and gravelly silty clay loam

3Bt—39 to 80 inches; gravelly clay

### **73089—Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony**

#### **Setting**

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Gravelly colluvium over gravelly residuum weathered from dolostone

*Slope configuration:* Convex

### **Composition**

Rueter and similar soils—85 percent

Minor components—15 percent

Alred—similar landforms

Bendavis—slope breaks

Bender—slope breaks

Poynor—upper backslopes

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Medium

*Flooding:* None

*Water table:* None

*Drainage class:* Somewhat excessively drained

*Percent area covered by surface coarse fragments:*  
0.10 to 3 subrounded stones

**Typical Profile**

A—0 to 3 inches; very gravelly silt loam  
 E—3 to 14 inches; very gravelly silt loam  
 Bt1—14 to 45 inches; very gravelly and extremely cobbly loam  
 2Bt2—45 to 80 inches; extremely cobbly clay

**73094—Gatewood very gravelly silt loam, 15 to 35 percent slopes, stony****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Gatewood and similar soils—85 percent  
 Minor components—15 percent  
 Moko—slope breaks  
 Useful—lower backslopes

**Soil Properties and Qualities**

*Depth to bedrock:* Moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 18 to 36 inches  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (bedrock (lithic):*  
 20 to 40 inches

**Typical Profile**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**73098—Plato silt loam, 1 to 3 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit  
*Parent material:* Clayey loess over gravelly residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Plato and similar soils—90 percent  
 Minor components—10 percent  
 Union—convex areas  
 Wilderness—heads of drains

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* High  
*Flooding:* None  
*Water table:* 12 to 24 inches  
*Drainage class:* Somewhat poorly drained  
*Depth to restrictive feature (fragipan):* 20 to 36 inches

**Typical Profile**

Ap—0 to 8 inches; silt loam  
 Bt—8 to 20 inches; silty clay  
 2Btx—20 to 48 inches; extremely gravelly silt loam and silt loam  
 3Bt—48 to 60 inches; clay

**73135—Union silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit  
*Parent material:* Clayey loess over residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Union and similar soils—90 percent  
 Minor components—10 percent  
 Plato—concave areas  
 Viraton—convex areas  
 Wilderness—heads of drains

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 18 to 36 inches  
*Drainage class:* Moderately well drained  
*Depth to restrictive feature (fragipan):* 18 to 36 inches

**Typical Profile**

Ap—0 to 9 inches; silt loam  
 Bt—9 to 30 inches; silty clay loam  
 2Btx—30 to 53 inches; extremely gravelly silt loam and extremely cobbly loam  
 3Bt—53 to 80 inches; clay

**73136—Union silt loam, 1 to 3 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit  
*Parent material:* Clayey loess over residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Union and similar soils—90 percent  
 Minor components—10 percent  
 Plato-concave areas

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* High  
*Flooding:* None  
*Water table:* 18 to 36 inches  
*Drainage class:* Moderately well drained  
*Depth to restrictive feature (fragipan):* 18 to 36 inches

**Typical Profile**

Ap—0 to 9 inches; silt loam  
 Bt—9 to 30 inches; silty clay loam  
 2Btx—30 to 53 inches; extremely gravelly silt loam and extremely cobbly loam  
 3Bt—53 to 80 inches; clay

**73159—Yelton silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit and shoulder  
*Parent material:* Loess over fine-loamy colluvium derived from sandstone  
*Slope configuration:* Convex

**Composition**

Yelton and similar soils—90 percent  
 Minor components—10 percent  
 Lecomma—saddles and high benches  
 Lily—slope breaks

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 18 to 24 inches

*Drainage class:* Moderately well drained  
*Depth to restrictive feature (fragipan):* 18 to 27 inches

**Typical Profile**

Ap—0 to 3 inches; silt loam  
 E—3 to 8 inches; silt loam  
 Bt—8 to 19 inches; silty clay loam  
 2Btx—19 to 38 inches; loam  
 3Bt—38 to 65 inches; loam

**73160—Hobson loam, 8 to 15 percent slopes, bench****Setting**

*Landform:* Bench  
*Position on the landform:* Backslope  
*Parent material:* Colluvium derived from sandstone over clayey residuum weathered from dolostone  
*Slope configuration:* Linear

**Composition**

Hobson and similar soils—90 percent  
 Minor components—10 percent  
 Lecomma—upper edge of delineations  
 Slopes greater than 15 percent

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* High  
*Flooding:* None  
*Water table:* 18 to 24 inches  
*Drainage class:* Moderately well drained  
*Depth to restrictive feature (fragipan):* 18 to 27 inches

**Typical Profile**

A—0 to 8 inches; loam  
 BE—8 to 12 inches; silt loam  
 Bt—12 to 27 inches; loam  
 2Btx—27 to 45 inches; very gravelly sandy loam  
 3Bt—45 to 65 inches; clay

**73161—Alred-Rueter complex, 3 to 15 percent slopes****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope

*Parent material:* Alred—gravelly colluvium over clayey residuum weathered from dolostone;  
 Rueter—gravelly colluvium over gravelly residuum weathered from dolostone

*Slope configuration:* Convex

### **Composition**

Alred and similar soils—45 percent  
 Rueter and similar soils—35 percent  
 Minor components—20 percent  
 Bardley—slope breaks  
 Wilderness—concave areas

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Alred—high; Rueter—low

*Flooding:* None

*Water table:* None

*Drainage class:* Alred—well drained;

Rueter—somewhat excessively drained

*Depth to restrictive feature (strongly contrasting textural stratification):* Alred—15 to 39 inches

### **Typical Profile**

#### **Alred**

A—0 to 7 inches; very gravelly loam  
 E—7 to 15 inches; very gravelly loam  
 Bt1—15 to 21 inches; very gravelly loam  
 2Bt2—21 to 80 inches; cobbly clay, gravelly clay, and clay

#### **Rueter**

A—0 to 3 inches; very gravelly silt loam  
 E—3 to 14 inches; very gravelly silt loam  
 Bt1—14 to 45 inches; very gravelly loam and extremely cobbly loam  
 2Bt2—45 to 80 inches; extremely cobbly clay

### **73162—Alred-Rueter complex, 15 to 35 percent slopes, very stony**

#### **Setting**

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Alred—gravelly colluvium over clayey residuum weathered from dolostone;  
 Rueter—gravelly colluvium over gravelly residuum weathered from dolostone

*Slope configuration:* Convex

### **Composition**

Alred and similar soils—50 percent  
 Rueter and similar soils—35 percent  
 Minor components—15 percent  
 Bardley—slope breaks  
 Bendavis—slope breaks

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Alred—very high; Rueter—medium

*Flooding:* None

*Water table:* None

*Drainage class:* Alred—well drained;

Rueter—somewhat excessively drained

*Percent area covered by surface coarse fragments:*  
 0.10 to 3 subrounded stones

*Depth to restrictive feature (strongly contrasting textural stratification):* Alred—15 to 39 inches

### **Typical Profile**

#### **Alred**

A—0 to 7 inches; very gravelly loam  
 E—7 to 15 inches; very gravelly loam  
 Bt1—15 to 21 inches; very gravelly loam  
 2Bt2—21 to 80 inches; cobbly clay, gravelly clay, and clay

#### **Rueter**

A—0 to 3 inches; very gravelly silt loam  
 E—3 to 14 inches; very gravelly silt loam  
 Bt1—14 to 45 inches; very gravelly loam and extremely cobbly loam  
 2Bt2—45 to 80 inches; extremely cobbly clay

### **73163—Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky**

#### **Setting**

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Bardley and Alred—gravelly colluvium over clayey residuum weathered from dolostone; Gasconade—clayey residuum weathered from dolostone

*Slope configuration:* Convex

### **Composition**

Bardley and similar soils—35 percent  
 Alred and similar soils—30 percent  
 Gasconade and similar soils—20 percent

Minor components—15 percent  
 Bendavis—slope breaks  
 Rock outcrop—slope breaks  
 Rueter—convex areas

### ***Soil Properties and Qualities***

*Depth to bedrock:* Bardley—moderately deep (20 to 40 inches); Alred—very deep (more than 60 inches); Gasconade—very shallow and shallow (4 to 20 inches)

*Runoff:* Very high

*Flooding:* None

*Water table:* None

*Drainage class:* Bardley and Alred—well drained; Gasconade—somewhat excessively drained

*Percent area covered by surface coarse fragments:*

Bardley and Alred—3 to 15 subrounded stones; Gasconade—3 to 15 rounded stones

*Depth to restrictive feature:* Bardley—bedrock (lithic) (20 to 40 inches); Alred—strongly contrasting textural stratification (15 to 39 inches); Gasconade—bedrock (lithic) (4 to 20 inches)

### ***Typical Profile***

#### **Bardley**

A—0 to 4 inches; very gravelly silt loam  
 E—4 to 8 inches; extremely gravelly silt loam  
 2Bt—8 to 27 inches; clay  
 2R—27 to 60 inches; unweathered bedrock

#### **Alred**

A—0 to 7 inches; very gravelly loam  
 E—7 to 15 inches; very gravelly loam  
 Bt1—15 to 21 inches; very gravelly loam  
 2Bt2—21 to 80 inches; cobbly clay, gravelly clay, and clay

#### **Gasconade**

A1—0 to 2 inches; very gravelly clay loam  
 A2—2 to 8 inches; very gravelly clay  
 Bw—8 to 14 inches; extremely gravelly clay  
 R—14 to 60 inches; unweathered bedrock

### **73164—Bender-Rock outcrop complex, 35 to 65 percent slopes, extremely stony**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Bender—loamy residuum weathered from sandstone; Rock outcrop—no data

*Slope configuration:* Bender—convex; Rock outcrop—no data

### ***Composition***

Bender and similar soils—70 percent

Rock outcrop—10 percent

Minor components—20 percent

Bendavis—similar landforms

Lily—less sloping areas

Soils less than 20 inches to bedrock—near rock outcrops

Very deep soils—similar landforms

### ***Soil Properties and Qualities***

*Depth to bedrock:* Bender—moderately deep (20 to 40 inches); Rock outcrop—no data

*Runoff:* Bender—very high; Rock outcrop—no data

*Flooding:* None

*Water table:* None

*Drainage class:* Bender—somewhat excessively drained; Rock outcrop—no data

*Percent area covered by surface coarse fragments:*

Bender—3 to 15 subrounded stones; Rock outcrop—no data

*Depth to restrictive feature (bedrock (lithic):*

Bender—20 to 40 inches; Rock outcrop—no data

### ***Typical Profile***

#### **Bender**

A—0 to 4 inches; very cobbly fine sandy loam  
 BE—4 to 12 inches; very cobbly fine sandy loam  
 Bt—12 to 23 inches; extremely gravelly sandy loam  
 2R—23 to 60 inches; unweathered bedrock

### **73165—Knobby-Rock outcrop-Bardley complex, 35 to 75 percent slopes, extremely stony**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Knobby—loamy residuum weathered from dolostone; Rock outcrop—no data; Bardley—gravelly colluvium over clayey residuum weathered from dolostone

*Slope configuration:* Knobby—linear; Rock outcrop—no data; Bardley—convex

### **Composition**

Knobby and similar soils—45 percent  
 Rock outcrop—30 percent  
 Bardley and similar soils—20 percent  
 Minor components—5 percent  
   Alred—lower backslopes  
   Areas with less coarse fragments—less sloping areas

### **Soil Properties and Qualities**

*Depth to bedrock:* Knobby—very shallow and shallow (4 to 20 inches); Rock outcrop—no data; Bardley—moderately deep (20 to 40 inches)  
*Runoff:* Knobby and Bardley—very high; Rock outcrop—no data  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Knobby—somewhat excessively drained; Rock outcrop—no data; Bardley—well drained  
*Percent area covered by surface coarse fragments:* Knobby—3 to 15 well rounded stones; Rock outcrop—no data; Bardley—3 to 15 subrounded stones  
*Depth to restrictive feature (bedrock (lithic):* Knobby—4 to 20 inches; Rock outcrop—no data; Bardley—20 to 40 inches

### **Typical Profile**

#### **Knobby**

A1—0 to 3 inches; very cobbly sandy loam  
 A2—3 to 7 inches; extremely channery sandy loam and very gravelly sandy loam  
 R—7 to 60 inches; unweathered bedrock

#### **Bardley**

A—0 to 4 inches; very gravelly silt loam  
 E—4 to 8 inches; extremely gravelly silt loam  
 2Bt—8 to 27 inches; clay  
 2R—27 to 60 inches; unweathered bedrock

### **73166—Viburnum-Tonti complex, 1 to 8 percent slopes**

#### **Setting**

*Landform:* Ridge  
*Position on the landform:* Viburnum—summit; Tonti—shoulder

*Parent material:* Viburnum—loess over clayey residuum weathered from dolostone;  
 Tonti—colluvium over clayey residuum weathered from dolostone  
*Slope configuration:* Viburnum—linear; Tonti—convex

### **Composition**

Viburnum and similar soils—50 percent  
 Tonti and similar soils—35 percent  
 Minor components—15 percent  
   Bendavis—shoulders  
   Lebanon—similar landforms  
   Poynor—shoulders  
   Scholten—heads of drains

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* Viburnum—18 to 30 inches; Tonti—18 to 24 inches  
*Drainage class:* Viburnum—somewhat poorly drained; Tonti—moderately well drained  
*Depth to restrictive feature (fragipan):* Tonti—18 to 25 inches

### **Typical Profile**

#### **Viburnum**

A—0 to 4 inches; silt loam  
 BE—4 to 7 inches; silt loam  
 Bt1—7 to 13 inches; silty clay loam  
 2Bt2—13 to 20 inches; gravelly silty clay loam  
 3Bt3—20 to 80 inches; gravelly clay

#### **Tonti**

A—0 to 3 inches; silt loam  
 BE—3 to 9 inches; silt loam  
 Bt—9 to 23 inches; silty clay loam and gravelly silty clay loam  
 2Btx—23 to 44 inches; extremely gravelly silt loam and extremely cobbly silt loam  
 3Bt—44 to 61 inches; very gravelly clay

### **73168—Swiss gravelly silt loam, 3 to 15 percent slopes, stony**

#### **Setting**

*Landform:* Hillside  
*Position on the landform:* Shoulder and backslope  
*Parent material:* Clayey residuum  
*Slope configuration:* Convex

**Composition**

Swiss and similar soils—85 percent  
 Minor components—15 percent  
   Gatewood—slope breaks  
   Useful—lower backslopes

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 24 to 36 inches  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (dense material):*  
 40 to 80 inches

**Typical Profile**

A—0 to 3 inches; gravelly silt loam  
 E—3 to 9 inches; gravelly silt loam  
 2Bt—9 to 40 inches; clay  
 2Cd—40 to 80 inches; clay loam

**73169—Beemont-Gatewood complex, 15 to 35 percent slopes, stony****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Beemont—gravelly colluvium over clayey residuum weathered from dolostone;  
 Gatewood—clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Beemont and similar soils—45 percent  
 Gatewood and similar soils—40 percent  
 Minor components—15 percent  
   Bendavis—slope breaks  
   Swiss—similar landform as Beemont

**Soil Properties and Qualities**

*Depth to bedrock:* Beemont—deep (40 to 60 inches);  
 Gatewood—moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* Beemont—24 to 36 inches;  
 Gatewood—18 to 36 inches  
*Drainage class:* Moderately well drained

*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones

*Depth to restrictive feature (bedrock (lithic):*  
 Beemont—40 to 60 inches; Gatewood—20 to 40 inches

**Typical Profile****Beemont**

A—0 to 3 inches; gravelly silt loam  
 E—3 to 11 inches; gravelly silt loam  
 2Bt—11 to 59 inches; clay  
 2R—59 to 80 inches; unweathered bedrock

**Gatewood**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**73170—Beemont-Gatewood complex, 3 to 15 percent slopes, stony****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Beemont—gravelly colluvium over clayey residuum weathered from dolostone;  
 Gatewood—clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Beemont and similar soils—40 percent  
 Gatewood and similar soils—40 percent  
 Minor components—20 percent  
   Union—less sloping areas  
   Useful—nose slopes  
   Wilderness—heads of drains

**Soil Properties and Qualities**

*Depth to bedrock:* Beemont—deep (40 to 60 inches);  
 Gatewood—moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* Beemont—24 to 36 inches;  
 Gatewood—18 to 36 inches  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:*  
 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (bedrock (lithic):* Beemont—  
 40 to 60 inches; Gatewood—20 to 40 inches

**Typical Profile****Beemont**

A—0 to 3 inches; gravelly silt loam  
 E—3 to 11 inches; gravelly silt loam  
 2Bt—11 to 59 inches; clay  
 2R—59 to 80 inches; unweathered bedrock

**Gatewood**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**73171—Plato silty clay loam, 3 to 8 percent slopes, eroded****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Loess over clayey residuum weathered from dolostone  
*Slope configuration:* Concave

**Composition**

Plato and similar soils—90 percent  
 Minor components—10 percent  
     Beemont—more sloping areas  
     Hartville—concave lower backslopes

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 12 to 24 inches  
*Drainage class:* Somewhat poorly drained  
*Depth to restrictive feature (fragipan):* 20 to 36 inches

**Typical Profile**

Ap—0 to 7 inches; silty clay loam  
 Bt—7 to 23 inches; silty clay  
 2Btx—23 to 40 inches; gravelly loam  
 3Bt—40 to 80 inches; gravelly clay

**73172—Rosati silt loam, 1 to 5 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit  
*Parent material:* Clayey loess over residuum weathered from limestone  
*Slope configuration:* Linear

**Composition**

Rosati and similar soils—90 percent  
 Minor components—10 percent  
     Glensted—level to slightly concave areas  
     Plato—more sloping areas

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* High  
*Flooding:* None  
*Water table:* 12 to 24 inches  
*Drainage class:* Somewhat poorly drained  
*Depth to restrictive feature (fragipan):* 20 to 35 inches

**Typical Profile**

Ap—0 to 9 inches; silt loam  
 Bt—9 to 29 inches; silty clay  
 2Btx—29 to 41 inches; silt loam  
 3Bt—41 to 80 inches; silty clay loam

**73173—Lily-Yelton complex, 3 to 8 percent slopes****Setting**

*Landform:* Ridge  
*Position on the landform:* Summit and shoulder  
*Parent material:* Lily—fine-loamy residuum weathered from sandstone; Yelton—loess over colluvium derived from sandstone  
*Slope configuration:* Convex

**Composition**

Lily and similar soils—40 percent  
 Yelton and similar soils—40 percent  
 Minor components—20 percent  
     Bender—shoulders  
     Scholten—heads of drains

### ***Soil Properties and Qualities***

*Depth to bedrock:* Lily—moderately deep (20 to 40 inches); Yelton—very deep (more than 60 inches)

*Runoff:* Very high

*Flooding:* None

*Water table:* Lily—none; Yelton—18 to 24 inches

*Drainage class:* Lily—well drained;  
Yelton—moderately well drained

*Depth to restrictive feature:* Lily—bedrock (lithic) (20 to 40 inches); Yelton—fragipan (18 to 27 inches)

### ***Typical Profile***

#### **Lily**

A—0 to 3 inches; fine sandy loam

E—3 to 8 inches; loam

Bt1—8 to 15 inches; loam

Bt2—15 to 21 inches; gravelly loam

C—21 to 23 inches; gravelly loam

R—23 to 60 inches; unweathered bedrock

#### **Yelton**

Ap—0 to 3 inches; silt loam

E—3 to 8 inches; silt loam

Bt—8 to 19 inches; silty clay loam

2Btx—19 to 38 inches; loam

3Bt—38 to 65 inches; loam

### **73174—Lily-Yelton complex, 8 to 15 percent slopes**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Lily—fine-loamy residuum weathered from sandstone; Yelton—loess over colluvium derived from sandstone

*Slope configuration:* Convex

#### ***Composition***

Lily and similar soils—40 percent

Yelton and similar soils—40 percent

Minor components—20 percent

Bender—shoulders

Lecoma—concave lower backslopes

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Lily—moderately deep (20 to 40 inches); Yelton—very deep (more than 60 inches)

*Runoff:* Very high

*Flooding:* None

*Water table:* Lily—none; Yelton—18 to 24 inches

*Drainage class:* Lily—well drained;

Yelton—moderately well drained

*Depth to restrictive feature:* Lily—bedrock (lithic) (20 to 40 inches); Yelton—fragipan (18 to 27 inches)

### ***Typical Profile***

#### **Lily**

A—0 to 3 inches; fine sandy loam

E—3 to 8 inches; loam

Bt1—8 to 15 inches; loam

Bt2—15 to 21 inches; gravelly loam

C—21 to 23 inches; gravelly loam

R—23 to 60 inches; unweathered bedrock

#### **Yelton**

Ap—0 to 3 inches; silt loam

E—3 to 8 inches; silt loam

Bt—8 to 19 inches; silty clay loam

2Btx—19 to 38 inches; loam

3Bt—38 to 65 inches; loam

### **73175—Poynor-Bendavis complex, 1 to 8 percent slopes**

#### ***Setting***

*Landform:* Ridge

*Position on the landform:* Poynor—shoulder;  
Bendavis—summit

*Parent material:* Poynor—residuum weathered from dolostone; Bendavis—gravelly colluvium

*Slope configuration:* Convex

#### ***Composition***

Poynor and similar soils—55 percent

Bendavis and similar soils—30 percent

Minor components—15 percent

Scholten—heads of drains

Tonti—summits and shoulders

Viburnum—summits

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Poynor—very deep (more than 60 inches); Bendavis—moderately deep (20 to 40 inches)

*Runoff:* Poynor—medium; Bendavis—very high

*Flooding:* None

*Water table:* Poynor—none; Bendavis—24 to 36 inches

*Drainage class:* Poynor—well drained;  
Bendavis—moderately well drained  
*Depth to restrictive feature:* Poynor—strongly  
contrasting textural stratification (15 to 39  
inches); Bendavis—bedrock (lithic) (20 to 40  
inches)

### ***Typical Profile***

#### **Poynor**

A—0 to 5 inches; very gravelly silt loam  
E—5 to 11 inches; very gravelly silt loam  
Bt1—11 to 17 inches; very gravelly silt loam  
2Bt2—17 to 60 inches; clay

#### **Bendavis**

A—0 to 5 inches; very gravelly silt loam  
E—5 to 9 inches; very gravelly silt loam  
Bt—9 to 25 inches; very gravelly silt loam  
2R—25 to 60 inches; unweathered bedrock

### **73176—Bendavis-Poynor complex, 8 to 15 percent slopes, stony**

#### ***Setting***

*Landform:* Hillside  
*Position on the landform:* Backslope;  
*Parent material:* Bendavis—gravelly colluvium;  
Poynor—residuum weathered from dolostone  
*Slope configuration:* Convex

#### ***Composition***

Bendavis and similar soils—50 percent  
Poynor and similar soils—30 percent  
Minor components—20 percent  
Lily—lower slope breaks  
Scholten—heads of drains  
Yelton—small benches  
Viburnum—less sloping areas

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Bendavis—moderately deep (20 to  
40 inches); Poynor—very deep (more than 60  
inches)  
*Runoff:* Bendavis—very high; Poynor—medium  
*Flooding:* None  
*Water table:* Bendavis—24 to 36 inches;  
Poynor—none  
*Drainage class:* Bendavis—moderately well drained;  
Poynor—well drained

*Percent area covered by surface coarse fragments:*  
0.01 to 0.10 subrounded stones  
*Depth to restrictive feature:* Bendavis—bedrock  
(lithic) (20 to 40 inches); Poynor—strongly  
contrasting textural stratification (15 to 39  
inches)

### ***Typical Profile***

#### **Bendavis**

A—0 to 5 inches; very gravelly silt loam  
E—5 to 9 inches; very gravelly silt loam  
Bt—9 to 25 inches; very gravelly silt loam  
2R—25 to 60 inches; unweathered bedrock

#### **Poynor**

A—0 to 5 inches; very gravelly silt loam  
E—5 to 11 inches; very gravelly silt loam  
Bt1—11 to 17 inches; very gravelly silt loam  
2Bt2—17 to 60 inches; clay

### **73178—Bendavis very gravelly silt loam, 15 to 35 percent slopes, stony**

#### ***Setting***

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Gravelly colluvium  
*Slope configuration:* Convex

#### ***Composition***

Bendavis and similar soils—85 percent  
Minor components—15 percent  
Poynor—upper backslopes and shoulders  
Rueter—lower backslopes  
Soils less than 20 inches to bedrock—slope  
breaks

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Moderately deep (20 to 40 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* 24 to 36 inches  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:*  
0.01 to 0.10 subrounded stones  
*Depth to restrictive feature (bedrock (lithic):*  
20 to 40 inches

**Typical Profile**

A—0 to 5 inches; very gravelly silt loam  
 E—5 to 9 inches; very gravelly silt loam  
 Bt—9 to 25 inches; very gravelly silt loam  
 2R—25 to 80 inches; unweathered bedrock

**73179—Viraton-Wilderness complex, 3 to 15 percent slopes****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Viraton—loamy colluvium over clayey residuum weathered from dolostone; Wilderness—gravelly colluvium over clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Viraton and similar soils—45 percent  
 Wilderness and similar soils—40 percent  
 Minor components—15 percent  
     Gatewood—similar landforms  
     Plato—gently sloping areas  
     Union—shoulders and gently sloping areas

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* Viraton—18 to 24 inches; Wilderness—12 to 24 inches  
*Drainage class:* Moderately well drained  
*Depth to restrictive feature (fragipan):* Viraton—18 to 33 inches; Wilderness—15 to 29 inches

**Typical Profile****Viraton**

A—0 to 3 inches; silt loam  
 E—3 to 7 inches; silt loam  
 Bt—7 to 23 inches; gravelly silty clay loam  
 2Btx—23 to 48 inches; extremely gravelly silt loam  
 3Bt—48 to 60 inches; clay

**Wilderness**

A—0 to 4 inches; gravelly silt loam  
 BE—4 to 11 inches; gravelly silt loam  
 Bt—11 to 22 inches; extremely gravelly silty clay loam  
 2Btx—22 to 42 inches; extremely cobbly silt loam  
 3Bt—42 to 60 inches; very gravelly clay

**73180—Gatewood-Gasconade complex, 3 to 15 percent slopes, stony, very rocky****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Clayey residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Gatewood and similar soils—45 percent  
 Gasconade and similar soils—40 percent  
 Minor components—15 percent  
 Useful—lower backslopes

**Soil Properties and Qualities**

*Depth to bedrock:* Gatewood—moderately deep (20 to 40 inches); Gasconade—very shallow and shallow (4 to 20 inches)  
*Runoff:* Very high  
*Flooding:* None  
*Water table:* Gatewood—18 to 36 inches; Gasconade—none  
*Drainage class:* Gatewood—moderately well drained; Gasconade—somewhat excessively drained  
*Percent area covered by surface coarse fragments:*  
     Gatewood—0.01 to 0.10 subrounded stones;  
     Gasconade—0.01 to 0.10 rounded stones  
*Depth to restrictive feature (bedrock (lithic):*  
     Gatewood—20 to 40 inches; Gasconade—4 to 20 inches

**Typical Profile****Gatewood**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**Gasconade**

A1—0 to 2 inches; very gravelly clay loam  
 A2—2 to 8 inches; very gravelly clay  
 Bw—8 to 14 inches; extremely gravelly clay  
 R—14 to 60 inches; unweathered bedrock

### **73181—Useful-Gatewood complex, 8 to 15 percent slopes**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Useful—clayey loess over clayey residuum weathered from dolostone; Gatewood—clayey residuum weathered from dolostone

*Slope configuration:* Convex

#### ***Composition***

Useful and similar soils—45 percent

Gatewood and similar soils—30 percent

Minor components—25 percent

Beemont—similar landform as Useful

Rock outcrop—slope breaks

Viraton—less sloping areas

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Useful—deep (40 to 60 inches); Gatewood—moderately deep (20 to 40 inches)

*Runoff:* Useful—high; Gatewood—very high

*Flooding:* None

*Water table:* Useful—24 to 42 inches; Gatewood—18 to 36 inches

*Drainage class:* Moderately well drained

*Percent area covered by surface coarse fragments:*

Gatewood—0.01 to 0.10 subrounded stones

*Depth to restrictive feature (bedrock (lithic)):* Useful—40 to 60 inches; Gatewood—20 to 40 inches

#### ***Typical Profile***

#### **Useful**

Ap—0 to 7 inches; silt loam

Bt1—7 to 31 inches; silty clay

2Bt2—31 to 45 inches; silty clay

2Bt3/2CR—45 to 53 inches; silty clay loam

2R—53 to 60 inches; unweathered bedrock

#### **Gatewood**

A—0 to 2 inches; very gravelly silt loam

E—2 to 10 inches; very gravelly silt loam

2Bt—10 to 28 inches; clay

2R—28 to 60 inches; unweathered bedrock

### **73182—Lebanon silt loam, 1 to 3 percent slopes**

#### ***Setting***

*Landform:* Ridge

*Position on the landform:* Summit

*Parent material:* Loess over clayey residuum weathered from dolostone

*Slope configuration:* Convex

#### ***Composition***

Lebanon and similar soils—80 percent

Minor components—20 percent

Celt—less sloping depressional areas

Tonti—more sloping shoulders

Viburnum—similar landforms

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* High

*Flooding:* None

*Water table:* 18 to 24 inches

*Drainage class:* Moderately well drained

*Depth to restrictive feature (fragipan):* 18 to 26 inches

#### ***Typical Profile***

Ap—0 to 3 inches; silt loam

BE—3 to 5 inches; silt loam

Bt—5 to 25 inches; silty clay loam

2Btx—25 to 49 inches; gravelly silt loam and very gravelly loam

3Bt—49 to 80 inches; clay

### **73183—Scholten-Tonti complex, 3 to 15 percent slopes**

#### ***Setting***

*Landform:* Ridge

*Position on the landform:* Scholten—shoulder; Tonti—summit

*Parent material:* Colluvium over clayey residuum weathered from dolostone

*Slope configuration:* Convex

#### ***Composition***

Scholten and similar soils—40 percent

Tonti and similar soils—40 percent

Minor components—20 percent

Bendavis—shoulders and slope breaks

Celt—concave areas

Poynor—similar landform as Scholten

### ***Soil Properties and Qualities***

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Scholten—very high; Tonti—high

*Flooding:* None

*Water table:* 18 to 24 inches

*Drainage class:* Moderately well drained

*Depth to restrictive feature (fragipan):* Scholten—18 to 27 inches; Tonti—18 to 25 inches

### ***Typical Profile***

#### **Scholten**

A—0 to 7 inches; very gravelly silt loam

Bt—7 to 21 inches; extremely gravelly silt loam

2Btx—21 to 33 inches; extremely gravelly silt loam and gravelly clay loam

3Bt—33 to 63 inches; extremely gravelly clay loam

#### **Tonti**

A—0 to 3 inches; silt loam

BE—3 to 9 inches; silt loam

Bt—9 to 23 inches; silty clay loam and gravelly silty clay loam

2Btx—23 to 44 inches; extremely gravelly silt loam and extremely cobbly silt loam

3Bt—44 to 61 inches; very gravelly clay

### **73184—Knobby-Rock outcrop complex, 8 to 35 percent slopes, extremely stony**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Knobby—loamy residuum weathered from dolostone; Rock outcrop—no data

*Slope configuration:* Knobby—linear; Rock outcrop—no data

#### ***Composition***

Knobby and similar soils—65 percent

Rock outcrop—20 percent

Minor components—15 percent

Bardley—lower backslopes

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Knobby—very shallow and shallow (4 to 20 inches); Rock outcrop—no data

*Runoff:* Knobby—very high; Rock outcrop—no data

*Flooding:* None

*Water table:* None

*Drainage class:* Knobby—somewhat excessively drained; Rock outcrop—no data

*Percent area covered by surface coarse fragments:*

Knobby—3 to 15 well rounded stones; Rock outcrop—no data

*Depth to restrictive feature (bedrock (lithic):*

Knobby—4 to 20 inches; Rock outcrop—no data

#### ***Typical Profile***

A1—0 to 3 inches; very cobbly sandy loam

A2—3 to 7 inches; very gravelly sandy loam

R—7 to 60 inches; unweathered bedrock

### **73186—Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky, karst**

#### ***Setting***

*Landform:* Hillside

*Position on the landform:* Backslope

*Parent material:* Bardley and Alred—gravelly colluvium over clayey residuum weathered from dolostone; Gasconade—clayey residuum weathered from dolostone

*Slope configuration:* Convex

#### ***Composition***

Bardley and similar soils—35 percent

Alred and similar soils—30 percent

Gasconade and similar soils—20 percent

Minor components—15 percent

Bendavis—slope breaks

Rueter—shoulders and nose slopes

Rock outcrop—slope breaks

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Bardley—moderately deep (20 to 40 inches); Alred—very deep (more than 60 inches); Gasconade—very shallow and shallow (4 to 20 inches)

*Runoff:* Very high

*Flooding:* None

*Water table:* None

*Drainage class:* Bardley and Alred—well drained; Gasconade—somewhat excessively drained

*Percent area covered by surface coarse fragments:*

Bardley and Alred—3 to 15 subrounded stones;

Gasconade—3 to 15 rounded stones

*Depth to restrictive feature:* Bardley—bedrock (lithic) (20 to 40 inches); Alred—strongly contrasting textural stratification (15 to 39 inches);

Gasconade—bedrock (lithic) (4 to 20 inches)

**Typical Profile****Bardley**

A—0 to 4 inches; very gravelly silt loam  
 E—4 to 8 inches; extremely gravelly silt loam  
 2Bt—8 to 27 inches; clay  
 2R—27 to 60 inches; unweathered bedrock

**Alred**

A—0 to 7 inches; very gravelly loam  
 E—7 to 15 inches; very gravelly loam  
 Bt1—15 to 21 inches; very gravelly loam  
 2Bt2—21 to 80 inches; cobbly clay, gravelly clay, and clay

**Gasconade**

A1—0 to 2 inches; very gravelly clay loam  
 A2—2 to 8 inches; very gravelly clay  
 Bw—8 to 14 inches; extremely gravelly clay  
 R—14 to 60 inches; unweathered bedrock

**73187—Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony, karst****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Bender—loamy residuum weathered from sandstone; Rock outcrop—no data  
*Slope configuration:* Bender—convex; Rock outcrop—no data

**Composition**

Bender and similar soils—80 percent  
 Rock outcrop—10 percent  
 Minor components—10 percent  
   Lily—less sloping areas  
   Poynor—shoulders and backslopes  
 Soils less than 20 inches to bedrock—slope breaks

**Soil Properties and Qualities**

*Depth to bedrock:* Bender—moderately deep (20 to 40 inches); Rock outcrop—no data  
*Runoff:* Bender—very high; Rock outcrop—no data  
*Flooding:* None  
*Water table:* None  
*Drainage class:* Bender—somewhat excessively drained; Rock outcrop—no data

*Percent area covered by surface coarse fragments:*

Bender—0.10 to 3 subrounded stones; Rock outcrop—no data

*Depth to restrictive feature (bedrock (lithic):*

Bender—20 to 40 inches; Rock outcrop—no data

**Typical Profile****Bender**

A—0 to 4 inches; very cobbly fine sandy loam  
 BE—4 to 12 inches; very cobbly fine sandy loam  
 Bt—12 to 23 inches; extremely gravelly sandy loam  
 2R—23 to 60 inches; unweathered bedrock

**73188—Bendavis-Poynor complex, 3 to 15 percent slopes, stony, karst****Setting**

*Landform:* Hillside  
*Position on the landform:* Backslope  
*Parent material:* Bendavis—gravelly colluvium; Poynor—residuum weathered from dolostone  
*Slope configuration:* Convex

**Composition**

Bendavis and similar soils—50 percent  
 Poynor and similar soils—30 percent  
 Minor components—20 percent  
   Lily—lower backslopes and slope breaks  
   Scholten—concave areas  
   Viburnum—less sloping areas  
   Yelton—small benches

**Soil Properties and Qualities**

*Depth to bedrock:* Bendavis—moderately deep (20 to 40 inches); Poynor—very deep (more than 60 inches)  
*Runoff:* Bendavis—very high; Poynor—medium  
*Flooding:* None  
*Water table:* Bendavis—24 to 36 inches; Poynor—well drained  
*Drainage class:* Moderately well drained  
*Percent area covered by surface coarse fragments:* 0.01 to 0.10 subrounded stones  
*Depth to restrictive feature:* Bendavis—bedrock (lithic) (20 to 40 inches); Poynor—strongly contrasting textural stratification (15 to 39 inches)

**Typical Profile****Bendavis**

A—0 to 5 inches; very gravelly silt loam  
 E—5 to 9 inches; very gravelly silt loam  
 Bt—9 to 25 inches; very gravelly silt loam  
 2R—25 to 60 inches; unweathered bedrock

**Poynor**

A—0 to 5 inches; very gravelly silt loam  
 E—5 to 11 inches; very gravelly silt loam  
 Bt1—11 to 17 inches; very gravelly silt loam  
 2Bt2—17 to 60 inches; clay

**73189—Useful-Gatewood complex, 3 to 8 percent slopes****Setting**

*Landform:* Ridge

*Position on the landform:* Useful—summit; Gatewood—shoulder

*Parent material:* Useful—clayey loess over clayey residuum weathered from dolostone; Gatewood—clayey residuum weathered from dolostone

*Slope configuration:* Convex

**Composition**

Useful and similar soils—45 percent  
 Gatewood and similar soils—30 percent  
 Minor components—25 percent  
     Beemont—more sloping areas  
     Rock outcrop—slope breaks  
     Union—less sloping areas

**Soil Properties and Qualities**

*Depth to bedrock:* Useful—deep (40 to 60 inches); Gatewood—moderately deep (20 to 40 inches)

*Runoff:* Useful—high; Gatewood—very high

*Flooding:* None

*Water table:* Useful—24 to 42 inches; Gatewood—18 to 36 inches

*Drainage class:* Moderately well drained

*Percent area covered by surface coarse fragments:*

Gatewood—0.01 to 0.10 subrounded stones

*Depth to restrictive feature (bedrock (lithic)):* Useful—40 to 60 inches; Gatewood—20 to 40 inches

**Typical Profile****Useful**

Ap—0 to 7 inches; silt loam  
 Bt1—7 to 31 inches; silty clay  
 2Bt2—31 to 45 inches; silty clay  
 2Bt3/2CR—45 to 53 inches; silty clay loam  
 2R—53 to 60 inches; unweathered bedrock

**Gatewood**

A—0 to 2 inches; very gravelly silt loam  
 E—2 to 10 inches; very gravelly silt loam  
 2Bt—10 to 28 inches; clay  
 2R—28 to 60 inches; unweathered bedrock

**74634—Hartville silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Hillside

*Position on the landform:* Footslope

*Parent material:* Clayey colluvium

*Slope configuration:* Concave

**Composition**

Hartville and similar soils—90 percent  
 Minor components—10 percent  
     Deible—less sloping areas on the lower edges of delineations  
     Freeburg—concave areas  
     Hartville, 1 to 3 percent slopes—less sloping areas  
     Plato—convex areas on upper edges of delineations

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Very high

*Flooding:* None

*Water table:* 12 to 24 inches

*Drainage class:* Somewhat poorly drained

**Typical Profile**

Ap—0 to 7 inches; silt loam  
 BE—7 to 12 inches; silt loam  
 Bt1—12 to 48 inches; silty clay loam  
 2Bt2—48 to 80 inches; silty clay loam

## 74652—Lecoma silt loam, 1 to 8 percent slopes

### *Setting*

*Landform:* Hillside

*Position on the landform:* Footslope

*Parent material:* Fine-loamy colluvium

*Slope configuration:* Linear

### *Composition*

Lecoma and similar soils—85 percent

Minor components—15 percent

Lily—more sloping areas on upper edges of delineations

Razort—less sloping areas on lower edges of delineations

Yelton—similar landforms

### *Soil Properties and Qualities*

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Medium

*Flooding:* None

*Water table:* None

*Drainage class:* Well drained

### *Typical Profile*

Ap—0 to 9 inches; silt loam

Bt1—9 to 31 inches; silt loam

2Bt2—31 to 60 inches; loam

## 74653—Raccoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded

### *Setting*

*Landform:* Stream terrace

*Parent material:* Silty alluvium

*Slope configuration:* Linear

### *Composition*

Raccoon and similar soils—45 percent

Freeburg and similar soils—40 percent

Minor components—15 percent

Cedargap—close to stream channels

Horsecreek—lower stream terraces

### *Soil Properties and Qualities*

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Raccoon—high; Freeburg—medium

*Flooding:* Occasional

*Water table:* Raccoon—0 to 12 inches; Freeburg—12 to 30 inches

*Drainage class:* Raccoon—poorly drained;

Freeburg—somewhat poorly drained

### *Typical Profile*

#### **Raccoon**

Ap—0 to 6 inches; silt loam

Eg—6 to 26 inches; silt loam

Btg—26 to 60 inches; silty clay loam

#### **Freeburg**

Ap—0 to 9 inches; silt loam

B/A—9 to 13 inches; silt loam

Bt—13 to 52 inches; silt loam and silty clay loam

2BCg—52 to 80 inches; silty clay loam

## 74656—Deible silt loam, 1 to 5 percent slopes, rarely flooded

### *Setting*

*Landform:* Stream terrace

*Parent material:* Alluvium and colluvium

*Slope configuration:* Concave

### *Composition*

Deible and similar soils—85 percent

Minor components—15 percent

Freeburg—slightly convex areas

Raccoon—concave areas

### *Soil Properties and Qualities*

*Depth to bedrock:* Very deep (more than 60 inches)

*Runoff:* Very high

*Flooding:* Rare

*Water table:* 0 to 12 inches

*Drainage class:* Poorly drained

*Depth to restrictive feature (abrupt textural change):* 13 to 22 inches

### *Typical Profile*

Ap—0 to 10 inches; silt loam

E—10 to 15 inches; silt loam

Btg1—15 to 37 inches; silty clay

2Btg2—37 to 80 inches; silty clay loam

### **75375—Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded**

#### ***Setting***

*Landform:* Stream terrace  
*Parent material:* Fine-silty alluvium  
*Slope configuration:* Linear

#### ***Composition***

Horsecreek and similar soils—88 percent  
 Minor components—12 percent  
     Freeburg—similar landforms  
     Hartville—higher landforms

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Low  
*Flooding:* Occasional  
*Water table:* None  
*Drainage class:* Well drained

#### ***Typical Profile***

Ap—0 to 9 inches; silt loam  
 A—9 to 19 inches; silt loam  
 Bt—19 to 60 inches; silt loam

### **75376—Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded**

#### ***Setting***

*Landform:* Flood plain  
*Parent material:* Gravelly alluvium  
*Slope configuration:* Linear

#### ***Composition***

Cedargap and similar soils—90 percent  
 Minor components—10 percent  
     Cedargap silt loam surface—similar landforms  
     Freeburg—slightly higher landforms

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Low  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Well drained

#### ***Typical Profile***

Ap—0 to 9 inches; gravelly silt loam  
 A—9 to 49 inches; very gravelly sandy clay loam and very gravelly loam  
 2C—49 to 60 inches; clay

### **75388—Kaintuck-Relfe complex, 0 to 3 percent slopes, frequently flooded**

#### ***Setting***

*Landform:* Flood plain  
*Parent material:* Kaintuck—coarse-loamy alluvium;  
 Relfe—gravelly alluvium  
*Slope configuration:* Linear

#### ***Composition***

Kaintuck and similar soils—45 percent  
 Relfe and similar soils—40 percent  
 Minor components—15 percent  
     Cedargap—similar landforms  
     Possumtrot—similar landforms  
     Somewhat poorly drained areas—concave areas

#### ***Soil Properties and Qualities***

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Kaintuck—very low; Relfe—negligible  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Kaintuck—well drained;  
 Relfe—excessively drained

#### ***Typical Profile***

#### **Kaintuck**

Ap—0 to 6 inches; fine sandy loam  
 C—6 to 80 inches; stratified fine sand to silt loam

#### **Relfe**

Ap—0 to 6 inches; very gravelly sandy loam  
 C—6 to 60 inches; extremely gravelly loamy coarse sand

### **75391—Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded**

#### ***Setting***

*Landform:* Flood plain  
*Parent material:* Loamy alluvium  
*Slope configuration:* Linear

**Composition**

Possumtrot and similar soils—85 percent  
 Minor components—15 percent  
   Kaintuck—close to stream channels  
   Razort—higher stream terraces  
   Relfe—close to stream channels

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Low  
*Flooding:* Occasional  
*Water table:* None  
*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 9 inches; fine sandy loam  
 Bw—9 to 40 inches; fine sandy loam  
 2C—40 to 80 inches; gravelly loamy sand and gravelly sand

**75398—Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded****Setting**

*Landform:* Flood plain  
*Parent material:* Coarse-loamy alluvium  
*Slope configuration:* Linear

**Composition**

Kaintuck and similar soils—85 percent  
 Minor components—15 percent  
   Haymond—higher stream terraces  
   Razort—higher stream terraces  
   Relfe—similar landforms

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very low  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 6 inches; fine sandy loam  
 C—6 to 80 inches; stratified fine sand to silt loam

**75412—Razort silt loam, 0 to 3 percent slopes, occasionally flooded****Setting**

*Landform:* Stream terrace  
*Parent material:* Fine-loamy alluvium  
*Slope configuration:* Convex

**Composition**

Razort and similar soils—90 percent  
 Minor components—10 percent  
   Freeburg—concave areas  
   Kaintuck—lower areas  
   Possumtrot—lower areas  
   Relfe—close to stream channels

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Low  
*Flooding:* Occasional  
*Water table:* None  
*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 7 inches; silt loam  
 Bt1—7 to 34 inches; silt loam  
 2Bt2—34 to 80 inches; gravelly loam

**75413—Relfe very gravelly sandy loam, 0 to 3 percent slopes, frequently flooded****Setting**

*Landform:* Flood plain  
*Parent material:* Gravelly alluvium  
*Slope configuration:* Linear

**Composition**

Relfe and similar soils—90 percent  
 Minor components—10 percent  
   Kaintuck—similar landforms  
   Sand and gravel bars—areas adjacent to streams

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Very low  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Excessively drained

**Typical Profile**

Ap—0 to 6 inches; very gravelly sandy loam  
 C—6 to 60 inches; extremely gravelly loamy coarse sand

**75414—Wideman sand, 0 to 3 percent slopes, frequently flooded****Setting**

*Landform:* Flood plain  
*Parent material:* Sandy alluvium  
*Slope configuration:* Linear

**Composition**

Wideman and similar soils—85 percent  
 Minor components—15 percent  
     Kaintuck—areas farthest from stream channels  
     Relfe—slightly lower areas

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Runoff:* Negligible  
*Flooding:* Frequent  
*Water table:* None  
*Drainage class:* Excessively drained

**Typical Profile**

A—0 to 8 inches; sand  
 C1—8 to 55 inches; stratified fine sand to fine sandy loam  
 C2—55 to 80 inches; extremely gravelly coarse sand

**99000—Pits, quarries****Setting**

*Landform:* None assigned  
*Parent material:* No data

**Composition**

Pits, quarries—95 percent  
 Minor components—5 percent  
     Processed/stockpiled stone

**99001—Water****Setting**

*Landform:* None assigned  
*Parent material:* No data

**Composition**

Water—100 percent  
 Minor components—0 percent

**99003—Miscellaneous water****Setting**

*Landform:* None assigned  
*Parent material:* No data

**Composition**

Waste stabilization lagoons—100 percent  
 Minor components—0 percent

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
66014	Haymond silt loam, 0 to 3 percent slopes, frequently flooded-----	716	0.2
70028	Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony-----	416	*
73013	Lowassie silt loam, 0 to 3 percent slopes, frequently ponded-----	213	*
73032	Gatewood very gravelly silt loam, 3 to 15 percent slopes, stony-----	5,256	1.2
73039	Glensted silt loam, 1 to 3 percent slopes-----	634	0.1
73053	Lily-Bender complex, 3 to 15 percent slopes-----	24,397	5.7
73066	Bender very cobbly fine sandy loam, 3 to 15 percent slopes, stony-----	2,718	0.6
73067	Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony-----	68,787	15.9
73080	Alred-Bardley-Rock outcrop complex, 15 to 60 percent slopes, very stony-----	88	*
73087	Celt silt loam, 1 to 3 percent slopes-----	3,502	0.8
73089	Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony-----	1,489	0.3
73094	Gatewood very gravelly silt loam, 15 to 35 percent slopes, stony-----	3,491	0.8
73098	Plato silt loam, 1 to 3 percent slopes-----	4,611	1.1
73135	Union silt loam, 3 to 8 percent slopes-----	26,476	6.1
73136	Union silt loam, 1 to 3 percent slopes-----	2,335	0.5
73159	Yelton silt loam, 3 to 8 percent slopes-----	2,922	0.7
73160	Hobson loam, 8 to 15 percent slopes, bench-----	1,187	0.3
73161	Alred-Rueter complex, 3 to 15 percent slopes-----	3,579	0.8
73162	Alred-Rueter complex, 15 to 35 percent slopes, very stony-----	23,212	5.4
73163	Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky--	4,496	1.0
73164	Bender-Rock outcrop complex, 35 to 65 percent slopes, extremely stony-----	5,048	1.2
73165	Knobby-Rock outcrop-Bardley complex, 35 to 75 percent slopes, extremely stony-----	745	0.2
73166	Viburnum-Tonti complex, 1 to 8 percent slopes-----	26,519	6.1
73168	Swiss gravelly silt loam, 3 to 15 percent slopes, stony-----	10,031	2.3
73169	Beemont-Gatewood complex, 15 to 35 percent slopes, stony-----	7,468	1.7
73170	Beemont-Gatewood complex, 3 to 15 percent slopes, stony-----	20,348	4.7
73171	Plato silty clay loam, 3 to 8 percent slopes, eroded-----	2,002	0.5
73172	Rosati silt loam, 1 to 5 percent slopes-----	3,121	0.7
73173	Lily-Yelton complex, 3 to 8 percent slopes-----	9,042	2.1
73174	Lily-Yelton complex, 8 to 15 percent slopes-----	6,133	1.4
73175	Poynor-Bendavis complex, 1 to 8 percent slopes-----	14,153	3.3
73176	Bendavis-Poynor complex, 8 to 15 percent slopes, stony-----	22,329	5.2
73178	Bendavis very gravelly silt loam, 15 to 35 percent slopes, stony-----	8,821	2.0
73179	Viraton-Wilderness complex, 3 to 15 percent slopes-----	17,441	4.0
73180	Gatewood-Gasconade complex, 3 to 15 percent slopes, stony, very rocky-----	3,172	0.7
73181	Useful-Gatewood complex, 8 to 15 percent slopes-----	5,820	1.3
73182	Lebanon silt loam, 1 to 3 percent slopes-----	3,844	0.9
73183	Scholten-Tonti complex, 3 to 15 percent slopes-----	12,335	2.9
73184	Knobby-Rock outcrop complex, 8 to 35 percent slopes, extremely stony-----	240	*
73186	Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely   stony, very rocky, karst-----	31	*
73187	Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony, karst-----	239	*
73188	Bendavis-Poynor complex, 3 to 15 percent slopes, stony, karst-----	310	*
73189	Useful-Gatewood complex, 3 to 8 percent slopes-----	4,212	1.0
74634	Hartville silt loam, 3 to 8 percent slopes-----	11,295	2.6
74652	Lecoma silt loam, 1 to 8 percent slopes-----	6,087	1.4
74653	Racoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded-----	4,834	1.1
74656	Deible silt loam, 1 to 5 percent slopes, rarely flooded-----	882	0.2
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	2,844	0.7
75376	Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded-----	13,449	3.1
75388	Kaintuck-Relfe complex, 0 to 3 percent slopes, frequently flooded-----	11,706	2.7
75391	Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded-----	2,073	0.5
75398	Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	6,993	1.6
75412	Razort silt loam, 0 to 3 percent slopes, occasionally flooded-----	3,977	0.9
75413	Relfe very gravelly sandy loam, 0 to 3 percent slopes, frequently flooded-----	887	0.2
75414	Wideman sand, 0 to 3 percent slopes, frequently flooded-----	1,045	0.2
99000	Pits, quarries-----	362	*
99001	Water-----	972	0.2
99003	Miscellaneous water-----	12	*
	Total-----	431,347	100.0

\* Less than 0.1 percent.

# Prime Farmland

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Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 40,579 acres in the survey area, or nearly 10 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, mainly in associations 3, 5, and 6, which are described under the heading "General Soil Map Units."

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible,

droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed below. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Some soils that have a seasonal high water table and all soils that are frequently flooded during the growing season qualify as prime farmland only in areas where these limitations have been overcome by drainage measures or flood control. The need for these measures is indicated after the map unit name below. Onsite evaluation is needed to determine whether or not these limitations have been overcome by corrective measures.

The soils identified as prime farmland in Phelps County are:

- 66014 Haymond silt loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
- 73013 Lowassie silt loam, 0 to 3 percent slopes, frequently ponded (where drained)
- 73039 Glensted silt loam, 1 to 3 percent slopes (where drained)
- 73087 Celt silt loam, 1 to 3 percent slopes
- 73098 Plato silt loam, 1 to 3 percent slopes
- 73136 Union silt loam, 1 to 3 percent slopes
- 73172 Rosati silt loam, 1 to 5 percent slopes
- 73182 Lebanon silt loam, 1 to 3 percent slopes
- 74653 Racoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded (where drained)
- 74656 Deible silt loam, 1 to 5 percent slopes, rarely flooded

75375 Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded

75391 Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded

75398 Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)

75412 Razort silt loam, 0 to 3 percent slopes, occasionally flooded

# Use and Management of the Soils

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

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and

indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited or not limited by all of the soil features that affect a specified use. Terms for the limitation classes are *not limited*, *slightly limited*, *moderately limited*, *limited*, and *very limited*.

### Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

In tables that use limitation class terms, such as *very limited* or *limited*, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

## Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural

Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Field crops are not extensive in Phelps County. In 1997, corn was planted on about 1,100 acres. Soybeans, grain sorghum, and wheat were grown on small acreages (Missouri Department of Agriculture, 1998). Grape production is regionally important around the town of St. James.

The potential for increased crop production in Phelps County is good. Production can be increased by use of the latest agricultural technology on all cropland in the county. This survey can facilitate the application of such technology. About 40,579 acres in the county is prime farmland that generally is suitable for intensive cultivation. Trees have been cleared from most of this acreage.

Most of the remaining cleared areas are used for pasture and hayland. Approximately 22,500 acres in Phelps County is used for hayland (Missouri Department of Agriculture, 1998).

**Cropland erosion.** Soil erosion is the major hazard on nearly all sloping cropland and overgrazed pastureland in Phelps County. All soils with slopes greater than 2 percent are susceptible to damage from erosion.

Soil erosion leads to the loss of the surface layer, which reduces productivity. Erosion is especially damaging on soils that have a clayey subsoil, which then becomes mixed with the plow layer. Good seedbed preparation and germination rates become increasingly difficult to achieve. Useful soils are erodible and have a clayey subsoil. Erosion also reduces the productivity of soils that have rooting depths that are restricted by fragic layers or bedrock, such as Celt, Plato, Union, and Useful soils, by effectively decreasing the volume of soil available to supply water and nutrients.

Soil erosion on farmland and urban development areas results in sediment entering streams, lakes, ponds, and road ditches. Controlling erosion minimizes sediment pollution, thereby improving the quality of water for recreation, wildlife, and municipal uses. It also prolongs the useful life of ponds, lakes, and roadside ditches by preventing sediment from filling them.

**Erosion-control practices.** Erosion-control practices provide protective surface cover, reduce

runoff, and increase infiltration. A cropping system that keeps vegetative cover or residue on the soil surface can hold erosion losses to amounts that will not reduce the productive capacity of the soil. Growing grasses and legumes for pasture and hay is very effective in controlling erosion. Including grasses and legumes in the crop rotation improves tilth, and the legumes provide nitrogen for the following crop.

Significant reductions in soil loss can be accomplished by basic management techniques. Farming on the contour reduces soil loss by as much as 50 percent. Conservation tillage is a management practice in which the amount of tillage is reduced or changed so that at least 30 percent of the soil surface is covered with residue after the crop is planted. The residue controls erosion by reducing the impact of raindrops, which can dislodge unprotected topsoil. Also, runoff is reduced, and soil particles are not as likely to be removed from the field. This system becomes more effective with increasing amounts of residue on the soil surface. All of the upland soils that are commonly used for row crops are well suited to conservation tillage. No-till farming is a practice that eliminates tillage operations entirely and leaves nearly the entire crop residue on the soil surface. Some farmers in the county are finding this to be a cornerstone of their conservation efforts. Other benefits of no-till farming include less expenditure for equipment, less soil compaction, time savings at planting, conservation of soil moisture, and fuel savings.

The large amounts of residue left as a result of no-till farming also shield the soil from sunshine, which slows evaporation. This is an asset in the summer during droughty periods, but tends to delay warming and drying of the soil in the spring. Therefore, no-till farming is best suited to deep or very deep, moderately well drained or well drained soils that are not frequently flooded, which include Horsecreek, Lcoma, Razort, Union, and Useful soils.

Contour stripcropping reduces erosion by maintenance of contoured strips of permanent vegetation. Such grass or legume strips are usually used for hay. The areas between the strips are cultivated, and row crops are planted on the contour. The grass or legume strips minimize erosion and help filter the sediment from runoff that would otherwise leave the field.

Terraces reduce the length of slopes and reduce runoff and erosion. Broad-base terraces are most practical on uneroded upland soils that have smooth slopes less than 8 percent. Construction of grassed backslope or narrow-base terraces reduces the steepness of the slope because construction cuts are made from the downslope side. Construction of broad-

base terraces actually increases the slope and makes additional erosion-control practices crucial. On the Glensted, Rosati, and Useful soils, topsoiling may be required in areas where terracing exposes the clayey subsoil. Celt, Plato, and Union soils have similar intensive management needs because of a dense layer in the subsoil.

Grade stabilization structures are small water bodies that cover up gullied areas and prevent further uphill encroachment. These structures provide a stable place into which tile terrace outlets or grassed waterways can empty runoff from terraced fields.

**Soil wetness.** Wetness is a management concern in the county. Deible and Racoon soils are naturally so wet that planting or harvesting is delayed or crop production is reduced in most years (fig. 9). Land grading or surface drainage may be needed to some extent on these soils.

In the past, drainage of wetland areas was unregulated and, therefore, occurred at the discretion of individual landowners. In recent years, however, legislation has been enacted recognizing the importance of wetlands to the total environment. The effect of these laws is to protect most existing wetlands



**Figure 9.—Seasonal wetness on Racoon soils in an area of Racoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded.**

from further degradation and to encourage redevelopment of areas that were formerly wetlands. Before altering any area that might be considered a wetland, the Natural Resources Conservation Service should be contacted in order to ensure compliance with existing laws.

Flooding is a hazard on the Cedargap, Deible, Freeburg, Haymond, Horsecreek, Kaintuck, Relfe, Racocon, Possumtrot, Razort, and Wideman soils. Flooding is most common during the period from November to May.

**Soil fertility.** Soil fertility is naturally lower for most of the eroded and shallow soils in the survey area. However, all of the soils need additional plant nutrients for maximum production. Most of the soils are naturally acid in the upper part of the rooting zone and require applications of lime to raise the pH and calcium levels sufficiently for optimum growth of legumes. Additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the production level desired. The Cooperative Extension Service can help in determining these values. Soil samples can be organized using the soil survey to identify contrasting soil types.

**Soil tilth.** Soil tilth affects seedbed preparation, seed germination, and water infiltration. Soils that have good tilth are granular and porous. Regular additions of organic matter help to maintain good tilth.

Most of the cultivated soils in the county have a surface layer of silt loam. If these soils are frequently cultivated, the soil structure becomes weak, and intense rainfall can cause the formation of a crust on the surface. The crust is hard when dry, thereby reducing water infiltration and increasing runoff. Returning crop residue to the soil or regularly adding other organic material improves fertility, minimizes crusting, and increases the rate of water infiltration.

The bearing weight of machinery as it travels over the soil surface tends to compact the soil if it is moist or wet. This compaction reduces infiltration of water into the soil and makes the resulting seedbed less favorable for root penetration. Operation of machinery when soil moisture is optimum will reduce the effects of compaction. Periodic deep tillage can improve existing compacted areas.

Fall cultivation of the more sloping soils in the uplands results in excessive soil losses. Such losses can be catastrophic when intense spring rains follow partial thawing of the bare, frozen surface layer.

## Pasture and Hayland

A combination of different kinds of grasses and legumes is necessary to obtain maximum forage production for the climate in Phelps County. Cool temperatures in the spring and fall are favorable for the production of cool-season grasses. The hot summer months are more favorable for production of warm-season grasses. Many of the soils of the survey area are suited to both kinds of grasses, and some of the soils are suited to legumes. A management system that includes cool-season grasses, warm-season grasses, and legumes takes advantage of the entire growing season for forage production.

**Cool-season grasses.** The cool-season grass most commonly grown in Phelps County is tall fescue (fig. 10). Orchardgrass, timothy, smooth brome grass, reed canarygrass, and Kentucky bluegrass are grown on limited acreages. All of these grasses are commonly grown on upland soils, except for reed canarygrass, which is planted primarily on wetter bottomland sites. These cool-season grasses can provide top production only when properly managed. Rotational grazing systems help to keep forages at an optimum height for highest production. Supplemental fertilization and timely weed control are also essential for top production.

Cool-season grasses grow vigorously when temperatures are cool (between 50 and 85 degrees F). These grasses generally start growing in late March and can be grazed by late April. Timothy and brome grass will not produce tillers unless a seedhead is allowed to develop. Therefore, overgrazing or haying too early in the growing season will reduce total production of these forages. Orchardgrass will regrow vigorously with or without development of a seedhead, so the timing of grazing or haying is less critical. Bluegrass is generally less productive than the other cool-season grasses, but can better withstand overgrazing and poor management. Fescue can also withstand abuse and severe site conditions, but endophyte-infested stands are widespread and produce less than optimum weight gains, especially during summer months. Reestablishment of existing stands with endophyte-free seed is an option some managers are selecting. Careful grazing management and interseeding of legumes can minimize the effects and reduce the spread of the infestation. Poor palatability can also be a problem with fescue stands. Reed canarygrass is moderately palatable and is highly productive in areas that would be too wet for other grasses or row crops.



Figure 10.—Tall fescue pasture in an area of Union silt loam, 3 to 8 percent slopes.

Because of increasing temperatures and day length, cool-season grass production decreases significantly by mid-June. As fall brings cooler temperatures and shorter days, growth increases accordingly. Production continues until the first killing frost occurs, usually in late October. One exception to this growth pattern is tall fescue, which continues growth until sometime in December.

**Warm-season grasses.** Warm-season grasses that are commonly grown in Phelps County include big bluestem, indiangrass, switchgrass, and little bluestem. Gammagrass is grown on limited acreages and requires high or very high available water capacity. This soil survey is a useful tool for locating sites that have such specific requirements.

Warm-season grasses were native to many areas of the county before the arrival of early pioneers. These grasses were native because of their adaptation to the soils and climate of the county. Their suitability for the climate is vividly demonstrated during the hot summer months of June, July, and August. As their name implies, these grasses peak in production when the temperature reaches 90 degrees F. Growth slows when the temperature falls below 70 degrees F. An important advantage for summer forage production is that warm-season grasses need only 40 percent as much water as cool-season grasses to produce the same amount of forage.

Strict management techniques are necessary for optimum production and longevity. Rotational grazing

patterns must be used so these grasses can be utilized when growing vigorously and to eliminate overgrazing during dormant periods. Minimum grazing height guidelines and prescribed burn plans must be followed. Supplemental fertilizer needs for warm-season grasses are small compared to cool-season grasses. Usually nitrogen is the only supplement necessary for top production.

**Legumes.** Legumes are included in many forage systems in Phelps County. They improve overall forage quality and quantity. When included with grasses in a seeding mixture, legumes stimulate growth of the grasses because of nitrogen fixation by bacteria on the roots of the legumes.

Pure legume stands provide sources of high protein forage. Some legumes, such as alfalfa and ladino clover, can cause bloating if unrestricted grazing is allowed; therefore, most pure legume stands are used for hay. Alfalfa is the legume most commonly used for hay production. Other legumes, such as red clover, birdsfoot trefoil, and ladino clover, are used in pasture mixes. Crown-vetch is used to stabilize steep banks and critically eroding areas.

Use and management of legumes involves selecting soils that are compatible with the growth characteristics of the various plants. Most legumes require well drained or moderately well drained very deep soils with high or very high available water capacity for healthy productive stands. Haymond, Horsecreek, Lcoma, and Razort soils have such characteristics. Some legumes, such as alsike clover, will tolerate wetter soils. This soil survey can help in fitting the most productive forages to appropriate soils.

Legumes do not need supplemental nitrogen because of the natural fixation that occurs in the root system. When used for hay, legumes often require large amounts of phosphorus and potassium. Heavy applications of limestone are also needed for optimum production on most soils.

**Balanced Management.** Cool-season grasses, warm-season grasses, and legumes have different periods of the growing season when their production peaks. Management plans that include all three kinds of forage will make optimum use of the entire season. Such a system with rotational grazing or haying of these different crops can help increase production and profit while protecting the topsoil with permanent cover.

Certain management practices are needed on all soils in the survey area. Timely mowing or chemical weed control reduces competition from undesirable plants and encourages uniform grazing. Overgrazing reduces production of grasses and legumes and increases weed growth. Grazing when the soil is too wet causes surface compaction, poor tilth, and

excessive runoff. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture and soil in good condition.

### Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation

projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have

other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the yields table.

### Pasture and Hayland Suitability Groups

The soils in Phelps County are assigned to a pasture and hayland group according to their suitability for pasture management.

Many different pasture and hayland suitability groups are in the survey area. Over time, the combination of plants best suited to a particular soil and climate has or will become dominant. Plant communities are not static but vary slightly from year to year and place to place.

The relationship between soils and vegetation was ascertained during this survey. Thus, pasture and hayland suitability groups generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of each plant species. Soil reaction, salt content, and a seasonal high water table are also important. The "Field Office Technical Guide," which is available at local offices of the Natural Resources Conservation Service, can provide specific information about pasture and hayland suitability groups.

Table 6 shows, for each soil, the assigned pasture and hayland suitability group. Specific concerns and recommendations for pasture and hayland management for each group are discussed below.

**Group WLB—Wet Loamy Bottom.** A seasonal high water table and flooding are the main management problems. Plants should be selected accordingly. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

**Group WCB—Wet Clayey Bottom.** Wetness and flooding are the main management problems. The soils in this group are poorly suited to hay. The hazard of flooding should be considered when a grazing system is designed. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

**Group WCU—Wet Clayey Upland.** Wetness is the main management concern. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

**Group WLO—Wet Loamy Overflow.** Wetness and flooding are the main management problems. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard

of flooding should be considered when a grazing system is designed.

**Group LyO—Loamy Overflow.** Flooding is the main management problem. The hazard of flooding should be considered when a grazing system is designed.

**Group LyU—Loamy Upland.** No serious problems affect pasture and hayland management. Erosion is a hazard in newly seeded areas. Timely seedbed preparation is needed to ensure a good ground cover.

**Group CyU—Clayey Upland.** Pasture and hay crops are effective in controlling erosion. Erosion during seedbed preparation is the main problem. Timely tillage and a quickly established ground cover reduce the hazard of erosion. The forage species that are tolerant of wetness grow best. The production of deep-rooted legumes is limited because of wetness and a restricted rooting depth.

**Group GrU—Gravelly Upland.** The soils in this group generally are not suited to cultivated crops. Droughtiness and erosion are the main management problems. Seedbeds should be prepared on the contour. Timely seedbed preparation helps to ensure rapid plant growth and a protective ground cover.

**Group MDU—Moderately Deep Upland.** Shallow-rooted species that are tolerant of droughtiness should be selected for planting. Erosion is a serious hazard in newly seeded areas. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

**Group WtP—Wet Pan.** The species that are tolerant of wetness grow best. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is the main problem. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

**Group LyP—Loamy Pan.** A few small areas of this group are used for cultivated crops, and some areas are wooded. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is a hazard. Seedbeds should be prepared on the contour. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

**Group GrO—Gravelly Overflow.** Most areas of this group have been cleared of trees and are used for pasture and hay. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during periods of flooding help to keep the pasture in good condition.

**Group GrP—Gravelly Pan.** If the soils in this group are used for improved pasture, chert on the surface hinders tillage. Because of seasonal droughtiness, timely planting is needed to ensure an adequate stand.

Erosion is a hazard in newly seeded areas. Timely seedbed preparation helps to ensure a protective ground cover.

**Group ShU—Shallow Upland.** Most areas of this group are used for native pasture and are best suited to shallow-rooted species. In some areas tillage is nearly impossible. Broadcast seeding may be necessary. The slope and rock outcrop can hinder mowing in places.

**Group GNS—Generally Not Suited.** The soils in this group generally are not suited to pasture and hay. The suitability for forage species and the use of equipment are limited by the slope, by a high content of rock fragments, or by both of these.

## Woodland Management and Productivity

Approximately 60 percent, or 258,867 acres, of Phelps County is forested according to 1997 Missouri Census of Agriculture. Upland woodland tracts range from small to medium (10 to 500 acres) in the north to large (1,000 plus acres) in the south. Most wooded tracts are essentially unmanaged (Geissman and others, 1986). In the flood plains, forests are restricted to long, narrow bands bordering streams and rivers.

Tree species and growth rates in the county vary, depending on soil properties, site characteristics, and past management.

Soil properties that affect the growth of trees include reaction (pH), fertility, drainage, texture, structure, and soil depth. The soil also serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soils that do not have extremes of these properties and have effective rooting depths greater than 40 inches provide the best growth conditions for wood production.

Site characteristics that affect tree growth include aspect and topographic position. These site characteristics influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. Generally, north and east aspects and lower slope positions, which are cooler and have better moisture conditions, are the best upland sites for tree growth. The most productive bottomland sites are generally deep, moderately well drained, occasionally flooded soils.

Management activities can influence woodland productivity and should be aimed at eliminating factors causing tree stress. Generally, this involves thinning overstocked young stands; harvesting old, mature trees; and eliminating destructive fire and grazing. Fire and grazing have very negative impacts on forest growth and quality. While forest fires are no longer a

major problem in the county, some areas are subject to grazing by livestock. Grazing destroys the leaf layer on the surface, compacts the soil, and eliminates or damages tree seedlings. Woodland sites that are ungrazed and unburned have the highest potential for optimum woodland production.

Alred, Bardley, Beemont, Bendavis, Bender, Gatewood, Rueter, and Swiss soils are associated with the largest acreages of upland forests. Typical tree species associated with these soils are white oak, northern red oak, black oak, eastern redcedar, hickory, and post oak. Post oak, black oak, eastern redcedar, shagbark hickory, and blackjack oak predominate on the lesser productive Bardley and Gatewood soils located on steeply dissected, weathered dolostone slopes of the county.

Along watercourses, Haymond, Horsecreek, Kaintuck, Possumtrot, and Relfe soils support bottomland hardwoods adapted to seasonally saturated or flooded soil conditions. Many of these areas have been cleared for crop and forage production. The uncleared wooded sites typically contain silver maple, green ash, hackberry, American elm, swamp white oak, sycamore, and pin oak. Bur oak, shellbark hickory, and black walnut are common along narrower stream bottoms and stream terraces of the major streams. The potential for excellent forest growth exists on these sites. Besides timber production, streamside forests are crucial to the protection and enhancement of the water resources of Phelps County. Used as a component of an integrated management system, including nutrient management and sediment and erosion-control practices, streamside forests can produce a number of beneficial effects on the quality of land and water resources (Welsch, 1991).

Special use tree plantings (Christmas trees, nut trees, and fuelwood trees) utilizing adapted tree species can be very successful. Christmas tree plantings can be established on any soil that is not poorly drained or very poorly drained. Species of trees suited for Phelps County are Scotch pine, Austrian pine, white pine and Douglas fir. Nut trees, such as black walnut and pecan, are best suited to deep, loamy, moderately well drained to well drained soils, such as Cedargap, Haymond, Horsecreek, Kaintuck, Razort, and Relfe, on the bottomlands. Other soils are also suited, but may be less productive.

## Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. Potential productivity of the soils for wood crops is provided in table 7. Interpretative ratings are provided

for various aspects of forest management in tables 8a and 8b.

### Forest Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or in electronic form (<http://nssc.nssc.nrcs.usda.gov/nfm/>).

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

### Forestland Management

In tables 8a and 8b, interpretative ratings are given for various aspects of forest management. The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified aspect of forest management. *Not limited* indicates that the soil has features that are very favorable for the specified aspect of management. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified aspect of management. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified aspect of management. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified aspect of management. The limitations can be overcome, but

generally require special design, special planning, soil reclamation, specialized equipment, or other procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified aspect of management. The limitations generally cannot be overcome without major soil reclamation, special design, specialized equipment, or other expensive procedures. Poor performance, unsafe conditions, or high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation class for the soil component is based on the most severe limitation.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management factors. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or in electronic form (<http://nssc.nssc.nrcs.usda.gov/nfm/>).

Ratings in the column *hand planting suitability* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *mechanical planting suitability* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings

indicate the expected difficulty using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *harvest equipment operability* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, and ponding. Ratings indicate the suitability for operating harvest equipment for off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment.

Ratings in the column *mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, a water table, and ponding. The part of the soil from the surface to a depth of about 12 inches is considered in the ratings. Ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

Ratings in the column *road suitability (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads on which trucks transport logs and other wood products from the site.

Ratings in the column *potential erosion hazard (road/trail)* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

Ratings in the column *potential erosion hazard (off-road/off-trail)* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Ratings in the column *soil rutting hazard* are based on a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ratings indicate the hazard or risk of ruts in the uppermost soil surface layers by operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting.

Ratings in the column *log landing suitability* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and allows the

efficient and effective use of equipment for the temporary storage and handling of logs.

Ratings in the column *potential seedling mortality* are based on flooding, ponding, a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

## Windbreaks and Environmental Plantings

Living plants play an important role in supporting our life and improving its condition. When properly used and maintained, plants help to provide positive solutions to many problems existing in our contemporary environment. In Phelps County, windbreaks and environmental plantings can be utilized throughout the landscape for a variety of engineering, climatological, and aesthetic needs.

Windbreaks can be grown successively in most areas of Phelps County. Some important considerations for managing farmstead and feedlot windbreaks are design and layout; species selection; site preparation; seedling handling; weed management; irrigation; and protection from diseases, insects, and livestock.

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 9 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

## Recreational Development

The soils of the survey area are rated in table 10 according to limitations that affect their suitability for recreational use. Soils are rated for camp areas, picnic areas, playgrounds, and paths and trails.

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect recreation site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown

as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

The information in table 10 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability,

and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, a water table, ponding, flooding, slope, and texture of the surface layer. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to frequent flooding during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 13 and interpretations for dwellings without basements and for local roads and streets in table 12.

## Wildlife Habitat

Phelps County includes the transition between the Ozark Highland and Ozark Border. The county is blessed with a diversity of habitat for fish and wildlife. The clear flowing Ozarks streams drain a mix of row crops, pastureland, and woodland.

Several factors played a part in the makeup of the wildlife habitat and populations. Over time, the native savanna plants have largely been replaced with introduced cool season grasses, predominantly tall fescue. Urban development and clearing of timber for pasture have resulted in a fragmented forest.

Historically, this area ranged from open savanna, (open woodland with grasses and forbs dominating the understory) to dense forestland. Periodic fires maintained the savannas and prairies. Native Americans and, later, early settlers carried on the tradition of seasonally burning the land to provide forage and reduce the brushy understory.

Sites dominated by Gasconade, Knobby, and Moko soils usually have numerous rock outcrops and are commonly referred to as glades. Areas of these glades currently support xeric, prairie-like flora that is not found in other habitats in the county (fig. 11). Wildlife species found in restored barrens are similar to that found in edge habitat. To restore the grassland component of the Gasconade, Knobby, and Moko sites, management generally includes the use of prescribed

fire and a reduction in the amount of cover. These sites also offer the potential to grow marketable eastern redcedar.

Wildlife adapted to the presettlement forest/savanna region included black bear, elk, white-tailed deer, raccoons, wolves, opossum, beaver, gray fox, panther, bobcat, wild turkey, pileated woodpecker, and an abundant bird community.

Today, wildlife in Phelps County is abundant and



**Figure 11.—Native grasses and cedar trees in an area of Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony.**

diverse. Deer and turkey are plentiful. Wildlife species that benefit from edge (the area where habitat types change), such as bobwhite quail, cottontail rabbits, white-tailed deer, brown thrashers, striped skunks, coyotes, red foxes, and doves, have expanded their range.

Bobwhite quail, wild turkey, cottontail rabbits, and white-tailed deer have readily accepted agriculture. Some of the best habitats are found where cropping, timber, and livestock operations coexist. This combination of crops, grassland, and woody fencerow cover provides good habitat.

Streams across the county provide a rich aquatic resource. A fish species list would include minnows like the red-bellied dace, wide silver chub, large-scale stone roller, redbfin and rosyface shiners. Darters, small members of the perch family, are common in these Ozark streams. Most Missouri catfish are present in the streams, including flatheads, blue, and channel catfish. Slender madtoms, which are small, secretive, and seldom seen catfish, are common in the Ozark streams. Largemouth bass, smallmouth bass, spotted bass, crappie, sauger, and walleye are all found in the region's streams and rivers.

The county has numerous farm ponds that provide recreational fishing opportunity as well as wildlife watering sources and habitat for reptiles and amphibians. Many impoundments provide recreational opportunities and support populations of largemouth bass, crappie, catfish, and others.

Wetland habitat in the county is limited primarily to shallow areas provided by large and small impoundments, streams, oxbows, and sloughs along streams. The Little Piney, Big Piney, and Gasconade Rivers provide habitat for seasonal use by waterfowl for resting and feeding. Wading birds and shorebirds take advantage of shallow areas and mud flats created by periodic fluctuations in water levels.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In tables 11a and 11b, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife

habitat; and in determining the intensity of management needed for each element of the habitat.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Habitat is easily established, improved, or maintained. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Habitat can be established, improved, or maintained. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. Habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. Habitat is difficult to create, improve, or maintain in most places. Management is difficult and must be very intensive. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. Habitat is usually impractical or impossible to create, improve, or maintain. Management would be very difficult and unsatisfactory results can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00.

Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation class for the soil component is based on the most severe limitation.

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

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface

stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Upland wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Upland shrubs and vines* are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture. Selection should be made from a list of locally adapted species.

*Upland deciduous trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

*Upland mixed deciduous-conifer trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

*Riparian herbaceous plants* are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

*Riparian shrubs, vines, and trees* are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

*Freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to

springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

*Irrigated freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for restoring wetland features temporarily or permanently. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, water management, and waste management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6

feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

### Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12 shows the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be

overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00.

Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and

amount of excavation include a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, a water table, and ponding.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### Sanitary Facilities

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for sanitary facilities. Soils are rated for septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect sanitary facilities. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for

the soil component is based on the most severe limitation.

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may be contaminated. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, hillside seepage, and contamination of ground water, can affect public health.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to

be uniformly deep throughout, slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If

permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

**Construction Materials and Excavating**

The soils of the survey area are rated in Table 14 as a source of roadfill, sand, gravel, or topsoil. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations. The ratings in the table are both verbal and numerical.

The soils are rated as a *probable, possible* or *improbable* source of sand and gravel. A rating of *probable* means that the source material is likely to be in or below the soil. A rating of *possible* means that the source material may be in or below the soil and further investigation is warranted. A rating of *improbable* means that the source material is unlikely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. A numerical rating of 1.00 indicates that the soil is an improbable source. A numerical rating of less than 1.00 indicates the degree

to which the soil is a possible or probable source of sand or gravel.

Other rating class terms, as follows, are used to indicate the extent to which the soils are limited by soil features that affect use as a source for roadfill or topsoil or suitability for shallow excavations. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this

table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

### **Water Management**

The soils of the survey area are rated in table 15 according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown

as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock, or other permeable material. Slope can affect the storage capacity of the reservoir area.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, permeability, depth to a water table, ponding, slope, and flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the likelihood that cutbanks will cave. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. The availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a water table, ponding, flooding, available water capacity, intake rate, permeability, erodibility, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, reaction, and the amount of salts, sodium, sulfur, lime, or gypsum.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, a water table, ponding, large stones, and depth to bedrock affect the construction of

terraces and diversions. A restricted rooting depth, erodibility, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, a water table, slope, and depth to bedrock affect the construction of grassed waterways. Erodibility, soil moisture regime, available water capacity, restricted rooting depth, restricted permeability, and toxic substances, such as salts and sodium, affect the growth and maintenance of the grass after construction.

### Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 16 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 mg/l. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 mg/l. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation) and for waste

management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

*Land application of manure and food-processing waste* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Land application of municipal sewage sludge* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant

growth, and microbial activity include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

*Disposal of wastewater by irrigation* not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

*Slow rate treatment of wastewater* is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is

prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Rapid infiltration of wastewater* is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
66014: Haymond-----	2w	---	---	6.60	---	5.00	6.40	---
70028: Moko-----	6s	---	---	---	---	1.00	1.40	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73013: Lowassie-----	5w	---	---	6.50	---	6.00	7.30	---
73032: Gatewood-----	6e	---	---	4.40	---	4.00	4.60	---
73039: Glensted-----	2e	96.00	89.00	6.50	32.00	6.00	7.30	38.00
73053: Lily-----	4e	---	---	4.40	---	4.00	4.60	---
Bender-----	6s	---	---	4.40	---	4.00	4.60	---
73066: Bender-----	6s	---	---	4.40	---	4.00	4.60	---
73067: Bender-----	7e	---	---	4.40	---	4.00	4.60	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73080: Alred-----	7e	---	---	---	---	---	---	---
Bardley-----	7e	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73087: Celt-----	2e	---	---	4.50	---	5.00	6.00	31.00
73089: Rueter-----	7e	---	---	4.40	---	4.00	4.60	---
73094: Gatewood-----	7e	---	---	4.40	---	4.00	4.60	---
73098: Plato-----	2e	75.00	66.00	4.50	28.00	5.00	6.00	31.00
73135: Union-----	3e	70.00	63.00	3.60	24.00	3.60	3.80	28.00
73136: Union-----	2e	80.00	73.00	3.60	30.00	3.60	3.80	35.00
73159: Yelton-----	3e	---	---	3.60	---	3.60	3.80	---

See footnote at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
73160: Hobson-----	4e	---	---	3.60	---	3.60	3.80	---
73161: Alred-----	4e	---	---	4.40	---	4.00	4.60	---
Rueter-----	4e	---	---	4.40	---	4.00	4.60	---
73162: Alred-----	7e	---	---	4.40	---	4.00	4.60	---
Rueter-----	7e	---	---	4.40	---	4.00	4.60	---
73163: Bardley-----	7e	---	---	---	---	---	---	---
Alred-----	7e	---	---	---	---	---	---	---
Gasconade-----	7s	---	---	---	---	---	---	---
73164: Bender-----	7e	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73165: Knobby-----	7s	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
Bardley-----	7e	---	---	---	---	---	---	---
73166: Viburnum-----	3e	---	---	5.60	---	5.30	5.50	30.00
Tonti-----	3e	---	---	3.60	---	3.60	3.80	---
73168: Swiss-----	6e	---	---	4.40	---	4.00	4.60	---
73169: Beemont-----	7e	---	---	4.40	---	4.00	4.60	---
Gatewood-----	7e	---	---	4.40	---	4.00	4.60	---
73170: Beemont-----	6e	---	---	4.40	---	4.00	4.60	---
Gatewood-----	6e	---	---	4.40	---	4.00	4.60	---
73171: Plato-----	4e	---	---	4.50	---	5.00	6.00	28.00
73172: Rosati-----	2e	83.00	73.00	4.50	30.00	5.00	6.00	32.00
73173: Lily-----	3e	---	---	4.40	---	4.00	4.60	---
Yelton-----	3e	---	---	3.60	---	3.60	3.80	---

See footnote at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
73174:								
Lily-----	4e	---	---	4.40	---	4.00	4.60	---
Yelton-----	4e	---	---	3.60	---	3.60	3.80	---
73175:								
Poynor-----	4e	---	---	4.40	---	4.00	4.60	---
Bendavis-----	3e	---	---	4.40	---	4.00	4.60	---
73176:								
Bendavis-----	4e	---	---	4.40	---	4.00	4.60	---
Poynor-----	6e	---	---	4.40	---	4.00	4.60	---
73178:								
Bendavis-----	6e	---	---	4.40	---	4.00	4.60	---
73179:								
Viraton-----	4e	---	---	3.60	---	3.60	3.80	---
Wilderness-----	6s	---	---	---	---	1.60	2.00	---
73180:								
Gatewood-----	6e	---	---	4.40	---	4.00	4.60	---
Gasconade-----	7s	---	---	---	---	1.00	1.40	---
73181:								
Useful-----	4e	---	---	5.60	---	5.30	5.50	28.00
Gatewood-----	6e	---	---	4.40	---	4.00	4.60	---
73182:								
Lebanon-----	2e	---	---	3.60	---	3.60	3.80	35.00
73183:								
Scholten-----	6e	---	---	---	---	1.60	2.00	---
Tonti-----	4e	---	---	3.60	---	3.60	3.80	---
73184:								
Knobby-----	7s	---	---	---	---	1.00	1.40	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73186:								
Bardley-----	7e	---	---	---	---	---	---	---
Alred-----	7e	---	---	---	---	---	---	---
Gasconade-----	7s	---	---	---	---	---	---	---
73187:								
Bender-----	7e	---	---	4.40	---	4.00	4.60	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73188:								
Bendavis-----	4e	---	---	4.40	---	4.00	4.60	---
Poynor-----	6e	---	---	4.40	---	4.00	6.40	---

See footnote at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
73189: Useful-----	3e	---	---	5.60	---	5.30	5.50	34.00
Gatewood-----	4e	---	---	4.40	---	4.00	4.60	---
74634: Hartville-----	3e	91.00	81.00	6.50	34.00	6.00	7.30	37.00
74652: Lecoma-----	3e	85.00	75.00	5.60	32.00	5.00	5.30	35.00
74653: Racoon-----	2w	91.00	81.00	5.80	28.00	5.30	7.40	37.00
Freeburg-----	2w	108.00	94.00	6.40	40.00	5.00	6.60	44.00
74656: Deible-----	2e	91.00	81.00	5.80	34.00	5.30	7.30	37.00
75375: Horsecreek----	2w	110.00	88.00	6.60	37.00	5.00	6.40	44.00
75376: Cedargap-----	3w	---	---	1.00	---	2.00	2.50	22.00
75388: Kaintuck-----	5w	---	---	6.60	---	5.00	6.40	---
Relfe-----	4s	---	---	2.40	---	2.30	2.50	---
75391: Possumtrot----	2w	81.00	71.00	6.60	30.00	5.00	6.40	33.00
75398: Kaintuck-----	5w	---	---	6.60	---	5.00	6.40	---
75412: Razort-----	2w	95.00	85.00	6.60	35.00	5.00	6.40	37.00
75413: Relfe-----	4s	---	---	2.40	---	2.30	2.50	---
75414: Wideman-----	5w	---	---	2.40	---	2.30	2.50	---
99000. Pits, quarries								
99001. Water								
99003. Miscellaneous water								

\* Alsike clover should be substituted for red clover on somewhat poorly drained and poorly drained soils.

\*\* Average yield of all suitable native warm season grasses.

Table 6.--Pasture and Hayland Suitability Groups

Map symbol	Soil name	Component name	Pasture and hayland suitability group
66014	Haymond silt loam, 0 to 3 percent slopes, frequently flooded-----	Haymond	LyO
70028	Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony-----	Moko	ShU
		Rock outcrop	GNS
73013	Lowassie silt loam, 0 to 3 percent slopes, frequently ponded-----	Lowassie	WCU
73032	Gatewood very gravelly silt loam, 3 to 15 percent slopes, stony-----	Gatewood	MDU
73039	Glensted silt loam, 1 to 3 percent slopes-----	Glensted	WCU
73053	Lily-Bender complex, 3 to 15 percent slopes-----	Lily	MDU
		Bender	MDU
73066	Bender very cobbly fine sandy loam, 3 to 15 percent slopes, stony-----	Bender	MDU
73067	Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony-----	Bender	MDU
73080	Alred-Bardley-Rock outcrop complex, 15 to 60 percent slopes, very stony--	Alred	GNS
		Bardley	GNS
		Rock outcrop	GNS
73087	Celt silt loam, 1 to 3 percent slopes-----	Celt	WtP
73089	Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony-----	Rueter	GrU
73094	Gatewood very gravelly silt loam, 15 to 35 percent slopes, stony-----	Gatewood	MDU
73098	Plato silt loam, 1 to 3 percent slopes-----	Plato	WtP
73135	Union silt loam, 3 to 8 percent slopes-----	Union	LyP
73136	Union silt loam, 1 to 3 percent slopes-----	Union	LyP
73159	Yelton silt loam, 3 to 8 percent slopes-----	Yelton	LyP
73160	Hobson loam, 8 to 15 percent slopes, bench-----	Hobson	LyP
73161	Alred-Rueter complex, 3 to 15 percent slopes-----	Alred	GrU
		Rueter	GrU
73162	Alred-Rueter complex, 15 to 35 percent slopes, very stony-----	Alred	GrU
		Rueter	GrU
73163	Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky-----	Bardley	GNS
		Alred	GNS
		Gasconade	GNS
73164	Bender-Rock outcrop complex, 35 to 65 percent slopes, extremely stony----	Bender	GNS
73165	Knobby-Rock outcrop-Bardley complex, 35 to 75 percent slopes, extremely stony-----	Knobby	GNS
		Rock outcrop	GNS
		Bardley	GNS
73166	Viburnum-Tonti complex, 1 to 8 percent slopes-----	Viburnum	CyU
		Tonti	LyP
73168	Swiss gravelly silt loam, 3 to 15 percent slopes, stony-----	Swiss	GrU
73169	Beemont-Gatewood complex, 15 to 35 percent slopes, stony-----	Beemont	GrU
		Gatewood	MDU
73170	Beemont-Gatewood complex, 3 to 15 percent slopes, stony-----	Beemont	GrU
		Gatewood	MDU
73171	Plato silty clay loam, 3 to 8 percent slopes, eroded-----	Plato	WtP
73172	Rosati silt loam, 1 to 5 percent slopes-----	Rosati	WtP
73173	Lily-Yelton complex, 3 to 8 percent slopes-----	Lily	MDU
		Yelton	LyP
73174	Lily-Yelton complex, 8 to 15 percent slopes-----	Yelton	LyP
		Lily	MDU
73175	Poynor-Bendavis complex, 1 to 8 percent slopes-----	Poynor	GrU
		Bendavis	MDU
73176	Bendavis-Poynor complex, 8 to 15 percent slopes, stony-----	Bendavis	MDU
		Poynor	GrU
73178	Bendavis very gravelly silt loam, 15 to 35 percent slopes, stony-----	Bendavis	MDU
73179	Viraton-Wilderness complex, 3 to 15 percent slopes-----	Viraton	LyP
		Wilderness	GrP
73180	Gatewood-Gasconade complex, 3 to 15 percent slopes, stony, very rocky----	Gatewood	MDU
		Gasconade	ShU
73181	Useful-Gatewood complex, 8 to 15 percent slopes-----	Useful	CyU
		Gatewood	MDU
73182	Lebanon silt loam, 1 to 3 percent slopes-----	Lebanon	LyP
73183	Scholten-Tonti complex, 3 to 15 percent slopes-----	Scholten	GrP
		Tonti	LyP

Table 6.--Pasture and Hayland Suitability Groups--Continued

Map symbol	Soil name	Component name	Pasture and hayland suitability groups
73184	Knobby-Rock outcrop complex, 8 to 35 percent slopes, extremely stony-----	Knobby	ShU
		Rock outcrop	GNS
73186	Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky, karst-----	Bardley	GNS
		Alred	GNS
		Gasconade	GNS
73187	Bender-Rock outcrop complex, 15 to 35 percent slopes, very stony, karst--	Bender	MDU
73188	Bendavis-Poynor complex, 3 to 15 percent slopes, stony, karst-----	Bendavis	MDU
		Poynor	GrU
73189	Useful-Gatewood complex, 3 to 8 percent slopes-----	Useful	CyU
		Gatewood	MDU
74634	Hartville silt loam, 3 to 8 percent slopes-----	Hartville	WCU
74652	Lecoma silt loam, 1 to 8 percent slopes-----	Lecoma	LyU
74653	Racoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded-----	Racoon	WLB
		Freeburg	WLO
74656	Deible silt loam, 1 to 5 percent slopes, rarely flooded-----	Deible	WCB
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	Horsecreek	LyO
75376	Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded---	Cedargap	GrO
75388	Kaintuck-Relfe complex, 0 to 3 percent slopes, frequently flooded-----	Kaintuck	LyO
		Relfe	SyO
75391	Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded--	Possumtrot	LyO
75398	Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	Kaintuck	LyO
75412	Razort silt loam, 0 to 3 percent slopes, occasionally flooded-----	Razort	LyO
75413	Relfe very gravelly sandy loam, 0 to 3 percent slopes, frequently flooded-----	Relfe	SyO
75414	Wideman sand, 0 to 3 percent slopes, frequently flooded-----	Wideman	SyO
99000	Pits, quarries-----	Pits, quarries	---
99001	Water-----	Water	---
99003	Miscellaneous water-----	Miscellaneous water	---

Table 7.--Forest Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
66014: Haymond-----	American sycamore----- black walnut----- white oak-----	--- 70 90	--- --- 72	black walnut, northern red oak, white ash, white oak
70028: Moko-----	eastern redcedar-----	30	29	eastern redcedar
Rock outcrop.				
73013: Lowassie-----	black oak----- blackjack oak----- post oak-----	50 --- 45	29 --- 29	black oak, shortleaf pine
73032: Gatewood-----	black oak----- eastern redcedar----- post oak----- white oak-----	42 40 43 45	29 43 29 29	eastern redcedar, shortleaf pine
73053: Lily-----	black oak----- northern red oak----- scarlet oak----- shortleaf pine----- white oak-----	78 78 77 63 73	--- --- 43 100 57	northern red oak, scarlet oak, shortleaf pine, white oak
Bender-----	black oak----- scarlet oak----- shortleaf pine----- white oak-----	59 --- 55 ---	43 --- 72 ---	black oak, scarlet oak, shortleaf pine
73066: Bender-----	black oak----- scarlet oak----- shortleaf pine----- white oak-----	59 --- 55 ---	43 --- 72 ---	black oak, scarlet oak, shortleaf pine
73067: Bender-----	black oak----- scarlet oak----- shortleaf pine----- white oak-----	59 --- 55 ---	43 --- 72 ---	black oak, scarlet oak, shortleaf pine
Rock outcrop.				
73080: Alred-----	black oak----- shortleaf pine----- white oak-----	53 55 48	43 43 29	black oak, shortleaf pine
Bardley-----	black oak----- post oak----- white oak-----	54 48 42	43 29 29	black oak, eastern redcedar, shortleaf pine
Rock outcrop.				

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site	Volume	
		index	of wood fiber	
			cu ft/ac	
73087:				
Celt-----	black oak-----	60	43	black oak, post
	blackjack oak-----	---	---	oak, shortleaf pine
	post oak-----	---	---	
73089:				
Rueter-----	black oak-----	61	43	northern red oak,
	northern red oak----	61	43	shortleaf pine,
	white oak-----	58	43	white oak
73094:				
Gateway-----	black oak-----	42	29	eastern redcedar,
	eastern redcedar----	40	43	shortleaf pine
	post oak-----	43	29	
	white oak-----	45	29	
73098:				
Plato-----	black oak-----	60	43	black oak, post
	post oak-----	---	---	oak, shortleaf pine
	white oak-----	55	43	
73135:				
Union-----	black oak-----	58	43	northern red oak,
	northern red oak----	62	43	scarlet oak,
	white oak-----	50	43	shortleaf pine,
				white oak
73136:				
Union-----	black oak-----	58	43	northern red oak,
	northern red oak----	62	43	shortleaf pine,
	white oak-----	50	43	white oak
73159:				
Yelton-----	black oak-----	---	---	black oak,
	white oak-----	55	43	shortleaf pine,
				white oak
73160:				
Hobson-----	black oak-----	60	43	black oak,
	shortleaf pine-----	---	---	shortleaf pine,
	white oak-----	55	43	white oak
73161:				
Alred-----	black oak-----	53	43	black oak,
	shortleaf pine-----	55	43	shortleaf pine,
	white oak-----	48	29	white oak
	black oak-----	---	---	scarlet oak,
	post oak-----	---	---	shortleaf pine,
	shortleaf pine-----	---	---	white oak
	white oak-----	60	43	
73162:				
Alred-----	northern red oak----	65	43	northern red oak,
	shortleaf pine-----	70	114	shortleaf pine,
	white oak-----	65	43	white oak
	black oak-----	61	43	scarlet oak,
	northern red oak----	61	43	shortleaf pine,
	shortleaf pine-----	61	86	white oak
	white oak-----	58	43	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73163:				
Bardley-----	black oak-----	54	43	black oak, eastern
	post oak-----	45	29	redcedar,
	white oak-----	42	29	shortleaf pine
Alred-----	northern red oak----	65	43	northern red oak,
	shortleaf pine-----	70	114	shortleaf pine,
	white oak-----	65	43	white oak
Gasconade-----	blackjack oak-----	---	---	eastern redcedar
	chinkapin oak-----	40	29	
	eastern redcedar----	27	29	
	post oak-----	---	---	
73164:				
Bender-----	black oak-----	59	43	black oak, scarlet
	scarlet oak-----	---	---	oak, shortleaf pine
	shortleaf pine-----	55	72	
	white oak-----	---	---	
Rock outcrop.				
73165:				
Knobby.				
Rock outcrop.				
Bardley-----	black oak-----	54	43	black oak, eastern
	post oak-----	45	29	redcedar, shortleaf
	white oak-----	42	29	pine
73166:				
Viburnum-----	black oak-----	58	43	black oak, northern
	blackjack oak-----	---	---	red oak, shortleaf
	hickory-----	---	---	pine
	northern red oak----	---	---	
	post oak-----	---	---	
	white oak-----	---	---	
Tonti-----	black oak-----	60	43	black oak, shortleaf
	post oak-----	---	---	pine
73168:				
Swiss-----	eastern redcedar----	---	---	eastern redcedar,
	northern red oak----	61	43	northern red oak,
	post oak-----	---	---	shortleaf pine
	white oak-----	48	29	
73169, 73170:				
Beemont-----	eastern redcedar----	---	---	eastern redcedar,
	northern red oak----	61	43	northern red oak,
	post oak-----	---	---	shortleaf pine
	white oak-----	48	29	
Gateway-----	black oak-----	42	29	eastern redcedar,
	eastern redcedar----	40	43	shortleaf pine
	post oak-----	43	29	
	white oak-----	45	29	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73171:				
Plato-----	black oak-----	60	43	black oak, post
	shortleaf pine-----	---	---	oak, shortleaf pine
	white oak-----	55	43	
73173, 73174:				
Lily-----	black oak-----	78	---	northern red oak,
	northern red oak-----	78	---	scarlet oak,
	scarlet oak-----	77	43	shortleaf pine,
	shortleaf pine-----	63	100	white oak
	white oak-----	73	57	
Yelton-----	black oak-----	---	---	black oak, shortleaf
	white oak-----	55	43	pine, white oak
73175:				
Poynor-----	black oak-----	53	72	shortleaf pine,
	shortleaf pine-----	55	72	white oak
	white oak-----	48	29	
Bendavis-----	black oak-----	48	29	shortleaf pine
	post oak-----	45	29	
	shortleaf pine-----	---	---	
73176:				
Bendavis-----	black oak-----	48	29	shortleaf pine
	post oak-----	45	29	
	shortleaf pine-----	---	---	
Poynor-----	black oak-----	53	72	shortleaf pine,
	shortleaf pine-----	55	72	white oak
	white oak-----	48	29	
73178:				
Bendavis-----	black oak-----	48	29	shortleaf pine
	post oak-----	45	29	
	shortleaf pine-----	---	---	
73179:				
Viraton-----	black oak-----	60	43	black oak, shortleaf
	shortleaf pine-----	56	86	pine, white oak
	white oak-----	55	43	
Wilderness-----	black oak-----	63	43	black oak, shortleaf
	northern red oak-----	64	43	pine, white oak
	white oak-----	56	43	
73180:				
Gatewood-----	black oak-----	42	29	eastern redcedar,
	eastern redcedar-----	40	43	shortleaf pine
	post oak-----	43	29	
	white oak-----	45	29	
Gasconade-----	blackjack oak-----	---	---	eastern redcedar
	chinkapin oak-----	40	29	
	eastern redcedar-----	27	29	
	post oak-----	---	---	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73181:				
Useful-----	black oak-----	---	---	green ash, northern
	northern red oak----	---	---	red oak, white oak
	post oak-----	---	---	
	sugar maple-----	---	---	
	white oak-----	61	43	
Gateway-----	black oak-----	42	29	eastern redcedar,
	eastern redcedar----	40	43	shortleaf pine
	post oak-----	43	29	
	white oak-----	45	29	
73182:				
Lebanon-----	black oak-----	60	43	black oak, shortleaf
	shortleaf pine-----	---	---	pine, white oak
	white oak-----	55	43	
73183:				
Scholten-----	black oak-----	45	29	black oak, shortleaf
	post oak-----	45	29	pine, white oak
Tonti-----	black oak-----	60	43	black oak, shortleaf
	post oak-----	---	---	pine
73186:				
Bardley-----	black oak-----	54	43	black oak, eastern
	post oak-----	45	29	redcedar,
	white oak-----	42	29	shortleaf pine
Alred-----	northern red oak----	65	43	northern red oak,
	shortleaf pine-----	70	114	shortleaf pine,
	white oak-----	65	43	white oak
Gasconade-----	blackjack oak-----	---	---	eastern redcedar
	chinkapin oak-----	40	29	
	eastern redcedar----	27	29	
	post oak-----	---	---	
73187:				
Bender-----	black oak-----	59	43	black oak, scarlet
	scarlet oak-----	---	---	oak, shortleaf pine
	shortleaf pine-----	55	72	
	white oak-----	---	---	
Rock outcrop.				
73188:				
Bendavis-----	black oak-----	48	29	shortleaf pine
	post oak-----	45	29	
	shortleaf pine-----	---	---	
Poynor-----	black oak-----	53	72	shortleaf pine,
	shortleaf pine-----	55	72	white oak
	white oak-----	48	29	
73189:				
Useful-----	black oak-----	---	---	black oak, northern
	northern red oak----	---	---	red oak, white oak
	post oak-----	---	---	
	sugar maple-----	---	---	
	white oak-----	61	43	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Trees to manage	
	Common trees	Site index		Volume of wood fiber cu ft/ac
73189:				
Gatewood-----	black oak-----	42	29	eastern redcedar,
	eastern redcedar----	40	43	shortleaf pine
	post oak-----	43	29	
	white oak-----	45	29	
74634:				
Hartville-----	green ash-----	---	---	eastern cottonwood,
	pin oak-----	---	---	green ash, pin oak,
	silver maple-----	---	---	silver maple
	white oak-----	55	43	
74652:				
Lecoma-----	black oak-----	75	57	green ash, northern
	northern red oak----	75	57	red oak, white oak
	white oak-----	65	43	
74653:				
Raccoon-----	green ash-----	---	---	green ash, pin oak
	pin oak-----	80	57	
	post oak-----	80	57	
	white oak-----	---	---	
Freeburg-----	white oak-----	65	43	black oak, eastern
				cottonwood, green
				ash, pecan, pin
				oak, white oak
74656:				
Deible-----	green ash-----	---	---	eastern cottonwood,
	northern red oak----	---	---	green ash, pin oak,
	pin oak-----	76	57	silver maple
	silver maple-----	---	---	
75375:				
Horsecreek-----	American sycamore----	---	---	black walnut, eastern
	Shumard's oak-----	93	57	cottonwood, white
	common hackberry----	---	---	ash
	pin oak-----	94	57	
	red maple-----	---	---	
75376:				
Cedargap-----	Shumard's oak-----	---	---	Shumard's oak, black
	black oak-----	66	43	walnut, green ash,
	black walnut-----	---	---	white oak
	green ash-----	---	---	
75388:				
Kaintuck-----	American basswood----	---	---	American sycamore,
	American sycamore----	90	100	black walnut,
	black walnut-----	---	---	green ash
	river birch-----	---	---	
Relfe-----	American sycamore----	60	43	shortleaf pine,
	shortleaf pine-----	---	---	white oak
	white oak-----	55	43	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
75391: Possumtrot-----	American basswood---	---	---	black walnut,
	American sycamore---	---	---	northern red oak,
	bitternut hickory---	---	---	white ash, white oak
	northern red oak---	---	---	
	white oak-----	80	57	
75398: Kaintuck-----	American basswood---	---	---	American sycamore,
	American sycamore---	90	100	black walnut, green
	black walnut-----	---	---	ash, white ash
	river birch-----	---	---	
75412: Razort-----	American sycamore---	85	86	black walnut,
	eastern cottonwood--	90	100	northern red oak,
	northern red oak---	80	57	white oak
	white oak-----	75	57	
75413: Relfe-----	American sycamore---	60	43	shortleaf pine,
	shortleaf pine-----	---	---	white oak
	white oak-----	55	43	
75414: Wideman-----	American sycamore---	80	72	eastern cottonwood,
	eastern cottonwood--	90	100	silver maple

Table 8a.--Forestland Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50
70028:										
Moko-----	Slightly limited ~small stones (slightly limited)	0.13	Moderately limited ~surface stones (moderately limited) ~slope (moderately limited) ~small stones (slightly limited)	0.45 0.34 0.08	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.50 0.45
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Limited ~seasonally ponded (limited) ~seasonal wetness (moderately limited)	0.80 0.60	Limited ~seasonally ponded (limited) ~seasonal wetness (moderately limited)	0.80 0.60	Very limited ~seasonal wetness (very limited) ~seasonally ponded (limited) ~low strength (moderately limited)	1.00 0.80 0.50	Very limited ~seasonal wetness (very limited) ~seasonally ponded (limited)	1.00 0.80	Very limited ~seasonal wetness (very limited) ~ponded (wetness) (very limited) ~low strength (moderately limited)	1.00 1.00 1.00 0.50
73032:										
Gatewood-----	Moderately limited ~small stones (moderately limited)	0.60	Moderately limited ~small stones (moderately limited) ~slope (moderately limited) ~surface stones (slightly limited)	0.60 0.34 0.02	Slightly limited ~seasonal wetness (slightly limited)	0.15	Moderately limited ~small stones (moderately limited) ~seasonal wetness (slightly limited)	0.60 0.15	Moderately limited ~slope (moderately limited) ~seasonal wetness (slightly limited)	0.45 0.15
73039:										
Glensted-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76 0.50	Limited ~seasonal wetness (limited)	0.76	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76 0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Not limited		Slightly limited  ~slope (slightly limited)	0.30	Moderately limited  ~low strength (moderately limited)	0.50	Not limited		Moderately limited  ~low strength (moderately limited)	0.50
									~slope (moderately limited)	0.30
Bender-----	Slightly limited  ~large stones (slightly limited)	0.17	Moderately limited  ~large stones (moderately limited)	0.45	Not limited		Slightly limited  ~large stones (slightly limited)	0.17	Moderately limited  ~slope (moderately limited)	0.30
			~slope (slightly limited)	0.30						
73066:										
Bender-----	Slightly limited  ~large stones (slightly limited)	0.17	Moderately limited  ~large stones (moderately limited)	0.45	Not limited		Slightly limited  ~large stones (slightly limited)	0.17	Moderately limited  ~slope (moderately limited)	0.30
			~slope (slightly limited)	0.30						
			~surface stones (slightly limited)	0.02						
73067:										
Bender-----	Slightly limited  ~slope (slightly limited)	0.25	Very limited  ~slope (very limited)	1.00	Limited  ~slope (limited)	0.91	Limited  ~slope (limited)	0.91	Very limited  ~slope (very limited)	1.00
	~large stones (slightly limited)	0.17	~large stones (moderately limited)	0.45			~large stones (slightly limited)	0.17		
			~surface stones (slightly limited)	0.30						
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Limited  ~large stones (limited)	0.60	Very limited  ~slope (very limited)	1.00	Limited  ~slope (limited)	0.68	Limited  ~slope (limited)	0.68	Very limited  ~slope (very limited)	1.00
	~slope (slightly limited)	0.16	~large stones >35% (very limited)	0.99			~large stones (limited)	0.60		
	~small stones (slightly limited)	0.02	~surface stones (slightly limited)	0.30						

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Slightly limited		Very limited		Limited		Limited		Very limited	
	~slope	0.23	~slope	1.00	~slope	0.87	~slope	0.87	~slope	1.00
	(slightly limited)		(very limited)		(limited)		(limited)		(very limited)	
	~large stones	0.17	~large stones	0.45			~large stones	0.17		
	(slightly limited)		(moderately limited)				(slightly limited)			
	~small stones	0.11	~surface stones	0.30						
	(slightly limited)		(slightly limited)							
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Moderately limited		Moderately limited		Limited		Limited		Limited	
	~seasonal wetness	0.60	~seasonal wetness	0.60	~seasonal wetness	0.62	~seasonal wetness	0.62	~seasonal wetness	0.62
	(moderately limited)		(moderately limited)		(limited)		(limited)		(limited)	
					~low strength	0.50			~low strength	0.50
					(moderately limited)				(moderately limited)	
73089:										
Rueter-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones	0.53	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~slope	0.14	~small stones	0.53			~small stones	0.49	~slippage potential	0.50
	(slightly limited)		(moderately limited)				(moderately limited)		(moderately limited)	
			~surface stones	0.45						
			(moderately limited)							
73094:										
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones	0.60	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~slope	0.14	~small stones	0.60	~seasonal wetness	0.15	~small stones	0.60	~seasonal wetness	0.15
	(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
			~surface stones	0.02			~seasonal wetness	0.15		
			(slightly limited)				(slightly limited)			
73098:										
Plato-----	Not limited		Not limited		Moderately limited		Moderately limited		Moderately limited	
					~seasonal wetness	0.56	~seasonal wetness	0.56	~seasonal wetness	0.56
					(moderately limited)		(moderately limited)		(moderately limited)	
					~low strength	0.50			~low strength	0.50
					(moderately limited)				(moderately limited)	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Not limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
			~slope	0.10	~low strength	0.50	~seasonal wetness	0.28	~low strength	0.50
			(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.28			~seasonal wetness	0.28
					(slightly limited)				(slightly limited)	
73136:										
Union-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength	0.50	~seasonal wetness	0.28	~low strength	0.50
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.28			~seasonal wetness	0.28
					(slightly limited)				(slightly limited)	
73159:										
Yelton-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength	0.50	~seasonal wetness	0.28	~low strength	0.50
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.28			~seasonal wetness	0.28
					(slightly limited)				(slightly limited)	
73160:										
Hobson-----	Not limited		Moderately limited		Moderately limited		Slightly limited		Limited	
			~slope	0.47	~low strength	0.50	~seasonal wetness	0.25	~slope	0.76
			(moderately limited)		(moderately limited)		(slightly limited)		(limited)	
					~seasonal wetness	0.25			~low strength	0.50
					(slightly limited)				(moderately limited)	
									~seasonal wetness	0.25
									(slightly limited)	
73161:										
Alred-----	Limited		Limited		Not limited		Limited		Limited	
	~small stones	0.73	~small stones	0.73			~small stones	0.73	~slope	0.76
	(limited)		(limited)				(limited)		(limited)	
			~slope	0.47						
			(moderately limited)							
Rueter-----	Moderately limited		Moderately limited		Not limited		Moderately limited		Moderately limited	
	~small stones	0.53	~small stones	0.53			~small stones	0.49	~slippage potential	0.50
	(moderately limited)		(moderately limited)				(moderately limited)		(moderately limited)	
			~slope	0.34					~slope	0.45
			(moderately limited)						(moderately limited)	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73162:										
Alred-----	Limited		Limited		Moderately limited		Limited		Very limited	
	~small stones (limited)	0.73	~slope (limited)	0.99	~slope (moderately limited)	0.60	~small stones (limited)	0.73	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~small stones (limited)	0.73			~slope (moderately limited)	0.60		
			~surface stones (moderately limited)	0.45						
Rueter-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones (moderately limited)	0.53	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~small stones (moderately limited)	0.53			~small stones (moderately limited)	0.49	~slippage potential (moderately limited)	0.50
			~surface stones (moderately limited)	0.45						
73163:										
Bardley-----	Moderately limited		Very limited		Limited		Limited		Very limited	
	~surface stones (moderately limited)	0.42	~slope (very limited)	1.00	~slope (limited)	0.91	~slope (limited)	0.91	~slope (very limited)	1.00
	~slope (slightly limited)	0.25	~surface stones (limited)	0.80	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~small stones (slightly limited)	0.24	~small stones (slightly limited)	0.24			~small stones (slightly limited)	0.01	~surface stones (moderately limited)	0.42
Alred-----	Limited		Very limited		Limited		Limited		Very limited	
	~small stones (limited)	0.73	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99	~slope (very limited)	1.00
	~surface stones (moderately limited)	0.45	~surface stones (limited)	0.83	~large surface stones (limited)	0.66	~small stones (limited)	0.73	~large surface stones (limited)	0.66
	~slope (slightly limited)	0.29	~small stones (limited)	0.73			~large surface stones (limited)	0.66	~surface stones (moderately limited)	0.45
Gasconade-----	Limited		Very limited		Limited		Limited		Very limited	
	~small stones (limited)	0.86	~slope (very limited)	1.00	~slope (limited)	0.87	~slope (limited)	0.87	~slope (very limited)	1.00
	~stickiness (surface) (moderately limited)	0.50	~small stones (limited)	0.86	~large surface stones (limited)	0.66	~small stones (limited)	0.87	~large surface stones (limited)	0.66
	~surface stones (moderately limited)	0.45	~surface stones (limited)	0.83	~stickiness (surface) (moderately limited)	0.50	~large surface stones (limited)	0.66	~stickiness (surface) (moderately limited)	0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73164:										
Bender-----	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~slope (moderately limited)	0.60	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~surface stones (slightly limited)	0.30	~surface stones (limited)	0.66	~large surface stones (slightly limited)	0.30	~large surface stones (slightly limited)	0.30	~large surface stones (slightly limited)	0.30
	~large stones (slightly limited)	0.17	~large stones (moderately limited)	0.45			~large stones (slightly limited)	0.17	~surface stones (slightly limited)	0.30
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~very sandy (surface) (moderately limited)	0.50	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (moderately limited)	0.46	Very limited	1.00	~very sandy (surface) (moderately limited)	0.50	Very limited	1.00	~very sandy (surface) (moderately limited)	0.50
	~surface stones (slightly limited)	0.30	~surface stones (limited)	0.66	~large surface stones (slightly limited)	0.30	~large surface stones (slightly limited)	0.30	~slippage potential (moderately limited)	0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~slope (moderately limited)	0.46	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~surface stones (moderately limited)	0.42	~surface stones (limited)	0.80	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~small stones (slightly limited)	0.24	~small stones (slightly limited)	0.24			~small stones (slightly limited)	0.01	~surface stones (moderately limited)	0.42
73166:										
Viburnum-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.26	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.26			~seasonal wetness (slightly limited)	0.26
Tonti-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.26	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.26			~seasonal wetness (slightly limited)	0.26

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73168:										
Swiss-----	Slightly limited		Moderately limited		Moderately limited		Not limited		Moderately limited	
	~small stones	0.03	~slope	0.39	~low strength	0.50			~slope	0.60
	(slightly limited)		(moderately limited)		(moderately limited)				(moderately limited)	
			~small stones	0.03					~low strength	0.50
			(slightly limited)						(moderately limited)	
			~surface stones	0.02						
			(slightly limited)							
73169:										
Beemont-----	Slightly limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones	0.17	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~slope	0.14	~small stones	0.17	~low strength	0.50	~seasonal wetness	0.10	~low strength	0.50
	(slightly limited)		(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~surface stones	0.02	~seasonal wetness	0.10			~seasonal wetness	0.10
			(slightly limited)		(slightly limited)				(slightly limited)	
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones	0.60	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~slope	0.14	~small stones	0.60	~seasonal wetness	0.15	~small stones	0.60	~seasonal wetness	0.15
	(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
			~surface stones	0.02			~seasonal wetness	0.15		
			(slightly limited)				(slightly limited)			
73170:										
Beemont-----	Slightly limited		Moderately limited		Moderately limited		Slightly limited		Moderately limited	
	~small stones	0.17	~slope	0.34	~low strength	0.50	~seasonal wetness	0.10	~low strength	0.50
	(slightly limited)		(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~small stones	0.17	~seasonal wetness	0.10			~slope	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	
			~surface stones	0.02					~seasonal wetness	0.10
			(slightly limited)						(slightly limited)	
Gatewood-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Moderately limited	
	~small stones	0.60	~small stones	0.60	~seasonal wetness	0.15	~small stones	0.60	~slope	0.45
	(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	
			~slope	0.34			~seasonal wetness	0.15	~seasonal wetness	0.15
			(moderately limited)				(slightly limited)		(slightly limited)	
			~surface stones	0.02						
			(slightly limited)							

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value								
73171:										
Plato-----	Moderately limited									
	~stickiness (surface) (moderately limited)	0.50	~stickiness (surface) (moderately limited)	0.50	~seasonal wetness (moderately limited)	0.56	~seasonal wetness (moderately limited)	0.56	~seasonal wetness (moderately limited)	0.56
			~slope (slightly limited)	0.10	~low strength (moderately limited)	0.50	~stickiness (surface) (moderately limited)	0.50	~low strength (moderately limited)	0.50
					~stickiness (surface) (moderately limited)	0.50			~stickiness (surface) (moderately limited)	0.50
73172:										
Rosati-----	Not limited		Not limited		Moderately limited		Moderately limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (moderately limited)	0.49	~low strength (moderately limited)	0.50
					~seasonal wetness (moderately limited)	0.49			~seasonal wetness (moderately limited)	0.49
73173:										
Lily-----	Not limited		Slightly limited		Not limited		Not limited		Not Limited	
			~slope (slightly limited)	0.10						
Yelton-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.28	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.28			~seasonal wetness (slightly limited)	0.28
73174:										
Lily-----	Not limited		Moderately limited		Not limited		Not limited		Limited	
			~slope (moderately limited)	0.47					~slope (limited)	0.76
Yelton-----	Not limited		Moderately limited		Moderately limited		Slightly limited		Limited	
			~slope (moderately limited)	0.47	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.28	~slope (limited)	0.76
					~seasonal wetness (slightly limited)	0.28			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.28
73175:										
Poynor-----	Slightly limited		Slightly limited		Not limited		Slightly limited		Not Limited	
	~small stones (slightly limited)	0.24	~small stones (slightly limited)	0.24			~small stones (slightly limited)	0.01		

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73175:										
Bendavis-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Slightly limited	
	~small stones (moderately limited)	0.60	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10
							~seasonal wetness (slightly limited)	0.10		
73176:										
Bendavis-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Limited	
	~small stones (moderately limited)	0.60	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10	~small stones (moderately limited)	0.60	~slope (limited)	0.76
							~seasonal wetness (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10
			~slope (moderately limited)	0.47						
			~surface stones (slightly limited)	0.02						
Poynor-----	Slightly limited		Moderately limited		Not limited		Slightly limited		Limited	
	~small stones (slightly limited)	0.24	~slope (moderately limited)	0.47			~small stones (slightly limited)	0.01	~slope (limited)	0.76
			~small stones (slightly limited)	0.24						
			~surface stones (slightly limited)	0.02						
73178:										
Bendavis-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~small stones (moderately limited)	0.60	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10
			~surface stones (slightly limited)	0.02			~seasonal wetness (slightly limited)	0.10		
73179:										
Viraton-----	Not limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
			~slope (slightly limited)	0.20	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.28	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.28			~seasonal wetness (slightly limited)	0.28
									~slope (slightly limited)	0.15

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73179:										
Wilderness-----	Slightly limited		Moderately limited		Moderately limited		Slightly limited		Limited	
	~small stones	0.04	~slope	0.47	~low strength	0.50	~seasonal wetness	0.23	~slope	0.76
	(slightly limited)		(moderately limited)		(moderately limited)		(slightly limited)		(limited)	
			~small stones	0.04	~seasonal wetness	0.23			~low strength	0.50
			(slightly limited)		(slightly limited)				(moderately limited)	
									~seasonal wetness	0.23
									(slightly limited)	
73180:										
Gateway-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Moderately limited	
	~small stones	0.60	~small stones	0.60	~seasonal wetness	0.15	~small stones	0.60	~slope	0.45
	(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	
			~slope	0.34			~seasonal wetness	0.15	~seasonal wetness	0.15
			(moderately limited)				(slightly limited)		(slightly limited)	
			~surface stones	0.02						
			(slightly limited)							
Gasconade-----	Limited		Limited		Moderately limited		Limited		Moderately limited	
	~small stones	0.86	~small stones	0.86	~stickiness (surface)	0.50	~small stones	0.87	~stickiness (surface)	0.50
	(limited)		(limited)		(moderately limited)		(limited)		(moderately limited)	
	~stickiness (surface)	0.50	~stickiness (surface)	0.50			~stickiness (surface)	0.50	~slope	0.45
	(moderately limited)		(moderately limited)				(moderately limited)		(moderately limited)	
			~slope	0.34						
			(moderately limited)							
73181:										
Useful-----	Not limited		Moderately limited		Moderately limited		Not limited		Limited	
			~slope	0.47	~low strength	0.50			~slope	0.76
			(moderately limited)		(moderately limited)				(limited)	
									~low strength	0.50
									(moderately limited)	
Gateway-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Limited	
	~small stones	0.60	~small stones	0.60	~seasonal wetness	0.15	~small stones	0.60	~slope	0.76
	(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)		(limited)	
			~slope	0.47			~seasonal wetness	0.15	~seasonal wetness	0.15
			(moderately limited)				(slightly limited)		(slightly limited)	
			~surface stones	0.02						
			(slightly limited)							
73182:										
Lebanon-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength	0.50	~seasonal wetness	0.28	~low strength	0.50
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.28			~seasonal wetness	0.28
					(slightly limited)				(slightly limited)	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73183:										
Scholten-----	Moderately limited		Moderately limited		Slightly limited		Slightly limited		Moderately limited	
	~small stones (moderately limited)	0.32	~slope (moderately limited)	0.34	~seasonal wetness (slightly limited)	0.26	~seasonal wetness (slightly limited)	0.26	~slippage potential (moderately limited)	0.50
			~small stones (moderately limited)	0.32			~small stones (slightly limited)	0.14	~slope (moderately limited)	0.45
									~seasonal wetness (slightly limited)	0.26
Tonti-----	Not limited		Moderately limited		Moderately limited		Slightly limited		Moderately limited	
			~slope (moderately limited)	0.34	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.26	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.26			~slope (moderately limited)	0.45
									~seasonal wetness (slightly limited)	0.26
73184:										
Knobby-----	Moderately limited		Very limited		Moderately limited		Very limited		Limited	
	~very sandy (surface) (moderately limited)	0.50	Very limited	1.00	~very sandy (surface) (moderately limited)	0.50	Very limited	1.00	~slope (limited)	0.99
	~surface stones (slightly limited)	0.30	~surface stones (limited)	0.66	~large surface stones (slightly limited)	0.30	~large surface stones (slightly limited)	0.30	~very sandy (surface) (moderately limited)	0.50
	~small stones (slightly limited)	0.10	~slope (moderately limited)	0.60	~slope (slightly limited)	0.05	~slope (slightly limited)	0.05	~slippage potential (moderately limited)	0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Moderately limited		Very limited		Limited		Limited		Very limited	
	~surface stones (moderately limited)	0.42	~slope (very limited)	1.00	~slope (limited)	0.91	~slope (limited)	0.91	~slope (very limited)	1.00
	~slope (slightly limited)	0.25	~surface stones (limited)	0.80	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~small stones (slightly limited)	0.24	~small stones (slightly limited)	0.24			~small stones (slightly limited)	0.01	~surface stones (moderately limited)	0.42
Alred-----	Limited		Very limited		Limited		Limited		Very limited	
	~small stones (limited)	0.73	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99	~slope (very limited)	1.00
	~surface stones (moderately limited)	0.45	~surface stones (limited)	0.83	~large surface stones (limited)	0.66	~small stones (limited)	0.73	~large surface stones (limited)	0.66
	~slope (slightly limited)	0.29	~small stones (limited)	0.73			~large surface stones (limited)	0.66	~surface stones (moderately limited)	0.45

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:										
Gasconade-----	Limited		Very limited		Limited		Limited		Very limited	
	~small stones (limited)	0.86	~slope (very limited)	1.00	~slope (limited)	0.87	~slope (limited)	0.87	~slope (very limited)	1.00
	~stickiness (surface) (moderately limited)	0.50	~small stones (limited)	0.86	~large surface stones (limited)	0.66	~small stones (limited)	0.87	~large surface stones (limited)	0.66
	~surface stones (moderately limited)	0.45	~surface stones (limited)	0.83	~stickiness (surface) (moderately limited)	0.50	~large surface stones (limited)	0.66	~stickiness (surface) (moderately limited)	0.50
73187:										
Bender-----	Slightly limited		Very limited		Limited		Limited		Very limited	
	~slope (slightly limited)	0.25	~slope (very limited)	1.00	~slope (limited)	0.91	~slope (limited)	0.91	~slope (very limited)	1.00
	~large stones (slightly limited)	0.17	~large stones (moderately limited)	0.45			~large stones (slightly limited)	0.17		
			~surface stones (slightly limited)	0.30						
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Limited	
	~small stones (moderately limited)	0.60	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.10	~small stones (moderately limited)	0.60	~slope (limited)	0.76
			~slope (moderately limited)	0.47			~seasonal wetness (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10
			~surface stones (slightly limited)	0.02						
Poynor-----	Slightly limited		Moderately limited		Not limited		Slightly limited		Limited	
	~small stones (slightly limited)	0.24	~slope (moderately limited)	0.47			~small stones (slightly limited)	0.01	~slope (limited)	0.76
			~small stones (slightly limited)	0.24						
			~surface stones (slightly limited)	0.02						
73189:										
Useful-----	Not limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
			~slope (slightly limited)	0.10	~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73189:										
Gatewood-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Slightly limited	
	~small stones (moderately limited)	0.60	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.15	~small stones (moderately limited)	0.60	~seasonal wetness (slightly limited)	0.15
			~slope (slightly limited)	0.10			~seasonal wetness (slightly limited)	0.15		
			~surface stones (slightly limited)	0.02						
74634:										
Hartville-----	Not limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
			~slope (slightly limited)	0.10	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.29	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.29			~seasonal wetness (slightly limited)	0.29
74652:										
Lecoma-----	Not limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
			~slope (slightly limited)	0.10	~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50
74653:										
Racoon-----	Moderately limited		Moderately limited		Very limited		Very limited		Very limited	
	~seasonal wetness (moderately limited)	0.60	~seasonal wetness (moderately limited)	0.60	~seasonal wetness (very limited)	1.00	~seasonal wetness (very limited)	1.00	~seasonal wetness (very limited)	1.00
					~low strength (moderately limited)	0.50			~flooding (moderately limited)	0.60
									~low strength (moderately limited)	0.50
Freeburg-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.25	~flooding (moderately limited)	0.60
					~seasonal wetness (slightly limited)	0.25			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.25
74656:										
Deible-----	Moderately limited		Moderately limited		Limited		Limited		Limited	
	~seasonal wetness (moderately limited)	0.60	~seasonal wetness (moderately limited)	0.60	~seasonal wetness (limited)	0.91	~seasonal wetness (limited)	0.91	~seasonal wetness (limited)	0.91
					~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75375:										
Horsecreek-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50
75376:										
Cedargap-----	Slightly limited ~small stones (slightly limited)	0.03	Slightly limited ~small stones (slightly limited)	0.03	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50
75388:										
Kaintuck-----	Not limited		Not limited		Not limited		Not limited		Very limited ~flooding (very limited)	1.00
Relfe-----	Limited ~small stones (limited) ~very sandy (surface) (moderately limited)	0.73 0.50	Limited ~small stones (limited) ~very sandy (surface) (moderately limited)	0.73 0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Limited ~small stones (limited)	0.73	Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00 0.50
75391:										
Possumtrot-----	Not limited		Not limited		Not limited		Not limited		Moderately limited ~flooding (moderately limited)	0.60
75398:										
Kaintuck-----	Not limited		Not limited		Not limited		Not limited		Very limited ~flooding (very limited)	1.00
75412:										
Razort-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75413: Relife-----	Limited ~small stones (limited) ~very sandy (surface) (moderately limited)	0.73 0.50	Limited ~small stones (limited) ~very sandy (surface) (moderately limited)	0.73 0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Limited ~small stones (limited)	0.73	Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00 0.50
75414: Wideman-----	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00 0.50
99000: Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Slightly limited  ~slope/erodibility   (slightly limited)	0.11	Slightly limited  ~slope/erodibility   (slightly limited)	0.02	Limited  ~low strength   (limited)	0.80	Very limited  ~flooding   (very limited)  ~low strength   (moderately limited)	1.00	Limited  ~flooding   (limited)	0.90
70028:										
Moko-----	Very limited  ~slope/erodibility   (very limited)	1.00	Slightly limited  ~slope/erodibility   (slightly limited)	0.18	Limited  ~low strength   (limited)	0.80	Moderately limited  ~slippage potential   (moderately limited)  ~low strength   (moderately limited)  ~slope   (moderately limited)	0.50	Very limited  ~droughty   (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Slightly limited  ~slope/erodibility   (slightly limited)	0.11	Slightly limited  ~slope/erodibility   (slightly limited)	0.02	Very limited  ~seasonal wetness   (very limited)  ~low strength   (limited)	1.00	Very limited  ~seasonal wetness   (very limited)  ~seasonally ponded   (limited)  ~low strength   (moderately limited)	1.00	Very limited  ~seasonal wetness   (very limited)	1.00
73032:										
Gateway-----	Very limited  ~slope/erodibility   (very limited)	1.00	Slightly limited  ~slope/erodibility   (slightly limited)	0.18	Slightly limited  ~seasonal wetness   (slightly limited)	0.15	Moderately limited  ~slope   (moderately limited)  ~seasonal wetness   (slightly limited)	0.45	Not limited	
73039:										
Glensted-----	Slightly limited  ~slope/erodibility   (slightly limited)	0.22	Slightly limited  ~slope/erodibility   (slightly limited)	0.04	Limited  ~low strength   (limited)  ~seasonal wetness   (limited)	0.80	Limited  ~seasonal wetness   (limited)  ~low strength   (moderately limited)	0.76	Limited  ~seasonal wetness   (limited)  ~droughty   (slightly limited)	0.76

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Limited ~slope/erodibility (limited)	0.89	Slightly limited ~slope/erodibility (slightly limited)	0.16	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50	Not limited	
Bender-----	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.16	Not limited		Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~droughty (moderately limited)	0.45
73066:										
Bender-----	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.16	Not limited		Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~droughty (moderately limited)	0.45
73067:										
Bender-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.65	Not limited		Very limited ~slope (very limited)	1.00	Moderately limited ~droughty (moderately limited)	0.45
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.53	Not limited		Very limited ~slope (very limited)	1.00	Slightly limited ~droughty (slightly limited)	0.12
Bardley-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.63	Not limited		Very limited ~slope (very limited)	1.00	Not limited	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (limited)	0.80	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.62	Limited ~seasonal wetness (limited)	0.62
73089:										
Rueter-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Not limited		Very limited ~slope (very limited) ~slippage potential (moderately limited)	1.00	Slightly limited ~droughty (slightly limited) ~soil reaction (slightly limited)	0.19
								0.50		0.18

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73094: Gateway-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Slightly limited ~seasonal wetness (slightly limited)	0.15	Very limited ~slope (very limited) ~seasonal wetness (slightly limited)	1.00 0.15	Not limited	
73098: Plato-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.56 0.50	Moderately limited ~seasonal wetness (moderately limited) ~low strength (moderately limited)	0.56 0.50	Moderately limited ~seasonal wetness (moderately limited)	0.51
73135: Union-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.28	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.28	Not limited	
73136: Union-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.28	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.28	Not limited	
73159: Yelton-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.28	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.28	Not limited	
73160: Hobson-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.25	Limited ~slope (limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.76 0.50 0.25	Not limited	
73161: Alred-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Not limited		Limited ~slope (limited)	0.76	Slightly limited ~droughty (slightly limited)	0.08

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Very limited		Slightly limited		Not limited		Moderately limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.18			~slippage potential (moderately limited)	0.50	~droughty (slightly limited)	0.19
							~slope (moderately limited)	0.45	~soil reaction (slightly limited)	0.18
73162:										
Alred-----	Very limited		Moderately limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49			~slope (very limited)	1.00	~droughty (slightly limited)	0.08
Rueter-----	Very limited		Moderately limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49			~slope (very limited)	1.00	~droughty (slightly limited)	0.19
							~slippage potential (moderately limited)	0.50	~soil reaction (slightly limited)	0.18
73163:										
Bardley-----	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.65			~slope (very limited)	1.00		
							~large surface stones (moderately limited)	0.60		
							~surface stones (moderately limited)	0.42		
Alred-----	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.69			~slope (very limited)	1.00	~droughty (slightly limited)	0.08
							~large surface stones (limited)	0.66		
							~surface stones (moderately limited)	0.45		
Gasconade-----	Very limited		Limited		Not limited		Very limited		Very limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.63			~slope (very limited)	1.00	~droughty (very limited)	1.00
							~large surface stones (limited)	0.66		
							~stickiness (surface) (moderately limited)	0.50		

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73164:										
Bender-----	Very limited		Limited		Not limited		Very limited		Moderately limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.98			~slope (very limited)	1.00	~droughty (moderately limited)	0.45
							~large surface stones (slightly limited)	0.30		
							~surface stones (slightly limited)	0.30		
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Limited		Not limited		Very limited		Very limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.88			~slope (very limited)	1.00	~droughty (very limited)	1.00
							~slippage potential (moderately limited)	0.50	~soil reaction (limited)	0.60
							~very sandy (surface) (moderately limited)	0.50		
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.88			~slope (very limited)	1.00		
							~large surface stones (moderately limited)	0.60		
							~surface stones (moderately limited)	0.42		
73166:										
Viburnum-----	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.12	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.26	~seasonal wetness (slightly limited)	0.26		
Tonti-----	Moderately limited		Slightly limited		Limited		Moderately limited		Slightly limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.12	~low strength (limited)	0.80	~low strength (moderately limited)	0.50	~soil reaction (slightly limited)	0.06
					~seasonal wetness (slightly limited)	0.26	~seasonal wetness (slightly limited)	0.26		

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73168:										
Swiss-----	Very limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.20	~low strength (limited)	0.80	~slope (moderately limited)	0.60		
							~low strength (moderately limited)	0.50		
73169:										
Beemont-----	Very limited		Moderately limited		Limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~low strength (limited)	0.80	~slope (very limited)	1.00		
					~seasonal wetness (slightly limited)	0.10	~low strength (moderately limited)	0.50		
							~seasonal wetness (slightly limited)	0.10		
Gatewood-----	Very limited		Moderately limited		Slightly limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~seasonal wetness (slightly limited)	0.15	~slope (very limited)	1.00		
							~seasonal wetness (slightly limited)	0.15		
73170:										
Beemont-----	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.18	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.10	~slope (moderately limited)	0.45		
							~seasonal wetness (slightly limited)	0.10		
Gatewood-----	Very limited		Slightly limited		Slightly limited		Moderately limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.18	~seasonal wetness (slightly limited)	0.15	~slope (moderately limited)	0.45		
							~seasonal wetness (slightly limited)	0.15		
73171:										
Plato-----	Limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.15	~low strength (limited)	0.80	~seasonal wetness (moderately limited)	0.56	~seasonal wetness (moderately limited)	0.51
					~seasonal wetness (moderately limited)	0.56	~low strength (moderately limited)	0.50	~soil reaction (slightly limited)	0.06
							~stickiness (surface) (moderately limited)	0.50		

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73172:										
Rosati-----	Moderately limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility (moderately limited)	0.33	~slope/erodibility (slightly limited)	0.07	~low strength (limited)	0.80	~low strength (moderately limited)	0.50	~seasonal wetness (moderately limited)	0.39
					~seasonal wetness (moderately limited)	0.49	~seasonal wetness (moderately limited)	0.49		
73173:										
Lily-----	Limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.12	~low strength (moderately limited)	0.50				
Yelton-----	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.12	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.28	~seasonal wetness (slightly limited)	0.28		
73174:										
Lily-----	Very limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.24	~low strength (moderately limited)	0.50	~slope (limited)	0.76		
Yelton-----	Very limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.29	~low strength (limited)	0.80	~slope (limited)	0.76		
					~seasonal wetness (slightly limited)	0.28	~low strength (moderately limited)	0.50		
							~seasonal wetness (slightly limited)	0.28		
73175:										
Poynor-----	Moderately limited		Slightly limited		Not limited		Not limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.10						
Bendavis-----	Moderately limited		Slightly limited		Slightly limited		Slightly limited		Not limited	
	~slope/erodibility (moderately limited)	0.31	~slope/erodibility (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10		
73176:										
Bendavis-----	Limited		Slightly limited		Slightly limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~seasonal wetness (slightly limited)	0.10	~slope (limited)	0.76		
							~seasonal wetness (slightly limited)	0.10		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73176:										
Poynor-----	Very limited		Slightly limited		Not limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.24			~slope (limited)	0.76		
73178:										
Bendavis-----	Very limited		Moderately limited		Slightly limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~seasonal wetness (slightly limited)	0.10	~slope (very limited)	1.00		
							~seasonal wetness (slightly limited)	0.10		
73179:										
Viraton-----	Limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (limited)	0.78	~slope/erodibility (slightly limited)	0.17	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.28	~seasonal wetness (slightly limited)	0.28		
							~slope (slightly limited)	0.15		
Wilderness-----	Very limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~slope (limited)	0.76		
					~seasonal wetness (slightly limited)	0.23	~low strength (moderately limited)	0.50		
							~seasonal wetness (slightly limited)	0.23		
73180:										
Gatewood-----	Very limited		Slightly limited		Slightly limited		Moderately limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.18	~seasonal wetness (slightly limited)	0.15	~slope (moderately limited)	0.45		
							~seasonal wetness (slightly limited)	0.15		
Gasconade-----	Moderately limited		Slightly limited		Not limited		Moderately limited		Very limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.18			~stickiness (surface) (moderately limited)	0.50	~droughty (very limited)	1.00
							~slope (moderately limited)	0.45		
73181:										
Useful-----	Very limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.29	~low strength (limited)	0.80	~slope (limited)	0.76		
							~low strength (moderately limited)	0.50		

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73181: Gateway-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Slightly limited ~seasonal wetness (slightly limited)	0.15	Limited ~slope (limited) ~seasonal wetness (slightly limited)	0.76 0.15	Not limited	
73182: Lebanon-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.28	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.28	Not limited	
73183: Scholten-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.18	Slightly limited ~seasonal wetness (slightly limited)	0.26	Moderately limited ~slippage potential (moderately limited) ~slope (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.45 0.26	Not limited	
Tonti-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.22	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.26	Moderately limited ~low strength (moderately limited) ~slope (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.45 0.26	Slightly limited ~soil reaction (slightly limited)	0.06
73184: Knobby-----	Limited ~slope/erodibility (limited)	0.94	Slightly limited ~slope/erodibility (slightly limited)	0.29	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~very sandy (surface) (moderately limited)	0.99 0.50 0.50	Very limited ~droughty (very limited) ~soil reaction (limited)	1.00 0.60
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:										
Bardley-----	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.65			~slope (very limited)	1.00		
							~large surface stones (moderately limited)	0.60		
							~surface stones (moderately limited)	0.42		
Alred-----	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.69			~slope (very limited)	1.00	~droughty (slightly limited)	0.08
							~large surface stones (limited)	0.66		
							~surface stones (moderately limited)	0.45		
Gasconade-----	Very limited		Limited		Not limited		Very limited		Very limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.63			~slope (very limited)	1.00	~droughty (very limited)	1.00
							~large surface stones (limited)	0.66		
							~stickiness (surface) (moderately limited)	0.50		
73187:										
Bender-----	Very limited		Limited		Not limited		Very limited		Moderately limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.65			~slope (very limited)	1.00	~droughty (moderately limited)	0.45
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Limited		Slightly limited		Slightly limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~seasonal wetness (slightly limited)	0.10	~slope (limited)	0.76		
							~seasonal wetness (slightly limited)	0.10		
Poynor-----	Very limited		Slightly limited		Not limited		Limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (slightly limited)	0.24			~slope (limited)	0.76		
73189:										
Useful-----	Limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.15	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73189:										
Gatewood-----	Limited		Slightly limited		Slightly limited		Slightly limited		Not limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.12	~seasonal wetness (slightly limited)	0.15	~seasonal wetness (slightly limited)	0.15		
74634:										
Hartville-----	Limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.15	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.29	~seasonal wetness (slightly limited)	0.29		
74652:										
Lecoma-----	Limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (limited)	0.67	~slope/erodibility (slightly limited)	0.15	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
74653:										
Racoon-----	Slightly limited		Slightly limited		Very limited		Very limited		Very limited	
	~slope/erodibility (slightly limited)	0.22	~slope/erodibility (slightly limited)	0.05	~seasonal wetness (very limited)	1.00	~seasonal wetness (very limited)	1.00	~seasonal wetness (very limited)	1.00
					~low strength (limited)	0.80	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60
							~low strength (moderately limited)	0.50		
Freeburg-----	Slightly limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility (slightly limited)	0.11	~slope/erodibility (slightly limited)	0.02	~low strength (limited)	0.80	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60
					~seasonal wetness (slightly limited)	0.25	~low strength (moderately limited)	0.50		
							~seasonal wetness (slightly limited)	0.25		
74656:										
Deible-----	Slightly limited		Slightly limited		Limited		Limited		Limited	
	~slope/erodibility (slightly limited)	0.22	~slope/erodibility (slightly limited)	0.05	~seasonal wetness (limited)	0.91	~seasonal wetness (limited)	0.91	~seasonal wetness (limited)	0.91
					~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
75375:										
Horsecreek-----	Slightly limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility (slightly limited)	0.11	~slope/erodibility (slightly limited)	0.02	~low strength (limited)	0.80	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60
							~low strength (moderately limited)	0.50		

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75376:										
Cedargap-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00	Limited ~flooding (limited)	0.90
75388:										
Kaintuck-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited)	0.90
Relfe-----	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Not limited		Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00	Very limited ~droughty (very limited)	1.00 0.90
75391:										
Possumtrot-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60
75398:										
Kaintuck-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited)	0.90
75412:										
Razort-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60
75413:										
Relfe-----	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Not limited		Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00	Very limited ~droughty (very limited)	1.00 0.90
75414:										
Wideman-----	Slightly limited ~slope/erodibility (slightly limited)	0.06	Slightly limited ~slope/erodibility (slightly limited)	0.02	Not limited		Very limited ~flooding (very limited) ~very sandy (surface) (moderately limited)	1.00	Limited ~flooding (limited) ~droughty (slightly limited)	0.90 0.05

Table 8b.--Forestland Management-Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9.--Windbreaks and Environmental Plantings

(Only the soils suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
66014: Haymond-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, white fir	pin oak, eastern white pine
73039: Glensted-----	American plum, redosier dogwood	common chokecherry	common hackberry, eastern redcedar	Norway spruce, green ash, golden willow, northern red oak, honeylocust, silver maple	eastern cottonwood
73053: Lily.					
Bender-----	common lilac, fragrant sumac	American plum, gray dogwood	common hackberry, eastern redcedar, bur oak, green ash, Austrian pine	---	---
73066: Bender-----	common lilac, fragrant sumac	American plum, gray dogwood	common hackberry, eastern redcedar, bur oak, green ash, Austrian pine	---	---
73067: Bender-----	common lilac, fragrant sumac	American plum, gray dogwood	common hackberry, eastern redcedar, bur oak, green ash, Austrian pine	---	---
Rock outcrop.					
73080: Alred.					
Bardley-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
Rock outcrop.					
73087: Celt-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
73098: Plato-----	fragrant sumac, ninebark	gray dogwood, possumhaw, Amur maple	eastern redcedar	Austrian pine, Norway spruce, common hackberry, honeylocust, pin oak	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73135, 73136: Union-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
73159: Yelton-----	common lilac, fragrant sumac	Amur maple, gray dogwood	Manchurian crabapple, eastern redcedar, common hackberry, green ash, Austrian pine	---	---
73160: Hobson-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
73163: Bardley-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
Alred.					
Gasconade.					
73164: Bender-----	common lilac, fragrant sumac	American plum, gray dogwood	common hackberry, eastern redcedar, bur oak, green ash, Austrian pine	---	---
Rock outcrop.					
73165: Knobby.					
Rock outcrop.					
Bardley-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
73166: Viburnum-----	fragrant sumac, ninebark	gray dogwood, possumhaw, Amur maple	eastern redcedar	Austrian pine, Norway spruce, common hackberry, honeylocust, pin oak	---
Tonti-----	Amur honeysuckle, fragrant sumac	Amur maple, gray dogwood	Manchurian crabapple, eastern redcedar, common hackberry, green ash, Austrian pine	---	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73171: Plato-----	fragrant sumac, ninebark	gray dogwood, possumhaw, Amur maple	eastern redcedar	Austrian pine, Norway spruce, common hackberry, honeylocust, pin oak	---
73172: Rosati-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
73173, 73174: Lily.					
Yelton-----	common lilac, fragrant sumac	Amur maple, gray dogwood	Manchurian crabapple, eastern redcedar, common hackberry, green ash, Austrian pine	---	---
73175: Poynor.					
Bendavis-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
73176: Bendavis-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
Poynor.					
73178: Bendavis-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
73179: Viraton-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
Wilderness-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73183: Scholten-----	American plum, common lilac, fragrant sumac	Washington hawthorn, gray dogwood, Amur maple	Austrian pine, Virginia pine, common hackberry, eastern redcedar, honeylocust	---	---
Tonti-----	common lilac	Amur maple, gray dogwood	Manchurian crabapple, eastern redcedar, common hackberry, green ash, Austrian pine	---	---
73186: Bardley-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
Alred.					
Gasconade.					
73187: Bender-----	common lilac, fragrant sumac	American plum, gray dogwood	common hackberry, eastern redcedar, bur oak, green ash, Austrian pine	---	---
Rock outcrop.					
73188: Bendavis-----	common lilac, fragrant sumac	American plum, gray dogwood	bur oak, common hackberry, eastern redcedar, Austrian pine, green ash, honeylocust	---	---
Poynor.					
74652: Lecoma-----	common lilac	Amur maple	common hackberry, eastern redcedar	Norway spruce, green ash, honeylocust, pin oak, eastern white pine	---
74653: Raccoon-----	buttonbush	possumhaw	nannyberry, eastern arborvitae, eastern redcedar	common hackberry, baldcypress, pin oak	eastern cottonwood
Freeburg-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
74656: Deible-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, baldcypress	pin oak, eastern white pine

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
75376: Cedargap-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75388: Kaintuck-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
Relfe-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75398: Kaintuck-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75413: Relfe-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak

Table 10.--Recreational Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:								
Haymond-----	Very limited		Moderately limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	0.60	~flooding	1.00	~flooding	0.60
	(very limited)		(moderately limited)		(very limited)		(moderately limited)	
70028:								
Moko-----	Limited		Limited		Very limited		Limited	
	~shallow to bedrock	0.90	~shallow to bedrock	0.90	~bedrock <20 in.	1.00	~large surface stones	0.80
	(limited)		(limited)		(very limited)		(limited)	
	~large surface stones	0.80	~large surface stones	0.80	~slope	1.00		
	(limited)		(limited)		(very limited)			
	~small stones	0.64	~small stones	0.64	~small stones	1.00		
	(limited)		(limited)		(very limited)			
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73013:								
Lowassie-----	Very limited		Very limited		Very limited		Very limited	
	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~ponded (wetness)	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.39	~percs slowly	0.39	~percs slowly	0.39		
	(moderately limited)		(moderately limited)		(moderately limited)			
73032:								
Gatewood-----	Very limited		Very limited		Very limited		Moderately limited	
	~small stones	1.00	~small stones	1.00	~small stones	1.00	~small stones	0.60
	(very limited)		(very limited)		(very limited)		(moderately limited)	
	~percs slowly	0.40	~percs slowly	0.40	~slope	1.00	~large surface stones	0.13
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)	
	~wetness	0.38	~large surface stones	0.13	~depth to bedrock	0.42	~wetness	0.13
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
73039:								
Glensted-----	Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
73053:								
Lily-----	Not limited		Not limited		Very limited		Not limited	
					~slope	1.00		
					(very limited)			
					~depth to bedrock	0.76		
					(limited)			
Bender-----	Slightly limited		Slightly limited		Very limited		Slightly limited	
	~too acid	0.18	~too acid	0.18	~slope	1.00	~large stones	0.17
	(slightly limited)		(slightly limited)		(very limited)		(slightly limited)	
	~large stones	0.17	~large stones	0.17	~large stones >25%	1.00		
	(slightly limited)		(slightly limited)		(very limited)			
					~depth to bedrock	0.76		
					(limited)			

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73066: Bender-----	Slightly limited  ~too acid   (slightly limited)  ~large stones   (slightly limited)  ~large surface stones   (slightly limited)	 0.18   0.17   0.13	Slightly limited  ~too acid   (slightly limited)  ~large stones   (slightly limited)  ~large surface stones   (slightly limited)	 0.18   0.17   0.13	Very limited  ~slope   (very limited)  ~large stones >25%   (very limited)  ~depth to bedrock   (limited)	 1.00   1.00   1.00   0.76	Slightly limited  ~large stones   (slightly limited)  ~large surface stones   (slightly limited)	 0.17   0.13   
73067: Bender-----	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~too acid   (slightly limited)	 1.00   0.60   0.18	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~too acid   (slightly limited)	 1.00   0.60   0.18	Very limited  ~slope   (very limited)  ~large stones >25%   (very limited)  ~depth to bedrock   (limited)	 1.00   1.00   1.00   0.76	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~large stones   (slightly limited)	 1.00   0.60   0.17   
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73080: Alred-----	Very limited  ~slope   (very limited)  ~large stones   (limited)  ~large surface stones   (moderately limited)	 1.00   0.60   0.60	Very limited  ~slope   (very limited)  ~large stones   (limited)  ~large surface stones   (moderately limited)	 1.00   0.60   0.60	Very limited  ~large stones >25%   (very limited)  ~slope   (very limited)  ~small stones   (very limited)	 1.00   1.00   1.00   1.00	Very limited  ~slope   (very limited)  ~large stones   (limited)  ~large surface stones   (moderately limited)	 1.00   0.60   0.60   0.60
Bardley-----	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~small stones   (moderately limited)	 1.00   0.60   0.58	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~small stones   (moderately limited)	 1.00   0.60   0.58	Very limited  ~slope   (very limited)  ~large stones >25%   (very limited)  ~small stones   (very limited)	 1.00   1.00   1.00   1.00	Very limited  ~slope   (very limited)  ~large surface stones   (moderately limited)  ~large stones   (slightly limited)	 1.00   0.60   0.17   
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73087: Celt-----	Very limited  ~wetness   (very limited)  ~percs slowly   (slightly limited)	 1.00   0.19	Very limited  ~wetness   (very limited)  ~percs slowly   (slightly limited)	 1.00   0.19	Very limited  ~wetness   (very limited)  ~percs slowly   (slightly limited)	 1.00   0.19   0.19	Very limited  ~wetness   (very limited)	 1.00     
73089: Rueter-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (limited)	 1.00   1.00   0.80	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (limited)	 1.00   1.00   0.80	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~too acid   (limited)	 1.00   1.00   1.00   0.71	Limited  ~slope   (limited)  ~large surface stones   (limited)  ~small stones   (moderately limited)	 0.92     0.80   0.49   
73094: Gatewood-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	 1.00   1.00   1.00   0.42	Limited  ~slope   (limited)  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)	 0.92   0.60   0.13   

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73098: Plato-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.94 0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00 0.13	Limited ~wetness (limited)	0.94
73135: Union-----	Limited ~wetness (limited)	0.92	Moderately limited ~wetness (moderately limited)	0.56	Limited ~slope (limited) ~wetness (limited)	0.98 0.92	Moderately limited ~wetness (moderately limited)	0.56
73136: Union-----	Limited ~wetness (limited)	0.92	Moderately limited ~wetness (moderately limited)	0.56	Limited ~wetness (limited)	0.92	Moderately limited ~wetness (moderately limited)	0.56
73159: Yelton-----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.92 0.13	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited)	0.56 0.13	Limited ~wetness (limited) ~slope (limited) ~percs slowly (slightly limited)	0.92 0.78 0.13	Moderately limited ~wetness (moderately limited)	0.56
73160: Hobson-----	Limited ~wetness (limited) ~slope (limited)	0.82 0.63	Limited ~slope (limited) ~wetness (moderately limited)	0.63 0.47	Very limited ~slope (very limited) ~wetness (limited)	1.00 0.82	Very limited ~erodes easily (very limited) ~wetness (moderately limited)	1.00 0.47
73161: Alred-----	Very limited ~small stones (very limited) ~slope (limited)	1.00 0.63	Very limited ~small stones (very limited) ~slope (limited)	1.00 0.63	Very limited ~small stones (very limited) ~slope (very limited)	1.00 1.00	Limited ~small stones (limited)	0.73
Rueter-----	Very limited ~small stones (very limited) ~too acid (limited) ~slope (slightly limited)	1.00 0.71 0.04	Very limited ~small stones (very limited) ~too acid (limited) ~slope (slightly limited)	1.00 0.71 0.04	Very limited ~small stones (very limited) ~slope (very limited) ~too acid (limited)	1.00 1.00 0.71	Moderately limited ~small stones (moderately limited)	0.49
73162: Alred-----	Very limited ~slope (very limited) ~small stones (very limited) ~large surface stones (limited)	1.00 1.00 1.00 0.80	Very limited ~slope (very limited) ~small stones (very limited) ~large surface stones (limited)	1.00 1.00 1.00 0.80	Very limited ~small stones (very limited) ~slope (very limited)	1.00 1.00 1.00	Limited ~slope (limited) ~large surface stones (limited) ~small stones (limited)	0.92 0.80 0.73

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73162: Rueter-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (limited)	  1.00    1.00    0.80	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (limited)	  1.00    1.00    0.80	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~too acid   (limited)	  1.00    1.00    0.71     (limited)	Limited  ~slope   (limited)  ~large surface stones   (limited)  ~small stones   (moderately limited)	  0.92    0.80      0.49 
73163: Bardley-----	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    1.00	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    1.00	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	  1.00    1.00    0.46     (moderately limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (slightly limited)	  1.00    1.00    0.01 
Alred-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (very limited)	  1.00    1.00    1.00	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (very limited)	  1.00    1.00    1.00	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (very limited)	  1.00    1.00    1.00     (very limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    0.73 
Gasconade-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (very limited)	  1.00    1.00    1.00	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (very limited)	  1.00    1.00    1.00	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~bedrock <20 in.   (very limited)	  1.00    1.00    1.00     (very limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    1.00    0.87 
73164: Bender-----	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~too acid   (slightly limited)	  1.00    1.00    0.18	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~too acid   (slightly limited)	  1.00    1.00    0.18	Very limited  ~slope   (very limited)  ~large stones >25%   (very limited)  ~depth to bedrock   (limited)	  1.00    1.00    1.00     (limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~large stones   (slightly limited)	  1.00    1.00    1.00    0.17 
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73165: Knobby-----	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~shallow to bedrock   (limited)	  1.00    1.00    0.90	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~shallow to bedrock   (limited)	  1.00    1.00    0.90	Very limited  ~slope   (very limited)  ~bedrock <20 in.   (very limited)  ~small stones   (very limited)	  1.00    1.00    1.00     (very limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~large stones   (slightly limited)	  1.00    1.00    1.00    0.03 
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    1.00	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (limited)	  1.00    1.00    1.00	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	  1.00    1.00    0.46     (moderately limited)	Very limited  ~slope   (very limited)  ~large surface stones   (very limited)  ~small stones   (slightly limited)	  1.00    1.00    0.01 

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166: Viburnum-----	Limited  ~wetness   (limited)  ~too acid   (slightly limited)  ~percs slowly   (slightly limited)	 0.85   0.18   0.13 	Moderately limited  ~wetness   (moderately limited)  ~too acid   (slightly limited)  ~percs slowly   (slightly limited)	 0.49   0.18   0.13 	Limited  ~wetness   (limited)  ~slope   (limited)  ~too acid   (slightly limited)	 0.85   0.78   0.18 	Moderately limited  ~wetness   (moderately limited)	 0.49 
Tonti-----	Limited  ~wetness   (limited)  ~too acid   (slightly limited)	 0.85   0.30 	Moderately limited  ~wetness   (moderately limited)  ~too acid   (slightly limited)	 0.49   0.30 	Limited  ~wetness   (limited)  ~slope   (limited)  ~too acid   (slightly limited)	 0.85   0.78   0.30 	Moderately limited  ~wetness   (moderately limited)	 0.49 
73168: Swiss-----	Very limited  ~percs slowly   (very limited)  ~small stones   (moderately limited)  ~slope   (slightly limited)	 1.00   0.30   0.16 	Very limited  ~percs slowly   (very limited)  ~small stones   (moderately limited)  ~slope   (slightly limited)	 1.00   0.30   0.16 	Very limited  ~percs slowly   (very limited)  ~slope   (very limited)	 1.00   1.00 	Slightly limited  ~large surface stones   (slightly limited)	 0.13 
73169: Beemont-----	Very limited  ~slope   (very limited)  ~small stones   (limited)  ~percs slowly   (moderately limited)	 1.00   0.82   0.40 	Very limited  ~slope   (very limited)  ~small stones   (limited)  ~percs slowly   (moderately limited)	 1.00   0.82   0.40 	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40 	Limited  ~slope   (limited)  ~large surface stones   (slightly limited)	 0.92   0.13 
Gatewood-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40 	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40 	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	 1.00   1.00   0.42 	Limited  ~slope   (limited)  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)	 0.92   0.60   0.13 
73170: Beemont-----	Limited  ~small stones   (limited)  ~percs slowly   (moderately limited)  ~large surface stones   (slightly limited)	 0.82   0.40   0.13 	Limited  ~small stones   (limited)  ~percs slowly   (moderately limited)  ~large surface stones   (slightly limited)	 0.82   0.40   0.13 	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~percs slowly   (moderately limited)	 1.00   1.00   0.40 	Slightly limited  ~large surface stones   (slightly limited)	 0.13 
Gatewood-----	Very limited  ~small stones   (very limited)  ~percs slowly   (moderately limited)  ~wetness   (moderately limited)	 1.00   0.40   0.38 	Very limited  ~small stones   (very limited)  ~percs slowly   (moderately limited)  ~large surface stones   (slightly limited)	 1.00   0.40   0.13 	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	 1.00   1.00   0.42 	Moderately limited  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)  ~wetness   (slightly limited)	 0.60   0.13   0.13 

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73171: Plato-----	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~percs slowly (slightly limited)	1.00  0.60  0.13	Limited ~wetness (limited) ~too clayey (moderately limited) ~percs slowly (slightly limited)	0.94  0.60  0.13	Very limited ~wetness (very limited) ~slope (limited) ~too clayey (moderately limited)	1.00  0.98  0.60	Limited ~wetness (limited) ~too clayey (moderately limited)	0.94   0.60
73172: Rosati-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.86  0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited) ~slope (slightly limited)	1.00  0.13  0.10	Limited ~wetness (limited)	0.86
73173: Lily-----	Not limited		Not limited		Limited ~slope (limited) ~depth to bedrock (limited)	0.98  0.76	Not limited	
Yelton-----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.92  0.13	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited)	0.56  0.13	Limited ~wetness (limited) ~slope (limited) ~percs slowly (slightly limited)	0.92  0.78  0.13	Moderately limited ~wetness (moderately limited)	0.56
73174: Lily-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.76	Not limited	
Yelton-----	Limited ~wetness (limited) ~slope (limited) ~percs slowly (slightly limited)	0.92  0.63  0.13	Limited ~slope (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.63  0.56  0.13	Very limited ~slope (very limited) ~wetness (limited) ~percs slowly (slightly limited)	1.00  0.92  0.13	Very limited ~erodes easily (very limited) ~wetness (moderately limited)	1.00  0.56
73175: Poynor-----	Very limited ~small stones (limited)	1.00	Very limited ~small stones (limited)	1.00	Very limited ~small stones (very limited) ~slope (limited)	1.00  0.78	Slightly limited ~small stones (slightly limited)	0.01
Bendavis-----	Very limited ~small stones (very limited)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~small stones (very limited) ~slope (limited) ~depth to bedrock (moderately limited)	1.00  0.78  0.58	Moderately limited ~small stones (moderately limited)	0.60

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73176: Bendavis-----	Very limited  ~small stones   (very limited)  ~slope   (limited)  ~large surface stones   (slightly limited)	  1.00    0.63    0.13	Very limited  ~small stones   (very limited)  ~slope   (limited)  ~large surface stones   (slightly limited)	  1.00    0.63    0.13	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	  1.00    1.00    0.58	Moderately limited  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)	  0.60    0.13   
Poynor-----	Very limited  ~small stones   (limited)  ~slope   (limited)  ~large surface stones   (slightly limited)	  1.00    0.63    0.13	Very limited  ~small stones   (limited)  ~slope   (limited)  ~large surface stones   (slightly limited)	  1.00    0.63    0.13	Very limited  ~small stones   (very limited)  ~slope   (very limited)	  1.00    1.00	Slightly limited  ~large surface stones   (slightly limited)  ~small stones   (slightly limited)	  0.13    0.01   
73178: Bendavis-----	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (slightly limited)	  1.00    1.00    0.13	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~large surface stones   (slightly limited)	  1.00    1.00    0.13	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	  1.00    1.00    0.58	Limited  ~slope   (limited)  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)	  0.92    0.60    0.13 
73179: Viraton-----	Limited  ~wetness   (limited)  ~percs slowly   (slightly limited)  ~too acid   (slightly limited)	  0.92    0.13    0.12	Moderately limited  ~wetness   (moderately limited)  ~percs slowly   (slightly limited)  ~too acid   (slightly limited)	  0.56    0.13    0.12	Very limited  ~slope   (very limited)  ~wetness   (limited)  ~percs slowly   (slightly limited)	  1.00    0.92    0.13	Moderately limited  ~wetness   (moderately limited)	  0.56       
Wilderness-----	Limited  ~wetness   (limited)  ~slope   (limited)  ~small stones   (moderately limited)	  0.72    0.63    0.33	Limited  ~slope   (limited)  ~wetness   (moderately limited)  ~small stones   (moderately limited)	  0.63    0.39    0.33	Very limited  ~slope   (very limited)  ~small stones   (very limited)  ~wetness   (limited)	  1.00    1.00    0.72	Moderately limited  ~wetness   (moderately limited)	  0.39       
73180: Gatewood-----	Very limited  ~small stones   (very limited)  ~percs slowly   (moderately limited)  ~wetness   (moderately limited)	  1.00    0.40    0.38	Very limited  ~small stones   (very limited)  ~percs slowly   (moderately limited)  ~large surface stones   (slightly limited)	  1.00    0.40    0.13	Very limited  ~small stones   (very limited)  ~slope   (very limited)  ~depth to bedrock   (moderately limited)	  1.00    1.00    0.42	Moderately limited  ~small stones   (moderately limited)  ~large surface stones   (slightly limited)  ~wetness   (slightly limited)	  0.60    0.13    0.13 
Gasconade-----	Very limited  ~small stones   (very limited)  ~shallow to bedrock   (limited)  ~too clayey   (moderately limited)	  1.00    0.90    0.60	Very limited  ~small stones   (very limited)  ~shallow to bedrock   (limited)  ~too clayey   (moderately limited)	  1.00    0.90    0.60	Very limited  ~small stones   (very limited)  ~bedrock <20 in.   (very limited)  ~slope   (very limited)	  1.00    1.00    1.00	Limited  ~small stones   (limited)  ~too clayey   (moderately limited)  ~large surface stones   (slightly limited)	  0.87    0.60    0.13 

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73181:								
Useful-----	Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~erodes easily (very limited)	1.00
	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13		
Gatewood-----	Very limited		Very limited		Very limited		Moderately limited	
	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~small stones (moderately limited)	0.60
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large surface stones (slightly limited)	0.13
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~depth to bedrock (moderately limited)	0.42	~wetness (slightly limited)	0.13
73182:								
Lebanon-----	Limited		Moderately limited		Limited		Moderately limited	
	~wetness (limited)	0.92	~wetness (moderately limited)	0.56	~wetness (limited)	0.92	~wetness (moderately limited)	0.56
	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13		
73183:								
Scholten-----	Very limited		Very limited		Very limited		Moderately limited	
	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~wetness (moderately limited)	0.49
	~wetness (limited)	0.85	~wetness (moderately limited)	0.49	~slope (very limited)	1.00	~small stones (slightly limited)	0.14
	~too acid (slightly limited)	0.06	~too acid (slightly limited)	0.06	~wetness (limited)	0.85		
Tonti-----	Limited		Moderately limited		Very limited		Very limited	
	~wetness (limited)	0.85	~wetness (moderately limited)	0.49	~slope (very limited)	1.00	~erodes easily (very limited)	1.00
	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~wetness (limited)	0.85	~wetness (moderately limited)	0.49
	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.30		
73184:								
Knobby-----	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~bedrock <20 in. (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (slightly limited)	0.08
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~small stones (very limited)	1.00	~large stones (slightly limited)	0.03
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73186:								
Bardley-----	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~small stones (limited)	1.00	~small stones (limited)	1.00	~depth to bedrock (moderately limited)	0.46	~small stones (slightly limited)	0.01

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:								
Alred-----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~small stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~small stones	1.00			~small stones	0.73
	(very limited)		(very limited)				(limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~small stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~small stones	1.00	~bedrock <20 in.	1.00	~small stones	0.87
	(very limited)		(very limited)		(very limited)		(limited)	
73187:								
Bender-----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	0.60	~large surface stones	0.60	~large stones >25%	1.00	~large surface stones	0.60
	(moderately limited)		(moderately limited)		(very limited)		(moderately limited)	
	~too acid	0.18	~too acid	0.18	~depth to bedrock	0.76	~large stones	0.17
	(slightly limited)		(slightly limited)		(limited)		(slightly limited)	
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73188:								
Bendavis-----	Very limited		Very limited		Very limited		Moderately limited	
	~small stones	1.00	~small stones	1.00	~small stones	1.00	~small stones	0.60
	(very limited)		(very limited)		(very limited)		(moderately limited)	
	~slope	0.63	~slope	0.63	~slope	1.00	~large surface stones	0.13
	(limited)		(limited)		(very limited)		(slightly limited)	
	~large surface stones	0.13	~large surface stones	0.13	~depth to bedrock	0.58		
	(slightly limited)		(slightly limited)		(moderately limited)			
Poynor-----	Very limited		Very limited		Very limited		Slightly limited	
	~small stones	1.00	~small stones	1.00	~small stones	1.00	~large surface stones	0.13
	(limited)		(limited)		(very limited)		(slightly limited)	
	~slope	0.63	~slope	0.63	~slope	1.00	~small stones	0.01
	(limited)		(limited)		(very limited)		(slightly limited)	
	~large surface stones	0.13	~large surface stones	0.13				
	(slightly limited)		(slightly limited)					
73189:								
Useful-----	Slightly limited		Slightly limited		Limited		Not limited	
	~percs slowly	0.13	~percs slowly	0.13	~slope	0.98		
	(slightly limited)		(slightly limited)		(limited)			
					~percs slowly	0.13		
					(slightly limited)			
Gateway-----	Very limited		Very limited		Very limited		Moderately limited	
	~small stones	1.00	~small stones	1.00	~small stones	1.00	~small stones	0.60
	(very limited)		(very limited)		(very limited)		(moderately limited)	
	~percs slowly	0.40	~percs slowly	0.40	~slope	0.98	~large surface stones	0.13
	(moderately limited)		(moderately limited)		(limited)		(slightly limited)	
	~wetness	0.38	~large surface stones	0.13	~depth to bedrock	0.42	~wetness	0.13
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74634: Hartville-----	Limited  ~wetness   (limited)  ~percs slowly   (moderately limited)	  0.97    0.39 	Limited  ~wetness   (limited)  ~percs slowly   (moderately limited)	  0.60    0.39 	Limited  ~slope   (limited)  ~wetness   (limited)  ~percs slowly   (moderately limited)	  0.98    0.97    0.39 	Limited  ~wetness   (limited)	  0.60         
74652: Lecoma-----	Not limited		Not limited		Limited  ~slope   (limited)	  0.98 	Not limited	   
74653: Raccoon-----	Very limited  ~flooding   (very limited)  ~wetness   (very limited)  ~percs slowly   (moderately limited)	  1.00    1.00    0.39 	Very limited  ~wetness   (very limited)  ~percs slowly   (moderately limited)	  1.00    0.39 	Very limited  ~wetness   (very limited)  ~flooding   (moderately limited)  ~percs slowly   (moderately limited)	  1.00    0.60    0.39 	Very limited  ~wetness   (very limited)	  1.00         
Freeburg-----	Very limited  ~flooding   (very limited)  ~wetness   (limited)  ~percs slowly   (slightly limited)	  1.00    0.80    0.13 	Moderately limited  ~wetness   (moderately limited)  ~percs slowly   (slightly limited)	  0.45    0.13 	Limited  ~wetness   (limited)  ~flooding   (moderately limited)  ~percs slowly   (slightly limited)	  0.80    0.60    0.13 	Moderately limited  ~wetness   (moderately limited)	  0.45         
74656: Deible-----	Very limited  ~wetness   (very limited)  ~flooding (rare)   (limited)	  1.00    0.90 	Very limited  ~wetness   (very limited)	  1.00 	Very limited  ~wetness   (very limited)	  1.00 	Very limited  ~wetness   (very limited)	  1.00     
75375: Horsecreek-----	Very limited  ~flooding   (very limited)	  1.00 	Not limited		Moderately limited  ~flooding   (moderately limited)	  0.60 	Not limited	   
75376: Cedargap-----	Very limited  ~flooding   (very limited)  ~small stones   (slightly limited)	  1.00    0.27 	Moderately limited  ~flooding   (moderately limited)  ~small stones   (slightly limited)	  0.60    0.27 	Very limited  ~flooding   (very limited)  ~small stones   (very limited)  ~large stones   (slightly limited)	  1.00    1.00    0.01 	Moderately limited  ~flooding   (moderately limited)	  0.60         
75388: Kaintuck-----	Very limited  ~flooding   (very limited)	  1.00 	Moderately limited  ~flooding   (moderately limited)	  0.60 	Very limited  ~flooding   (very limited)	  1.00 	Moderately limited  ~flooding   (moderately limited)	  0.60 
Relfe-----	Very limited  ~flooding   (very limited)  ~small stones   (very limited)	  1.00    1.00 	Very limited  ~small stones   (very limited)  ~flooding   (moderately limited)	  1.00    0.60 	Very limited  ~flooding   (very limited)  ~small stones   (very limited)	  1.00    1.00 	Limited  ~small stones   (limited)  ~flooding   (moderately limited)	  0.73    0.60 

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75391: Possumtrot-----	Very limited  ~flooding (very limited)	1.00	Not limited		Moderately limited  ~flooding (moderately limited)  ~small stones (slightly limited)	0.60 0.00	Not limited	
75398: Kaintuck-----	Very limited  ~flooding (very limited)	1.00	Moderately limited  ~flooding (moderately limited)	0.60	Very limited  ~flooding (very limited)	1.00	Moderately limited  ~flooding (moderately limited)	0.60
75412: Razort-----	Very limited  ~flooding (very limited)	1.00	Not limited		Moderately limited  ~flooding (moderately limited)  ~small stones (slightly limited)	0.60 0.00	Not limited	
75413: Relfe-----	Very limited  ~flooding (very limited)  ~small stones (very limited)	1.00 1.00	Very limited  ~small stones (very limited)  ~flooding (moderately limited)	1.00 0.60	Very limited  ~flooding (very limited)  ~small stones (very limited)	1.00 1.00	Limited  ~small stones (limited)  ~flooding (moderately limited)	0.73 0.60
75414: Wideman-----	Very limited  ~flooding (very limited)  ~too sandy (very limited)	1.00 1.00	Very limited  ~too sandy (very limited)  ~flooding (moderately limited)	1.00 0.60	Very limited  ~flooding (very limited)  ~too sandy (very limited)	1.00 1.00	Very limited  ~too sandy (very limited)  ~flooding (moderately limited)	1.00 0.60
99000: Pits, quarries----	Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated	

Table 11a.--Wildlife Habitat Suitability

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited		Not limited	
70028:										
Moko-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~small stones (slightly limited)	1.00 1.00 0.13	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited ~wetness (very limited) ~ponded (wetness) (very limited) ~percs slowly (moderately limited)	1.00 1.00 0.39	Very limited ~wetness (very limited) ~ponded (wetness) (very limited) ~percs slowly (moderately limited)	1.00 1.00 0.39	Very limited ~wetness (very limited) ~seasonally ponded (limited)	1.00 1.00 0.80	Very limited ~wetness (very limited) ~seasonally ponded (limited)	1.00 1.00 0.80	Very limited ~wetness (very limited) ~seasonally ponded (limited)	1.00 1.00 0.80
73032:										
Gateway-----	Very limited ~droughty (very limited) ~small stones (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~small stones (very limited) ~high erodibility (limited) ~depth to bedrock (moderately limited)	1.00 1.00 0.42	Moderately limited ~small stones (moderately limited) ~wetness (moderately limited) ~droughty (slightly limited)	0.60 0.36 0.22	Moderately limited ~small stones (moderately limited) ~depth to bedrock (moderately limited) ~wetness (moderately limited)	0.60 0.42 0.36	Moderately limited ~wetness (moderately limited) ~depth to bedrock (moderately limited) ~droughty (slightly limited)	0.51 0.42 0.22
73039:										
Glensted-----	Very limited ~droughty (very limited) ~wetness (very limited) ~moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited ~droughty (very limited) ~wetness (very limited) ~moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited ~droughty (very limited)	1.00 1.00	Very limited ~droughty (very limited)	1.00 1.00	Very limited ~droughty (very limited)	1.00 1.00

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Very limited		Limited		Slightly limited		Limited		Limited	
	~droughty	1.00	~high erodibility	0.80	~droughty	0.15	~depth to bedrock	0.76	~depth to bedrock	0.76
	(very limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~high erodibility	0.80	~depth to bedrock	0.76			~droughty	0.15	~droughty	0.15
	(limited)		(limited)				(slightly limited)		(slightly limited)	
	~depth to bedrock	0.76	~droughty	0.15						
	(limited)		(slightly limited)							
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~high erodibility	0.80	~high erodibility	0.80	~large stones	0.17	~depth to bedrock	0.76	~depth to bedrock	0.76
	(limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76			~large stones	0.17	~large stones	0.17
	(limited)		(limited)				(slightly limited)		(slightly limited)	
73066:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~high erodibility	0.80	~high erodibility	0.80	~large stones	0.17	~depth to bedrock	0.76	~depth to bedrock	0.76
	(limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76			~large stones	0.17	~large stones	0.17
	(limited)		(limited)				(slightly limited)		(slightly limited)	
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.91	~slope	0.91	~large stones	0.17	~depth to bedrock	0.76	~depth to bedrock	0.76
	(limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80			~large stones	0.17	~large stones	0.17
	(limited)		(limited)				(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones >35%	0.99	~large stones >35%	0.99	~large stones	0.60	~large stones	0.60	~large stones	0.60
	(very limited)		(very limited)		(limited)		(limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80	~small stones	0.02				
	(limited)		(limited)		(slightly limited)					

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~slope	0.87	~droughty	0.72	~droughty	0.72	~droughty	0.72
	(very limited)		(limited)		(limited)		(limited)		(limited)	
	~slope	0.87	~high erodibility	0.80	~large stones	0.17	~depth to bedrock	0.46	~depth to bedrock	0.46
	(limited)		(limited)		(slightly limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~droughty	0.72	~small stones	0.11	~large stones	0.17	~large stones	0.17
	(limited)		(limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~moderate erodibility	0.50	~droughty	0.28	~droughty	0.28	~droughty	0.28
	(very limited)		(moderately limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~moderate erodibility	0.50	~droughty	0.28						
	(moderately limited)		(slightly limited)							
73089:										
Rueter-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.53	~small stones	0.49	~droughty	0.43
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.43	~droughty	0.43		
	(very limited)		(limited)		(moderately limited)		(moderately limited)			
	~high erodibility	0.80	~slope	0.60						
	(limited)		(moderately limited)							
73094:										
Gateway-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~wetness	0.51
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~wetness	0.36	~depth to bedrock	0.42	~depth to bedrock	0.42
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~slope	0.60	~droughty	0.22	~wetness	0.36	~droughty	0.22
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
73098:										
Plato-----	Very limited		Limited		Limited		Limited		Very limited	
	~droughty	1.00	~wetness	0.94	~wetness	0.94	~wetness	0.94	~wetness	1.00
	(very limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.94	~droughty	0.24	~droughty	0.24	~droughty	0.24	~droughty	0.24
	(limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~percs slowly	0.13	~percs slowly	0.13						
	(slightly limited)		(slightly limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58	~wetness (limited)	0.93
	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58						
	~droughty (slightly limited)	0.17								
73136:										
Union-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Limited	
	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58	~wetness (limited)	0.93
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
	~droughty (slightly limited)	0.17								
73159:										
Yelton-----	Very limited		Limited		Moderately limited		Moderately limited		Limited	
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.58	~wetness (moderately limited)	0.58	~wetness (limited)	0.93
	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.58	~droughty (slightly limited)	0.12	~droughty (slightly limited)	0.12	~droughty (slightly limited)	0.12
	~wetness (moderately limited)	0.58	~percs slowly (slightly limited)	0.13						
73160:										
Hobson-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.54	~wetness (moderately limited)	0.54	~wetness (limited)	0.82
	~wetness (moderately limited)	0.54	~wetness (moderately limited)	0.54						
	~droughty (slightly limited)	0.19								
73161:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~small stones (limited)	0.73	~small stones (limited)	0.73		
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.53	~small stones	0.49	~droughty	0.43
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.43	~droughty	0.43		
	(very limited)		(limited)		(moderately limited)		(moderately limited)			
	~high erodibility	0.80	~droughty	0.43						
	(limited)		(moderately limited)							
73162:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	0.73	~small stones	0.73		
	(very limited)		(very limited)		(limited)		(limited)			
	~high erodibility	0.80	~high erodibility	0.80						
	(limited)		(limited)							
Rueter-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.53	~small stones	0.49	~droughty	0.43
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.43	~droughty	0.43		
	(very limited)		(limited)		(moderately limited)		(moderately limited)			
	~high erodibility	0.80	~slope	0.60						
	(limited)		(moderately limited)							
73163:										
Bardley-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	0.66	~droughty	0.66	~droughty	0.66
	(very limited)		(limited)		(limited)		(limited)		(limited)	
	~small stones	1.00	~slope	0.91	~small stones	0.24	~depth to bedrock	0.46	~depth to bedrock	0.46
	(limited)		(limited)		(slightly limited)		(moderately limited)		(moderately limited)	
	~slope	0.91	~high erodibility	0.80			~small stones	0.01		
	(limited)		(limited)				(slightly limited)			
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	0.73	~small stones	0.73		
	(very limited)		(very limited)		(limited)		(limited)			
	~slope	0.99	~slope	0.99						
	(limited)		(limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~small stones	0.86	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~too clayey	0.25	~small stones	0.87		
	(very limited)		(very limited)		(slightly limited)		(limited)			
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~large stones	0.17	~depth to bedrock	0.76	~depth to bedrock	0.76
	(very limited)		(very limited)		(slightly limited)		(limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80			~large stones	0.17	~large stones	0.17
	(limited)		(limited)				(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~small stones	0.10	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(slightly limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~large stones	0.03	~large stones	0.03	~large stones	0.03
	(very limited)		(very limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Limited		Limited		Limited	
	~droughty	1.00	~slope	1.00	~droughty	0.66	~droughty	0.66	~droughty	0.66
	(very limited)		(very limited)		(limited)		(limited)		(limited)	
	~slope	1.00	~small stones	1.00	~small stones	0.24	~depth to bedrock	0.46	~depth to bedrock	0.46
	(very limited)		(limited)		(slightly limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80			~small stones	0.01		
	(limited)		(limited)				(slightly limited)			
73166:										
Viburnum-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~high erodibility	0.80	~high erodibility	0.80	~wetness	0.55	~wetness	0.55	~wetness	0.85
	(limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~droughty	0.79	~wetness	0.55						
	(limited)		(moderately limited)							
	~wetness	0.55	~percs slowly	0.13						
	(moderately limited)		(slightly limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Tonti-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~droughty (limited)	0.97	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.55	~wetness (moderately limited)	0.55	~wetness (limited)	0.85
	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.55						
	~wetness (moderately limited)	0.55								
73168:										
Swiss-----	Very limited		Very limited		Slightly limited		Slightly limited		Moderately limited	
	~percs slowly (very limited)	1.00	~percs slowly (very limited)	1.00	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (moderately limited)	0.37
	~droughty (limited)	0.99	~high erodibility (limited)	0.80	~small stones (slightly limited)	0.03				
	~high erodibility (limited)	0.80	~small stones (moderately limited)	0.30						
73169:										
Beemont-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~droughty (very limited)	1.00	~small stones (limited)	0.82	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.45
	~small stones (limited)	0.82	~high erodibility (limited)	0.80	~small stones (slightly limited)	0.17				
	~high erodibility (limited)	0.80	~slope (moderately limited)	0.60						
Gatewood-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~small stones (very limited)	1.00	~small stones (moderately limited)	0.60	~small stones (moderately limited)	0.60	~wetness (moderately limited)	0.51
	~small stones (very limited)	1.00	~high erodibility (limited)	0.80	~wetness (moderately limited)	0.36	~depth to bedrock (moderately limited)	0.42	~depth to bedrock (moderately limited)	0.42
	~high erodibility (limited)	0.80	~slope (moderately limited)	0.60	~droughty (slightly limited)	0.22	~wetness (moderately limited)	0.36	~droughty (slightly limited)	0.22
73170:										
Beemont-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~droughty (very limited)	1.00	~small stones (limited)	0.82	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.45
	~small stones (limited)	0.82	~high erodibility (limited)	0.80	~small stones (slightly limited)	0.17				
	~high erodibility (limited)	0.80	~percs slowly (moderately limited)	0.40						

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Gatewood-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~wetness	0.51
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~wetness	0.36	~depth to bedrock	0.42	~depth to bedrock	0.42
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.42	~droughty	0.22	~wetness	0.36	~droughty	0.22
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
73171:										
Plato-----	Very limited		Limited		Limited		Limited		Very limited	
	~droughty	1.00	~wetness	0.94	~wetness	0.94	~wetness	0.94	~wetness	1.00
	(very limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.94	~high erodibility	0.80	~droughty	0.28	~droughty	0.28	~droughty	0.28
	(limited)		(limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~high erodibility	0.80	~droughty	0.28	~too clayey	0.08	~too clayey	0.08		
	(limited)		(slightly limited)		(slightly limited)		(slightly limited)			
73172:										
Rosati-----	Limited		Limited		Limited		Limited		Very limited	
	~wetness	0.86	~wetness	0.86	~wetness	0.86	~wetness	0.86	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~droughty	0.85	~moderate erodibility	0.50						
	(limited)		(moderately limited)							
	~moderate erodibility	0.50	~percs slowly	0.13						
	(moderately limited)		(slightly limited)							
73173, 73174:										
Lily-----	Very limited		Limited		Slightly limited		Limited		Limited	
	~droughty	1.00	~high erodibility	0.80	~droughty	0.04	~depth to bedrock	0.76	~depth to bedrock	0.76
	(very limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~high erodibility	0.80	~depth to bedrock	0.76			~droughty	0.04	~droughty	0.04
	(limited)		(limited)				(slightly limited)		(slightly limited)	
	~depth to bedrock	0.76	~droughty	0.04						
	(limited)		(slightly limited)							
Yelton-----	Very limited		Limited		Moderately limited		Moderately limited		Limited	
	~droughty	1.00	~high erodibility	0.80	~wetness	0.58	~wetness	0.58	~wetness	0.93
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~high erodibility	0.80	~wetness	0.58	~droughty	0.12	~droughty	0.12	~droughty	0.12
	(limited)		(moderately limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~wetness	0.58	~percs slowly	0.13						
	(moderately limited)		(slightly limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73175:										
Poynor-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~droughty	1.00	~small stones	0.24	~small stones	0.01		
	(limited)		(very limited)		(slightly limited)		(slightly limited)			
	~high erodibility	0.80	~high erodibility	0.80						
	(limited)		(limited)							
Bendavis-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~depth to bedrock	0.58
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.45	~depth to bedrock	0.58	~droughty	0.45
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.58	~wetness	0.28	~droughty	0.45	~wetness	0.45
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	
73176:										
Bendavis-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~depth to bedrock	0.58
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.45	~depth to bedrock	0.58	~droughty	0.45
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.58	~wetness	0.28	~droughty	0.45	~wetness	0.45
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	
Poynor-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~droughty	1.00	~small stones	0.24	~small stones	0.01		
	(limited)		(very limited)		(slightly limited)		(slightly limited)			
	~high erodibility	0.80	~high erodibility	0.80						
	(limited)		(limited)							
73178:										
Bendavis-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~depth to bedrock	0.58
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.45	~depth to bedrock	0.58	~droughty	0.45
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~slope	0.60	~wetness	0.28	~droughty	0.45	~wetness	0.45
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73179:										
Viraton-----	Very limited		Limited		Moderately limited		Moderately limited		Limited	
	~droughty	1.00	~high erodibility	0.80	~wetness	0.58	~wetness	0.58	~wetness	0.93
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~high erodibility	0.80	~wetness	0.58	~droughty	0.06	~droughty	0.06	~droughty	0.06
	(limited)		(moderately limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~wetness	0.58	~percs slowly	0.13						
	(moderately limited)		(slightly limited)							
Wilderness-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~droughty	0.86	~droughty	0.86	~droughty	0.86	~droughty	0.86
	(very limited)		(limited)		(limited)		(limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80	~wetness	0.50	~wetness	0.50	~wetness	0.71
	(limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~wetness	0.50	~wetness	0.50	~small stones	0.04				
	(moderately limited)		(moderately limited)		(slightly limited)					
73180:										
Gatewood-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~wetness	0.51
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~wetness	0.36	~depth to bedrock	0.42	~depth to bedrock	0.42
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.42	~droughty	0.22	~wetness	0.36	~droughty	0.22
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~small stones	0.86	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~too clayey	0.25	~small stones	0.87		
	(very limited)		(very limited)		(slightly limited)		(limited)			
73181:										
Useful-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility	0.80	~high erodibility	0.80	~wetness	0.13	~wetness	0.13	~wetness	0.37
	(limited)		(limited)		(slightly limited)		(slightly limited)		(moderately limited)	
	~wetness	0.13	~wetness	0.13						
	(slightly limited)		(slightly limited)							
	~percs slowly	0.13	~percs slowly	0.13						
	(slightly limited)		(slightly limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73181:										
Gatewood-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~wetness	0.51
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~wetness	0.36	~depth to bedrock	0.42	~depth to bedrock	0.42
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.42	~droughty	0.22	~wetness	0.36	~droughty	0.22
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
73182:										
Lebanon-----	Limited		Moderately limited		Moderately limited		Moderately limited		Limited	
	~droughty	0.81	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.93
	(limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
	~wetness	0.58	~moderate erodibility	0.50						
	(moderately limited)		(moderately limited)							
	~moderate erodibility	0.50	~percs slowly	0.13						
	(moderately limited)		(slightly limited)							
73183:										
Scholten-----	Very limited		Very limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	0.97	~droughty	0.97	~droughty	0.97
	(very limited)		(very limited)		(limited)		(limited)		(limited)	
	~small stones	1.00	~droughty	0.97	~wetness	0.55	~wetness	0.55	~wetness	0.85
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80	~small stones	0.32	~small stones	0.14		
	(limited)		(limited)		(moderately limited)		(slightly limited)			
Tonti-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~droughty	0.97	~high erodibility	0.80	~wetness	0.55	~wetness	0.55	~wetness	0.85
	(limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~high erodibility	0.80	~wetness	0.55						
	(limited)		(moderately limited)							
	~wetness	0.55								
	(moderately limited)									
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~small stones	0.10	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(slightly limited)		(very limited)		(very limited)	
	~high erodibility	0.80	~high erodibility	0.80	~large stones	0.03	~large stones	0.03	~large stones	0.03
	(limited)		(limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:										
Bardley-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	0.66	~droughty	0.66	~droughty	0.66
	(very limited)		(limited)		(limited)		(limited)		(limited)	
	~small stones	1.00	~slope	0.91	~small stones	0.24	~depth to bedrock	0.46	~depth to bedrock	0.46
	(limited)		(limited)		(slightly limited)		(moderately limited)		(moderately limited)	
	~slope	0.91	~high erodibility	0.80			~small stones	0.01		
	(limited)		(limited)				(slightly limited)			
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	0.73	~small stones	0.73		
	(very limited)		(very limited)		(limited)		(limited)			
	~slope	0.99	~slope	0.99						
	(limited)		(limited)							
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~small stones	0.86	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~too clayey	0.25	~small stones	0.87		
	(very limited)		(very limited)		(slightly limited)		(limited)			
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.91	~slope	0.91	~large stones	0.17	~depth to bedrock	0.76	~depth to bedrock	0.76
	(limited)		(limited)		(slightly limited)		(limited)		(limited)	
	~high erodibility	0.80	~high erodibility	0.80			~large stones	0.17	~large stones	0.17
	(limited)		(limited)				(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~depth to bedrock	0.58
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~droughty	0.45	~depth to bedrock	0.58	~droughty	0.45
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.58	~wetness	0.28	~droughty	0.45	~wetness	0.45
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73188:										
Poynor-----	Very limited		Limited		Limited		Limited		Limited	
	~droughty	1.00	~small stones	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~droughty	1.00	~small stones	0.24	~small stones	0.01		
	(limited)		(very limited)		(slightly limited)		(slightly limited)			
	~high erodibility	0.80	~high erodibility	0.80						
	(limited)		(limited)							
73189:										
Useful-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility	0.80	~high erodibility	0.80	~wetness	0.13	~wetness	0.13	~wetness	0.37
	(limited)		(limited)		(slightly limited)		(slightly limited)		(moderately limited)	
	~wetness	0.13	~wetness	0.13						
	(slightly limited)		(slightly limited)							
	~percs slowly	0.13	~percs slowly	0.13						
	(slightly limited)		(slightly limited)							
Gateway-----	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty	1.00	~small stones	1.00	~small stones	0.60	~small stones	0.60	~wetness	0.51
	(very limited)		(very limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	1.00	~high erodibility	0.80	~wetness	0.36	~depth to bedrock	0.42	~depth to bedrock	0.42
	(very limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~high erodibility	0.80	~depth to bedrock	0.42	~droughty	0.22	~wetness	0.36	~droughty	0.22
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
74634:										
Hartville-----	Limited		Limited		Moderately limited		Moderately limited		Limited	
	~high erodibility	0.80	~high erodibility	0.80	~wetness	0.60	~wetness	0.60	~wetness	0.99
	(limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~wetness	0.60	~wetness	0.60						
	(moderately limited)		(moderately limited)							
	~percs slowly	0.39	~percs slowly	0.39						
	(moderately limited)		(moderately limited)							
74652:										
Lecoma-----	Limited		Limited		Not limited		Not limited		Not limited	
	~high erodibility	0.80	~high erodibility	0.80						
	(limited)		(limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74653:										
Racoon-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	0.60	~flooding	0.60						
	(moderately limited)		(moderately limited)							
	~percs slowly	0.39	~percs slowly	0.39						
	(moderately limited)		(moderately limited)							
Freeburg-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Limited	
	~flooding	0.60	~flooding	0.60	~wetness	0.53	~wetness	0.53	~wetness	0.80
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
	~wetness	0.53	~wetness	0.53						
	(moderately limited)		(moderately limited)							
	~percs slowly	0.13	~percs slowly	0.13						
	(slightly limited)		(slightly limited)							
74656:										
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~moderate erodibility	0.50	~droughty	0.20	~droughty	0.20	~droughty	0.20
	(very limited)		(moderately limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~moderate erodibility	0.50	~droughty	0.20						
	(moderately limited)		(slightly limited)							
75375:										
Horsecreek-----	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~flooding	0.60	~flooding	0.60						
	(moderately limited)		(moderately limited)							
75376:										
Cedargap-----	Limited		Limited		Slightly limited		Not limited		Not limited	
	~droughty	0.94	~flooding	0.90	~small stones	0.03				
	(limited)		(limited)		(slightly limited)					
	~flooding	0.90	~small stones	0.27						
	(limited)		(slightly limited)							
	~small stones	0.27								
	(slightly limited)									
75388:										
Kaintuck-----	Limited		Limited		Not limited		Not limited		Not limited	
	~flooding	0.90	~flooding	0.90						
	(limited)		(limited)							
	~droughty	0.34								
	(moderately limited)									

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75388:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	0.73	~small stones	0.73		
	(very limited)		(very limited)		(limited)		(limited)			
	~flooding	0.90	~flooding	0.90						
	(limited)		(limited)							
75391:										
Possumtrot----	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~flooding	0.60	~flooding	0.60						
	(moderately limited)		(moderately limited)							
	~droughty	0.11								
	(slightly limited)									
75398:										
Kaintuck-----	Limited		Limited		Not limited		Not limited		Not limited	
	~flooding	0.90	~flooding	0.90						
	(limited)		(limited)							
	~droughty	0.34								
	(moderately limited)									
75412:										
Razort-----	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~flooding	0.60	~flooding	0.60						
	(moderately limited)		(moderately limited)							
75413:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	0.73	~small stones	0.73		
	(very limited)		(very limited)		(limited)		(limited)			
	~flooding	0.90	~flooding	0.90						
	(limited)		(limited)							
75414:										
Wideman-----	Very limited		Very limited		Very limited		Very limited		Slightly limited	
	~too sandy	1.00	~too sandy	1.00	~too sandy	1.00	~too sandy	1.00	~droughty	0.02
	(very limited)		(very limited)		(very limited)		(very limited)		(slightly limited)	
	~droughty	1.00	~flooding	0.90	~droughty	0.02	~droughty	0.02		
	(very limited)		(limited)		(slightly limited)		(slightly limited)			
	~flooding	0.90	~high erodibility	0.80						
	(limited)		(limited)							

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat Suitability

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
			~infrequent flooding (moderately limited)	0.50					~seepage (moderately limited)	0.45
70028:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
	~bedrock <20 in. (very limited)	1.00	~infrequent flooding (limited)	0.80	~deep to water (very limited)	1.00			~slope (very limited)	1.00
									~seepage (moderately limited)	0.45
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited		Limited		Limited		Limited		Limited	
	~wetness (very limited)	1.00	~seasonally ponded (limited)	0.80	~seasonally ponded (limited)	0.80	~seasonally ponded (limited)	0.80	~seasonally ponded (limited)	0.80
	~seasonally ponded (limited)	0.80	~infrequent flooding (limited)	0.80						
73032:										
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~wetness (moderately limited)	0.51	~infrequent flooding (limited)	0.80	~small stones (moderately limited)	0.60	~deep to water (moderately limited)	0.53	~slope (very limited)	1.00
	~depth to bedrock (moderately limited)	0.42	~small stones (moderately limited)	0.60	~droughty (slightly limited)	0.22				
	~droughty (slightly limited)	0.22	~deep to water (moderately limited)	0.53						
73039:										
Glensted-----	Very limited		Limited		Very limited		Not limited		Moderately limited	
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~seepage (moderately limited)	0.45
	~wetness (very limited)	1.00								

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (limited)	0.76	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
	~droughty (slightly limited)	0.15	~infrequent flooding (limited)	0.80	~droughty (slightly limited)	0.15			~slope (very limited)	1.00
									~seepage (limited)	0.80
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
	~depth to bedrock (limited)	0.76	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~slope (very limited)	1.00
	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17			~seepage (limited)	0.80
73066:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
	~depth to bedrock (limited)	0.76	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~slope (very limited)	1.00
	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17			~seepage (limited)	0.80
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00
	~depth to bedrock (limited)	0.76	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~slope (very limited)	1.00
	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17			~seepage (limited)	0.80
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.60	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
			~large stones (limited)	0.60	~large stones (limited)	0.60			~seepage (moderately limited)	0.45

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.72	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.46	~infrequent flooding	0.80	~droughty	0.72			~deep to water	1.00
	(moderately limited)		(limited)		(limited)				(very limited)	
	~large stones	0.17	~large stones	0.17	~large stones	0.17			~seepage	0.45
	(slightly limited)		(slightly limited)		(slightly limited)				(moderately limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Limited		Slightly limited		Not limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.28			~seepage	0.13
	(very limited)		(limited)		(slightly limited)				(slightly limited)	
	~droughty	0.28								
	(slightly limited)									
73089:										
Rueter-----	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.43	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~small stones	0.49	~soil reaction	0.18	~deep to water	1.00
			(limited)		(moderately limited)		(slightly limited)		(very limited)	
			~small stones	0.49	~droughty	0.43			~seepage	0.80
			(moderately limited)		(moderately limited)				(limited)	
73094:										
Gateway-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.51	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.53	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~depth to bedrock	0.42	~small stones	0.60	~droughty	0.22				
	(moderately limited)		(moderately limited)		(slightly limited)					
	~droughty	0.22	~deep to water	0.53						
	(slightly limited)		(moderately limited)							
73098:										
Plato-----	Very limited		Limited		Slightly limited		Slightly limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.24	~deep to water	0.06	~seepage	0.18
	(very limited)		(limited)		(slightly limited)		(slightly limited)		(slightly limited)	
	~droughty	0.24	~deep to water	0.06						
	(slightly limited)		(slightly limited)							

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Limited		Limited		Not limited		Moderately limited		Limited	
	~wetness	0.93	~infrequent flooding	0.80			~deep to water	0.32	~slope	0.91
	(limited)		(limited)				(moderately limited)		(limited)	
			~deep to water	0.32					~seepage	0.45
			(moderately limited)						(moderately limited)	
73136:										
Union-----	Limited		Limited		Not limited		Moderately limited		Moderately limited	
	~wetness	0.93	~infrequent flooding	0.80			~deep to water	0.32	~seepage	0.45
	(limited)		(limited)				(moderately limited)		(moderately limited)	
			~deep to water	0.32						
			(moderately limited)							
73159:										
Yelton-----	Limited		Limited		Slightly limited		Moderately limited		Limited	
	~wetness	0.93	~infrequent flooding	0.80	~droughty	0.12	~deep to water	0.32	~slope	0.66
	(limited)		(limited)		(slightly limited)		(moderately limited)		(limited)	
	~droughty	0.12	~deep to water	0.32					~seepage	0.18
	(slightly limited)		(moderately limited)						(slightly limited)	
73160:										
Hobson-----	Limited		Limited		Not limited		Moderately limited		Very limited	
	~wetness	0.82	~infrequent flooding	0.80			~deep to water	0.36	~slope	1.00
	(limited)		(limited)				(moderately limited)		(very limited)	
			~deep to water	0.36					~seepage	0.45
			(moderately limited)						(moderately limited)	
73161, 73162										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~slope	1.00
			(limited)		(very limited)				(very limited)	
			~small stones	0.73	~small stones	0.73			~seepage	0.45
			(limited)		(limited)				(moderately limited)	
Rueter-----	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.43	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~small stones	0.49	~soil reaction	0.18	~slope	1.00
			(limited)		(moderately limited)		(slightly limited)		(very limited)	
			~small stones	0.49	~droughty	0.43			~seepage	0.80
			(moderately limited)		(moderately limited)				(limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Bardley-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.66	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.46	~infrequent flooding	0.80	~droughty	0.66			~deep to water	1.00
	(moderately limited)		(limited)		(limited)				(very limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~deep to water	1.00
			(limited)		(very limited)				(very limited)	
			~small stones	0.73	~small stones	0.73			~seepage	0.45
			(limited)		(limited)				(moderately limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~small stones	0.87	~deep to water	1.00			~deep to water	1.00
	(very limited)		(limited)		(very limited)				(very limited)	
			~infrequent flooding	0.80	~small stones	0.87			~seepage	0.18
			(limited)		(limited)				(slightly limited)	
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~infrequent flooding	0.80	~droughty	1.00			~deep to water	1.00
	(limited)		(limited)		(very limited)				(very limited)	
	~large stones	0.17	~large stones	0.17	~large stones	0.17			~seepage	0.80
	(slightly limited)		(slightly limited)		(slightly limited)				(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~infrequent flooding	0.80	~deep to water	1.00	~soil reaction	0.60	~deep to water	1.00
	(very limited)		(limited)		(very limited)		(limited)		(very limited)	
	~large stones	0.03	~large stones	0.03	~large stones	0.03			~soil reaction	0.60
	(slightly limited)		(slightly limited)		(slightly limited)				(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73165:										
Bardley-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.66	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.46	~infrequent flooding	0.80	~droughty	0.66			~deep to water	1.00
	(moderately limited)		(limited)		(limited)				(very limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	
73166:										
Viburnum-----	Limited		Limited		Not limited		Moderately limited		Limited	
	~wetness	0.85	~infrequent flooding	0.80			~deep to water	0.35	~slope	0.66
	(limited)		(limited)				(moderately limited)		(limited)	
			~deep to water	0.35					~seepage	0.18
			(moderately limited)						(slightly limited)	
Tonti-----	Limited		Limited		Not limited		Moderately limited		Limited	
	~wetness	0.85	~infrequent flooding	0.80			~deep to water	0.35	~slope	0.66
	(limited)		(limited)				(moderately limited)		(limited)	
			~deep to water	0.35			~soil reaction	0.06	~seepage	0.45
			(moderately limited)				(slightly limited)		(moderately limited)	
									~soil reaction	0.06
									(slightly limited)	
73168:										
Swiss-----	Moderately limited		Limited		Not limited		Limited		Very limited	
	~wetness	0.37	~deep to water	0.82			~deep to water	0.82	~slope	1.00
	(moderately limited)		(limited)				(limited)		(very limited)	
			~infrequent flooding	0.80						
			(limited)							
73169, 73170:										
Beemont-----	Moderately limited		Limited		Not limited		Limited		Very limited	
	~wetness	0.45	~infrequent flooding	0.80			~deep to water	0.60	~slope	1.00
	(moderately limited)		(limited)				(limited)		(very limited)	
			~deep to water	0.60						
			(limited)							
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.51	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.53	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~depth to bedrock	0.42	~small stones	0.60	~droughty	0.22				
	(moderately limited)		(moderately limited)		(slightly limited)					
	~droughty	0.22	~deep to water	0.53						
	(slightly limited)		(moderately limited)							

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73171:										
Plato-----	Very limited		Limited		Slightly limited		Slightly limited		Limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.28	~soil reaction	0.06	~slope	0.91
	(very limited)		(limited)		(slightly limited)		(slightly limited)		(limited)	
	~droughty	0.28	~deep to water	0.06			~deep to water	0.06	~seepage	0.18
	(slightly limited)		(slightly limited)				(slightly limited)		(slightly limited)	
									~soil reaction	0.06
									(slightly limited)	
73172:										
Rosati-----	Very limited		Limited		Not limited		Slightly limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.80			~deep to water	0.11	~seepage	0.18
	(very limited)		(limited)				(slightly limited)		(slightly limited)	
			~deep to water	0.11					~slope	0.08
			(slightly limited)						(slightly limited)	
73173:										
Lily-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	0.76	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.04	~infrequent flooding	0.80	~droughty	0.04			~slope	0.91
	(slightly limited)		(limited)		(slightly limited)				(limited)	
									~seepage	0.80
									(limited)	
Yelton-----	Limited		Limited		Slightly limited		Moderately limited		Limited	
	~wetness	0.93	~infrequent flooding	0.80	~droughty	0.12	~deep to water	0.32	~slope	0.66
	(limited)		(limited)		(slightly limited)		(moderately limited)		(limited)	
	~droughty	0.12	~deep to water	0.32					~seepage	0.18
	(slightly limited)		(moderately limited)						(slightly limited)	
73174:										
Lily-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	0.76	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.04	~infrequent flooding	0.80	~droughty	0.04			~deep to water	1.00
	(slightly limited)		(limited)		(slightly limited)				(very limited)	
									~seepage	0.80
									(limited)	
Yelton-----	Limited		Limited		Slightly limited		Moderately limited		Very limited	
	~wetness	0.93	~infrequent flooding	0.80	~droughty	0.12	~deep to water	0.32	~slope	1.00
	(limited)		(limited)		(slightly limited)		(moderately limited)		(very limited)	
	~droughty	0.12	~deep to water	0.32					~seepage	0.18
	(slightly limited)		(moderately limited)						(slightly limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73175:										
Poynor-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~slope	0.66
			(limited)		(very limited)				(limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	
Bendavis-----	Moderately limited		Limited		Moderately limited		Limited		Limited	
	~depth to bedrock	0.58	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.60	~slope	0.66
	(moderately limited)		(limited)		(moderately limited)		(limited)		(limited)	
	~droughty	0.45	~deep to water	0.60	~droughty	0.45			~seepage	0.45
	(moderately limited)		(limited)		(moderately limited)				(moderately limited)	
	~wetness	0.45	~small stones	0.60						
	(moderately limited)		(moderately limited)							
73176:										
Bendavis-----	Moderately limited		Limited		Moderately limited		Limited		Very limited	
	~depth to bedrock	0.58	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(limited)		(very limited)	
	~droughty	0.45	~deep to water	0.60	~droughty	0.45			~seepage	0.45
	(moderately limited)		(limited)		(moderately limited)				(moderately limited)	
	~wetness	0.45	~small stones	0.60						
	(moderately limited)		(moderately limited)							
Poynor-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~deep to water	1.00
			(limited)		(very limited)				(very limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	
73178:										
Bendavis-----	Moderately limited		Limited		Moderately limited		Limited		Very limited	
	~depth to bedrock	0.58	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(limited)		(very limited)	
	~droughty	0.45	~deep to water	0.60	~droughty	0.45			~seepage	0.45
	(moderately limited)		(limited)		(moderately limited)				(moderately limited)	
	~wetness	0.45	~small stones	0.60						
	(moderately limited)		(moderately limited)							

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73179:										
Viraton-----	Limited		Limited		Slightly limited		Moderately limited		Very limited	
	~wetness	0.93	~infrequent flooding	0.80	~droughty	0.06	~deep to water	0.32	~slope	1.00
	(limited)		(limited)		(slightly limited)		(moderately limited)		(very limited)	
	~droughty	0.06	~deep to water	0.32					~seepage	0.18
	(slightly limited)		(moderately limited)						(slightly limited)	
Wilderness-----	Limited		Limited		Limited		Moderately limited		Very limited	
	~droughty	0.86	~infrequent flooding	0.80	~droughty	0.86	~deep to water	0.40	~slope	1.00
	(limited)		(limited)		(limited)		(moderately limited)		(very limited)	
	~wetness	0.71	~deep to water	0.40					~seepage	0.45
	(limited)		(moderately limited)						(moderately limited)	
73180:										
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.51	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.53	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~depth to bedrock	0.42	~small stones	0.60	~droughty	0.22				
	(moderately limited)		(moderately limited)		(slightly limited)					
	~droughty	0.22	~deep to water	0.53						
	(slightly limited)		(moderately limited)							
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~small stones	0.87	~deep to water	1.00			~deep to water	1.00
	(very limited)		(limited)		(very limited)				(very limited)	
			~infrequent flooding	0.80	~small stones	0.87			~seepage	0.18
			(limited)		(limited)				(slightly limited)	
73181:										
Useful-----	Moderately limited		Limited		Not limited		Limited		Very limited	
	~wetness	0.37	~deep to water	0.82			~deep to water	0.82	~slope	1.00
	(moderately limited)		(limited)				(limited)		(very limited)	
			~infrequent flooding	0.80					~seepage	0.18
			(limited)						(slightly limited)	
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.51	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.53	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~depth to bedrock	0.42	~small stones	0.60	~droughty	0.22				
	(moderately limited)		(moderately limited)		(slightly limited)					
	~droughty	0.22	~deep to water	0.53						
	(slightly limited)		(moderately limited)							

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73182:										
Lebanon-----	Limited		Limited		Not limited		Moderately limited		Slightly limited	
	~wetness	0.93	~infrequent flooding	0.80			~deep to water	0.32	~seepage	0.18
	(limited)		(limited)				(moderately limited)		(slightly limited)	
			~deep to water	0.32						
			(moderately limited)							
73183:										
Scholten-----	Limited		Limited		Limited		Moderately limited		Very limited	
	~droughty	0.97	~infrequent flooding	0.80	~droughty	0.97	~deep to water	0.35	~slope	1.00
	(limited)		(limited)		(limited)		(moderately limited)		(very limited)	
	~wetness	0.85	~deep to water	0.35	~small stones	0.14			~seepage	0.45
	(limited)		(moderately limited)		(slightly limited)				(moderately limited)	
			~small stones	0.14						
			(slightly limited)							
Tonti-----	Limited		Limited		Not limited		Moderately limited		Very limited	
	~wetness	0.85	~infrequent flooding	0.80			~deep to water	0.35	~slope	1.00
	(limited)		(limited)				(moderately limited)		(very limited)	
			~deep to water	0.35			~soil reaction	0.06	~seepage	0.45
			(moderately limited)				(slightly limited)		(moderately limited)	
									~soil reaction	0.06
									(slightly limited)	
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~infrequent flooding	0.80	~deep to water	1.00	~soil reaction	0.60	~slope	1.00
	(very limited)		(limited)		(very limited)		(limited)		(very limited)	
	~large stones	0.03	~large stones	0.03	~large stones	0.03			~soil reaction	0.60
	(slightly limited)		(slightly limited)		(slightly limited)				(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.66	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.46	~infrequent flooding	0.80	~droughty	0.66			~deep to water	1.00
	(moderately limited)		(limited)		(limited)				(very limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~deep to water	1.00
			(limited)		(very limited)				(very limited)	
			~small stones	0.73	~small stones	0.73			~seepage	0.45
			(limited)		(limited)				(moderately limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~small stones	0.87	~deep to water	1.00			~deep to water	1.00
	(very limited)		(limited)		(very limited)				(very limited)	
			~infrequent flooding	0.80	~small stones	0.87			~seepage	0.18
			(limited)		(limited)				(slightly limited)	
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~infrequent flooding	0.80	~droughty	1.00			~deep to water	1.00
	(limited)		(limited)		(very limited)				(very limited)	
	~large stones	0.17	~large stones	0.17	~large stones	0.17			~seepage	0.80
	(slightly limited)		(slightly limited)		(slightly limited)				(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Moderately limited		Limited		Moderately limited		Limited		Very limited	
	~depth to bedrock	0.58	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(limited)		(very limited)	
	~droughty	0.45	~deep to water	0.60	~droughty	0.45			~seepage	0.45
	(moderately limited)		(limited)		(moderately limited)				(moderately limited)	
	~wetness	0.45	~small stones	0.60						
	(moderately limited)		(moderately limited)							
Poynor-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	1.00			~slope	1.00
			(limited)		(very limited)				(very limited)	
			~small stones	0.01	~small stones	0.01			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73189:										
Useful-----	Moderately limited		Limited		Not limited		Limited		Limited	
	~wetness	0.37	~deep to water	0.82		~deep to water	0.82	~slope	0.91	
	(moderately limited)		(limited)			(limited)		(limited)		
			~infrequent flooding	0.80				~seepage	0.18	
			(limited)					(slightly limited)		
Gatewood-----	Moderately limited		Limited		Moderately limited		Moderately limited		Limited	
	~wetness	0.51	~infrequent flooding	0.80	~small stones	0.60	~deep to water	0.53	~slope	0.91
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~depth to bedrock	0.42	~small stones	0.60	~droughty	0.22				
	(moderately limited)		(moderately limited)		(slightly limited)					
	~droughty	0.22	~deep to water	0.53						
	(slightly limited)		(moderately limited)							
74634:										
Hartville-----	Limited		Limited		Not limited		Slightly limited		Limited	
	~wetness	0.99	~infrequent flooding	0.80		~deep to water	0.30	~slope	0.91	
	(limited)		(limited)			(slightly limited)		(limited)		
			~deep to water	0.30						
			(slightly limited)							
74652:										
Lecoma-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80				~slope	0.91	
			(limited)					(limited)		
								~seepage	0.45	
								(moderately limited)		
74653:										
Racoon-----	Very limited		Moderately limited		Not limited		Not limited		Not limited	
	~wetness	1.00	~infrequent flooding	0.50						
	(very limited)		(moderately limited)							
Freeburg-----	Limited		Moderately limited		Not limited		Moderately limited		Slightly limited	
	~wetness	0.80	~infrequent flooding	0.50		~deep to water	0.37	~seepage	0.18	
	(limited)		(moderately limited)			(moderately limited)		(slightly limited)		
			~deep to water	0.37						
			(moderately limited)							

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74656:										
Deible-----	Very limited		Limited		Slightly limited		Not limited		Moderately limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.20			~seepage	0.45
	(very limited)		(limited)		(slightly limited)				(moderately limited)	
	~droughty	0.20								
	(slightly limited)									
75375:										
Horsecreek----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.45
			(moderately limited)						(moderately limited)	
75376:										
Cedargap-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.45
			(moderately limited)						(moderately limited)	
75388:										
Kaintuck-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.80
			(moderately limited)						(limited)	
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~small stones	0.73	~deep to water	1.00			~seepage	0.80
			(limited)		(very limited)				(limited)	
			~infrequent flooding	0.50	~small stones	0.73				
			(moderately limited)		(limited)					
75391:										
Possumtrot-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.45
			(moderately limited)						(moderately limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75398:										
Kaintuck-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.80
			(moderately limited)						(limited)	
75412:										
Razort-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.45
			(moderately limited)						(moderately limited)	
75413:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~deep to water	1.00	~droughty	1.00	~deep to water	1.00	~deep to water	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~small stones	0.73	~deep to water	1.00			~seepage	0.80
			(limited)		(very limited)				(limited)	
			~infrequent flooding	0.50	~small stones	0.73				
			(moderately limited)		(limited)					
75414:										
Wideman-----	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.02	~too sandy	1.00	~deep to water	1.00	~deep to water	1.00	~too sandy	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~deep to water	1.00	~droughty	0.02	~too sandy	1.00	~deep to water	1.00
			(very limited)		(slightly limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	1.00
			(moderately limited)						(very limited)	
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Building Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Very limited  ~flooding   (very limited)	1.00	Very limited  ~flooding   (very limited)	1.00						
70028:										
Moko-----	Very limited  ~hard bedrock <20"   (very limited)	1.00	Very limited  ~hard bedrock <40"   (very limited)	1.00	Very limited  ~hard bedrock <20"   (very limited)	1.00	Very limited  ~hard bedrock <20"   (very limited)	1.00	Very limited  ~droughty   (very limited)	1.00
	~slope   (moderately limited)	0.45	~slope   (moderately limited)	0.45	~slope   (very limited)	1.00	~slope   (slightly limited)	0.04	~bedrock <20 in.   (very limited)	1.00
									~small stones   (limited)	0.64
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited  ~wetness   (very limited)	1.00	Very limited  ~ponded   (very limited)	1.00	Very limited  ~ponded (wetness)   (very limited)	1.00	Very limited  ~low strength   (very limited)	1.00	Very limited  ~wetness   (very limited)	1.00
	~ponded   (very limited)	1.00	~wetness   (very limited)	1.00	~wetness   (very limited)	1.00	~ponded (wetness)   (very limited)	1.00	~ponded (wetness)   (very limited)	1.00
	~shrink-swell   (very limited)	1.00	~shrink-swell   (moderately limited)	0.35	~shrink-swell   (very limited)	1.00	~wetness   (very limited)	1.00		
73032:										
Gatewood-----	Very limited  ~shrink-swell   (very limited)	1.00	Very limited  ~hard bedrock <40"   (very limited)	1.00	Very limited  ~slope   (very limited)	1.00	Very limited  ~low strength   (very limited)	1.00	Very limited  ~small stones   (very limited)	1.00
	~hard bedrock   (moderately limited)	0.51	~wetness   (very limited)	1.00	~shrink-swell   (very limited)	1.00	~shrink-swell   (very limited)	1.00	~depth to bedrock   (moderately limited)	0.42
	~slope   (moderately limited)	0.45	~shrink-swell   (very limited)	1.00	~depth to bedrock   (moderately limited)	0.51	~depth to bedrock   (moderately limited)	0.51	~droughty   (slightly limited)	0.22
73039:										
Glensted-----	Very limited  ~wetness   (very limited)	1.00	Very limited  ~droughty   (very limited)	1.00						
	~shrink-swell   (very limited)	1.00	~shrink-swell   (very limited)	1.00	~shrink-swell   (very limited)	1.00	~low strength   (very limited)	1.00	~wetness   (very limited)	1.00
							~shrink-swell   (very limited)	1.00		

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Limited		Very limited		Limited		Limited		Limited	
	~hard bedrock (limited)	0.76	~hard bedrock <40" (very limited)	1.00	~slope (limited)	0.99	~depth to bedrock (limited)	0.76	~depth to bedrock (limited)	0.76
	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~depth to bedrock (limited)	0.76			~droughty (slightly limited)	0.15
									~too acid (slightly limited)	0.06
Bender-----	Limited		Very limited		Limited		Limited		Very limited	
	~hard bedrock (limited)	0.76	~hard bedrock <40" (very limited)	1.00	~slope (limited)	0.99	~depth to bedrock (limited)	0.76	~droughty (very limited)	1.00
	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~depth to bedrock (limited)	0.76	~large stones (slightly limited)	0.09	~large stones (limited)	0.99
	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09			~depth to bedrock (limited)	0.76
73066:										
Bender-----	Limited		Very limited		Limited		Limited		Very limited	
	~hard bedrock (limited)	0.76	~hard bedrock <40" (very limited)	1.00	~slope (limited)	0.99	~depth to bedrock (limited)	0.76	~droughty (very limited)	1.00
	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~depth to bedrock (limited)	0.76	~large stones (slightly limited)	0.09	~large stones (limited)	0.99
	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09			~depth to bedrock (limited)	0.76
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~hard bedrock (limited)	0.76	~slope (very limited)	1.00	~depth to bedrock (limited)	0.76	~depth to bedrock (limited)	0.76	~droughty (very limited)	1.00
	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09	~large stones (slightly limited)	0.09	~large stones (limited)	0.99
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.04	~large stones (slightly limited)	0.04	~large stones (slightly limited)	0.04	~large stones (slightly limited)	0.04	~slope (very limited)	1.00
									~droughty (very limited)	1.00

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.53	~slope	1.00	~depth to bedrock	0.53	~slope	1.00	~large stones	0.99
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~depth to bedrock	0.53	~droughty	0.72
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~low strength	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~wetness	1.00	~droughty	0.28
	(very limited)		(very limited)		(very limited)		(very limited)		(slightly limited)	
							~shrink-swell	1.00	~too acid	0.18
							(very limited)		(slightly limited)	
73089:										
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.29	~large stones	0.29	~large stones	0.29	~large stones	0.29	~small stones	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
			~shrink-swell	0.09					~too acid	0.84
			(slightly limited)						(limited)	
73094:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~wetness	1.00	~shrink-swell	1.00	~slope	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.51	~shrink-swell	1.00	~depth to bedrock	0.51	~shrink-swell	1.00	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
73098:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~low strength	1.00	~wetness	0.94
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~wetness	0.94	~shrink-swell	1.00	~wetness	0.94	~shrink-swell	1.00	~droughty	0.24
	(limited)		(very limited)		(limited)		(very limited)		(slightly limited)	
							~wetness	0.94	~too acid	0.06
							(limited)		(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Moderately limited		Very limited		Limited		Very limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~slope	0.68	~low strength	1.00	~wetness	0.56
	(moderately limited)		(very limited)		(limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~wetness	0.56	~wetness	0.56		
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)			
					~shrink-swell	0.45	~shrink-swell	0.45		
					(moderately limited)		(moderately limited)			
73136:										
Union-----	Moderately limited		Very limited		Moderately limited		Very limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~wetness	0.56	~low strength	1.00	~wetness	0.56
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~wetness	0.56		
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)			
							~shrink-swell	0.45		
							(moderately limited)			
73159:										
Yelton-----	Moderately limited		Very limited		Moderately limited		Very limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~wetness	0.56	~low strength	1.00	~wetness	0.56
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.45	~wetness	0.56	~droughty	0.12
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)	
					~shrink-swell	0.45	~shrink-swell	0.45		
					(moderately limited)		(moderately limited)			
73160:										
Hobson-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.76	~wetness	1.00	~slope	1.00	~slope	0.63	~slope	0.63
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~wetness	0.47	~slope	0.76	~wetness	0.47	~wetness	0.47	~wetness	0.47
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73161:										
Alred-----	Limited		Limited		Very limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	1.00	~slope	0.63	~droughty	1.00
	(limited)		(limited)		(very limited)		(limited)		(very limited)	
									~small stones	1.00
									(very limited)	
									~slope	0.63
									(limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Moderately limited		Moderately limited		Very limited		Slightly limited		Very limited	
	~slope	0.45	~slope	0.45	~slope	1.00	~large stones	0.29	~small stones	1.00
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)		(very limited)	
	~large stones	0.29	~large stones	0.29	~large stones	0.29	~slope	0.04	~too acid	0.84
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(limited)	
			~shrink-swell	0.09					~droughty	0.43
			(slightly limited)						(moderately limited)	
73162:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~droughty	1.00
									(very limited)	
									~small stones	1.00
									(very limited)	
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.29	~large stones	0.29	~large stones	0.29	~large stones	0.29	~small stones	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
			~shrink-swell	0.09					~too acid	0.84
			(slightly limited)						(limited)	
73163:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.53	~hard bedrock <40"	1.00	~depth to bedrock	0.53	~slope	1.00	~small stones	1.00
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~depth to bedrock	0.53	~droughty	0.66
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~droughty	1.00
									(very limited)	
									~small stones	1.00
									(very limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock <20"	1.00	~slope	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.76	~hard bedrock <40"	1.00	~depth to bedrock	0.76	~depth to bedrock	0.76	~droughty	1.00
	(limited)		(very limited)		(limited)		(limited)		(very limited)	
	~large stones	0.09	~large stones	0.09	~large stones	0.09	~large stones	0.09	~large stones	0.99
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock <20"	1.00	~slope	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.03	~large stones	0.03	~large stones	0.03	~large stones	0.03	~bedrock <20 in.	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.53	~hard bedrock <40"	1.00	~depth to bedrock	0.53	~slope	1.00	~small stones	1.00
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~depth to bedrock	0.53	~droughty	0.66
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
73166:										
Viburnum-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~low strength	1.00	~wetness	0.49
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~wetness	0.49	~shrink-swell	1.00	~wetness	0.49	~shrink-swell	1.00	~too acid	0.48
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
					~slope	0.45	~wetness	0.49		
					(moderately limited)		(moderately limited)			

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Tonti-----	Moderately limited		Very limited		Moderately limited		Very limited		Limited	
	~wetness	0.49	~wetness	1.00	~wetness	0.49	~low strength	1.00	~too acid	0.60
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.45	~wetness	0.49	~wetness	0.49
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~shrink-swell	0.45	~shrink-swell	0.45		
					(moderately limited)		(moderately limited)			
73168:										
Swiss-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~slope	1.00	~low strength	1.00	~small stones	0.30
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~slope	0.60	~wetness	0.99	~shrink-swell	1.00	~shrink-swell	1.00	~too acid	0.24
	(moderately limited)		(limited)		(very limited)		(very limited)		(slightly limited)	
			~slope	0.60			~slope	0.16	~slope	0.16
			(moderately limited)				(slightly limited)		(slightly limited)	
73169:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~shrink-swell	1.00	~slope	1.00	~small stones	0.82
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
			~wetness	1.00			~shrink-swell	1.00	~too acid	0.42
			(very limited)				(very limited)		(moderately limited)	
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~wetness	1.00	~shrink-swell	1.00	~slope	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.51	~shrink-swell	1.00	~depth to bedrock	0.51	~shrink-swell	1.00	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
73170:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~slope	1.00	~low strength	1.00	~small stones	0.82
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.45	~wetness	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~too acid	0.42
	(moderately limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
			~slope	0.45			~slope	0.04	~slope	0.04
			(moderately limited)				(slightly limited)		(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.51	~wetness	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~slope	0.45	~shrink-swell	1.00	~depth to bedrock	0.51	~depth to bedrock	0.51	~droughty	0.22
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(slightly limited)	
73171:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~low strength	1.00	~wetness	0.94
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~wetness	0.94	~shrink-swell	1.00	~wetness	0.94	~shrink-swell	1.00	~too clayey	0.60
	(limited)		(very limited)		(limited)		(very limited)		(moderately limited)	
					~slope	0.68	~wetness	0.94	~droughty	0.28
					(limited)		(limited)		(slightly limited)	
73172:										
Rosati-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~low strength	1.00	~wetness	0.86
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~wetness	0.86	~shrink-swell	1.00	~wetness	0.86	~shrink-swell	1.00		
	(limited)		(very limited)		(limited)		(very limited)			
							~wetness	0.86		
							(limited)			
73173:										
Lily-----	Limited		Very limited		Limited		Limited		Limited	
	~hard bedrock	0.76	~hard bedrock <40"	1.00	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76
	(limited)		(very limited)		(limited)		(limited)		(limited)	
					~slope	0.68			~too acid	0.06
					(limited)				(slightly limited)	
									~droughty	0.04
									(slightly limited)	
Yelton-----	Moderately limited		Very limited		Moderately limited		Very limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~wetness	0.56	~low strength	1.00	~wetness	0.56
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.45	~wetness	0.56	~droughty	0.12
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)	
					~shrink-swell	0.45	~shrink-swell	0.45		
					(moderately limited)		(moderately limited)			

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73174:										
Lily-----	Limited		Very limited		Very limited		Limited		Limited	
	~hard bedrock (limited)	0.76	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (limited)	0.76	~depth to bedrock (limited)	0.76
	~slope (limited)	0.76	~slope (limited)	0.76	~depth to bedrock (limited)	0.76	~slope (limited)	0.63	~slope (limited)	0.63
									~too acid (slightly limited)	0.06
Yelton-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.76	~wetness (very limited)	1.00	~slope (very limited)	1.00	~low strength (very limited)	1.00	~slope (limited)	0.63
	~wetness (moderately limited)	0.56	~slope (limited)	0.76	~wetness (moderately limited)	0.56	~slope (limited)	0.63	~wetness (moderately limited)	0.56
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~wetness (moderately limited)	0.56	~droughty (slightly limited)	0.12
73175:										
Poynor-----	Not limited		Not limited		Moderately limited		Not limited		Very limited	
					~slope (moderately limited)	0.45			~small stones (limited)	1.00
									~droughty (very limited)	1.00
									~too acid (slightly limited)	0.30
Bendavis-----	Moderately limited		Very limited		Moderately limited		Moderately limited		Very limited	
	~hard bedrock (moderately limited)	0.59	~hard bedrock <40" (very limited)	1.00	~depth to bedrock (moderately limited)	0.59	~depth to bedrock (moderately limited)	0.59	~small stones (very limited)	1.00
			~wetness (very limited)	1.00	~slope (moderately limited)	0.45			~depth to bedrock (moderately limited)	0.58
									~droughty (moderately limited)	0.45
73176:										
Bendavis-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.63	~small stones (very limited)	1.00
	~hard bedrock (moderately limited)	0.59	~wetness (very limited)	1.00	~depth to bedrock (moderately limited)	0.59	~depth to bedrock (moderately limited)	0.59	~slope (limited)	0.63
			~slope (limited)	0.76					~depth to bedrock (moderately limited)	0.58

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73176:										
Poynor-----	Limited		Limited		Very limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	1.00	~slope	0.63	~small stones	1.00
	(limited)		(limited)		(very limited)		(limited)		(limited)	
									~droughty	1.00
									(very limited)	
									~slope	0.63
									(limited)	
73178:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.59	~slope	1.00	~depth to bedrock	0.59	~depth to bedrock	0.59	~small stones	1.00
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(very limited)	
			~wetness	1.00					~depth to bedrock	0.58
			(very limited)						(moderately limited)	
73179:										
Viraton-----	Moderately limited		Very limited		Limited		Moderately limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~slope	0.83	~wetness	0.56	~wetness	0.56
	(moderately limited)		(very limited)		(limited)		(moderately limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~wetness	0.56	~shrink-swell	0.45	~too acid	0.42
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.15	~slope	0.15	~shrink-swell	0.45	~low strength	0.22	~droughty	0.06
	(slightly limited)		(slightly limited)		(moderately limited)		(slightly limited)		(slightly limited)	
Wilderness-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.76	~wetness	1.00	~slope	1.00	~slope	0.63	~droughty	0.86
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~shrink-swell	0.45	~slope	0.76	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.63
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
	~wetness	0.39	~shrink-swell	0.36	~wetness	0.39	~wetness	0.39	~wetness	0.39
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73180:										
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.51	~wetness	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~slope	0.45	~shrink-swell	1.00	~depth to bedrock	0.51	~depth to bedrock	0.51	~droughty	0.22
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73180:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20"	1.00	~hard bedrock <40"	1.00	~slope	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~hard bedrock <20"	1.00	~shrink-swell	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.45	~slope	0.45	~shrink-swell	1.00	~slope	0.04	~small stones	1.00
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)		(very limited)	
73181:										
Useful-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~slope	1.00	~low strength	1.00	~slope	0.63
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.76	~wetness	0.99	~shrink-swell	1.00	~shrink-swell	1.00		
	(limited)		(limited)		(very limited)		(very limited)			
			~slope	0.76			~slope	0.63		
			(limited)				(limited)			
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~slope	1.00	~low strength	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.76	~wetness	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~slope	0.63
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~hard bedrock	0.51	~shrink-swell	1.00	~depth to bedrock	0.51	~slope	0.63	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(moderately limited)		(limited)		(moderately limited)	
73182:										
Lebanon-----	Moderately limited		Very limited		Moderately limited		Very limited		Moderately limited	
	~wetness	0.56	~wetness	1.00	~wetness	0.56	~low strength	1.00	~wetness	0.56
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~wetness	0.56		
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)			
							~shrink-swell	0.45		
							(moderately limited)			
73183:										
Scholten-----	Moderately limited		Very limited		Very limited		Moderately limited		Very limited	
	~wetness	0.49	~wetness	1.00	~slope	1.00	~wetness	0.49	~small stones	1.00
	(moderately limited)		(very limited)		(very limited)		(moderately limited)		(very limited)	
	~slope	0.45	~slope	0.45	~wetness	0.49	~slope	0.04	~droughty	0.97
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(limited)	
									~wetness	0.49
									(moderately limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73183:										
Tonti-----	Moderately limited		Very limited		Very limited		Very limited		Limited	
	~wetness	0.49	~wetness	1.00	~slope	1.00	~low strength	1.00	~too acid	0.60
	(moderately limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.45	~slope	0.45	~wetness	0.49	~wetness	0.49	~wetness	0.49
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.04
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)	
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20"	1.00	~hard bedrock <40"	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.99	~slope	0.99	~slope	1.00	~slope	1.00	~bedrock <20 in.	1.00
	(limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.03	~large stones	0.03	~large stones	0.03	~large stones	0.03	~slope	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.53	~hard bedrock <40"	1.00	~depth to bedrock	0.53	~slope	1.00	~small stones	1.00
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~depth to bedrock	0.53	~droughty	0.66
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~droughty	1.00
									(very limited)	
									~small stones	1.00
									(very limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock <20"	1.00	~slope	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.76	~slope	1.00	~depth to bedrock	0.76	~depth to bedrock	0.76	~droughty	1.00
	(limited)		(very limited)		(limited)		(limited)		(very limited)	
	~large stones	0.09	~large stones	0.09	~large stones	0.09	~large stones	0.09	~large stones	0.99
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.76	~hard bedrock <40"	1.00	~slope	1.00	~slope	0.63	~small stones	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~hard bedrock	0.59	~wetness	1.00	~depth to bedrock	0.59	~depth to bedrock	0.59	~slope	0.63
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(limited)	
			~slope	0.76					~depth to bedrock	0.58
			(limited)						(moderately limited)	
Poynor-----	Limited		Limited		Very limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	1.00	~slope	0.63	~small stones	1.00
	(limited)		(limited)		(very limited)		(limited)		(limited)	
									~droughty	1.00
									(very limited)	
									~slope	0.63
									(limited)	
73189:										
Useful-----	Very limited		Very limited		Very limited		Very limited		Not limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~low strength	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
			~wetness	0.99	~slope	0.68	~shrink-swell	1.00		
			(limited)		(limited)		(very limited)			
			~depth to bedrock	0.35						
			(moderately limited)							
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~shrink-swell	1.00	~low strength	1.00	~small stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~hard bedrock	0.51	~wetness	1.00	~slope	0.68	~shrink-swell	1.00	~depth to bedrock	0.42
	(moderately limited)		(very limited)		(limited)		(very limited)		(moderately limited)	
	~wetness	0.13	~shrink-swell	1.00	~depth to bedrock	0.51	~depth to bedrock	0.51	~droughty	0.22
	(slightly limited)		(very limited)		(moderately limited)		(moderately limited)		(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74634:										
Hartville-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~low strength	1.00	~wetness	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~wetness	0.60	~shrink-swell	1.00	~slope	0.68	~shrink-swell	1.00		
	(limited)		(very limited)		(limited)		(very limited)			
					~wetness	0.60	~wetness	0.60		
					(limited)		(limited)			
74652:										
Lecoma-----	Moderately limited		Moderately limited		Limited		Very limited		Not limited	
	~shrink-swell	0.45	~shrink-swell	0.45	~slope	0.68	~low strength	1.00		
	(moderately limited)		(moderately limited)		(limited)		(very limited)			
					~shrink-swell	0.45	~shrink-swell	0.45		
					(moderately limited)		(moderately limited)			
74653:										
Racoon-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
			~shrink-swell	0.17			~low strength	1.00		
			(slightly limited)				(very limited)			
Freeburg-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~wetness	0.45	~wetness	1.00	~wetness	0.45	~low strength	1.00	~wetness	0.45
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.39	~shrink-swell	0.45	~wetness	0.45	~too acid	0.12
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)	
74656:										
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding (rare)	0.90	~droughty	0.20
	(very limited)		(very limited)		(very limited)		(limited)		(slightly limited)	
							~low strength	0.78		
							(limited)			
75375:										
Horsecreek-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
							~low strength	1.00		
							(very limited)			

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75376:										
Cedargap-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~small stones	0.27
									(slightly limited)	
									~large stones	0.01
									(slightly limited)	
75388:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~droughty	1.00
									(very limited)	
									~small stones	1.00
									(very limited)	
75391:										
Possumtrot-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
									~too acid	0.24
									(slightly limited)	
75398:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
75412:										
Razort-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
75413:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~droughty	1.00
									(very limited)	
									~small stones	1.00
									(very limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75414:										
Wideman-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~too sandy	0.50
									(moderately limited)	
									~droughty	0.02
									(slightly limited)	
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Sanitary Facilities

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Very limited		Very limited		Very limited		Very limited		Not limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
	~poor filter	1.00	~seepage	1.00	~seepage	1.00				
	(very limited)		(very limited)		(very limited)					
	~percs slowly	0.25								
	(slightly limited)									
70028:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.04	~slope	1.00	~slope	0.04	~slope	0.04	~small stones	0.99
	(slightly limited)		(very limited)		(slightly limited)		(slightly limited)		(limited)	
									~slope	0.04
									(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~ponded (wetness)	1.00	~wetness	1.00	~ponded (wetness)	1.00	~wetness	1.00	~ponded (wetness)	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~ponded (wetness)	1.00	~wetness	1.00	~ponded (wetness)	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.93			~too clayey	0.80			~too clayey	0.60
	(limited)				(limited)				(moderately limited)	
73032:										
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~slope	1.00	~wetness	0.89	~slope	0.04	~hard to pack	0.70
	(limited)		(very limited)		(limited)		(slightly limited)		(limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73039:										
Glensted-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	0.90			~too clayey	0.80
					(limited)				(limited)	
73053:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~seepage	0.50
			(very limited)		(limited)		(limited)		(moderately limited)	
			~slope	1.00	~too acid	0.12			~too acid	0.12
			(very limited)		(slightly limited)				(slightly limited)	
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.09	~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~small stones	0.65
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
			~slope	1.00	~too acid	0.24			~seepage	0.50
			(very limited)		(slightly limited)				(moderately limited)	
73066:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.09	~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~small stones	0.65
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
			~slope	1.00	~too acid	0.24			~seepage	0.50
			(very limited)		(slightly limited)				(moderately limited)	
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.09	~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~small stones	0.65
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.04	~seepage	0.50	~too clayey	0.72			~small stones >35%	1.00
	(slightly limited)		(moderately limited)		(limited)				(very limited)	
			~large stones	0.08					~hard to pack	0.70
			(slightly limited)						(limited)	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	1.00			~too clayey	1.00
	(slightly limited)		(moderately limited)		(very limited)				(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	1.00			~too clayey	1.00
					(very limited)				(very limited)	
					~too acid	0.42			~hard to pack	0.70
					(moderately limited)				(limited)	
73089:										
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.29	~seepage	1.00	~too clayey	0.92	~seepage	0.75	~too clayey	0.83
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
	~percs slowly	0.25			~large stones	0.63			~small stones	0.59
	(slightly limited)				(limited)				(moderately limited)	
73094:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73098:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~seepage	0.50	~too clayey	1.00			~wetness	0.94
			(moderately limited)		(very limited)				(limited)	
					~too acid	0.60			~too acid	0.60
					(limited)				(limited)	
73135:										
Union-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.25	~slope	0.91	~too clayey	1.00			~wetness	0.59
	(slightly limited)		(limited)		(very limited)				(moderately limited)	
			~seepage	0.50	~too acid	0.30			~too acid	0.30
			(moderately limited)		(slightly limited)				(slightly limited)	
73136:										
Union-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	1.00			~wetness	0.59
	(slightly limited)		(moderately limited)		(very limited)				(moderately limited)	
					~too acid	0.30			~too acid	0.30
					(slightly limited)				(slightly limited)	
73159:										
Yelton-----	Very limited		Very limited		Very limited		Limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~wetness	0.59
	(very limited)		(very limited)		(very limited)		(limited)		(moderately limited)	
			~slope	0.66	~too acid	0.30			~too acid	0.30
			(limited)		(slightly limited)				(slightly limited)	
					~too clayey	0.10				
					(slightly limited)					
73160:										
Hobson-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~slope	1.00	~wetness	1.00	~wetness	0.91	~too clayey	0.72
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~slope	0.63	~wetness	1.00	~too clayey	0.86	~slope	0.63	~hard to pack	0.70
	(limited)		(very limited)		(limited)		(limited)		(limited)	
	~percs slowly	0.25	~seepage	0.50	~slope	0.63			~slope	0.63
	(slightly limited)		(moderately limited)		(limited)				(limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Alred-----	Limited		Very limited		Limited		Limited		Very limited	
	~slope	0.63	~slope	1.00	~too clayey	0.90	~slope	0.63	~small stones >35%	1.00
	(limited)		(very limited)		(limited)		(limited)		(very limited)	
			~seepage	0.50	~slope	0.63			~too clayey	0.80
			(moderately limited)		(limited)				(limited)	
					~too acid	0.36			~hard to pack	0.70
					(moderately limited)				(limited)	
Rueter-----	Slightly limited		Very limited		Limited		Limited		Limited	
	~large stones	0.29	~seepage	1.00	~too clayey	0.92	~seepage	0.75	~small stones	0.84
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
	~percs slowly	0.25	~slope	1.00	~large stones	0.63	~slope	0.04	~too clayey	0.83
	(slightly limited)		(very limited)		(limited)		(slightly limited)		(limited)	
	~slope	0.04			~too acid	0.36			~seepage	0.50
	(slightly limited)				(moderately limited)				(moderately limited)	
73162:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~seepage	0.50	~too clayey	0.90			~small stones >35%	1.00
			(moderately limited)		(limited)				(very limited)	
					~too acid	0.36			~too clayey	0.80
					(moderately limited)				(limited)	
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.29	~seepage	1.00	~too clayey	0.92	~seepage	0.75	~small stones	0.84
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
	~percs slowly	0.25			~large stones	0.63			~too clayey	0.83
	(slightly limited)				(limited)				(limited)	
73163:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	1.00			~too clayey	1.00
	(slightly limited)		(moderately limited)		(very limited)				(very limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~seepage	0.50	~too clayey	0.90			~small stones >35%	1.00
			(moderately limited)		(limited)				(very limited)	
					~too acid	0.36			~too clayey	0.80
					(moderately limited)				(limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	0.81			~small stones >35%	1.00
					(limited)				(very limited)	
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.09	~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~small stones	0.65
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.03							~small stones >35%	1.00
	(slightly limited)								(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	1.00			~too clayey	1.00
	(slightly limited)		(moderately limited)		(very limited)				(very limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Viburnum-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.92	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.71	~slope	0.66	~too clayey	1.00			~hard to pack	0.70
	(limited)		(limited)		(very limited)				(limited)	
					~too acid	0.68			~too acid	0.68
					(limited)				(limited)	
Tonti-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.92	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
			~slope	0.66	~too clayey	1.00			~wetness	0.57
			(limited)		(very limited)				(moderately limited)	
			~seepage	0.50	~too acid	0.54			~too acid	0.54
			(moderately limited)		(moderately limited)				(moderately limited)	
73168:										
Swiss-----	Very limited		Very limited		Limited		Moderately limited		Limited	
	~wetness	1.00	~wetness	1.00	~too clayey	0.90	~wetness	0.44	~too clayey	0.80
	(very limited)		(very limited)		(limited)		(moderately limited)		(limited)	
	~percs slowly	1.00	~slope	1.00	~wetness	0.69	~slope	0.16	~hard to pack	0.70
	(very limited)		(very limited)		(limited)		(slightly limited)		(limited)	
	~slope	0.16			~too acid	0.42			~too acid	0.42
	(slightly limited)				(moderately limited)				(moderately limited)	
73169:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~wetness	0.60	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~depth to bedrock	0.32	~too clayey	1.00	~depth to bedrock	0.05	~hard to pack	0.70
	(limited)		(moderately limited)		(very limited)		(slightly limited)		(limited)	
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Beemont-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~wetness	0.60	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~slope	1.00	~too clayey	1.00	~depth to bedrock	0.05	~hard to pack	0.70
	(limited)		(very limited)		(very limited)		(slightly limited)		(limited)	
	~depth to bedrock	0.32	~depth to bedrock	0.32	~wetness	0.79	~slope	0.04	~wetness	0.40
	(moderately limited)		(moderately limited)		(limited)		(slightly limited)		(moderately limited)	
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~slope	1.00	~wetness	0.89	~slope	0.04	~hard to pack	0.70
	(limited)		(very limited)		(limited)		(slightly limited)		(limited)	
73171:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.94
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
			~slope	0.91	~too acid	0.68			~hard to pack	0.70
			(limited)		(limited)				(limited)	
					~too clayey	0.66			~too acid	0.68
					(limited)				(limited)	
73172:										
Rosati-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.86
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~percs slowly	0.71	~slope	0.08	~too clayey	0.68			~too clayey	0.42
	(limited)		(slightly limited)		(limited)				(moderately limited)	
					~too acid	0.42			~too acid	0.42
					(moderately limited)				(moderately limited)	
73173:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~seepage	0.50
			(very limited)		(limited)		(limited)		(moderately limited)	
			~slope	0.91	~too acid	0.12			~too acid	0.12
			(limited)		(slightly limited)				(slightly limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73173:										
Yelton-----	Very limited		Very limited		Very limited		Limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~wetness	0.59
	(very limited)		(very limited)		(very limited)		(limited)		(moderately limited)	
			~slope	0.66	~too acid	0.30			~too acid	0.30
			(limited)		(slightly limited)				(slightly limited)	
					~too clayey	0.10				
					(slightly limited)					
73174:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.63	~seepage	1.00	~seepage	0.79	~seepage	0.75	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
			~depth to bedrock	1.00	~slope	0.63	~slope	0.63	~seepage	0.50
			(very limited)		(limited)		(limited)		(moderately limited)	
Yelton-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~slope	1.00	~wetness	1.00	~wetness	0.96	~slope	0.63
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~slope	0.63	~wetness	1.00	~slope	0.63	~slope	0.63	~wetness	0.59
	(limited)		(very limited)		(limited)		(limited)		(moderately limited)	
					~too acid	0.30			~too acid	0.30
					(slightly limited)				(slightly limited)	
73175:										
Poynor-----	Not limited		Limited		Very limited		Not limited		Very limited	
			~slope	0.66	~too clayey	1.00			~small stones >35%	1.00
			(limited)		(very limited)				(very limited)	
			~seepage	0.50	~too acid	0.12			~too clayey	1.00
			(moderately limited)		(slightly limited)				(very limited)	
									~hard to pack	0.70
									(limited)	
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~wetness	0.79	~wetness	0.60	~depth to bedrock	1.00
	(very limited)		(very limited)		(limited)		(limited)		(very limited)	
	~percs slowly	0.25	~slope	0.66	~too acid	0.36			~wetness	0.40
	(slightly limited)		(limited)		(moderately limited)				(moderately limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73176:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~wetness	1.00	~wetness	0.79	~slope	0.63	~depth to bedrock	1.00
	(very limited)		(very limited)		(limited)		(limited)		(very limited)	
	~slope	0.63	~depth to bedrock	1.00	~slope	0.63	~wetness	0.60	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
Poynor-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.63	~slope	1.00	~too clayey	1.00	~slope	0.63	~small stones >35%	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
			~seepage	0.50	~slope	0.63			~too clayey	1.00
			(moderately limited)		(limited)				(very limited)	
					~too acid	0.12			~hard to pack	0.70
					(slightly limited)				(limited)	
73178:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~wetness	0.79	~wetness	0.60	~depth to bedrock	1.00
	(very limited)		(very limited)		(limited)		(limited)		(very limited)	
73179:										
Viraton-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
			~slope	1.00	~too clayey	1.00			~wetness	0.59
			(very limited)		(very limited)				(moderately limited)	
					~too acid	0.42			~too acid	0.42
					(moderately limited)				(moderately limited)	
Wilderness-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.86	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.63	~slope	1.00	~slope	0.63	~slope	0.63	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
			~seepage	0.50	~too acid	0.48			~wetness	0.53
			(moderately limited)		(moderately limited)				(moderately limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73180:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~slope	1.00	~wetness	0.89	~slope	0.04	~hard to pack	0.70
	(limited)		(very limited)		(limited)		(slightly limited)		(limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.04	~depth to bedrock	1.00	~too clayey	0.81	~slope	0.04	~small stones >35%	1.00
	(slightly limited)		(very limited)		(limited)		(slightly limited)		(very limited)	
					~slope	0.04			~too clayey	0.62
					(slightly limited)				(limited)	
73181:										
Useful-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	0.63	~slope	0.63
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~percs slowly	0.71	~wetness	1.00	~too clayey	0.74	~wetness	0.44	~too clayey	0.51
	(limited)		(very limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.63	~seepage	0.50	~wetness	0.69	~depth to bedrock	0.10	~wetness	0.35
	(limited)		(moderately limited)		(limited)		(slightly limited)		(moderately limited)	
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~wetness	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~depth to bedrock	1.00	~wetness	0.89	~slope	0.63	~hard to pack	0.70
	(limited)		(very limited)		(limited)		(limited)		(limited)	
73182:										
Lebanon-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.96	~too clayey	0.76
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~percs slowly	0.71			~too clayey	0.88			~wetness	0.59
	(limited)				(limited)				(moderately limited)	
					~too acid	0.48			~too acid	0.48
					(moderately limited)				(moderately limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73183:										
Scholten-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.92	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.04	~slope	1.00	~too acid	0.48	~slope	0.04	~wetness	0.57
	(slightly limited)		(very limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~seepage	0.50	~too clayey	0.19			~too acid	0.48
			(moderately limited)		(slightly limited)				(moderately limited)	
Tonti-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.92	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.04	~slope	1.00	~too clayey	1.00	~slope	0.04	~wetness	0.57
	(slightly limited)		(very limited)		(very limited)		(slightly limited)		(moderately limited)	
			~seepage	0.50	~too acid	0.54			~too acid	0.54
			(moderately limited)		(moderately limited)				(moderately limited)	
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.03							~small stones >35%	1.00
	(slightly limited)								(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	1.00			~too clayey	1.00
	(slightly limited)		(moderately limited)		(very limited)				(very limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~seepage	0.50	~too clayey	0.90			~small stones >35%	1.00
			(moderately limited)		(limited)				(very limited)	
					~too acid	0.36			~too clayey	0.80
					(moderately limited)				(limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73186:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	0.81			~small stones >35%	1.00
					(limited)				(very limited)	
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~seepage	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.09	~depth to bedrock	1.00	~seepage	0.79	~seepage	0.75	~small stones	0.65
	(slightly limited)		(very limited)		(limited)		(limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73188:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~wetness	0.79	~slope	0.63	~depth to bedrock	1.00
	(very limited)		(very limited)		(limited)		(limited)		(very limited)	
	~slope	0.63	~slope	1.00	~slope	0.63	~wetness	0.60	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
Poynor-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.63	~slope	1.00	~too clayey	1.00	~slope	0.63	~small stones >35%	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
			~seepage	0.50	~slope	0.63			~too clayey	1.00
			(moderately limited)		(limited)				(very limited)	
					~too acid	0.12			~hard to pack	0.70
					(slightly limited)				(limited)	
73189:										
Useful-----	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~wetness	0.44	~too clayey	0.51
	(very limited)		(very limited)		(very limited)		(moderately limited)		(moderately limited)	
	~percs slowly	0.71	~slope	0.91	~too clayey	0.74	~depth to bedrock	0.10	~wetness	0.35
	(limited)		(limited)		(limited)		(slightly limited)		(moderately limited)	
	~depth to bedrock	0.35	~seepage	0.50	~wetness	0.69			~too acid	0.12
	(moderately limited)		(moderately limited)		(limited)				(slightly limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73189:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~too clayey	1.00	~wetness	0.69	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.94	~slope	0.91	~wetness	0.89			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
74634:										
Hartville-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.99	~hard to pack	0.70
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~percs slowly	0.93	~slope	0.91	~too clayey	0.36			~wetness	0.60
	(limited)		(limited)		(moderately limited)				(moderately limited)	
					~too acid	0.06			~too clayey	0.18
					(slightly limited)				(slightly limited)	
74652:										
Lecoma-----	Slightly limited		Limited		Slightly limited		Not limited		Slightly limited	
	~percs slowly	0.25	~slope	0.91	~too acid	0.18			~too acid	0.18
	(slightly limited)		(limited)		(slightly limited)				(slightly limited)	
			~seepage	0.50						
			(moderately limited)							
74653:										
Racoon-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~wetness	1.00	~flooding	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~flooding	1.00	~wetness	1.00	~too acid	0.36
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~percs slowly	0.93			~too acid	0.36				
	(limited)				(moderately limited)					
Freeburg-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~wetness	0.55
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.90		
	(very limited)		(very limited)		(very limited)		(limited)			
	~percs slowly	0.71			~too clayey	0.04				
	(limited)				(slightly limited)					

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74656:										
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding (rare)	0.60			~too clayey	0.74	~flooding (rare)	0.60	~hard to pack	0.70
	(moderately limited)				(limited)		(moderately limited)		(limited)	
					~flooding (rare)	0.60			~too clayey	0.51
					(moderately limited)				(moderately limited)	
75375:										
Horsecreek----	Very limited		Very limited		Very limited		Very limited		Not limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
	~percs slowly	0.25	~seepage	0.50						
	(slightly limited)		(moderately limited)							
75376:										
Cedargap-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.71	~seepage	0.50	~too clayey	0.80			~too clayey	0.60
	(limited)		(moderately limited)		(limited)				(moderately limited)	
75388:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	0.50
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
			~seepage	1.00	~seepage	0.79	~seepage	0.75		
			(very limited)		(limited)		(limited)			
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too sandy	0.60			~too sandy	0.60
					(moderately limited)				(moderately limited)	
75391:										
Possumtrot-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~seepage	1.00	~seepage	1.00			~too acid	0.18
	(very limited)		(very limited)		(very limited)				(slightly limited)	
	~percs slowly	0.25			~too acid	0.18				
	(slightly limited)				(slightly limited)					

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75398:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	10.50
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
			~seepage	1.00	~seepage	0.79	~seepage	0.75		
			(very limited)		(limited)		(limited)			
75412:										
Razort-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	10.50
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~percs slowly	0.25	~seepage	1.00	~seepage	0.79	~seepage	0.75	~small stones	10.02
	(slightly limited)		(very limited)		(limited)		(limited)		(slightly limited)	
75413:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00	~small stones >35%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too sandy	0.60			~too sandy	10.60
					(moderately limited)				(moderately limited)	
75414:										
Wideman-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Not limited		Very limited		Very limited		Not limited		Moderately limited	
			~excess fines	1.00	~excess fines	1.00			~flooding	0.60
			(thickest layer)		(bottom layer)				(moderately limited)	
			~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
			(bottom layer)		(thickest layer)				(slightly limited)	
70028:										
Moko-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.75	~small stones	1.00	~cutbanks cave	0.29
			(bottom layer)		(thickest layer)		(very limited)		(slightly limited)	
							~large surface stones	0.80	~slope	0.04
							(limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~ponded (wetness)	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	0.35					~too acid	0.54	~too clayey	0.60
	(moderately limited)						(moderately limited)		(moderately limited)	
73032:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~wetness	0.26	~too clayey	1.00
	(very limited)						(slightly limited)		(very limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73039:										
Glensted-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00			~too clayey	0.80
	(very limited)		(bottom layer)		(thickest layer)				(limited)	
	~low strength	1.00							~cutbanks cave	0.29
	(very limited)								(slightly limited)	
73053:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~too acid	0.30	~hard bedrock <40"	1.00
			(bottom layer)		(thickest layer)		(slightly limited)		(very limited)	
							~too clayey	0.04		
							(slightly limited)			
Bender-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.09	~excess fines	1.00	~possible source	0.42	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~large stones >25%	1.00	~large stones	0.09
							(very limited)		(slightly limited)	
73066:										
Bender-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.09	~excess fines	1.00	~possible source	0.42	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~large stones >25%	1.00	~large stones	0.09
							(very limited)		(slightly limited)	
73067:										
Bender-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.09					~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(slightly limited)						(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Alred-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.04	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~too clayey	0.48
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(moderately limited)	
							~large stones >25%	1.00	~cutbanks cave	0.29
							(very limited)		(slightly limited)	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~slope	1.00					~depth to bedrock	1.00	~too clayey	1.00
	(very limited)						(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness	1.00					~dense layer	0.99	~too clayey	1.00
	(very limited)						(limited)		(very limited)	
73089:										
Rueter-----	Limited		Very limited		Limited		Very limited		Very limited	
	~slope	0.92	~excess fines	1.00	~excess fines	0.99	~slope	1.00	~slope	1.00
	(limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.29	~excess fines	1.00	~excess fines	0.99	~small stones	1.00	~too clayey	0.83
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
	~shrink-swell	0.09	~small stones	0.66	~small stones	0.66	~area reclaim	1.00	~cutbanks cave	0.29
	(slightly limited)		(thickest layer)		(thickest layer)		(very limited)		(slightly limited)	
73094:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~too clayey	1.00	~wetness	1.00
	(very limited)						(very limited)		(very limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73098:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer <20"	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~wetness	0.99					~wetness	0.99	~too clayey	1.00
	(very limited)						(very limited)		(very limited)	
73135, 73136:										
Union-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer	0.86	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.82	~excess fines	1.00	~excess fines	1.00	~too clayey	0.83	~wetness	1.00
	(limited)		(bottom layer)		(thickest layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~wetness	0.82	~too clayey	1.00
	(moderately limited)						(limited)		(very limited)	
73159:										
Yelton-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer <20"	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~wetness	0.82	~excess fines	1.00	~excess fines	1.00	~wetness	0.82	~dense layer <20"	1.00
	(limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~too clayey	0.48	~cutbanks cave	0.29
	(moderately limited)						(moderately limited)		(slightly limited)	
73160:										
Hobson-----	Limited		Very limited		Very limited		Limited		Very limited	
	~wetness	0.74	~excess fines	1.00	~excess fines	1.00	~dense layer	0.93	~wetness	1.00
	(limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~wetness	0.74	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(limited)		(very limited)	
							~slope	0.63	~dense layer	0.93
							(limited)		(limited)	
73161:										
Alred-----	Not limited		Very limited		Limited		Very limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
			(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.75	~slope	0.63	~too clayey	0.80
			(bottom layer)		(thickest layer)		(limited)		(limited)	
							~too acid	0.42	~slope	0.63
							(moderately limited)		(limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Slightly limited		Very limited		Limited		Very limited		Limited	
	~large stones	0.29	~excess fines	1.00	~small stones	0.66	~small stones	1.00	~too clayey	10.83
	(slightly limited)		(thickest layer)		(thickest layer)		(very limited)		(limited)	
	~shrink-swell	0.09	~excess fines	1.00	~small stones	0.66	~area reclaim	1.00	~cutbanks cave	10.29
	(slightly limited)		(bottom layer)		(bottom layer)		(very limited)		(slightly limited)	
			~small stones	0.66	~possible source	0.50	~too acid	0.36	~large stones	10.29
			(thickest layer)		(bottom layer)		(moderately limited)		(slightly limited)	
73162:										
Alred-----	Limited		Very limited		Limited		Very limited		Very limited	
	~slope	0.92	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.75	~small stones	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~large surface stones	0.80	~too clayey	10.80
							(limited)		(limited)	
Rueter-----	Limited		Very limited		Limited		Very limited		Very limited	
	~slope	0.92	~excess fines	1.00	~small stones	0.66	~slope	1.00	~slope	1.00
	(limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.29	~excess fines	1.00	~small stones	0.66	~small stones	1.00	~too clayey	10.83
	(slightly limited)		(bottom layer)		(bottom layer)		(very limited)		(limited)	
	~shrink-swell	0.09	~small stones	0.66	~possible source	0.50	~area reclaim	1.00	~cutbanks cave	10.29
	(slightly limited)		(thickest layer)		(bottom layer)		(very limited)		(slightly limited)	
73163:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~slope	1.00					~depth to bedrock	1.00	~too clayey	1.00
	(very limited)						(very limited)		(very limited)	
Alred-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.75	~small stones	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~large surface stones	1.00	~too clayey	10.80
							(very limited)		(limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Gasconade-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.25	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (very limited)	1.00					~small stones (very limited)	1.00	~too clayey (limited)	0.62
73164:										
Bender-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.09					~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.03					~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~low strength (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00					~depth to bedrock (very limited)	1.00	~too clayey (very limited)	1.00
73166:										
Viburnum-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~low strength (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~wetness (very limited)	1.00
	~wetness (limited)	0.76					~wetness (limited)	0.76	~too clayey (very limited)	1.00

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Tonti-----	Very limited		Very limited		Possible source		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer	0.99	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(limited)		(very limited)	
	~wetness	0.76	~excess fines	1.00	~possible source	0.50	~wetness	0.76	~cutbanks cave	1.00
	(limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~too clayey	0.55	~too clayey	1.00
	(moderately limited)						(moderately limited)		(very limited)	
73168:										
Swiss-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	0.99
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer	0.46	~too clayey	0.80
	(very limited)		(bottom layer)		(thickest layer)		(moderately limited)		(limited)	
	~wetness	0.03					~too acid	0.42	~dense layer	0.46
	(slightly limited)						(moderately limited)		(moderately limited)	
73169:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~too clayey	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~slope	0.92					~too acid	0.30	~wetness	1.00
	(limited)						(slightly limited)		(very limited)	
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~too clayey	1.00	~wetness	1.00
	(very limited)						(very limited)		(very limited)	
73170:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~too clayey	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too acid	0.30	~wetness	1.00
	(very limited)		(bottom layer)		(thickest layer)		(slightly limited)		(very limited)	
	~wetness	0.12					~large surface stones	0.13	~depth to bedrock	0.32
	(slightly limited)						(slightly limited)		(moderately limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~wetness	0.26	~too clayey	1.00
	(very limited)						(slightly limited)		(very limited)	
73171:										
Plato-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.99	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness	0.99					~dense layer	0.99	~dense layer	0.99
	(very limited)						(limited)		(limited)	
73172:										
Rosati-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.98	~dense layer	0.88
	(very limited)		(bottom layer)		(thickest layer)		(limited)		(limited)	
	~wetness	0.98					~dense layer	0.88	~too clayey	0.42
	(limited)						(limited)		(moderately limited)	
73173:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness		~excess fines	1.00	~excess fines	1.00	~too acid	0.30	~hard bedrock <40"	1.00
			(bottom layer)		(thickest layer)		(slightly limited)		(very limited)	
							~too clayey	0.04		
							(slightly limited)			
Yelton-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer <20"	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~wetness	0.82	~excess fines	1.00	~excess fines	1.00	~wetness	0.82	~dense layer <20"	1.00
	(limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~too clayey	0.48	~cutbanks cave	0.29
	(moderately limited)						(moderately limited)		(slightly limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73174:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~slope	0.63	~hard bedrock <40"	1.00
			(bottom layer)		(thickest layer)		(limited)		(very limited)	
							~too acid	0.30	~slope	0.63
							(slightly limited)		(limited)	
Yelton-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer <20"	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~wetness	0.82	~excess fines	1.00	~excess fines	1.00	~wetness	0.82	~dense layer <20"	1.00
	(limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~slope	0.63	~slope	0.63
	(moderately limited)						(limited)		(limited)	
73175:										
Poynor-----	Not limited		Very limited		Limited		Very limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~too clayey	1.00
			(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.99	~too acid	0.12	~cutbanks cave	0.29
			(bottom layer)		(thickest layer)		(slightly limited)		(slightly limited)	
Bendavis-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness	0.12	~excess fines	1.00	~excess fines	0.75	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~too acid	0.36	~wetness	1.00
							(moderately limited)		(very limited)	
73176:										
Bendavis-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness	0.12	~excess fines	1.00	~excess fines	0.75	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~slope	0.63	~wetness	1.00
							(limited)		(very limited)	
Poynor-----	Not limited		Very limited		Limited		Very limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~too clayey	1.00
			(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.99	~slope	0.63	~slope	0.63
			(bottom layer)		(thickest layer)		(limited)		(limited)	
							~large surface stones	0.13	~cutbanks cave	0.29
							(slightly limited)		(slightly limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73178:										
Bendavis-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.75	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~wetness (slightly limited)	0.12					~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
73179:										
Viraton-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~wetness (limited)	0.82	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~wetness (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~dense layer (limited)	0.99	~cutbanks cave (very limited)	1.00
	~low strength (slightly limited)	0.22					~wetness (limited)	0.82	~too clayey (very limited)	1.00
Wilderness-----	Limited		Very limited		Possible source		Very limited		Very limited	
	~wetness (limited)	0.64	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.50	~small stones (very limited)	1.00	~wetness (very limited)	1.00
	~shrink-swell (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.25	~dense layer (limited)	0.99	~cutbanks cave (very limited)	1.00
							~wetness (limited)	0.64	~dense layer (limited)	0.99
73180:										
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~wetness (very limited)	1.00
	~shrink-swell (very limited)	1.00					~wetness (slightly limited)	0.26	~too clayey (very limited)	1.00
Gasconade-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.25	~small stones (very limited)	1.00	~too clayey (limited)	0.62
							~too clayey (very limited)	1.00	~cutbanks cave (slightly limited)	0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73181:										
Useful-----	Very limited		Very limited		Very limited		Limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	0.63	~wetness	0.99
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too acid	0.12	~slope	0.63
	(very limited)		(bottom layer)		(thickest layer)		(slightly limited)		(limited)	
	~depth to bedrock	0.10					~wetness	0.03	~too clayey	0.51
	(slightly limited)						(slightly limited)		(moderately limited)	
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~slope	0.63	~too clayey	1.00
	(very limited)						(limited)		(very limited)	
73182:										
Lebanon-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer	0.96	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.82	~excess fines	1.00	~excess fines	1.00	~too clayey	0.88	~cutbanks cave	1.00
	(limited)		(bottom layer)		(thickest layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~wetness	0.82	~dense layer	0.96
	(moderately limited)						(limited)		(limited)	
73183:										
Scholten-----	Limited		Very limited		Possible source		Very limited		Very limited	
	~wetness	0.76	~excess fines	1.00	~possible source	0.25	~small stones	1.00	~wetness	1.00
	(limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~dense layer	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(limited)		(very limited)	
							~wetness	0.76	~dense layer	1.00
							(limited)		(limited)	
Tonti-----	Very limited		Very limited		Possible source		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~dense layer	0.99	~wetness	1.00
	(very limited)		(thickest layer)		(thickest layer)		(limited)		(very limited)	
	~wetness	0.76	~excess fines	1.00	~possible source	0.50	~wetness	0.76	~cutbanks cave	1.00
	(limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45					~too clayey	0.55	~too clayey	1.00
	(moderately limited)						(moderately limited)		(very limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73184:										
Knobby-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (slightly limited)	0.08	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.03					~slope (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (very limited)	1.00					~depth to bedrock (very limited)	1.00	~too clayey (very limited)	1.00
Alred-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.75	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~large surface stones (very limited)	1.00	~too clayey (limited)	0.80
Gasconade-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.25	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (very limited)	1.00					~small stones (very limited)	1.00	~too clayey (limited)	0.62
73187:										
Bender-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.09					~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73188:										
Bendavis-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~wetness (slightly limited)	0.12	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.75	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
							~slope (limited)	0.63	~wetness (very limited)	1.00
Poynor-----	Not limited		Very limited		Limited		Very limited		Very limited	
			~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~too clayey (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~slope (limited)	0.63	~slope (limited)	0.63
							~large surface stones (slightly limited)	0.13	~cutbanks cave (slightly limited)	0.29
73189:										
Useful-----	Very limited		Very limited		Very limited		Slightly limited		Limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too acid (slightly limited)	0.12	~wetness (limited)	0.99
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~wetness (slightly limited)	0.03	~too clayey (moderately limited)	0.51
	~depth to bedrock (slightly limited)	0.10							~depth to bedrock (moderately limited)	0.35
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~wetness (very limited)	1.00
	~shrink-swell (very limited)	1.00					~wetness (slightly limited)	0.26	~too clayey (very limited)	1.00
74634:										
Hartville-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~wetness (limited)	0.86	~wetness (very limited)	1.00
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (limited)	0.83	~cutbanks cave (slightly limited)	0.29
	~wetness (limited)	0.86					~too acid (slightly limited)	0.06	~too clayey (slightly limited)	0.18

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74652:										
Lecoma-----	Moderately limited		Very limited		Very limited		Not limited		Slightly limited	
	~shrink-swell	0.45	~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
	(moderately limited)		(thickest layer)		(bottom layer)				(slightly limited)	
	~low strength	0.22	~excess fines	1.00	~excess fines	1.00				
	(slightly limited)		(bottom layer)		(thickest layer)					
74653:										
Racoon-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00			~flooding	0.60
	(very limited)		(bottom layer)		(thickest layer)				(moderately limited)	
	~shrink-swell	0.17							~cutbanks cave	0.29
	(slightly limited)								(slightly limited)	
Freeburg-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.71	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.71	~excess fines	1.00	~excess fines	1.00	~too clayey	0.33	~flooding	0.60
	(limited)		(bottom layer)		(thickest layer)		(moderately limited)		(moderately limited)	
	~shrink-swell	0.39							~cutbanks cave	0.29
	(moderately limited)								(slightly limited)	
74656:										
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~low strength	0.78	~excess fines	1.00	~excess fines	1.00			~too clayey	0.51
	(limited)		(bottom layer)		(thickest layer)				(moderately limited)	
									~cutbanks cave	0.29
									(slightly limited)	
75375:										
Horsecreek----	Very limited		Very limited		Very limited		Not limited		Moderately limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00			~flooding	0.60
	(very limited)		(thickest layer)		(bottom layer)				(moderately limited)	
			~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
			(bottom layer)		(thickest layer)				(slightly limited)	
75376:										
Cedargap-----	Not limited		Very limited		Limited		Very limited		Very limited	
			~excess fines	1.00	~excess fines	0.75	~small stones	1.00	~cutbanks cave	1.00
			(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	0.75	~area reclaim	1.00	~flooding	0.60
			(bottom layer)		(thickest layer)		(very limited)		(moderately limited)	
							~too clayey	0.33	~too clayey	0.60
							(moderately limited)		(moderately limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75388:										
Kaintuck-----	Not limited		Very limited		Very limited		Moderately limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~too sandy	0.40	~cutbanks cave	1.00
			(thickest layer)		(bottom layer)		(moderately limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00			~flooding	0.60
			(bottom layer)		(thickest layer)				(moderately limited)	
Relfe-----	Not limited		Very limited		Possible source		Very limited		Very limited	
			~excess fines	1.00	~possible source	0.50	~small stones	1.00	~cutbanks cave	1.00
			(thickest layer)		(thickest layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~area reclaim	1.00	~flooding	0.60
			(bottom layer)		(bottom layer)		(very limited)		(moderately limited)	
75391:										
Possumtrot----	Not limited		Very limited		Very limited		Limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~area reclaim	0.92	~cutbanks cave	1.00
			(thickest layer)		(thickest layer)		(limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~too sandy	0.60	~flooding	0.60
			(bottom layer)		(bottom layer)		(limited)		(moderately limited)	
							~too acid	0.12		
							(slightly limited)			
75398:										
Kaintuck-----	Not limited		Very limited		Very limited		Moderately limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~too sandy	0.40	~cutbanks cave	1.00
			(thickest layer)		(bottom layer)		(moderately limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00			~flooding	0.60
			(bottom layer)		(thickest layer)				(moderately limited)	
75412:										
Razort-----	Not limited		Very limited		Very limited		Limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~area reclaim	0.68	~cutbanks cave	1.00
			(thickest layer)		(thickest layer)		(limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~small stones	0.50	~flooding	0.60
			(bottom layer)		(bottom layer)		(moderately limited)		(moderately limited)	
75413:										
Relfe-----	Not limited		Very limited		Possible source		Very limited		Very limited	
			~excess fines	1.00	~possible source	0.50	~small stones	1.00	~cutbanks cave	1.00
			(thickest layer)		(thickest layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~area reclaim	1.00	~flooding	0.60
			(bottom layer)		(bottom layer)		(very limited)		(moderately limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75414:										
Wideman-----	Not limited		Very limited		Possible source		Very limited		Very limited	
			~excess fines	1.00	~excess fines	1.00	~area reclaim	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
			~excess fines	0.99	~possible source	0.25	~too sandy	0.87	~flooding	0.60
			(thickest layer)		(bottom layer)		(limited)		(moderately limited)	
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Water Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Very limited		Limited		Limited		Moderately limited		Moderately limited	
	~seepage	1.00	~flooding	0.90	~flooding	0.90	~erodes easily	0.60	~erodes easily	0.60
	(very limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
					~erodes easily	0.60				
					(moderately limited)					
70028:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~droughty	1.00	~depth to bedrock	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.70	~slope	1.00	~bedrock <20 in.	1.00	~large surface stones	0.80	~bedrock <20 in.	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
			~large surface stones	0.80	~slope	1.00	~slope	0.70	~large surface stones	0.80
			(limited)		(very limited)		(limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~ponded (wetness)	1.00	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~wetness	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~percs slowly	0.39	~erodes easily	0.60	~wetness	1.00	~erodes easily	0.60
			(moderately limited)		(moderately limited)		(very limited)		(moderately limited)	
					~percs slowly	0.39	~erodes easily	0.60		
					(moderately limited)		(moderately limited)			
73032:										
Gatewood-----	Limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock	0.88	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.70	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~slope	0.70
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73039:										
Glensted-----	Not limited		Not limited		Very limited		Very limited		Very limited	
					~droughty	1.00	~wetness	1.00	~droughty	1.00
					(very limited)		(very limited)		(very limited)	
									~wetness	1.00
									(very limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~seepage	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	0.95
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~depth to bedrock	0.95	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.60	~slope	0.60
	(limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.60			~droughty	0.15			~droughty	0.15
	(moderately limited)				(slightly limited)				(slightly limited)	
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage	1.00	~slope	1.00	~droughty	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.95	~depth to bedrock	0.76	~slope	1.00	~depth to bedrock	1.00	~droughty	1.00
	(limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.60	~large stones	0.51	~depth to bedrock	0.76	~slope	0.60	~depth to bedrock	0.95
	(moderately limited)		(moderately limited)		(limited)		(moderately limited)		(limited)	
73066:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage	1.00	~slope	1.00	~droughty	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.95	~depth to bedrock	0.76	~slope	1.00	~depth to bedrock	1.00	~droughty	1.00
	(limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.60	~large stones	0.51	~depth to bedrock	0.76	~slope	0.60	~depth to bedrock	0.95
	(moderately limited)		(moderately limited)		(limited)		(moderately limited)		(limited)	
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~depth to bedrock	0.76	~droughty	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.95	~large surface stones	0.60	~depth to bedrock	0.76	~depth to bedrock	1.00	~droughty	1.00
	(limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~large surface stones	0.60	~droughty	1.00	~large stones	1.00	~droughty	1.00
	(moderately limited)		(moderately limited)		(very limited)		(very limited)		(very limited)	
					~large surface stones	0.60	~large surface stones	0.60	~large stones	1.00
					(moderately limited)		(moderately limited)		(very limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.89	~large surface stones	0.60	~droughty	0.72	~depth to bedrock	1.00	~depth to bedrock	0.89
	(limited)		(moderately limited)		(limited)		(very limited)		(limited)	
	~seepage	0.50	~depth to bedrock	0.46	~large surface stones	0.60	~large surface stones	0.60	~droughty	0.72
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Not limited		Slightly limited		Moderately limited		Very limited		Very limited	
			~percs slowly	0.19	~erodes easily	0.60	~wetness	1.00	~wetness	1.00
			(slightly limited)		(moderately limited)		(very limited)		(very limited)	
					~droughty	0.28	~erodes easily	0.60	~rooting depth	0.80
					(slightly limited)		(moderately limited)		(limited)	
					~percs slowly	0.19			~erodes easily	0.60
					(slightly limited)				(moderately limited)	
73089:										
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large stones	1.00	~large surface stones	0.80	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
			~large surface stones	0.80	~droughty	0.43	~large surface stones	0.80	~large surface stones	0.80
			(limited)		(moderately limited)		(limited)		(limited)	
73094:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.88	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(moderately limited)		(moderately limited)		(very limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73098:										
Plato-----	Moderately limited		Slightly limited		Moderately limited		Limited		Limited	
	~seepage	0.50	~percs slowly	0.13	~erodes easily	0.60	~wetness	0.94	~wetness	0.94
	(moderately limited)		(slightly limited)		(moderately limited)		(limited)		(limited)	
					~droughty	0.24	~erodes easily	0.60	~rooting depth	0.80
					(slightly limited)		(moderately limited)		(limited)	
					~percs slowly	0.13			~erodes easily	0.60
					(slightly limited)				(moderately limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Moderately limited		Limited		Limited		Moderately limited		Limited	
	~seepage	0.50	~slope	0.98	~slope	0.98	~erodes easily	0.60	~rooting depth	0.80
	(moderately limited)		(limited)		(limited)		(moderately limited)		(limited)	
	~slope	0.30			~erodes easily	0.60	~wetness	0.58	~erodes easily	0.60
	(moderately limited)				(moderately limited)		(moderately limited)		(moderately limited)	
							~slope	0.30	~wetness	0.58
							(moderately limited)		(moderately limited)	
73136:										
Union-----	Moderately limited		Not limited		Moderately limited		Moderately limited		Limited	
	~seepage	0.50			~erodes easily	0.60	~erodes easily	0.60	~rooting depth	0.80
	(moderately limited)				(moderately limited)		(moderately limited)		(limited)	
							~wetness	0.58	~erodes easily	0.60
							(moderately limited)		(moderately limited)	
									~wetness	0.58
									(moderately limited)	
73159:										
Yelton-----	Slightly limited		Limited		Limited		Moderately limited		Limited	
	~slope	0.20	~slope	0.78	~slope	0.78	~erodes easily	0.60	~rooting depth	0.80
	(slightly limited)		(limited)		(limited)		(moderately limited)		(limited)	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.58	~erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.13	~slope	0.20	~wetness	0.58
					(slightly limited)		(slightly limited)		(moderately limited)	
73160:										
Hobson-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~slope	0.99
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50			~erodes easily	0.60	~erodes easily	0.60	~rooting depth	0.80
	(moderately limited)				(moderately limited)		(moderately limited)		(limited)	
							~wetness	0.54	~erodes easily	0.60
							(moderately limited)		(moderately limited)	
73161:										
Alred-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.99	~slope	1.00	~droughty	1.00	~slope	0.99	~droughty	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~seepage	0.50			~slope	1.00			~slope	0.99
	(moderately limited)				(very limited)				(limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage	1.00	~slope	1.00	~slope	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.70	~large stones	1.00	~droughty	0.43	~slope	0.70	~slope	0.70
	(limited)		(very limited)		(moderately limited)		(limited)		(limited)	
					~large stones	0.29			~droughty	0.43
					(slightly limited)				(moderately limited)	
73162:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~large surface stones	0.80	~droughty	1.00	~large surface stones	0.80	~droughty	1.00
	(moderately limited)		(limited)		(very limited)		(limited)		(very limited)	
					~large surface stones	0.80			~large surface stones	0.80
					(limited)				(limited)	
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large stones	1.00	~large surface stones	0.80	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
			~large surface stones	0.80	~droughty	0.43	~large surface stones	0.80	~large surface stones	0.80
			(limited)		(moderately limited)		(limited)		(limited)	
73163:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.89	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~depth to bedrock	0.46	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	0.89
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~large surface stones	1.00	~droughty	1.00	~large surface stones	1.00	~droughty	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~large surface stones	1.00			~large surface stones	1.00
					(very limited)				(very limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~droughty	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	1.00	~depth to bedrock	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~bedrock <20 in.	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large surface stones	1.00	~droughty	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.95	~depth to bedrock	0.76	~large surface stones	1.00	~depth to bedrock	1.00	~droughty	1.00
	(limited)		(limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~droughty	1.00	~slope	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~bedrock <20 in.	1.00	~large stones	1.00	~droughty	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.89	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~depth to bedrock	0.46	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	0.89
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(limited)	
73166:										
Viburnum-----	Slightly limited		Limited		Limited		Moderately limited		Moderately limited	
	~slope	0.20	~slope	0.78	~slope	0.78	~erodes easily	0.60	~erodes easily	0.60
	(slightly limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.55	~wetness	0.55
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.13	~slope	0.20	~slope	0.20
					(slightly limited)		(slightly limited)		(slightly limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Tonti-----	Moderately limited		Limited		Limited		Moderately limited		Limited	
	~seepage	0.50	~slope	0.78	~slope	0.78	~erodes easily	0.60	~rooting depth	0.80
	(moderately limited)		(limited)		(limited)		(moderately limited)		(limited)	
	~slope	0.20			~erodes easily	0.60	~wetness	0.55	~erodes easily	0.60
	(slightly limited)				(moderately limited)		(moderately limited)		(moderately limited)	
							~slope	0.20	~wetness	0.55
							(slightly limited)		(moderately limited)	
73168:										
Swiss-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.80	~percs slowly	1.00	~percs slowly	1.00	~slope	0.80	~slope	0.80
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
			~slope	1.00	~slope	1.00	~large surface stones	0.13	~large surface stones	0.13
			(very limited)		(very limited)		(slightly limited)		(slightly limited)	
			~large surface stones	0.13	~large surface stones	0.13	~wetness	0.13	~wetness	0.13
			(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
73169:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.32	~percs slowly	0.40	~percs slowly	0.40	~wetness	0.28	~depth to bedrock	0.32
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~large surface stones	0.13	~large surface stones	0.13	~large surface stones	0.13	~wetness	0.28
			(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.88	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(moderately limited)		(moderately limited)		(very limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73170:										
Beemont-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.70	~slope	1.00	~slope	1.00	~slope	0.70	~slope	0.70
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~depth to bedrock	0.32	~percs slowly	0.40	~percs slowly	0.40	~wetness	0.28	~depth to bedrock	0.32
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~large surface stones	0.13	~large surface stones	0.13	~large surface stones	0.13	~wetness	0.28
			(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Gatewood-----	Limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock	0.88	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.70	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~slope	0.70
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73171:										
Plato-----	Moderately limited		Limited		Limited		Limited		Limited	
	~slope	0.30	~slope	0.98	~slope	0.98	~wetness	0.94	~wetness	0.94
	(moderately limited)		(limited)		(limited)		(limited)		(limited)	
			~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~rooting depth	0.80
			(slightly limited)		(moderately limited)		(moderately limited)		(limited)	
					~slow intake	0.60	~slope	0.30	~erodes easily	0.60
					(moderately limited)		(moderately limited)		(moderately limited)	
73172:										
Rosati-----	Not limited		Slightly limited		Moderately limited		Limited		Limited	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.86	~wetness	0.86
			(slightly limited)		(moderately limited)		(limited)		(limited)	
			~slope	0.10	~percs slowly	0.13	~erodes easily	0.60	~rooting depth	0.80
			(slightly limited)		(slightly limited)		(moderately limited)		(limited)	
					~slope	0.10			~erodes easily	0.60
					(slightly limited)				(moderately limited)	
73173:										
Lily-----	Very limited		Limited		Limited		Very limited		Limited	
	~seepage	1.00	~slope	0.98	~slope	0.98	~depth to bedrock	1.00	~depth to bedrock	0.95
	(very limited)		(limited)		(limited)		(very limited)		(limited)	
	~depth to bedrock	0.95	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.30	~slope	0.30
	(limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.30			~droughty	0.04			~droughty	0.04
	(moderately limited)				(slightly limited)				(slightly limited)	
Yelton-----	Slightly limited		Limited		Limited		Moderately limited		Limited	
	~slope	0.20	~slope	0.78	~slope	0.78	~erodes easily	0.60	~rooting depth	0.80
	(slightly limited)		(limited)		(limited)		(moderately limited)		(limited)	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.58	~erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.13	~slope	0.20	~wetness	0.58
					(slightly limited)		(slightly limited)		(moderately limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73174:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~seepage	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	10.99
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.99	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.99	~depth to bedrock	10.95
	(limited)		(limited)		(limited)		(limited)		(limited)	
	~depth to bedrock	0.95			~droughty	0.04			~droughty	10.04
	(limited)				(slightly limited)				(slightly limited)	
Yelton-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~slope	10.99
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
			~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~rooting depth	10.80
			(slightly limited)		(moderately limited)		(moderately limited)		(limited)	
					~percs slowly	0.13	~wetness	0.58	~erodes easily	10.60
					(slightly limited)		(moderately limited)		(moderately limited)	
73175:										
Poynor-----	Moderately limited		Limited		Very limited		Slightly limited		Very limited	
	~seepage	0.50	~slope	0.78	~droughty	1.00	~slope	0.20	~droughty	1.00
	(moderately limited)		(limited)		(very limited)		(slightly limited)		(very limited)	
	~slope	0.20			~slope	0.78			~slope	10.20
	(slightly limited)				(limited)				(slightly limited)	
Bendavis-----	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock	0.92	~slope	0.78	~slope	0.78	~depth to bedrock	1.00	~depth to bedrock	10.92
	(limited)		(limited)		(limited)		(very limited)		(limited)	
	~seepage	0.50	~depth to bedrock	0.58	~depth to bedrock	0.58	~wetness	0.28	~droughty	10.45
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)	
	~slope	0.20			~droughty	0.45	~slope	0.20	~wetness	10.28
	(slightly limited)				(moderately limited)		(slightly limited)		(slightly limited)	
73176:										
Bendavis-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	10.99
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~depth to bedrock	0.92	~depth to bedrock	0.58	~depth to bedrock	0.58	~slope	0.99	~depth to bedrock	10.92
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
	~seepage	0.50	~large surface stones	0.13	~droughty	0.45	~wetness	0.28	~droughty	10.45
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
Poynor-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~droughty	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~seepage	0.50	~large surface stones	0.13	~droughty	1.00	~large surface stones	0.13	~slope	10.99
	(moderately limited)		(slightly limited)		(very limited)		(slightly limited)		(limited)	
					~large surface stones	0.13			~large surface stones	10.13
					(slightly limited)				(slightly limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73178:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.92	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	1.00	~depth to bedrock	0.92
	(limited)		(moderately limited)		(moderately limited)		(very limited)		(limited)	
	~seepage	0.50	~large surface stones	0.13	~droughty	0.45	~wetness	0.28	~droughty	0.45
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
73179:										
Viraton-----	Moderately limited		Very limited		Very limited		Moderately limited		Limited	
	~slope	0.45	~slope	1.00	~slope	1.00	~erodes easily	0.60	~rooting depth	0.80
	(moderately limited)		(very limited)		(very limited)		(moderately limited)		(limited)	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.58	~erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.13	~slope	0.45	~wetness	0.58
					(slightly limited)		(moderately limited)		(moderately limited)	
Wilderness-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~slope	0.99
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50	~large stones	0.51	~droughty	0.86	~wetness	0.50	~droughty	0.86
	(moderately limited)		(moderately limited)		(limited)		(moderately limited)		(limited)	
							~large stones	0.10	~rooting depth	0.80
							(slightly limited)		(limited)	
73180:										
Gatewood-----	Limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock	0.88	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.70	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~slope	0.70
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~slope	1.00	~droughty	1.00	~depth to bedrock	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.70	~bedrock <20 in.	1.00	~slope	1.00	~slope	0.70	~bedrock <20 in.	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	0.13	~bedrock <20 in.	1.00	~large surface stones	0.13	~slope	0.70
			(slightly limited)		(very limited)		(slightly limited)		(limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73181:										
Useful-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~slope	0.99
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50	~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~depth to bedrock	0.34			~percs slowly	0.13	~wetness	0.13	~depth to bedrock	0.34
	(moderately limited)				(slightly limited)		(slightly limited)		(moderately limited)	
Gatewood-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	0.99
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~depth to bedrock	0.88	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.99	~depth to bedrock	0.88
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~wetness	0.36	~wetness	0.36
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73182:										
Lebanon-----	Not limited		Slightly limited		Moderately limited		Moderately limited		Limited	
			~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~rooting depth	0.80
			(slightly limited)		(moderately limited)		(moderately limited)		(limited)	
					~percs slowly	0.13	~wetness	0.58	~erodes easily	0.60
					(slightly limited)		(moderately limited)		(moderately limited)	
									~wetness	0.58
									(moderately limited)	
73183:										
Scholten-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.70	~slope	1.00	~slope	1.00	~slope	0.70	~droughty	0.97
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50			~droughty	0.97	~wetness	0.55	~rooting depth	0.80
	(moderately limited)				(limited)		(moderately limited)		(limited)	
									~slope	0.70
									(limited)	
Tonti-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.70	~slope	1.00	~slope	1.00	~slope	0.70	~rooting depth	0.80
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50			~erodes easily	0.60	~erodes easily	0.60	~slope	0.70
	(moderately limited)				(moderately limited)		(moderately limited)		(limited)	
									~wetness	0.55
									(moderately limited)	
									~erodes easily	0.60
									(moderately limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~droughty	1.00	~depth to bedrock	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~bedrock <20 in.	1.00	~large stones	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~slope	1.00	~slope	1.00	~bedrock <20 in.	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.89	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~depth to bedrock	0.46	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	0.89
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~large surface stones	1.00	~droughty	1.00	~large surface stones	1.00	~droughty	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~large surface stones	1.00			~large surface stones	1.00
					(very limited)				(very limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~droughty	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	1.00	~depth to bedrock	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~bedrock <20 in.	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~depth to bedrock	0.76	~droughty	1.00	~large stones	1.00	~large stones	1.00
	(very limited)		(limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.95	~large surface stones	0.60	~depth to bedrock	0.76	~depth to bedrock	1.00	~droughty	1.00
	(limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73188:										
Bendavis-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	0.99
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~depth to bedrock	0.92	~depth to bedrock	0.58	~depth to bedrock	0.58	~slope	0.99	~depth to bedrock	0.92
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
	~seepage	0.50	~large surface stones	0.13	~droughty	0.45	~wetness	0.28	~droughty	0.45
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
Poynor-----	Limited		Very limited		Very limited		Limited		Very limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~droughty	1.00
	(limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~seepage	0.50	~large surface stones	0.13	~droughty	1.00	~large surface stones	0.13	~slope	0.99
	(moderately limited)		(slightly limited)		(very limited)		(slightly limited)		(limited)	
					~large surface stones	0.13			~large surface stones	0.13
					(slightly limited)				(slightly limited)	
73189:										
Useful-----	Moderately limited		Limited		Limited		Moderately limited		Moderately limited	
	~seepage	0.50	~slope	0.98	~slope	0.98	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
	~depth to bedrock	0.34	~percs slowly	0.13	~erodes easily	0.60	~slope	0.30	~depth to bedrock	0.34
	(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.30	~percs slowly	0.13	~percs slowly	0.13	~wetness	0.13	~slope	0.30
	(moderately limited)				(slightly limited)		(slightly limited)		(moderately limited)	
Gatewood-----	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock	0.88	~slope	0.98	~slope	0.98	~depth to bedrock	1.00	~depth to bedrock	0.88
	(limited)		(limited)		(limited)		(very limited)		(limited)	
	~slope	0.30	~depth to bedrock	0.42	~depth to bedrock	0.42	~wetness	0.36	~wetness	0.36
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
			~percs slowly	0.40	~percs slowly	0.40	~slope	0.30	~slope	0.30
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
74634:										
Hartville-----	Moderately limited		Limited		Limited		Moderately limited		Moderately limited	
	~slope	0.30	~slope	0.98	~slope	0.98	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
			~percs slowly	0.39	~erodes easily	0.60	~wetness	0.60	~wetness	0.60
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.39	~slope	0.30	~slope	0.30
					(moderately limited)		(moderately limited)		(moderately limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74652:										
Lecoma-----	Moderately limited		Limited		Limited		Moderately limited		Moderately limited	
	~seepage	0.50	~slope	0.98	~slope	0.98	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.30	~slope		~erodes easily	0.60	~slope	0.30	~slope	0.30
	(moderately limited)				(moderately limited)		(moderately limited)		(moderately limited)	
74653:										
Racoon-----	Not limited		Moderately limited		Moderately limited		Very limited		Very limited	
			~flooding	0.60	~flooding	0.60	~wetness	1.00	~wetness	1.00
			(moderately limited)		(moderately limited)		(very limited)		(very limited)	
			~percs slowly	0.39	~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.39				
					(moderately limited)					
Freeburg-----	Not limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
			~flooding	0.60	~flooding	0.60	~erodes easily	0.60	~erodes easily	0.60
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
			~percs slowly	0.13	~erodes easily	0.60	~wetness	0.53	~wetness	0.53
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~percs slowly	0.13				
					(slightly limited)					
74656:										
Deible-----	Not limited		Not limited		Moderately limited		Very limited		Very limited	
					~erodes easily	0.60	~wetness	1.00	~wetness	1.00
					(moderately limited)		(very limited)		(very limited)	
					~droughty	0.20	~erodes easily	0.60	~erodes easily	0.60
					(slightly limited)		(moderately limited)		(moderately limited)	
									~droughty	0.20
									(slightly limited)	
75375:										
Horsecreek----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~seepage	0.50	~flooding	0.60	~flooding	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~erodes easily	0.60				
					(moderately limited)					
75376:										
Cedargap-----	Moderately limited		Limited		Limited		Not limited		Not limited	
	~seepage	0.50	~flooding	0.90	~flooding	0.90				
	(moderately limited)		(limited)		(limited)					

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75388:										
Kaintuck-----	Very limited		Limited		Limited		Not limited		Not limited	
	~seepage	1.00	~flooding	0.90	~flooding	0.90				
	(very limited)		(limited)		(limited)					
Relfe-----	Very limited		Limited		Very limited		Moderately limited		Very limited	
	~seepage	1.00	~flooding	0.90	~droughty	1.00	~too sandy	0.60	~droughty	1.00
	(very limited)		(limited)		(very limited)		(moderately limited)		(very limited)	
					~flooding	0.90				
					(limited)					
75391:										
Possumtrot-----	Very limited		Moderately limited		Moderately limited		Not limited		Not limited	
	~seepage	1.00	~flooding	0.60	~flooding	0.60				
	(very limited)		(moderately limited)		(moderately limited)					
75398:										
Kaintuck-----	Very limited		Limited		Limited		Not limited		Not limited	
	~seepage	1.00	~flooding	0.90	~flooding	0.90				
	(very limited)		(limited)		(limited)					
75412:										
Razort-----	Very limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~seepage	1.00	~flooding	0.60	~flooding	0.60	~erodes easily	0.60	~erodes easily	0.60
	(very limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					~erodes easily	0.60				
					(moderately limited)					
75413:										
Relfe-----	Very limited		Limited		Very limited		Moderately limited		Very limited	
	~seepage	1.00	~flooding	0.90	~droughty	1.00	~too sandy	0.60	~droughty	1.00
	(very limited)		(limited)		(very limited)		(moderately limited)		(very limited)	
					~flooding	0.90				
					(limited)					
75414:										
Wideman-----	Very limited		Limited		Very limited		Not limited		Slightly limited	
	~seepage	1.00	~flooding	0.90	~fast intake	1.00			~droughty	0.02
	(very limited)		(limited)		(very limited)				(slightly limited)	
					~flooding	0.90				
					(limited)					
					~droughty	0.02				
					(slightly limited)					

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
75388:										
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Waste Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014:										
Haymond-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
70028:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	0.80	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~slope	0.70	~slope	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73013:										
Lowassie-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~wetness	1.00	~wetness	1.00	~ponded (wetness)	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.99	~percs slowly	0.99	~percs slowly	0.99	~percs slowly	0.99	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
73032:										
Gatewood-----	Moderately limited		Moderately limited		Limited		Very limited		Very limited	
	~slope	0.45	~slope	0.45	~slope	0.70	~depth to bedrock	1.00	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73039:										
Glensted-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~wetness	1.00				
	(very limited)		(very limited)		(very limited)					

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73053:										
Lily-----	Limited		Limited		Limited		Very limited		Very limited	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	1.00	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~slope	0.30	~slope	0.30	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~droughty	0.15	~droughty	0.15	~droughty	0.15	~too acid	0.06	~percs slowly	0.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.60	~slope	1.00
	(limited)		(limited)		(limited)		(moderately limited)		(very limited)	
	~too acid	0.48	~too acid	0.48	~slope	0.60	~too acid	0.48	~percs slowly	0.32
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73066:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.60	~slope	1.00
	(limited)		(limited)		(limited)		(moderately limited)		(very limited)	
	~too acid	0.48	~too acid	0.48	~slope	0.60	~too acid	0.48	~percs slowly	0.32
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73067:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~droughty	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~large surface stones	0.60	~large surface stones	0.60
	(limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
73080:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~droughty	1.00	~large stones >35%	0.99	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones >35%	0.99	~large stones >35%	0.99	~large stones >35%	0.99	~large surface stones	0.60	~large surface stones	0.60
	(very limited)		(very limited)		(very limited)		(moderately limited)		(moderately limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73080:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.72	~droughty	0.72	~droughty	0.72	~depth to bedrock	1.00	~slope	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73087:										
Celt-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.28	~droughty	0.28	~droughty	0.28	~too acid	0.18	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
	~too acid	0.18	~too acid	0.18	~too acid	0.18			~too acid	0.07
	(slightly limited)		(slightly limited)		(slightly limited)				(slightly limited)	
73089:										
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~too acid	0.84	~too acid	0.84	~too acid	0.84	~too acid	0.84	~too cobbly	0.95
	(limited)		(limited)		(limited)		(limited)		(limited)	
	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80
	(limited)		(limited)		(limited)		(limited)		(limited)	
73094:										
Gatewood-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	1.00	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73098:										
Plato-----	Limited		Limited		Limited		Limited		Very limited	
	~wetness	0.94	~wetness	0.94	~wetness	0.94	~wetness	0.94	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~droughty	0.24	~droughty	0.24	~droughty	0.24	~too acid	0.06	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
	~too acid	0.06	~too acid	0.06	~too acid	0.06			~too acid	0.21
	(slightly limited)		(slightly limited)		(slightly limited)				(slightly limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73135:										
Union-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
					~slope	0.30	~slope	0.30	~wetness	1.00
					(moderately limited)		(moderately limited)		(very limited)	
									~slope	0.91
									(limited)	
73136:										
Union-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~wetness	1.00
									(very limited)	
									~too acid	0.42
									(moderately limited)	
73159:										
Yelton-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~droughty	0.12	~droughty	0.12	~slope	0.20	~slope	0.20	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
					~droughty	0.12			~slope	0.66
					(slightly limited)				(limited)	
73160:										
Hobson-----	Limited		Limited		Limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~slope	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.54	~wetness	0.54	~wetness	0.54	~wetness	0.54	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~wetness	1.00
									(very limited)	
73161:										
Alred-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~slope	0.99	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.76	~slope	0.76	~slope	0.99			~slope	1.00
	(limited)		(limited)		(limited)				(very limited)	
									~too acid	0.03
									(slightly limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73161:										
Rueter-----	Limited		Limited		Limited		Limited		Very limited	
	~too acid	0.84	~too acid	0.84	~too acid	0.84	~too acid	0.84	~slope	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~slope	0.45	~slope	0.45	~slope	0.70	~slope	0.70	~too cobbly	0.95
	(moderately limited)		(moderately limited)		(limited)		(limited)		(limited)	
	~droughty	0.43	~droughty	0.43	~droughty	0.43			~percs slowly	0.32
	(moderately limited)		(moderately limited)		(moderately limited)				(moderately limited)	
73162:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~droughty	1.00	~large surface stones	0.80	~slope	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80			~large surface stones	0.80
	(limited)		(limited)		(limited)				(limited)	
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~too acid	0.84	~too acid	0.84	~too acid	0.84	~too acid	0.84	~too cobbly	0.95
	(limited)		(limited)		(limited)		(limited)		(limited)	
	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80
	(limited)		(limited)		(limited)		(limited)		(limited)	
73163:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.66	~droughty	0.66	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~large surface stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00			~large surface stones	1.00
	(very limited)		(very limited)		(very limited)				(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73163:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
73164:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
73165:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.66	~droughty	0.66	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
73166:										
Viburnum-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.55	~wetness	0.55	~wetness	0.55	~wetness	0.55	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~too acid	0.48	~too acid	0.48	~too acid	0.48	~too acid	0.48	~slope	0.66
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73166:										
Tonti-----	Limited		Limited		Limited		Limited		Very limited	
	~too acid	0.60	~too acid	0.60	~too acid	0.60	~too acid	0.60	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.55	~wetness	0.55	~wetness	0.55	~wetness	0.55	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
					~slope	0.20	~slope	0.20	~slope	10.66
					(slightly limited)		(slightly limited)		(limited)	
73168:										
Swiss-----	Moderately limited		Moderately limited		Limited		Limited		Very limited	
	~slope	0.60	~slope	0.60	~slope	0.80	~slope	0.80	~wetness	1.00
	(moderately limited)		(moderately limited)		(limited)		(limited)		(very limited)	
	~too acid	0.24	~too acid	0.24	~too acid	0.24	~too acid	0.24	~slope	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
	~large surface stones	0.13	~large surface stones	0.13	~large surface stones	0.13	~large surface stones	0.13	~percs slowly	10.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
73169:										
Beemont-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~too acid	0.42	~too acid	0.42	~too acid	0.42	~too acid	0.42	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~wetness	0.28	~wetness	0.28	~wetness	0.28	~wetness	0.28	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
Gateway-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	1.00	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73170:										
Beemont-----	Moderately limited		Moderately limited		Limited		Limited		Very limited	
	~slope	0.45	~slope	0.45	~slope	0.70	~slope	0.70	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(limited)		(limited)		(very limited)	
	~too acid	0.42	~too acid	0.42	~too acid	0.42	~too acid	0.42	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~wetness	0.28	~wetness	0.28	~wetness	0.28	~wetness	0.28	~slope	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73170:										
Gatewood-----	Moderately limited		Moderately limited		Limited		Very limited		Very limited	
	~slope	0.45	~slope	0.45	~slope	0.70	~depth to bedrock	1.00	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73171:										
Plato-----	Limited		Limited		Limited		Limited		Very limited	
	~wetness	0.94	~wetness	0.94	~wetness	0.94	~wetness	0.94	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~droughty	0.28	~droughty	0.28	~slope	0.30	~slope	0.30	~wetness	1.00
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(very limited)	
	~too acid	0.18	~too acid	0.18	~droughty	0.28	~too acid	0.18	~slope	0.91
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(limited)	
73172:										
Rosati-----	Limited		Limited		Limited		Limited		Very limited	
	~wetness	0.86	~wetness	0.86	~wetness	0.86	~wetness	0.86	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~wetness	1.00
									(very limited)	
									~slope	0.08
									(slightly limited)	
73173:										
Lily-----	Limited		Limited		Limited		Very limited		Very limited	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	1.00	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~too acid	0.06	~too acid	0.06	~slope	0.30	~slope	0.30	~slope	0.91
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(limited)	
	~droughty	0.04	~droughty	0.04	~too acid	0.06	~too acid	0.06	~percs slowly	0.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
Yelton-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~droughty	0.12	~droughty	0.12	~slope	0.20	~slope	0.20	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
					~droughty	0.12			~slope	0.66
					(slightly limited)				(limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73174:										
Lily-----	Limited		Limited		Limited		Very limited		Very limited	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~slope	0.99	~depth to bedrock	1.00	~slope	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~slope	0.76	~slope	0.76	~depth to bedrock	0.76	~slope	0.99	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~too acid	0.06	~too acid	0.06	~too acid	0.06	~too acid	0.06	~percs slowly	0.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
Yelton-----	Limited		Limited		Limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~slope	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~droughty	0.12	~droughty	0.12	~droughty	0.12			~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)				(very limited)	
73175:										
Poynor-----	Very limited		Very limited		Very limited		Slightly limited		Limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~too acid	0.30	~slope	0.66
	(very limited)		(very limited)		(very limited)		(slightly limited)		(limited)	
	~too acid	0.30	~too acid	0.30	~too acid	0.30	~slope	0.20	~percs slowly	0.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
					~slope	0.20			~too acid	0.01
					(slightly limited)				(slightly limited)	
Bendavis-----	Moderately limited		Moderately limited		Moderately limited		Very limited		Very limited	
	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	1.00	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~droughty	0.45	~droughty	0.45	~droughty	0.45	~wetness	0.28	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(very limited)	
	~wetness	0.28	~wetness	0.28	~wetness	0.28	~too acid	0.24	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
73176:										
Bendavis-----	Limited		Limited		Limited		Very limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~depth to bedrock	1.00	~percs slowly	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	0.58	~slope	0.99	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~droughty	0.45	~droughty	0.45	~droughty	0.45	~wetness	0.28	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73176:										
Poynor-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~slope	0.99	~slope	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.76	~slope	0.76	~slope	0.99	~too acid	0.30	~percs slowly	0.32
	(limited)		(limited)		(limited)		(slightly limited)		(moderately limited)	
	~too acid	0.30	~too acid	0.30	~too acid	0.30	~large surface stones	0.13	~large surface stones	0.13
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
73178:										
Bendavis-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	1.00	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~droughty	0.45	~droughty	0.45	~droughty	0.45	~wetness	0.28	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(very limited)	
73179:										
Viraton-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~too acid	0.42	~too acid	0.42	~slope	0.45	~slope	0.45	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~slope	0.15	~slope	0.15	~too acid	0.42	~too acid	0.42	~slope	1.00
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(very limited)	
Wilderness-----	Limited		Limited		Limited		Limited		Very limited	
	~droughty	0.86	~droughty	0.86	~slope	0.99	~slope	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~slope	0.76	~slope	0.76	~droughty	0.86	~wetness	0.50	~wetness	1.00
	(limited)		(limited)		(limited)		(moderately limited)		(very limited)	
	~wetness	0.50	~wetness	0.50	~wetness	0.50	~too acid	0.36	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73180:										
Gateway-----	Moderately limited		Moderately limited		Limited		Very limited		Very limited	
	~slope	0.45	~slope	0.45	~slope	0.70	~depth to bedrock	1.00	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.70	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73180:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	0.70	~slope	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~slope	0.70	~percs slowly	0.60	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
73181:										
Useful-----	Limited		Limited		Limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~slope	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~slope	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.13	~wetness	0.13	~wetness	0.13	~wetness	0.13	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
Gatewood-----	Limited		Limited		Limited		Very limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~depth to bedrock	1.00	~percs slowly	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~slope	0.99	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73182:										
Lebanon-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.58	~wetness	0.58	~wetness	0.58	~wetness	0.58	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~wetness	1.00
									(very limited)	
									~too acid	0.07
									(slightly limited)	
73183:										
Scholten-----	Limited		Limited		Limited		Limited		Very limited	
	~droughty	0.97	~droughty	0.97	~droughty	0.97	~slope	0.70	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.55	~wetness	0.55	~slope	0.70	~wetness	0.55	~slope	1.00
	(moderately limited)		(moderately limited)		(limited)		(moderately limited)		(very limited)	
	~slope	0.45	~slope	0.45	~wetness	0.55	~too acid	0.36	~percs slowly	0.32
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73183:										
Tonti-----	Limited		Limited		Limited		Limited		Very limited	
	~too acid	0.60	~too acid	0.60	~slope	0.70	~slope	0.70	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.55	~wetness	0.55	~too acid	0.60	~too acid	0.60	~wetness	1.00
	(moderately limited)		(moderately limited)		(limited)		(limited)		(very limited)	
	~slope	0.45	~slope	0.45	~wetness	0.55	~wetness	0.55	~slope	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73184:										
Knobby-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73186:										
Bardley-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.66	~droughty	0.66	~droughty	0.66	~large surface stones	1.00	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~large surface stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00			~large surface stones	1.00
	(very limited)		(very limited)		(very limited)				(very limited)	
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73187:										
Bender-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~droughty	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.76	~depth to bedrock	0.76	~depth to bedrock	0.76	~large surface stones	0.60	~large surface stones	0.60
	(limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
73188:										
Bendavis-----	Limited		Limited		Limited		Very limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~depth to bedrock	1.00	~percs slowly	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.58	~depth to bedrock	0.58	~depth to bedrock	0.58	~slope	0.99	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(very limited)	
	~droughty	0.45	~droughty	0.45	~droughty	0.45	~wetness	0.28	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(very limited)	
Poynor-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~slope	0.99	~slope	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.76	~slope	0.76	~slope	0.99	~too acid	0.30	~percs slowly	0.32
	(limited)		(limited)		(limited)		(slightly limited)		(moderately limited)	
	~too acid	0.30	~too acid	0.30	~too acid	0.30	~large surface stones	0.13	~large surface stones	0.13
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
73189:										
Useful-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.13	~wetness	0.13	~slope	0.30	~slope	0.30	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(very limited)	
					~wetness	0.13	~wetness	0.13	~wetness	1.00
					(slightly limited)		(slightly limited)		(very limited)	
Gateway-----	Moderately limited		Moderately limited		Moderately limited		Very limited		Very limited	
	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	0.42	~depth to bedrock	1.00	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~wetness	0.36	~wetness	0.36	~wetness	0.36	~wetness	0.36	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~droughty	0.22	~droughty	0.22	~slope	0.30	~slope	0.30	~wetness	1.00
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74634:										
Hartville-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (very limited)	1.00
	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (very limited)	1.00
					~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~slope (limited)	0.91
74652:										
Lecoma-----	Not limited		Not limited		Moderately limited		Moderately limited		Very limited	
					~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~percs slowly (very limited)	1.00
									~slope (limited)	0.91
74653:										
Racoon-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~percs slowly (very limited)	1.00
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~wetness (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~flooding (moderately limited)	0.60
Freeburg-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~wetness (very limited)	1.00
	~wetness (moderately limited)	0.53	~wetness (moderately limited)	0.53	~wetness (moderately limited)	0.53	~wetness (moderately limited)	0.53	~flooding (moderately limited)	0.60
74656:										
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~percs slowly (very limited)	1.00
	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~wetness (very limited)	1.00
	~droughty (slightly limited)	0.20	~droughty (slightly limited)	0.20	~droughty (slightly limited)	0.20	~droughty (slightly limited)	0.20		
75375:										
Horsecreek-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~percs slowly (very limited)	1.00
									~flooding (moderately limited)	0.60

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75376:										
Cedargap-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~flooding	1.00
									(very limited)	
75388:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~percs slowly	0.32
									(moderately limited)	
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~droughty	1.00	~droughty	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~flooding	1.00	~flooding	1.00	~poor filter	1.00	~percs slowly	0.32
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00				
	(very limited)		(very limited)		(very limited)					
75391:										
Possumtrot-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.60
	(limited)		(limited)		(limited)		(limited)		(moderately limited)	
	~too acid	0.24	~too acid	0.24	~too acid	0.24	~too acid	0.24		
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)			
75398:										
Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~percs slowly	0.32
									(moderately limited)	
75412:										
Razort-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~flooding	0.60
									(moderately limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75413:										
Relfe-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~droughty	1.00	~droughty	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~flooding	1.00	~flooding	1.00	~poor filter	1.00	~percs slowly	0.32
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00				
	(very limited)		(very limited)		(very limited)					
75414:										
Wideman-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
	~droughty	0.02	~droughty	0.02	~droughty	0.02				
	(slightly limited)		(slightly limited)		(slightly limited)					
99000:										
Pits, quarries-	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous										
water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

# Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 17 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 12). "Loam," for example,

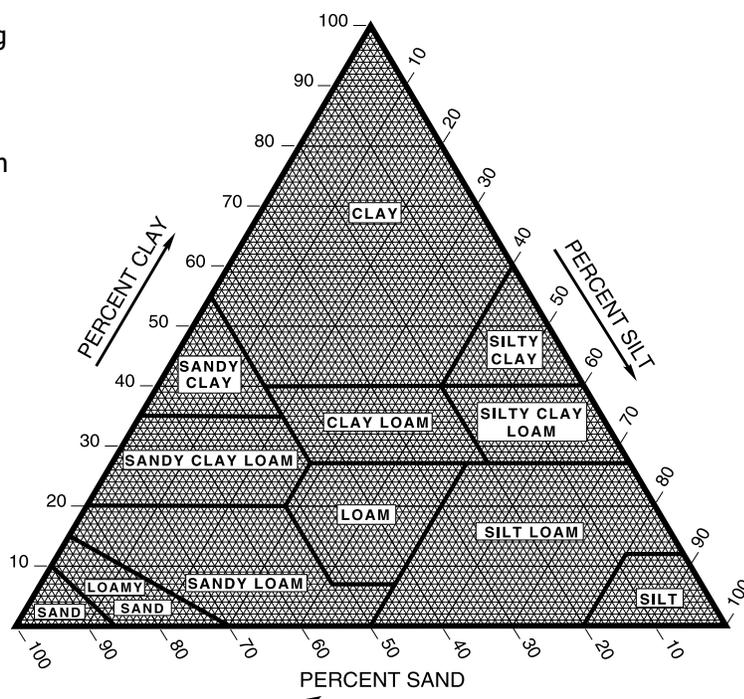


Figure 12.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils

exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

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

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

## Physical Properties

Table 18 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field

observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Sand* as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Silt* as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

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

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Saturated hydraulic conductivity* refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates

saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

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

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factor Kw* (formerly K factor) indicates the susceptibility of a soil to sheet and rill erosion by water. Factor Kw is one of six factors used in the

Universal Soil Loss Equation (USLE), and may be used in the Revised Universal Soil Loss Equation (RUSLE), to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Factor Kw is adjusted for the effect of rock fragments. Values of Kw range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor Kf* indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Factor Kf is one of the factors that may be used in the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

*Wind erodibility index* is a numerical value

indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 19 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Effective cation-exchange capacity* refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

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

## Water Features

Table 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low

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

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

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

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

If a soil is assigned to two hydrologic groups in the table, the first letter is for drained areas and the second is for undrained areas.

*Flooding*, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

*High water table* (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched, apparent, or artesian; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

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

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

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation.

## Soil Features

Table 21 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

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

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

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

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





Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--				limit	ticity
					Pct	Pct	4	10	40	200	Pct	index
73080:												
Alred-----	0-4	Extremely cobble loam	GC-GM	A-6, A-4	0	45-65	45-60	40-55	35-50	25-40	20-35	5-15
	4-17	Extremely gravelly silt loam, gravelly silt loam	GC-GM, GC	A-1, A-1-a	0	0-15	20-60	15-55	15-55	10-45	20-35	5-15
	17-27	Extremely cobble silty clay loam, extremely gravelly silty clay loam	GC	A-2-6	0	30-50	30-55	25-50	20-50	20-45	30-45	10-20
	27-60	Clay, silty clay, gravelly clay	CH	A-7, A-7-6	0	0-10	60-95	55-90	55-90	50-85	50-90	30-65
Bardley-----	0-4	Extremely cobble loam	GC-GM	A-6, A-4	0-5	25-50	40-60	35-55	30-50	25-40	20-35	5-15
	4-8	Extremely gravelly silt loam	GC	A-2-6	0-5	0-15	20-35	15-30	15-30	10-25	25-40	10-15
	8-27	Clay, gravelly clay	CH	A-7, A-7-6	0	0-10	75-100	70-100	65-95	60-85	65-95	40-70
	27-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
73087:												
Celt-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	95-100	90-95	70-85	20-30	5-10
	4-22	Silty clay, silty clay loam	CL, GC-GM	A-6	0	0	95-100	90-100	85-100	65-95	35-55	15-30
	22-39	Gravelly silt loam, gravelly silty clay loam	GC, GC-GM, CL	A-6	0	0-10	60-75	55-70	55-65	45-60	30-40	10-20
	39-80	Gravelly clay, very gravelly clay, gravelly silty clay	CH, SC, GC	A-7, A-2-7, A-7-6	0	0-5	35-75	30-70	30-70	25-65	50-80	25-50
73089:												
Rueter-----	0-3	Very gravelly silt loam	GC, GC-GM	A-2-4	0-5	0-10	30-55	25-50	25-50	20-45	10-35	2-15
	3-14	Very gravelly silt loam, extremely gravelly silt loam	GC, GC-GM	A-4, A-6, A-2-6, A-2-4	0-5	0-10	20-55	15-50	15-45	10-40	10-35	2-15
	14-45	Extremely cobble loam, very gravelly loam, very gravelly sandy clay loam	GC, GC-GM	A-2-4, A-1-a, A-2-6	0-5	10-50	30-60	25-55	25-55	10-45	15-40	5-20
	45-80	Extremely cobble clay, very gravelly clay	GC-GM	A-2-7, A-7	0-5	10-50	30-60	25-55	25-55	20-50	50-75	25-60

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-	
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity	
					inches	inches	4	10	40	200	Pct	index	
73094:													
Gatewood-----	0-2	Very gravelly silt loam	GC, GC-GM	A-4, A-6, A-2-6	0	0-20	35-55	30-50	30-50	25-40	20-35	5-15	
	2-10	Very gravelly silt loam	GC, GC-GM	A-4, A-2-6, A-6	0-5	0-20	35-55	30-50	30-50	25-40	20-35	5-15	
	10-28	Clay	CH	A-7, A-7-6	0-5	0-5	85-100	80-95	80-85	70-80	50-75	25-45	
	28-60	Unweathered bedrock			---	---	---	---	---	---	---	---	
73098:													
Plato-----	0-8	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15	
	8-20	Silty clay	CH	A-7, A-7-6	0	0	100	100	95-100	90-95	50-65	25-40	
	20-48	Extremely gravelly silt loam, very gravelly silty clay loam	GC, GC-GM	A-4, A-6, A-1-b, A-2-6	0	0-5	25-55	20-50	15-50	10-45	25-45	5-20	
	48-60	Clay, gravelly clay, gravelly silty clay loam	CH, CL	A-6, A-7, A-7-6	0	0-5	55-95	50-90	45-90	40-80	35-85	15-60	
73135, 73136:													
Union-----	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	65-85	20-35	5-15	
	9-30	Silty clay loam, silty clay	CH, CL	A-7-6, A-6, A-7	0	0	90-100	85-95	80-95	70-80	35-60	15-30	
	30-53	Extremely gravelly silt loam, extremely cobbly loam	GC	A-2	0	15-40	15-30	10-25	10-20	10-15	25-35	10-15	
	53-80	Clay, very gravelly clay, gravelly silty clay	GC, CH, SC	A-7-6, A-7	0	0-15	55-95	50-85	50-80	45-70	50-85	25-60	
73159:													
Yelton-----	0-3	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	75-85	10-30	2-10	
	3-8	Silt loam, loam	CL, ML	A-4	0	0	95-100	90-100	75-95	55-85	10-30	2-10	
	8-19	Silty clay loam, loam	CL	A-6	0	0	85-100	80-100	75-95	55-90	30-45	10-20	
	19-38	Loam, sandy loam	CL, SC	A-6, A-4	0	0-5	25-95	20-90	10-80	5-60	20-35	5-15	
	38-65	Loam, sandy clay loam	SC, CL	A-6	0	0-5	40-95	35-90	30-80	15-60	30-40	10-20	
73160:													
Hobson-----	0-8	Loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	60-75	10-35	2-15	
	8-12	Silt loam, clay loam, loam	CL, ML	A-4, A-6	0	0	95-100	90-100	85-95	75-85	10-40	2-20	
	12-27	Loam, very gravelly clay loam, very gravelly loam	SC-SM, CL	A-6, A-7	0	0	35-95	30-90	25-90	20-70	30-45	10-20	
	27-45	Very gravelly sandy loam	GC	A-2, A-2-4	0	0-10	30-55	25-50	15-35	10-20	20-30	5-10	
	45-65	Clay	CH	A-7	0	0-5	85-100	80-95	70-95	65-85	50-70	25-35	

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--				limit	ticity
					Pct	Pct	4	10	40	200	Pct	index
73161, 73162: Alred-----	0-7	Very gravelly loam	GC-GM, GM, GC	A-2, A-1, A-1-b	0-5	0-20	35-50	30-45	25-40	20-30	15-30	2-15
	7-15	Very gravelly loam	GC-GM, GC	A-2, A-1, A-2-4	0-5	0-20	30-50	25-45	25-40	20-30	20-30	5-15
	15-21	Very gravelly loam, extremely gravelly silty clay loam	GC-GM, GC	A-6, A-2, A-2-6	0-5	0-20	25-65	20-50	20-50	15-45	25-40	5-20
	21-80	Cobbly clay, gravelly clay, clay	CH	A-7, A-7-6	0	5-20	60-100	55-100	50-100	40-85	50-90	30-65
Rueter-----	0-3	Very gravelly silt loam	GC, GC-GM	A-2-4	0-5	0-10	30-55	25-50	25-50	20-45	10-35	2-15
	3-14	Very gravelly silt loam, extremely gravelly silt loam	GC, GC-GM	A-4, A-6, A-2-6, A-2-4	0-5	0-10	20-55	15-50	15-45	10-40	10-35	2-15
	14-45	Extremely cobbly loam, very gravelly loam, very gravelly sandy clay loam	GC, GC-GM	A-2-4, A-1-a, A-2-6	0-5	10-50	25-55	20-50	15-45	10-35	15-40	5-20
	45-80	Extremely cobbly clay, very gravelly clay	GC-GM	A-2-7, A-7	0-5	10-50	25-85	20-80	20-80	15-70	50-75	25-60
73163: Bardley-----	0-4	Very gravelly silt loam	GC, GC-GM	A-6	0-5	0-5	35-55	30-50	25-45	20-40	25-40	10-15
	4-8	Extremely gravelly silt loam	GC	A-2-6	0-5	0-15	20-35	15-30	15-30	10-25	25-40	10-15
	8-27	Clay, gravelly clay	CH	A-7, A-7-6	0	0-10	75-100	70-100	65-95	60-85	65-95	40-70
	27-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Alred-----	0-7	Very gravelly loam	GC-GM, GC, GM	A-1-b, A-2, A-1	0-5	0-20	35-50	30-45	25-40	20-30	15-30	2-15
	7-15	Very gravelly loam	GC-GM, GC	A-2, A-2-4, A-1	0-5	0-20	30-50	25-45	25-40	20-30	20-30	5-15
	15-21	Very gravelly loam, extremely gravelly silty clay loam	GC-GM, GC	A-6, A-2, A-2-6	0-5	0-20	25-65	20-50	20-50	15-45	25-40	5-20
	21-80	Cobbly clay, gravelly clay, clay	CH	A-7, A-7-6	0	5-20	60-100	55-100	50-100	40-85	50-90	30-65







Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-	
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity	
					inches	inches	4	10	40	200	Pct	index	
73176:													
Bendavis-----	0-5	Very gravelly silt loam	GC, GM, GC-GM	A-2-4	0-5	0-5	35-50	30-45	30-45	25-35	10-25	2-10	
	5-9	Very gravelly silt loam, gravelly silt loam	GC, GM	A-2-4	0-5	0-5	35-65	30-60	30-60	25-50	10-25	2-10	
	9-25	Very gravelly silt loam, very gravelly silty clay loam	GC	A-2-6, A-2-4	0-5	0-5	35-50	30-45	30-45	25-35	25-35	5-15	
	25-60	Unweathered bedrock			---	---	---	---	---	---	---	---	
Poynor-----	0-5	Very gravelly silt loam	GC, GM, GC-GM	A-4, A-2-4	0-5	0-20	35-55	30-50	30-50	25-40	10-30	2-10	
	5-11	Very gravelly silt loam	GC-GM, GC, GM	A-2-4, A-4	0-5	0-20	35-55	30-50	30-50	25-40	10-30	2-10	
	11-17	Very gravelly silt loam	GC	A-2-6, A-6	0-5	0-20	35-55	30-50	30-50	25-40	25-35	10-15	
	17-60	Clay	CH	A-7, A-7-6	0	0-5	90-100	85-100	80-95	70-85	50-75	30-50	
73178:													
Bendavis-----	0-5	Very gravelly silt loam	GC, GC-GM, GM	A-2-4	0-5	0-5	35-50	30-45	30-45	25-35	10-25	2-10	
	5-9	Very gravelly silt loam, gravelly silt loam	GC, GM	A-2-4	0-5	0-5	35-65	30-60	30-60	25-50	10-25	2-10	
	9-25	Very gravelly silt loam, very gravelly silty clay loam	GC	A-2-6, A-2-4	0-5	0-5	35-50	30-45	30-45	25-35	25-35	5-15	
	25-60	Unweathered bedrock			---	---	---	---	---	---	---	---	
73179:													
Viraton-----	0-3	Silt loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	80-95	65-85	20-35	5-15	
	3-7	Silt loam	CL	A-4, A-6	0	0	85-100	80-100	80-95	65-85	20-35	5-15	
	7-23	Gravelly silty clay loam, very gravelly silt loam	CL	A-6	0	0-15	30-80	25-75	25-75	20-70	30-40	10-20	
	23-48	Extremely gravelly silt loam	GC	A-2-4, A-2	0	0-20	20-30	15-25	15-25	10-20	25-35	5-15	
	48-60	Clay, gravelly clay	CH	A-7-6, A-7	0	0-15	65-95	60-90	60-90	55-80	50-75	25-50	
Wilderness---	0-4	Gravelly silt loam	CL-ML, CL, GC, SC	A-4	0	0-5	60-80	55-75	55-70	45-60	20-35	5-15	
	4-11	Gravelly silt loam	GC, SC	A-6, A-4	0	0-5	55-80	50-75	50-70	40-60	20-35	5-15	
	11-22	Extremely gravelly silty clay loam	GC, GC-GM	A-2-6	0-5	0-20	20-30	15-25	15-20	15-20	35-45	15-20	
	22-42	Extremely cobblely silt loam	GC, GC-GM	A-2-6, A-2-4	0-5	35-50	40-50	35-45	35-45	30-35	25-35	5-15	
	42-60	Very gravelly clay	GC	A-7-6, A-7	0-5	0-5	30-50	25-45	25-45	25-40	55-75	30-55	







Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity
					inches	inches	4	10	40	200	Pct	index
73188:												
Poynor-----	0-5	Very gravelly silt loam	GC, GC-GM, GM	A-4, A-2-4	0-5	0-20	35-55	30-50	30-50	25-40	10-30	2-10
	5-11	Very gravelly silt loam	GC-GM, GC, GM	A-2-4, A-4	0-5	0-20	35-55	30-50	30-50	25-40	10-30	2-10
	11-17	Very gravelly silt loam	GC	A-2-6, A-6	0-5	0-20	35-55	30-50	30-50	25-40	25-35	10-15
	17-60	Clay	CH	A-7, A-7-6	0	0-5	90-100	85-100	80-95	70-85	150-75	30-50
73189:												
Useful-----	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	7-31	Silty clay, silty clay loam	CL	A-7, A-7-6	0	0-5	95-100	85-100	80-100	70-95	45-50	20-30
	31-45	Silty clay, very gravelly silty clay, clay, very gravelly clay	GC, CH	A-7, A-7-6	0	0-10	45-100	40-100	40-95	35-95	150-65	25-40
	45-53	Silty clay loam, silty clay	CH, CL	A-7, A-7-6	0	0	95-100	85-100	80-95	75-95	45-60	20-35
	53-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Gateway-----												
	0-2	Very gravelly silt loam	GC, GC-GM	A-4, A-6, A-2-6	0	0-20	35-55	30-50	30-50	25-40	20-35	5-15
	2-10	Very gravelly silt loam	GC, GC-GM	A-4, A-2-6, A-6	0-5	0-20	35-55	30-50	30-50	25-40	20-35	5-15
	10-28	Clay	CH	A-7, A-7-6	0-5	0-5	85-100	80-95	80-85	70-80	150-75	25-45
	28-60	Unweathered bedrock			---	---	---	---	---	---	---	---
74634:												
Hartville----	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	5-15
	7-12	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	95-100	85-100	65-90	25-40	5-15
	12-48	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	95-100	90-100	80-95	45-55	20-30
	48-80	Silty clay loam	CL	A-7-6, A-6	0	0	95-100	90-100	85-100	75-95	40-50	20-25
74652:												
Lecoma-----	0-9	Silt loam	CL-ML, SC-SM, ML	A-4	0	0	100	100	90-100	70-90	10-30	2-10
	9-31	Silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95	75-85	25-40	10-20
	31-60	Loam, clay loam	CL	A-6	0	0	85-100	80-100	75-90	55-65	30-45	10-20
74653:												
Raccoon-----	0-6	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	6-26	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	26-60	Silty clay loam	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	85-95	35-50	15-25
Freeburg-----												
	0-9	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	9-13	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	13-52	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-50	10-25
	52-80	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity
					inches	inches	4	10	40	200	Pct	index
74656:												
Deible-----	0-10	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	10-15	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	15-37	Silty clay, clay	CH	A-7, A-7-6	0	0	100	100	90-100	70-90	50-85	25-60
	37-80	Silty clay loam, silty clay	CL, CH	A-7, A-7-6	0	0	100	100	95-100	75-80	35-65	15-40
75375:												
Horsecreek---	0-9	Silt loam	CL	A-4	0	0	95-100	95-100	85-100	70-100	20-35	5-15
	9-19	Silt loam	CL	A-4	0	0	95-100	90-100	80-100	65-100	20-35	5-15
	19-60	Silt loam, silty clay loam	CL	A-6, A-4, A-7	0	0	95-100	90-100	80-100	65-100	25-45	5-25
75376:												
Cedargap-----	0-9	Gravelly silt loam	CL-ML, CL	A-4, A-6	0	0-10	55-80	50-75	45-75	35-70	20-35	5-15
	9-49	Very gravelly loam, very gravelly sandy clay loam	GC, GC-GM	A-2-6, A-2-4	0	0-10	30-55	25-50	20-50	10-30	20-45	5-25
	49-60	Clay, very gravelly clay, very gravelly silty clay	GC	A-2-7, A-7-6	0	0-15	40-85	35-80	35-75	30-70	50-85	25-60
75388:												
Kaintuck-----	0-6	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	80-100	75-100	60-80	35-50	10-30	NP-10
	6-80	Stratified fine sand to loamy fine sand to fine sandy loam to loam to silt loam	CL-ML, SC-SM, SM, ML	A-4	0	0-5	80-100	75-100	55-95	20-85	10-30	NP-10
75391:												
Possumtrot---	0-9	Fine sandy loam	SM, SC-SM, SC, CL-ML	A-4	0	0	80-100	75-100	55-85	30-55	10-25	2-10
	9-40	Fine sandy loam, loam, sandy loam	SC, SC-SM, SM	A-2-4	0	0	80-100	75-100	50-65	25-35	10-25	2-10
	40-80	Gravelly loamy sand, gravelly sand, very gravelly sand	GM, GC-GM, SM	A-1-b, A-1-a	0	0-30	30-65	25-60	15-40	10-20	0-15	NP-5



Table 18.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
66014:														
Haymond-----	0-6	10-25	60-80	10-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	5	5	56
	6-41	10-25	60-80	10-27	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.37	.37			
	41-80	40-75	20-40	5-20	1.25-1.40	42.00-140.00	0.14-0.16	1.0-2.9	0.2-0.5	.28	.28			
70028:														
Moko-----	0-3	25-45	30-50	18-27	1.25-1.50	4.00-14.00	0.07-0.13	0.1-2.9	2.0-6.0	.24	.37	1	8	0
	3-8	25-45	30-50	18-27	1.25-1.60	4.00-14.00	0.03-0.14	0.1-2.9	2.0-6.0	.20	.37			
	8-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
Rock outcrop.														
73013:														
Lowassie-----	0-10	1-10	63-89	10-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-2.0	.37	.37	5	5	56
	10-18	1-10	55-84	15-35	1.30-1.50	4.00-14.00	0.20-0.22	3.0-5.9	0.2-1.0	.43	.43			
	18-36	1-10	25-59	40-65	1.35-1.60	0.42-1.40	0.09-0.15	6.0-8.9	0.2-1.0	.32	.32			
	36-80	1-20	45-91	8-35	1.40-1.65	1.40-4.00	0.18-0.22	0.1-2.9	0.1-0.5	.43	.43			
73032:														
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73039:														
Glensted-----	0-9	5-15	65-80	15-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-3.0	.32	.32	3	6	48
	9-14	2-10	40-58	40-60	1.30-1.45	0.42-1.40	0.11-0.13	6.0-8.9	1.0-2.0	.32	.32			
	14-33	2-10	40-65	27-50	1.30-1.45	1.40-4.00	0.11-0.18	6.0-8.9	0.1-0.5	.32	.32			
	33-60	2-10	55-70	27-35	1.30-1.45	1.40-4.00	0.18-0.19	3.0-5.9	0.1-0.5	.32	.32			
73053:														
Lily-----	0-3	30-50	25-50	10-27	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.5-4.0	.28	.28	2	3	86
	3-8	30-50	30-50	10-27	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.1-1.0	.28	.28			
	8-15	25-50	25-50	20-35	1.25-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.28	.28			
	15-21	35-50	25-50	15-35	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	21-23	35-50	30-50	15-27	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	23-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
Bender-----	0-4	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.5-2.0	.10	.24	2	8	0
	4-12	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.2-1.0	.10	.24			
	12-23	40-65	25-45	12-20	1.20-1.50	14.00-42.00	0.03-0.09	0.1-2.9	0.2-1.0	.10	.32			
	23-60	---	---	---	---	0.07-1.40	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73066:														
Bender-----	0-4	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.5-2.0	.10	.24	2	8	0
	4-12	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.2-1.0	.10	.24			
	12-23	40-65	25-45	12-20	1.20-1.50	14.00-42.00	0.03-0.09	0.1-2.9	0.2-1.0	.10	.32			
	23-60	---	---	---	---	0.07-1.40	---	---	---	---	---			
73067:														
Bender-----	0-4	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.5-2.0	.10	.24	2	8	0
	4-12	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.2-1.0	.10	.24			
	12-23	40-65	25-45	12-20	1.20-1.50	14.00-42.00	0.03-0.09	0.1-2.9	0.2-1.0	.10	.32			
	23-60	---	---	---	---	0.07-1.40	---	---	---	---	---			
Rock outcrop.														
73080:														
Alred-----	0-4	30-50	35-45	8-27	1.20-1.45	4.00-14.00	0.09-0.13	0.1-2.9	1.0-2.5	.10	.28	4	8	0
	4-17	10-30	60-80	11-27	1.20-1.45	4.00-14.00	0.04-0.08	0.1-2.9	0.2-1.0	.10	.32			
	17-27	10-20	50-70	27-35	1.40-1.55	4.00-14.00	0.09-0.13	0.1-2.9	0.0-0.5	.10	.28			
	27-60	5-20	30-50	45-85	1.50-1.65	0.42-1.40	0.05-0.10	6.0-8.9	0.0-0.5	.10	.28			
Bardley-----	0-4	30-50	30-50	8-27	1.20-1.45	4.00-14.00	0.09-0.13	0.1-2.9	1.0-2.5	.10	.28	2	8	0
	4-8	10-30	55-75	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	1-10	5-30	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Rock outcrop.														
73087:														
Celt-----	0-4	2-10	60-80	12-20	1.20-1.50	4.00-14.00	0.20-0.24	0.1-2.9	0.5-2.0	.43	.43	4	5	56
	4-22	2-10	45-70	27-45	1.30-1.50	1.40-4.00	0.11-0.14	6.0-8.9	0.2-1.0	.32	.32			
	22-39	5-15	50-75	20-32	1.60-1.90	0.14-0.42	0.03-0.08	0.1-2.9	0.1-0.5	.24	.43			
	39-80	2-10	18-45	40-75	1.30-1.50	0.42-1.40	0.06-0.10	6.0-8.9	0.1-0.5	.20	.28			
73089:														
Rueter-----	0-3	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-60	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	0.1-2.9	0.1-0.5	.32	.43			
	45-80	15-35	15-45	40-80	1.20-1.40	4.00-14.00	0.02-0.05	6.0-8.9	0.1-0.5	.20	.32			
73094:														
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73098:														
Plato-----	0-8	2-10	60-80	12-27	1.20-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-2.0	.43	.43	4	5	56
	8-20	2-10	40-60	40-60	1.30-1.50	1.40-4.00	0.11-0.13	6.0-8.9	0.5-1.0	.37	.37			
	20-48	5-15	55-75	12-35	1.60-1.90	0.14-0.42	0.01-0.05	0.1-2.9	0.1-0.5	.24	.43			
	48-60	2-10	20-55	27-80	1.40-1.60	4.00-14.00	0.02-0.06	6.0-8.9	0.1-0.5	.24	.32			
73135, 73136:														
Union-----	0-9	2-10	60-80	10-27	1.35-1.45	4.00-14.00	0.18-0.22	0.1-2.9	0.5-2.0	.43	.43	4	5	56
	9-30	2-10	45-65	27-50	1.30-1.40	4.00-14.00	0.14-0.19	3.0-5.9	0.5-1.0	.43	.43			
	30-53	20-45	45-65	15-27	1.60-1.90	0.42-1.40	0.01-0.05	0.1-2.9	0.1-0.5	.10	.43			
	53-80	2-10	15-45	40-80	1.30-1.45	1.40-4.00	0.02-0.06	6.0-8.9	0.1-0.5	.17	.28			
73159:														
Yelton-----	0-3	15-35	60-80	5-20	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-3.0	.43	.43	3	5	56
	3-8	15-35	45-65	5-20	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	8-19	15-35	40-65	20-35	1.30-1.50	1.40-4.00	0.15-0.17	3.0-5.9	0.2-1.0	.37	.37			
	19-38	35-60	30-50	10-27	1.60-1.90	0.42-1.40	0.03-0.05	0.1-2.9	0.1-0.5	.24	.28			
	38-65	30-60	20-45	20-35	1.20-1.40	1.40-4.00	0.14-0.16	3.0-5.9	0.1-0.5	.24	.28			
73160:														
Hobson-----	0-8	30-50	30-50	7-27	1.20-1.40	4.00-14.00	0.20-0.24	0.1-2.9	1.0-3.0	.37	.37	4	6	48
	8-12	25-50	45-65	5-30	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	.37	.37			
	12-27	30-50	30-45	18-35	1.25-1.45	4.00-14.00	0.17-0.19	0.1-2.9	0.2-0.5	.10	.37			
	27-45	50-70	15-35	10-18	1.60-1.90	0.42-1.40	0.03-0.07	0.1-2.9	0.1-0.2	.10	.20			
	45-65	20-40	5-25	45-65	1.30-1.50	1.40-4.00	0.03-0.07	6.0-8.9	0.1-0.2	.24	.24			
73161, 73162:														
Alred-----	0-7	30-50	35-50	7-22	1.30-1.50	4.00-14.00	0.08-0.12	0.1-2.9	1.0-2.0	.10	.32	4	8	0
	7-15	30-50	35-50	10-22	1.40-1.60	4.00-14.00	0.06-0.10	0.1-2.9	0.5-1.0	.10	.32			
	15-21	18-45	35-60	12-35	1.30-1.50	4.00-14.00	0.07-0.12	0.1-2.9	0.3-0.5	.20	.28			
	21-80	10-35	5-25	42-80	1.40-1.60	0.42-1.40	0.08-0.11	6.0-8.9	0.1-0.5	.10	.28			
Rueter-----	0-3	20-45	45-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	15-35	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-55	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	0.1-2.9	0.1-0.5	.32	.43			
	45-80	15-35	5-25	40-80	1.20-1.40	4.00-14.00	0.02-0.05	6.0-8.9	0.1-0.5	.20	.32			
73163:														
Bardley-----	0-4	5-25	55-75	18-27	1.40-1.55	4.00-14.00	0.12-0.17	0.1-2.9	2.0-4.0	.28	.37	2	8	0
	4-8	5-25	55-75	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	1-20	5-25	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Alred-----	0-7	30-50	35-55	7-22	1.30-1.50	4.00-14.00	0.08-0.12	0.1-2.9	1.0-2.0	.10	.32	4	8	0
	7-15	30-50	35-55	10-22	1.40-1.60	4.00-14.00	0.06-0.10	0.1-2.9	0.5-1.0	.10	.32			
	15-21	18-45	35-60	12-35	1.30-1.50	4.00-14.00	0.07-0.12	0.1-2.9	0.3-0.5	.20	.28			
	21-80	10-35	4-25	42-80	1.40-1.60	0.42-1.40	0.08-0.11	6.0-8.9	0.1-0.5	.10	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73163:														
Gasconade-----	0-2	25-40	25-40	35-40	1.35-1.50	4.00-14.00	0.07-0.12	3.0-5.9	2.0-4.0	.17	.24	1	8	0
	2-8	15-35	20-45	35-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.20	.28			
	8-14	15-35	10-30	40-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.24	.32			
	14-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73164:														
Bender-----	0-4	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.5-2.0	.10	.24	2	8	0
	4-12	50-75	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.2-1.0	.10	.24			
	12-23	40-65	25-45	12-20	1.20-1.50	14.00-42.00	0.03-0.09	0.1-2.9	0.2-1.0	.10	.32			
	23-60	---	---	---	---	0.07-1.40	---	---	---	---	---			
Rock outcrop.														
73165:														
Knobby-----	0-3	55-80	10-30	10-18	1.30-1.50	4.00-14.00	0.05-0.10	0.1-2.9	2.0-4.0	.10	.20	1	8	0
	3-7	45-75	10-30	10-18	1.30-1.50	4.00-14.00	0.05-0.10	0.1-2.9	2.0-4.0	.10	.20			
	7-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Rock outcrop.														
Bardley-----	0-4	5-15	55-70	18-27	1.40-1.55	4.00-14.00	0.12-0.17	0.1-2.9	2.0-4.0	.28	.37	2	8	0
	4-8	10-30	55-70	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	1-10	5-25	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73166:														
Viburnum-----	0-4	5-15	60-80	10-25	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	4	6	48
	4-7	5-15	60-80	10-25	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.2-1.0	.37	.37			
	7-13	5-15	45-65	35-40	1.20-1.40	4.00-14.00	0.13-0.18	3.0-5.9	0.2-0.8	.32	.32			
	13-20	5-15	45-65	35-50	1.10-1.40	1.40-4.00	0.10-0.15	3.0-5.9	0.2-0.8	.15	.32			
	20-80	5-15	5-30	50-80	1.10-1.40	1.40-4.00	0.02-0.07	6.0-8.9	0.1-0.5	.10	.24			
Tonti-----	0-3	10-30	60-80	5-25	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	.43	.43	4	5	56
	3-9	10-30	60-80	5-25	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.5	.43	.43			
	9-23	5-20	40-65	27-35	1.30-1.50	4.00-14.00	0.14-0.17	3.0-5.9	0.5-0.8	.24	.32			
	23-44	20-45	50-75	10-25	1.60-1.90	0.42-1.40	0.04-0.06	0.1-2.9	0.1-0.5	.15	.37			
	44-61	15-35	5-25	40-70	1.20-1.40	1.40-4.00	0.03-0.05	6.0-8.9	0.1-0.5	.10	.32			
73168:														
Swiss-----	0-3	15-30	60-80	8-27	1.10-1.40	14.00-42.00	0.10-0.19	0.1-2.9	2.5-4.5	.32	.37	4	8	0
	3-9	20-40	45-65	7-27	1.10-1.45	14.00-42.00	0.10-0.19	0.1-2.9	0.5-1.2	.32	.37			
	9-40	10-30	25-45	40-65	1.40-1.55	0.14-0.42	0.08-0.10	6.0-8.9	0.2-0.8	.24	.32			
	40-80	15-45	20-45	27-65	1.50-1.90	0.14-0.42	0.05-0.10	3.0-5.9	0.1-0.2	.32	.32			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73169, 73170:														
Beemont-----	0-3	10-30	60-80	10-27	1.20-1.35	14.00-42.00	0.14-0.17	0.1-2.9	2.0-4.0	.15	.32	4	8	0
	3-11	10-30	60-80	10-27	1.30-1.40	14.00-42.00	0.14-0.17	0.1-2.9	0.5-1.0	.15	.32			
	11-59	2-10	15-35	60-85	1.35-1.45	0.42-1.40	0.07-0.10	6.0-8.9	0.0-0.5	.32	.32			
	59-80	---	---	---	---	0.07-0.42	---	---	---	---	---			
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73171:														
Plato, eroded-----	0-7	5-15	45-65	27-35	1.30-1.50	4.00-14.00	0.20-0.22	3.0-5.9	1.0-3.0	.43	.43	4	5	56
	7-23	5-15	30-45	40-50	1.35-1.55	1.40-4.00	0.11-0.13	6.0-8.9	0.5-1.0	.37	.37			
	23-40	15-35	40-60	15-27	1.60-1.90	0.14-0.42	0.01-0.05	3.0-5.9	0.1-0.5	.24	.43			
	40-80	15-35	10-35	40-60	1.40-1.60	1.40-4.00	0.02-0.05	6.0-8.9	0.1-0.5	.10	.32			
73172:														
Rosati-----	0-9	2-10	60-80	10-25	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.43	.43	4	5	56
	9-29	2-10	45-55	40-55	1.30-1.50	1.40-4.00	0.11-0.13	6.0-8.9	0.5-1.0	.32	.32			
	29-41	5-15	60-75	15-27	1.60-1.90	0.14-0.42	0.04-0.08	0.1-2.9	0.0-0.5	.43	.43			
	41-80	5-15	45-70	27-40	1.30-1.55	1.40-4.00	0.15-0.18	3.0-5.9	0.0-0.5	.32	.32			
73173:														
Lily-----	0-3	45-65	25-50	4-20	1.20-1.40	14.00-42.00	0.16-0.18	0.1-2.9	0.5-4.0	.28	.28	2	3	56
	3-8	30-50	30-50	7-27	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.1-1.0	.28	.28			
	8-15	25-50	25-50	20-35	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.1-0.5	.28	.28			
	15-21	25-50	25-50	15-35	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	21-23	30-50	30-50	15-27	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	23-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
Yelton-----	0-3	15-35	60-80	5-20	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-3.0	.43	.43	3	5	56
	3-8	15-35	45-65	5-20	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	8-19	15-35	40-65	20-35	1.30-1.50	1.40-4.00	0.15-0.17	3.0-5.9	0.2-1.0	.37	.37			
	19-38	35-60	30-50	10-27	1.60-1.90	0.42-1.40	0.03-0.05	0.1-2.9	0.1-0.5	.24	.28			
	38-65	30-60	20-45	20-35	1.20-1.40	1.40-4.00	0.14-0.16	3.0-5.9	0.1-0.5	.24	.28			
73174:														
Lily-----	0-3	45-65	25-50	4-20	1.20-1.40	14.00-42.00	0.16-0.18	0.1-2.9	0.5-4.0	.28	.28	2	3	86
	3-8	30-50	30-50	7-27	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.1-1.0	.28	.28			
	8-15	25-50	25-50	20-35	1.25-1.35	14.00-42.00	0.17-0.19	0.1-2.9	0.1-0.5	.28	.28			
	15-21	25-50	25-50	15-35	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	21-23	30-50	30-50	15-27	1.20-1.35	14.00-42.00	0.12-0.16	0.1-2.9	0.1-0.5	.15	.28			
	23-60	---	---	---	---	0.00-1.40	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73174:														
Yelton-----	0-3	15-35	60-80	5-20	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-3.0	.43	.43	3	5	56
	3-8	15-35	45-65	5-20	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	8-19	15-35	40-65	20-35	1.30-1.50	1.40-4.00	0.15-0.17	3.0-5.9	0.2-1.0	.37	.37			
	19-38	35-60	30-50	10-27	1.60-1.90	0.42-1.40	0.03-0.05	0.1-2.9	0.1-0.5	.24	.28			
	38-65	30-60	20-45	20-35	1.20-1.40	1.40-4.00	0.14-0.16	3.0-5.9	0.1-0.5	.24	.28			
73175:														
Poynor-----	0-5	15-35	55-75	5-22	1.20-1.45	14.00-42.00	0.09-0.15	0.1-2.9	1.0-3.0	.28	.43	4	8	0
	5-11	15-35	55-75	5-22	1.25-1.45	14.00-42.00	0.08-0.13	0.1-2.9	0.5-1.0	.28	.43			
	11-17	10-25	55-75	18-27	1.40-1.55	4.00-14.00	0.08-0.13	0.1-2.9	0.1-0.8	.28	.43			
	17-60	5-20	10-30	42-70	1.50-1.65	4.00-14.00	0.08-0.10	3.0-5.9	0.1-0.5	.28	.28			
Bendavis-----	0-5	10-30	60-80	5-15	1.20-1.40	14.00-42.00	0.09-0.13	0.1-2.9	2.0-4.0	.15	.37	2	5	56
	5-9	10-30	60-80	5-15	1.20-1.40	4.00-14.00	0.09-0.13	0.1-2.9	0.5-2.0	.15	.37			
	9-25	15-35	50-70	15-30	1.20-1.40	4.00-14.00	0.09-0.15	0.1-2.9	0.1-1.0	.15	.37			
	25-60	---	---	---	---	0.42-4.00	---	---	---	---	---			
73176:														
Bendavis-----	0-5	10-30	60-80	5-15	1.20-1.40	14.00-42.00	0.09-0.13	0.1-2.9	2.0-4.0	.15	.37	2	5	56
	5-9	10-30	60-80	5-15	1.20-1.40	4.00-14.00	0.09-0.13	0.1-2.9	0.5-2.0	.15	.37			
	9-25	15-35	50-70	15-30	1.20-1.40	4.00-14.00	0.09-0.15	0.1-2.9	0.1-1.0	.15	.37			
	25-60	---	---	---	---	0.42-4.20	---	---	---	---	---			
Poynor-----	0-5	15-35	55-75	5-22	1.20-1.45	14.00-42.00	0.09-0.15	0.1-2.9	1.0-3.0	.28	.43	4	8	0
	5-11	15-35	55-75	5-22	1.25-1.45	14.00-42.00	0.08-0.13	0.1-2.9	0.5-1.0	.28	.43			
	11-17	15-30	55-75	18-27	1.40-1.55	4.00-14.00	0.08-0.13	0.1-2.9	0.1-0.8	.28	.43			
	17-60	5-20	10-30	42-70	1.50-1.65	4.00-14.00	0.08-0.10	3.0-5.9	0.1-0.5	.28	.28			
73178:														
Bendavis-----	0-5	10-30	60-80	5-15	1.20-1.40	14.00-42.00	0.09-0.13	0.1-2.9	2.0-4.0	.15	.37	2	5	56
	5-9	10-30	60-80	5-15	1.20-1.40	4.00-14.00	0.09-0.13	0.1-2.9	0.5-2.0	.15	.37			
	9-25	15-35	50-70	15-30	1.20-1.40	4.00-14.00	0.09-0.15	0.1-2.9	0.1-1.0	.15	.37			
	25-60	---	---	---	---	0.42-4.00	---	---	---	---	---			
73179:														
Viraton-----	0-3	5-20	60-80	10-25	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	1.0-3.0	.43	.43	4	6	48
	3-7	5-20	60-80	10-25	1.30-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.5-1.5	.43	.43			
	7-23	5-20	55-75	18-30	1.30-1.50	1.40-4.00	0.13-0.15	3.0-5.9	0.5-0.8	.28	.43			
	23-48	15-35	50-75	15-25	1.60-1.90	0.14-0.42	0.01-0.05	0.1-2.9	0.1-0.2	.15	.32			
	48-60	5-25	10-35	40-70	1.40-1.60	0.42-1.40	0.06-0.08	6.0-8.9	0.1-0.5	.20	.24			
Wilderness-----	0-4	5-20	60-80	10-27	1.20-1.45	4.00-14.00	0.14-0.17	0.1-2.9	2.0-3.0	.24	.37	3	8	0
	4-11	5-20	60-80	10-27	1.20-1.45	4.00-14.00	0.13-0.17	0.1-2.9	0.5-1.5	.24	.37			
	11-22	5-20	50-70	27-35	1.30-1.50	4.00-14.00	0.05-0.10	3.0-5.9	0.5-1.0	.20	.43			
	22-42	10-30	55-75	15-27	1.70-2.00	0.14-0.42	0.04-0.07	0.1-2.9	0.1-0.5	.20	.43			
	42-60	10-30	10-35	50-70	1.40-1.60	0.42-1.40	0.04-0.05	6.0-8.9	0.1-0.5	.15	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73180:														
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Gasconade-----	0-2	25-40	25-40	35-40	1.35-1.50	4.00-14.00	0.07-0.12	3.0-5.9	2.0-4.0	.17	.24	1	8	0
	2-8	15-35	20-45	35-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.20	.28			
	8-14	15-35	10-30	40-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.24	.32			
	14-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73181:														
Useful-----	0-7	2-10	60-80	15-27	1.35-1.45	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.37	.37	4	6	48
	7-31	2-10	45-65	35-45	1.25-1.35	4.00-14.00	0.11-0.18	6.0-8.9	0.5-1.0	.32	.32			
	31-45	2-10	35-55	40-60	1.25-1.55	1.40-4.00	0.05-0.12	6.0-8.9	0.1-0.5	.10	.32			
	45-53	5-20	35-55	35-55	1.25-1.50	1.40-4.00	0.05-0.12	6.0-8.9	0.1-0.5	.43	.43			
	53-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73182:														
Lebanon-----	0-3	5-15	60-80	10-20	1.20-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.43	.43	4	5	56
	3-5	5-15	60-80	10-27	1.20-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	5-25	5-15	45-65	35-45	1.30-1.50	1.40-4.00	0.13-0.20	3.0-5.9	0.0-0.5	.32	.32			
	25-49	20-45	45-70	18-27	1.60-1.90	0.14-0.42	0.01-0.05	0.1-2.9	0.0-0.5	.15	.32			
	49-80	15-35	15-45	40-60	1.40-1.60	0.42-1.40	0.06-0.17	6.0-8.9	0.0-0.5	.24	.32			
73183:														
Scholten-----	0-7	15-35	50-75	10-27	1.20-1.40	14.00-42.00	0.08-0.13	0.1-2.9	0.5-2.0	.15	.37	2	8	0
	7-21	15-35	50-70	15-27	1.30-1.50	4.00-14.00	0.08-0.13	0.1-2.9	0.5-1.0	.15	.37			
	21-33	15-35	35-55	15-35	1.60-1.90	0.14-0.42	0.04-0.08	0.1-2.9	0.1-0.5	.10	.43			
	33-63	15-35	35-55	30-60	1.30-1.60	4.00-14.00	0.04-0.09	3.0-5.9	0.1-0.5	.10	.28			
Tonti-----	0-3	10-30	60-80	5-25	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	.43	.43	4	5	56
	3-9	10-30	60-80	5-25	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.5	.43	.43			
	9-23	5-20	40-65	27-35	1.30-1.50	4.00-14.00	0.14-0.17	3.0-5.9	0.5-0.8	.24	.32			
	23-44	20-45	50-75	10-25	1.60-1.90	0.42-1.40	0.04-0.06	0.1-2.9	0.1-0.5	.15	.37			
	44-61	15-35	5-25	40-70	1.20-1.40	1.40-4.00	0.03-0.05	6.0-8.9	0.1-0.5	.10	.32			
73184:														
Knobby-----	0-3	55-80	10-30	10-18	1.30-1.50	4.00-14.00	0.05-0.10	0.1-2.9	2.0-4.0	.10	.20	1	8	0
	3-7	45-75	10-30	10-18	1.30-1.50	4.00-14.00	0.05-0.10	0.1-2.9	2.0-4.0	.10	.20			
	7-60	---	---	---	---	0.07-0.42	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73184: Rock outcrop.														
73186: Bardley-----	0-4	5-25	55-75	18-27	1.40-1.55	4.00-14.00	0.12-0.17	0.1-2.9	2.0-4.0	.28	.37	2	8	0
	4-8	5-25	55-75	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	1-20	5-25	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Alred-----	0-7	30-50	35-50	7-22	1.30-1.50	4.00-14.00	0.08-0.12	0.1-2.9	1.0-2.0	.10	.32	4	8	0
	7-15	30-50	35-50	10-22	1.40-1.60	4.00-14.00	0.06-0.10	0.1-2.9	0.5-1.0	.10	.32			
	15-21	18-45	35-60	12-35	1.30-1.50	4.00-14.00	0.07-0.12	0.1-2.9	0.3-0.5	.20	.28			
	21-80	10-35	5-25	42-80	1.40-1.60	0.42-1.40	0.08-0.11	6.0-8.9	0.1-0.5	.10	.28			
Gasconade-----	0-2	25-40	25-40	35-40	1.35-1.50	4.00-14.00	0.07-0.12	3.0-5.9	2.0-4.0	.17	.24	1	8	0
	2-8	15-35	20-45	35-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.20	.28			
	8-14	15-35	10-30	40-60	1.35-1.50	1.40-4.00	0.04-0.07	6.0-8.9	1.0-3.0	.24	.32			
	14-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73187: Bender-----	0-4	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.5-2.0	.10	.24	2	8	0
	4-12	50-65	25-45	5-18	1.20-1.50	14.00-42.00	0.07-0.11	0.1-2.9	0.2-1.0	.10	.24			
	12-23	40-65	25-45	12-20	1.20-1.50	14.00-42.00	0.03-0.09	0.1-2.9	0.2-1.0	.10	.32			
	23-60	---	---	---	---	0.07-1.40	---	---	---	---	---			
Rock outcrop.														
73188: Bendavis-----	0-5	10-30	60-80	5-15	1.20-1.40	14.00-42.00	0.09-0.13	0.1-2.9	2.0-4.0	.15	.37	2	5	56
	5-9	10-30	60-80	5-15	1.20-1.40	4.00-14.00	0.09-0.13	0.1-2.9	0.5-2.0	.15	.37			
	9-25	15-35	50-70	15-30	1.20-1.40	4.00-14.00	0.09-0.15	0.1-2.9	0.1-1.0	.15	.37			
	25-60	---	---	---	---	0.42-4.00	---	---	---	---	---			
Poynor-----	0-5	15-35	55-75	5-22	1.20-1.45	14.00-42.00	0.09-0.15	0.1-2.9	1.0-3.0	.28	.43	4	8	0
	5-11	15-35	55-75	5-22	1.25-1.45	14.00-42.00	0.08-0.13	0.1-2.9	0.5-1.0	.28	.43			
	11-17	15-30	55-75	18-27	1.40-1.55	4.00-14.00	0.08-0.13	0.1-2.9	0.1-0.8	.28	.43			
	17-60	5-20	10-30	42-70	1.50-1.65	4.00-14.00	0.08-0.10	3.0-5.9	0.1-0.5	.28	.28			
73189: Useful-----	0-7	2-10	60-80	15-27	1.35-1.45	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.37	.37	4	6	48
	7-31	2-10	45-65	35-45	1.25-1.35	4.00-14.00	0.11-0.18	6.0-8.9	0.5-1.0	.32	.32			
	31-45	2-10	35-55	40-60	1.25-1.55	1.40-4.00	0.05-0.12	6.0-8.9	0.1-0.5	.10	.32			
	45-53	5-20	35-60	35-55	1.25-1.50	1.40-4.00	0.05-0.12	6.0-8.9	0.1-0.5	.43	.43			
	53-60	---	---	---	---	0.07-0.42	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73189:														
Gatewood-----	0-2	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.16	0.1-2.9	0.5-3.0	.28	.43	2	8	0
	2-10	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.12-0.14	0.1-2.9	0.5-1.0	.28	.43			
	10-28	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.08-0.14	6.0-8.9	0.5-1.0	.28	.28			
	28-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
74634:														
Hartville-----	0-7	3-10	65-85	12-27	1.10-1.30	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.43	.43	5	6	48
	7-12	3-10	65-85	12-27	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.5	.43	.43			
	12-48	3-10	50-70	35-45	1.20-1.50	0.42-1.40	0.15-0.20	6.0-8.9	0.2-0.8	.32	.32			
	48-80	5-15	50-70	30-40	1.20-1.50	0.42-1.40	0.18-0.20	6.0-8.9	0.2-0.8	.32	.32			
74652:														
Lecoma-----	0-9	20-40	50-70	6-18	1.40-1.50	4.00-14.00	0.20-0.24	0.1-2.9	1.0-2.0	.37	.37	5	5	56
	9-31	15-35	45-70	15-30	1.50-1.60	4.00-14.00	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	31-60	30-50	25-45	18-35	1.50-1.60	4.00-14.00	0.16-0.20	3.0-5.9	0.0-0.5	.37	.37			
74653:														
Racoon-----	0-6	2-10	60-80	12-27	1.30-1.50	1.40-4.00	0.22-0.24	0.1-2.9	1.0-2.0	.37	.37	5	6	48
	6-26	2-10	60-80	12-27	1.35-1.50	1.40-4.00	0.20-0.22	0.1-2.9	0.2-1.0	.37	.37			
	26-60	2-10	50-70	27-40	1.35-1.60	0.42-1.40	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
Freeburg-----	0-9	2-10	60-80	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	5	6	48
	9-13	2-10	60-80	12-27	1.40-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.5-2.0	.37	.37			
	13-52	2-10	50-75	20-40	1.40-1.50	1.40-4.00	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	52-80	10-20	50-70	27-35	1.35-1.50	1.40-4.00	0.16-0.19	3.0-5.9	0.2-0.8	.37	.37			
74656:														
Deible-----	0-10	5-15	60-80	12-27	1.30-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	.43	.43	3	5	56
	10-15	5-15	60-80	12-27	1.30-1.45	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	15-37	2-10	35-55	40-80	1.35-1.50	0.14-0.42	0.08-0.12	6.0-8.9	0.1-1.0	.32	.32			
	37-80	5-20	45-65	27-60	1.35-1.50	1.40-4.00	0.08-0.11	6.0-8.9	0.1-0.5	.32	.32			
75375:														
Horsecreek-----	0-9	0-5	75-85	10-25	1.20-1.40	4.00-14.00	0.18-0.23	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	9-19	0-5	75-85	10-25	1.20-1.40	4.00-14.00	0.18-0.23	0.0-2.9	1.0-2.0	.55	.55			
	19-60	0-5	70-80	18-34	1.20-1.50	4.00-14.00	0.16-0.23	0.0-2.9	0.5-2.0	.49	.49			
75376:														
Cedargap-----	0-9	15-35	55-75	12-27	1.20-1.45	4.00-14.00	0.16-0.18	0.1-2.9	1.0-4.0	.24	.32	5	8	0
	9-49	40-65	20-35	12-35	1.30-1.50	4.00-14.00	0.08-0.10	0.1-2.9	0.5-1.0	.32	.43			
	49-60	15-30	35-45	40-80	1.20-1.40	1.40-4.00	0.04-0.10	6.0-8.9	0.5-1.0	.20	.32			
75388:														
Kaintuck-----	0-6	55-75	20-45	5-18	1.30-1.50	14.00-42.00	0.09-0.17	0.1-2.9	0.5-2.0	.24	.24	5	3	86
	6-80	40-90	10-55	5-18	1.20-1.50	14.00-42.00	0.06-0.20	0.1-2.9	0.1-1.0	.28	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
75388: Relfe-----	0-6 6-60	55-75 65-90	15-35 2-15	5-15	1.10-1.30 1.20-1.40	14.00-42.00 42.00-140.00	0.06-0.10 0.01-0.02	0.1-2.9 0.1-2.9	0.5-2.0 0.0-1.0	.10 .05	.17 .15	5	8	0
75391: Possumtrot-----	0-9 9-40 40-80	55-75 50-70 75-90	15-40 20-40 5-20	5-18 5-18 1-10	1.30-1.50 1.30-1.60 1.20-1.50	4.00-14.00 4.00-14.00 42.00-140.00	0.16-0.18 0.09-0.17 0.02-0.10	0.1-2.9 0.1-2.9 0.1-2.9	2.0-4.0 0.1-0.5 0.1-0.5	.24 .24 .17	.24 .24 .10	4	3	86
75398: Kaintuck-----	0-6 6-80	55-75 40-90	20-45 10-55	5-18	1.30-1.50 1.20-1.50	14.00-42.00 14.00-42.00	0.09-0.17 0.06-0.20	0.1-2.9 0.1-2.9	0.5-2.0 0.1-1.0	.24 .28	.24 .28	5	3	86
75412: Razort-----	0-7 7-34 34-80	15-30 15-40 30-50	60-80 45-70 30-50	9-27 18-35 10-27	1.35-1.60 1.35-1.60 1.35-1.50	4.00-14.00 4.00-14.00 14.00-42.00	0.20-0.22 0.17-0.22 0.08-0.10	0.1-2.9 0.1-2.9 0.1-2.9	1.0-3.0 0.5-1.0 0.5-1.0	.37 .32 .32	.43 .43 .43	5	5	56
75413: Relfe-----	0-6 6-60	55-75 65-90	15-35 2-15	5-15	1.10-1.30 1.20-1.40	14.00-42.00 42.00-140.00	0.06-0.10 0.01-0.02	0.1-2.9 0.1-2.9	0.5-2.0 0.0-1.0	.10 .05	.17 .15	5	8	0
75414: Wideman-----	0-8 8-55 55-80	90-100 72-90 90-100	1-10 5-30 0-2	1-10 2-10 1-5	1.40-1.60 1.40-1.60 1.30-1.50	42.00-141.00 42.00-141.00 42.00-141.00	0.05-0.11 0.06-0.14 0.01-0.04	0.1-2.9 0.1-2.9 ---	0.5-1.0 0.2-1.0 0.1-0.5	.17 .17 .10	.17 .17 .17	5	1	180
99000. Pits, quarries														
99001. Water														
99003. Miscellaneous water														

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth  In	Cation	Effective	Soil reaction  pH
		exchange capacity meq/100 g	cation exchange capacity meq/100 g	
66014:				
Haymond-----	0-6	8.0-18	5.0-15	6.1-7.8
	6-41	8.0-18	5.0-15	6.1-7.8
	41-80	4.0-10	3.0-7.0	6.1-7.8
70028:				
Moko-----	0-3	15-40	15-45	6.6-7.8
	3-8	15-40	15-40	6.6-7.8
	8-60	---	---	---
Rock outcrop.				
73013:				
Lowassie-----	0-10	5.0-12	4.0-10	5.1-7.3
	10-18	5.0-15	5.0-15	4.5-6.0
	18-36	12-35	5.0-25	3.5-5.5
	36-80	8.0-31	6.0-32	3.5-5.5
73032:				
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
73039:				
Glensted-----	0-9	11-17	8.0-13	5.1-7.3
	9-14	21-27	17-22	5.1-6.5
	14-33	21-27	17-22	5.6-7.3
	33-60	14-18	10-14	5.6-7.3
73053:				
Lily-----	0-3	3.0-12	2.0-10	3.5-5.5
	3-8	3.0-12	2.0-10	3.5-5.5
	8-15	9.0-15	5.0-12	3.5-5.5
	15-21	9.0-15	5.0-12	3.5-5.5
	21-23	9.0-15	5.0-12	3.5-5.5
	23-60	---	---	---
Bender-----	0-4	3.0-10	2.0-8.0	3.5-6.5
	4-12	3.0-10	2.0-8.0	3.5-6.0
	12-23	5.0-14	3.0-12	3.5-6.0
	23-60	---	---	---
73066:				
Bender-----	0-4	3.0-10	2.0-8.0	3.5-6.5
	4-12	3.0-10	2.0-8.0	3.5-6.0
	12-23	5.0-14	3.0-12	3.5-6.0
	23-60	---	---	---
73067:				
Bender-----	0-4	3.0-10	2.0-8.0	3.5-6.5
	4-12	3.0-10	2.0-8.0	3.5-6.0
	12-23	5.0-14	3.0-12	3.5-6.0
	23-60	---	---	---
Rock outcrop.				

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
73080:				
Alred-----	0-4	5.0-18	4.0-16	5.1-6.5
	4-17	5.0-12	3.0-10	5.1-6.5
	17-27	8.0-13	6.0-11	4.5-6.5
	27-60	12-25	10-23	4.5-6.5
Bardley-----	0-4	5.0-18	4.0-16	5.1-6.5
	4-8	5.0-10	2.0-7.0	4.5-6.5
	8-27	30-50	21-40	4.5-7.3
	27-60	---	---	---
Rock outcrop.				
73087:				
Celt-----	0-4	7.0-18	4.0-12	4.5-7.3
	4-22	20-35	15-35	3.5-5.0
	22-39	7.0-20	5.0-18	3.5-5.0
	39-80	20-35	15-30	3.5-5.0
73089:				
Rueter-----	0-3	2.0-11	1.0-8.0	3.5-6.0
	3-14	4.0-10	1.0-6.0	3.5-6.0
	14-45	2.0-12	1.0-10	3.5-6.0
	45-80	10-32	7.0-29	4.5-6.0
73094:				
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
73098:				
Plato-----	0-8	6.0-16	4.0-13	5.1-7.3
	8-20	14-30	8.0-24	3.5-5.5
	20-48	10-16	7.0-13	3.5-5.5
	48-60	18-36	14-32	4.5-6.0
73135, 73136:				
Union-----	0-9	6.0-16	4.0-14	5.6-6.5
	9-30	14-24	10-20	4.5-5.5
	30-53	8.0-18	5.0-15	3.5-5.0
	53-80	20-40	15-35	4.5-6.0
73159:				
Yelton-----	0-3	3.0-12	2.0-9.0	5.6-6.5
	3-8	3.0-12	2.0-9.0	3.5-6.5
	8-19	8.0-20	5.0-16	3.5-5.5
	19-38	5.0-15	3.0-10	3.5-5.5
	38-65	8.0-20	5.0-25	3.5-5.5
73160:				
Hobson-----	0-8	5.0-15	2.0-12	4.5-7.3
	8-12	5.0-15	2.0-12	4.5-5.5
	12-27	8.0-18	5.0-16	4.5-5.5
	27-45	5.0-15	2.0-12	4.5-5.5
	45-65	20-35	15-30	4.5-5.5
73161, 73162:				
Alred-----	0-7	5.5-12	2.0-9.0	4.5-7.3
	7-15	4.0-12	2.0-9.0	4.5-6.5
	15-21	7.5-13	3.0-10	4.5-6.0
	21-80	14-27	13-26	3.5-5.0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
73161, 73162:				
Rueter-----	0-3	2.0-11	1.0-8.0	3.5-6.0
	3-14	4.0-10	1.0-6.0	3.5-6.0
	14-45	2.0-12	1.0-10	3.5-6.0
	45-80	10-32	7.0-29	4.5-6.0
73163:				
Bardley-----	0-4	20-30	15-25	4.5-6.5
	4-8	5.0-10	2.0-7.0	4.5-6.5
	8-27	30-50	21-40	4.5-7.3
	27-60	---	---	---
Alred-----	0-7	5.5-12	2.0-9.0	4.5-7.3
	7-15	4.0-12	2.0-9.0	4.5-6.5
	15-21	7.5-13	3.0-10	4.5-6.0
	21-80	14-27	13-26	3.5-5.0
Gasconade-----	0-2	25-45	25-50	6.6-7.3
	2-8	25-45	25-50	6.6-7.3
	8-14	25-45	25-50	6.6-7.8
	14-60	---	---	---
73164:				
Bender-----	0-4	3.0-10	2.0-8.0	3.5-6.5
	4-12	3.0-10	2.0-8.0	3.5-6.0
	12-23	5.0-14	3.0-12	3.5-6.0
	23-60	---	---	---
Rock outcrop.				
73165:				
Knobby-----	0-3	10-20	6.0-15	6.6-8.4
	3-7	10-20	6.0-15	6.6-8.4
	7-60	---	---	---
Rock outcrop.				
Bardley-----	0-4	20-30	15-25	4.5-6.5
	4-8	5.0-10	2.0-7.0	4.5-6.5
	8-27	30-50	21-40	4.5-7.3
	27-60	---	---	---
73166:				
Viburnum-----	0-4	5.0-15	3.0-10	4.5-7.3
	4-7	5.0-15	3.0-10	4.5-5.5
	7-13	15-25	10-20	4.5-5.5
	13-20	20-30	15-25	4.5-5.5
	20-80	25-35	20-30	3.5-5.0
Tonti-----	0-3	5.0-15	3.0-12	3.5-6.5
	3-9	5.0-15	3.0-12	3.5-5.5
	9-23	10-25	10-25	3.5-5.5
	23-44	5.0-15	5.0-15	3.5-5.5
	44-61	10-30	5.0-25	3.5-5.5
73168:				
Swiss-----	0-3	15-22	3.0-9.0	4.5-6.5
	3-9	5.0-12	2.0-7.0	4.5-6.5
	9-40	20-26	13-20	3.5-7.3
	40-80	6.0-12	4.0-11	5.1-6.5

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
73169, 73170:				
Beemont-----	0-3	5.0-15	3.0-12	4.5-6.5
	3-11	5.0-15	3.0-12	3.5-6.0
	11-59	25-45	20-40	3.5-6.5
	59-80	---	---	---
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
73171:				
Plato, eroded-----	0-7	15-30	7.0-20	5.1-7.3
	7-23	20-40	15-35	3.5-5.5
	23-40	10-20	7.0-15	3.5-5.5
	40-80	15-25	10-20	4.5-6.0
73172:				
Rosati-----	0-9	6.0-16	4.0-14	4.5-7.3
	9-29	16-30	13-27	4.5-6.5
	29-41	10-18	7.0-15	4.5-5.5
	41-80	12-18	10-16	4.5-6.0
73173, 73174:				
Lily-----	0-3	3.0-12	2.0-10	3.5-5.5
	3-8	3.0-12	2.0-10	3.5-5.5
	8-15	9.0-15	5.0-12	3.5-5.5
	15-21	9.0-15	5.0-12	3.5-5.5
	21-23	9.0-15	5.0-12	3.5-5.5
	23-60	---	---	---
Yelton-----	0-3	3.0-12	2.0-9.0	5.6-6.5
	3-8	3.0-12	2.0-9.0	3.5-6.5
	8-19	8.0-20	5.0-16	3.5-5.5
	19-38	5.0-15	3.0-10	3.5-5.5
	38-65	8.0-20	5.0-25	3.5-5.5
73175:				
Poynor-----	0-5	3.0-12	3.0-10	3.5-6.5
	5-11	4.0-12	3.0-10	3.5-6.0
	11-17	7.0-15	5.0-15	3.5-6.0
	17-60	20-35	15-30	3.5-5.5
Bendavis-----	0-5	3.0-10	2.0-8.0	4.5-6.0
	5-9	3.0-10	2.0-8.0	4.5-6.0
	9-25	8.0-16	3.0-12	4.5-6.0
	25-60	---	---	---
73176:				
Bendavis-----	0-5	3.0-10	2.0-8.0	4.5-6.0
	5-9	3.0-10	2.0-8.0	4.5-6.0
	9-25	8.0-16	3.0-12	4.5-6.0
	25-60	---	---	---
Poynor-----	0-5	3.0-12	3.0-10	3.5-6.5
	5-11	4.0-12	3.0-10	3.5-6.0
	11-17	7.0-15	5.0-15	3.5-6.0
	17-60	20-35	15-30	3.5-5.5
73178:				
Bendavis-----	0-5	3.0-10	2.0-8.0	4.5-6.0
	5-9	3.0-10	2.0-8.0	4.5-6.0
	9-25	8.0-16	3.0-12	4.5-6.0
	25-60	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
73179:				
Viraton-----	0-3	5.0-15	3.0-10	4.5-7.3
	3-7	5.0-15	3.0-10	4.5-5.5
	7-23	10-20	8.0-18	3.5-5.5
	23-48	5.0-15	3.0-12	3.5-5.5
	48-60	10-20	8.0-18	3.5-5.5
Wilderness-----				
Wilderness-----	0-4	5.0-15	3.0-10	3.5-6.5
	4-11	5.0-15	3.0-10	3.5-5.5
	11-22	10-20	7.0-15	3.5-5.5
	22-42	5.0-15	3.0-10	3.5-5.5
	42-60	10-25	7.0-20	3.5-5.5
73180:				
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
Gasconade-----	0-2	25-45	25-50	6.6-7.3
	2-8	25-45	25-50	6.6-7.3
	8-14	25-45	25-50	6.6-7.8
	14-60	---	---	---
73181:				
Useful-----	0-7	10-17	7.0-14	5.1-6.5
	7-31	18-23	15-20	4.5-6.0
	31-45	18-30	15-27	5.6-7.8
	45-53	18-30	15-27	5.6-7.8
	53-60	---	---	---
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
73182:				
Lebanon-----	0-3	5.0-15	3.0-12	5.6-7.3
	3-5	5.0-15	3.0-12	4.5-6.5
	5-25	15-30	12-25	4.5-5.5
	25-49	10-20	8.0-16	4.5-5.5
	49-80	15-30	12-25	4.5-5.5
73183:				
Scholten-----	0-7	5.0-15	3.0-12	4.5-6.0
	7-21	5.0-15	3.0-12	3.5-5.5
	21-33	5.0-15	3.0-12	3.5-5.5
	33-63	5.0-15	3.0-12	3.5-5.5
Tonti-----	0-3	5.0-15	3.0-12	3.5-6.5
	3-9	5.0-15	3.0-12	3.5-5.5
	9-23	10-25	10-25	3.5-5.5
	23-44	5.0-15	5.0-15	3.5-5.5
	44-61	10-30	5.0-25	3.5-5.5
73184:				
Knobby-----	0-3	10-20	6.0-15	6.6-8.4
	3-7	10-20	6.0-15	6.6-8.4
	7-60	---	---	---
Rock outcrop.				

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
73186:				
Bardley-----	0-4	20-30	15-25	4.5-6.5
	4-8	5.0-10	2.0-7.0	4.5-6.5
	8-27	30-50	21-40	4.5-7.3
	27-60	---	---	---
Alred-----	0-7	5.5-12	2.0-9.0	4.5-6.5
	7-15	4.0-12	2.0-9.0	4.5-6.5
	15-21	7.5-13	3.0-10	4.5-6.0
	21-80	14-27	13-26	3.5-5.0
Gasconade-----	0-2	25-45	25-50	6.6-7.3
	2-8	25-45	25-50	6.6-7.3
	8-14	25-45	25-50	6.6-7.8
	14-60	---	---	---
73187:				
Bender-----	0-4	3.0-10	2.0-8.0	3.5-6.5
	4-12	3.0-10	2.0-8.0	3.5-6.0
	12-23	5.0-14	3.0-12	3.5-6.0
	23-60	---	---	---
Rock outcrop.				
73188:				
Bendavis-----	0-5	3.0-10	2.0-8.0	4.5-6.0
	5-9	3.0-10	2.0-8.0	4.5-6.0
	9-25	8.0-16	3.0-12	4.5-6.0
	25-60	---	---	---
Poynor-----	0-5	3.0-12	3.0-10	3.5-6.5
	5-11	4.0-12	3.0-10	3.5-6.0
	11-17	7.0-15	5.0-15	3.5-6.0
	17-60	20-35	15-30	3.5-5.5
73189:				
Useful-----	0-7	10-17	7.0-14	5.1-6.5
	7-31	18-23	15-20	4.5-6.0
	31-45	18-30	15-27	5.6-7.8
	45-53	18-30	15-27	5.6-7.8
	53-60	---	---	---
Gatewood-----	0-2	10-30	9.0-29	5.1-7.3
	2-10	10-18	8.0-16	5.1-7.3
	10-28	30-44	27-41	5.1-7.8
	28-60	---	---	---
74634:				
Hartville-----	0-7	10-16	9.0-15	4.5-7.3
	7-12	9.0-20	7.0-18	4.5-6.5
	12-48	18-25	14-21	4.5-6.5
	48-80	16-25	15-24	6.1-7.3
74652:				
Lecoma-----	0-9	5.0-15	4.0-14	5.6-7.3
	9-31	7.0-15	5.0-13	5.1-7.3
	31-60	10-15	7.0-12	4.5-6.0
74653:				
Raccoon-----	0-6	14-20	16-22	4.5-7.3
	6-26	11-16	9.0-14	4.5-7.3
	26-60	16-23	5.0-15	4.5-5.5

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation	Effective	Soil reaction
		exchange capacity	cation exchange capacity	
	In	meq/100 g	meq/100 g	pH
74653:				
Freeburg-----	0-9	14-20	8.0-15	4.5-7.3
	9-13	11-20	7.0-17	4.5-6.0
	13-52	13-20	11-18	4.5-6.0
	52-80	14-20	11-18	4.5-7.3
74656:				
Deible-----	0-10	7.0-20	5.0-18	4.5-7.8
	10-15	7.0-20	5.0-17	4.5-7.8
	15-37	20-35	14-30	4.5-7.8
	37-80	10-20	9.0-16	5.1-7.8
75375:				
Horsecreek-----	0-9	8.0-16	8.0-16	5.6-7.3
	9-19	8.0-16	8.0-16	5.6-7.3
	19-60	8.0-16	8.0-16	5.6-7.3
75376:				
Cedargap-----	0-9	7.0-17	7.0-17	5.6-7.3
	9-49	10-18	10-18	5.6-7.3
	49-60	18-40	18-40	5.6-7.3
75388:				
Kaintuck-----	0-6	4.0-10	2.0-10	5.6-7.3
	6-80	5.0-8.0	2.0-8.0	5.6-7.3
Relfe-----	0-6	6.0-12	4.0-10	5.6-7.3
	6-60	4.0-10	2.0-6.0	5.1-6.5
75391:				
Possumtrot-----	0-9	4.0-16	4.0-10	4.5-7.3
	9-40	4.0-16	2.0-10	4.5-6.5
	40-80	1.0-6.0	1.0-5.0	4.5-6.5
75398:				
Kaintuck-----	0-6	4.0-10	2.0-10	5.6-7.3
	6-80	5.0-8.0	2.0-8.0	5.6-7.3
75412:				
Razort-----	0-7	6.0-25	6.0-27	6.1-7.3
	7-34	5.0-20	5.0-20	5.6-7.3
	34-80	5.0-20	5.0-20	5.6-7.3
75413:				
Relfe-----	0-6	6.0-12	4.0-10	5.6-7.3
	6-60	4.0-10	2.0-6.0	5.1-6.5
75414:				
Wideman-----	0-8	1.0-10	1.0-8.0	4.5-7.3
	8-55	1.0-15	1.0-12	5.1-7.3
	55-80	1.0-10	1.0-8.0	5.1-7.3
99000.				
Pits, quarries				
99001.				
Water				
99003.				
Miscellaneous water				

Table 20.--Water Features

(The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
66014: Haymond-----	B	Frequent----	Brief-----	Nov-May	>6.0	---	---
70028: Moko-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
73013: Lowassie-----	D	None-----	---	---	+5-1.0	Apparent	Nov-Apr
73032: Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73039: Glensted-----	D	None-----	---	---	0.5-1.5	Perched	Nov-May
73053: Lily-----	B	None-----	---	---	>6.0	---	---
Bender-----	B	None-----	---	---	>6.0	---	---
73066: Bender-----	B	None-----	---	---	>6.0	---	---
73067: Bender-----	B	None-----	---	---	>6.0	---	---
Rock outcrop.							
73080: Alred-----	C	None-----	---	---	>6.0	---	---
Bardley-----	B	None-----	---	---	>6.0	---	---
Rock outcrop.							
73087: Celt-----	C	None-----	---	---	1.0-2.0	Perched	Nov-May
73089: Rueter-----	B	None-----	---	---	>6.0	---	---
73094: Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73098: Plato-----	C	None-----	---	---	1.0-2.0	Perched	Nov-May
73135, 73136: Union-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73159: Yelton-----	C	None-----	---	---	1.5-2.0	Perched	Nov-May
73160: Hobson-----	C	None-----	---	---	1.5-2.0	Perched	Nov-May

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
73161, 73162: Alred-----	C	None-----	---	---	>6.0	---	---
Rueter-----	B	None-----	---	---	>6.0	---	---
73163: Bardley-----	B	None-----	---	---	>6.0	---	---
Alred-----	C	None-----	---	---	>6.0	---	---
Gasconade-----	D	None-----	---	---	>6.0	---	---
73164: Bender-----	B	None-----	---	---	>6.0	---	---
Rock outcrop.							
73165: Knobby-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
Bardley-----	B	None-----	---	---	>6.0	---	---
73166: Viburnum-----	C	None-----	---	---	1.5-2.5	Perched	Nov-Apr
Tonti-----	C	None-----	---	---	1.5-2.0	Perched	Nov-Apr
73168: Swiss-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Apr
73169, 73170: Beemont-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Apr
Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73171: Plato, eroded-----	C	None-----	---	---	1.0-2.0	Perched	Nov-May
73172: Rosati-----	C	None-----	---	---	1.0-2.0	Perched	Nov-Apr
73173, 73174: Lily-----	B	None-----	---	---	>6.0	---	---
Yelton-----	C	None-----	---	---	1.5-2.0	Perched	Nov-May
73175: Poynor-----	B	None-----	---	---	>6.0	---	---
Bendavis-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Mar
73176: Bendavis-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Mar
Poynor-----	B	None-----	---	---	>6.0	---	---
73178: Bendavis-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Mar

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
73179:							
Viraton-----	C	None-----	---	---	1.5-2.0	Perched	Nov-Apr
Wilderness-----	C	None-----	---	---	1.0-2.0	Perched	Nov-Apr
73180:							
Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
Gasconade-----	D	None-----	---	---	>6.0	---	---
73181:							
Useful-----	C	None-----	---	---	2.0-3.5	Perched	Nov-May
Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73182:							
Lebanon-----	C	None-----	---	---	1.5-2.0	Perched	Nov-Apr
73183:							
Scholten-----	C	None-----	---	---	1.5-2.0	Perched	Nov-Apr
Tonti-----	C	None-----	---	---	1.5-2.0	Perched	Nov-Apr
73184:							
Knobby-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
73186:							
Bardley-----	B	None-----	---	---	>6.0	---	---
Alred-----	C	None-----	---	---	>6.0	---	---
Gasconade-----	D	None-----	---	---	>6.0	---	---
73187:							
Bender-----	B	None-----	---	---	>6.0	---	---
Rock outcrop.							
73188:							
Bendavis-----	C	None-----	---	---	2.0-3.0	Perched	Nov-Mar
Poynor-----	B	None-----	---	---	>6.0	---	---
73189:							
Useful-----	C	None-----	---	---	2.0-3.5	Perched	Nov-May
Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
74634:							
Hartville-----	C	None-----	---	---	1.0-2.0	Perched	Nov-May
74652:							
Lecoma-----	B	None-----	---	---	>6.0	---	---
74653:							
Racoon-----	C/D	Occasional	Brief-----	Nov-May	0.0-1.0	Apparent	Nov-May
Freeburg-----	C	Occasional	Brief-----	Nov-May	1.0-2.5	Perched	Nov-May

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
74656: Deible-----	D	Rare-----	Brief-----	Nov-May	0.0-1.0	Apparent	Nov-May
75375: Horsecreek-----	B	Occasional	Very brief	Nov-May	>6.0	---	---
75376: Cedargap-----	B	Frequent----	Very brief	Oct-Jun	>6.0	---	---
75388: Kaintuck-----	B	Frequent----	Brief-----	Oct-Jun	>6.0	---	---
Relfe-----	A	Frequent----	Brief-----	Oct-Jun	>6.0	---	---
75391: Possumtrot-----	B	Occasional	Brief-----	Oct-Jun	>6.0	---	---
75398: Kaintuck-----	B	Frequent----	Brief-----	Oct-Jun	>6.0	---	---
75412: Razort-----	B	Occasional	Brief-----	Nov-Apr	>6.0	---	---
75413: Relfe-----	A	Frequent----	Very brief	Nov-May	>6.0	---	---
75414: Wideman-----	A	Frequent----	Very brief	Nov-May	>6.0	---	---
99000. Pits, quarries							
99001. Water							
99003. Miscellaneous water							

Table 21.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth	Thickness	Hardness		Uncoated steel	Concrete
		to top	In				
66014: Haymond-----	---	---	---	---	High	Low	Low
70028: Moko-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	Low	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73013: Lowassie-----	---	---	---	---	High	High	High
73032: Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
73039: Glensted-----	Abrupt textural change	6-10	16-34	Noncemented	High	High	Moderate
73053: Lily-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
Bender-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
73066: Bender-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
73067: Bender-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73080: Alred-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	Moderate
Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73087: Celt-----	Fragipan	20-36	8-24	Noncemented	Moderate	High	High
73089: Rueter-----	---	---	---	---	Moderate	Low	High
73094: Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
73098: Plato-----	Fragipan	20-36	8-28	Noncemented	Moderate	High	High
73135, 73136: Union-----	Fragipan	18-36	9-25	Noncemented	Moderate	High	High
73159: Yelton-----	Fragipan	18-27	16-40	Noncemented	Moderate	Moderate	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Kind	Restrictive layer			Potential for frost action	Risk of corrosion	
		Depth to top In	Thickness In	Hardness		Uncoated steel	Concrete
73160: Hobson-----	Fragipan	18-27	6-24	Noncemented	Moderate	Moderate	High
73161, 73162: Alred-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	Moderate
Rueter-----	---	---	---	---	Moderate	Low	High
73163: Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Alred-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	Moderate
Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
73164: Bender-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73165: Knobby-----	Bedrock (lithic)	4-20	---	Indurated	Low	Low	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73166: Viburnum-----	---	---	---	---	Moderate	High	Moderate
Tonti-----	Fragipan	18-25	10-36	Noncemented	Moderate	High	High
73168: Swiss-----	Dense material	40-80	0-40	Noncemented	Moderate	High	High
73169, 73170: Beemont-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
73171: Plato, eroded-----	Fragipan	20-36	8-30	Noncemented	Moderate	High	High
73172: Rosati-----	Fragipan	20-35	7-22	Noncemented	Moderate	High	High
73173, 73174: Lily-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
Yelton-----	Fragipan	18-27	16-40	Noncemented	Moderate	Moderate	High
73175: Poynor-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Kind	Restrictive layer			Potential for frost action	Risk of corrosion	
		Depth to top In	Thickness In	Hardness		Uncoated steel	Concrete
73175: Bendavis-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
73176: Bendavis-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
Poynor-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	High
73178: Bendavis-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
73179: Viraton-----	Fragipan	18-33	10-30	Noncemented	Moderate	Moderate	High
Wilderness-----	Fragipan	15-29	6-28	Noncemented	Moderate	Moderate	High
73180: Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
73181: Useful-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
73182: Lebanon-----	Fragipan	18-26	6-25	Noncemented	Moderate	Moderate	High
73183: Scholten-----	Fragipan	18-27	6-18	Noncemented	Moderate	Moderate	High
Tonti-----	Fragipan	18-25	10-36	Noncemented	Moderate	High	High
73184: Knobby-----	Bedrock (lithic)	4-20	---	Indurated	Low	Low	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73186: Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Alred-----	Strongly contrasting textural stratification	15-39	41-65	Noncemented	Moderate	Moderate	Moderate
Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
73187: Bender-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
73188: Bendavis-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High





# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

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

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is very-fine, mixed, active, mesic Typic Hapludalfs.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1999) and in "Keys to Soil Taxonomy" (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

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

### *Alred Series*

The Alred series consists of very deep, well drained soils on uplands. These soils formed in gravelly colluvium over clayey residuum weathered from dolostone. Slopes range from 3 to 65 percent.

Soils of the Alred series are loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudalfs.

### ***Typical Pedon***

Alred very gravelly loam, in an area of Alred-Rueter complex, 3 to 15 percent slopes; USGS Big Piney topographic quadrangle; UTM—Zone 15, Easting 586618.0, Northing 4166750.0.

A—0 to 3 inches; dark brown (10YR 3/3) very gravelly loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common fine to coarse roots; 25 percent chert gravel, 10 percent sandstone gravel, and 5 percent sandstone cobbles; neutral; clear smooth boundary.

E—3 to 8 inches; dark yellowish brown (10YR 4/4) very gravelly loam; weak fine granular and weak fine subangular blocky structure; friable; common fine and medium roots; 40 percent chert gravel, 10 percent sandstone gravel, and 5 percent sandstone cobbles; moderately acid; clear smooth boundary.

BE—8 to 18 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent strong brown (7.5YR 5/6) extremely gravelly loam; weak fine subangular blocky structure; friable; common fine and medium roots; 50 percent chert gravel, 20 percent sandstone gravel, and 15 percent sandstone cobbles; very strongly acid; clear wavy boundary.

Bt1—18 to 26 inches; strong brown (7.5YR 5/6) extremely cobbly loam; moderate medium subangular blocky structure; firm; common fine roots; few faint clay films; 35 percent chert gravel, 10 percent sandstone gravel, and 30 percent sandstone cobbles; very strongly acid; clear wavy boundary.

2Bt2—26 to 30 inches; 60 percent strong brown (7.5YR 5/6) and 40 percent yellowish red (5YR 5/6) gravelly clay; moderate medium prismatic structure parting to strong medium subangular blocky; firm; common fine roots; common distinct clay films; 25 percent chert gravel, 5 percent sandstone gravel, and 2 percent chert cobbles; strongly acid; abrupt wavy boundary.

2Bt3—30 to 40 inches; pale brown (10YR 6/3) clay; moderate medium prismatic structure; firm; few fine roots; many distinct clay films; 1 percent chert gravel; strongly acid; clear wavy boundary.

2Bt4—40 to 53 inches; dark red (2.5YR 3/6) clay; moderate medium prismatic structure; firm; few fine roots; many distinct clay films; common black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 5 percent chert gravel; moderately acid; clear wavy boundary.

2Bt5—53 to 65 inches; red (2.5YR 4/8) gravelly clay; moderate medium prismatic structure parting to strong medium subangular blocky; firm; few fine roots; many distinct clay films; 5 percent chert

gravel, 19 percent dolostone gravel, and 5 percent dolostone cobbles; slightly alkaline.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

Texture—very gravelly or extremely cobbly loam

*E horizon:*

Color—value of 4 to 6 and chroma of 3 or 4

Texture—very gravelly or extremely gravelly analogues of silt loam or loam

*BE horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—very gravelly or extremely gravelly analogues of silt loam or loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Texture—very gravelly, extremely gravelly, or extremely cobbly analogues of silt loam, loam, silty clay loam, or clay loam

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 3, 4, 6, or 8

Texture—clay, gravelly clay, very gravelly clay, or cobbly clay

### ***Bardley Series***

The Bardley series consists of moderately deep, well drained soils on uplands. These soils formed in gravelly colluvium over clayey residuum weathered from dolostone. Slopes range from 15 to 75 percent.

Soils of the Bardley series are very-fine, mixed, active, mesic Typic Hapludalfs.

### ***Typical Pedon***

Bardley very gravelly silt loam, in an area of Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky; USGS Yancy Mills topographic quadrangle; UTM—Zone 15, Easting 602190.0, Northing 4183460.0.

A1—0 to 1 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, grayish brown (10YR 5/2) dry; weak very fine and fine subangular blocky structure; friable; many very fine and fine and common medium roots; 50 percent chert gravel

and 3 percent sandstone gravel; moderately acid; clear wavy boundary.

A2—1 to 5 inches; dark grayish brown (10YR 4/2) very gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine to medium roots; 50 percent chert gravel and 5 percent sandstone gravel; moderately acid; gradual wavy boundary.

BE—5 to 9 inches; brown (10YR 4/3) extremely gravelly loam; weak fine subangular blocky structure; friable; common fine and medium roots; 55 percent chert gravel, 5 percent sandstone gravel, and 5 percent chert cobbles; moderately acid; clear wavy boundary.

2Bt1—9 to 14 inches; yellowish red (5YR 4/6) gravelly clay; weak fine prismatic structure; firm; common very fine and fine roots; 20 percent chert gravel and 5 percent chert cobbles; strongly acid; clear wavy boundary.

2Bt2—14 to 17 inches; reddish brown (5YR 5/4) gravelly clay; weak fine and medium prismatic structure; firm; common very fine roots; few prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 25 percent chert gravel and 5 percent chert cobbles; moderately acid; clear wavy boundary.

2Bt3—17 to 26 inches; yellowish red (5YR 4/6) gravelly clay; moderate medium prismatic structure; firm; common very fine to coarse roots; many prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 20 percent chert gravel and 3 percent chert cobbles; moderately acid; gradual wavy boundary.

2Bt4—26 to 33 inches; reddish brown (5YR 4/4) gravelly clay; moderate fine and medium prismatic structure; firm; common very fine to coarse roots; 25 percent chert gravel and 5 percent chert cobbles; slightly acid; clear wavy boundary.

2R—33 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

#### *A horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

Texture—very gravelly or extremely gravelly silt loam

#### *BE horizon and E horizon (where present) :*

Color—value of 4 to 6 and chroma of 3 or 4

Texture—very gravelly or extremely gravelly silt loam or loam

#### *2Bt horizon:*

Color—hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 3, 4, or 6

Texture—clay, gravelly clay, or very gravelly clay

## **Beemont Series**

The Beemont series consists of deep, moderately well drained soils on uplands. These soils formed in gravelly colluvium over clayey residuum weathered from dolostone. Slopes range from 3 to 35 percent.

Soils of the Beemont series are very-fine, smectitic, mesic Oxyaquic Hapludalfs.

### ***Typical Pedon***

Beemont gravelly silt loam, in an area of Beemont-Gatewood complex, 3 to 15 percent slopes, stony; USGS Rosati topographic quadrangle; UTM—Zone 15, Easting 622195.0, Northing 4216180.0.

A—0 to 3 inches; brown (10YR 4/3) gravelly silt loam, very pale brown (10YR 7/3) dry; moderate very fine granular structure; very friable; common fine and medium roots; 30 percent chert gravel; very strongly acid; clear smooth boundary.

E—3 to 11 inches; brown (10YR 5/3) gravelly silt loam; weak very fine granular structure; very friable; common very fine and few medium and coarse roots; 25 percent chert gravel; very strongly acid; gradual smooth boundary.

2Bt1—11 to 23 inches; yellowish brown (10YR 5/4) clay; moderate very fine subangular blocky structure; firm; common very fine and few medium roots; many prominent clay films on faces of peds; few fine faint brown (10YR 5/3) and many medium prominent reddish brown (2.5YR 5/4) iron accumulations; 2 percent chert gravel; very strongly acid; clear smooth boundary.

2Bt2—23 to 35 inches; yellowish brown (10YR 5/6) clay; moderate very fine subangular blocky structure; firm; few very fine roots; many prominent clay films on faces of peds; few fine distinct brown (10YR 5/3) and many medium prominent red (2.5YR 4/6) iron accumulations; 2 percent chert gravel; extremely acid; clear smooth boundary.

2Bt3—35 to 47 inches; yellowish brown (10YR 5/8) clay; moderate very fine subangular blocky structure; firm; few very fine roots; many prominent clay films on faces of peds; common medium prominent yellowish red (5YR 5/6) iron accumulations; 2 percent chert gravel; extremely acid; clear smooth boundary.

2Bt4—47 to 59 inches; yellowish brown (10YR 5/8) clay; moderate very fine subangular blocky structure; firm; few very fine roots; many prominent clay films on faces of peds; common coarse prominent yellowish red (5YR 5/6) iron accumulations; 2 percent chert gravel; slightly acid.  
2R—59 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 40 to 60 inches

*A horizon:*

Color—value of 3 to 5 and chroma of 2 or 3

*E horizon:*

Color—value of 4 to 6 and chroma of 2 to 4

Texture—gravelly to extremely gravelly silt loam

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8 (may be 2 in lower part)

## **Bendavis Series**

The Bendavis series consists of moderately deep, moderately well drained soils on uplands. These soils formed in gravelly colluvium. Slopes range from 1 to 35 percent.

Soils of the Bendavis series are loamy-skeletal, siliceous, active, mesic Typic Hapludults.

### ***Typical Pedon***

Bendavis very gravelly silt loam, in an area of Bendavis-Poynor complex, 8 to 15 percent slopes, stony; USGS Slabtown Springs topographic quadrangle; UTM—Zone 15, Easting 587410.0, Northing 4162860.0.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; common very fine and fine and few medium roots; 45 percent chert gravel, 2 percent sandstone cobbles, and 1 percent sandstone stones; very strongly acid; clear smooth boundary.

E—2 to 6 inches; brown (10YR 5/3) very gravelly silt loam; weak fine subangular blocky structure; friable; common very fine and fine and few medium roots; 50 percent chert gravel; very strongly acid; clear smooth boundary.

Bt1—6 to 17 inches; yellowish brown (10YR 5/4) extremely gravelly silt loam; moderate fine subangular blocky structure; friable; common fine and few medium and coarse roots; few faint clay films on faces of peds; 65 percent chert gravel and 5 percent sandstone cobbles; strongly acid; clear wavy boundary.

Bt2—17 to 22 inches; brown (7.5YR 5/4) very gravelly clay loam; moderate fine subangular blocky structure; firm; few very fine to medium roots; common faint clay films on faces of peds; 50 percent chert gravel and 2 percent sandstone cobbles; strongly acid; abrupt wavy boundary.

Bt3—22 to 32 inches; strong brown (7.5YR 5/8) extremely cobbly clay loam; few medium prominent pale brown (10YR 6/3) mottles; moderate fine and medium subangular blocky structure; firm; few very fine to medium roots; many distinct continuous clay films on faces of peds; 40 percent chert gravel and 40 percent sandstone cobbles; strongly acid; abrupt wavy boundary.

2R—32 inches; unweathered sandstone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

*A horizon:*

Color—value of 3 to 5 and chroma of 2 or 3

*E horizon and BE horizon (where present):*

Color—value of 5 or 6

Texture—very gravelly or extremely gravelly silt loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Texture—very gravelly, extremely gravelly, or cobbly analogues of silt loam, silty clay loam, or clay loam

## **Bender Series**

The Bender series consists of moderately deep, somewhat excessively drained soils on uplands. These soils formed in residuum weathered from sandstone. Slopes range from 3 to 65 percent.

Soils of the Bender series are loamy-skeletal, siliceous, active, mesic Typic Hapludults.

### ***Typical Pedon***

Bender very cobbly fine sandy loam, in an area of Lily-Bender complex, 3 to 15 percent slopes; USGS Rolla topographic quadrangle; UTM—Zone 15, Easting 602400.0, Northing 4193900.0.

Ap—0 to 4 inches; brown (10YR 4/3) very cobbly fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and fine roots; 15 percent chert gravel, 10 percent quartzitic sandstone gravel, and 20 percent quartzitic sandstone cobbles; slightly acid; abrupt wavy boundary.

BE—4 to 11 inches; yellowish brown (10YR 5/4) very gravelly fine sandy loam; weak fine subangular blocky structure; friable; common very fine and fine roots; 10 percent chert gravel and 35 percent quartzitic sandstone gravel; slightly acid; gradual smooth boundary.

Bt1—11 to 15 inches; yellowish brown (10YR 5/6) very gravelly fine sandy loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; common distinct clay films on faces of peds; 30 percent chert gravel, 5 percent quartzitic sandstone gravel, and 15 percent quartzitic sandstone cobbles; strongly acid; abrupt smooth boundary.

Bt2—15 to 23 inches; strong brown (7.5YR 5/6) very gravelly loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; 10 percent chert gravel, 30 percent quartzitic sandstone gravel, and 15 percent quartzitic sandstone cobbles; strongly acid; abrupt smooth boundary.

2CR—23 to 31 inches; strong brown (7.5YR 5/8) weathered bedrock; few fine roots; abrupt smooth boundary.

2R—31 inches; unweathered sandstone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

*A or Ap horizon:*

Color—value of 3 to 5 and chroma of 2 or 3

*BE horizon:*

Color—value of 5 or 6 and chroma of 3, 4, or 6

Texture—very gravelly or very cobbly analogues of loam, fine sandy loam, or sandy loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—very gravelly, extremely gravelly, very cobbly, or extremely cobbly analogues of sandy clay loam, loam, sandy loam, or fine sandy loam

*BC or C horizon (where present):*

Color—value of 5 or 6 and chroma of 3, 4, 6, 8

Texture—loamy sand, sandy loam, or their cobbly to extremely cobbly analogues

### ***Cedargap Series***

The Cedargap series consists of very deep, well drained soils on flood plains. These soils formed in gravelly alluvium. Slopes range from 0 to 3 percent.

Soils of the Cedargap series are loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls.

### ***Typical Pedon***

Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 611550.0, Northing 4196490.0.

Ap1—0 to 4 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, dark grayish brown (10YR 4/2) dry; weak very fine and fine subangular blocky structure; very friable; common very fine and fine roots; 20 percent chert gravel; slightly acid; clear wavy boundary.

Ap2—4 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; friable; common very fine and fine and few medium roots; 10 percent chert gravel; neutral; clear wavy boundary.

A1—10 to 19 inches; very dark brown (10YR 2/2) very gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; friable; common very fine to medium roots; 35 percent chert gravel; neutral; gradual wavy boundary.

A2—19 to 33 inches; very dark brown (10YR 2/2) very gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; firm; common very fine and fine roots; 45 percent chert gravel; neutral; clear wavy boundary.

Bw1—33 to 47 inches; 60 percent very dark grayish brown (10YR 3/2) and 40 percent brown (10YR 4/3) extremely gravelly loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; 50 percent chert gravel, 10 percent sandstone gravel, and 5 percent chert cobbles; neutral; clear wavy boundary.

Bw2—47 to 57 inches; 55 percent brown (7.5YR 4/4) and 45 percent dark yellowish brown (10YR 4/4) very gravelly loam; weak fine subangular blocky structure; firm; 35 percent chert gravel, 5 percent sandstone gravel, 10 percent chert cobbles, and 5 percent sandstone cobbles; neutral; clear wavy boundary.

Bw3—57 to 65 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (7.5YR 4/4) extremely gravelly clay loam; moderate coarse subangular blocky structure; firm; 40 percent chert gravel, 5 percent sandstone gravel, 10 percent chert cobbles, and 5 percent sandstone cobbles; slightly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap1 horizon:*

Color—value of 2 or 3

*Ap2 and A horizons:*

Color—value of 2 or 3

Texture—silt loam, loam, sandy clay loam, or their very gravelly analogues

*Bw horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 1 to 4

Texture—very gravelly or extremely gravelly analogues of loam, clay loam, sandy loam, or silt loam

*2C horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4

Texture—loam, sandy clay loam, clay or their gravelly to extremely gravelly analogues

**Celt Series**

The Celt series consists of very deep, somewhat poorly drained soils that have a fragipan. These soils are on uplands. They formed in loess and the underlying residuum weathered from dolostone. Slopes range from 1 to 3 percent.

Soils of the Celt series are fine, mixed, active, mesic Aquic Fragiudults.

**Typical Pedon**

Celt silt loam, 1 to 3 percent slopes; USGS Slabtown Springs topographic quadrangle; UTM—Zone 15, Easting 588000.0, Northing 4163900.0.

Ap—0 to 4 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine subangular blocky structure; friable; common very fine to medium roots; 3 percent chert gravel; strongly acid; clear wavy boundary.

Bt1—4 to 8 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine and medium subangular blocky structure; friable; common very fine to medium roots; common faint clay films on faces of peds; common fine prominent light gray (10YR 6/1 and 10YR 5/1) iron depletions; common fine iron-manganese concretions; 5 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—8 to 13 inches; 70 percent dark yellowish brown (10YR 4/4) and 30 percent gray (10YR 6/1) silty clay; moderate fine and medium subangular blocky structure; firm; common very fine to medium roots; common distinct clay films on faces of peds; common fine prominent gray (10YR 5/1) iron

depletions; common distinct iron stains on faces of peds; common fine iron-manganese concretions; 5 percent chert gravel; very strongly acid; clear wavy boundary.

Bt3—13 to 22 inches; 50 percent gray (10YR 6/1), 25 percent dark yellowish brown (10YR 4/4), and 25 percent brown (7.5YR 4/4) silty clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine and few medium roots; many prominent clay films on faces of peds; common distinct iron stains on faces of peds; common fine iron-manganese concretions; 5 percent chert gravel; very strongly acid; abrupt wavy boundary.

2Btx1—22 to 29 inches; reddish brown (2.5YR 5/4) gravelly silt loam; many medium yellowish brown (10YR 5/4) mottles; moderate very coarse prismatic structure parting to moderate thin platy; very firm, 70 percent brittle; gray (10YR 6/1) 2-inch wide seams between prisms; few very fine to medium roots in vertical seams between prisms; common distinct clay films on faces of peds; 25 percent chert gravel; very strongly acid; gradual wavy boundary.

2Btx2—29 to 39 inches; reddish brown (2.5YR 5/4) gravelly silty clay loam; many medium distinct yellowish brown (10YR 5/4) mottles; moderate very coarse prismatic structure parting to weak thin platy; very firm, 70 percent brittle; gray (10YR 6/1) 2-inch wide seams between prisms; few very fine roots in vertical seams between prisms; many distinct clay films on faces of peds; 15 percent chert gravel; very strongly acid; gradual wavy boundary.

3Bt—39 to 60 inches; 50 percent red (2.5YR 4/8), 20 percent strong brown (7.5YR 4/6), and 30 percent gray (10YR 6/1) gravelly clay; moderate very fine and fine subangular blocky structure; firm; many prominent clay films on faces of peds; 15 percent chert gravel; very strongly acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 20 to 36 inches

*Ap horizon:*

Color—value of 4 or 5 and chroma of 2 to 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—silty clay loam or silty clay

*2Btx horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—gravelly to extremely gravelly analogues of silt loam or silty clay loam

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 1, 2, 3, 4, 6, or 8

Texture—gravelly or very gravelly analogues of silty clay or clay

**Deible Series**

The Deible series consists of very deep, poorly drained soils on stream terraces. These soils formed in alluvium and colluvium. Slopes range from 1 to 5 percent.

Soils of the Deible series are fine, mixed, active, mesic Typic Albaqualfs.

**Typical Pedon**

Deible silt loam, 1 to 5 percent slopes, rarely flooded; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 611730.0, Northing 4196370.0.

Ap1—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine and fine roots; 10 percent chert gravel; slightly acid; clear wavy boundary.

Ap2—5 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak very fine and fine subangular blocky structure; very friable; common very fine and fine roots; 10 percent chert gravel; neutral; abrupt smooth boundary.

E—10 to 15 inches; 60 percent pale brown (10YR 6/3) and 40 percent light brownish gray (2.5Y 6/2) silt loam; weak very fine and fine subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and common fine prominent red (2.5YR 4/8) iron accumulations; 10 percent chert gravel; neutral; abrupt wavy boundary.

Btg1—15 to 20 inches; light brownish gray (10YR 6/2) silty clay; moderate fine and medium prismatic structure; firm; few fine roots; common prominent clay films on faces of peds; many distinct light gray (10YR 7/1) clay depletions on faces of peds; common fine prominent red (2.5YR 4/6) iron accumulations; strongly acid; clear wavy boundary.

Btg2—20 to 28 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine and medium prismatic structure; firm; few very fine roots; common

prominent clay films on faces of peds; common fine prominent strong brown (7.5YR 5/8) iron accumulations; very strongly acid; gradual wavy boundary.

Btg3—28 to 37 inches; gray (10YR 6/1) silty clay; moderate fine and medium prismatic structure; firm; few very fine roots; common distinct clay films on faces of peds; few black (10YR 2/1) manganese or iron-manganese stains on faces of peds; many medium prominent yellowish brown (10YR 5/8) iron accumulations; very strongly acid; gradual wavy boundary.

2Btg4—37 to 51 inches; gray (10YR 5/1) silty clay loam; moderate fine and medium prismatic structure; firm; common distinct clay films on faces of peds; common black (10YR 2/1) manganese or iron-manganese stains on faces of peds; many medium prominent yellowish brown (10YR 5/8) iron accumulations; strongly acid; gradual wavy boundary.

2Btg5—51 to 65 inches; gray (10YR 5/1) silty clay loam; moderate fine and medium prismatic structure; firm; common distinct clay films on faces of peds; many black (10YR 2/1) manganese or iron-manganese stains on faces of peds; many coarse prominent strong brown (7.5YR 4/6) iron accumulations; moderately acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—value of 4 or 5 and chroma of 2 or 3

*E horizon and BE horizon (where present):*

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3

*Btg horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or clay

*2Btg horizon:*

Color—hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or clay

**Freeburg Series**

The Freeburg series consists of very deep, somewhat poorly drained soils on stream terraces. These soils formed in silty alluvium. Slopes range from 0 to 3 percent.

Soils of the Freeburg series are fine-silty, mixed, superactive, mesic Aquic Hapludalfs.

### ***Typical Pedon***

Freeburg silt loam, in an area of Racoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded; USGS Rosati topographic quadrangle; UTM—Zone 15, Easting 624610.0, Northing 4217210.0.

Ap—0 to 5 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; many very fine and fine roots; common fine iron-manganese concretions; very strongly acid; clear wavy boundary.

BE—5 to 10 inches; brown (10YR 5/3) silt loam; weak fine and medium subangular blocky structure; friable; many very fine and common fine roots; common fine iron-manganese concretions; strongly acid; clear wavy boundary.

Bt1—10 to 14 inches; 70 percent dark yellowish brown (10YR 4/4) and 30 percent brown (10YR 5/3) silt loam; weak medium prismatic structure; firm; common very fine and few fine roots; common faint clay films on vertical faces of peds; brown (10YR 5/3) clay depletions on faces of peds; common fine iron-manganese concretions; very strongly acid; clear wavy boundary.

Bt2—14 to 26 inches; 60 percent brown (10YR 5/3) and 40 percent grayish brown (10YR 5/2) silt loam; moderate medium prismatic structure; firm; common very fine and few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine iron-manganese concretions; very strongly acid; clear wavy boundary.

Btg—26 to 40 inches; 40 percent dark grayish brown (10YR 4/2), 35 percent grayish brown (10YR 5/2), and 25 percent yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure; firm; few very fine roots; common faint clay films on vertical faces of peds and few faint clay films on horizontal faces of peds; few medium iron-manganese concretions; common medium masses of iron-manganese accumulation; very strongly acid; clear wavy boundary.

BCg1—40 to 55 inches; 60 percent dark gray (10YR 4/1) and 40 percent grayish brown (10YR 5/2) silt loam; weak fine and medium prismatic structure; firm; common medium iron-manganese concretions; strongly acid; common medium yellowish brown (10YR 5/8) masses of iron-manganese accumulation; clear wavy boundary.

BCg2—55 to 65 inches; 60 percent dark gray (10YR 4/1) and 40 percent grayish brown (10YR 5/2) silt loam; weak fine and medium subangular blocky structure; friable; common fine iron-manganese concretions; coarse medium yellowish brown (10YR

5/8) masses of iron-manganese accumulation; moderately acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—value of 4 or 5 and chroma of 2 or 3

*BE horizon and BA horizon (where present):*

Color—value of 5 or 6 and chroma of 2 to 4

*Bt horizon:*

Color—value of 4 or 5 and chroma of 2, 3, 4, or 6

Texture—silt loam or silty clay loam

*Btg horizon:*

Color—hue of 7.5YR and 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—silt loam or silty clay loam

*BCg horizon:*

Color—value of 4 or 5 and chroma of 1 or 2

Texture—silt loam or silty clay loam

### ***Gasconade Series***

The Gasconade series consists of very shallow and shallow, somewhat excessively drained soils on uplands. These soils formed in clayey residuum weathered from dolostone. Slopes range from 3 to 65 percent.

Soils of the Gasconade series are clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls.

### ***Typical Pedon***

Gasconade very gravelly clay loam, in an area of Bardley-Alred-Gasconade complex, 25 to 65 percent slopes, extremely stony, very rocky; USGS Yancy Mills topographic quadrangle; UTM—Zone 15, Easting 600230.0, Northing 4188500.0.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) very gravelly clay loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; few very fine and common medium roots; 50 percent chert gravel and 5 percent dolostone gravel; neutral; clear wavy boundary.

Bw1—2 to 8 inches; very dark grayish brown (10YR 3/2) very gravelly clay, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; friable; common fine and medium roots; 35 percent chert gravel and 15 percent dolostone gravel; neutral; gradual wavy boundary.

Bw2—8 to 14 inches; dark grayish brown (10YR 4/2) extremely gravelly clay; moderate fine subangular

blocky structure; firm; common fine and medium roots; 45 percent chert gravel, 10 percent dolostone gravel, and 5 percent dolostone cobbles; slightly alkaline; abrupt smooth boundary.  
R—14 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 4 to 20 inches

#### *A horizon:*

Color—value of 2 or 3 and chroma of 1 to 3  
Texture—very gravelly or extremely gravelly analogues of clay loam, silty clay, or clay

#### *Bw horizon:*

Color—value of 2 to 4 and chroma of 2 or 3  
Texture—very gravelly or extremely gravelly analogues of clay or clay loam

## ***Gatewood Series***

The Gatewood series consists of moderately deep, moderately well drained soils on uplands. These soils formed in clayey residuum weathered from dolostone. Slopes range from 3 to 35 percent.

Soils of the Gatewood series are very-fine, mixed, active, mesic Oxyaquic Hapludalfs.

### ***Typical Pedon***

Gatewood very gravelly silt loam, in an area of Beemont-Gatewood complex, 3 to 15 percent slopes, stony; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 620340.0, Northing 4204880.0.

A—0 to 4 inches; 60 percent brown (10YR 4/3) and 40 percent dark grayish brown (10YR 4/2) very gravelly silt loam; weak very fine subangular blocky structure; very friable; common very fine to medium and few coarse roots; 45 percent chert gravel and 10 percent sandstone cobbles; strongly acid; clear wavy boundary.

E—4 to 8 inches; light yellowish brown (10YR 6/4) extremely gravelly silt loam; weak very fine subangular blocky structure; very friable; common very fine to medium and few coarse roots; 60 percent chert gravel and 5 percent sandstone cobbles; moderately acid; clear wavy boundary.

BE—8 to 13 inches; light yellowish brown (10YR 6/4) extremely gravelly silt loam; weak very fine subangular blocky structure; friable; common very fine to medium roots; 65 percent chert gravel and 2 percent sandstone cobbles; strongly acid; abrupt wavy boundary.

2Bt1—13 to 20 inches; yellowish brown (10YR 5/6) clay; strong fine and medium prismatic structure;

firm; few very fine and common fine and medium roots; distinct continuous clay films on faces of peds; few manganese or iron-manganese stains on faces of peds; common fine iron-manganese concretions; 2 percent chert gravel; neutral; clear wavy boundary.

2Bt2—20 to 25 inches; yellowish brown (10YR 5/8) clay; few fine and medium prominent yellowish brown (10YR 5/4) mottles; moderate fine and medium prismatic structure; firm; few very fine, common fine, and few medium roots; distinct continuous clay films on faces of peds; 5 percent chert gravel; moderately acid; clear wavy boundary.

2Bt3—25 to 28 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brownish yellow (10YR 6/6) silty clay; weak fine and medium prismatic structure; firm; few very fine roots; common distinct clay films on faces of peds; common manganese or iron-manganese stains on faces of peds; common fine iron-manganese concretions; few fine prominent light reddish brown (2.5YR 6/4) iron accumulations; 5 percent chert gravel; slightly alkaline; abrupt smooth boundary.

2R—28 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

#### *A horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

#### *E and BE horizons:*

Color—value of 4 to 6 and chroma of 3 or 4  
Texture—gravelly to extremely gravelly analogues of silt loam or loam

#### *2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Texture—clay, silty clay, or their gravelly analogues

## ***Glensted Series***

The Glensted series consists of very deep, poorly drained soils on uplands. These soils formed in loess over residuum weathered from limestone. Slopes range from 1 to 3 percent.

Soils of the Glensted series are fine, smectitic, mesic Vertic Albaqualfs.

### ***Typical Pedon***

Glensted silt loam, 1 to 3 percent slopes; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 620220.0, Northing 4206360.0.

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; friable; common very fine and fine and few medium roots; moderately acid; abrupt wavy boundary.

E—10 to 15 inches; 60 percent grayish brown (10YR 5/2) and 40 percent brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common very fine and few fine and medium roots; few fine manganese or iron-manganese stains on faces of peds; few fine iron-manganese concretions; common fine prominent yellowish brown (10YR 5/6) and fine prominent reddish brown (5YR 4/4) iron accumulations; 2 percent gravel; strongly acid; clear wavy boundary.

Btg1—15 to 19 inches; grayish brown (10YR 5/2) silty clay; weak fine subangular blocky structure; friable; common very fine and few fine roots; many distinct clay films on faces of peds and common faint clay films in root channels and/or pores; few fine and medium prominent red (2.5YR 4/6) iron accumulations; strongly acid; clear wavy boundary.

2Btg2—19 to 25 inches; 50 percent dark grayish brown (10YR 4/2) and 50 percent grayish brown (10YR 5/2) silty clay; strong fine and medium prismatic structure; firm; common very fine and few fine roots between peds; many prominent clay films on faces of peds and common distinct clay films in root channels and/or pores; common manganese or iron-manganese stains on faces of peds; common fine and medium prominent red (2.5YR 4/6) iron accumulations; 1 percent gravel; strongly acid; gradual wavy boundary.

2Btg3—25 to 31 inches; grayish brown (10YR 5/2) clay; strong medium prismatic structure; firm; few very fine roots between peds; many prominent clay films on faces of peds and common distinct clay films in root channels and/or pores; few fine manganese or iron-manganese stains on faces of peds; few fine iron-manganese concretions; many prominent strong brown (7.5YR 4/6) iron accumulations; 1 percent gravel; very strongly acid; gradual wavy boundary.

2BCg—31 to 43 inches; 60 percent grayish brown (10YR 5/2) and 40 percent light brownish gray (10YR 6/2) silty clay loam; weak medium and coarse prismatic structure; firm; few very fine roots; common fine manganese or iron-manganese stains on faces of peds; common fine iron-manganese concretions; many medium prominent yellowish brown (10YR 5/6) iron accumulations; 3 percent gravel; strongly acid; gradual wavy boundary.

2Cg—43 to 60 inches; light brownish gray (10YR 6/2)

silt loam; massive; firm; few fine manganese or iron-manganese stains on faces of peds; few fine iron-manganese concretions; medium and coarse prominent yellowish brown (10YR 5/6) iron accumulations; 1 percent gravel; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—chroma of 2 or 3

*E horizon:*

Color—value of 2 to 5 and chroma of 2 or 3

Btg and 2Btg horizons:

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silty clay or clay

2BCg horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam or silty clay

*2Cg horizon:*

Color—value of 5 or 6 and chroma of 1 or 2

Texture—silty clay loam or silt loam

### ***Hartville Series***

The Hartville series consists of very deep, somewhat poorly drained soils on footslopes. These soils formed in clayey colluvium. Slopes range from 3 to 8 percent.

Soils of the Hartville series are fine, mixed, active, mesic Aquic Hapludalfs.

### ***Typical Pedon***

Hartville silt loam, 3 to 8 percent slopes; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 612050.0, Northing 4196950.0.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine and fine roots; 5 percent chert gravel; strongly acid; abrupt wavy boundary.

BE—6 to 11 inches; brown (10YR 4/3) silt loam; weak fine prismatic structure; friable; common very fine and fine roots; few fine iron-manganese concretions; few fine faint yellowish brown (10YR 5/8) iron accumulations; 8 percent chert gravel; moderately acid; clear wavy boundary.

Bt1—11 to 17 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure; friable; common very fine and fine roots; distinct discontinuous clay films on faces of peds; faint continuous clay

- depletions on faces of peds; common fine light brownish gray (10YR 6/2) iron depletions; common fine manganese or iron-manganese stains on faces of peds; common fine iron-manganese concretions; common fine and medium distinct yellowish brown (10YR 5/6) iron accumulations; 3 percent chert gravel; moderately acid; clear wavy boundary.
- Btg1—17 to 22 inches; brown (10YR 5/3) silty clay loam; strong fine and medium prismatic structure; friable; few very fine and fine roots; prominent discontinuous clay films on faces of peds and distinct continuous clay films in root channels and/or pores; prominent continuous clay depletions on faces of peds; common fine light brownish gray (10YR 6/2) iron depletions; common fine and medium prominent yellowish red (5YR 4/6) iron accumulations; 2 percent chert gravel; strongly acid; clear wavy boundary.
- Btg2—22 to 31 inches; grayish brown (10YR 5/2) silty clay; strong medium prismatic structure; firm; few very fine roots; prominent continuous clay films on faces of peds; common clay depletions; few fine iron-manganese concretions; many fine and medium dark yellowish brown (10YR 4/6) iron accumulations; 1 percent chert gravel; strongly acid; gradual wavy boundary.
- Btg3—31 to 44 inches; grayish brown (10YR 5/2) silty clay; moderate medium prismatic structure; firm; few very fine roots; prominent discontinuous clay films on faces of peds and distinct discontinuous clay films in root channels and/or pores; few fine iron-manganese concretions; many medium yellowish brown (10YR 5/6) iron accumulations; 2 percent chert gravel; moderately acid; gradual wavy boundary.
- 2Btg4—44 to 52 inches; grayish brown (10YR 5/2) gravelly silty clay; weak medium prismatic structure; firm; distinct discontinuous clay films on faces of peds; common manganese or iron-manganese stains on faces of peds; common fine and medium iron-manganese concretions; many fine yellowish brown (10YR 5/6) iron accumulations; 20 percent chert gravel; neutral; gradual wavy boundary.
- 2Btg5—52 to 60 inches; 60 percent light brownish gray (10YR 6/2) and 40 percent brown (10YR 5/3) gravelly silty clay; weak fine and medium prismatic structure; firm; distinct continuous clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) iron accumulations; 30 percent chert gravel; neutral.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

#### *Ap horizon:*

Color—value of 4 or 5 and chroma of 2 to 4

#### *BE horizon:*

Color—value of 4 or 6 and chroma of 3 or 4

#### *Bt horizon:*

Color—value of 4 or 5 and chroma of 3, 4, or 6

Texture—silty clay loam or silty clay

#### *Btg horizon:*

Color—value of 4 to 7 and chroma of 1, 2, 3, 4, or 6

Texture—silty clay loam or silty clay

#### *2Btg horizon:*

Color—value of 4 to 6 and chroma of 1 to 3

Texture—silty clay, clay, or their gravelly analogues

#### *2C horizon (where present):*

Color—hue of 10YR, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or their gravelly or very gravelly analogues

## ***Haymond Series***

The Haymond series consists of very deep, well drained soils on flood plains. These soils formed in coarse-silty alluvium. Slopes range from 0 to 3 percent.

Soils of the Haymond series are coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts.

### ***Typical Pedon***

Haymond silt loam, 0 to 3 percent slopes, frequently flooded; USGS Lecomma topographic quadrangle; UTM—Zone 15, Easting 617120.0, Northing 4184830.0.

A—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Bw1—5 to 22 inches; 90 percent dark yellowish brown (10YR 4/4) and 10 percent brown (10YR 5/3) silt loam; weak fine granular structure; friable; common fine roots; slightly acid; gradual wavy boundary.

Bw2—22 to 38 inches; 80 percent brown (10YR 4/3) and 20 percent brown (10YR 5/3) silt loam; moderate medium granular and moderate fine subangular blocky structure; friable; common fine roots; slightly acid; gradual wavy boundary.

Bw3—38 to 46 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure parting to moderate medium granular;

friable; few fine roots; slightly acid; gradual wavy boundary.

Bw4—46 to 60 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; moderately acid; gradual wavy boundary.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—value of 4 or 5 and chroma of 2 or 3

*Bw horizon:*

Color—value of 4 or 5 and chroma of 3 or 4

*2C horizon (where present):*

Color—value of 4 or 5 and chroma of 3 or 4

Texture—silt loam, loam, or fine sandy loam

### ***Hobson Series***

The Hobson series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in colluvium from sandstone over clayey residuum weathered from dolostone. Slopes range from 8 to 15 percent.

Soils of the Hobson series are fine-loamy, siliceous, active, mesic Oxyaquic Fragiudalfs.

### ***Typical Pedon***

Hobson loam, 8 to 15 percent slopes, bench; USGS Yancy Mills topographic quadrangle; UTM—Zone 15, Easting 602640.0, Northing 4183920.0.

A—0 to 3 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine and medium and few coarse roots; moderately acid; clear smooth boundary.

E—3 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular and weak fine subangular blocky structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.

BE—6 to 9 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; few fine and common medium roots; common brown (10YR 4/3) worm casts; strongly acid; clear wavy boundary.

Bt1—9 to 17 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine to coarse roots; common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—17 to 25 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (7.5YR 4/4)

loam; moderate medium subangular blocky structure; friable; few medium roots; few distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

2Btx1—25 to 31 inches; 55 percent yellowish brown (10YR 5/4) and 45 percent brown (7.5YR 4/4) fine sandy loam; weak very coarse prismatic structure parting to moderate medium prismatic; very firm, 80 percent brittle; gray (10YR 6/1) 1- to 2-inch wide seams between prisms; few fine roots in vertical seams between prisms; common prominent clay films on faces of peds; 5 percent chert gravel; very strongly acid; clear wavy boundary.

2Btx2—31 to 38 inches; 65 percent yellowish brown (10YR 5/4) and 35 percent yellowish brown (10YR 5/6) very gravelly fine sandy loam; weak very coarse prismatic structure; very firm, 75 percent brittle; gray (10YR 6/1) 1- to 2-inch wide seams between prisms; few distinct clay films on faces of peds; 45 percent chert gravel; very strongly acid; clear wavy boundary.

2Btx3—38 to 43 inches; 60 percent strong brown (7.5YR 5/6) and 40 percent yellowish brown (10YR 5/4) very gravelly fine sandy loam; weak very coarse prismatic structure; very firm, 80 percent brittle; light gray (10YR 7/2) 1- to 2-inch wide seams between prisms; few prominent clay films on faces of peds; 55 percent chert gravel; very strongly acid; abrupt wavy boundary.

3Bt1—43 to 50 inches; 50 percent red (2.5YR 4/8), 40 percent yellowish brown (10YR 5/8), and 10 percent strong brown (7.5YR 5/6) clay; weak medium subangular blocky structure; firm; few medium roots; many prominent clay films on faces of peds; 5 percent chert gravel; very strongly acid; gradual wavy boundary.

3Bt2—50 to 63 inches; 55 percent strong brown (7.5YR 5/6), 35 percent red (2.5YR 4/8), and 10 percent yellowish brown (10YR 5/8) clay; weak medium subangular blocky structure; firm; many prominent clay films on faces of peds; 5 percent chert gravel; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 27 inches

*A horizon:*

Color—value of 3 or 4

*E and BE horizons:*

Color—value of 4 or 5 and chroma of 3 or 4

Texture—silt loam or loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 or 6

Texture—loam or clay loam

*2Btx horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—fine sandy loam, loam, or their gravelly to extremely gravelly analogues

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 2, 3, 4, 6, or 8

Texture—clay or gravelly clay

**Horsecreek Series**

The Horsecreek series consists of very deep, well drained soils on stream terraces. These soils formed in fine-silty alluvium. Slopes range from 0 to 2 percent.

Soils of the Horsecreek series are fine-silty, mixed, active, mesic Mollic Hapludalfs.

**Typical Pedon**

Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded; USGS Nagogami Lodge topographic quadrangle; UTM—Zone 15, Easting 595550.0, Northing 4210500.0.

Ap1—0 to 3 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to weak medium granular; friable; many very fine and fine roots; slightly acid; abrupt smooth boundary.

Ap2—3 to 9 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to weak medium granular; friable; many very fine and fine roots; slightly acid; clear wavy boundary.

Bt1—9 to 13 inches; 70 percent dark yellowish brown (10YR 3/4) and 30 percent dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; many very fine and common fine roots; few faint clay films on faces of peds; neutral; clear wavy boundary.

Bt2—13 to 18 inches; dark brown (7.5YR 3/4) silt loam; weak fine and medium prismatic structure parting to moderate fine subangular blocky; friable; common very fine and few fine roots; common faint dark brown (10YR 3/3) clay films on faces of peds; neutral; gradual wavy boundary.

Bt3—18 to 31 inches; brown (7.5YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine and few fine roots throughout;

common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; neutral; gradual wavy boundary.

Bt4—31 to 50 inches; 50 percent brown (7.5YR 4/4) and 50 percent brown (7.5YR 4/3) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine roots; common faint clay films on faces of peds; neutral; gradual wavy boundary.

Bt5—50 to 65 inches; brown (7.5YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine roots; common faint clay films on faces of peds; few faint brown (10YR 5/3) silt coats on faces of peds; slightly acid; gradual wavy boundary.

Bt6—65 to 80 inches; brown (7.5YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; few faint clay films on faces of peds; few faint grayish brown (10YR 5/2) silt coats on faces of peds; moderately acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—chroma of 2 or 3

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3, 4, or 6

Texture—silt loam or silty clay loam

*C horizon (where present):*

Color—value of 4 to 6 and chroma of 3 or 4

Texture—silt loam, loam, or fine sandy loam

**Kaintuck Series**

The Kaintuck series consists of very deep, well drained soils on flood plains. These soils formed in coarse-loamy alluvium. Slopes range from 0 to 3 percent.

Soils of the Kaintuck series are coarse-loamy, siliceous, superactive, nonacid, mesic Typic Udifluvents.

**Typical Pedon**

Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded USGS Meramec Springs topographic quadrangle; UTM—Zone 15, Easting 623160.0, Northing 4202870.0.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak very fine and fine subangular blocky

structure; very friable; many very fine and fine roots; moderately acid; clear wavy boundary.

C1—6 to 14 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; common very fine and fine roots; 1 percent sandstone gravel; moderately acid; clear wavy boundary.

C2—14 to 22 inches; brown (10YR 4/3) loam; massive; common very fine and fine roots; moderately acid; gradual wavy boundary.

C3—22 to 33 inches; brown (10YR 4/3) fine sandy loam; massive; common very fine and fine roots; moderately acid; gradual wavy boundary.

C4—33 to 44 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; common very fine and few fine roots; 1 percent sandstone gravel; moderately acid; gradual wavy boundary.

C5—44 to 60 inches; brown (10YR 4/3) fine sandy loam; massive; few very fine roots; moderately acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4

*C horizon:*

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Texture—stratified fine sand to silt loam

### ***Knobby Series***

The Knobby series consists of very shallow and shallow, somewhat excessively drained soils on uplands. These soils formed in loamy residuum weathered from dolostone. Slopes range from 8 to 75 percent.

Soils of the Knobby series are loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls.

### ***Typical Pedon***

Knobby very cobbly sandy loam, in an area of Knobby-Rock Outcrop complex, 8 to 35 percent slopes, extremely stony; USGS Flat topographic quadrangle; UTM—Zone 15, Easting 595170.0, Northing 4171090.0.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) very cobbly sandy loam, dark grayish brown (10YR 4/2) dry; weak very fine and fine subangular blocky structure; friable; many very fine and fine and common medium roots; 10 percent chert gravel, 25 percent dolostone cobbles, and 5 percent dolostone gravel; moderately alkaline; clear wavy boundary.

A2—3 to 7 inches; very dark brown (10YR 2/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) dry; weak very fine and fine subangular blocky structure; friable; many very fine, common medium, and few coarse roots; 25 percent chert gravel and 15 percent dolostone gravel; moderately alkaline; clear wavy boundary.

R—7 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 4 to 20 inches

*A horizon:*

Color—value of 2 or 3 and chroma of 2 or 3

Texture—very gravelly, very cobbly, very channery, or extremely channery analogues of sandy loam or fine sandy loam

### ***Lebanon Series***

The Lebanon series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in loess over clayey residuum weathered from dolostone. Slopes range from 1 to 3 percent.

Soils of the Lebanon series are fine, mixed, active, mesic Typic Fragiudults.

### ***Typical Pedon***

Lebanon silt loam, 1 to 3 percent slopes; USGS Seaton topographic quadrangle; UTM—Zone 15, Easting 624020.0, Northing 4190110.0.

Ap—0 to 3 inches; 60 percent brown (10YR 4/3) and 40 percent brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots; moderately acid; clear wavy boundary.

BE—3 to 5 inches; 55 percent yellowish brown (10YR 5/4) and 45 percent brown (10YR 4/3) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots; moderately acid; clear wavy boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine prismatic structure; firm; common very fine and fine roots; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—13 to 17 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (10YR 5/3) silty clay loam; moderate fine prismatic structure; firm; common very fine and few fine roots; many distinct clay films on faces of peds; 1 percent chert gravel; very strongly acid; gradual wavy boundary.

**Bt3**—17 to 25 inches; 50 percent grayish brown (10YR 5/2) and 50 percent yellowish brown (10YR 5/6) silty clay; weak and moderate fine and medium prismatic structure; firm; common very fine and few fine roots; many distinct clay films on faces of peds; 5 percent chert gravel; very strongly acid; clear smooth boundary.

**2Btx1**—25 to 39 inches; yellowish brown (10YR 5/4) gravelly silt loam; strong coarse and very coarse prismatic structure parting to moderate thin platy; very firm, 90 percent brittle; light brownish gray (10YR 6/2) 1/2-inch wide seams between prisms; few very fine roots in vertical seams between prisms; common faint clay films on faces of peds; 20 percent chert gravel and 5 percent sandstone gravel; very strongly acid; clear wavy boundary.

**2Btx2**—39 to 49 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent yellowish brown (10YR 5/8) very gravelly loam; weak coarse and very coarse prismatic structure; very firm, 82 percent brittle; light brownish gray (10YR 6/2) 1/2-inch wide seams between prisms; few faint clay films on faces of peds; 30 percent chert gravel, 10 percent sandstone gravel, and 15 percent sandstone cobbles; very strongly acid; gradual wavy boundary.

**3Bt1**—49 to 57 inches; 55 percent light yellowish brown (10YR 6/4) and 45 percent pale brown (10YR 6/3) clay; moderate medium prismatic structure; firm; common distinct clay films on faces of peds; common medium red (2.5YR 4/6) iron accumulations; 5 percent chert gravel and 1 percent sandstone gravel; very strongly acid; gradual wavy boundary.

**3Bt2**—57 to 64 inches; 50 percent dark red (2.5YR 3/6), 30 percent light brownish gray (10YR 6/2), and 20 percent yellowish brown (10YR 5/4) clay; moderate medium prismatic structure; firm; common distinct clay films on faces of peds; 4 percent chert gravel; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 26 inches

*Ap horizon:*

Color—value of 4 or 5

*BE horizon:*

Color—value of 4 or 5 and chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2, 3, 4, or 6

Texture—silty clay loam or silty clay

*2Btx horizon:*

Color—value of 5 or 6 and chroma of 4, 6, or 8

Texture—silt loam, loam, or their gravelly or very gravelly analogues

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 2, 3, 4, or 6

Texture—silty clay, clay, or their gravelly or very gravelly analogues

### ***Lecoma Series***

The Lecoma series consists of very deep, well drained soils on footslopes. These soils formed in fine-loamy colluvium. Slopes range from 1 to 8 percent.

Soils of the Lecoma series are fine-loamy, siliceous, active, mesic Typic Paleudalfs.

#### ***Typical Pedon***

Lecoma silt loam, 1 to 8 percent slopes; USGS Lecoma topographic quadrangle; UTM—Zone 15, Easting 616965.0, Northing 4186730.0.

**Ap1**—0 to 2 inches; dark yellowish brown (10YR 3/4) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine granular structure; very friable; many very fine and fine roots; neutral; clear wavy boundary.

**Ap2**—2 to 9 inches; dark yellowish brown (10YR 3/4) silt loam; weak fine and medium subangular blocky structure; very friable; common very fine and fine roots; neutral; gradual wavy boundary.

**Bt1**—9 to 14 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; few faint clay films on faces of peds; neutral; clear wavy boundary.

**Bt2**—14 to 20 inches; brown (7.5YR 4/4) silt loam; moderate fine prismatic structure; friable; common very fine and fine roots; many faint clay films on faces of peds; slightly acid; clear wavy boundary.

**Bt3**—20 to 31 inches; strong brown (7.5YR 4/6) silt loam; moderate fine prismatic structure parting to moderate very fine and fine subangular blocky; firm; common very fine and few fine roots; many faint clay films on faces of peds; moderately acid; gradual wavy boundary.

**2Bt4**—31 to 44 inches; yellowish red (5YR 4/6) loam; moderate fine prismatic structure parting to moderate very fine and fine subangular blocky; firm; common very fine and few fine roots; common distinct clay films on faces of peds; common manganese or iron-manganese stains on

faces of peds; common fine iron concretions; strongly acid; gradual wavy boundary.

2Bt5—44 to 56 inches; 55 percent yellowish red (5YR 4/6) and 45 percent red (2.5YR 4/6) loam; moderate fine prismatic structure; firm; few very fine roots; common distinct clay films on faces of peds; common silt coats on faces of peds; common manganese or iron-manganese stains on faces of peds; 2 percent gravel; strongly acid; gradual wavy boundary.

2Bt6—56 to 63 inches; 60 percent red (2.5YR 4/6) and 40 percent dark red (2.5YR 3/6) loam; weak fine and medium prismatic structure; firm; few very fine roots; many faint clay films on faces of peds; common silt coats on faces of peds; few manganese or iron-manganese stains on faces of peds; common fine iron concretions; 5 percent gravel; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—value of 3 or 4 and chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—silt loam, loam, or silty clay loam

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 or 4, and chroma of 4 or 6

Texture—loam, silt loam, clay loam, or sandy clay loam

### ***Lily Series***

The Lily series consists of moderately deep, well drained soils on uplands. These soils formed in residuum weathered from sandstone. Slopes range from 3 to 15 percent.

Soils of the Lily series are fine-loamy, siliceous, semiactive, mesic Typic Hapludults.

### ***Typical Pedon***

Lily fine sandy loam, in an area of Lily-Yelton complex, 3 to 8 percent slopes; USGS Beulah topographic quadrangle; UTM—Zone 15, Easting 589750.0, Northing 4162510.0.

A—0 to 3 inches; brown (10YR 4/3) fine sandy loam, light gray (10YR 7/1) dry; weak fine granular structure; very friable; many very fine and fine and common medium roots; common very fine to

medium tubular pores; 5 percent sandstone gravel; strongly acid; clear wavy boundary.

E—3 to 8 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common very fine to medium roots; common very fine and fine tubular pores; 5 percent sandstone gravel; strongly acid; gradual wavy boundary.

Bt1—8 to 15 inches; strong brown (7.5YR 4/6) loam; moderate fine subangular blocky structure; friable; common very fine to medium roots; many very fine and fine tubular pores; few faint clay films on faces of peds; 8 percent sandstone gravel; very strongly acid; gradual wavy boundary.

Bt2—15 to 21 inches; strong brown (7.5YR 4/6) gravelly loam; common fine prominent brown (10YR 5/3) mottles; weak very fine and fine subangular blocky structure; friable; few very fine to medium roots; common very fine tubular pores; common clay films on faces of peds; 20 percent sandstone gravel and 8 percent sandstone cobbles; strongly acid; gradual wavy boundary.

C—21 to 23 inches; dark yellowish brown (10YR 4/6) gravelly loam; massive; 20 percent sandstone gravel and 8 percent sandstone cobbles; abrupt smooth boundary.

R—23 inches; unweathered sandstone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

*A horizon:*

Color—value of 4 or 5 and chroma of 3 or 4

Texture—loam or fine sandy loam

*E horizon and BE horizon (where present):*

Color—value of 4 to 6 and chroma of 3 or 4

Texture—silt loam, loam, or fine sandy loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—sandy clay loam, loam, clay loam or their gravelly or cobbly analogues

*C horizon:*

Color—value of 4 to 6 and chroma of 4, 6, or 8

Texture—gravelly or cobbly analogues of loam or fine sandy loam

### ***Lowassie Series***

The Lowassie series consists of very deep, poorly drained soils in sinkholes. These soils formed in loess and slope alluvium. Slopes range from 0 to 3 percent.

Soils of the Lowassie series are fine, smectitic, mesic Vertic Epiaquults.

### **Typical Pedon**

Lowassie silt loam, 0 to 3 percent slopes, frequently ponded; USGS Flat topographic quadrangle; UTM—Zone 15, Easting 593810.0, Northing 4176220.0.

- Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure; friable; common very fine and fine roots; 2 percent chert gravel; moderately acid; clear smooth boundary.
- E—7 to 12 inches; grayish brown (10YR 5/2) silt loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; common medium iron-manganese concretions; common medium prominent dark yellowish brown (10YR 4/6) iron accumulations; 5 percent chert gravel; strongly acid; clear smooth boundary.
- BE—12 to 20 inches; grayish brown (10YR 5/2) silt loam; moderate fine and medium subangular blocky structure; friable; common manganese or iron-manganese stains on faces of peds; common fine iron-manganese concretions; common very fine and fine roots; many medium prominent brown (7.5YR 4/4) iron accumulations; 2 percent chert gravel; strongly acid; clear smooth boundary.
- Btg1—20 to 33 inches; gray (10YR 5/1) silty clay; strong fine and medium prismatic structure; firm; common very fine and few fine roots; many distinct clay films on faces of peds; common faint clay depletions on faces of peds; common fine and medium prominent strong brown (7.5YR 4/6) iron accumulations; 1 percent chert gravel; very strongly acid; gradual wavy boundary.
- Btg2—33 to 40 inches; gray (10YR 5/1) silty clay; strong medium prismatic structure; firm; common very fine roots; many distinct clay films on faces of peds; common faint clay depletions on faces of peds; common medium prominent strong brown (7.5YR 4/6) iron accumulations; 1 percent chert gravel; very strongly acid; clear wavy boundary.
- 2Btg3—40 to 53 inches; dark gray (10YR 4/1) silt loam; moderate coarse prismatic structure; firm; few very fine roots; many distinct clay films on faces of peds; common medium and coarse prominent yellowish brown (10YR 5/6) iron accumulations; 10 percent chert gravel; very strongly acid; gradual wavy boundary.
- 2Btg4—53 to 60 inches; dark gray (10YR 4/1) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; many distinct clay films on faces of peds; common medium prominent dark yellowish

brown (10YR 4/6) iron accumulations; 3 percent chert gravel; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

*E horizon:*

Color—value of 5 or 6

*BE horizon:*

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or 3

Texture—silt loam or silty clay loam

*Btg horizon:*

Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2

*2Btg horizon:*

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silt loam or silty clay loam

### **Moko Series**

The Moko series consists of very shallow and shallow, well drained soils on uplands. These soils formed in gravelly residuum weathered from dolostone. Slopes range from 3 to 15 percent.

Soils of the Moko series are loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls.

### **Typical Pedon**

Moko gravelly loam, in an area of Moko-Rock outcrop complex, 3 to 15 percent slopes, very stony; USGS Vichy topographic quadrangle; UTM—Zone 15; Easting 603700.0, Northing 4210170.0.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; 15 percent dolostone gravel, 10 percent chert gravel, and 5 percent dolostone cobbles; slightly alkaline; clear wavy boundary.

A2—3 to 8 inches; very dark brown (10YR 2/2) very channery clay loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine subangular blocky structure; friable; few very fine and fine roots; common distinct organic coats; 10 percent dolostone gravel, 10 percent chert gravel, and 30 percent dolostone channers; slightly alkaline.

R—8 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 4 to 20 inches

*A horizon:*

Color—value of 2 or 3 and chroma of 1 or 2

Texture—gravelly, very gravelly, or very channery analogues of loam, silt loam, or clay loam

### ***Plato Series***

The Plato series consists of very deep, somewhat poorly drained soils that have a fragipan. These soils are on uplands. They formed in loess over residuum weathered from dolostone. Slopes range from 1 to 8 percent.

Soils of the Plato series are fine, mixed, active, mesic Aquic Fragiudalfs.

### ***Typical Pedon***

Plato silt loam, 1 to 3 percent slopes; USGS Safe topographic quadrangle; UTM—Zone 15, Easting 610510.0, Northing 4206520.0.

Ap1—0 to 3 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine to medium roots; 4 percent chert gravel; strongly acid; clear smooth boundary.

Ap2—3 to 8 inches; brown (10YR 4/3) silt loam; moderate fine and medium subangular blocky structure; very friable; common very fine and fine and common medium roots; common fine iron-manganese concretions; 4 percent chert gravel; strongly acid; clear smooth boundary.

BE—8 to 14 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (10YR 5/3) silt loam; weak fine and medium subangular blocky structure; very friable; common very fine and fine roots; common fine iron-manganese concretions; 2 percent chert gravel; very strongly acid; clear wavy boundary.

Bt1—14 to 18 inches; yellowish brown (10YR 5/4) silty clay; weak fine prismatic structure parting to weak very fine and fine subangular blocky; friable; common very fine and fine roots; common faint clay films on faces of peds; common medium grayish brown (10YR 5/2) iron depletions; few fine iron-manganese concretions; 1 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—18 to 24 inches; yellowish brown (10YR 5/4) silty clay; moderate fine and medium prismatic structure parting to weak fine subangular blocky; friable; common very fine and fine roots; common

distinct clay films on vertical faces of peds and common faint clay films on horizontal faces of peds; common medium grayish brown (10YR 5/2) iron depletions; common fine iron-manganese concretions; many medium dark yellowish brown (10YR 4/6) iron accumulations; 1 percent chert gravel; very strongly acid; clear wavy boundary.

Bt3—24 to 32 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium and coarse prismatic structure parting to weak fine subangular blocky; friable; common very fine and few fine roots; many prominent clay films on vertical faces of peds and common distinct clay films on horizontal faces of peds; common medium dark yellowish brown (10YR 4/6) iron accumulations; 1 percent chert gravel; extremely acid; abrupt smooth boundary.

2Btx1—32 to 36 inches; 55 percent brown (10YR 5/3) and 45 percent yellowish brown (10YR 5/8) gravelly silt loam; moderate coarse and very coarse prismatic structure parting to weak coarse platy; very firm, 75 percent brittle; grayish brown (10YR 5/2) 1/2-inch seams between prisms; few very fine roots between peds; common faint clay films on vertical faces of peds and common distinct clay films on horizontal faces of peds; 15 percent chert gravel; very strongly acid; clear wavy boundary.

2Btx2—36 to 53 inches; 50 percent brown (10YR 5/3) and 50 percent yellowish brown (10YR 5/6) gravelly silt loam; strong very coarse prismatic structure parting to weak coarse platy; very firm, 80 percent brittle; grayish brown (10YR 5/2) 1/2-inch seams between prisms; few very fine and fine roots between peds; common faint clay films on faces of peds; 25 percent chert gravel; extremely acid; clear wavy boundary.

3Bt1—53 to 69 inches; 50 percent gray (10YR 5/1) and 50 percent yellowish brown (10YR 5/8) very gravelly clay; moderate medium prismatic structure; firm; common distinct clay films on faces of peds; 35 percent chert gravel and 10 percent chert cobbles; very strongly acid; gradual wavy boundary.

3Bt2—69 to 80 inches; 50 percent gray (10YR 6/1), 40 percent yellowish brown (10YR 5/8), and 10 percent yellowish brown (10YR 5/6) very gravelly clay; weak medium and coarse prismatic structure; firm; common distinct clay films on faces of peds; 40 percent chert gravel and 15 percent chert cobbles; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 20 to 36 inches

*Ap horizon:*

Color—value of 4 or 5

Texture—silt loam or silty clay loam

*BE horizon:*

Color—chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2, 3, 4, or 6

Texture—silty clay loam or silty clay

*2Btx horizon:*

Color—value of 5 or 6 and chroma of 2, 3, 4, 6, or 8

Texture—silt loam, loam, or their gravelly to extremely gravelly analogues

*3Bt horizon:*

Color—value of 5 or 6 and chroma of 1, 2, 3, 4, 6, or 8

Texture—clay or its gravelly, very gravelly, cobbly, or very cobbly analogues

**Possumtrot Series**

The Possumtrot series consists of very deep, well drained soils on flood plains. These soils formed in loamy alluvium. Slopes range from 0 to 3 percent.

Soils of the Possumtrot series are coarse-loamy, siliceous, superactive, mesic Fluventic Dystrudepts.

**Typical Pedon**

Possumtrot fine sandy loam, 0 to 3 percent slopes, occasionally flooded; USGS Montauk topographic quadrangle; UTM—Zone 15, Easting 619426.2, Northing 4140745.0.

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam, yellowish brown (10YR 5/4) dry; weak very fine granular structure; very friable; many fine roots; many fine tubular pores; 5 percent gravel; slightly acid; abrupt smooth boundary.

Bw1—9 to 22 inches; dark yellowish brown (10YR 3/6) fine sandy loam; weak fine subangular blocky structure; friable; many fine roots; many fine tubular pores; 5 percent gravel; slightly acid; clear wavy boundary.

Bw2—22 to 31 inches; strong brown (7.5YR 4/6) fine sandy loam; weak fine subangular blocky structure; friable; common fine roots; many fine tubular pores; 5 percent gravel; slightly acid; clear wavy boundary.

Bw3—31 to 40 inches; strong brown (7.5YR 4/6) fine sandy loam; weak fine subangular blocky structure;

friable; few fine roots; many fine tubular pores; very strongly acid; abrupt smooth boundary.

2C1—40 to 45 inches; brown (7.5YR 4/4) extremely gravelly loamy sand; massive; friable; many fine tubular pores; 70 percent gravel; very strongly acid; abrupt smooth boundary.

2C2—45 to 58 inches; strong brown (7.5YR 4/6) gravelly loamy sand; massive; friable; many fine tubular pores; 25 percent gravel; very strongly acid; abrupt smooth boundary.

2C3—58 to 80 inches; yellowish brown (10YR 5/6) gravelly coarse sand; single grained, loose; many fine tubular pores; 15 percent gravel; moderately acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 or 4

*Bw horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 or 6

Texture—fine sandy loam or loam

*2C horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—gravelly to extremely gravelly analogues of loamy sand, sand, coarse sand, or sandy loam

**Poynor Series**

The Poynor series consists of very deep, well drained soils on uplands. These soils formed in residuum weathered from dolostone. Slopes range from 1 to 15 percent.

Soils of the Poynor series are loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudults.

**Typical Pedon**

Poynor very gravelly silt loam, in an area of Poynor-Bendavis complex, 1 to 8 percent slopes; USGS Beulah topographic quadrangle; UTM—Zone 15, Easting 589680.0, Northing 4162100.0.

A—0 to 5 inches; dark brown (10YR 3/3) very gravelly silt loam, light gray (10YR 7/2) dry; weak fine granular structure; very friable; many very fine and fine, common medium, and few coarse roots; 30 percent chert gravel and 5 percent sandstone cobbles; very strongly acid; clear smooth boundary.

E—5 to 11 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak very fine and fine subangular blocky structure; very friable; common very fine and fine and few medium and coarse roots; 50 percent chert gravel; moderately acid; clear wavy boundary.

Bt1—11 to 17 inches; strong brown (7.5YR 5/6) very gravelly silt loam; weak fine subangular blocky structure; friable; common very fine and few fine and medium roots; common faint clay films and few prominent clay films on faces of peds; 40 percent chert gravel; strongly acid; clear wavy boundary.

2Bt2—17 to 28 inches; 55 percent yellowish brown (10YR 5/4) and 45 percent yellowish red (5YR 5/6) clay; moderate fine and medium subangular blocky structure; firm; common very fine and few fine and medium roots; many prominent continuous clay films on faces of peds; 10 percent chert gravel; very strongly acid; gradual wavy boundary.

2Bt3—28 to 41 inches; 40 percent dark yellowish brown (10YR 4/6), 30 percent yellowish brown (10YR 5/4), and 30 percent red (2.5YR 4/6) clay; weak very fine subangular blocky structure; firm; common very fine and few fine and medium roots; many prominent clay films on faces of peds; 10 percent chert gravel; very strongly acid; gradual wavy boundary.

3Bt4—41 to 60 inches; 45 percent strong brown (7.5YR 5/8), 35 percent yellowish red (5YR 4/6), and 20 percent yellowish brown (10YR 5/6) extremely gravelly clay; weak very fine and fine subangular blocky structure; firm; few very fine roots; common faint clay films and few prominent clay films on faces of peds; 45 percent chert gravel and 15 percent sandstone cobbles; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—value of 3 to 5 and chroma of 3 or 4

*E horizon:*

Color—value of 5 or 6 and chroma of 3 or 4

*BE horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—gravelly or very gravelly silt loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—very gravelly silt loam or very gravelly silty clay loam

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 4, 6, or 8

Texture—clay, silty clay, or their gravelly or very gravelly analogues

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 3, 4, 6, or 8

Texture—very gravelly or extremely gravelly clay

### ***Raccoon Series***

The Raccoon series consists of very deep, poorly drained soils on stream terraces. These soils formed in silty alluvium. Slopes range from 0 to 3 percent.

Soils of the Raccoon series are fine-silty, mixed, superactive, mesic Typic Endoaqualfs.

### ***Typical Pedon***

Raccoon silt loam, in an area of Raccoon-Freeburg complex, 0 to 3 percent slopes, occasionally flooded; USGS Rosati topographic quadrangle; UTM—Zone 15; UTM Easting 624520.0, Northing 4218395.0.

Ap1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; common fine distinct yellowish brown (10YR 5/6) iron accumulations; strongly acid; abrupt smooth boundary.

Ap2—3 to 8 inches; grayish brown (10YR 5/2) silt loam; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots; common fine iron-manganese concretions; common fine and medium distinct dark yellowish brown (10YR 4/6) iron accumulations; strongly acid; clear wavy boundary.

Eg—8 to 17 inches; 50 percent light brownish gray (10YR 6/2) and 50 percent grayish brown (10YR 5/2) silt loam; weak fine and medium prismatic structure; friable; few very fine and fine roots; common medium iron-manganese concretions; common medium distinct dark yellowish brown (10YR 4/6) iron accumulations; strongly acid; clear wavy boundary.

BEg—17 to 25 inches; light brownish gray (10YR 6/2) silt loam; moderate medium prismatic structure; friable; few very fine roots; common medium iron-manganese concretions; common medium distinct brownish yellow (10YR 6/6) iron accumulations; slightly acid; gradual wavy boundary.

Btg1—25 to 31 inches; 60 percent light brownish gray

(10YR 6/2) and 40 percent gray (10YR 6/1) silt loam; moderate medium prismatic structure; friable; few distinct clay films on faces of peds; common fine and medium iron-manganese concretions; common fine distinct yellowish brown (10YR 5/6) iron accumulations; slightly acid; gradual wavy boundary.

Btg2—31 to 40 inches; 60 percent grayish brown (10YR 5/2) and 40 percent gray (10YR 5/1) silt loam; moderate fine and medium prismatic structure; friable; common faint clay films on faces of peds; many medium and coarse iron-manganese concretions; many fine and medium distinct yellowish brown (10YR 5/6) iron accumulations; neutral; gradual wavy boundary.

Btg3—40 to 50 inches; gray (10YR 5/1) silt loam; moderate medium prismatic structure; friable; common faint clay films on faces of peds; common fine and medium iron-manganese concretions; many medium distinct yellowish brown (10YR 5/6) iron accumulations; neutral; gradual wavy boundary.

BCg—50 to 60 inches; 85 percent gray (10YR 5/1) and 15 percent light brownish gray (10YR 6/2) silt loam; weak medium prismatic structure; friable; common coarse iron-manganese concretions; many medium distinct yellowish brown (10YR 5/6) iron accumulations; neutral.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—value of 4 or 5

*Eg and BEg horizons:*

Color—value of 5 or 6, and chroma of 1 or 2

*Btg horizon:*

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silt loam or silty clay loam

*BCg horizon and Cg horizon (where present):*

Color—value of 5 or 6 and chroma of 1 or 2

### ***Razort Series***

The Razort series consists of very deep, well drained soils on stream terraces. These soils formed in fine-loamy alluvium. Slopes range from 0 to 3 percent.

Soils of the Razort series are fine-loamy, mixed, active, mesic Mollic Hapludalfs.

### ***Typical Pedon***

Razort silt loam, 0 to 3 percent slopes, occasionally flooded; USGS Meramec Springs topographic

quadrangle; UTM—Zone 15, Easting 628850.0, Northing 4203690.0.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine to coarse roots; 2 percent chert gravel; neutral; clear wavy boundary.

Bt1—8 to 14 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent brown (10YR 4/3) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots; few faint clay films on faces of peds; 8 percent chert gravel; neutral; clear wavy boundary.

Bt2—14 to 28 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common very fine and few fine roots; common distinct clay films on faces of peds; 10 percent chert gravel; neutral; clear wavy boundary.

Bt3—28 to 38 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; few very fine and fine roots; common distinct clay films on faces of peds; 5 percent chert gravel; slightly acid; clear wavy boundary.

Bt4—38 to 44 inches; brown (7.5YR 4/4) silt loam; moderate fine and medium subangular blocky structure; firm; few very fine and fine roots; common distinct clay films on faces of peds; 10 percent chert gravel; slightly acid; clear wavy boundary.

Bt5—44 to 55 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common distinct clay films on faces of peds; 27 percent chert gravel; neutral; clear wavy boundary.

Bt6—55 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and fine subangular blocky structure; friable; few distinct clay films on faces of peds; 2 percent chert gravel; neutral.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—chroma of 2 or 3

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 or 4

Texture—silt loam, loam, or their gravelly analogues

*C horizon (where present):*

Color—value of 3 to 6 and chroma of 2, 3, 4, or 6  
 Texture—silt loam, loam, fine sandy loam or their  
 gravelly analogues

**Relfe Series**

The Relfe series consists of very deep, excessively drained soils on flood plains. These soils formed in gravelly alluvium. Slopes range from 0 to 3 percent.

Soils of the Relfe series are sandy-skeletal, siliceous, mesic Mollic Udifluvents.

**Typical Pedon**

Relfe very gravelly sandy loam, 0 to 3 percent slopes, frequently flooded; USGS Flat topographic quadrangle; UTM—Zone 15, Easting 591750.0, Northing 4170080.0.

Ap—0 to 6 inches; dark brown (7.5YR 3/2) very gravelly sandy loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; many very fine roots; 50 percent chert gravel; neutral; clear wavy boundary.

C1—6 to 16 inches; brown (7.5YR 4/4) extremely gravelly sandy loam; single grained, loose; many very fine roots; 70 percent chert gravel; slightly acid; clear wavy boundary.

C2—16 to 28 inches; brown (7.5YR 4/4) extremely gravelly loamy coarse sand; single grained, loose; common very fine and few medium roots; 75 percent chert gravel; strongly acid; clear wavy boundary.

C3—28 to 35 inches; brown (7.5YR 4/4) extremely gravelly loamy coarse sand; single grained, loose; common medium and few very fine roots; 70 percent chert gravel; strongly acid; gradual wavy boundary.

C4—35 to 41 inches; brown (7.5YR 4/4) very gravelly loamy coarse sand; single grained, loose; common medium and few very fine roots; 45 percent chert gravel; moderately acid; gradual wavy boundary.

C5—41 to 60 inches; brown (7.5YR 4/4) extremely gravelly loamy coarse sand; single grained, loose; few very fine roots; 75 percent chert gravel; moderately acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Ap horizon:*

Color—hue of 7.5YR or 10YR and chroma of 2 or 3

*C horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 3, 4, or 6

Texture—very gravelly or extremely analogues of loamy sand, sand, sandy loam, or loamy coarse sand

**Rosati Series**

The Rosati series consists of very deep, somewhat poorly drained soils that have a fragipan. These soils are on uplands. They formed in loess over residuum weathered from limestone. Slopes range from 1 to 5 percent.

Soils of the Rosati series are fine, mixed, active, mesic Aquic Fragiudalfs.

**Typical Pedon**

Rosati silt loam, 1 to 5 percent slopes; USGS Rosati topographic quadrangle; UTM—Zone 15, Easting 625380.0, Northing 4209700.0.

Ap—0 to 9 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine to medium roots; few very fine and fine tubular pores; slightly acid; abrupt smooth boundary.

Bt—9 to 14 inches; 60 percent brown (10YR 5/3) and 40 percent reddish brown (5YR 4/4) silty clay; weak fine prismatic structure; firm; common very fine and fine and few medium and coarse roots; few very fine and fine tubular pores; many distinct clay films on faces of peds; few fine iron-manganese concretions; very strongly acid; clear wavy boundary.

Btg1—14 to 20 inches; grayish brown (10YR 5/2) silty clay; moderate very fine and fine subangular blocky structure; friable; common very fine to medium and few coarse roots; few very fine and fine tubular pores; many distinct clay films on faces of peds; few fine iron-manganese concretions; common fine and medium prominent red (2.5YR 4/6) iron accumulations; very strongly acid; clear wavy boundary.

Btg2—20 to 29 inches; 55 percent grayish brown (10YR 5/2) and 45 percent dark grayish brown (10YR 4/2) silty clay; moderate fine and medium prismatic structure; firm; common very fine and few fine to coarse roots; few very fine and fine tubular pores; many distinct clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) iron accumulations; very strongly acid; clear wavy boundary.

2Btx1—29 to 36 inches; 40 percent grayish brown (10YR 5/2), 30 percent light brownish gray (10YR 6/2), and 30 percent yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure parting to weak thin platy and weak medium platy; very firm, 75 percent brittle; light brownish gray (10YR 6/2) 1/2-inch wide seams between prisms; few very fine and fine roots between prisms and common medium and few coarse roots in mat at top of horizon; few very fine tubular pores; common faint clay films on faces of peds; 10 percent chert gravel; strongly acid; abrupt wavy boundary.

2Btx2—36 to 41 inches; 45 percent yellowish brown (10YR 5/4), 40 percent light brownish gray (10YR 6/2), and 15 percent grayish brown (10YR 5/2) silt loam; moderate very coarse prismatic structure parting to weak thin platy and weak medium platy; very firm, 60 percent brittle; light brownish gray (10YR 6/2) 1/2-inch wide seams between prisms; few very fine and fine roots between peds; few very fine tubular pores; few faint clay films on faces of peds; 10 percent chert gravel; strongly acid; clear wavy boundary.

3Bt1—41 to 50 inches; 50 percent yellowish brown (10YR 5/6), 25 percent grayish brown (10YR 5/2), and 25 percent light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; few very fine and fine tubular pores; few faint clay films on faces of peds; common discontinuous black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 10 percent chert gravel; moderately acid; gradual wavy boundary.

3Bt2—50 to 66 inches; 40 percent yellowish brown (10YR 5/6), 40 percent brown (10YR 5/3), and 20 percent light brownish gray (10YR 6/2) silty clay loam; weak medium and coarse prismatic structure; friable; few very fine roots; few very fine and fine tubular pores; few faint clay films on faces of peds; common discontinuous black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 10 percent chert gravel; moderately acid; gradual wavy boundary.

3Bt3—66 to 80 inches; 50 percent yellowish brown (10YR 5/8), 25 percent pale brown (10YR 6/3), and 25 percent grayish brown (10YR 5/2) gravelly silty clay loam; weak coarse prismatic structure; firm; few faint clay films and few distinct clay films on faces of peds; common discontinuous black (10YR 2/1) manganese or iron-manganese stains on faces of peds; 15 percent chert gravel; moderately acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 20 to 35 inches

*Ap horizon:*

Color—value of 2 or 3 and chroma of 2 or 3

*Bt horizon:*

Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 or 4

Texture—silty clay loam or silty clay

*Btg horizon:*

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silty clay loam or silty clay

*2Btx horizon:*

Color—value of 4 to 6 and chroma of 2 to 4

*3Bt horizon:*

Color—value of 4 to 6 and chroma of 1, 2, 3, 4, 6, or 8

Texture—silty clay loam, silty clay, or their gravelly analogues

### ***Rueter Series***

The Rueter series consists of very deep, somewhat excessively drained soils on uplands. These soils formed in gravelly colluvium and residuum weathered from dolostone. Slopes range from 3 to 35 percent.

Soils of the Rueter series are loamy-skeletal, siliceous, active, mesic Typic Paleudalfs.

### ***Typical Pedon***

Rueter very gravelly silt loam, in an area of Alred-Rueter complex, 15 to 35 percent slopes, very stony; USGS Kaintuck Hollow topographic quadrangle; UTM—Zone 15, Easting 593700.0, Northing 4186440.0.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) very gravelly silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine to medium roots; 25 percent chert gravel and 10 percent chert cobbles; moderately acid; gradual wavy boundary.

A2—4 to 8 inches; dark grayish brown (10YR 4/2) gravelly silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common very fine to medium roots; 15 percent chert gravel and 5 percent chert cobbles; moderately acid; clear wavy boundary.

BE1—8 to 16 inches; brown (10YR 5/3) gravelly silt loam; weak fine subangular blocky structure; friable; common very fine to coarse roots; 20

percent chert gravel and 8 percent chert cobbles; moderately acid; gradual wavy boundary.

BE2—16 to 27 inches; yellowish brown (10YR 5/4) very gravelly silt loam; moderate medium subangular blocky structure parting to moderate fine subangular blocky; friable; common very fine to coarse roots; 25 percent chert gravel and 10 percent chert cobbles; moderately acid; gradual wavy boundary.

Bt1—27 to 35 inches; dark yellowish brown (10YR 4/6) extremely gravelly silty clay loam; strong medium subangular blocky structure; friable; common very fine and few medium and coarse roots; common distinct clay films on faces of peds; 55 percent chert gravel and 15 percent chert cobbles; moderately acid; gradual wavy boundary.

2Bt2—35 to 42 inches; 60 percent strong brown (7.5YR 5/8) and 40 percent brown (7.5YR 5/4) very gravelly silty clay loam; strong medium subangular blocky structure; firm; few fine roots; many distinct clay films on faces of peds; 50 percent chert gravel and 5 percent chert cobbles; moderately acid; clear wavy boundary.

2Bt3—42 to 56 inches; 55 percent strong brown (7.5YR 5/8) and 45 percent brown (7.5YR 5/4) very gravelly silty clay loam; strong medium subangular blocky structure parting to moderate fine subangular blocky; firm; few fine and medium roots; common distinct clay films on faces of peds; 45 percent chert gravel and 5 percent chert cobbles; strongly acid; clear wavy boundary.

2Bt4—56 to 64 inches; 60 percent strong brown (7.5YR 5/6) and 40 percent red (2.5YR 4/6) very gravelly silty clay; strong medium subangular blocky structure parting to strong fine subangular blocky; firm; few fine roots; many distinct clay films on faces of peds; 45 percent chert gravel and 10 percent chert cobbles; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A or A1 horizon:*

Color—value of 3 or 4 and chroma of 2 to 4

*A2 horizon:*

Color—value of 3 or 4 and chroma of 2 to 4

Texture—gravelly to extremely gravelly silt loam

*BE horizon and E horizon (where present) :*

Color—value of 4 to 6 and chroma of 2 to 4

Texture—gravelly or very gravelly silt loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Texture—very gravelly, extremely gravelly, or extremely cobbly analogues of silt loam, silty clay loam, or loam

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Texture—very gravelly, extremely gravelly, or extremely cobbly analogues silty clay loam, silty clay, or clay

*3Bt horizon (where present):*

Color—hue of 2.5YR to 10YR, value of 4 to 7, and chroma of 3, 4, or 6

Texture—clay or its gravelly to extremely gravelly analogues

### ***Scholten Series***

The Scholten series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in colluvium over clayey residuum weathered from dolostone. Slopes range from 3 to 15 percent.

Soils of the Scholten series are loamy-skeletal, siliceous, active, mesic Typic Fragiudults.

### ***Typical Pedon***

Scholten very gravelly silt loam, in an area of Scholten-Tonti complex, 3 to 15 percent slopes; USGS Flat topographic quadrangle; UTM—Zone 15, Easting 598890.0, Northing 4165820.0.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, grayish brown (10YR 5/2) dry; granular structure; friable; common fine roots; 30 percent chert gravel and 8 percent sandstone gravel; moderately acid; clear smooth boundary.

A2—2 to 7 inches; brown (10YR 4/3) gravelly silt loam; weak fine subangular blocky structure; friable; common fine roots; 15 percent chert gravel, 5 percent sandstone gravel, and 5 percent sandstone cobbles; very strongly acid; clear smooth boundary.

Bt1—7 to 12 inches; yellowish brown (10YR 5/6) very gravelly silt loam; weak fine subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; 30 percent chert gravel and 5 percent sandstone cobbles; very strongly acid; clear smooth boundary.

Bt2—12 to 18 inches; 60 percent light yellowish brown (10YR 6/4) and 40 percent yellowish brown (10YR 5/6) extremely gravelly silt loam; weak fine subangular blocky and weak fine prismatic structure; firm; few fine roots; few faint clay films on faces of peds; 50 percent chert gravel, 5

- percent chert cobbles, and 5 percent sandstone cobbles; very strongly acid; clear wavy boundary.
- Bt3**—18 to 21 inches; 55 percent light brownish gray (10YR 6/2) and 45 percent brown (7.5YR 5/4) extremely gravelly silt loam; weak fine subangular blocky and weak fine prismatic structure; firm; few fine roots; common faint clay films on faces of peds; 50 percent chert gravel, 5 percent chert cobbles, and 5 percent sandstone cobbles; very strongly acid; clear wavy boundary.
- 2Btx1**—21 to 29 inches; 60 percent light yellowish brown (10YR 6/4) and 40 percent yellowish brown (10YR 5/6) extremely gravelly silt loam; weak coarse and very coarse prismatic structure parting to weak thin platy; very firm, 70 percent brittle; light brownish gray (10YR 6/2) 1/2- to 1-inch wide seams between prisms; few medium roots in vertical seams between prisms; common faint clay films on faces of peds; 70 percent chert gravel, 10 percent sandstone gravel, and 5 percent sandstone cobbles; very strongly acid; clear smooth boundary.
- 2Btx2**—29 to 33 inches; 55 percent brownish yellow (10YR 6/6) and 45 percent light gray (10YR 7/2) very gravelly clay loam; weak coarse and very coarse prismatic structure parting to weak thin platy; very firm, 70 percent brittle; light brownish gray (10YR 6/2) 1/2- to 1-inch wide seams between prisms; common distinct clay films on faces of peds; 35 percent chert gravel; very strongly acid; clear smooth boundary.
- 3Bt1**—33 to 54 inches; 60 percent red (2.5YR 4/8) and 40 percent light brownish gray (10YR 6/2) extremely gravelly clay loam; moderate coarse subangular blocky structure; firm; common prominent clay films on faces of peds; 70 percent chert gravel, 5 percent sandstone gravel, and 10 percent sandstone cobbles; very strongly acid; clear smooth boundary.
- 3Bt2**—54 to 63 inches; 40 percent red (2.5YR 5/8), 30 percent dark red (2.5YR 3/6), and 30 percent light brownish gray (10YR 6/2) very gravelly clay loam; strong coarse subangular blocky structure; firm; common distinct clay films on faces of peds; 20 percent chert gravel, 5 percent sandstone gravel, and 10 percent sandstone cobbles; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 27 inches

*A or Ap horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

Texture—gravelly or very gravelly silt loam

*BE horizon (where present):*

Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4

Texture—gravelly or very gravelly silt loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6 (2 in lower part)

Texture—very gravelly or extremely gravelly analogues of silt loam or silty clay loam

*2Btx horizon:*

Color—value of 5 to 7 and chroma of 2, 3, 4, or 6

Texture—gravelly to extremely gravelly analogues of silt loam or clay loam

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 2, 3, 4, 6, or 8

Texture—gravelly to extremely gravelly analogues of silty clay or clay loam

### ***Swiss Series***

The Swiss series consists of very deep, moderately well drained soils on uplands. These soils formed in clayey residuum. Slopes range from 3 to 15 percent.

Soils of the Swiss series are fine, mixed, semiactive, mesic Oxyaquic Hapludalfs.

#### ***Typical Pedon***

Swiss gravelly silt loam, 3 to 15 percent slopes, stony; USGS Fredericksburg topographic quadrangle; UTM—Zone 15, Easting 610288.1, Northing 4268521.9.

**A**—0 to 3 inches; dark brown (10YR 3/3) gravelly silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; common very fine to medium roots throughout; common very fine and fine vesicular pores; 25 percent subrounded chert gravel and 5 percent subrounded sandstone cobbles; strongly acid; clear smooth boundary.

**E**—3 to 9 inches; light yellowish brown (10YR 6/4) gravelly silt loam; weak fine granular structure; friable; common very fine to medium roots throughout; common very fine and fine vesicular pores; 25 percent subrounded chert gravel and 5 percent subrounded sandstone cobbles; very strongly acid; clear smooth boundary.

**2Bt1**—9 to 16 inches; yellowish red (5YR 5/6) clay; moderate very fine subangular blocky structure; firm; common very fine to medium roots between peds; few very fine vesicular pores; few distinct discontinuous clay films on faces of peds; common fine irregular reddish brown (2.5YR 4/4) soft masses of iron accumulation between peds; 5

- percent subrounded sandstone cobbles; very strongly acid; clear smooth boundary.
- 2Bt2—16 to 20 inches; 50 percent yellowish red (5YR 5/6) and 50 percent reddish brown (2.5YR 4/4) clay; moderate fine subangular blocky structure; firm; common fine and medium roots between peds; few distinct discontinuous clay films on faces of peds; 5 percent subrounded sandstone cobbles; very strongly acid; clear smooth boundary.
- 2Bt3—20 to 26 inches; red (2.5YR 4/6) clay; moderate medium angular blocky structure; firm; few very fine and fine roots between peds; common distinct discontinuous clay films on faces of peds; common fine prominent very pale brown (10YR 8/2) and grayish brown (10YR 5/2) irregular iron depletions between peds; common fine irregular yellowish red (5YR 5/6) soft masses of iron accumulation between peds; 5 percent subrounded sandstone cobbles; very strongly acid; gradual smooth boundary.
- 2Bt4—26 to 32 inches; weak red (10R 5/2) clay; weak fine prismatic structure parting to strong fine subangular blocky; very firm; few very fine and fine roots between peds; common distinct discontinuous clay films on faces of peds; common fine prominent very pale brown (10YR 8/2) irregular iron depletions between peds; common irregular yellowish brown (10YR 5/6) soft masses of iron accumulation between peds; 5 percent subrounded sandstone cobbles; very strongly acid; gradual smooth boundary.
- 2Bt5—32 to 40 inches; 50 percent very pale brown (10YR 8/2) and 50 percent weak red (10R 5/2) silty clay; weak fine prismatic structure parting to strong fine subangular blocky; very firm; few very fine and fine roots between peds; common distinct discontinuous clay films on faces of peds; 5 percent subrounded sandstone cobbles; very strongly acid; gradual smooth boundary.
- 2Cd—40 to 80 inches; weak red (10R 5/2) clay loam; common fine distinct very pale brown (10YR 8/2) irregular mottles between fracture planes; massive with angular fracture planes 1 to 2 centimeters apart; extremely firm; few very fine and fine roots between fracture planes; 5 percent subrounded sandstone cobbles; moderately acid. (This horizon consists of hard weathered fire clay.)

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to dense material:* 40 to 80 inches

*A or Ap horizon:*

Color—value of 3 to 5 and chroma of 2 or 3

*E horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4

Texture—gravelly to extremely gravelly analogues of silt loam

*Upper 2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Texture—clay, silty clay, clay loam, or their gravelly or cobbly analogues

*Lower 2Bt horizon:*

Color—hue of 10R to 10YR, value of 4 to 8, and chroma of 2, 3, 4, 6, or 8

Texture—clay, silty clay, silty clay loam, clay loam, or their gravelly or cobbly analogues

*2Cd horizon:*

Color—hue of 10R to 10YR, value of 4 to 8, and chroma of 1, 2, 3, 4, 6, or 8

Texture—silty clay loam, clay, clay loam, or their cobbly analogues

### ***Tonti Series***

The Tonti series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in colluvium over clayey residuum weathered from dolostone. Slopes range from 1 to 15 percent.

Soils of the Tonti series are fine-loamy, mixed, active, mesic Typic Fragiudults.

#### ***Typical Pedon***

Tonti silt loam, in an area of Scholten-Tonti complex, 3 to 15 percent slopes; USGS Kaintuck Hollow topographic quadrangle; UTM—Zone 15, Easting 588360.0, Northing 4179650.0.

A—0 to 3 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine subangular blocky structure parting to weak medium granular; friable; common very fine and fine roots; 2 percent chert gravel; very strongly acid; clear wavy boundary.

BE—3 to 9 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent yellowish brown (10YR 5/6) silt loam; weak and moderate fine and medium subangular blocky structure; friable; common very fine to medium roots; common grayish brown (10YR 5/2) clay depletions on faces of peds; 2 percent chert gravel; extremely acid; clear wavy boundary.

Bt1—9 to 13 inches; 55 percent brown (7.5YR 4/4) and 45 percent strong brown (7.5YR 5/6) silty clay

loam; moderate fine and medium subangular blocky structure; friable; common very fine to medium roots; common faint clay films on faces of peds; 2 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—13 to 20 inches; 70 percent brown (7.5YR 4/4) and 30 percent yellowish brown (10YR 5/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common very fine to medium roots; common distinct clay films on faces of peds; 5 percent chert gravel and 5 percent sandstone gravel; very strongly acid; clear wavy boundary.

Bt3—20 to 23 inches; yellowish brown (10YR 5/4) gravelly silty clay loam; strong medium subangular blocky structure; firm; common fine and medium and few coarse roots; many prominent clay films on faces of peds; common light brownish gray (10YR 6/2) clay depletions; 20 percent chert gravel, 5 percent sandstone gravel, and 5 percent sandstone cobbles; very strongly acid; abrupt wavy boundary.

2Btx1—23 to 36 inches; strong brown (7.5YR 4/6) extremely gravelly silt loam; moderate very coarse prismatic structure; very firm, 95 percent brittle; gray (10YR 6/1) and grayish brown (10YR 5/2) <sup>3</sup>/<sub>8</sub>-inch wide seams between prisms; few medium roots in vertical seams between prisms; common distinct clay films on faces of peds; 55 percent chert gravel, 5 percent sandstone gravel, 5 percent chert cobbles, and 5 percent sandstone cobbles; very strongly acid; clear wavy boundary.

2Btx2—36 to 44 inches; strong brown (7.5YR 4/6) extremely cobbly loam; moderate very coarse prismatic structure; very firm, 95 percent brittle; gray (10YR 6/1) <sup>3</sup>/<sub>8</sub>-inch wide seams between prisms; few medium roots in vertical seams between prisms; few distinct brown (10YR 5/3) clay films on faces of peds; 25 percent chert gravel, 10 percent sandstone gravel, and 50 percent chert cobbles; very strongly acid; clear wavy boundary.

3Bt—44 to 61 inches; 60 percent red (2.5YR 4/8) and 40 percent red (2.5YR 4/6) very gravelly clay; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots in vertical seams between prisms; many distinct clay films on faces of peds; dark gray (7.5YR 4/1) and gray (10YR 5/1) seams between prisms; 40 percent chert gravel, 10 percent sandstone gravel, and 5 percent chert cobbles; very strongly acid; abrupt wavy boundary.

3R—61 inches; unweathered sandstone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 25 inches

*A or Ap horizon:*

Color—value of 3 to 5 and chroma of 2 to 4

*BE horizon:*

Color—value of 4 or 5 and chroma of 4 or 6

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6 (2 in lower part)

Texture—silt loam, silty clay loam, or their gravelly analogues

*2Btx horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—very gravelly, extremely gravelly, very cobbly, or extremely cobbly analogues of silt loam or loam

*3Bt horizon:*

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 1, 2, 3, 4, 6, or 8

Texture—clay, silty clay, or their gravelly, very gravelly, cobbly, or very cobbly analogues

### ***Union Series***

The Union series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in loess over clayey residuum weathered from dolostone. Slopes range from 1 to 8 percent.

Soils of the Union series are fine, mixed, active, mesic Oxyaquic Fragiudalfs.

### ***Typical Pedon***

Union silt loam, 1 to 3 percent slopes; USGS Rosati topographic quadrangle; UTM—Zone 15, Easting 623865.0, Northing 4219440.0.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very pale brown (10YR 7/3) dry; weak very fine granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

Bt1—7 to 14 inches; dark yellowish brown (10YR 4/4) silty clay loam; strong very fine subangular blocky structure; firm; few fine and medium roots; many prominent clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—14 to 20 inches; brown (7.5YR 4/4) silty clay; few fine distinct pale brown (10YR 6/3) mottles; strong very fine subangular blocky structure; firm; few

fine to coarse roots; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—20 to 26 inches; yellowish brown (10YR 5/4) silty clay; strong very fine subangular blocky structure; firm; few fine roots; many prominent clay films on faces of peds; common fine faint grayish brown (10YR 5/2) and many medium distinct dark grayish brown (10YR 4/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) iron accumulations; 10 percent gravel; extremely acid; gradual wavy boundary.

2Btx—26 to 39 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; strong coarse and very coarse prismatic structure parting to weak fine subangular blocky; very firm, 82 percent brittle; gray (10YR 6/1) 1- to 2-inch seams between prisms; few fine roots in vertical seams between prisms; common prominent clay films on faces of peds; common fine prominent gray (10YR 6/1) iron depletions; 55 percent gravel; very strongly acid; gradual wavy boundary.

3Bt1—39 to 50 inches; dark red (2.5YR 3/6) gravelly clay; strong very fine subangular blocky structure; firm; few fine roots; many prominent clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) iron accumulations; 20 percent gravel; very strongly acid; diffuse wavy boundary.

3Bt2—50 to 60 inches; red (2.5YR 4/6) clay; strong very fine subangular blocky structure; firm; few fine roots; many prominent clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/6) iron accumulations; 5 percent gravel; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 36 inches

*A or Ap horizon:*

Color—chroma of 2 or 3

*E horizon (where present):*

Color—value of 4 or 5 and chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6 (2 in lower part)

Texture—silty clay loam or silty clay

*2Btx horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—silt loam, loam, silty clay loam, or their gravelly to extremely gravelly or cobbly to extremely cobbly analogues

*3Bt horizon:*

Color—hue of 2.5YR to 7.5YR, value of 3 to 6, and chroma of 4, 6, or 8

Texture—silty clay loam, silty clay, clay, or their gravelly or very gravelly analogues

### ***Useful Series***

The Useful series consists of deep, moderately well drained soils on uplands. These soils formed in a thin layer of loess and clayey residuum weathered from dolostone. Slopes range from 3 to 15 percent.

Soils of the Useful series are fine, mixed, active, mesic Oxyaquic Hapludalfs.

### ***Typical Pedon***

Useful silt loam, in an area of Useful-Gateway complex, 8 to 15 percent slopes; USGS Vichy topographic quadrangle; UTM—Zone 15, Easting 604450.0, Northing 4211130.0.

A—0 to 5 inches; 60 percent dark yellowish brown (10YR 3/4) and 40 percent dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure; friable; common very fine and fine roots; 5 percent chert gravel; slightly alkaline; clear wavy boundary.

BE—5 to 8 inches; 55 percent dark yellowish brown (10YR 4/6) and 45 percent brown (10YR 4/3) silt loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; slightly alkaline; clear smooth boundary.

Bt1—8 to 15 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine and fine roots; common faint clay films on faces of peds; 5 percent chert gravel; neutral; gradual wavy boundary.

2Bt2—15 to 30 inches; red (2.5YR 4/6) clay; moderate medium prismatic structure; firm; few very fine and fine roots; common distinct clay films on faces of peds; 5 percent chert gravel; slightly acid; gradual wavy boundary.

2Bt3—30 to 36 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent red (2.5YR 4/6) very gravelly clay; moderate medium subangular blocky structure; firm; few very fine roots; common distinct clay films on faces of peds; 35 percent chert gravel and 5 percent chert cobbles; neutral; gradual wavy boundary.

2Bt4—36 to 45 inches; 50 percent yellowish brown (10YR 5/6), 25 percent strong brown (7.5YR 5/8), and 25 percent yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm; few very fine roots; many distinct clay films

on faces of peds; 14 percent chert gravel; slightly alkaline.

2R—45 inches; unweathered dolostone bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 40 to 60 inches

*A or Ap horizon:*

Color—value of 3 or 4 and chroma of 2 to 4

*BE horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3, 4, or 6

*Bt horizon:*

Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—silty clay loam or silty clay

*2Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 2, 3, 4, 6, or 8

Texture—silty clay loam, silty clay, clay, or their gravelly to very gravelly analogues

### ***Viburnum Series***

The Viburnum series consists of very deep, somewhat poorly drained soils on uplands. These soils formed in loess over clayey residuum weathered from dolostone. Slopes range from 1 to 8 percent.

Soils of the Viburnum series are fine, mixed, active, mesic Aquic Paleudults.

### ***Typical Pedon***

Viburnum silt loam, in an area of Viburnum-Tonti complex, 1 to 8 percent slopes; USGS Maples topographic quadrangle; UTM—Zone 15, Easting 604360.0, Northing 4162600.0.

A—0 to 4 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine and fine roots; 5 percent chert gravel; very strongly acid; clear wavy boundary.

BE—4 to 7 inches; brown (7.5YR 5/4) silt loam; weak very fine and fine subangular blocky structure; friable; many very fine to medium roots; 5 percent chert gravel; very strongly acid; clear wavy boundary.

Bt1—7 to 13 inches; brown (7.5YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine to medium roots; common distinct clay films on faces of peds; 8 percent chert gravel; very strongly acid; clear wavy boundary.

2Bt2—13 to 20 inches; brown (7.5YR 4/4) gravelly silty

clay loam; moderate very fine and fine subangular blocky structure; friable; common very fine to coarse roots; common distinct clay films on faces of peds; 28 percent chert gravel and 5 percent sandstone gravel; very strongly acid; clear wavy boundary.

3Bt3—20 to 24 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent yellowish brown (10YR 5/6) gravelly clay; moderate very fine and fine subangular blocky structure; friable; common very fine and fine and few medium roots; common distinct clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions; 28 percent chert gravel and 5 percent sandstone gravel; very strongly acid; gradual wavy boundary.

3Bt4—24 to 40 inches; 55 percent yellowish brown (10YR 5/6) and 45 percent red (2.5YR 4/6) gravelly clay; moderate medium prismatic structure; firm; common very fine and few fine roots; many prominent clay films on faces of peds; common fine and medium prominent light brownish gray (10YR 6/2) iron depletions; 15 percent chert gravel; very strongly acid; gradual wavy boundary.

3Bt5—40 to 52 inches; 60 percent gray (10YR 6/1), 20 percent yellowish brown (10YR 5/6), and 20 percent red (2.5YR 4/6) gravelly clay; moderate medium prismatic structure; firm; common very fine and few fine and medium roots; many prominent clay films on faces of peds; 20 percent chert gravel; extremely acid; gradual wavy boundary.

3Bt6—52 to 60 inches; 40 percent gray (10YR 6/1), 30 percent red (2.5YR 4/6), and 30 percent yellowish brown (10YR 5/6) very gravelly clay; weak fine and medium prismatic structure; firm; common very fine and few fine and medium roots; many prominent clay films on faces of peds; 35 percent chert gravel and 10 percent chert cobbles; extremely acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—value of 4 or 5 and chroma of 2 or 3

*BE horizon and E horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

*2Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—silty clay loam, silty clay, or their gravelly or very gravelly analogues

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—clay, gravelly clay, or very gravelly clay

**Viraton Series**

The Viraton series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in loamy colluvium over clayey residuum weathered from dolostone. Slopes range from 3 to 15 percent.

Soils of the Viraton series are fine-loamy, siliceous, active, mesic Oxyaquic Fragiudalfs.

**Typical Pedon**

Viraton silt loam, in an area of Viraton-Wilderness complex, 3 to 15 percent slopes; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 615200.0, Northing 4198760.0.

A—0 to 3 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine subangular blocky structure; very friable; common very fine to medium roots; 5 percent chert gravel; very strongly acid; clear wavy boundary.

E—3 to 7 inches; brown (10YR 5/3) silt loam; weak thin platy structure; friable; common very fine to medium roots; 3 percent chert gravel; very strongly acid; clear wavy boundary.

Bt1—7 to 11 inches; yellowish brown (10YR 5/4) silt loam; weak very fine and fine subangular blocky structure; friable; common very fine to medium and few coarse roots; few faint clay films on faces of peds; 5 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—11 to 18 inches; 50 percent brown (7.5YR 5/4) and 50 percent brown (10YR 5/3) gravelly silty clay loam; weak fine prismatic structure; friable; common very fine to medium and few coarse roots; common faint clay films on faces of peds; 20 percent chert gravel; very strongly acid; clear wavy boundary.

Bt3—18 to 23 inches; 50 percent light brownish gray (10YR 6/2), 25 percent yellowish brown (10YR 5/4), and 25 percent brown (7.5YR 4/4) gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine and few fine roots; common faint clay films on faces of peds; 20

percent chert gravel and 5 percent chert cobbles; very strongly acid; gradual wavy boundary.

2Btx1—23 to 34 inches; 55 percent light brownish gray (10YR 6/2) and 45 percent yellowish brown (10YR 5/6) extremely gravelly silt loam; weak very coarse prismatic structure parting to weak thin platy; very firm, 90 percent brittle; light brownish gray (10YR 6/2) and dark gray (10YR 4/1) 1/4-inch seams between prisms; few very fine roots in vertical seams between prisms; few faint clay films on faces of peds; common fine prominent yellowish red (5YR 5/8) iron accumulations; 45 percent chert gravel, 5 percent quartzitic sandstone gravel, 5 percent dolostone gravel, and 10 percent quartzitic sandstone cobbles; very strongly acid; gradual wavy boundary

2Btx2—34 to 48 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent pale brown (10YR 6/3) extremely gravelly silt loam; moderate very coarse prismatic structure; very firm, 95 percent brittle; light brownish gray (10YR 6/2) and dark gray (10YR 4/1) 1/4-inch seams between prisms; few faint clay films on faces of peds; 35 percent chert gravel, 5 percent quartzitic sandstone gravel, 5 percent chert cobbles, 5 percent quartzitic sandstone cobbles, and 10 percent sandstone cobbles; strongly acid; gradual wavy boundary

3Bt—48 to 60 inches; 55 percent reddish brown (5YR 5/3) and 45 percent red (2.5YR 4/6) clay; moderate fine and medium prismatic structure; firm; common distinct clay films on faces of peds; 10 percent chert gravel; very strongly acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 33 inches

*A horizon:*

Color—value of 4 or 5 and chroma of 3 or 4

*E horizon and BE horizon (where present):*

Color—value of 4 or 5 and chroma of 3 or 4

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4 (2 in lower part)

Texture—silt loam, silty clay loam, or their gravelly analogues

*2Btx horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6

Texture—very gravelly or extremely gravelly silt loam

*3Bt horizon:*

Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 3, 4, or 6

Texture—clay, silty clay, or their gravelly or very gravelly analogues

**Wideman Series**

The Wideman series consists of very deep, excessively drained soils on flood plains. These soils formed in sandy alluvium. Slopes range from 0 to 3 percent.

Soils of the Wideman series are sandy, siliceous, mesic Typic Udifluvents.

**Typical Pedon**

Wideman sand, 0 to 3 percent slopes, frequently flooded; USGS Rolla topographic quadrangle; UTM—Zone 15, Easting 599325.0, Northing 4193440.0.

A1—0 to 4 inches; 60 percent brown (10YR 4/3) and 40 percent brown (10YR 5/3) sand, very pale brown (10YR 7/3) dry; weak fine granular structure parting to single grained; very friable; common very fine and fine and few medium roots; neutral; abrupt wavy boundary.

A2—4 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common very fine to medium and few coarse roots; slightly acid; abrupt wavy boundary.

C1—8 to 12 inches; brown (10YR 4/3) loamy fine sand; single grained, loose; common very fine to medium and few coarse roots; 5 percent chert gravel; neutral; abrupt wavy boundary.

C2—12 to 28 inches; brown (10YR 5/3) fine sand; single grained, loose; few very fine, common fine, and few medium and coarse roots; neutral; clear wavy boundary.

C3—28 to 37 inches; 50 percent brown (10YR 5/3), 25 percent brown (10YR 4/3), and 25 percent dark grayish brown (10YR 4/2) stratified fine sand, loamy fine sand, and fine sandy loam; single grained, loose; common very fine to medium roots; slightly acid; clear wavy boundary.

C4—37 to 44 inches; brown (10YR 5/3) fine sand; single grained, loose; few very fine and fine roots; slightly acid; clear wavy boundary.

C5—44 to 51 inches; brown (10YR 4/3) silt loam; massive; common very fine and fine roots; slightly acid; abrupt smooth boundary.

C6—51 to 55 inches; 50 percent brown (10YR 4/3) and 50 percent brown (10YR 5/3) fine sand; single

grained, loose; few very fine roots; 3 percent chert gravel; neutral; abrupt smooth boundary.

C7—55 to 60 inches; 60 percent pale brown (10YR 6/3) and 40 percent yellowish brown (10YR 5/4) extremely gravelly coarse sand; single grained, loose; 65 percent chert gravel; neutral.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

*A1 horizon:*

Color—value of 3 to 5 and chroma of 3 or 4

*A2 horizon:*

Color—value of 3 to 5 and chroma of 2 to 4  
Texture—fine sandy loam or sandy loam

*C horizon:*

Color—value of 4 to 7 and chroma of 2 to 4  
Texture—stratified coarse sand to silt loam (their gravelly to extremely analogues occur in the lower part)

**Wilderness Series**

The Wilderness series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in gravelly colluvium over clayey residuum weathered from dolostone. Slopes range from 3 to 15 percent.

Soils of the Wilderness series are loamy-skeletal, siliceous, active, mesic Oxyaquic Fragiudalfs.

**Typical Pedon**

Wilderness gravelly silt loam, in an area of Viraton-Wilderness complex, 3 to 15 percent slopes; USGS Dillon topographic quadrangle; UTM—Zone 15, Easting 615200.0, Northing 4198860.0.

A—0 to 4 inches; brown (10YR 4/3) gravelly silt loam, pale brown (10YR 6/3) dry; moderate very fine and fine subangular blocky structure; friable; common very fine to coarse roots; 20 percent chert gravel; very strongly acid; clear wavy boundary.

BE—4 to 11 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (10YR 4/3) gravelly silt loam; moderate fine and medium subangular blocky structure; friable; common very fine to coarse roots; 30 percent chert gravel; very strongly acid; gradual wavy boundary.

Bt—11 to 22 inches; 55 percent brown (7.5YR 4/4) and 45 percent yellowish brown (10YR 5/4) extremely gravelly silty clay loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine and few medium roots; common distinct clay films on faces of peds; 45 percent

- chert gravel and 15 percent chert cobbles; very strongly acid; gradual wavy boundary.
- 2Btx1—22 to 25 inches; 60 percent yellowish brown (10YR 5/8) and 40 percent strong brown (7.5YR 5/8) extremely cobbly silt loam; weak medium prismatic structure parting to weak fine subangular blocky; firm, 60 percent brittle; light brownish gray (10YR 6/2) seams between prisms; few very fine roots in vertical seams between prisms; common distinct clay films on faces of peds; 35 percent chert gravel and 30 percent chert cobbles; strongly acid; clear wavy boundary.
- 2Btx2—25 to 34 inches; yellowish brown (10YR 5/8) extremely cobbly silty clay loam; weak very coarse prismatic structure; firm, 80 percent brittle; light brownish gray (10YR 6/2) seams between prisms; few very fine roots in vertical seams between prisms; few faint clay films on faces of peds; common manganese or iron-manganese stains on faces of peds; 40 percent chert gravel and 35 percent chert cobbles; strongly acid; abrupt smooth boundary.
- 2Btx3—34 to 42 inches; 55 percent light yellowish brown (10YR 6/4) and 45 percent yellowish brown (10YR 5/8) gravelly silt loam; weak very coarse prismatic structure; very firm, 85 percent brittle; light brownish gray (10YR 6/2) seams between prisms; few very fine roots in vertical seams between prisms; few faint clay films on faces of peds; 25 percent chert gravel; strongly acid; clear wavy boundary.
- 3Bt1—42 to 55 inches; dark red (2.5YR 3/6) gravelly clay; moderate fine and medium prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; common distinct clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) and common coarse prominent brown (10YR 5/3) iron depletions; 25 percent chert gravel; very strongly acid; gradual wavy boundary.
- 3Bt2—55 to 60 inches; dark red (2.5YR 3/6) very gravelly clay; moderate fine prismatic structure; firm; few very fine roots; common distinct clay films on faces of peds; common coarse prominent brown (10YR 5/3) iron depletions; 35 percent chert gravel; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 15 to 29 inches

*A horizon:*

Color—value of 3 or 4 and chroma of 2 or 3

*BE horizon:*

Color—value of 4 or 5 and chroma of 3 or 4

Texture—gravelly or very gravelly silt loam

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—very gravelly or extremely gravelly analogues of silt loam or silty clay loam

*2Btx horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, 6, or 8

Texture—gravelly to extremely gravelly or cobbly to extremely cobbly analogues of loam, silt loam, or silty clay loam

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 2, 3, 4, or 6

Texture—clay, gravelly clay, or very gravelly clay

### ***Yelton Series***

The Yelton series consists of very deep, moderately well drained soils that have a fragipan. These soils are on uplands. They formed in loess over colluvium weathered from sandstone. Slopes range from 3 to 15 percent.

Soils of the Yelton series are fine-loamy, siliceous, active, mesic Typic Fragiudults.

### ***Typical Pedon***

Yelton silt loam, 3 to 8 percent slopes; USGS Kaintuck Hollow topographic quadrangle; UTM—Zone 15, Easting 594410.0, Northing 4180240.0.

Ap—0 to 3 inches; dark brown (10YR 3/3) silt loam, very pale brown (10YR 7/3) dry; strong medium platy structure; very firm; common very fine roots; moderately acid; abrupt wavy boundary.

E—3 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; very firm; common very fine roots; slightly acid; clear smooth boundary.

Bt—8 to 19 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; many prominent clay films on faces of peds; strongly acid; clear smooth boundary.

2Btx1—19 to 32 inches; 60 percent dark yellowish brown (10YR 4/4) and 40 percent yellowish brown (10YR 5/6) loam; weak very coarse prismatic and moderate medium platy structure; very firm, 85 percent brittle; light brownish gray (10YR 6/2)<sup>3/4-</sup>

to 1-inch seams between prisms; few very fine roots in vertical seams between prisms; few prominent clay films on faces of peds; very strongly acid; clear smooth boundary

2Btx2—32 to 38 inches; 55 percent light yellowish brown (10YR 6/4) and 45 percent dark yellowish brown (10YR 4/6) loam; weak very coarse prismatic and moderate medium platy structure; very firm, 85 percent brittle; grayish brown (10YR 5/2) <sup>3</sup>/<sub>4</sub>- to 1-inch seams between prisms; few very fine roots in vertical seams between prisms; few prominent clay films on faces of peds; very strongly acid; gradual smooth boundary.

3Bt1—38 to 53 inches; 50 percent reddish brown (5YR 4/4), 25 percent dark yellowish brown (10YR 3/6), and 25 percent light brownish gray (10YR 6/2) loam; moderate very fine subangular blocky structure; firm; many prominent clay films on faces of peds; very strongly acid; gradual smooth boundary.

3Bt2—53 to 65 inches; dark yellowish brown (10YR 3/4) sandy clay loam; moderate very fine subangular blocky structure; firm; many prominent clay films on faces of peds; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* More than 60 inches

*Depth to fragipan:* 18 to 27 inches

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3

*E horizon and BE horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—silt loam or loam

*Bt horizon:*

Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 3, 4, 6, or 8 (may be 2 in lower part)

Texture—clay loam, silty clay loam, or loam

*2Btx horizon:*

Color—value of 4 to 6 and chroma of 2, 3, 4, 6, or 8

Texture—loam, sandy loam, or their gravelly to extremely analogues

*3Bt horizon:*

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 2, 3, 4, 6, or 8

Texture—loam, sandy clay loam, clay loam, or their gravelly or very gravelly analogues

Table 22.--Classification of the Soils

Soil name	Family or higher taxonomic class
Alred-----	Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudalfs
Bardley-----	Very-fine, mixed, active, mesic Typic Hapludalfs
Beemont-----	Very-fine, smectitic, mesic Oxyaquic Hapludalfs
Bendavis-----	Loamy-skeletal, siliceous, active, mesic Typic Hapludults
Bender-----	Loamy-skeletal, siliceous, active, mesic Typic Hapludults
Cedargap-----	Loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls
Celt-----	Fine, mixed, active, mesic Aquic Fragiudults
Deible-----	Fine, mixed, active, mesic Typic Albaqualfs
Freeburg-----	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gasconade-----	Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls
Gateway-----	Very-fine, mixed, active, mesic Oxyaquic Hapludalfs
Glensted-----	Fine, smectitic, mesic Vertic Albaqualfs
Hartville-----	Fine, mixed, active, mesic Aquic Hapludalfs
Haymond-----	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Hobson-----	Fine-loamy, siliceous, active, mesic Oxyaquic Fragiudalfs
Horsecreek-----	Fine-silty, mixed, active, mesic Mollic Hapludalfs
Kaintuck-----	Coarse-loamy, siliceous, superactive, nonacid, mesic Typic Udifluvents
Knobby-----	Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls
Lebanon-----	Fine, mixed, active, mesic Typic Fragiudults
Lecoma-----	Fine-loamy, siliceous, active, mesic Typic Paleudalfs
Lily-----	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Lowassie-----	Fine, smectitic, mesic Vertic Epiqualfs
Moko-----	Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls
Plato-----	Fine, mixed, active, mesic Aquic Fragiudalfs
Possumtrot-----	Coarse-loamy, siliceous, superactive, mesic Fluventic Dystrudepts
Poynor-----	Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudults
Raccoon-----	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Razort-----	Fine-loamy, mixed, active, mesic Mollic Hapludalfs
Relfe-----	Sandy-skeletal, siliceous, mesic Mollic Udifluvents
Rosati-----	Fine, mixed, active, mesic Aquic Fragiudalfs
Rueter-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Scholten-----	Loamy-skeletal, siliceous, active, mesic Typic Fragiudults
Swiss-----	Fine, mixed, semiactive, mesic Oxyaquic Hapludalfs
Tonti-----	Fine-loamy, mixed, active, mesic Typic Fragiudults
Union-----	Fine, mixed, active, mesic Oxyaquic Fragiudalfs
Useful-----	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Viburnum-----	Fine, mixed, active, mesic Aquic Paleudults
Viraton-----	Fine-loamy, siliceous, active, mesic Oxyaquic Fragiudalfs
Wideman-----	Sandy, siliceous, mesic Typic Udifluvents
Wilderness-----	Loamy-skeletal, siliceous, active, mesic Oxyaquic Fragiudalfs
Yelton-----	Fine-loamy, siliceous, active, mesic Typic Fragiudults

# Formation of the Soils

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This section relates the soils in the survey area to the major factors of soil formation.

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The characteristics of the soil are determined by the type of parent material; the plant and animal life on and in the soil; the climate under which the soil-forming factors were active; topography, or lay of the land; and the length of time these forces have been active.

The parent material affects the kind of soil profile that is formed and, in extreme cases, determines it almost entirely. Plant and animal life are the active factors of soil formation. The climate determines the amount of water available for leaching and the amount of heat for physical and chemical changes. Together, climate and plant and animal life act on the parent material and slowly change it to a natural body that has genetically related horizons. Topography often modifies these other factors. Finally, time is required for changes in the parent material to result in the formation of a soil. Generally, a long time is required for the development of distinct soil horizons.

These factors of soil formation are all so closely interrelated in their effects on the soil that few generalizations can be made about the effect of any one factor unless conditions are specified for the other four. Soil formation is complex, and many processes of soil development are still unknown.

## Parent Material

Parent material is the unconsolidated mass from which soil is formed. The formation or deposition of this material is the first step in the development of a soil profile. The characteristics of the material determine the chemical and mineralogical composition of the soil. In Phelps County, four kinds of parent material, alone or in combinations of two or more have contributed to the formation of the soils. These four kinds of parent material are residuum, or material weathered from bedrock; loess, or wind-deposited material; alluvium, or water-deposited material; and colluvium, or gravitationally relocated material.

Residual soil material formed from sandstone or dolostone that weathered in the place of origin. Generally, the mantle rock, or regolith, forms the surface appearance of the land. The thickness of the bedding, degree of cementation, chemical composition, and proximity to geologic faulting have effects on rate of residual weathering. Depth to bedrock can vary from less than 10 inches to over 5 feet. The Bender and Lily soils weathered from sandstone. The Beemont, Gasconade, Gatewood, Knobby, Moko, and Poynor soils weathered from dolostone.

Loess, a silty material transported by the wind, is an extensive parent material in Phelps County. Loess probably once covered all of the survey area. Evidence remains of loess deposited during the two most recent post-glacial periods. The sources of this material were the flood plains along the Mississippi and Missouri Rivers and their tributaries. Filled with sediment deposited by glacial meltwater and nearly barren in the still frigid climate, these valleys were the source of loess material due to dust storms. The resulting deposits blanketed the landscape to depths that were greatest closest to the source and decreased with distance from the source. Loess was removed from the landscape at widely varying rates. Erosion kept pace with the rate of deposition on the steep, sun-warmed south and west exposures where, in most places, all the loess was removed. In contrast, north and east aspects remained frozen longer and thus retained an appreciable amount of the loess. The thickness of the loess on the more stable landforms varies from a few inches to about 3 feet. Many soils in Phelps County have a combination of loess and residual parent materials. Celt, Glensted, Lebanon, Plato, Rosati, Union, Viburnum, and Yelton soils have a layer of loess that overlies material weathered from residuum.

Alluvium is material that was transported by water and deposited on nearly level flood plains. The soils on the flood plains in Phelps County formed in alluvial deposits ranging in thickness from about 3 feet to more than 30 feet. These soils differ widely in texture and chemical composition, reflecting diversity of

origin, distance down watershed, varying floodwater velocity, and various kinds of primary source material. The basal deposits commonly are gravel, and the soil particles and coarse fragments decrease in size toward the surface. A similar gradation occurs as the distance downstream increases. Cedargap and Relfe soils formed in gravelly material close to stream channels where floodwater velocity is sufficient to carry the gravel-sized sediments. Kaintuck, Possumtrot, and Razort soils formed in loamy material. Freeburg, Haymond, Horsecreek, and Racoon soils formed in silty material.

Stream terraces are older flood plains that are now higher than the immediate flood plain because of the downcutting of stream channels to a lower elevation. The alluvial material on these stream terraces is clayey, loamy, or silty. Deible, Freeburg, Racoon, and Razort soils formed on these stream terraces.

Gravity, water, and temperature fluctuation on steep slopes influence colluvial material deposition. Soil creep or mass movement directly influences soil profile development and limits structural development. The composition of the colluvial material is directly related to the material on the higher slope from which it developed. Soils such as Aired, Bendavis, and Rueter on upper side slopes and Lcoma on footslopes are colluvial influenced.

## Living Organisms

Plants and animals living on or in the soil are active in the soil-forming process. Plants furnish organic matter to the soil and bring up plant nutrients from underlying layers to the surface layer. As plants die and decay, they contribute organic matter to the soil. Bacteria and fungi decompose the plant remains and help to incorporate the organic matter into the soil.

The kind of native vegetation is one factor that has greatly influenced soil formation in Phelps County. The basic kinds of native vegetation were prairie grasses and forest vegetation. Additions of organic matter to soils that formed under prairie grasses are largely a result of the yearly decomposition of plant materials. Plant tops decompose at the surface, and the roots decompose at various depths in the soil. As a result, soils that formed under prairie grasses have a thick, dark surface layer.

Additions of organic matter to soils that formed under forest vegetation are mostly the result of leaves and twigs that decompose on the surface. These soils have a thin, dark surface layer.

Insects, worms, humans, and other animals affect

soil formation. Bacteria and fungi cause rotting of organic materials, fix nitrogen, and improve tilth. Burrowing animals and insects loosen and mix various soil horizons.

In a relatively short time, human activities have greatly affected the processes of soil formation. The major alterations have resulted in vegetation, drainage of wet areas, and accelerated erosion. Row crops have replaced native grasses and many forested areas. Nearly all of the flood plains and much of the upland areas are now farmed. These changes have increased food production but have had an adverse effect in terms of sustained productivity. Accelerated erosion continues to reduce the potential of many upland soils, and the loss of cropland to urban development is virtually irreversible.

Urbanization changes the natural landscape and causes potential soil slippage, gullyng, and accelerated runoff leading to downstream flooding, creek bank cutting, channel entrenchment/widening, and water siltation problems. The frequency and severity of water related environmental and development problems could be reduced by planning. Soils, geology, hydrology, vegetation, drainage, and existing downstream development should be carefully analyzed for each watershed prior to development of new tracts.

## Climate

Climate has been and still is an important factor of soil formation. Geologic erosion; plant and animal life; and, in more recent times, accelerated erosion all have varied with the climate.

Currently, we are dominated by a sub-humid, mid-continental climate with distinct seasonal temperature variations and predictable distribution of rainfall. Warm temperatures and rainfall create a setting for additions, removals, transfers, and transformations of soil, geologic, and plant materials (Simonson, 1959). Aspect affects soil temperature, evaporation, evapotranspiration, and vegetative production that in turn influences soil profile formation. Gasconade, Knobby, and Moko soils are dominantly on south and west aspects with frequent freeze/thaw cycles. Soils on the north-facing slopes remain frozen and are cooler in spring with lower rates of evapotranspiration than the opposing south and west aspects. Shallower soils, inferior tree species, and slower vegetative growth are evident on the warmer and dryer south and west aspects.

## Topography

Topography, or relief, affects soil formation through its influence on drainage, runoff, the rate of water infiltration, and geologic erosion. Topography is characterized by the length, shape, aspect, and degree of slope. It is important in determining the pattern and distribution of soils.

The amount of water entering the soil depends on steepness of slope, permeability, and the intensity of rainfall. Because runoff is rapid in steep areas, very little water passes through the soil and soil formation is slow. Geologic erosion almost keeps pace with the soil-forming processes. In gently sloping areas, runoff is slow, erosion is minimal, and most of the water passes through the soil. Leaching, the translocation of clay, and other soil-forming processes are intensified in these areas. Soils in these areas generally show maximum profile development.

Soils on steep, south-facing slopes receive more direct sunlight and are drier than similar soils on north-facing slopes. Drier conditions influence soil formation by affecting the kind of vegetation, the susceptibility to erosion, and the cycles of freezing and thawing.

## Time

The degree of profile development is dependent on the length of time that the parent material has been in place and subject to the soil-forming processes. Older soils show the effects of leaching and clay movement and have developed distinct horizons. Young soils show little profile development.

The surface of Phelps County has had soils in varied stages of development since the beginning of time. Chemical reactions, physical movement, and disintegration proceed at variable rates and affect the soil profile and landscape. The age of a soil is expressed in the degree of development of its profile characteristics. The factors of material type and microenvironment have a greater influence than weathering duration on development (Daniels and Hammer, 1992).

The soils of Phelps County show a wide range in degree of development over time. Those that formed in recent alluvial deposits, such as Cedargap, Kaintuck, Relfe, and Wideman, are the youngest soils in the county. On landforms of the shallow Gasconade, Knobby, Lily, and Moko soils, the removal of soil material through geologic erosion is at near equilibrium with the formation of materials through residual weathering. These soils have initial profile development and are relatively young. Soils such as Alred, Beemont, Goss, Poynor, and Rueter show the greatest degree of development and are considered the oldest soils.



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# Glossary

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**ABC soil.** A soil having an A, a B, and a C horizon.

**AC soil.** A soil having only an A and a C horizon.

Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

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

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

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed

as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

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

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

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

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

**Bottomland.** The normal flood plain of a stream, subject to flooding.

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

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

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

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

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material

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

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

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or

more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

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

**Clayey soil.** Silty clay, sandy clay, or clay.

**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.

**Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

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

**Commercial forest.** Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate

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

**Compressible** (in tables). Excessive decrease in volume of soft soil under load.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Consolidated sandstone.** Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

**Consolidated shale.** Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

**Contour stripcropping.** Growing crops in strips that

follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

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

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

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

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

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

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**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.

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

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

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

**Deep to water** (in tables). Deep to permanent water during the dry season.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

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

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

**Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the "Soil Survey Manual."

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

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

**Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

**Droughty** (in tables). Soil holds too little water for plants during dry periods.

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

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Ephemeral stream.** A stream, or reach of a stream,

that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erodes easily** (in tables). Soil is easily eroded by water.

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

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

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

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

**Even aged.** Refers to a stand of trees in which only small differences in age occur between individual trees. A range of 20 years is allowed.

**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.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity, or capillary capacity*.

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

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

- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material.** Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flooding** (in tables). Soil flooded by moving water from stream overflow or runoff.
- Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- Fragile** (in tables). A soil that is easily damaged by use or disturbance.
- Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hard to pack** (in tables). Difficult to compact using regular earthwork construction equipment.
- Head out.** To form a flower head.
- Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.
- Highly erodible** (in tables). Soil has an erodibility index greater than 8 and is very susceptible to erosion by water.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.
- Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics

produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

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

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

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

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

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

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant

cover are not considered but are separate factors in predicting runoff.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasesers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Infrequent flooding** (in tables). Flooding occurs at an interval that limits riparian plant species.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Karst** (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**Ksat.** Saturated hydraulic conductivity. (See Permeability.)

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $\frac{1}{3}$ - or  $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**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.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

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

**Low adsorption** (in tables). Low amounts of cations are adsorbed from wastes applied to the soil.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from

these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

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

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**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.

**Merchantable trees.** Trees that are of sufficient size to be economically processed into wood products.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

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

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

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

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

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

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

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

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

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

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Overstory.** The trees in a forest that form the upper crown cover.

**Oxbow.** The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

**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.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

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

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

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

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

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

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**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. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

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

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).**

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline.

The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relict stream terrace.** One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

**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.

**Riser.** The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

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

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

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

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

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

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

**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-sized particles.

**Sandy soil.** Sand or loamy sand.

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

**Sawlogs.** Logs of suitable size and quality for the production of lumber.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Seasonally ponded** (in tables). Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration. Generally occurs during the winter and early spring.

**Seasonal wetness** (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**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.

**Sedimentary uplands.** Land areas of bedrock formed from water- or wind-deposited sediments. They are higher on the landscape than the flood plain.

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

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

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

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

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shoulder slope.** The uppermost inclined surface at the top of a hillside. It is the transition zone from the backslope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of

alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site class.** A grouping of site indexes into five to seven 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 or 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 or dominant and codominant 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 shows the average height of dominant or 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 or 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.

**Skid trails.** Pathways along which logs are dragged to a common site for loading onto a logging truck.

**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.

**Slope (in tables).** Slope is great enough that special

practices are required to ensure satisfactory performance of the soil for a specific use.

**Slope/erodibility (in tables).** A combination of slope and susceptibility to water erosion may be restrictive in the use of this soil.

**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 (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil reaction (in tables).** A measure of acidity or alkalinity of a soil, expressed in pH values, which indicates that the soil reaction is either too high or too low for the intended use.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Species.** A single, distinct kind of plant or animal having certain distinguishing characteristics.

**Stickiness (surface) (in tables).** The soil is slippery and sticky when wet and slow to dry.

**Stones.** Rock fragments 10 to 24 inches (25 to 60

centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

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

**Strath terrace.** A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

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

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

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

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

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

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

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

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** 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.

**Subsurface layer.** Any subsurface soil horizon (A, E, AB, or EB) below the surface layer.

**Summit.** A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It

commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

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

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

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The textural classes are *C—clay*, *CL—clay loam*, *COS—coarse sand*, *COSL—coarse sandy loam*, *FS—fine sand*, *FSL—fine sandy loam*, *L—loam*, *LCOS—loamy coarse sand*, *LFS—loamy fine sand*, *LS—loamy sand*, *LVFS—loamy very fine sand*, *S—sand*, *SC—sandy clay*, *SCL—sandy clay loam*, *SI—silt*, *SIC—silty clay*, *SICL—silty clay loam*, *SIL—silt loam*, *SL—sandy loam*, *VFS—very fine sand*, and *VFSL—very fine*

*sandy loam*. Terms used in lieu of texture are *WB—weathered bedrock and UWB—unweathered bedrock*. The texture modifiers that may apply to textural classes are *BY—bouldery, BYV—very bouldery, BYX—extremely bouldery, CB—cobbly, CBV—very cobbly, CBX—extremely cobbly, CN—channery, CNV—very channery, CNX—extremely channery, FL—flaggy, FLV—very flaggy, FLX—extremely flaggy, GR—gravelly, GRV—very gravelly, GRX—extremely gravelly, PCN—parachannery, PCNV—very parachannery, SR—stratified, ST—stony, STV—very stony, and STX—extremely stony*.

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Tilth, soil**. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope**. The outermost inclined surface at the base of a hill; part of a footslope.

**Too acid** (in tables). The soil is so acid that growth of plants is restricted.

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

**Too clayey** (in tables). The soil is slippery and sticky when wet and slow to dry.

**Too sandy** (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to use as gravel.

**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, in soils in extremely small amounts. They are essential to plant growth.

**Trafficability**. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

**Tread**. The relatively flat surface that was cut or built by stream or wave action.

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

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

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

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

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

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

**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-spreading**. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

**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.

**Wetness** (in tables). The soil is wet during the period of desired use.

**Wilting point (or permanent wilting point)**. The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

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