United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
United States Department
of Agriculture, Forest
Service, and the Arkansas
Agricultural Experiment
Station

Soil Survey of Polk County, Arkansas

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How to Use This Soil Survey

General Soil Map

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

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

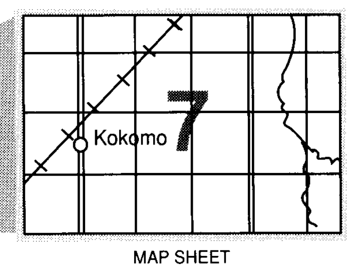
Detailed Soil Maps

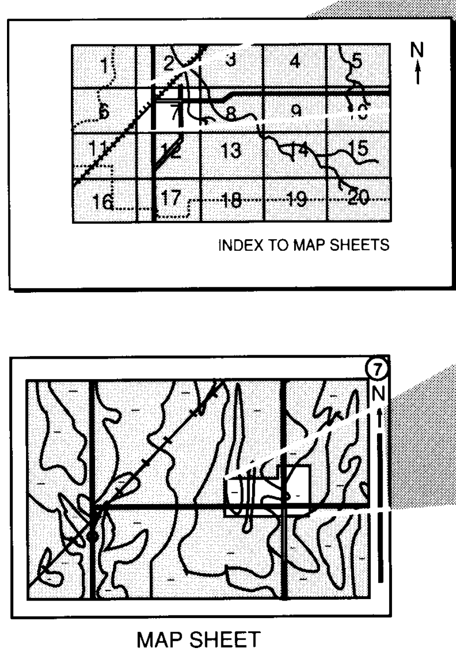
The detailed soil maps can be useful in planning the use and management of small areas.

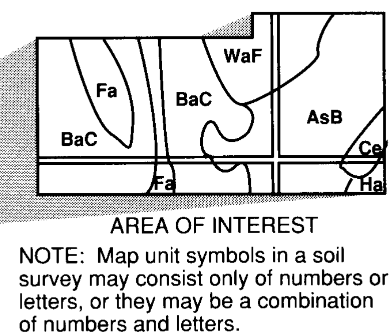
To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

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

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







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 1990. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This soil survey was made cooperatively by the Natural Resources Conservation Service, the U.S. Forest Service, and the Arkansas Agricultural Experiment Station. It is part of the technical assistance furnished to the Rich Mountain 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: Cattle grazing in a pasture in an area of Mena silt loam, 1 to 6 percent slopes. Talimena Scenic Drive, in the background, attracts thousands of tourists each year.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov (click on "Technical Resources").

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Foreword

This soil survey contains information that can be used in land-planning programs in Polk County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, 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.

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.

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Soil Survey of Polk County, Arkansas

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

POLK COUNTY is in the west-central part of Arkansas (fig. 1). It is irregular in shape and extends 35 miles from north to south and 30 miles from east to west. The county is bordered on the north by Scott County, on the east by Montgomery and Howard Counties, on the south by Sevier County and on the west by McCurtain and LeFlore Counties, Oklahoma. The total area of the county is 551,693 acres or 862 square miles, which includes 705 acres of large water bodies.

In 2000, the population of the county was 20,229. Mena, the county seat and largest town, had a population of 5,637.

The economy of Polk County is based on poultry and livestock production, timber, industry, and other businesses. Approximately 1/3 of the population work in industries and businesses in Mena, Grannis, Hatfield, Cove, and Wickes.

Figure 1.—Location of Polk County in Arkansas.

General Nature of the County

This section describes, briefly, the early history, agriculture and industry, physiography, drainage, and climate in the county.

About 85 percent of the county is mountainous and hilly with elevations ranging from about 1,100 feet in valleys to 2,681 feet at the top of Rich Mountain in the northwestern part of the county. Most soils in these areas are too steep for intensive use. They are used mainly as woodland or for native pasture. Some of the less sloping soils in narrow valleys are suitable for improved pasture and truck crops.

About 15 percent of the county is level to gently sloping valleys and flood plains, which is dominantly in the northern part of the county. Elevations range from about 800 feet along the Ouachita River in the eastern part of the county to about 1,100 feet atop the valley ridges. Most of the soils in these areas are used for forage crops or timber, while small acreages are used for truck crops.

Early History

The first human inhabitants of what is now Polk County are believed to have been Peleo-Indians as early as 8000 B.C. In the following centuries, numerous Indian cultures evolved. Spanish explorer Hernando DeSoto and his band of Conquistadors were the first white men into this area, having wintered on the banks of the Ouachita River near the present site of Hot Springs during the winter of 1541-42. The French followed the Spanish into this area in the late 17th century.

The United States acquired the area now known as Polk County as a part of the Louisiana Territory when it was purchased from France in 1803. This area was a part of a vast unchartered wilderness when, in 1812, it became a part of the Missouri Territory. In 1813, Arkansas County was created as a part of the Missouri Territory and on July 4, 1819, Arkansas began its separate existence under the name of Arkansas Territory.

Arkansas Territory became the state of Arkansas in 1836, and in 1837, the first survey of the area was made, authorized by a congressional act which granted veterans of the War of 1812 a patent to lands once in the old Louisiana Purchase. Some of these veterans were among the first settlers of Polk County.

During the 1830's, settlers traveling west to Texas were turned back by soldiers at the Red River due to an Indian uprising. Having heard of the great hunting grounds in west-central Arkansas, many decided to stay and build shelters. Most of these settlers came from Kentucky, Tennessee, Georgia, and other nearby states.

At this time, the area that is now Polk County was still a part of Sevier County, but the distance to the county seat in Sevier County posed a hardship on the settlers who had to travel that distance to conduct necessary business. Subsequently, an area much larger than the Polk County we know today was taken from Sevier County and organized as Polk County on November 30, 1844. Later, in 1873, six townships of Polk County were ceded to the newly formed Howard County. The county was named for then President James K. Polk, and the new county seat, Dallas, was named for Vice President George M. Dallas. The Dallas area (4 miles south of Mena) was the first area of the county to be settled.

During the Civil War, Polk County was partially overrun by scouting parties and guerrilla bands, but the pioneers felt little direct effects of the war. Polk County escaped any major battles and was left mostly unscathed by the war.

In the early 1890's, Arthur E. Stilwell, an insurance salesman, and Jan De Goeijen, a Dutch investor, teamed up and initiated and financed the construction of a railroad between Siloam Springs, Arkansas, and Shreveport, Louisiana; thus, connecting Kansas City, Missouri, with Port Arthur, Texas, by rail. The railroad, the Kansas City, Pittsburgh, and Gulf (later named Kansas City Southern) went through Polk County and resulted in an economic boost to the county. Several new towns were established along the line, including Mena in 1896. Mena was named after the Dutch investor's wife, Mena Janssen De Goeijen, and became the county seat of Polk County in 1898.

Agriculture and Industry

When the early settlers came to Polk County, practically all the land was in native hardwood and pine forest. They cleared and farmed the soils that had good natural drainage, including the more fertile soils along the Ouachita and Mountain Fork Rivers as well as the hilly upland soils.

The settlers were mostly subsistence farmers, but they eventually began growing cotton as a cash crop. Corn was also grown, but was mainly used on the farm. It was ground into corn meal or used to feed horses and mules and other livestock.

Most of the soils in Polk County were gravelly or stony, hilly, and low in natural fertility. After years of intensive farming, limited nutrient replenishment, and erosion control, the productivity of the soil decreased to the extent that most farmers were forced to either abandon their farms or convert from cultivated crops to pasture or meadow or back to timber in the 1930's. To the landowners in Polk County, this revealed the need for protection of their soil and water resources; therefore, in 1941, they formed the Rich Mountain Conservation District. Since then, through further land use changes and other conservation efforts, landowners have recovered much of the productivity of the soil lost through years of farming land too hilly and stony. The growth of poultry and swine production in the county has enhanced soil productivity through the availability and application of the manure. Today, farming occurs only on a very limited scale and generally in the form of truck crops and small acreages of grain sorghum.

Most recently, agriculture has become more diversified with cattle, timber, poultry, and hogs providing most of the farm income. In 1998, according to the Arkansas Agriculture Statistics, about 24 percent of Polk County was in farms. A total of 850 farms, averaging 157 acres per farm, produced beef cattle, dairy cattle, swine, and poultry. In 1997, broilers numbered 42,096,000. In 1998, cattle and calves numbered 35,000; hogs and pigs numbered 40,000; and dairy cattle numbered 500.

Most farms are small enough that the operator's family can do most of the work. Outside labor may be hired during peak seasons. Most farm products are processed outside of the county. The principal industrial enterprises related to agriculture are lumber mills and poultry processing (fig. 2).

Tourism is also a substantial contributor to the economy of Polk County. Approximately one-third of the county is in the Ouachita National Forest, which provides tremendous opportunities for hunting, fishing, camping, hiking, and water sports. Included in the Ouachita National Forest are two designated wilderness areas—the Black Fork Wilderness located in the extreme northwestern part of the county and the Caney Creek Wilderness located in the southeastern part of the county. Queen Wilhelmina State Park, established in 1957, sits atop Arkansas' second

Figure 2.—Poultry production is a major source of agricultural income in Polk County.

highest mountain, Rich Mountain. Queen Wilhelmina Lake, completed in 1958, and Irons Fork Lake, completed in 1977 and is currently the water supply for the city of Mena and other communities, provide recreation opportunities as well. The Talimena Scenic Drive, a 54 mile stretch of highway between Mena and Talihina, Oklahoma, attracts thousands of tourists each year, particularly in the fall when tree foliate colors are at their apex. The Mena Interregional Airport provides a unique and wide variety of aircraft services recognized and utilized worldwide. The state of Arkansas has indicated the possibility of constructing a four lane interstate highway connecting Fort Smith and Texarkana, which would route through Polk County. If this materializes, further growth and development of the county will be spurred, particularly in and around the city of Mena.

Physiography and Drainage

Polk County is located entirely in the Ouachita Mountain Major Land Resource Area. The area is characterized by tilted and folded, fractured layers of shale, sandstone, chert, novaculite, and quartzite. The softer, less resistant shale, chert, and impure sandstone are more susceptible to erosion and form most of the basins, valley floors, and lower hills and ridges. The harder, more resistant novaculite and relatively pure sandstone form the mountains, high ridges, and peaks in the county. Consequently, Polk County is characterized by a wide range of topography and landforms.

The topography of the county ranges from level to nearly level flood plains along local streams, nearly level to gently sloping valleys adjacent to tributaries, gently sloping to steep hillsides, and steep to very steep mountain sides. Ceda, Cupco, Dela, Kenn, Neff, and Speer soils are on the flood plains. Avilla, Mazarn, Mena, and Wetsaw soils occupy the valleys. Bengal, Bismarck, Littlefir, Nashoba, and Sherless soils dominate the hills and low ridges within the valleys; and Carnasaw, Caston, Clebit, Octavia, and Pirum soils occupy the mountains underlain with sandstone and shale. Yanush, Bigfork, and Avant soils dominate the mountains and hills underlain with novaculite and chert.

Drainage in Polk County is generally toward the south and east. Along the northern edge of the county, Rich Mountain, Blackfork Mountain, and the Fourche Mountains lie in an east-west pattern. The natural drainage system in this area consists of numerous streams that eventually drain to the southeast into the Ouachita River which originates here.

The area all across the northern part of the county is characterized by low hills and ridges within broad valleys. The central and eastern part of this area drains easterly into the Ouachita River, and the western part drains southerly into the Mountain Fork River. The southwestern part of the county is characterized mostly by rolling hills. Drainage in this area is mainly by a series of intermittent and perennial streams that drain to the south and southwest through tributaries such as Two Mile Creek, Six Mile Creek, Indian Creek, Buffalo Creek, Robinson Creek, and Rolling Fork Creek.

The southeastern portion of the county is characterized by large east-to-west linear mountains intermingled with large cone-shaped hills, smaller dissected mountains, and narrow valleys. This area is drained to the south and east by a series of intermittent and perennial streams into tributaries such as Brushy Creek, Baker Creek, Blaylock Creek, Cossatot River, and Little Missouri River.

Throughout most of the county, tributary streams of the uplands are usually intermittent, but some flow throughout the year. However, in the southeastern portion of the county, freshwater springs are common which provide more perennial streams. Also, the natural water quality is generally the best in the county due to the weathering resistance of the novaculite bedrock in the area.

Domestic water sources in the county include Irons Fork Lake and numerous wells and springs. Water for livestock is mainly from farm ponds, springs, and creeks. In most areas of the uplands, ground water supply is insufficient for irrigation.

Climate

In winter, the average temperature is 42 degrees F and the average daily minimum temperature is 31 degrees. The lowest temperature on record, which occurred at Mena on February 2, 1951, is -6 degrees. In summer, the average temperature is 78 degrees and the average daily maximum temperature is 89 degrees. The highest recorded temperature, which occurred at Mena on July 31, 1986, is 107 degrees.

The total annual precipitation is 53 inches. Of this, 28 inches, or 55 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 22 inches. The heaviest 1-day rainfall during the period of record was 10.43 inches at Mena on October 31, 1972. Thunderstorms occur on about 56 days each year, and most occur in summer.

The average seasonal snowfall is 4 inches. The greatest snow depth at any one time during the period of record was 11 inches. On an average of 2 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 70 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; 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 from 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 in the survey area occur in a pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-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. 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 are generally 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 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 assure 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.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. 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 soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns 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 (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans. Onsite investigations and/or site-specific soil interpretations need to be provided for intensive uses in small areas. Typically, this applies to areas less than about 5 acres in size due to the scale used in mapping and publication.

Table 1.--Temperature and Precipitation

(Recorded in the period 1942-95 at Mena, Arkansas)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	50.1	29.2	39.6	74	3	124	3.60	1.43	5.43	5	1.1
February----	55.4	32.7	44.0	78	9	179	3.89	2.00	5.55	5	1.3
March-------	63.1	39.7	51.4	83	17	370	5.22	3.07	7.14	6	.2
April-------	72.7	49.0	60.9	87	28	627	5.65	3.09	7.90	7	.0
May---------	78.9	57.1	68.0	90	39	866	6.60	3.54	9.29	8	.0
June--------	86.2	64.8	75.5	97	49	1,066	4.55	1.81	6.85	6	.0
July--------	90.6	67.9	79.3	102	55	1,217	4.89	1.92	7.39	6	.0
August------	90.4	66.8	78.6	102	54	1,195	3.06	1.50	4.41	4	.0
September---	83.5	60.4	72.0	98	40	958	4.81	1.96	7.21	5	.0
October-----	73.8	49.8	61.8	89	29	677	4.70	1.65	7.23	5	.0
November----	61.7	39.7	50.7	80	19	341	4.69	2.06	6.93	5	.2
December----	52.4	32.1	42.2	73	8	154	4.36	1.83	6.50	5	.3
Yearly:											
Average	71.6	49.1	60.3	---	---	---	---	---	---	---	---
Extreme	109	-7	---	103	1	---	---	---	---	---	---
Total------	---	---	---	---	---	7,774	56.02	45.28	65.11	67	3.0

* 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 1942-95 at Mena, Arkansas)

Probability	Temperature: 24 °F or lower	Temperature: 28 °F or lower	Temperature: 32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 26	April 6	April 14
2 years in 10 later than--	March 19	March 30	April 10
5 years in 10 later than--	March 6	March 18	April 1
First freezing temperature in fall:			
1 year in 10 earlier than--	November 4	October 29	October 18
2 years in 10 earlier than--	November 11	November 3	October 23
5 years in 10 earlier than--	November 24	November 12	November 1

Table 3.--Growing Season

(Recorded in the period 1942-95 at Mena, Arkansas)

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	230	213	194
8 years in 10	241	221	201
5 years in 10	262	238	213
2 years in 10	283	255	226
1 year in 10	294	264	232

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one 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 a 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.

Soil Descriptions

1. Carnasaw-Sherless

Deep and moderately deep, gently sloping to very steep, well drained, loamy, cobbly, very cobbly, and stony soils that formed in residuum of shale and sandstone

Setting

Location in the survey area: Extreme northern part
Landscape: Uplands
Landform: Mountains
Landform position: Side slopes and ridgetops
Slope range: 3 to 60 percent

Composition

Percent of the survey area: 5
Carnasaw soils—63 percent
Sherless soils—28 percent
Minor soils—9 percent

Minor soils and other components

- Bengal
- Caston
- Ceda
- Clebit
- Kenn
- Octavia
- Pirum (dominant)
- Rock outcrop

Use and Management

Major Uses: Woodland and wildlife

2. Octavia-Caston-Carnasaw

Very deep and deep, gently sloping to very steep, well drained, loamy, stony, very stony, and extremely stony soils that formed in colluvium and residuum of sandstone and shale

Setting

Location in the survey area: Northern part
Landscape: Uplands
Landform: Mountains
Landform position: Octavia—footslopes, benches, and side slopes; Caston—footslopes and cove positions; Carnasaw—side slopes and ridgetops
Slope range: 3 to 60 percent

Composition

Percent of the survey area: 10
Octavia soils—34 percent
Caston soils—18 percent
Carnasaw soils—18 percent
Minor soils—30 percent

Minor soils and other components

- Bengal
- Ceda
- Clebit
- Kenn
- Pirum (dominant)
- Rock outcrop
- Rubble land

Use and Management

Major Uses: Woodland and wildlife

3. Kenn-Avilla-Ceda

Deep and very deep, level to gently sloping, well drained, gravelly, loamy, and cobbly soils that formed in loamy and gravelly alluvium

Setting

Location in the survey area: Mainly in the northern part
Landscape: Uplands
Landform: Drainageways
Landform position: Kenn—flood plains; Avilla—stream terraces; Ceda—flood plains
Slope range: 0 to 6 percent

Composition

Percent of the survey area: 5
Kenn soils—38 percent
Avilla soils—36 percent
Ceda soils—9 percent
Minor soils—17 percent

Minor soils

- Cupco
- Dela
- Neff
- Speer
- Wetsaw
- Wilburton

Use and Management

Major Uses: Pasture and woodland

4. Sherless-Bismarck-Mena

Moderately deep, shallow, and very deep, nearly level to steep, well drained, somewhat excessively drained, and moderately well drained, loamy, very channery, and clayey soils that formed in residuum of sandstone and shale and in pedisediments and old alluvium

Setting

Location in the survey area: Mainly in the north-central and northwestern parts
Landscape: Uplands in broad valleys
Landform: Ridges
Landform position: Sherless—hillsides; Bismarck—hillsides; Mena—ridgetops and terraces
Slope range: 1 to 35 percent

Composition

Percent of the survey area: 9
Sherless soils—52 percent
Bismarck soils—18 percent
Mena soils—17 percent
Minor soils—13 percent

Minor soils

- Bengal
- Ceda
- Kenn
- Littlefir (dominant)
- Mazarn
- Nashoba

Use and Management

Major Uses: Pasture and woodland

5. Bismarck-Nashoba-Mena

Shallow, moderately deep, and very deep, nearly level to steep, somewhat excessively drained, well drained, and moderately well drained, very channery, very gravelly, and clayey soils that formed in residuum of shale and sandstone and in pedisediments and old alluvium

Setting

Location in the survey area: Mainly in the northeastern part
Landscape: Uplands in broad valleys
Landform: Ridges
Landform position: Bismarck—hillsides; Nashoba—hillsides; Mena—ridgetops and terraces
Slope range: 1 to 35 percent

Composition

Percent of the survey area: 6
Bismarck soils—51 percent
Nashoba soils—24 percent
Mena soils—10 percent
Minor soils—15 percent

Minor soils

- Bengal
- Ceda
- Kenn
- Littlefir
- Mazarn (dominant)
- Sherless

Use and Management

Major Uses: Pasture and woodland

6. Speer-Neff-Avilla

Deep and very deep, level to gently sloping, well drained and moderately well drained, loamy soils that formed in loamy alluvium

Setting

Location in the survey area: Mainly in the northern one-half
Landscape: Uplands
Landform: Drainageways
Landform position: Flood plains and low stream terraces
Slope range: 0 to 3 percent

Composition

Percent of the survey area: 3
Speer soils—48 percent
Neff soils—15 percent
Avilla soils—15 percent
Minor soils—22 percent

Minor soils

- Cupco (dominant)
- Dela
- Kenn
- Wetsaw

Use and Management

Major uses: Pasture and hayland

7. Bismarck-Littlefir

Shallow and moderately deep to deep, nearly level to steep, somewhat excessively drained and moderately well drained, very channery and clayey soils that formed in residuum of shale

Setting

Location in the survey area: Mainly in the east-central part
Landscape: Uplands
Landform: Ridges and hillsides
Landform position: Ridgetops and side slopes
Slope range: 1 to 35 percent

Composition

Percent of the survey area: 4
Bismarck soils—60 percent
Littlefir soils—30 percent
Minor soils—10 percent

Minor soils

- Bengal
- Carnasaw
- Ceda
- Kenn
- Mazarn

Use and Management

Major Uses: Pasture and woodland

8. Yanush-Avant-Bengal

Very deep and moderately deep, gently sloping to very steep, well drained, very gravelly and clayey soils that formed in colluvium and residuum of chert and shale

Setting

Location in the survey area: Extreme east-central part
Landscape: Uplands
Landform: Hills
Landform position: Yanush—side slopes, footslopes, and toeslopes; Avant—ridgetops and upper side slopes; Bengal—side slopes of dissected hills
Slope range: 3 to 60 percent

Composition

Percent of the survey area: 3
Yanush soils—38 percent
Avant soils—17 percent
Bengal soils—17 percent
Minor soils—28 percent

Minor soils

- Bigfork
- Bismarck
- Carnasaw
- Ceda
- Kenn

Use and Management

Major Uses: Woodland and pasture

9. Yanush-Bigfork-Bengal

Very deep and moderately deep to deep, gently sloping to very steep, well drained, very cobbly, very stony, and clayey soils that formed in colluvium and residuum of novaculite and shale

Setting

Location in the survey area: Southeastern part
Landscape: Uplands
Landform: Mountains and hills

Landform position: Yanush—side slopes, footslopes, and toeslopes; Bigfork—ridgetops and upper side slopes; Bengal—side slopes and dissected hills
Slope range: 3 to 60 percent

Composition

Percent of the survey area: 18
Yanush soils—29 percent
Bigfork soils—20 percent
Bengal soils—18 percent
Minor soils—33 percent

Minor soils

- Avant
- Bismarck
- Carnasaw
- Ceda
- Kenn

Use and Management

Major Uses: Woodland, pasture, and wildlife

10. Sherless-Nashoba-Littlefir

Moderately deep and moderately deep to deep, gently sloping to steep, well drained and moderately well drained, loamy, very gravelly, and clayey soils that formed in residuum of sandstone and shale

Setting

Location in the survey area: Southwestern part
Landscape: Uplands
Landform: Hills and ridges
Landform position: Hillsides and ridgetops
Slope range: 1 to 35 percent

Composition

Percent of the survey area: 37
Sherless soils—40 percent
Nashoba soils—22 percent
Littlefir soils—12 percent
Minor soils—26 percent

Minor soils

- Bengal
- Bismarck
- Carnasaw
- Ceda
- Clebit
- Dela
- Kenn
- Mazarn
- Pirum

Use and Management

Major Uses: Woodland and pasture

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading “Use and Management of the Soils.”

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil 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 or of the underlying material, 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 or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, 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, Bismarck gravelly silt loam, 3 to 8 percent slopes, is a phase of the Bismarck series. Bear in mind that the characteristics which determine a phase can potentially be altered by management (or lack of) activities. For example, a soil map unit with a cobbly surface at the time of field mapping could, through efforts of a land user to remove some or all of the fragments, become a map unit with only a gravelly surface. Also, a map unit with a good soil surface layer could become an eroded phase of the soil due to severe erosion caused by mismanagement. These type of changes could not be anticipated by soil survey staff and will have to be taken into account by the survey user.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Sherless-Littlefir complex, 1 to 8 percent slopes, is an example. Soil complexes are the dominant map unit type in Polk County, with about 60 percent of map units in this category. The percentages given for each soil component are based on a county-wide average; therefore, some variation in map unit composition can be expected among individual delineations of a complex throughout the county.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

1CD—Avant very cobbly silt loam, 3 to 15 percent slopes

Setting

Landform position: Tops of hills in the extreme east-central part of the county, in and around the Big Fork Community

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown very cobbly silt loam

Subsurface layer:
4 to 9 inches—yellowish brown very gravelly silt loam

Subsoil:
9 to 14 inches—yellowish brown very gravelly silt loam
14 to 22 inches—strong brown very gravelly silty clay loam
22 to 37 inches—yellowish red very gravelly silty clay loam

Substratum:
37 to 40 inches—highly fractured chert with yellowish red and gray clay loam soil material in fractures

Bedrock:
37 to 40 inches—tilted, fractured, and folded chert

Inclusions

- Soils similar to Avant, except for being less than 20 inches to bedrock
- Bengal soils
- Areas with slopes steeper than 15 percent

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Moderately acid to very strongly acid
Parent material: Residuum from highly fractured chert
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and wildlife

Note:

- Most areas of this map unit are too long, narrow, and inaccessible for agricultural production to be practical or economically feasible.

Woodland

Ordination symbol: 6F
Potential productivity: 80 to 92 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: 56 to 62
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, tall fescue, and common bermudagrass
Management concerns:
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIs
Suitability: Not suited
Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

2C—Avilla fine sandy loam, 1 to 6 percent slopes

Setting

Landform position: Stream terraces

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown fine sandy loam

Subsoil:
3 to 7 inches—strong brown loam
7 to 21 inches—yellowish red clay loam
21 to 43 inches—red clay loam
43 to 56 inches—red, mottled gravelly clay loam
56 to 72 inches—red, yellowish brown, and light brownish gray very gravelly clay loam

Inclusions

- Wetsaw soils
- Speer soils
- Wilburton soils (particularly in and around the Acorn and Mena communities)
- Soils similar to Avilla, except for being less than 60 inches to bedrock
- Areas with gravelly surface layer
- Areas that are subject to very rare or rare flooding

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Depth to seasonal high water table: More than 72 inches
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied

Parent material: Gravelly and loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland (fig. 3)

Other Uses: Woodland and urban

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, tall fescue, bahiagrass, and Dallis grass

Figure 3.—This area of Avilla fine sandy loam, 1 to 6 percent slopes, is well suited for pasture and hayland.

Management concerns:
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Suitable crops: Grain sorghum, small grains, and truck crops
Management concerns:
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

3C—Avilla gravelly fine sandy loam, 1 to 6 percent slopes

Setting

Landform position: Stream terraces

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown gravelly fine sandy loam

Subsoil:
3 to 7 inches—strong brown loam
7 to 21 inches—yellowish red clay loam
21 to 43 inches—red clay loam
43 to 61 inches—red, mottled gravelly clay loam
61 to 72 inches—red, yellowish brown, and light brownish gray very gravelly clay loam

Inclusions

• Wetsaw soils
• Speer soils
• Wilburton soils (particularly in and around the Acorn and Mena communities)
• Soils similar to Avilla, except for being less than 60 inches to bedrock
• Areas that are subject to rare flooding

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Depth to seasonal high water table: More than 72 inches
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied
Parent material: Gravelly and loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland and urban

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, tall fescue, bahiagrass, and Dallis grass
Management concerns:
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Suitable crops: Grain sorghum, small grains, and truck crops
Management concerns:
• Erosion
• Gravel content of the surface layer

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

4D—Bengal-Bismarck-Yanush complex, 8 to 15 percent slopes

Setting

Landform position: Lower, dissected slopes of hills typically adjacent to mountains underlain with novaculite and/or chert, mainly in the southeastern part of the county

Composition (approximate)

Bengal and similar soils: 50 percent
Bismarck and similar soils: 25 percent
Yanush and similar soils: 15 percent
Minor soils: 10 percent

Typical Profile

Bengal

Surface layer:
0 to 4 inches—brown cobbly silt loam

Subsurface layer:
4 to 7 inches—brown gravelly silt loam

Subsoil:
7 to 14 inches—yellowish red gravelly clay loam
14 to 24 inches—yellowish red, mottled silty clay
24 to 32 inches—yellowish red, mottled channery silty clay
32 to 37 inches—yellowish red, red, and gray channery silty clay

Substratum:
37 to 40 inches—yellowish red, red, and gray soft acid shale that is fractured and tilted

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Yanush

Surface layer:
0 to 5 inches—brown cobbly silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 62 inches—yellowish red very cobbly silty clay loam

Inclusions

- Carnasaw soils
- Areas with a stony surface

Soil Properties and Qualities

Depth class: Bengal—moderately deep; Bismarck—shallow; Yanush—very deep
Drainage class: Bengal—well drained; Bismarck—somewhat excessively drained; Yanush—well drained
Permeability: Bengal—slow; Bismarck and Yanush—moderate
Available water capacity: Bengal and Yanush—moderate; Bismarck—very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Bengal—high; Bismarck—low; Yanush—moderate
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Bengal and Yanush—strongly acid or very strongly acid; Bismarck—strongly acid to extremely acid
Parent material: Bengal and Bismarck—shale; Yanush—novaculite and/or chert
Depth to bedrock: Bengal—20 to 40 inches; Bismarck—10 to 20 inches; Yanush—more than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Bengal—6D; Bismarck—4D; Yanush—7F
Potential productivity: Bengal—80 to 92; Bismarck—51 to 64; Yanush—95 to 106; Map unit composite—74 to 86 cubic feet per acre per year of shortleaf pine commercial forest products

Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: Bengal—56 to 62; Bismarck—42 to 48; Yanush—63 to 68; Map unit composite—52 to 58
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, tall fescue, and bahiagrass
Management concerns:
• Erosion
• Cobbles and gravel in the surface layer
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIs
Suitability: Not suited
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

4F—Bengal-Bismarck-Yanush complex, 15 to 35 percent slopes

Setting

Landform position: Lower, dissected mountain slopes typically adjacent to mountains underlain with novaculite and/or chert, mainly in the southeastern part of the county

Composition (approximate)

Bengal and similar soils: 40 percent
Bismarck and similar soils: 30 percent
Yanush and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Bengal

Surface layer:
0 to 4 inches—brown cobbly silt loam

Subsurface layer:
4 to 7 inches—brown gravelly silt loam

Subsoil:
7 to 14 inches—yellowish red gravelly clay loam
14 to 24 inches—yellowish red, mottled silty clay
24 to 32 inches—yellowish red, mottled channery silty clay
32 to 37 inches—yellowish red, red, and gray channery silty clay

Substratum:
37 to 40 inches—red, yellowish red, and gray soft acid shale that is fractured and tilted

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Bedrock:
14 to 20 inches—soft, tilted shale

Yanush

Surface layer:
0 to 5 inches—brown cobbly silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 62 inches—yellowish red very cobbly silty clay loam

Inclusions

• Carnasaw soils
• Areas with a stony to extremely stony surface

Soil Properties and Qualities

Depth class: Bengal—moderately deep; Bismarck—shallow; Yanush—very deep
Drainage class: Bengal and Yanush—well drained; Bismarck—somewhat excessively drained

Permeability: Bengal—slow; Bismarck and Yanush—moderate
Available water capacity: Bengal and Yanush—moderate; Bismarck—very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Bengal—high; Bismarck—low; Yanush—moderate
Hazard of flooding: None
Surface runoff: High to very high
Soil reaction: Bengal and Yanush—strongly acid or very strongly acid; Bismarck—strongly acid to extremely acid
Parent material: Bengal and Bismarck—shale; Yanush—novaculite and/or chert
Depth to bedrock: Bengal—20 to 40 inches; Bismarck—10 to 20 inches; Yanush—more than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Bengal—6R; Bismarck—4R; Yanush—7R
Potential productivity: Bengal—80 to 92; Bismarck—51 to 64; Yanush—95 to 106; Map unit composite—73 to 85 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: Bengal—56 to 62; Bismarck—42 to 48; Yanush—63 to 68; Map unit composite—52 to 58
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Tall fescue, bahiagrass, and common bermudagrass
Management concerns:
- Erosion
- Slope
- Cobbles and gravel in the surface layer

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

5CD—Bigfork-Rock outcrop complex, 3 to 15 percent slopes, very rubbly

Setting

Landform position: Tops of mountains (in the southeastern part of the county) underlain with novaculite

Composition (approximate)

Bigfork and similar soils: 60 percent
Rock outcrop: 20 percent
Minor soils: 20 percent

Typical Profile

Surface layer:
0 to 5 inches—dark brown extremely stony loam
5 to 9 inches—yellowish brown very cobbly loam

Subsoil:
9 to 38 inches—strong brown very cobbly silty clay loam

Bedrock:
38 to 40 inches—hard novaculite that is tilted

Rock outcrop:
Consists of exposures of hard massive novaculite bedrock which occur throughout this map unit

Inclusions

- Soils similar to Bigfork, except for being less than 20 inches to bedrock
- Bengal soils
- Areas of boulders primarily along the crests of the mountains

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low

Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Slightly acid to very strongly acid
Parent material: Novaculite
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

• Most areas of this map unit are limited in acreage and capability and are too rugged and inaccessible for most land uses to be practical or economically feasible. All land use information will apply to Bigfork soils.

Woodland

Ordination symbol: 4X
Potential productivity: 51 to 64 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: 45
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Surface stones
• Droughtiness
• Rock outcrop
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones
• Rock outcrop
• Droughtiness
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

6G—Bigfork-Yanush-Rock outcrop complex, 35 to 60 percent slopes, very rubbly

Setting

Landform position: South-facing slopes of mountains underlain with novaculite and/or chert in the southeastern part of the county

Composition (approximate)

Bigfork and similar soils: 45 percent
Yanush and similar soils: 25 percent
Rock outcrop: 20 percent
Minor soils: 10 percent

Typical Profile

Bigfork

Surface layer:
0 to 5 inches—brown extremely stony loam

Subsurface layer:
5 to 9 inches—yellowish brown very cobbly loam

Subsoil:
9 to 38 inches—strong brown very cobbly silty clay loam

Bedrock:
38 to 40 inches—novaculite bedrock that is hard and tilted

Yanush

Surface layer:
0 to 5 inches—brown very stony silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Rock outcrop:
Consists of large massive exposures of novaculite bedrock which occur throughout this map unit, though dominantly on the upper side slopes

Inclusions

- Bengal soils
- Bismarck soils
- Soils similar to Bigfork, except for being less than 20 inches to bedrock

Soil Properties and Qualities

Depth class: Bigfork—moderately deep; Yanush—very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Bigfork—low; Yanush—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Bigfork—low; Yanush—moderate
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Slightly acid to very strongly acid
Parent material: Bigfork—hard novaculite; Yanush—colluvium from novaculite and/or chert
Depth to bedrock: Bigfork—20 to 40 inches; Yanush—more than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are too rugged and steep for most land uses to be practical or economically feasible. It is generally recommended that these areas be left undisturbed for wildlife habitat.

Woodland

Ordination symbol: Bigfork—3R; Yanush—6R
Potential productivity: Bigfork—47 to 49; Yanush—80 to 92; Map unit composite—59 to 64 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Bigfork—40 to 41; Yanush—56 to 62; Map unit composite—46 to 48
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Rock outcrop
- Droughtiness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Rock outcrop
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

7C—Bismarck gravelly silt loam, 3 to 8 percent slopes

Setting

Landform position: Hillsides and ridgetops, mainly in the east-central part of the county

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown gravelly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown, fractured and tilted, soft acid shale

Inclusions

- Bengal soils
- Littlefir soils
- Mazarn soils
- Nashoba soils
- Soils similar to Bismarck, except for being less than 10 inches to shale
- Shale outcrop

Soil Properties and Qualities

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderate
Available water capacity: Very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None

Figure 4.—Beef cattle, as seen in this meadow of Bismarck gravelly silt loam, 3 to 8 percent slopes, is one of the main sources of farm income in Polk County.

Surface runoff: Medium
Soil reaction: Strongly acid to extremely acid, except for areas where amendments have been applied
Parent material: Shale
Depth to bedrock: 10 to 20 inches

Land Use

Dominant Uses: Pasture and hayland (fig. 4)

Other Uses: Woodland

Woodland

Ordination symbol: 4D
Potential productivity: 51 to 64 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: 42 to 48
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
• Droughtiness
• Shale and gravel content
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIe
Suitability: Not suited
Management concerns:
• Erosion
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

8D—Bismarck-Littlefir complex, 8 to 15 percent slopes

Setting

Landform position: Hills and ridges, mainly in the east-central part of the county

Composition (approximate)

Bismarck and similar soils: 60 percent
Littlefir and similar soils: 30 percent
Minor soils: 10 percent

Typical Profile

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Littlefir

Surface layer:
0 to 4 inches—dark brown cobbly silt loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly silt loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 50 inches—yellowish red, yellowish brown, and gray soft acid shale that is fractured and tilted

Inclusions

• Bengal soils
• Carnasaw soils
• Sherless soils
• Shale outcrop
• Areas with a stony or very stony surface

Soil Properties and Qualities

Depth class: Bismarck—shallow; Littlefir—moderately deep to deep
Drainage class: Bismarck—somewhat excessively drained; Littlefir—moderately well drained
Permeability: Bismarck—moderate; Littlefir—slow

Available water capacity: Bismarck—very low; Littlefir—low
Depth to seasonal high water table: Bismarck—more than 6 feet; Littlefir—2 to 4 feet during winter and early spring
Shrink-swell potential: Bismarck—low; Littlefir—moderate
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Bismarck—strongly acid to extremely acid; Littlefir—moderately acid to very strongly acid
Parent material: Soft shale
Depth to bedrock: Bismarck—10 to 20 inches; Littlefir—20 to 50 inches

Land Use

Dominant Uses: Pasture and hayland (fig. 5)

Other Uses: Woodland

Woodland

Ordination symbol: Bismarck—4D; Littlefir—6A
Potential productivity: Bismarck—51 to 64; Littlefir—80 to 92; Map unit composite—61 to 74 cubic feet per acre per year of shortleaf pine commercial forest products

Figure 5.—Through proper stocking levels, areas of Bismarck-Littlefir complex, 8 to 15 percent slopes, will support livestock.

Adapted species: Shortleaf pine and white oak
Site index: Bismarck—42 to 48; Littlefir—56 to 62; Map unit composite—47 to 53
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
• Erosion
• Droughtiness
• Surface cobbles
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIs
Suitability: Not suited
Management concerns:
• Erosion
• Droughtiness
• Surface cobbles
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

8F—Bismarck-Littlefir complex, 15 to 35 percent slopes

Setting

Landform position: Hills and ridges, mainly in the east-central part of the county

Composition (approximate)

Bismarck and similar soils: 55 percent
Littlefir and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Littlefir

Surface layer:
0 to 4 inches—dark brown cobbly silt loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly silt loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 50 inches—yellowish red, yellowish brown, and gray soft acid shale that is fractured and tilted

Inclusions

• Bengal soils
• Carnasaw soils
• Sherless soils
• Shale outcrop
• Areas with a stony or very stony surface

Soil Properties and Qualities

Depth class: Bismarck—shallow; Littlefir—moderately deep to deep
Drainage class: Bismarck—somewhat excessively drained; Littlefir—moderately well drained
Permeability: Bismarck—moderate; Littlefir—slow
Available water capacity: Bismarck—very low; Littlefir—low
Depth to seasonal high water table: Bismarck—more than 6 feet; Littlefir—2 to 4 feet during winter and early spring
Shrink-swell potential: Bismarck—low; Littlefir—moderate
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Bismarck—strongly acid to extremely acid; Littlefir—moderately acid to very strongly acid
Parent material: Soft shale
Depth to bedrock: Bismarck—10 to 20 inches; Littlefir—20 to 50 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: Bismarck—4R; Littlefir—6R
Potential productivity: Bismarck—51 to 64; Littlefir—80 to 92; Map unit composite—61 to 74 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Bismarck—42 to 48; Littlefir—56 to 62; Map unit composite—47 to 53
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
- Erosion
- Droughtiness
- Surface cobbles

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Erosion
- Steep slopes
- Droughtiness
- Surface cobbles

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

9G—Bismarck-Bengal-Bigfork complex, 35 to 60 percent slopes, extremely stony

Setting

Landform position: South-facing slopes of mountains underlain with novaculite and shale in the southeastern part of the county

Composition (approximate)

Bismarck and similar soils: 40 percent
Bengal and similar soils: 30 percent
Bigfork and similar soils: 15 percent
Minor soils: 15 percent

Typical Profile

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Bengal

Surface layer:
0 to 4 inches—dark brown cobbly loam

Subsurface layer:
4 to 7 inches—brown gravelly loam

Subsoil:
7 to 14 inches—yellowish red gravelly clay loam
14 to 24 inches—yellowish red, mottled silty clay
24 to 32 inches—yellowish red, mottled channery silty clay
32 to 37 inches—yellowish red, red, and gray channery silty clay

Substratum:
37 to 40 inches—red, yellowish red, and gray soft acid shale that is fractured and tilted

Bigfork

Surface layer:
0 to 5 inches—dark brown cobbly loam

Subsurface layer:
5 to 9 inches—yellowish brown very cobbly loam

Subsoil:
9 to 38 inches—strong brown very cobbly silty clay loam

Bedrock:
38 to 40 inches— hard novaculite that is tilted

Inclusions

- Carnasaw soils
- Yanush soils
- Areas with slopes greater than 60 percent
- Areas with a rubbly surface

Soil Properties and Qualities

Depth class: Bismarck—shallow; Bengal and Bigfork—moderately deep
Drainage class: Bismarck—somewhat excessively drained; Bengal and Bigfork—well drained
Permeability: Bismarck and Bigfork—moderate; Bengal—slow
Available water capacity: Bismarck—very low; Bengal—moderate; Bigfork—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Bismarck and Bigfork—low; Bengal—high
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Bismarck—strongly acid to extremely acid; Bengal—moderately acid to very strongly acid; Bigfork—slightly acid to very strongly acid
Parent material: Bismarck and Bengal—shale; Bigfork—novaculite
Depth to bedrock: Bismarck—10 to 20 inches; Bengal and Bigfork—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are too steep and limited in access for most land uses to be practical or economically feasible.

Woodland

Ordination symbol: 4R
Potential productivity: Bismarck and Bigfork—51 to 64; Bengal—66 to 78; Map unit composite—56 to 69 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Bismarck and Bigfork—42 to 48; Bengal—49 to 55; Map unit composite—45 to 51
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

10C—Bismarck-Nashoba-Sherless complex, 1 to 8 percent slopes

Setting

Landform position: Hills and ridges throughout the county

Composition (approximate)

Bismarck and similar soils: 40 percent
Nashoba and similar soils: 35 percent
Sherless and similar soils: 15 percent
Minor soils: 10 percent

Typical Profile

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown gravelly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Nashoba

Surface layer:
0 to 4 inches—dark brown cobbly fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—tilted soft acid sandstone with fine sandy loam material in the fractures

Bedrock:
36 to 40 inches—hard sandstone that is fractured and tilted

Sherless

Surface layer:
0 to 4 inches—dark grayish brown gravelly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Inclusions

- Bengal soils
- Clebit soils
- Littlefir soils
- Mazarn soils

Soil Properties and Qualities

Depth class: Bismarck—shallow; Nashoba and Sherless—moderately deep
Drainage class: Bismarck—somewhat excessively drained; Nashoba and Sherless—well drained
Permeability: Bismarck—moderate; Nashoba—moderately rapid; Sherless—moderate
Available water capacity: Bismarck and Nashoba—very low; Sherless—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Bismarck—strongly acid to extremely acid; Nashoba—strongly acid or very strongly acid; Sherless—moderately acid to extremely acid
Parent material: Bismarck—soft shale; Nashoba—hard sandstone; Sherless—soft sandstone or shale
Depth to bedrock: Bismarck—10 to 20 inches; Nashoba and Sherless—20 to 40 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: Bismarck—4D; Nashoba—6F; Sherless—7A
Potential productivity: Bismarck—51 to 64; Nashoba—80 to 92; Sherless—95 to 106; Map unit composite—68 to 81 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Bismarck—42 to 48; Nashoba—56 to 62; Sherless—63 to 68; Map unit composite—50 to 57
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
- Erosion
- Surface cobbles
- Droughtiness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Bismarck—VIe; Nashoba—VIs; Sherless—IIIe
Suitability: Not suited
Management concerns:
- Erosion
- Droughtiness
- Surface cobbles

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

10D—Bismarck-Nashoba-Sherless complex, 8 to 15 percent slopes

Setting

Landform position: Hills and ridges throughout the county

Composition (approximate)

Bismarck and similar soils: 40 percent
Nashoba and similar soils: 35 percent
Sherless and similar soils: 15 percent
Minor soils: 10 percent

Typical Profile

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Nashoba

Surface layer:
0 to 4 inches—dark brown cobbly fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—tilted soft acid sandstone with fine sandy loam material in the fractures

Bedrock:
36 to 40 inches—hard sandstone that is fractured and tilted

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Inclusions

- Bengal soils
- Clebit soils
- Littlefir soils
- Mazarn soils

Soil Properties and Qualities

Depth class: Bismarck—shallow; Nashoba and Sherless—moderately deep
Drainage class: Bismarck—somewhat excessively drained; Nashoba and Sherless—well drained
Permeability: Bismarck and Sherless—moderate; Nashoba—moderately rapid
Available water capacity: Bismarck and Nashoba—very low; Sherless—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Bismarck—strongly acid to extremely acid; Nashoba—strongly acid or very strongly acid; Sherless—moderately acid to extremely acid
Parent material: Bismarck—soft shale; Nashoba—hard sandstone; Sherless—soft sandstone or shale
Depth to bedrock: Bismarck—10 to 20 inches; Nashoba and Sherless—20 to 40 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: Bismarck—4D; Nashoba—6F; Sherless—7A
Potential productivity: Bismarck—51 to 64; Nashoba—80 to 92; Sherless—95 to 106; Map unit composite—68 to 81 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Bismarck—42 to 48; Nashoba—56 to 62; Sherless—63 to 68; Map unit composite—50 to 57

Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
• Erosion
• Droughtiness
• Surface cobbles
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Bismarck and Nashoba—VIs; Sherless—VIe
Suitability: Not suited
Management concerns:
• Erosion
• Droughtiness
• Surface cobbles
• Slope
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

11CD—Carnasaw-Pirum complex, 3 to 15 percent slopes, rubbly

Setting

Landform position: Tops of mountains in the extreme northern part of the county

Composition (approximate)

Carnasaw and similar soils: 70 percent
Pirum and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Carnasaw

Surface layer:
0 to 4 inches—dark brown stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is fractured and tilted

Pirum

Surface layer:
0 to 4 inches—dark brown stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown loam
11 to 31 inches—yellowish red sandy clay loam
31 to 36 inches—yellowish red gravelly sandy clay loam

Bedrock:
36 to 40 inches—hard sandstone bedrock that is fractured and tilted more than 20 degrees from the horizontal

Inclusions

• Clebit soils
• Littlefir soils
• Rock outcrop
• Areas with a very rubbly surface

Soil Properties and Qualities

Depth class: Carnasaw—deep; Pirum—moderately deep to deep
Drainage class: Well drained
Permeability: Carnasaw—slow; Pirum—moderate
Available water capacity: Carnasaw—high; Pirum—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Carnasaw—high; Pirum—low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Carnasaw—moderately acid to very strongly acid; Pirum—strongly acid or very strongly acid

Parent material: Carnasaw—soft shale; Pirum—hard sandstone
Depth to bedrock: Carnasaw—40 to 60 inches; Pirum—22 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are long and narrow and limited in acreage and accessibility.

Woodland

Ordination symbol: 6X
Potential productivity: 80 to 92 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 56 to 62
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Surface stones

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIs
Suitability: Not suited
Management concerns:
- Surface stones
- Slope
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

12D—Carnasaw-Sherless complex, 8 to 15 percent slopes

Setting

Landform position: Lower slopes of mountains and hills in the extreme northern part of the county

Composition (approximate)

Carnasaw and similar soils: 60 percent
Sherless and similar soils: 25 percent
Minor soils: 15 percent

Typical Profile

Carnasaw

Surface layer:
0 to 4 inches—dark brown cobbly silt loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is fractured and tilted

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown gravelly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Inclusions

- Bengal soils
- Littlefir soils
- Octavia soils
- Areas with a stony to extremely stony surface

Soil Properties and Qualities

Depth class: Carnasaw—deep; Sherless—moderately deep
Drainage class: Well drained
Permeability: Carnasaw—slow; Sherless—moderate
Available water capacity: Carnasaw—high; Sherless—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Carnasaw—high; Sherless—low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Carnasaw—moderately acid to very strongly acid; Sherless—moderately acid to extremely acid
Parent material: Carnasaw—soft shale; Sherless—soft sandstone or shale
Depth to bedrock: Carnasaw—40 to 60 inches; Sherless—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7A
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
- Erosion
- Surface cobbles

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIe
Suitability: Not suited
Management concerns:
- Erosion
- Surface cobbles
- Slope

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation (fig. 6)

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

12F—Carnasaw-Sherless complex, 15 to 35 percent slopes, rubbly

Setting

Landform position: Side slopes of mountains in the extreme northern part of the county

Composition (approximate)

Carnasaw and similar soils: 60 percent
Sherless and similar soils: 25 percent
Minor soils: 15 percent

Typical Profile

Carnasaw

Surface layer:
0 to 4 inches—dark brown stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is fractured and tilted

Sherless

Surface layer:
0 to 4 inches—dark grayish brown stony fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown cobbly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Figure 6.—Carnasaw and Sherless soils surround Irons Fork Lake, which is in extreme northern Polk County. Irons Fork Lake is the water supply for the city of Mena and provides additional benefits of recreation.

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Inclusions

- Bengal soils
- Littlefir soils
- Octavia soils
- Pirum soils
- Areas with a very rubbly surface and areas of rock outcrop. This condition is typical for this map unit where it occurs between Self Mountain and Arkansas State Highway 8 in the northwest part of the county.

Soil Properties and Qualities

Depth class: Carnasaw—deep; Sherless—moderately deep
Drainage class: Well drained
Permeability: Carnasaw—slow; Sherless—moderate
Available water capacity: Carnasaw—moderate; Sherless—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Carnasaw—high; Sherless—low
Hazard of flooding: None
Surface runoff: High to very high
Soil reaction: Carnasaw—moderately acid to very strongly acid; Sherless—moderately acid to extremely acid

Parent material: Carnasaw—soft shale; Sherless—soft sandstone or shale
Depth to bedrock: Carnasaw—40 to 60 inches; Sherless—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Woodland

Ordination symbol: 7R
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

13G—Caston-Clebit-Octavia complex, 35 to 60 percent slopes, very rubbly

Setting

Landform position: Primarily on south-facing upper slopes of mountains in the extreme northern part of the county. Many areas of this map unit are concave or bowl-shaped.

Composition (approximate)

The composition of this map unit is extremely variable, given the very steep and rugged terrain it occupies.

Caston and similar soils: 35 percent
Clebit and similar soils: 25 percent
Octavia and similar soils: 20 percent
Minor soils: 20 percent

Typical Profile

Caston

Surface layer:
0 to 4 inches—dark brown extremely stony fine sandy loam

Subsurface layer:
4 to 8 inches—yellowish brown very cobbly loam

Subsoil:
8 to 21 inches—strong brown very cobbly loam
21 to 72 inches—yellowish red very cobbly clay loam

Clebit

Surface layer:
0 to 5 inches—dark brown extremely stony fine sandy loam

Subsoil:
5 to 17 inches—strong brown very gravelly fine sandy loam

Bedrock:
17 to 20 inches—hard sandstone that is fractured and tilted

Octavia

Surface layer:
0 to 4 inches—dark brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown gravelly loam
11 to 28 inches—yellowish red clay loam
28 to 49 inches—yellowish red, strong brown, and red, mottled silty clay
49 to 72 inches—red, strong brown, and gray channery silty clay

Substratum:
72 to 80 inches—red, strong brown, and gray soft acid shale that is fractured and tilted

Inclusions

- Pirum soils—dominant inclusion
- Carnasaw soils
- Rock outcrop
- Rubble land
- Areas of talus, consisting primarily of boulders

Soil Properties And Qualities

Depth class: Caston and Octavia—very deep; Clebit—shallow
Drainage class: Well drained
Permeability: Caston—moderate; Clebit—moderately rapid; Octavia—moderately slow
Available water capacity: Caston—moderate; Clebit—very low; Octavia—high
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Caston and Clebit—low; Octavia—moderate
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Caston—strongly acid or very strongly acid; Clebit—slightly acid to very strongly acid; Octavia—strongly acid to extremely acid
Parent material: Caston—loamy and cobbly colluvium; Clebit—hard sandstone; Octavia—loamy colluvium over clayey residuum
Depth to bedrock: Caston and Octavia—more than 60 inches;
Clebit—10 to 20 inches

Figure 7.—This area of Caston-Clebit-Octavia complex, 35 to 60 percent slopes, very rubbly, on the south side of Black Fork Mountain is poorly suited to use as woodland, due mainly to the very steep slope. Background—Rich Mountain with Queen Wilhelmina Lodge at the top.

Land Use

Dominant Uses: Woodland (fig. 7)

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are very rugged and steep, to the extent that they are not suited to most land uses. It is generally recommended that these areas be left undisturbed for wildlife habitat.

Woodland

Ordination symbol: Caston and Octavia—6R; Clebit—3X
Potential productivity: Caston and Octavia—80 to 92; Clebit—40 to 41; Map unit composite—66 to 74 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Caston and Octavia—56 to 62; Clebit—40 to 41; Map unit composite—52 to 57
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Very steep slopes
- Surface stones
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

14B—Ceda very cobbly fine sandy loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform position: Narrow flood plains, typically in mountainous areas

Typical Profile

Surface layer:
0 to 6 inches—dark brown very cobbly fine sandy loam

Substratum:
6 to 20 inches—brown very gravelly fine sandy loam
20 to 39 inches—dark yellowish brown extremely gravelly loam
39 to 65 inches—dark yellowish brown extremely cobbly fine sandy loam

Inclusions

- Kenn soils
- Rubble land
- Wilburton soils (typically adjacent to uplands)
- Yanush soils (typically adjacent to uplands)
- Areas with a stony or very stony surface

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low
Depth to seasonal high water table: More than 5 feet
Shrink-swell potential: Low
Hazard of flooding: Frequency—frequent; duration—very brief; season—December through May
Surface runoff: Negligible

Soil reaction: Slightly acid to strongly acid
Parent material: Gravelly alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland and wildlife habitat

Note:

• Most areas of this map unit are long and narrow in shape, containing limited acreage. This, combined with the flooding hazard, makes most land uses impractical and economically infeasible. It is generally recommended that these areas be left in woodland for wildlife habitat.

Woodland

Ordination symbol: 7W
Potential productivity: 92 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Flooding
• Surface cobbles
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIw
Suitability: Not suited
Management concerns:
• Flooding
• Surface cobbles
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

15CD—Clebit-Carnasaw-Pirum complex, 3 to 15 percent slopes, very rubbly

Setting

Landform position: Tops of mountains in the extreme northern part of the county

Composition (approximate)

Clebit and similar soils: 40 percent
Carnasaw and similar soils: 30 percent
Pirum and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Clebit

Surface layer:
0 to 5 inches—dark brown very stony fine sandy loam

Subsoil:
5 to 17 inches—strong brown very gravelly loam

Bedrock:
17 to 20 inches—hard sandstone that is fractured and tilted

Carnasaw

Surface layer:
0 to 4 inches—dark brown very stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is tilted

Pirum

Surface layer:
0 to 4 inches—dark brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly loam

Subsoil:
7 to 11 inches—strong brown sandy clay loam
11 to 31 inches—yellowish red sandy clay loam
31 to 36 inches—yellowish red gravelly sandy clay loam

Bedrock:
36 to 40 inches—hard sandstone that is fractured and tilted

Inclusions

- Soils similar to Clebit, except for being less than 10 inches to bedrock
- Areas of rock outcrop
- Littlefir soils

Soil Properties and Qualities

Depth class: Clebit—shallow; Carnasaw—deep; Pirum—moderately deep to deep
Drainage class: Well drained
Permeability: Clebit—moderately rapid; Carnasaw—slow; Pirum—moderate
Available water capacity: Clebit—very low; Carnasaw—high; Pirum—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Clebit and Pirum—low; Carnasaw—high
Hazard of flooding: None
Surface runoff: Low to high
Soil reaction: Clebit—slightly acid to very strongly acid; Carnasaw—moderately acid to very strongly acid; Pirum—strongly acid or very strongly acid
Parent material: Clebit and Pirum—hard sandstone; Carnasaw—soft shale
Depth to bedrock: Clebit—10 to 20 inches; Carnasaw—40 to 60 inches; Pirum—22 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat and urban

Note:

- Most areas of this map unit are long, narrow, rugged, limited in acreage, and too inaccessible for most land uses to be practical or economically feasible. It is generally recommended that these areas be left undisturbed and used for wildlife habitat.

Woodland

Ordination symbol: Clebit—3X; Carnasaw and Pirum—6X
Potential productivity: Clebit—47 to 49; Carnasaw and Pirum—80 to 92; Map unit composite—71 to 78 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Clebit—40 to 41; Carnasaw and Pirum—56 to 62; Map unit composite—51 to 55
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Surface stones
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones
- Droughtiness
- Erosion
- Slope

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

15F—Clebit-Carnasaw-Pirum complex, 15 to 35 percent slopes, very rubbly

Setting

Landform position: Upper slopes and tops of mountains in the extreme northern part of the county

Composition (approximate)

Clebit and similar soils: 40 percent

Carnasaw and similar soils: 30 percent
Pirum and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Clebit

Surface layer:
0 to 5 inches—dark brown very stony fine sandy loam

Subsoil:
5 to 17 inches—strong brown very gravelly loam

Bedrock:
17 to 20 inches—hard sandstone that is fractured and tilted

Carnasaw

Surface layer:
0 to 4 inches—dark brown very stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is tilted

Pirum

Surface layer:
0 to 4 inches—dark brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly loam

Subsoil:
7 to 11 inches—strong brown sandy clay loam
11 to 31 inches—yellowish red sandy clay loam
31 to 36 inches—yellowish red gravelly sandy clay loam

Bedrock:
36 to 40 inches—hard sandstone that is fractured and tilted

Inclusions

- Soils similar to Clebit, except for being less than 10 inches to bedrock
- Areas of rock outcrop
- Bengal soils
- Littlefir soils

Soil Properties and Qualities

Depth class: Clebit—shallow; Carnasaw—deep; Pirum—moderately deep to deep
Drainage class: Well drained
Permeability: Clebit—moderately rapid; Carnasaw—slow; Pirum—moderate
Available water capacity: Clebit—very low; Carnasaw—high; Pirum—moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Clebit and Pirum—low; Carnasaw—high
Hazard of flooding: None
Surface runoff: High to very high
Soil reaction: Clebit—slightly acid to very strongly acid; Carnasaw—moderately acid to very strongly acid; Pirum—strongly acid or very strongly acid
Parent material: Clebit and Pirum—hard sandstone; Carnasaw—soft shale
Depth to bedrock: Clebit—10 to 20 inches; Carnasaw—40 to 60 inches; Pirum—22 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are very rugged and too inaccessible for most land uses to be practical or economically feasible (fig. 8). It is generally recommended that these areas be used for limited timber production or left undisturbed for wildlife habitat.

Woodland

Ordination symbol: Clebit—3R; Carnasaw and Pirum—6R
Potential productivity: Clebit—47 to 49; Carnasaw and Pirum—80 to 92; Map unit composite—71 to 78 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Clebit—40 to 41; Carnasaw and Pirum—56 to 62; Map unit composite—51 to 55
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Surface stones
- Droughtiness
- Slope
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Figure 8.—Because of shallow depth to bedrock, Clebit soils are droughty and rooting depth is restricted as seen in this area of Clebit-Carnasaw-Pirum complex, 15 to 35 percent slopes, very rubbly.

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones
• Droughtiness
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

16B—Cupco silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform position: Flood plains, normally on the larger tributaries. Most areas of this map unit occur along the Ouachita, Mountain Fork, and Irons Fork Rivers.

Typical Profile

Surface layer:
0 to 3 inches—brown, mottled silt loam

Subsurface layer:
3 to 9 inches—light brownish gray, mottled silt loam

Subsoil:
9 to 31 inches—brown and light brownish gray silty clay loam
31 to 65 inches—grayish brown and light brownish gray clay loam
65 to 80 inches—gray, mottled clay loam

Inclusions

- Neff soils
- Speer soils
- Soils similar to Cupco, except for having an alkaline subsoil
- Areas that contain mounds
- Soils that are poorly drained
- Areas that are subject to occasional flooding

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: Very high
Depth to seasonal high water table: 0.5 to 2 feet during winter and early in spring
Shrink-swell potential: Moderate
Hazard of flooding: Frequency—rare; duration—brief; season—December through May
Surface runoff: Negligible to low
Soil reaction: Slightly acid to very strongly acid in the surface and subsurface layers; neutral to very strongly acid in the subsoil
Parent material: Loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 9W
Potential productivity: 124 to 134 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 77 to 82
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Suitable crops: Grain sorghum, soybeans, and truck crops
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

17B—Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform position: Narrow flood plains mostly in the southern portion of the county

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown fine sandy loam

Subsurface layer:
3 to 17 inches—brown fine sandy loam

Subsoil:
17 to 42 inches—yellowish brown fine sandy loam
42 to 62 inches—yellowish brown, mottled fine sandy loam
62 to 80 inches—light brownish gray, mottled fine sandy loam

Inclusions

- Soils similar to Dela except for being less than 60 inches deep
- Ceda soils
- Kenn soils
- Mazarn soils
- Speer soils
- Areas with a gravelly surface layer
- Areas that are subject to frequent flooding
- Small areas of riverwash

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately rapid
Available water capacity: High
Depth to seasonal high water table: 3 to 5 feet during winter and early in spring
Shrink-swell potential: Low
Hazard of flooding: Frequency—occasional; duration—very brief; season—December through May
Surface runoff: Negligible to very low
Soil reaction: Slightly acid to strongly acid in the surface and subsurface layers; neutral to strongly acid in the underlying material
Parent material: Loamy and sandy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Note:

- Most areas of this map unit are long and narrow in shape and limited in acreage.

Woodland

Ordination symbol: 10A
Potential productivity: 136 to 150 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 83 to 90
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIw
Suitability: Well suited
Suitable crops: Grain sorghum, soybeans, and truck crops
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

18B—Kenn gravelly fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform position: Flood plains, mainly in the northern part of the county

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown gravelly fine sandy loam

Subsoil:
8 to 39 inches—strong brown clay loam
39 to 51 inches—brown very gravelly clay loam

Substratum:
51 to 72 inches—brown extremely cobbly loam

Inclusions

- Ceda soils
- Dela soils
- Mazarn soils
- Speer soils
- Soils similar to Kenn, except for being less than 40 inches to bedrock
- Areas that are subject only to very rare or rare flooding, particularly along Ward Creek where it flows through the City of Mena
- Areas that are subject to frequent flooding
- Areas of riverwash

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: Frequency—occasional; duration—very brief; season—December through May
Surface runoff: Low to medium
Soil reaction: Slightly acid to very strongly acid
Parent material: Loamy and gravelly alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland (fig. 9)

Woodland

Ordination symbol: 8A
Potential productivity: 106 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIw
Suitability: Well suited
Suitable crops: Grain sorghum, soybeans, and truck crops
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

19B—Kenn-Ceda complex, 0 to 3 percent slopes, frequently flooded

Setting

Landform position: Narrow flood plains in mountainous areas

Composition

Kenn and similar soils: 60 percent
Ceda and similar soils: 30 percent
Minor soils: 10 percent

Typical Profile

Kenn

Surface layer:
0 to 8 inches—dark yellowish brown cobbly fine sandy loam

Subsoil:
8 to 39 inches—strong brown clay loam
39 to 51 inches—brown very gravelly clay loam

Substratum:
51 to 72 inches—brown extremely cobbly loam

Ceda

Surface layer:
0 to 6 inches—dark brown very cobbly fine sandy loam

Substratum:
6 to 20 inches—brown very gravelly fine sandy loam
20 to 39 inches—dark yellowish brown extremely gravelly loam
39 to 65 inches—dark yellowish brown extremely cobbly fine sandy loam

Figure 9.—This area of Kenn gravelly fine sandy loam, 0 to 3 percent slopes, occasionally flooded, is compatible to use as both pastureland and woodland.

Inclusions

- Dela soils
- Speer soils
- Wilburton soils
- Soils similar to Kenn and Ceda, except for being less than 40 and 60 inches, respectively, to residual bedrock
- Soils with a stony to extremely stony surface

Soil Properties and Qualities

Depth class: Kenn—deep; Ceda—very deep
Drainage class: Well drained
Permeability: Kenn—moderate; Ceda—rapid
Available water capacity: Kenn—high; Ceda—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: Frequency—frequent; duration—very brief; season—December through May
Surface runoff: Negligible to medium
Soil reaction: Kenn—slightly acid to very strongly acid; Ceda—slightly acid to strongly acid
Parent material: Loamy and gravelly alluvium
Depth to bedrock: More than 60 inches

Figure 10.—This area of Kenn-Ceda complex, 0 to 3 percent slopes, frequently flooded, along the upper Ouachita River in northwest Polk County, provides good habitat for wildlife.

Land Use

Dominant Uses: Woodland and wildlife (fig. 10)

Other Uses: Pasture and hayland

Note:

- Most areas of this map unit are long and narrow in shape and limited in acreage.

Woodland

Ordination symbol: Kenn—8W; Ceda—7W
Potential productivity: Kenn—108 to 122; Ceda—95 to 106; Map unit composite—103 to 116 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: Kenn—69 to 76; Ceda—63 to 68; Map unit composite—67 to 73
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
- Frequent flooding
- Surface cobbles
- Droughtiness—Ceda soils

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Kenn—Vw; Ceda—VIIw
Suitability: Not suited
Management concerns:
- Frequent flooding
- Surface cobbles

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

20C—Littlefir-Bismarck complex, 1 to 8 percent slopes

Setting

Landform position: Hills and ridges, mainly in the northern part of the county

Composition (approximate)

Littlefir and similar soils: 60 percent
Bismarck and similar soils: 30 percent
Minor soils: 10 percent

Typical Profile

Littlefir

Surface layer:
0 to 4 inches—dark brown gravelly silt loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly silt loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 40 inches—yellowish red, yellowish brown, and gray fractured and tilted soft acid shale

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown gravelly silt loam

Subsurface layer:
4 to 8 inches—brown channery silt loam

Subsoil:
8 to 14 inches—strong brown very channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown, fractured and tilted soft acid shale

Inclusions

- Bengal soils
- Carnasaw soils
- Mazarn soils
- Sherless soils
- Areas of shale outcrop

Soil Properties and Qualities

Depth class: Littlefir—moderately deep to deep; Bismarck—shallow
Drainage class: Littlefir—moderately well drained; Bismarck—somewhat excessively drained
Permeability: Littlefir—slow; Bismarck—moderate

Available water capacity: Littlefir—low; Bismarck—very low
Depth to seasonal high water table: Littlefir—2 to 4 feet during winter and early spring; Bismarck—more than 6 feet
Shrink-swell potential: Littlefir—moderate; Bismarck—low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Littlefir—moderately acid to very strongly acid; Bismarck—strongly acid to extremely acid
Parent material: Soft shale
Depth to bedrock: Littlefir—20 to 50 inches; Bismarck—10 to 20 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland and wildlife

Woodland

Ordination symbol: Littlefir—6A; Bismarck—4D
Potential productivity: Littlefir—80 to 92; Bismarck—51 to 64; Map unit composite—70 to 83 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Littlefir—56 to 62; Bismarck—42 to 48; Map unit composite—51 to 58
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Erosion
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Littlefir—IVe; Bismarck—VIe
Suitability: Poorly suited
Management concerns:
• Erosion
• Droughtiness
Management Measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

21B—Mazarn silt loam, 0 to 3 percent slopes

Setting

Landform position: Concave uplands and upper portions of upland drainageways throughout the county

Typical Profile

Surface layer:
0 to 3 inches—brown silt loam

Subsoil:
3 to 12 inches—brown, mottled silt loam
12 to 33 inches—yellowish brown and brownish yellow, mottled silty clay loam

Substratum:
33 to 40 inches—tilted and fractured soft shale

Inclusions

• Littlefir soils
• Soils similar to Mazarn, except for being less than 20 inches or more than 40 inches deep to shale
• Soils that are poorly drained
• Soils with an alkaline lower subsoil

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet during winter and early in spring
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Negligible to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Local pedisediments over residual soft shale or interbedded shale and sandstone or siltstone
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland and limited cropland

Woodland

Ordination symbol: 7W
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, red oak, and sweetgum
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Suitable crops: Truck crops, soybeans, and grain sorghum
Management concerns:
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

22B—Mazarn silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform position: Upland drainageways throughout the county

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown silt loam

Subsoil:
3 to 12 inches—brown, mottled silt loam
12 to 33 inches—yellowish brown and brownish yellow, mottled silty clay loam

Substratum:
33 to 40 inches—tilted and fractured soft shale

Inclusions

• Soils similar to Mazarn, except for being less than 20 inches or more than 40 inches deep to shale
• Soils that are poorly drained
• Soils with an alkaline lower subsoil
• Soils similar to Mazarn, except for being gravelly throughout
• Areas that are subject to frequent flooding, particularly where the drainageways are narrow

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: Moderate
Depth to seasonal high water table: 1 foot to 2 feet during winter and early in spring
Shrink-swell potential: Low
Hazard of flooding: Frequency—occasional; duration—very brief; season—December through May
Surface runoff: Negligible to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Local alluvium and pedisediments over residual soft shale or interbedded shale and sandstone or siltstone
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 7W
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, red oak, and sweetgum
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
• Occasional flooding
• Seasonal wetness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIw
Suitability: Moderately suited
Suitable crops: Truck crops, soybeans, and grain sorghum
Management concerns:
• Seasonal wetness
• Occasional flooding
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

23C—Mena silt loam, 1 to 6 percent slopes

Setting

Landform position: Old terraces and uplands in the northern part of the county

Typical Profile

Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 10 inches—yellowish brown silt loam
10 to 23 inches—red clay
23 to 46 inches—red, mottled clay
46 to 72 inches—red, light brownish gray, and strong brown cobbly clay

Substratum:
72 to 80 inches—red and gray fractured and tilted soft acid shale

Inclusions

• Avilla soils
• Carnasaw soils
• Littlefir soils
• Sherless soils
• Wetsaw soils
• Areas with a gravelly or an eroded surface layer

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Very high
Depth to seasonal high water table: 2 to 3 feet in winter and early in spring
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Pedisediments over old alluvium and residuum
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland (fig. 11)

Other Uses: Woodland and urban

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited

Figure 11.—This area of Mena silt loam, 1 to 6 percent slopes, is well suited for pasture and hayland. Poultry waste substantially enhances productivity on Mena soils.

Suitable crops: Grain sorghum, soybeans, small grains, and truck crops

Management concerns:

• Erosion

Management measures:

• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

24C—Mena gravelly silt loam, 1 to 6 percent slopes

Setting

Landform position: Old terraces and uplands in the northern part of the county

Typical Profile

Surface layer:
0 to 4 inches—dark brown gravelly silt loam

Subsoil:
4 to 10 inches—yellowish brown silt loam
10 to 23 inches—red clay
23 to 46 inches—red, mottled clay
46 to 72 inches—red, light brownish gray, and strong brown cobbly clay

Substratum:
72 to 80 inches—red and gray fractured and tilted soft acid shale

Inclusions

- Avilla soils
- Carnasaw soils
- Littlefir soils
- Sherless soils
- Wetsaw soils
- Areas with an eroded or cobbly surface layer

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Very high
Depth to seasonal high water table: 2 to 3 feet in winter and early in spring
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Pedisediments over old alluvium and residuum
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland and urban

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Suitable crops: Grain sorghum, small grains, and truck crops
Management concerns:
- Erosion
- Surface gravel or cobble content

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

24D—Mena gravelly silt loam, 6 to 12 percent slopes

Setting

Landform position: Old terraces and uplands in the northern part of the county. This map unit typically occurs as a narrow band or as an escarpment between the other Mena map units and adjacent stream terraces or flood plains.

Typical Profile

Surface layer:
0 to 4 inches—dark brown gravelly silt loam

Subsoil:
4 to 10 inches—yellowish brown silt loam
10 to 23 inches—red clay
23 to 46 inches—red, mottled clay
46 to 72 inches—red, light brownish gray, and strong brown cobbly clay

Substratum:
72 to 80 inches—red and gray fractured and tilted soft acid shale

Inclusions

- Avilla soils
- Carnasaw soils
- Littlefir soils
- Sherless soils
- Wetsaw soils

- Areas with an eroded or cobbly surface layer
- Areas with slopes more than 12 percent

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Very high
Depth to seasonal high water table: 2 to 3 feet in winter and early in spring
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Pedisediments over old alluvium and residuum
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland and urban

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IVe
Suitability: Poorly suited
Suitable crops: Small grains and truck crops
Management concerns:
- Erosion
- Surface gravel and cobble content
- Slope

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

25F—Nashoba-Bismarck complex, 15 to 35 percent slopes, rubbly

Setting

Landform position: Side slopes of hills and mountains throughout the county

Composition (approximate)

Nashoba and similar soils: 55 percent
Bismarck and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Nashoba

Surface layer:
0 to 4 inches—brown stony fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—about 90 percent partially weathered soft acid sandstone with about 10 percent fine sandy loam material between fractures

Bedrock:
36 to 40 inches—hard sandstone bedrock that is fractured and tilted

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown stony silt loam

Subsurface layer:
4 to 8 inches—brown very gravelly silt loam

Subsoil:
8 to 14 inches—strong brown extremely channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is tilted and fractured

Inclusions

- Sherless soils—dominant inclusion
- Bengal soils
- Clebit soils
- Littlefir soils
- Areas with very rubbly surface
- Areas of rock outcrop

Soil Properties and Qualities

Depth class: Nashoba—moderately deep; Bismarck—shallow
Drainage class: Nashoba—well drained; Bismarck—somewhat excessively drained
Permeability: Nashoba—moderately rapid; Bismarck—moderate
Available water capacity: Very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Nashoba—strongly acid or very strongly acid; Bismarck—strongly acid to extremely acid
Parent material: Nashoba—hard sandstone; Bismarck—soft shale
Depth to bedrock: Nashoba—20 to 40 inches; Bismarck—10 to 20 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Nashoba—6R; Bismarck—4R
Potential productivity: Nashoba—80 to 92; Bismarck—51 to 64; Map unit composite—72 to 84 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine and white oak
Site index: Nashoba—56 to 62; Bismarck—42 to 48; Map unit composite—52 to 58
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Bahiagrass, common bermudagrass, and tall fescue
Management concerns:
- Erosion
- Droughtiness
- Surface stones
- Slope

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones
- Slope
- Erosion
- Droughtiness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

26B—Neff loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform position: Flood plains, primarily along larger tributaries

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown loam

Subsoil:
5 to 20 inches—yellowish brown, mottled loam
20 to 30 inches—pale brown, mottled silt loam
30 to 57 inches—light brownish gray and yellowish brown silt loam
57 to 80 inches—pale brown and yellowish brown, mottled silt loam

Inclusions

- Cupco soils
- Kenn soils
- Speer soils
- Areas that are subject to occasional flooding
- Areas with low mounds
- Areas that are poorly drained

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Very high
Depth to seasonal high water table: 1.5 to 2.5 feet during winter and early in spring
Shrink-swell potential: Low
Hazard of flooding: Frequency—rare; duration—brief; season—December through May
Surface runoff: Negligible to low
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 9W
Potential productivity: 124 to 134 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 77 to 82
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIw
Suitability: Well suited
Suitable crops: Grain sorghum, soybeans, and truck crops
Management concerns:
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

27D—Octavia-Carnasaw complex, 8 to 15 percent slopes, rubbly

Setting

Landform position: On footslopes and toeslopes of mountains in the extreme northern part of the county

Composition (approximate)

Octavia and similar soils: 55 percent
Carnasaw and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Octavia

Surface layer:
0 to 4 inches—brown stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown gravelly loam
11 to 28 inches—yellowish red clay loam
28 to 49 inches—yellowish red, strong brown, and red silty clay
49 to 72 inches—red, strong brown, and gray channery silty clay

Substratum:
72 to 80 inches—red, brown, and gray soft acid shale that is fractured and tilted

Carnasaw

Surface layer:
0 to 4 inches—brown stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is tilted

Inclusions

- Bengal soils
- Ceda soils
- Sherless soils
- Wilburton soils
- Areas with a very rubbly surface

Soil Properties and Qualities

Depth class: Octavia—very deep; Carnasaw—deep
Drainage class: Well drained
Permeability: Octavia—moderately slow; Carnasaw—slow
Available water capacity: Octavia—very high; Carnasaw—high
Depth to seasonal high water table: Octavia—3.5 to 5 feet in winter and early spring; Carnasaw—more than 6 feet
Shrink-swell potential: Octavia—moderate; Carnasaw—high
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Octavia—strongly acid to extremely acid; Carnasaw—moderately acid to very strongly acid
Parent material: Octavia—loamy colluvium over clayey residuum; Carnasaw—soft shale
Depth to bedrock: Octavia—more than 60 inches; Carnasaw—40 to 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7X
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
- Erosion
- Surface stones

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones
- Slope
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

27F—Octavia-Carnasaw complex, 15 to 35 percent slopes, rubbly

Setting

Landform position: On side slopes and lower slopes of mountains in the extreme northern part of the county

Composition (approximate)

Octavia and similar soils: 50 percent
Carnasaw and similar soils: 40 percent
Minor soils: 10 percent

Typical Profile

Octavia

Surface layer:
0 to 4 inches—brown stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown gravelly loam
11 to 28 inches—yellowish red clay loam
28 to 49 inches—yellowish red, strong brown, and red silty clay
49 to 72 inches—red, strong brown, and gray channery silty clay

Substratum:
72 to 80 inches—red, brown, and gray soft acid shale that is fractured and tilted

Carnasaw

Surface layer:
0 to 4 inches—brown stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is tilted

Inclusions

- Bengal soils
- Caston soils
- Pirum soils
- Sherless soils
- Areas with a very rubbly surface
- Rubble land

Soil Properties and Qualities

Depth class: Octavia—very deep; Carnasaw—deep
Drainage class: Well drained
Permeability: Octavia—moderately slow; Carnasaw—slow
Available water capacity: Octavia—very high; Carnasaw—high
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Octavia—moderate; Carnasaw—high
Hazard of flooding: None
Surface runoff: High to very high
Soil reaction: Octavia—strongly acid to extremely acid; Carnasaw—moderately acid to very strongly acid
Parent material: Octavia—loamy colluvium over clayey residuum; Carnasaw—soft shale
Depth to bedrock: Octavia—more than 60 inches; Carnasaw—40 to 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Woodland

Ordination symbol: 7R
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Surface stones
- Slope
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones
- Slope
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

28G—Octavia-Carnasaw-Caston complex, 35 to 60 percent slopes, rubbly

Setting

Landform position: Primarily on north-facing side slopes of mountains in the extreme northern part of the county

Composition (approximate)

Octavia and similar soils: 45 percent
Carnasaw and similar soils: 25 percent
Caston and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Octavia

Surface layer:
0 to 4 inches—brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown gravelly loam
11 to 28 inches—yellowish red clay loam
28 to 49 inches—yellowish red, strong brown, and red silty clay
49 to 72 inches—red, strong brown, and gray channery silty clay

Substratum:
72 to 80 inches—red, brown, and gray soft acid shale that is fractured and tilted

Carnasaw

Surface layer:
0 to 4 inches—brown very stony silt loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly silt loam

Subsoil:
7 to 12 inches—yellowish red silty clay loam
12 to 24 inches—red silty clay
24 to 37 inches—red, mottled clay
37 to 53 inches—red, light gray, and strong brown channery clay

Substratum:
53 to 72 inches—red, light gray, and strong brown soft acid shale that is tilted

Caston

Surface layer:
0 to 4 inches—brown extremely stony fine sandy loam

Subsurface layer:
4 to 8 inches—yellowish brown very cobbly loam

Subsoil:
8 to 21 inches—strong brown very cobbly loam
21 to 72 inches—yellowish red very cobbly clay loam

Inclusions

- Bengal soils
- Pirum soils
- Areas with a very rubbly surface
- Rubble land
- Areas of talus, consisting primarily of boulders
- Some areas of this map unit, particularly on Rich Mountain, Cedar Mountain, and Cow Creek Mountain, contain colluvial benches, with slopes of less than 35 percent, on the upper portion of the unit

Soil Properties and Qualities

Depth class: Octavia and Caston—very deep; Carnasaw—deep
Drainage class: Well drained
Permeability: Octavia—moderately slow; Carnasaw—slow; Caston—moderate
Available water capacity: Octavia and Carnasaw—moderate; Caston—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Octavia—moderate; Carnasaw—high; Caston—low
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Octavia—strongly acid to extremely acid; Carnasaw—moderately acid to very strongly acid; Caston—strongly acid or very strongly acid
Parent material: Octavia—loamy colluvium over clayey residuum; Carnasaw—soft shale; Caston—loamy and cobbly colluvium
Depth to bedrock: Octavia and Caston—more than 60 inches; Carnasaw—40 to 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Many areas of this map unit are too steep for most land uses to be practical or economically feasible. It is generally recommended that these areas be used for limited timber production or left undisturbed for wildlife habitat.

Woodland

Ordination symbol: Octavia—7R; Carnasaw and Caston—6R

Potential productivity: Octavia—95 to 106; Carnasaw and Caston—80 to 92; Map unit composite—87 to 99 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Octavia—63 to 68; Carnasaw and Caston—56 to 62; Map unit composite—59 to 65
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

29G—Octavia-Caston-Pirum complex, 35 to 60 percent slopes, very rubbly

Setting

Landform position: Primarily on south-facing side slopes of mountains in the extreme northern part of the county

Composition (approximate)

Octavia and similar soils: 45 percent
Caston and similar soils: 25 percent
Pirum and similar soils: 20 percent
Minor soils: 10 percent

Typical Profile

Octavia

Surface layer:
0 to 4 inches—brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown gravelly loam
11 to 28 inches—yellowish red clay loam
28 to 49 inches—yellowish red, strong brown, and red silty clay
49 to 72 inches—red, strong brown, and gray channery silty clay

Substratum:
72 to 80 inches—red, brown, and gray soft acid shale that is fractured and tilted

Caston

Surface layer:
0 to 4 inches—brown extremely stony fine sandy loam

Subsurface layer:
4 to 8 inches—yellowish brown very cobbly loam

Subsoil:
8 to 21 inches—strong brown very cobbly loam
21 to 72 inches—yellowish red very cobbly clay loam

Pirum

Surface layer:
0 to 4 inches—dark brown very stony loam

Subsurface layer:
4 to 7 inches—yellowish brown cobbly loam

Subsoil:
7 to 11 inches—strong brown loam
11 to 31 inches—yellowish red sandy clay loam
31 to 36 inches—yellowish red gravelly sandy clay loam

Bedrock:
36 to 40 inches—hard sandstone that is fractured and tilted

Inclusions

• Bengal soils
• Carnasaw soils
• Clebit soils
• Rock outcrop
• Rubble land
• Areas of talus, consisting primarily of boulders

• Some areas of this map unit, particularly on Rich Mountain, contain colluvial benches, with slopes of less than 35 percent, on the upper portion of the unit

Soil Properties and Qualities

Depth class: Octavia and Caston—very deep; Pirum—moderately deep to deep
Drainage class: Well drained
Permeability: Octavia—moderately slow; Caston and Pirum—moderate
Available water capacity: Octavia and Pirum—moderate; Caston—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Octavia—moderate; Caston and Pirum—low
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Octavia—strongly acid to extremely acid; Caston and Pirum—strongly acid or very strongly acid
Parent material: Octavia—loamy colluvium over clayey residuum; Caston—loamy and cobbly colluvium; Pirum—hard sandstone
Depth to bedrock: Octavia and Caston—more than 60 inches; Pirum—22 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

• Many areas of this map unit are too steep for most land uses to be practical or economically feasible. It is generally recommended that these areas be left undisturbed for wildlife habitat.

Woodland

Ordination symbol: 6R
Potential productivity: 80 to 92 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: 56 to 62
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

30C—Sherless gravelly fine sandy loam, 1 to 6 percent slopes

Setting

Landform position: On hills and ridges primarily in the southern part of the county

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown gravelly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray fractured and tilted soft acid sandstone

Inclusions

• Soils similar to Sherless, except for being more than 40 inches to bedrock
• Littlefir soils
• Mazarn soils
• Nashoba soils

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Moderately acid to extremely acid, except for areas where amendments have been applied
Parent material: Soft acid sandstone or interbedded sandstone and shale
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Suitable crops: Grain sorghum, small grains, and truck crops
Management concerns:
- Erosion
- Surface gravel

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

31C—Sherless-Littlefir complex, 1 to 8 percent slopes

Setting

Landform position: Hills and ridges throughout the county

Composition (approximate)

Sherless and similar soils: 55 percent
Littlefir and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown gravelly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Littlefir

Surface layer:
0 to 4 inches—brown gravelly loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly silt loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 50 inches—yellowish red, yellowish brown, and gray soft acid shale that is fractured and tilted

Inclusions

- Bismarck soils
- Carnasaw soils
- Mazarn soils
- Nashoba soils
- Pirum soils
- Soils similar to Sherless, except for being more than 40 inches to bedrock

Soil Properties and Qualities

Depth class: Sherless—moderately deep; Littlefir—moderately deep to deep
Drainage class: Sherless—well drained; Littlefir—moderately well drained
Permeability: Sherless—moderate; Littlefir—slow
Available water capacity: Moderate
Depth to seasonal high water table: Sherless—more than 6 feet; Littlefir—2 to 4 feet during winter and early spring
Shrink-swell potential: Sherless—low; Littlefir—moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Sherless—moderately acid to extremely acid; Littlefir—moderately acid to very strongly acid
Parent material: Interbedded soft sandstone and shale with minor amounts of siltstone
Depth to bedrock: Sherless—20 to 40 inches; Littlefir—20 to 50 inches

Land Use

Dominant Uses: Woodland (fig. 12)

Other Uses: Pasture and hayland

Figure 12.—This area of Sherless-Littlefir complex, 1 to 8 percent slopes, is well suited to use as pastureland.

Woodland

Ordination symbol: 7A
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Sherless—IIIe; Littlefir—IVe
Suitability: Poorly suited
Suitable crops: Truck crops, small grains, and grain sorghum
Management concerns:
• Erosion
• Surface gravel
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

31D—Sherless-Littlefir complex, 8 to 15 percent slopes

Setting

Landform position: Hills and ridges throughout the county

Composition (approximate)

Sherless and similar soils: 55 percent
Littlefir and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Littlefir

Surface layer:
0 to 4 inches—brown cobbly loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 50 inches—yellowish red, yellowish brown, and gray soft acid shale that is fractured and tilted

Inclusions

• Bismarck soils
• Carnasaw soils
• Nashoba soils
• Pirum soils
• Soils similar to Sherless, except for being more than 40 inches to bedrock

Soil Properties and Qualities

Depth class: Sherless—moderately deep; Littlefir—moderately deep to deep
Drainage class: Sherless—well drained; Littlefir—moderately well drained
Permeability: Sherless—moderate; Littlefir—slow
Available water capacity: Moderate
Depth to seasonal high water table: Sherless—more than 6 feet; Littlefir—2 to 4 feet during winter and early spring
Shrink-swell potential: Sherless—low; Littlefir—moderate
Hazard of flooding: None
Surface runoff: Medium to high

Soil reaction: Sherless—moderately acid to extremely acid; Littlefir—moderately acid to very strongly acid
Parent material: Interbedded soft sandstone and shale with minor amounts of siltstone
Depth to bedrock: Sherless—20 to 40 inches; Littlefir—20 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7A
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Surface cobbles
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIe
Suitability: Not suited
Management concerns:
• Surface cobbles
• Erosion
• Slope
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

31F—Sherless-Littlefir complex, 15 to 35 percent slopes, extremely stony

Setting

Landform position: Hills and ridges mainly in the central and southern parts of the county

Composition (approximate)

Sherless and similar soils: 60 percent
Littlefir and similar soils: 25 percent
Minor soils: 15 percent

Typical Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown gravelly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Littlefir

Surface layer:
0 to 4 inches—brown cobbly loam

Subsurface layer:
4 to 7 inches—yellowish brown gravelly loam

Subsoil:
7 to 12 inches—strong brown silty clay
12 to 30 inches—yellowish red, mottled channery silty clay

Substratum:
30 to 50 inches—yellowish red, yellowish brown, and gray soft acid shale that is fractured and tilted

Inclusions

• Bismarck soils
• Carnasaw soils
• Nashoba soils
• Soils similar to Sherless, except for being more than 40 inches to bedrock
• Areas with a rubbly surface

Soil Properties and Qualities

Depth class: Sherless—moderately deep; Littlefir—moderately deep to deep
Drainage class: Sherless—well drained; Littlefir—moderately well drained
Permeability: Sherless—moderate; Littlefir—slow
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Sherless—low; Littlefir—moderate
Hazard of flooding: None
Surface runoff: High to very high
Soil reaction: Sherless—moderately acid to extremely acid; Littlefir—moderately acid to very strongly acid
Parent material: Interbedded soft sandstone and shale with minor amounts of siltstone
Depth to bedrock: Sherless—20 to 40 inches; Littlefir—20 to 50 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7R
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Surface stones and cobbles
• Erosion
• Slope
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones and cobbles
• Erosion
• Slope
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

32C—Sherless-Nashoba complex, 1 to 8 percent slopes, stony

Setting

Landform position: Ridgetops mainly in the southwestern portion of the county

Composition (approximate)

Sherless and similar soils: 55 percent
Nashoba and similar soils: 30 percent
Minor soils: 15 percent

Typical Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown gravelly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Nashoba

Surface layer:
0 to 4 inches—brown cobbly fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—tilted and fractured soft acid sandstone with fine sandy loam in the fractures
36 to 40 inches—hard sandstone bedrock that is fractured and tilted

Inclusions

- Bismarck soils
- Clebit soils
- Littlefir soils
- Pirum soils
- Soils similar to Sherless, except for being more than 40 inches to bedrock

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Sherless—moderate; Nashoba—moderately rapid
Available water capacity: Sherless—moderate; Nashoba—very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Very low to medium
Soil reaction: Sherless—moderately acid to extremely acid; Nashoba—strongly acid or very strongly acid
Parent material: Sherless—soft sandstone, shale, or interbedded sandstone or shale; Nashoba—hard sandstone
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Sherless—7A; Nashoba—6F
Potential productivity: Sherless—95 to 106; Nashoba—80 to 92; Map unit composite—89 to 101 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Sherless—63 to 68; Nashoba—56 to 62; Map unit composite—60 to 66
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
- Surface stones and cobbles
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Sherless—IIIe; Nashoba—VIs
Suitability: Poorly suited
Suitable crops: Truck crops, small grains, and grain sorghum
Management concerns:
- Surface stones and cobbles
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

32D—Sherless-Nashoba complex, 8 to 15 percent slopes, stony

Setting

Landform position: Hillsides mainly in the southwestern portion of the county

Composition (approximate)

Sherless and similar soils: 55 percent
Nashoba and similar soils: 30 percent
Minor soils: 15 percent

Typical Soil Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown gravelly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam

21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Nashoba

Surface layer:
0 to 4 inches—brown cobbly fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—tilted and fractured soft acid sandstone with fine sandy loam in the fractures
36 to 40 inches—hard sandstone bedrock that is fractured and tilted

Inclusions

- Bismarck soils
- Clebit soils
- Littlefir soils
- Pirum soils
- Soils similar to Sherless, except for being less than 40 inches to bedrock

Soil Properties and Qualities

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Sherless—moderate; Nashoba—moderately rapid
Available water capacity: Sherless—moderate; Nashoba—very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Sherless—moderately acid to extremely acid; Nashoba—strongly acid or very strongly acid
Parent material: Sherless—soft sandstone or shale, or interbedded sandstone and shale; Nashoba—hard sandstone
Depth to bedrock: 20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Sherless—7A; Nashoba—6F
Potential productivity: Sherless—95 to 106; Nashoba—80 to 92; Map unit composite—89 to 101 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: Sherless—63 to 68; Nashoba—56 to 62; Map unit composite—60 to 66
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
- Surface stones and cobbles
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: Sherless—VIe; Nashoba—VIs
Suitability: Not suited
Management concerns:
- Surface stones and cobbles
- Erosion
- Slope

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

33F—Sherless-Nashoba-Bismarck complex, 15 to 35 percent slopes, extremely stony

Setting

Landform position: Hillsides mainly in the southwestern portion of the county

Composition (approximate)

Sherless and similar soils: 50 percent
Nashoba and similar soils: 25 percent
Bismarck and similar soils: 15 percent
Minor soils: 10 percent

Typical Soil Profile

Sherless

Surface layer:
0 to 4 inches—dark grayish brown cobbly fine sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown cobbly fine sandy loam

Subsoil:
10 to 21 inches—yellowish red clay loam
21 to 34 inches—yellowish red, mottled clay loam
34 to 38 inches—yellowish red, yellowish brown, and gray loam

Substratum:
38 to 45 inches—yellowish red, yellowish brown, and gray soft acid sandstone that is fractured and tilted

Nashoba

Surface layer:
0 to 4 inches—brown cobbly fine sandy loam

Subsoil:
4 to 24 inches—yellowish brown very gravelly loam

Substratum:
24 to 36 inches—tilted and fractured soft acid sandstone with fine sandy loam in the fractures
36 to 40 inches—hard sandstone bedrock that is fractured and tilted

Bismarck

Surface layer:
0 to 4 inches—very dark grayish brown cobbly silt loam

Subsurface layer:
4 to 8 inches—brown very gravelly silt loam

Subsoil:
8 to 14 inches—strong brown extremely channery silt loam

Substratum:
14 to 20 inches—very dark gray and brown soft acid shale that is fractured and tilted

Inclusions

- Clebit soils
- Littlefir soils
- Soils similar to Sherless, except for being more than 40 inches to bedrock
- Areas with a rubbly surface

Soil Properties and Qualities

Depth class: Sherless and Nashoba—moderately deep; Bismarck—shallow
Drainage class: Sherless and Nashoba—well drained; Bismarck—somewhat excessively drained
Permeability: Sherless and Bismarck—moderate; Nashoba—moderately rapid
Available water capacity: Sherless—moderate; Nashoba and Bismarck—very low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Sherless—moderately acid to extremely acid; Nashoba—strongly acid or very strongly acid; Bismarck—strongly acid to extremely acid
Parent material: Sherless—soft sandstone or shale or interbedded sandstone and shale; Nashoba—hard sandstone; Bismarck—soft shale
Depth to bedrock: Sherless and Nashoba—20 to 40 inches; Bismarck—10 to 20 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: Sherless—7R; Nashoba—6R; Bismarck—4R
Potential productivity: Sherless—95 to 106; Nashoba—80 to 92; Bismarck—51 to 64; Map unit composite—84 to 95 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Sherless—63 to 68; Nashoba—56 to 62; Bismarck—42 to 48; Map unit composite—60 to 63
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Common bermudagrass, bahiagrass, tall fescue, improved bermudagrass, and Dallis grass
Management concerns:
- Surface stones and cobbles
- Slope
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones and cobbles
- Slope
- Droughtiness
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

34B—Speer fine sandy loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform position: Flood plains along the larger tributaries

Typical Soil Profile

Surface layer:
0 to 3 inches—brown fine sandy loam

Subsoil:
3 to 10 inches—yellowish brown fine sandy loam
10 to 39 inches—yellowish red loam
39 to 51 inches—yellowish red sandy clay loam
51 to 61 inches—yellowish red, mottled loam
61 to 89 inches—yellowish red, yellowish brown, and light brownish gray fine sandy loam

Inclusions

- Avilla soils
- Cupco soils
- Kenn soils
- Neff soils
- Areas that occasionally flood
- Areas with a gravelly surface layer
- Areas of riverwash

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: Frequency—rare; duration—brief; season—December through May
Surface runoff: Low
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 10A
Potential productivity: 136 to 150 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Loblolly pine, shortleaf pine, white oak, and red oak
Site index: 83 to 90
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- No significant limitations

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIe
Suitability: Well suited
Suitable crops: Grain sorghum, soybeans, small grains, and truck crops
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

35B—Speer fine sandy loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform position: Flood plains along the larger tributaries

Typical Soil Profile

Surface layer:
0 to 3 inches—brown fine sandy loam

Subsoil:
3 to 10 inches—yellowish brown fine sandy loam
10 to 39 inches—yellowish red loam
39 to 51 inches—yellowish red sandy clay loam
51 to 61 inches—yellowish red, mottled loam
61 to 89 inches—yellowish red, yellowish brown, and light brownish gray fine sandy loam

Inclusions

- Cupco soils
- Dela soils
- Kenn soils
- Neff soils
- Areas that are subject to frequent flooding
- Areas with a gravelly surface layer
- Areas of riverwash

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: Frequency—occasional; duration—brief; season—December through May
Surface runoff: Low
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy alluvium
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 10A
Potential productivity: 136 to 150 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Loblolly pine, shortleaf pine, white oak, and red oak
Site index: 83 to 90
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIw
Suitability: Well suited
Suitable crops: Grain sorghum, soybeans, small grains, and truck crops
Management concerns:
- Occasional flooding

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

36—Water

37C—Wetsaw loam, 1 to 6 percent slopes

Setting

Landform position: Stream terraces, mainly in the northern part of the county

Typical Soil Profile

Surface layer:
0 to 6 inches—brown loam
Subsurface layer:
6 to 14 inches—yellowish brown loam

Subsoil:
14 to 20 inches—yellowish brown loam
20 to 34 inches—yellowish brown, mottled clay loam
34 to 44 inches—yellowish brown and light brownish gray, mottled clay loam
44 to 70 inches—yellowish brown and light gray, mottled gravelly clay loam

Inclusions

- Avilla soils
- Mazarn soils
- Mena soils
- Wilburton soils
- Soils that are poorly drained
- Soils with a gravelly or cobbly surface layer
- Areas that are subject to very rare or rare flooding

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Available water capacity: Very high
Depth to seasonal high water table: 1.5 to 2.5 feet during the winter and early in spring
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Moderately acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy and gravelly alluvium over clayey residuum
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Pasture and hayland

Other Uses: Woodland

Woodland

Ordination symbol: 8A
Potential productivity: 108 to 122 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Loblolly pine, shortleaf pine, white oak, and red oak
Site index: 69 to 76
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Well suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IIIe
Suitability: Moderately suited
Suitable crops: Grain sorghum, small grains, and truck crops
Management concerns:
- Erosion
- Seasonal wetness

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

38C—Wilburton very cobbly loam, 1 to 8 percent slopes, very rubbly

Setting

Landform position: Narrow uplands between mountains and terraces or flood plains, mainly in the extreme northern part of the county. To a lesser extent, this map unit also occurs in valleys, such as the valley between Acorn and Mena, where both alluvial and colluvial forces have influenced its development.

Typical Soil Profile

Surface layer:
0 to 4 inches—brown very cobbly loam

Subsoil:
4 to 12 inches—strong brown very cobbly loam
12 to 51 inches—yellowish red very cobbly clay loam
51 to 58 inches—yellowish red extremely cobbly clay loam
58 to 72 inches—yellowish red extremely cobbly sandy clay loam

Inclusions

- Areas with extremely cobbly or very stony surfaces
- Avilla soils (particularly in and around the Acorn community)
- Ceda soils
- Kenn soils
- Wetsaw soils
- Rubble land
- Areas subject to rare or occasional flooding
- Areas where cobbles and stones have been removed for land management purposes

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Low
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy and cobbly colluvium and alluvium from sandstone
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland (fig. 13)

Figure 13.—Hardwood trees on Wilburton very cobbly loam, 1 to 8 percent slopes, very rubbly.

Other Uses: Pasture and hayland

Note:

• Most areas of this map unit have such a high content of rock fragments that their removal will be required for most land uses to be successfully implemented.

Woodland

Ordination symbol: 6F
Potential productivity: 80 to 92 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: 56 to 62
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Poorly suited
Suitable crops: Common bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Surface cobbles and stones limiting the use of some equipment
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IVs
Suitability: Poorly suited
• Truck crops, to a limited extent
Management concerns:
• Surface stones and cobbles
• Droughtiness
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

39C—Yanush gravelly silt loam, 1 to 8 percent slopes

Setting

Landform position: Side slopes and footslopes of mountains underlain with novaculite and/or chert in the southeastern part of the county

Typical Soil Profile

Surface layer:
0 to 5 inches—brown gravelly silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Inclusions

• Avilla soils
• Carnasaw soils
• Ceda soils
• Littlefir soils
• Soils similar to Yanush, except for having a mottled, hard and brittle lower subsoil
• Areas with a very gravelly or cobbly surface layer

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Low to medium
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy and gravelly colluvium from novaculite and chert
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7F
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products

Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, and Dallis grass
Management concerns:
• Surface fragments
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: IVe
Suitability: Poorly suited
• Truck crops
• Small grains
Management concerns:
• Erosion
• Surface gravel and cobbles
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

39D—Yanush gravelly silt loam, 8 to 15 percent slopes

Setting

Landform position: Footslopes and side slopes of mountains underlain with novaculite and/or chert in the southeastern part of the county

Typical Soil Profile

Surface layer:
0 to 5 inches—brown gravelly silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Inclusions

• Carnasaw soils
• Littlefir soils
• Soils similar to Yanush, except for having a mottled, hard and brittle lower subsoil
• Areas with a very gravelly or cobbly surface layer

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Moderate
Hazard of flooding: None
Surface runoff: Medium to high
Soil reaction: Slightly acid to very strongly acid, except for areas where amendments have been applied
Parent material: Loamy and gravelly colluvium from novaculite and chert
Depth to bedrock: More than 60 inches

Land Use

Dominant Uses: Woodland

Other Uses: Pasture and hayland

Woodland

Ordination symbol: 7F
Potential productivity: 95 to 106 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, loblolly pine, white oak, and red oak
Site index: 63 to 68
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Moderately suited
Suitable crops: Common bermudagrass, improved bermudagrass, bahiagrass, and tall fescue
Management concerns:
• Surface fragments
• Erosion

Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIe
Suitability: Not suited
Management concerns:
• Surface gravel and cobbles
• Erosion
• Slope
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

40G—Yanush-Avant complex, 35 to 60 percent slopes

Setting

Landform position: Sides of hills in the extreme east-central part of the county in and around the Big Fork community. These hills typically have a distinctive cone shape.

Composition (approximate)

Yanush and similar soils: 60 percent
Avant and similar soils: 25 percent
Minor soils: 15 percent

Typical Soil Profile

Yanush

Surface layer:
0 to 5 inches—brown cobbly silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Avant

Surface layer:
0 to 4 inches—dark grayish brown very cobbly silt loam

Subsurface layer:
4 to 9 inches—yellowish brown very gravelly silt loam

Subsoil:
9 to 14 inches—yellowish brown very gravelly silt loam
14 to 22 inches—strong brown very gravelly silty clay loam
22 to 37 inches—yellowish red very gravelly silty clay loam

Substratum:
37 to 40 inches—chert that is highly fractured and tilted with thin strata of clay loam material

Inclusions

• Bengal soils
• Carnasaw soils
• Soils similar to Yanush, except for having a mottled and brittle lower subsoil
• Soils similar to Avant, except for being less than 20 inches to bedrock
• Areas with a stony to very rubbly surface

Soil Properties and Qualities

Depth class: Yanush—very deep; Avant—moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Yanush—moderate; Avant—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Yanush—moderate; Avant—low
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Slightly acid to very strongly acid
Parent material: Yanush—loamy and gravelly colluvium from chert; Avant—hard, highly fractured chert bedrock
Depth to bedrock: Yanush—more than 60 inches; Avant—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

• Most areas of this map unit are too steep for most land uses to be practical or economically feasible.

Woodland

Ordination symbol: Yanush—7R; Avant—6R
Potential productivity: Yanush—95 to 106; Avant—80 to 92; Map unit composite—91 to 102 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak

Site index: Yanush—63 to 68; Avant—56 to 62; Map unit composite—60 to 63
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Slope
• Surface cobbles
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Slope
• Surface cobbles
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

41F—Yanush-Bigfork complex, 15 to 35 percent slopes, rubbly

Setting

Landform position: Sides of mountains in the southeastern part of the county. Typically, these mountains are linear in an east to west configuration.

Composition (approximate)

Yanush and similar soils: 60 percent
Bigfork and similar soils: 25 percent
Minor soils: 15 percent

Typical Soil Profile

Yanush

Surface layer:
0 to 5 inches—brown stony silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Bigfork

Surface layer:
0 to 5 inches—brown very stony loam

Subsurface layer:
5 to 9 inches—yellowish brown very cobbly loam

Subsoil:
9 to 38 inches—strong brown very cobbly silty clay loam

Substratum:
38 to 40 inches—hard novaculite bedrock that is tilted

Inclusions

• Bengal soils
• Carnasaw soils
• Soils similar to Yanush, except for having a mottled and brittle lower subsoil
• Soils similar to Bigfork, except for being less than 20 inches to bedrock
• Areas with a very rubbly surface

Soil Properties and Qualities

Depth class: Yanush—very deep; Bigfork—moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Yanush—moderate; Bigfork—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Yanush—moderate; Bigfork—low
Hazard of flooding: None
Surface runoff: High
Soil reaction: Slightly acid to very strongly acid
Parent material: Yanush—loamy and gravelly colluvium from novaculite; Bigfork—residuum from novaculite bedrock
Depth to bedrock: Yanush—more than 60 inches; Bigfork—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Woodland

Ordination symbol: Yanush—7R; Bigfork—4R
Potential productivity: Yanush—95 to 106; Bigfork—51 to 64; Map unit composite—82 to 94 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Yanush—63 to 68; Bigfork—42 to 48; Map unit composite—57 to 63
Management concerns and management measures:
• See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
• Surface stones and cobbles
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
• Surface stones and cobbles
• Slope
• Erosion
Management measures:
• See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

• See Use and Management of the Soils Section

41G—Yanush-Bigfork complex, 35 to 60 percent slopes, rubbly

Setting

Landform position: Sides of mountains in the southeastern part of the county. Typically, these mountains are linear in an east to west configuration.

Composition (approximate)

Yanush and similar soils: 60 percent
Bigfork and similar soils: 25 percent
Minor soils: 15 percent

Typical Soil Profile

Yanush

Surface layer:
0 to 5 inches—brown very stony silt loam

Subsurface layer:
5 to 12 inches—yellowish brown very gravelly silt loam

Subsoil:
12 to 18 inches—strong brown very gravelly silty clay loam
18 to 36 inches—yellowish red very gravelly silty clay loam
36 to 72 inches—yellowish red very cobbly silty clay loam

Bigfork

Surface layer:
0 to 5 inches—brown very stony loam

Subsurface layer:
5 to 9 inches—yellowish brown very cobbly loam

Subsoil:
9 to 38 inches—strong brown very cobbly silty clay loam

Substratum:
38 to 40 inches—hard novaculite bedrock that is tilted

Inclusions

• Bengal soils
• Carnasaw soils
• Soils similar to Yanush, except for having a mottled and brittle lower subsoil
• Soils similar to Bigfork, except for being less than 20 inches to bedrock
• Areas with a very rubbly surface

Soil Properties and Qualities

Depth class: Yanush—very deep; Bigfork—moderately deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Yanush—moderate; Bigfork—low
Depth to seasonal high water table: More than 6 feet
Shrink-swell potential: Yanush—moderate; Bigfork—low
Hazard of flooding: None
Surface runoff: Very high
Soil reaction: Slightly acid to very strongly acid
Parent material: Yanush—loamy and gravelly colluvium from novaculite; Bigfork—residuum from novaculite bedrock
Depth to bedrock: Yanush—more than 60 inches; Bigfork—20 to 40 inches

Land Use

Dominant Uses: Woodland

Other Uses: Wildlife habitat

Note:

- Most areas of this map unit are too steep for most land uses to be practical or economically feasible.

Woodland

Ordination symbol: Yanush—6R; Bigfork—4R
Potential productivity: Yanush—80 to 92; Bigfork—51 to 64; Map unit composite—71 to 84 cubic feet per acre per year of shortleaf pine commercial forest products
Adapted species: Shortleaf pine, white oak, and red oak
Site index: Yanush—56 to 62; Bigfork—42 to 48; Map unit composite—52 to 58
Management concerns and management measures:
- See Use and Management of the Soils, Woodland Management and Productivity Section

Pasture and Hayland

Suitability: Not suited
Management concerns:
- Surface stones and cobbles
- Very steep slopes
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Cropland

Land capability subclass: VIIs
Suitability: Not suited
Management concerns:
- Surface stones and cobbles
- Very steep slopes
- Erosion

Management measures:
- See Use and Management of the Soils, Crops and Pasture Section

Other Uses

Recreation

Wildlife Habitat

Urban Uses

Water Management

Waste Management

- See Use and Management of the Soils Section

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

Map symbol	Soil name	Acres	Percent
1CD	Avant very cobbly silt loam, 3 to 15 percent slopes	1,316	0.2
2C	Avilla fine sandy loam, 1 to 6 percent slopes	8,137	1.5
3C	Avilla gravelly fine sandy loam, 1 to 6 percent slopes	4,333	0.8
4D	Bengal-Bismarck-Yanush complex, 8 to 15 percent slopes	5,816	1.1
4F	Bengal-Bismarck-Yanush complex, 15 to 35 percent slopes	25,281	4.6
5CD	Bigfork-Rock outcrop complex, 3 to 15 percent slopes, very rubbly	4,784	0.9
6G	Bigfork-Yanush-Rock outcrop complex, 35 to 60 percent slopes, very rubbly	10,435	1.9
7C	Bismarck gravelly silt loam, 3 to 8 percent slopes	3,038	0.6
8D	Bismarck-Littlefir complex, 8 to 15 percent slopes	4,777	0.9
8F	Bismarck-Littlefir complex, 15 to 35 percent slopes	4,780	0.9
9G	Bismarck-Bengal-Bigfork complex, 35 to 60 percent slopes, extremely stony	18,052	3.3
10C	Bismarck-Nashoba-Sherless complex, 1 to 8 percent slopes	11,600	2.1
10D	Bismarck-Nashoba-Sherless complex, 8 to 15 percent slopes	15,986	2.9
11CD	Carnasaw-Pirum complex, 3 to 15 percent slopes, rubbly	3,366	0.6
12D	Carnasaw-Sherless complex, 8 to 15 percent slopes	5,608	1.0
12F	Carnasaw-Sherless complex, 15 to 35 percent slopes, rubbly	22,289	4.0
13G	Caston-Clebit-Octavia complex, 35 to 60 percent slopes, very rubbly	7,551	1.4
14B	Ceda very cobbly fine sandy loam, 0 to 3 percent slopes, frequently flooded	7,822	1.4
15CD	Clebit-Carnasaw-Pirum complex, 3 to 15 percent slopes, very rubbly	1,950	0.4
15F	Clebit-Carnasaw-Pirum complex, 15 to 35 percent slopes, very rubbly	2,974	0.5
16B	Cupco silt loam, 0 to 2 percent slopes, rarely flooded	1,072	0.2
17B	Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded	6,217	1.1
18B	Kenn gravelly fine sandy loam, 0 to 3 percent slopes, occasionally flooded	10,247	1.9
19B	Kenn-Ceda complex, 0 to 3 percent slopes, frequently flooded	24,870	4.5
20C	Littlefir-Bismarck complex, 1 to 8 percent slopes	3,882	0.7
21B	Mazarn silt loam, 0 to 3 percent slopes	7,200	1.3
22B	Mazarn silt loam, 0 to 3 percent slopes, occasionally flooded	7,001	1.3
23C	Mena silt loam, 1 to 6 percent slopes	6,784	1.2
24C	Mena gravelly silt loam, 1 to 6 percent slopes	4,288	0.8
24D	Mena gravelly silt loam, 6 to 12 percent slopes	1,469	0.3
25F	Nashoba-Bismarck complex, 15 to 35 percent slopes, rubbly	20,860	3.8
26B	Neff loam, 0 to 2 percent slopes, rarely flooded	2,592	0.5
27D	Octavia-Carnasaw complex, 8 to 15 percent slopes, rubbly	1,218	0.2
27F	Octavia-Carnasaw complex, 15 to 35 percent slopes, rubbly	7,942	1.4
28G	Octavia-Carnasaw-Caston complex, 35 to 60 percent slopes, rubbly	16,583	3.0
29G	Octavia-Caston-Pirum complex, 35 to 60 percent slopes, very rubbly	10,304	1.9
30C	Sherless gravelly fine sandy loam, 1 to 6 percent slopes	5,243	1.0
31C	Sherless-Littlefir complex, 1 to 8 percent slopes	25,595	4.6
31D	Sherless-Littlefir complex, 8 to 15 percent slopes	62,489	11.3
31F	Sherless-Littlefir complex, 15 to 35 perent slopes, extremely stony	12,286	2.2
32C	Sherless-Nashoba complex, 1 to 8 percent slopes, stony	16,276	3.0
32D	Sherless-Nashoba complex, 8 to 15 percent slopes, stony	24,840	4.5
33F	Sherless-Nashoba-Bismarck complex, 15 to 35 percent slopes, extremely stony	48,345	8.8
34B	Speer fine sandy loam, 0 to 2 percent slopes, rarely flooded	5,390	1.0
35B	Speer fine sandy loam, 0 to 2 percent slopes, occasionally flooded	2,835	0.5
36	Water	2,202	0.4
37C	Wetsaw loam, 1 to 6 percent slopes	3,353	0.6
38C	Wilburton very cobbly loam, 1 to 8 percent slopes, very rubbly	2,558	0.5
39C	Yanush gravelly silt loam, 1 to 8 percent slopes	2,295	0.4
39D	Yanush gravelly silt loam, 8 to 15 percent slopes	1,001	0.2
40G	Yanush-Avant complex, 35 to 60 percent slopes	7,493	1.4
41F	Yanush-Bigfork complex, 15 to 35 percent slopes, rubbly	2,355	0.4
41G	Yanush-Bigfork complex, 35 to 60 percent slopes, rubbly	24,200	4.4
	Total	551,180	99.9

* Less than 0.1 percent.

Prime Farmland

In this section, prime farmland is defined, and the soils in Polk County that are considered prime farmland are listed.

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. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

The following map units are considered prime farmland in Polk County. The soil qualities that affect use and management are described in the section “Detailed Soil Map Units.” This list does not constitute a recommendation for a particular land use.

Some soils that have a 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. If applicable, the need for these measures is indicated in parentheses after the map unit name in the following list. Onsite evaluation is necessary to determine if the limitations have been overcome by corrective measures. The soils identified as prime farmland in Polk County are:

2C	Avilla fine sandy loam, 1 to 6 percent slopes
3C	Avilla gravelly fine sandy loam, 1 to 6 percent slopes
16B	Cupco silt loam, 0 to 2 percent slopes, rarely flooded (where drained)
17B	Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded
18B	Kenn gravelly fine sandy loam, 0 to 3 percent slopes, occasionally flooded
21B	Mazarn silt loam, 0 to 3 percent slopes
22B	Mazarn silt loam, 0 to 3 percent slopes, occasionally flooded
23C	Mena silt loam, 1 to 6 percent slopes
24C	Mena gravelly silt loam, 1 to 6 percent slopes
26B	Neff loam, 0 to 2 percent slopes, rarely flooded
30C	Sherless gravelly fine sandy loam, 1 to 6 percent slopes
34B	Speer fine sandy loam, 0 to 2 percent slopes, rarely flooded
35B	Speer fine sandy loam, 0 to 2 percent slopes, occasionally flooded
37C	Wetsaw loam, 1 to 6 percent slopes

Use and Management of the Soils

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

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

Ralph Harris, grassland specialist, Natural Resources Conservation Service, contributed to this section.

General management needed for pasture and hayland is suggested in this section. The 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 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 “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service.

Most cleared land in Polk County is used for pasture and hay (fig. 14). Some row crops are grown, but are mostly in the form of gardens and truck patches, and the acreage is extremely limited. Currently, the only row crop grown to any extent in Polk County is grain sorghum, and that acreage is relatively small. The areas of soils that are well suited to row crops are mainly on flood plains and terraces along streams in the county; however, the small size of these areas makes production of most row crops impractical. Some of the gently sloping to moderately sloping soils on uplands are moderately suited to drilled or sown crops, mainly oats, wheat, and grain sorghum.

Many soils in the upland area of Polk County are poorly suited or not suited to intensive use for crops because of surface stoniness, steepness of slope, shallow depth to bedrock, high content of coarse fragments within the soil, or a combination of these limitations.

In general, the soils in Polk County are low in nitrogen, potassium, phosphorus, calcium, and organic matter. The kinds and amounts of fertilizer applied should be based on soil tests, capability of the soil to produce, expected yields, and past experience. Soil tests on most soils indicate that lime is usually necessary for satisfactory production of forage crops, such as bermudagrass and tall fescue, and very important for production of legumes. Pasture grasses

Figure 14.—This area of Mena silt loam, 1 to 6 percent slopes, is well suited to cattle production.

respond well to nitrogen fertilizer. Soils in the area are low in natural fertility. Forage plants will respond well to fertilizer applications.

Perennial grasses or mixture of grasses and legumes are grown for pasture and hay. Mixtures generally consist of either a warm-season or a cool-season perennial grass and a suitable legume.

Bermudagrass, bahiagrass, and dallisgrass are the most common warm-season grasses. Bermudagrass is propagated by either sprigging or seeding, and bahiagrass and dallisgrass are propagated by seeding. Bermudagrass is generally sprigged because stands started by seeding are more susceptible to winter kill. White clover is the most commonly grown legume. Tall fescue is the most commonly grown cool-season grass. Cool-season annuals, such as rye, ryegrass, and wheat, are overseeded into warm-season pastures to extend the grazing season. These winter annuals should be planted on the better drained soils in the county and fertilized at recommended rates to obtain the desired production levels.

Under good pasture management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants maintain sufficient and generally vigorous top growth during the growing season. Rotational grazing is a very important management tool that should be included in all pasture systems.

Yields Per Acre

The average yields per acre that can be expected of the principal forage crops under a high level of management and fertility are shown in table 5. These yields are given in two values, animal-unit-months and pounds of forage yield per acre. An animal-unit-month is defined as the amount of forage or feed required to feed one 1,000-pound animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days. An animal-unit-month is converted to forage yield per acre by multiplying by 1,560. In other words, a field that is producing one animal-unit-month of forage per acre at a given fertility level would have a forage yield of approximately 1,560 pounds per acre. In any given year, yields may be higher or lower than those indicated in the table because of variation in rainfall and other climatic factors.

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soils and crop. Management can include proper seeding rates and planting techniques; suitable high-yielding varieties; control of weeds; effective use of animal manure; optimum levels of nitrogen, phosphorus, potassium, pH, and trace elements for each crop; and harvesting that ensures the highest quality forage.

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

Pasture and hayland crops other than those shown in the table are grown in Polk County, but estimated yields are not listed because of the very limited acreage of such crops. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive 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. Only class and subclass are used in this survey.

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

Class I soils have few limitations that restrict their use.

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

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

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

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use.

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

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

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

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

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

Woodland Management and Productivity

Nancy Young, forester, Natural Resources Conservation Service, and Ken Luckow, soil scientist, Forest Service, contributed to this section.

Forestland accounts for about 399,600 acres, or about 72 percent, of Polk County. About 28 percent (111,900 acres) is in private nonindustrial ownership, and about 20 percent (81,300 acres) is in industrial ownership. Most of the remaining acreage is in public ownership, which is part of the Ouachita National Forest, managed by the Forest Service.

The Ouachita National Forest, first known as the Arkansas National Forest, was created by proclamation of President Theodore Roosevelt on December 18, 1907. It is the oldest national forest in the Forest Service, Southern Region (Region 8). The gross area within the proclamation boundary was then 1,073,955 acres. From the date of proclamation until 1914, the forest was administered as part of the Forest Service, District 3. The first local headquarters was at Fort Smith, Arkansas. In July 1908, the headquarters was moved to Mena, Arkansas. It was located there until June 1910 when it was moved to its present location of Hot Springs, Arkansas. As of 2002, the Ouachita National Forest covered 1,777,478 acres in Arkansas and Oklahoma.

As of September 30, 2002, there were 206,356 acres of national forest system land in Polk County. This land is administered by the district rangers at the Caddo, Mena, Oden, Poteau, and Womble Districts.

As of 1995, the major forest types of the timberland in Polk County include the loblolly-shortleaf pine, which makes up about 95,700 acres; the oak-pine, which represents about 118,000 acres; and the oak-hickory, which includes about 180,000 acres. (By stand-size class, this includes about 129,000 acres of sawtimber, 197,000 acres of poletimber, and about 73,000 acres of saplings and seedlings.)

Forest products contribute substantially to the county's economy. Polk County has numerous timber-related industries manufacturing products such as log homes, posts, poles, piling, treated lumber, crossties, pine and hardwood lumber, flooring, paneling, and staves and pallet parts.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forestland. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. The common forest understory plants also are listed. Table 6 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the ordination symbol, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce. The number 1 indicates low potential productivity; 2 and 3, moderate; 4 and 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

The *potential productivity* of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The estimates of the productivity of the soils in this survey are based on published data.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare per year can be converted to cubic feet per acre per year by multiplying by 14.3. Cubic feet per acre per year can then be converted to board feet by multiplying by a factor of about 5. For example, a productivity class of 7 means the soil can be expected to produce approximately 100 cubic feet per acre per year at the point where mean annual increment culminates, or about 500 board feet per acre per year.

In the “Detailed Soil Map Units” section, map unit composite values are given for both volume and site index where major components of complexes consist of contrasting (dissimilar) soils. The composite values represent the weighted average of the major components based on their respective percentages of the map unit.

Some timber companies and independent loggers in Polk County measure timber volume in tons, along with or instead of cubic feet or board feet. A general conversion can be used and is as follows: 4 tons per 100 cubic feet or 8 tons per 1,000 board feet. It must be understood that these figures refer to timber recently harvested and are approximate since they are dependent, to some extent, on timber size and moisture content, the season of the year, and other factors.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Forest Management

In tables 7a and 7b, 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 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 through the Agency's Website.

Ratings in the column *hand planting* 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* 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* 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 *roads (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.

In table 7b, ratings in the column *erosion on roads and trails* 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 *off-road or off-trail erosion* are based on slope and on the 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* are based on depth to a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. Ratings indicate limitations affecting the hazard or risk of ruts in the uppermost layers of the soil. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with the formation of ruts.

Ratings in the column *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to 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 *seedling survival* are based on flooding, ponding, depth to 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.

Recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreational use. Soils are rated for camp areas, playgrounds, paths and trails, and picnic areas (fig. 15).

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

Figure 15.—Picnic area along Gillham Lake in an area of Sherless-Littlefir complex, 1 to 8 percent slopes.

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 8 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 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Wildlife Habitat

Paul Brady, biologist, Natural Resources Conservation Service, contributed to this section.

Fish and wildlife habitats are abundant in the scenic countryside of Polk County. Land uses in Polk County are dominated by 399,600 acres of forestland, which represents about 72 percent of the county. Another 149,300 acres (about 26 percent) of the land area of the county is in pasture and hayland. Commercial cropland in the county consists of about 80 to 100 acres of small grains.

The forests consist of approximately 43 percent oak-hickory, 37 percent oak-pine, and 20 percent pines.

Common bermudagrass and tall fescue are the major pasture grasses. Small amounts of bahiagrass, white clover, annual lespedeza, and scattered plots of hybrid bermudagrass also exist.

Major plant groups and species important to wildlife in the county include oaks, hickories, dogwoods, hawthorns, shortleaf pine, loblolly pine, redcedar, blackberry, elderberry, viburnums, sumacs, greenbrier, honeysuckle, wheat, bahiagrass, bluestems, fescue, clover, annual lespedeza, panicums, partridge pea, common ragweed, tickclover, and vetches.

The abundant hardwood and evergreen forests, interspersed pastures, fencerows, and numerous vegetated edges provide abundant food and cover for white-tailed deer, wild turkey, squirrels, bobwhite quail, raccoons, coyotes, opossum, foxes, rabbits, owls, numerous nongame birds, small mammals, reptiles, and other wildlife.

About 206,356 acres (37 percent) in the county is in the Ouachita National Forest. This area is managed by the Forest Service and provides habitat and public hunting for deer, squirrels, wild turkeys, and other wildlife.

Lowland habitat along streams and lakes in the county support a variety of furbearers, including beaver, muskrat, mink, raccoon, gray fox, striped skunk, and coyote.

Polk County has approximately 3,000 ponds, covering an estimated 1,000 acres. The ponds are used primarily for livestock watering and sportfishing of largemouth bass, bluegills, redear sunfish, and channel catfish.

About 700 surface acres of lakes are in the county, including Irons Fork Lake (305 acres), Lake Wilhelmina (185 acres), about a 100-acre portion of Gillham Lake, Lake Mena (70 acres), and Ward Lake (40 acres). All of the lakes provide habitat and sportfishing for largemouth bass, bluegill, channel catfish, and other species.

About 130 miles of fishable streams are in Polk County, including the Ouachita, Cossatot, Little Missouri, and Mountain Fork Rivers.

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 9a and 9b, 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 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 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 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 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, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

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

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

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

In addition, consideration is not given here to site proximity to other sites. In some cases, a site may not be limited or only slightly limited for a specific use, but it will lie adjacent to another site which is limited or very limited for the same use. This limited site could impose some undesirable residual effects on the better site, thus resulting in a reduction in land use functionality in the future. An example would be a housing subdivision located on a suitable site but adjacent to a mountainside which produces an extremely high flow of water towards the subdivision during significant rainfall events. The cumulative effect of site proximity and its interpretive relationship within the context of specific land use planning should always be considered.

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 choice and development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 10 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 11 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 typically subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. The centerline depth of the tile is assumed to be 24 inches. Only the soil between depths of 24 and 72 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The soil properties and qualities affecting effluent absorption that are most influential in Polk County include permeability, depth to a seasonal high water table, depth to bedrock, and susceptibility to flooding. Also, stones and boulders and a shallow depth to bedrock interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. Erosion is also a hazard where absorption fields are installed in sloping soils.

Some soils in Polk County 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. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Soils that have a hazard of inadequate filtration are given a severe rating.

Percolation tests are required by some agencies and institutions to evaluate the suitability of a soil for septic tank absorption fields. These tests should be performed during the season when the water table is highest and the soil is at minimum absorptive capacity. The percolation rates do not correspond to the permeability rates because they are measured by different methods. Experience indicates that soils that have a percolation rate faster than 45 minutes per inch function satisfactorily; soils that have a rate between 45 and 60 minutes per inch have moderate limitations; and soils that have a rate slower than 60 minutes per inch have severe limitations. Percolation tests have proven to be a reliable method, especially in cases where soil limitations were none to slight.

It must be understood that the limitation ratings given in this soil survey report correspond to a conventional septic system as referred to in the first paragraph of this section. In recent years, there has been considerable research undertaken to develop various septic systems, each designed to overcome specific soil limitations. These include systems for soils with perched seasonal water tables, shallow depths, high hydraulic conductivity, and other limitations.

This research has been scientifically-based on soil morphology, which has become a proven method for evaluating the suitability of soils for septic systems as well as for designing special systems. In cases where soil limitations are moderate to severe, this method is very reliable and often provides the maximum potential for site utilization. Land users should consider inquiring into the availability of special system designs if soil limitations warrant the need. The University of Arkansas and/or Arkansas State Health Department would be among the best sources of information.

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 12 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.

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, sand, gravel, 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).

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.

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.

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 13 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 14 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.

In Polk County, the land application of manure is the most common practice of those discussed in this section. Most of this waste is in the form of dry chicken litter with lesser amounts of cattle and swine manure. Chicken litter has proven to be a valuable resource in adding nutrients and organic matter to the soils of the county. When properly applied, this amendment will increase soil fertility and has substantially increased forage production in Polk County. An effective way to utilize dry poultry litter as a soil amendment is to develop a long-term Comprehensive Nutrient Management Plan, which is based on current soil tests that indicate the fertility levels of site-specific fields. Litter application rates can be determined by using a Phosphorous Index, one of which was developed for use in Arkansas in 2001. Previously, nitrogen-based litter application resulted in an accumulation of phosphorous in many farm fields in the county. The Phosphorous Index takes into consideration such factors as the soil series, soil erosion, runoff potential, slope, flooding frequency, residual phosphorous, application method and timing, annual precipitation, and pasture management practices. The skills and concerns of Polk County poultry producers and the guidelines and methods used to manage the land application of manure, present and future, will continue to account for environmental considerations, ensuring a sustainable agriculture for succeeding generations.

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. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Soil name and map symbol	Land capability	Soybeans	Grain sorghum	Bahiagrass		Common bermuda-grass		Improved bermuda-grass		Tall fescue	
		Bu	Bu	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*
1CD------------- Avant	VIs	---	---	4,680	3.0	4,680	3.0	6,240	4.0	4,680	3.0
2C, 3C---------- Avilla	IIIe	20	70	10,920	7.0	10,920	7.0	13,260	8.5	10,290	7.0
4D:											
Bengal---------	VIs	---	---	4,680	3.0	4,680	3.0	7,020	4.5	6,240	4.0
Bismarck-------	VIs	---	---	3,900	2.5	3,900	2.5	6,240	4.0	---	3.5
Yanush---------	VIs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
4F:											
Bengal---------	VIIs	---	---	---	---	---	---	---	---	---	---
Bismarck-------	VIIs	---	---	---	---	---	---	---	---	---	---
Yanush---------	VIIs	---	---	---	---	---	---	---	---	---	---
5CD:											
Bigfork--------	VIIs	---	---	---	---	---	---	---	---	---	---
Rock outcrop.											
6G:											
Bigfork--------	VIIs	---	---	---	---	---	---	---	---	---	---
Yanush---------	VIIs	---	---	---	---	---	---	---	---	---	---
Rock outcrop.											
7C-------------- Bismarck	VIe	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
8D:											
Bismarck-------	VIs	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
Littlefir------	VIs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
8F:											
Bismarck-------	VIIs	---	---	---	---	---	---	---	---	---	---
Littlefir------	VIIs	---	---	---	---	---	---	---	---	---	---
9G:											
Bismarck-------	VIIs	---	---	---	---	---	---	---	---	---	---
Bengal---------	VIIs	---	---	---	---	---	---	---	---	---	---
Bigfork--------	VIIs	---	---	---	---	---	---	---	---	---	---
10C:											
Bismarck-------	VIe	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
Nashoba--------	VIs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5

See footnote at end of table.

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

Soil name and map symbol	Land capability	Soybeans	Grain sorghum	Bahiagrass		Common bermuda-grass		Improved bermuda-grass		Tall fescue	
		Bu	Bu	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*
10C:											
Sherless-------	IIIe	20	30	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
10D:											
Bismarck-------	VIs	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
Nashoba--------	VIs	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
Sherless-------	VIs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
11CD:											
Carnasaw-------	VIs	---	---	8,580	5.5	8,580	5.5	10,140	6.5	7,800	5.0
Pirum----------	VIs	---	---	8,580	5.5	8,580	5.5	10,140	6.5	7,800	5.0
12D:											
Carnasaw-------	VIs	---	---	7,800	5.0	7,800	5.0	8,580	5.5	7,020	4.5
Sherless-------	VIs	---	---	7,800	5.0	7,800	5.0	7,020	4.5	5,460	3.5
12F:											
Carnasaw-------	VIIs	---	---	---	---	---	---	---	---	---	---
Sherless-------	VIIs	---	---	---	---	---	---	---	---	---	---
13G:											
Caston---------	VIIs	---	---	---	---	---	---	---	---	---	---
Clebit---------	VIIs	---	---	---	---	---	---	---	---	---	---
Octavia--------	VIIs	---	---	---	---	---	---	---	---	---	---
14B------------ Ceda	VIIw	---	---	---	---	---	---	---	---	---	---
15CD:											
Clebit---------	VIIs	---	---	---	---	---	---	---	---	---	---
Carnasaw-------	VIIs	---	---	---	---	---	---	---	---	---	---
Pirum----------	VIIs	---	---	---	---	---	---	---	---	---	---
15F:											
Clebit---------	VIIs	---	---	---	---	---	---	---	---	---	---
Carnasaw-------	VIIs	---	---	---	---	---	---	---	---	---	---
Pirum----------	VIIs	---	---	---	---	---	---	---	---	---	---
16B------------ Cupco	IIIw	25	60	7,800	5.0	7,800	5.0	10,920	7.0	10,920	7.0
17B------------ Dela	IIw	30	65	10,920	7.0	10,920	7.0	12,480	8.0	10,920	7.0
18B------------ Kenn	IIw	20	35	10,140	6.5	10,140	6.5	10,920	7.0	9,360	6.0
19B:											
Kenn-----------	Vw	---	---	9,360	6.0	9,360	6.0	10,140	6.5	8,580	5.5
Ceda-----------	VIIw	---	---	9,360	6.0	9,360	6.0	10,140	6.5	8,580	5.5

See footnote at end of table.

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

Soil name and map symbol	Land capability	Soybeans	Grain sorghum	Bahiagrass		Common bermuda-grass		Improved bermuda-grass		Tall fescue	
		Bu	Bu	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*
20C:											
Littlefir------	IVe	---	---	5,460	3.5	5,460	3.5	7,020	4.5	6,240	4.0
Bismarck-------	VIe	---	---	4,680	3.0	4,680	3.0	6,240	4.0	4,680	3.0
21B, 22B-------- Mazarn	IIIw	25	75	9,360	6.0	9,360	6.0	10,920	7.0	7,800	5.0
23C, 24C-------- Mena	IIIe	---	---	10,140	6.5	10,140	6.5	12,480	8.0	10,140	6.5
24D------------ Mena	IVe	---	---	9,360	6.0	9,360	6.0	11,700	7.5	9,360	6.0
25F:											
Nashoba--------	VIIs	---	---	---	---	---	---	---	---	---	---
Bismarck-------	VIIs	---	---	---	---	---	---	---	---	---	---
26B------------ Neff	IIw	25	65	10,920	7.0	10,920	7.0	12,480	8.0	10,920	7.0
27D, 27F:											
Octavia--------	VIIs	---	---	---	---	---	---	---	---	---	---
Carnasaw-------	VIIs	---	---	---	---	---	---	---	---	---	---
28G:											
Octavia--------	VIIs	---	---	---	---	---	---	---	---	---	---
Carnasaw-------	VIIs	---	---	---	---	---	---	---	---	---	---
Caston---------	VIIs	---	---	---	---	---	---	---	---	---	---
29G:											
Octavia--------	VIIs	---	---	---	---	---	---	---	---	---	---
Caston---------	VIIs	---	---	---	---	---	---	---	---	---	---
Pirum----------	VIIs	---	---	---	---	---	---	---	---	---	---
30C------------ Sherless	IIIe	20	30	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
31C:											
Sherless-------	IIIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
Littlefir------	IVe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
31D:											
Sherless-------	VIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
Littlefir------	VIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
31F:											
Sherless-------	VIIs	---	---	---	---	---	---	---	---	---	---
Littlefir------	VIIs	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

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

Soil name and map symbol	Land capability	Soybeans	Grain sorghum	Bahiagrass		Common bermudagrass		Improved bermudagrass		Tall fescue	
		Bu	Bu	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*	Lbs/ac	AUM*
32C:											
Sherless	IIIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
Nashoba	VIs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	7,020	4.5
32D:											
Sherless	VIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
Nashoba	VIs	---	---	5,460	3.5	5,460	3.5	6,240	4.0	5,460	3.5
33F:											
Sherless	VIIs	---	---	---	---	---	---	---	---	---	---
Nashoba	VIIs	---	---	---	---	---	---	---	---	---	---
Bismarck	VIIs	---	---	---	---	---	---	---	---	---	---
34B Speer	IIe	25	65	12,480	8.0	12,480	8.0	14,040	9.0	11,700	7.5
35B Speer	IIw	25	70	12,480	8.0	12,480	8.0	14,040	9.0	11,700	7.5
36. Water											
37C Wetsaw	IIIe	21	62	8,580	5.5	8,580	5.5	9,360	6.0	7,800	5.0
38C Wilburton	IVs	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
39C Yanush	IVe	---	---	7,020	4.5	7,020	4.5	8,580	5.5	6,240	4.0
39D Yanush	VIe	---	---	6,240	4.0	6,240	4.0	7,800	5.0	5,460	3.5
40G:											
Yanush	VIIs	---	---	---	---	---	---	---	---	---	---
Avant	VIIs	---	---	---	---	---	---	---	---	---	---
41F:											
Yanush	VIIs	---	---	---	---	---	---	---	---	---	---
Bigfork	VIIs	---	---	---	---	---	---	---	---	---	---
41G:											
Yanush	VIIs	---	---	---	---	---	---	---	---	---	---
Bigfork	VIIs	---	---	---	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 6.--Woodland Management and Productivity

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

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
1CD-------------Avant	6F	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Southern red oak----	---	---			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
		White oak-----------	---	---			
		Hickory-------------	---	---			
2C--------------Avilla	8A	Shortleaf pine------	70	8	108-122	540-610	Shortleaf pine, loblolly pine, black walnut, cherrybark oak.
		Southern red oak----	65	3			
		Loblolly pine-------	70	6			
		Cherrybark oak------	---	---			
		Sweetgum------------	70	4			
		Black walnut--------	---	---			
3C--------------Avilla	8A	Shortleaf pine------	70	8	108-122	540-610	Shortleaf pine, loblolly pine, cherrybark oak, black walnut.
		Loblolly pine-------	70	6			
		Southern red oak----	65	3			
		Sweetgum------------	70	4			
		Cherrybark oak------	---	---			
		Black walnut--------	---	---			
4D:							
Bengal---------	6D	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak-------	---	---			
		Post oak------------	---	---			
Bismarck-------	4D	Shortleaf pine------	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine-------	50	5			
		Eastern redcedar----	30	2			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
Yanush---------	7F	Shortleaf pine------	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		Black walnut--------	---	---			
		Southern red oak----	---	---			
4F:							
Bengal---------	6R	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak-------	---	---			
		Post oak------------	---	---			
Bismarck-------	4R	Shortleaf pine------	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine-------	50	5			
		Eastern redcedar----	30	2			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
Yanush---------	7R	Shortleaf pine------	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		Black walnut--------	---	---			
		Southern red oak----	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi- nation symbol	Potential productivity (approximate)			Cubic feet per acre per year	Board feet per acre per year	Trees to plant
		Common trees	Site index	Produc- tivity class*			
5CD:							
Bigfork	3X	Shortleaf pine	40	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Blackjack oak	---	---			
		Post oak	---	---			
Rock outcrop.							
6G:							
Bigfork	3R	Shortleaf pine	40	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Blackjack oak	---	---			
		Post oak	---	---			
Yanush	6R	Shortleaf pine	60	6	95-106	475-530	Shortleaf pine, loblolly pine.
Rock outcrop.							
7C Bismarck	4D	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	5	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
8D:							
Bismarck	4D	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
Littlefir	6A	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak	---	---			
		Post oak	---	---			
8F:							
Bismarck	4R	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
Littlefir	6R	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak	---	---			
		Post oak	---	---			
9G:							
Bismarck	4R	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
Bengal	4R	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
9G:							
Bigfork	4R	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
10C:							
Bismarck	4D	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	5	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
Nashoba	6F	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak	---	---			
Sherless	7A	Shortleaf pine	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak	---	---			
		Southern red oak	---	---			
		Sweetgum	---	---			
		Blackgum	---	---			
		Hickory	---	---			
10D:							
Bismarck	4D	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
Nashoba	6F	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak	---	---			
Sherless	7A	Shortleaf pine	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak	---	---			
		Southern red oak	---	---			
		Sweetgum	---	---			
		Blackgum	---	---			
		Hickory	---	---			
11CD:							
Carnasaw	6X	Shortleaf pine	60	6	95-106	475-530	Loblolly pine, shortleaf pine.
		Loblolly pine	65	6			
		Southern red oak	---	---			
Pirum	6X	Loblolly pine	65	6	95-106	475-530	Shortleaf pine, loblolly pine, southern red oak.
		Shortleaf pine	60	6			
		Southern red oak	60	3			
		White oak	60	3			
12D:							
Carnasaw	7A	Loblolly pine	65	6	95-106	475-530	Shortleaf pine, loblolly pine.
		Shortleaf pine	65	6			
Sherless	7A	Shortleaf pine	65	8	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak	---	---			
		Southern red oak	---	---			
		Sweetgum	---	---			
		Blackgum	---	---			
		Hickory	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi-nation symbol	Potential productivity (approximate): Common trees	Site index	Produc-tivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
12F:							
Carnasaw-------	7R	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		Loblolly pine-------	70	6			
		Southern red oak----	---	---			
Sherless-------	7R	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Hickory-------------	---	---			
13G:							
Caston---------	6R	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, southern red oak, white oak, black walnut.
		Southern red oak----	60	3			
		White oak-----------	---	---			
		Hickory-------------	---	---			
Clebit---------	3X	Shortleaf pine------	40	3	47-49	235-245	Shortleaf pine, loblolly pine.
Octavia--------	6R	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Southern red oak----	60	3			
		Hickory-------------	---	---			
		White oak-----------	---	---			
14B------------ Ceda	7W	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine, American sycamore, sweetgum.
		Southern red oak----	---	---			
		White oak-----------	---	---			
		Sweetgum------------	80	6			
		American sycamore---	80	6			
15CD:							
Clebit---------	3X	Shortleaf pine------	40	3	47-49	235-245	Shortleaf pine, loblolly pine.
Carnasaw-------	6X	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Loblolly pine-------	70	6			
		Southern red oak----	---	---			
Pirum----------	6X	Loblolly pine-------	70	6	80-92	400-460	Loblolly pine, shortleaf pine, southern red oak.
		Shortleaf pine------	60	6			
		Southern red oak----	60	3			
		White oak-----------	60	3			
15F:							
Clebit---------	3R	Shortleaf pine------	40	3	47-49	235-245	Shortleaf pine, loblolly pine.
Carnasaw-------	6R	Shortleaf pine------	60	6	80-92	400-460	Loblolly pine, shortleaf pine.
		Loblolly pine-------	70	6			
		Southern red oak----	---	---			
Pirum----------	6R	Loblolly pine-------	70	6	80-92	400-460	Loblolly pine, shortleaf pine, southern red oak.
		Shortleaf pine------	60	6			
		Southern red oak----	60	3			
		White oak-----------	60	3			
16B------------ Cupco	9W	Water oak-----------	80	9	124-134	620-670	Shortleaf pine, loblolly pine.
		Green ash-----------	---	---			
		Willow oak----------	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
17B Dela	10A	Southern red oak	80	4	136-150	680-750	Loblolly pine, shortleaf pine, black walnut, southern red oak.
		Sweetgum	90	7			
		Eastern cottonwood	100	9			
		Shortleaf pine	85	10			
		Green ash	---	---			
		Hickory	---	---			
18B Kenn	8A	Shortleaf pine	70	8	108-122	540-610	Shortleaf pine, loblolly pine.
		Southern red oak	70	4			
		Sweetgum	80	6			
		Post oak	---	---			
19B:							
Kenn	8W	Shortleaf pine	70	8	108-122	540-610	Shortleaf pine, loblolly pine.
		Southern red oak	70	4			
		Sweetgum	80	6			
		Post oak	---	---			
Ceda	7W	Shortleaf pine	65	7	95-106	475-530	Loblolly pine, shortleaf pine, American sycamore, sweetgum.
		Southern red oak	---	---			
		White oak	---	---			
		Sweetgum	80	6			
		American sycamore	80	6			
20C:							
Littlefir	6A	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak	---	---			
		Post oak	---	---			
Bismarck	4D	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	5	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
21B Mazarn	7W	Shortleaf pine	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		White oak	60	3			
		Sweetgum	65	4			
22B Mazarn	7W	Shortleaf pine	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		White oak	60	3			
		Sweetgum	65	4			
23C, 24C, 24D Mena	8A	Shortleaf pine	70	8	108-122	540-610	Shortleaf pine, loblolly pine.
		Loblolly pine	75	7			
25F:							
Nashoba	6X	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak	---	---			
Bismarck	4R	Shortleaf pine	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine	50	5			
		Eastern redcedar	30	2			
		Post oak	---	---			
		Blackjack oak	---	---			
26B Neff	9W	Shortleaf pine	80	9	124-134	620-670	Loblolly pine, shortleaf pine.
		Sweetgum	---	---			
		Green ash	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
27D:							
Octavia	7X	Shortleaf pine	65	6	95-106	475-530	Loblolly pine, shortleaf pine.
		Southern red oak	60	3			
		Hickory	---	---			
		White oak	---	---			
Carnasaw	7X	Shortleaf pine	65	6	95-106	475-530	Loblolly pine, shortleaf pine.
		Loblolly pine	70	6			
		Southern red oak	---	---			
27F:							
Octavia	7R	Shortleaf pine	65	6	95-106	475-530	Shortleaf pine, loblolly pine.
		Southern red oak	60	3			
		Hickory	---	---			
		White oak	---	---			
Carnasaw	7R	Shortleaf pine	65	6	95-106	475-530	Loblolly pine, shortleaf pine.
		Loblolly pine	70	6			
		Southern red oak	---	---			
28G:							
Octavia	7R	Shortleaf pine	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		Southern red oak	60	3			
		Hickory	---	---			
		White oak	---	---			
Carnasaw	6R	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Hickory	---	---			
		White oak	---	---			
		Blackjack oak	---	---			
		Post oak	---	---			
Caston	6R	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, southern red oak, white oak, black walnut.
		Southern red oak	60	3			
		White oak	---	---			
		Hickory	---	---			
29G:							
Octavia	6R	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Southern red oak	60	3			
		Hickory	---	---			
		White oak	---	---			
Caston	6R	Shortleaf pine	60	6	80-92	400-460	Shortleaf pine, southern red oak, white oak, black walnut.
		Southern red oak	60	3			
		White oak	---	---			
		Hickory	---	---			
Pirum	6R	Loblolly pine	70	6	80-92	400-460	Loblolly pine, shortleaf pine, southern red oak.
		Shortleaf pine	60	6			
		Southern red oak	60	3			
		White oak	60	3			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
30C------------- Sherless	8A	Shortleaf pine------	70	8	108-122	540-610	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Sweetgum------------	---	---			
		Blackgum------------	---	---			
		Hickory-------------	---	---			
31C, 31D:							
Sherless-------	7A	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Sweetgum------------	---	---			
		Blackgum------------	---	---			
		Hickory-------------	---	---			
Littlefir------	7A	Shortleaf pine------	65	7	95-106	475-530	Shortleaf pine, loblolly pine, southern red oak.
		Blackjack oak-------	---	---			
		Post oak------------	---	---			
31F:							
Sherless-------	7R	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Hickory-------------	---	---			
Littlefir------	7R	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		Blackjack oak-------	---	---			
		Post oak------------	---	---			
32C:							
Sherless-------	7A	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Sweetgum------------	---	---			
		Blackgum------------	---	---			
		Hickory-------------	---	---			
Nashoba--------	6F	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak------------	---	---			
32D:							
Sherless-------	7A	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Sweetgum------------	---	---			
		Blackgum------------	---	---			
		Hickory-------------	---	---			
Nashoba--------	6F	Shortleaf pine------	60	7	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak------------	---	---			
33F:							
Sherless-------	7R	Shortleaf pine------	65	7	95-106	475-530	Loblolly pine, shortleaf pine.
		White oak-----------	---	---			
		Southern red oak----	---	---			
		Hickory-------------	---	---			
Nashoba--------	6R	Shortleaf pine------	60	7	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak------------	---	---			

See footnote at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Potential productivity (approximate): Common trees	Site index	Productivity class*	Cubic feet per acre per year	Board feet per acre per year	Trees to plant
33F:							
Bismarck-------	4R	Shortleaf pine------	45	4	51-64	255-320	Shortleaf pine, loblolly pine.
		Loblolly pine-------	50	5			
		Eastern redcedar----	30	2			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
34B, 35B-------- Speer	10A	Southern red oak----	80	4	136-150	680-750	Loblolly pine, shortleaf pine, black walnut, southern red oak.
		Sweetgum------------	90	7			
		Shortleaf pine------	85	9			
37C------------ Wetsaw	8A	Shortleaf pine------	70	8	108-122	540-610	Shortleaf pine, loblolly pine.
		Southern red oak----	---	---			
		White oak-----------	---	---			
		Sweetgum------------	---	---			
		Blackgum------------	---	---			
		Hickory-------------	---	---			
38C------------ Wilburton	6F	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Hickory-------------	---	---			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
		White oak-----------	---	---			
40G:							
Yanush---------	7R	Shortleaf pine------	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
		Black walnut--------	---	---			
		Southern red oak----	---	---			
Avant----------	6R	Shortleaf pine------	60	6	80-92	400-460	Shortleaf pine, loblolly pine.
		Southern red oak----	---	---			
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
		White oak-----------	---	---			
		Hickory-------------	---	---			
41F:							
Yanush---------	7R	Shortleaf pine------	65	7	95-106	475-530	Shortleaf pine, loblolly pine.
Bigfork--------	4R	Shortleaf pine------	45	4	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak------------	---	---			
		Blackjack oak-------	---	---			
41G:							
Yanush---------	6R	Shortleaf pine------	60	6	95-106	475-530	Shortleaf pine, loblolly pine.
Bigfork--------	4R	Shortleaf pine------	45	4	80-92	400-460	Shortleaf pine, loblolly pine.
		Post oak------------	---	---			
		Blackjack oak-------	---	---			

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 7a.--Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 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		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant	Limited ~large stones (limited)	0.76	Very limited ~large stones >35% (very limited) ~slope (moderately limited)	1.00 0.34	Not limited		Limited ~large stones (limited)	0.76	Moderately limited ~slope (moderately limited)	0.45
2C:										
Avilla	Not limited		Not limited		Not limited		Not limited		Not Limited	
3C:										
Avilla	Slightly limited ~small stones (slightly limited)	0.08	Slightly limited ~small stones (slightly limited)	0.08	Not limited		Not limited		Not Limited	
4D:										
Bengal	Moderately limited ~large stones (moderately limited)	0.40	Limited ~large stones (limited) ~slope (moderately limited)	0.73 0.47	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~large stones (moderately limited)	0.40	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
Bismarck	Moderately limited ~large stones (moderately limited)	0.40	Limited ~large stones (limited) ~slope (moderately limited)	0.73 0.47	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~large stones (moderately limited)	0.40	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
Yanush	Moderately limited ~large stones (moderately limited)	0.40	Limited ~large stones (limited) ~slope (moderately limited)	0.73 0.47	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~large stones (moderately limited)	0.40	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Hand planting: Value	Mechanical planting: Rating class and limiting features	Mechanical planting: Value	Use of harvesting equipment: Rating class and limiting features	Use of harvesting equipment: Value	Mechanical site preparation (surface): Rating class and limiting features	Mechanical site preparation (surface): Value	Roads (natural surface): Rating class and limiting features	Roads (natural surface): Value
4F:										
Bengal	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~low strength (moderately limited)	0.50
Bismarck	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~low strength (moderately limited)	0.50
Yanush	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~low strength (moderately limited)	0.50
5CD:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~large surface stones (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~surface stones >15% (very limited)	1.00			~large surface stones (very limited)	1.00	~surface stones >50% (very limited)	1.00
			~slope (moderately limited)	0.34					~slope (moderately limited)	0.45
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
6G:										
Yanush	Limited ~large stones (limited) ~surface stones (limited) ~slope (moderately limited)	 0.91 0.77 0.52	Very limited ~slope (very limited) ~large stones >35% (very limited) ~surface stones >15% (very limited)	 1.00 1.00 1.00	Very limited ~large surface stones (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	 1.00 1.00 0.91	Very limited ~slope (very limited) ~large surface stones (very limited) ~surface stones (limited)	 1.00 1.00 0.77
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck	Slightly limited ~small stones (slightly limited)	 0.10	Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	 0.10 0.10	Moderately limited ~low strength (moderately limited)	 0.50	Not limited		Moderately limited ~low strength (moderately limited)	 0.50
8D:										
Bismarck	Moderately limited ~large stones (moderately limited)	 0.40	Limited ~large stones (limited) ~slope (moderately limited)	 0.73 0.47	Moderately limited ~low strength (moderately limited)	 0.50	Moderately limited ~large stones (moderately limited)	 0.40	Limited ~slope (limited) ~low strength (moderately limited)	 0.76 0.50
Littlefir	Moderately limited ~large stones (moderately limited)	 0.40	Limited ~large stones (limited) ~slope (moderately limited)	 0.73 0.47	Moderately limited ~low strength (moderately limited)	 0.50	Moderately limited ~large stones (moderately limited)	 0.40	Limited ~slope (limited) ~low strength (moderately limited)	 0.76 0.50
8F:										
Bismarck	Moderately limited ~large stones (moderately limited) ~slope (slightly limited)	 0.40 0.14	Limited ~slope (limited) ~large stones (limited)	 0.99 0.73	Moderately limited ~slope (moderately limited) ~low strength (moderately limited)	 0.60 0.50	Moderately limited ~slope (moderately limited) ~large stones (moderately limited)	 0.60 0.40	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50
Littlefir	Moderately limited ~large stones (moderately limited) ~slope (slightly limited)	 0.40 0.14	Limited ~slope (limited) ~large stones (limited)	 0.99 0.73	Moderately limited ~slope (moderately limited) ~low strength (moderately limited)	 0.60 0.50	Moderately limited ~slope (moderately limited) ~large stones (moderately limited)	 0.60 0.40	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
9G:										
Bismarck-------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~slope (moderately limited)	0.52	~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)	0.79	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~low strength (moderately limited)	0.50
Bengal---------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~slope (moderately limited)	0.52	~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)	0.79	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~low strength (moderately limited)	0.50
Bigfork--------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~slope (moderately limited)	0.52	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.50	~large stones (limited)	0.86	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~surface stones (moderately limited)	0.42	~surface stones (limited)	0.79	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.50	~low strength (moderately limited)	0.50
10C:										
Bismarck-------	Slightly limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
	~small stones (slightly limited)	0.10	~small stones (slightly limited)	0.10	~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50
Nashoba--------	Moderately limited		Limited		Not limited		Moderately limited		Not Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73			~large stones (moderately limited)	0.40		
Sherless-------	Not limited		Not limited		Not limited		Not limited		Not Limited	
10D:										
Bismarck-------	Moderately limited		Limited		Moderately limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~slope (limited)	0.76
			~slope (moderately limited)	0.47					~low strength (moderately limited)	0.50

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Hand planting: Value	Mechanical planting: Rating class and limiting features	Mechanical planting: Value	Use of harvesting equipment: Rating class and limiting features	Use of harvesting equipment: Value	Mechanical site preparation (surface): Rating class and limiting features	Mechanical site preparation (surface): Value	Roads (natural surface): Rating class and limiting features	Roads (natural surface): Value
10D:										
Nashoba--------	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73			~large stones (moderately limited)	0.40	~slope (limited)	0.76
			~slope (moderately limited)	0.47						
Sherless-------	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73			~large stones (moderately limited)	0.40	~slope (limited)	0.76
			~slope (moderately limited)	0.47						
11CD:										
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~surface stones (limited)	0.77
			~slope (moderately limited)	0.34					~low strength (moderately limited)	0.50
Pirum----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~surface stones (limited)	0.77
			~slope (moderately limited)	0.34					~low strength (moderately limited)	0.50
12D:										
Carnasaw-------	Moderately limited		Limited		Moderately limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~slope (limited)	0.76
			~slope (moderately limited)	0.47					~low strength (moderately limited)	0.50
Sherless-------	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.40	~large stones (limited)	0.73			~large stones (moderately limited)	0.40	~slope (limited)	0.76
			~slope (moderately limited)	0.47						

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
12F:										
Carnasaw	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~surface stones (limited)	0.77
Sherless	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73			~large stones (moderately limited)	0.40	~surface stones (limited)	0.77
13G:										
Caston	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00
Octavia	Very limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones >50% (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 stones (limited)	0.91	~surface stones >15% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~large stones >35% (very limited)	1.00			~large stones (limited)	0.91	~surface stones >50% (very limited)	1.00

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
14B:										
Ceda-----------	Limited ~large stones (limited)	 0.91	Very limited ~large stones >35% (very limited)	 1.00	Not limited		Limited ~large stones (limited)	 0.91	Very limited ~flooding (very limited)	 1.00
15CD:										
Clebit---------	Very limited ~large stones >75% (very limited) ~surface stones >50% (very limited)	 1.00 1.00	Very limited ~large stones >35% (very limited) ~surface stones >15% (very limited) ~slope (moderately limited)	 1.00 1.00 0.34	Very limited ~large surface stones (very limited)	 1.00	Very limited ~large stones >75% (very limited) ~large surface stones (very limited)	 1.00 1.00	Very limited ~large surface stones (very limited) ~surface stones >50% (very limited) ~slope (moderately limited)	 1.00 1.00 0.45
Carnasaw-------	Very limited ~surface stones >50% (very limited) ~large stones >75% (very limited)	 1.00 1.00	Very limited ~large stones >35% (very limited) ~surface stones >15% (very limited) ~slope (moderately limited)	 1.00 1.00 0.34	Very limited ~large surface stones (very limited)	 1.00	Very limited ~large surface stones (very limited) ~large stones >75% (very limited)	 1.00 1.00	Very limited ~large surface stones (very limited) ~surface stones >50% (very limited) ~slope (moderately limited)	 1.00 1.00 0.45
Pirum----------	Very limited ~surface stones >50% (very limited) ~large stones >75% (very limited)	 1.00 1.00	Very limited ~large stones >35% (very limited) ~surface stones >15% (very limited) ~slope (moderately limited)	 1.00 1.00 0.34	Very limited ~large surface stones (very limited)	 1.00	Very limited ~large surface stones (very limited) ~large stones >75% (very limited)	 1.00 1.00	Very limited ~large surface stones (very limited) ~surface stones >50% (very limited) ~slope (moderately limited)	 1.00 1.00 0.45
15F:										
Clebit---------	Very limited ~surface stones >50% (very limited) ~large stones (limited) ~slope (slightly limited)	 1.00 0.91 0.14	Very limited ~surface stones >15% (very limited) ~large stones >35% (very limited) ~slope (limited)	 1.00 1.00 0.99	Very limited ~large surface stones (very limited) ~slope (moderately limited)	 1.00 0.60	Very limited ~large surface stones (very limited) ~large stones (limited) ~slope (moderately limited)	 1.00 0.91 0.60	Very limited ~large surface stones (very limited) ~surface stones >50% (very limited) ~slope (very limited)	 1.00 1.00 1.00

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
15F:										
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones >50% (very limited)	1.00	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (limited)	0.91	~large stones >35% (very limited)	1.00	~slope (moderately limited)	0.60	~large stones (limited)	0.91	~surface stones >50% (very limited)	1.00
	~slope (slightly limited)	0.14	~slope (limited)	0.99			~slope (moderately limited)	0.60	~slope (very limited)	1.00
Pirum	Very limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones >50% (very limited)	1.00	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (limited)	0.60	~large stones >35% (very limited)	0.99	~slope (moderately limited)	0.60	~large stones (limited)	0.60	~surface stones >50% (very limited)	1.00
	~slope (slightly limited)	0.14	~slope (limited)	0.99	~low strength (moderately limited)	0.50	~slope (moderately limited)	0.60	~slope (very limited)	1.00
16B:										
Cupco	Not limited		Not limited		Moderately limited		Moderately limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (moderately limited)	0.45	~low strength (moderately limited)	0.50
					~seasonal wetness (moderately limited)	0.45			~seasonal wetness (moderately limited)	0.45
17B:										
Dela	Not limited		Not limited		Not limited		Not limited		Moderately limited	
									~flooding (moderately limited)	0.60
18B:										
Kenn	Slightly limited		Slightly limited		Not limited		Not limited		Moderately limited	
	~small stones (slightly limited)	0.08	~small stones (slightly limited)	0.08					~flooding (moderately limited)	0.60
19B:										
Kenn	Moderately limited		Limited		Not limited		Moderately limited		Very limited	
	~large stones (moderately limited)	0.50	~large stones (limited)	0.86			~large stones (moderately limited)	0.50	~flooding (very limited)	1.00
Ceda	Limited		Very limited		Not limited		Limited		Very limited	
	~large stones (limited)	0.80	~large stones >35% (very limited)	1.00			~large stones (limited)	0.80	~flooding (very limited)	1.00

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20C:										
Littlefir	Slightly limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
	~small stones (slightly limited)	0.10	~small stones (slightly limited)	0.10	~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50
Bismarck	Slightly limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
	~small stones (slightly limited)	0.10	~small stones (slightly limited)	0.10	~low strength (moderately limited)	0.50			~low strength (moderately limited)	0.50
21B:										
Mazarn	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~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
22B:										
Mazarn	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.29	~flooding (moderately limited)	0.60
					~seasonal wetness (slightly limited)	0.29			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.29
23C:										
Mena	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.10	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.10			~seasonal wetness (slightly limited)	0.10
24C:										
Mena	Slightly limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
	~small stones (slightly limited)	0.10	~small stones (slightly limited)	0.10	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.10	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.10			~seasonal wetness (slightly limited)	0.10

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
24D:										
Mena	Slightly limited		Moderately limited		Moderately limited		Slightly limited		Moderately limited	
	~small stones (slightly limited)	0.10	~slope (moderately limited)	0.34	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.10	~low strength (moderately limited)	0.50
			~small stones (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10			~slope (moderately limited)	0.45
									~seasonal wetness (slightly limited)	0.10
25F:										
Nashoba	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.60	~large stones >35% (very limited)	0.99	~slope (moderately limited)	0.60	~large stones (limited)	0.60	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~slope (limited)	0.99			~slope (moderately limited)	0.60	~surface stones (limited)	0.77
Bismarck	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.60	~large stones >35% (very limited)	0.99	~slope (moderately limited)	0.60	~large stones (limited)	0.60	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~slope (limited)	0.99	~low strength (moderately limited)	0.50	~slope (moderately limited)	0.60	~surface stones (limited)	0.77
26B:										
Neff	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.20	~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.20			~seasonal wetness (slightly limited)	0.20
27D:										
Octavia	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (limited)	0.60	~large stones >35% (very limited)	0.99	~low strength (moderately limited)	0.50	~large stones (limited)	0.60	~surface stones (limited)	0.77
			~slope (moderately limited)	0.47					~slope (limited)	0.76

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27D:										
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones	0.77	~surface stones >15%	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.60	~large stones >35%	0.99	~low strength	0.50	~large stones	0.60	~surface stones	0.77
	(limited)		(very limited)		(moderately limited)		(limited)		(limited)	
			~slope	0.47					~slope	0.76
			(moderately limited)						(limited)	
27F:										
Octavia--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones	0.77	~surface stones >15%	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.60	~large stones >35%	0.99	~slope	0.60	~large stones	0.60	~large surface stones	1.00
	(limited)		(very limited)		(moderately limited)		(limited)		(very limited)	
	~slope	0.14	~slope	0.99	~low strength	0.50	~slope	0.60	~surface stones	0.77
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones	0.77	~surface stones >15%	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.60	~large stones >35%	0.99	~slope	0.60	~large stones	0.60	~large surface stones	1.00
	(limited)		(very limited)		(moderately limited)		(limited)		(very limited)	
	~slope	0.14	~slope	0.99	~low strength	0.50	~slope	0.60	~surface stones	0.77
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
28G:										
Octavia--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones	0.91	~slope	1.00	~large surface stones	1.00	~slope	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~surface stones	0.82	~large stones >35%	1.00	~slope	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.52	~surface stones >15%	1.00			~large stones	0.91	~surface stones	0.82
	(moderately limited)		(very limited)				(limited)		(limited)	
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones	0.91	~slope	1.00	~large surface stones	1.00	~slope	1.00	~slope	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~surface stones	0.82	~large stones >35%	1.00	~slope	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.52	~surface stones >15%	1.00			~large stones	0.91	~surface stones	0.82
	(moderately limited)		(very limited)				(limited)		(limited)	

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
28G:										
Caston	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00
29G:										
Octavia	Very limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones >50% (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 stones (limited)	0.91	~surface stones >15% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~large stones >35% (very limited)	1.00			~large stones (limited)	0.91	~surface stones >50% (very limited)	1.00
Caston	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00
Pirum	Very limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones >50% (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 stones (limited)	0.68	~surface stones >15% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~large stones >35% (very limited)	1.00			~large stones (limited)	0.68	~surface stones >50% (very limited)	1.00
30C:										
Sherless	Not limited		Slightly limited		Not limited		Not limited		Not Limited	
			~slope (slightly limited)	0.10						
31C:										
Sherless	Not limited		Not limited		Not limited		Not limited		Not Limited	
Littlefir	Slightly limited		Slightly limited		Not limited		Not limited		Not Limited	
	~small stones (slightly limited)	0.10	~small stones (slightly limited)	0.10						

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
31D:										
Sherless-------	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones	0.40	~large stones	0.73			~large stones	0.40	~slope	0.76
	(moderately limited)		(limited)				(moderately limited)		(limited)	
			~slope	0.47						
			(moderately limited)							
Littlefir------	Moderately limited		Limited		Moderately limited		Moderately limited		Limited	
	~large stones	0.50	~large stones	0.86	~low strength	0.50	~large stones	0.50	~slope	0.76
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(limited)	
			~slope	0.47					~low strength	0.50
			(moderately limited)						(moderately limited)	
31F:										
Sherless-------	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~surface stones	0.42	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~large stones	0.40	~surface stones	0.79	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.14	~large stones	0.73			~large stones	0.40	~surface stones	0.42
	(slightly limited)		(limited)				(moderately limited)		(moderately limited)	
Littlefir------	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~large stones	0.50	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~surface stones	0.42	~large stones	0.86	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.14	~surface stones	0.79	~low strength	0.50	~large stones	0.50	~low strength	0.50
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
32C:										
Sherless-------	Moderately limited		Limited		Not limited		Moderately limited		Not Limited	
	~large stones	0.40	~large stones	0.73			~large stones	0.40		
	(moderately limited)		(limited)				(moderately limited)			
			~surface stones	0.02						
			(slightly limited)							
Nashoba--------	Moderately limited		Limited		Not limited		Moderately limited		Not Limited	
	~large stones	0.50	~large stones	0.86			~large stones	0.50		
	(moderately limited)		(limited)				(moderately limited)			
			~surface stones	0.02						
			(slightly limited)							

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Value	Mechanical planting: Rating class and limiting features	Value	Use of harvesting equipment: Rating class and limiting features	Value	Mechanical site preparation (surface): Rating class and limiting features	Value	Roads (natural surface): Rating class and limiting features	Value
32D:										
Sherless	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones	0.40	~large stones	0.73			~large stones	0.40	~slope	0.76
	(moderately limited)		(limited)				(moderately limited)		(limited)	
			~slope	0.47						
			(moderately limited)							
			~surface stones	0.02						
			(slightly limited)							
Nashoba	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~large stones	0.50	~large stones	0.86			~large stones	0.50	~slope	0.76
	(moderately limited)		(limited)				(moderately limited)		(limited)	
			~slope	0.47						
			(moderately limited)							
			~surface stones	0.02						
			(slightly limited)							
33F:										
Sherless	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~surface stones	0.42	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~large stones	0.40	~surface stones	0.79	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.14	~large stones	0.73			~large stones	0.40	~surface stones	0.42
	(slightly limited)		(limited)				(moderately limited)		(moderately limited)	
Nashoba	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~large stones	0.50	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~surface stones	0.42	~large stones	0.86	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.14	~surface stones	0.79			~large stones	0.50	~surface stones	0.42
	(slightly limited)		(limited)				(moderately limited)		(moderately limited)	
Bismarck	Moderately limited		Limited		Moderately limited		Moderately limited		Very limited	
	~surface stones	0.42	~slope	0.99	~slope	0.60	~slope	0.60	~slope	1.00
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(very limited)	
	~large stones	0.40	~surface stones	0.79	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.14	~large stones	0.73	~low strength	0.50	~large stones	0.40	~low strength	0.50
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
34B:										
Speer	Not limited		Not limited		Not limited		Not limited		Not Limited	

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
35B:										
Speer	Not limited		Not limited		Not limited		Not limited		Moderately limited ~flooding (moderately limited)	 0.60
36:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	 0.50 0.20	Slightly limited ~seasonal wetness (slightly limited)	 0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	 0.50 0.20
38C:										
Wilburton	Very limited ~surface stones >50% (very limited) ~large stones (limited)	 1.00 0.76	Very limited ~surface stones >15% (very limited) ~large stones >35% (very limited)	 1.00 1.00	Very limited ~large surface stones (very limited)	 1.00	Very limited ~large surface stones (very limited) ~large stones (limited)	 1.00 0.76	Very limited ~large surface stones (very limited) ~surface stones >50% (very limited)	 1.00 1.00
39C:										
Yanush	Slightly limited ~small stones (slightly limited)	 0.10	Slightly limited ~small stones (slightly limited)	 0.10	Moderately limited ~low strength (moderately limited)	 0.50	Not limited		Moderately limited ~low strength (moderately limited)	 0.50
39D:										
Yanush	Slightly limited ~small stones (slightly limited)	 0.10	Moderately limited ~slope (moderately limited) ~small stones (slightly limited)	 0.47 0.10	Moderately limited ~low strength (moderately limited)	 0.50	Not limited		Limited ~slope (limited) ~low strength (moderately limited)	 0.76 0.50
40G:										
Yanush	Moderately limited ~slope (moderately limited) ~large stones (moderately limited)	 0.52 0.40	Very limited ~slope (very limited) ~large stones (limited)	 1.00 0.73	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50	Very limited ~slope (very limited) ~large stones (moderately limited)	 1.00 0.40	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50
Avant	Limited ~large stones (limited) ~slope (moderately limited)	 0.68 0.52	Very limited ~slope (very limited) ~large stones >35% (very limited)	 1.00 1.00	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited) ~large stones (limited)	 1.00 0.68	Very limited ~slope (very limited)	 1.00

Table 7a.--Forest Management--Continued

Map symbol and soil name	Hand planting: Rating class and limiting features	Hand planting: Value	Mechanical planting: Rating class and limiting features	Mechanical planting: Value	Use of harvesting equipment: Rating class and limiting features	Use of harvesting equipment: Value	Mechanical site preparation (surface): Rating class and limiting features	Mechanical site preparation (surface): Value	Roads (natural surface): Rating class and limiting features	Roads (natural surface): Value
41F:										
Yanush---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.40	~slope (limited)	0.99	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~large stones (limited)	0.73	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.40	~surface stones (limited)	0.77
Bigfork--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~slope (moderately limited)	0.60	~large stones (limited)	0.91	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.14	~slope (limited)	0.99			~slope (moderately limited)	0.60	~surface stones (limited)	0.77
41G:										
Yanush---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~surface stones (limited)	0.77	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~large stones (limited)	0.91	~surface stones (limited)	0.77
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00
	~surface stones >50% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (moderately limited)	0.52	~surface stones >15% (very limited)	1.00			~slope (very limited)	1.00	~surface stones >50% (very limited)	1.00

Table 7b.--Forest 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	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant----------	Moderately limited		Slightly limited		Not limited		Moderately limited		Slightly limited	
	~slope/erodibility	0.56	~slope/erodibility	0.18			~slope	0.45	~droughty	0.08
	(moderately limited)		(slightly limited)				(moderately limited)		(slightly limited)	
2C:										
Avilla---------	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility	0.44	~slope/erodibility	0.08	~low strength	0.50				
	(moderately limited)		(slightly limited)		(moderately limited)					
3C:										
Avilla---------	Slightly limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility	0.25	~slope/erodibility	0.08	~low strength	0.50				
	(slightly limited)		(slightly limited)		(moderately limited)					
4D:										
Bengal---------	Limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility	0.75	~slope/erodibility	0.24	~low strength	0.80	~slope	0.76		
	(limited)		(slightly limited)		(limited)		(limited)			
							~low strength	0.50		
							(moderately limited)			
Bismarck-------	Limited		Slightly limited		Limited		Limited		Moderately limited	
	~slope/erodibility	0.75	~slope/erodibility	0.24	~low strength	0.80	~slope	0.76	~droughty	0.47
	(limited)		(slightly limited)		(limited)		(limited)		(moderately limited)	
							~low strength	0.50		
							(moderately limited)			
Yanush---------	Limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility	0.75	~slope/erodibility	0.24	~low strength	0.80	~slope	0.76		
	(limited)		(slightly limited)		(limited)		(limited)			
							~low strength	0.50		
							(moderately limited)			
4F:										
Bengal---------	Very limited		Moderately limited		Limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.49	~low strength	0.80	~slope	1.00		
	(very limited)		(moderately limited)		(limited)		(very limited)			

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
4F:										
Bismarck-------	Very limited ~slope/erodibility (very limited)	 1.00	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50	Moderately limited ~droughty (moderately limited)	 0.47
Yanush---------	Very limited ~slope/erodibility (very limited)	 1.00	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50	Not limited	
5CD:										
Bigfork--------	Moderately limited ~slope/erodibility (moderately limited)	 0.35	Slightly limited ~slope/erodibility (slightly limited)	 0.18	Not limited		Very limited ~large surface stones (very limited) ~surface stones >50% (very limited) ~slope (moderately limited)	 1.00 1.00 0.45	Limited ~droughty (limited)	 0.67
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork--------	Very limited ~slope/erodibility (very limited)	 1.00	Limited ~slope/erodibility (limited)	 0.94	Not limited		Very limited ~large surface stones (very limited) ~slope (very limited) ~surface stones >50% (very limited)	 1.00 1.00 1.00	Limited ~droughty (limited)	 0.67
Yanush---------	Very limited ~slope/erodibility (very limited)	 1.00	Limited ~slope/erodibility (limited)	 0.94	Not limited		Very limited ~slope (very limited) ~large surface stones (very limited) ~surface stones (limited)	 1.00 1.00 0.77	Not limited	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
7C:										
Bismarck-------	Limited ~slope/erodibility (limited)	 0.67	Slightly limited ~slope/erodibility (slightly limited)	 0.12	Limited ~low strength (limited)	 0.80	Moderately limited ~low strength (moderately limited)	 0.50	Moderately limited ~droughty (moderately limited)	 0.39
8D:										
Bismarck-------	Limited ~slope/erodibility (limited)	 0.75	Slightly limited ~slope/erodibility (slightly limited)	 0.24	Limited ~low strength (limited)	 0.80	Limited ~slope (limited) ~low strength (moderately limited)	 0.76 0.50	Moderately limited ~droughty (moderately limited)	 0.47
Littlefir------	Limited ~slope/erodibility (limited)	 0.75	Slightly limited ~slope/erodibility (slightly limited)	 0.24	Limited ~low strength (limited)	 0.80	Limited ~slope (limited) ~low strength (moderately limited)	 0.76 0.50	Not limited	
8F:										
Bismarck-------	Very limited ~slope/erodibility (very limited)	 1.00	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50	Moderately limited ~droughty (moderately limited)	 0.47
Littlefir------	Very limited ~slope/erodibility (very limited)	 1.00	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	 1.00 0.50	Not limited	
9G:										
Bismarck-------	Very limited ~slope/erodibility (very limited)	 1.00	Limited ~slope/erodibility (limited)	 0.94	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~low strength (moderately limited)	 1.00 0.60 0.50	Moderately limited ~droughty (moderately limited)	 0.47

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
9G:										
Bengal---------	Very limited		Limited		Limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94	~low strength	0.80	~slope	1.00		
	(very limited)		(limited)		(limited)		(very limited)			
							~large surface stones	0.60		
							(moderately limited)			
							~low strength	0.50		
							(moderately limited)			
Bigfork--------	Very limited		Limited		Limited		Very limited		Moderately limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94	~low strength	0.80	~slope	1.00	~droughty	0.30
	(very limited)		(limited)		(limited)		(very limited)		(moderately limited)	
							~large surface stones	0.60		
							(moderately limited)			
							~low strength	0.50		
							(moderately limited)			
10C:										
Bismarck-------	Moderately limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility	0.56	~slope/erodibility	0.10	~low strength	0.80	~low strength	0.50	~droughty	0.39
	(moderately limited)		(slightly limited)		(limited)		(moderately limited)		(moderately limited)	
Nashoba--------	Slightly limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility	0.19	~slope/erodibility	0.10	~low strength	0.50				
	(slightly limited)		(slightly limited)		(moderately limited)					
Sherless-------	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility	0.31	~slope/erodibility	0.10	~low strength	0.50				
	(moderately limited)		(slightly limited)		(moderately limited)					
10D:										
Bismarck-------	Limited		Slightly limited		Limited		Limited		Moderately limited	
	~slope/erodibility	0.75	~slope/erodibility	0.24	~low strength	0.80	~slope	0.76	~droughty	0.47
	(limited)		(slightly limited)		(limited)		(limited)		(moderately limited)	
							~low strength	0.50		
							(moderately limited)			
Nashoba--------	Moderately limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility	0.46	~slope/erodibility	0.24	~low strength	0.50	~slope	0.76		
	(moderately limited)		(slightly limited)		(moderately limited)		(limited)			
Sherless-------	Moderately limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility	0.46	~slope/erodibility	0.24	~low strength	0.50	~slope	0.76		
	(moderately limited)		(slightly limited)		(moderately limited)		(limited)			

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
11CD:										
Carnasaw-------	Moderately limited		Slightly limited		Limited		Very limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.18	~low strength (limited)	0.80	~large surface stones (very limited)	1.00		
							~surface stones (limited)	0.77		
							~low strength (moderately limited)	0.50		
Pirum----------	Moderately limited		Slightly limited		Limited		Very limited		Not limited	
	~slope/erodibility (moderately limited)	0.35	~slope/erodibility (slightly limited)	0.18	~low strength (limited)	0.80	~large surface stones (very limited)	1.00		
							~surface stones (limited)	0.77		
							~low strength (moderately limited)	0.50		
12D:										
Carnasaw-------	Limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~slope (limited)	0.76		
							~low strength (moderately limited)	0.50		
Sherless-------	Moderately limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility (moderately limited)	0.46	~slope/erodibility (slightly limited)	0.24	~low strength (moderately limited)	0.50	~slope (limited)	0.76		
12F:										
Carnasaw-------	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	~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		
Sherless-------	Limited		Moderately limited		Moderately limited		Very limited		Not limited	
	~slope/erodibility (limited)	0.96	~slope/erodibility (moderately limited)	0.49	~low strength (moderately limited)	0.50	~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
13G:										
Caston	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00	~droughty (slightly limited)	0.08
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
Clebit	Very limited		Limited		Not limited		Very limited		Limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00	~droughty (limited)	0.86
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
Octavia	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
14B:										
Ceda	Slightly limited		Slightly limited		Not limited		Very limited		Limited	
	~slope/erodibility (slightly limited)	0.12	~slope/erodibility (slightly limited)	0.04			~flooding (very limited)	1.00	~flooding (limited)	0.90
									~droughty (slightly limited)	0.04
15CD:										
Clebit	Moderately limited		Slightly limited		Not limited		Very limited		Limited	
	~slope/erodibility (moderately limited)	0.35	~slope/erodibility (slightly limited)	0.18			~large surface stones (very limited)	1.00	~droughty (limited)	0.97
							~surface stones >50% (very limited)	1.00		
							~slope (moderately limited)	0.45		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
15CD:										
Carnasaw-------	Moderately limited		Slightly limited		Not limited		Very limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.18			~large surface stones (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
							~slope (moderately limited)	0.45		
Pirum----------	Moderately limited		Slightly limited		Not limited		Very limited		Not limited	
	~slope/erodibility (moderately limited)	0.35	~slope/erodibility (slightly limited)	0.18			~large surface stones (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
							~slope (moderately limited)	0.45		
15F:										
Clebit---------	Limited		Moderately limited		Not limited		Very limited		Limited	
	~slope/erodibility (limited)	0.96	~slope/erodibility (moderately limited)	0.49			~large surface stones (very limited)	1.00	~droughty (limited)	0.86
							~surface stones >50% (very limited)	1.00		
							~slope (very limited)	1.00		
Carnasaw-------	Very limited		Moderately limited		Moderately limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~low strength (moderately limited)	0.50	~large surface stones (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
							~slope (very limited)	1.00		
Pirum----------	Limited		Moderately limited		Limited		Very limited		Not limited	
	~slope/erodibility (limited)	0.96	~slope/erodibility (moderately limited)	0.49	~low strength (limited)	0.80	~large surface stones (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
							~slope (very limited)	1.00		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16B:										
Cupco----------	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.45	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.45	Moderately limited ~seasonal wetness (moderately limited)	0.30
17B:										
Dela-----------	Slightly limited ~slope/erodibility (slightly limited)	0.06	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
18B:										
Kenn-----------	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60
19B:										
Kenn-----------	Slightly limited ~slope/erodibility (slightly limited)	0.08	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
Ceda-----------	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Not limited		Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited) ~droughty (slightly limited)	0.90 0.04
20C:										
Littlefir------	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
Bismarck-------	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~droughty (moderately limited)	0.39
21B:										
Mazarn---------	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 0.29	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29	Not limited	

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
22B:										
Mazarn---------	Slightly limited		Slightly limited		Limited		Moderately limited		Moderately limited	
	~slope/erodibility	0.22	~slope/erodibility	0.05	~low strength	0.80	~flooding	0.60	~flooding	0.60
	(slightly limited)		(slightly limited)		(limited)		(moderately limited)		(moderately limited)	
					~seasonal wetness	0.29	~low strength	0.50		
					(slightly limited)		(moderately limited)			
							~seasonal wetness	0.29		
							(slightly limited)			
23C:										
Mena-----------	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility	0.44	~slope/erodibility	0.10	~low strength	0.80	~low strength	0.50		
	(moderately limited)		(slightly limited)		(limited)		(moderately limited)			
					~seasonal wetness	0.10	~seasonal wetness	0.10		
					(slightly limited)		(slightly limited)			
24C:										
Mena-----------	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility	0.44	~slope/erodibility	0.08	~low strength	0.80	~low strength	0.50		
	(moderately limited)		(slightly limited)		(limited)		(moderately limited)			
					~seasonal wetness	0.10	~seasonal wetness	0.10		
					(slightly limited)		(slightly limited)			
24D:										
Mena-----------	Very limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.18	~low strength	0.80	~low strength	0.50		
	(very limited)		(slightly limited)		(limited)		(moderately limited)			
					~seasonal wetness	0.10	~slope	0.45		
					(slightly limited)		(moderately limited)			
							~seasonal wetness	0.10		
							(slightly limited)			
25F:										
Nashoba--------	Limited		Moderately limited		Moderately limited		Very limited		Not limited	
	~slope/erodibility	0.96	~slope/erodibility	0.49	~low strength	0.50	~large surface stones	1.00		
	(limited)		(moderately limited)		(moderately limited)		(very limited)			
							~slope	1.00		
							(very limited)			
							~surface stones	0.77		
							(limited)			

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Erosion on roads and trails: Value	Off-road or off-trail erosion: Rating class and limiting features	Off-road or off-trail erosion: Value	Soil rutting: Rating class and limiting features	Soil rutting: Value	Log landings: Rating class and limiting features	Log landings: Value	Seedling survival: Rating class and limiting features	Seedling survival: Value
25F:										
Bismarck	Very limited		Moderately limited		Limited		Very limited		Moderately limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~low strength (limited)	0.80	~large surface stones (very limited)	1.00	~droughty (moderately limited)	0.47
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		
26B:										
Neff	Slightly limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (slightly limited)	0.11	~slope/erodibility (slightly limited)	0.02	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
					~seasonal wetness (slightly limited)	0.20	~seasonal wetness (slightly limited)	0.20		
27D:										
Octavia	Limited		Slightly limited		Limited		Very limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~large surface stones (very limited)	1.00		
							~surface stones (limited)	0.77		
							~slope (limited)	0.76		
Carnasaw	Limited		Slightly limited		Limited		Very limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~large surface stones (very limited)	1.00		
							~surface stones (limited)	0.77		
							~slope (limited)	0.76		
27F:										
Octavia	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	~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27F:										
Carnasaw-------	Very limited		Moderately limited		Limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.49	~low strength	0.80	~large surface stones	1.00		
	(very limited)		(moderately limited)		(limited)		(very limited)			
							~slope	1.00		
							(very limited)			
							~surface stones	0.77		
							(limited)			
28G:										
Octavia--------	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94			~slope	1.00		
	(very limited)		(limited)				(very limited)			
							~large surface stones	1.00		
							(very limited)			
							~surface stones	0.82		
							(limited)			
Carnasaw-------	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94			~slope	1.00		
	(very limited)		(limited)				(very limited)			
							~large surface stones	1.00		
							(very limited)			
							~surface stones	0.82		
							(limited)			
Caston---------	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94			~large surface stones	1.00	~droughty	0.08
	(very limited)		(limited)				(very limited)		(slightly limited)	
							~slope	1.00		
							(very limited)			
							~surface stones >50%	1.00		
							(very limited)			
29G:										
Octavia--------	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility	1.00	~slope/erodibility	0.94			~large surface stones	1.00		
	(very limited)		(limited)				(very limited)			
							~slope	1.00		
							(very limited)			
							~surface stones >50%	1.00		
							(very limited)			

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29G:										
Caston	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00	~droughty (slightly limited)	0.08
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
Pirum	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		
30C:										
Sherless	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (moderately limited)	0.38	~slope/erodibility (slightly limited)	0.12	~low strength (moderately limited)	0.50				
31C:										
Sherless	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (moderately limited)	0.31	~slope/erodibility (slightly limited)	0.10	~low strength (moderately limited)	0.50				
Littlefir	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (moderately limited)	0.56	~slope/erodibility (slightly limited)	0.10	~low strength (moderately limited)	0.50				
31D:										
Sherless	Limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (moderately limited)	0.50	~slope (limited)	0.76		
Littlefir	Limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~slope (limited)	0.76		
							~low strength (moderately limited)	0.50		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Value	Off-road or off-trail erosion: Rating class and limiting features	Value	Soil rutting: Rating class and limiting features	Value	Log landings: Rating class and limiting features	Value	Seedling survival: Rating class and limiting features	Value
31F:										
Sherless-------	Very limited		Moderately limited		Moderately limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~low strength (moderately limited)	0.50	~slope (very limited)	1.00		
							~large surface stones (moderately limited)	0.60		
							~surface stones (moderately limited)	0.42		
Littlefir------	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		
							~large surface stones (moderately limited)	0.60		
							~low strength (moderately limited)	0.50		
32C:										
Sherless-------	Moderately limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (moderately limited)	0.31	~slope/erodibility (slightly limited)	0.10	~low strength (moderately limited)	0.50				
Nashoba--------	Slightly limited		Slightly limited		Moderately limited		Not limited		Not limited	
	~slope/erodibility (slightly limited)	0.19	~slope/erodibility (slightly limited)	0.10	~low strength (moderately limited)	0.50				
32D:										
Sherless-------	Limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (moderately limited)	0.50	~slope (limited)	0.76		
Nashoba--------	Moderately limited		Slightly limited		Moderately limited		Limited		Not limited	
	~slope/erodibility (moderately limited)	0.46	~slope/erodibility (slightly limited)	0.24	~low strength (moderately limited)	0.50	~slope (limited)	0.76		
33F:										
Sherless-------	Very limited		Moderately limited		Moderately limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (moderately limited)	0.49	~low strength (moderately limited)	0.50	~slope (very limited)	1.00		
							~large surface stones (moderately limited)	0.60		
							~surface stones (moderately limited)	0.42		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
33F:										
Nashoba	Limited ~slope/erodibility (limited)	 0.96	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Moderately limited ~low strength (moderately limited)	 0.50	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~surface stones (moderately limited)	 1.00 0.60 0.42	Not limited	
Bismarck	Very limited ~slope/erodibility (very limited)	 1.00	Moderately limited ~slope/erodibility (moderately limited)	 0.49	Limited ~low strength (limited)	 0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~low strength (moderately limited)	 1.00 0.60 0.50	Moderately limited ~droughty (moderately limited)	 0.47
34B:										
Speer	Slightly limited ~slope/erodibility (slightly limited)	 0.11	Slightly limited ~slope/erodibility (slightly limited)	 0.02	Moderately limited ~low strength (moderately limited)	 0.50	Not limited		Not limited	
35B:										
Speer	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
36:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw	Moderately limited ~slope/erodibility (moderately limited)	 0.44	Slightly limited ~slope/erodibility (slightly limited)	 0.08	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	 0.80 0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	 0.50 0.20	Not limited	
38C:										
Wilburton	Slightly limited ~slope/erodibility (slightly limited)	 0.19	Slightly limited ~slope/erodibility (slightly limited)	 0.10	Not limited		Very limited ~large surface stones (very limited) ~surface stones >50% (very limited)	 1.00 1.00	Slightly limited ~droughty (slightly limited)	 0.03

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails: Rating class and limiting features	Erosion on roads and trails: Value	Off-road or off-trail erosion: Rating class and limiting features	Off-road or off-trail erosion: Value	Soil rutting: Rating class and limiting features	Soil rutting: Value	Log landings: Rating class and limiting features	Log landings: Value	Seedling survival: Rating class and limiting features	Seedling survival: Value
39C:										
Yanush	Moderately limited		Slightly limited		Limited		Moderately limited		Not limited	
	~slope/erodibility (moderately limited)	0.31	~slope/erodibility (slightly limited)	0.10	~low strength (limited)	0.80	~low strength (moderately limited)	0.50		
39D:										
Yanush	Limited		Slightly limited		Limited		Limited		Not limited	
	~slope/erodibility (limited)	0.75	~slope/erodibility (slightly limited)	0.24	~low strength (limited)	0.80	~slope (limited)	0.76		
							~low strength (moderately limited)	0.50		
40G:										
Yanush	Very limited		Limited		Limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94	~low strength (limited)	0.80	~slope (very limited)	1.00		
							~low strength (moderately limited)	0.50		
Avant	Very limited		Limited		Not limited		Very limited		Slightly limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~slope (very limited)	1.00	~droughty (slightly limited)	0.08
41F:										
Yanush	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	~large surface stones (very limited)	1.00		
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		
Bigfork	Limited		Moderately limited		Not limited		Very limited		Limited	
	~slope/erodibility (limited)	0.96	~slope/erodibility (moderately limited)	0.49			~large surface stones (very limited)	1.00	~droughty (limited)	0.67
							~slope (very limited)	1.00		
							~surface stones (limited)	0.77		

Table 7b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41G:										
Yanush---------	Very limited		Limited		Not limited		Very limited		Not limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~slope (very limited)	1.00		
							~large surface stones (very limited)	1.00		
							~surface stones (limited)	0.77		
Bigfork--------	Very limited		Limited		Not limited		Very limited		Limited	
	~slope/erodibility (very limited)	1.00	~slope/erodibility (limited)	0.94			~large surface stones (very limited)	1.00	~droughty (limited)	0.67
							~slope (very limited)	1.00		
							~surface stones >50% (very limited)	1.00		

Table 8.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value	Paths and trails: Rating class and limiting features	Paths and trails: Value
1CD:								
Avant	Limited		Limited		Very limited		Limited	
	~large stones (limited)	0.76	~large stones (limited)	0.76	~large stones >25% (very limited)	1.00	~large stones (limited)	0.76
	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04	~slope (very limited)	1.00		
					~small stones (moderately limited)	0.42		
2C:								
Avilla	Not limited		Not limited		Moderately limited		Not limited	
					~slope (moderately limited)	0.40		
					~small stones (slightly limited)	0.15		
3C:								
Avilla	Moderately limited		Moderately limited		Very limited		Not limited	
	~small stones (moderately limited)	0.46	~small stones (moderately limited)	0.46	~small stones (very limited)	1.00		
					~slope (moderately limited)	0.40		
					~large stones (slightly limited)	0.18		
4D:								
Bengal	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		
Bismarck	Limited		Limited		Very limited		Moderately limited	
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~slope (limited)	0.63	~slope (limited)	0.63	~shallow to bedrock (very limited)	1.00		
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
Yanush	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
					~small stones (slightly limited)	0.03		
4F:								
Bengal	Very limited		Very limited		Very limited		Limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
4F:								
Bismarck	Very limited		Very limited		Very limited		Limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.92
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~shallow to bedrock (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
Yanush	Very limited		Very limited		Very limited		Limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
					~small stones (slightly limited)	0.03		
5CD:								
Bigfork	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (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
	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04	~depth to bedrock (slightly limited)	0.07		
Rock outcrop	Not rated		Not rated		Not rated		Not rated	
6G:								
Bigfork	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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	~depth to bedrock (slightly limited)	0.07	~slope (very limited)	1.00
Yanush	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91			~large stones (limited)	0.91
Rock outcrop	Not rated		Not rated		Not rated		Not rated	
7C:								
Bismarck	Limited		Limited		Very limited		Not limited	
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~shallow to bedrock (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
					~slope (limited)	0.98		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value	Paths and trails: Rating class and limiting features	Paths and trails: Value
8D:								
Bismarck	Limited ~shallow to bedrock (limited) ~slope (limited) ~large stones (moderately limited)	 0.90 0.63 0.40	Limited ~shallow to bedrock (limited) ~slope (limited) ~large stones (moderately limited)	 0.90 0.63 0.40	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large stones >25% (very limited)	 1.00 1.00 1.00	Moderately limited ~large stones (moderately limited)	 0.40
Littlefir	Limited ~slope (limited) ~percs slowly (moderately limited) ~large stones (moderately limited)	 0.63 0.56 0.40	Limited ~slope (limited) ~percs slowly (moderately limited) ~large stones (moderately limited)	 0.63 0.56 0.40	Very limited ~slope (very limited) ~large stones >25% (very limited) ~percs slowly (moderately limited)	 1.00 1.00 0.56	Moderately limited ~large stones (moderately limited)	 0.40
8F:								
Bismarck	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~large stones (moderately limited)	 1.00 0.90 0.40	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~large stones (moderately limited)	 1.00 0.90 0.40	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large stones >25% (very limited)	 1.00 1.00 1.00	Limited ~slope (limited) ~large stones (moderately limited)	 0.92 0.40
Littlefir	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~large stones (moderately limited)	 1.00 0.56 0.40	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~large stones (moderately limited)	 1.00 0.56 0.40	Very limited ~slope (very limited) ~large stones >25% (very limited) ~percs slowly (moderately limited)	 1.00 1.00 0.56	Limited ~slope (limited) ~large stones (moderately limited)	 0.92 0.40
9G:								
Bismarck	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) ~shallow to bedrock (very limited) ~large stones >25% (very limited)	 1.00 1.00 1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.40
Bengal	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.40	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.40	Very limited ~slope (very limited) ~large stones >25% (very limited) ~percs slowly (moderately limited)	 1.00 1.00 0.40	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.40
Bigfork	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.50	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.50	Very limited ~slope (very limited) ~large stones >25% (very limited) ~small stones (moderately limited)	 1.00 1.00 0.56	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (moderately limited)	 1.00 1.00 0.50

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
10C:								
Bismarck	Limited		Limited		Very limited		Not limited	
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~shallow to bedrock (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
					~slope (limited)	0.78		
Nashoba	Moderately limited		Moderately limited		Very limited		Moderately limited	
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
					~slope (limited)	0.78		
					~small stones (moderately limited)	0.57		
Sherless	Not limited		Not limited		Limited		Not limited	
					~slope (limited)	0.78		
					~small stones (limited)	0.66		
					~large stones (slightly limited)	0.18		
10D:								
Bismarck	Limited		Limited		Very limited		Moderately limited	
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~slope (limited)	0.63	~slope (limited)	0.63	~shallow to bedrock (very limited)	1.00		
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
Nashoba	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
					~small stones (moderately limited)	0.57		
Sherless	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
					~small stones (slightly limited)	0.21		
11CD:								
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
11CD:								
Pirum	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15		
12D:								
Carnasaw	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		
Sherless	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
					~small stones (slightly limited)	0.21		
12F:								
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface 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 stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~large stones (moderately limited)	0.40
Sherless	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface 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 stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~depth to bedrock (slightly limited)	0.07	~large stones (moderately limited)	0.40
13G:								
Caston	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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			~slope (very limited)	1.00
Clebit	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
13G:								
Octavia	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.91
14B:								
Ceda	Very limited		Limited		Very limited		Limited	
	~flooding (very limited)	1.00	~large stones (limited)	0.91	~large stones >25% (very limited)	1.00	~large stones (limited)	0.91
	~large stones (limited)	0.91	~flooding (moderately limited)	0.60	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
15CD:								
Clebit	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~slope (very limited)	1.00		
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00	~large stones >75% (very limited)	1.00
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		
Pirum	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~slope (very limited)	1.00	~large stones >75% (very limited)	1.00
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15		
15F:								
Clebit	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.91	~large stones (limited)	0.91	~shallow to bedrock (very limited)	1.00	~large stones (limited)	0.91
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.91	~large stones (limited)	0.91	~percs slowly (moderately limited)	0.40	~large stones (limited)	0.91

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15F:								
Pirum	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.60	~large stones (limited)	0.60	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.60
16B:								
Cupco	Very limited		Limited		Very limited		Limited	
	~wetness (very limited)	1.00	~wetness (limited)	0.81	~wetness (very limited)	1.00	~wetness (limited)	0.81
	~flooding (rare) (limited)	0.90	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15		
	~percs slowly (slightly limited)	0.15						
17B:								
Dela	Very limited		Not limited		Moderately limited		Not limited	
	~flooding (very limited)	1.00			~flooding (moderately limited)	0.60		
18B:								
Kenn	Very limited		Moderately limited		Very limited		Not limited	
	~flooding (very limited)	1.00	~small stones (moderately limited)	0.46	~small stones (very limited)	1.00		
	~small stones (moderately limited)	0.46			~flooding (moderately limited)	0.60		
					~large stones (slightly limited)	0.18		
19B:								
Kenn	Very limited		Moderately limited		Very limited		Moderately limited	
	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.50
					~small stones (slightly limited)	0.06		
Ceda	Very limited		Limited		Very limited		Limited	
	~flooding (very limited)	1.00	~large stones (limited)	0.80	~large stones >25% (very limited)	1.00	~large stones (limited)	0.80
	~large stones (limited)	0.80	~flooding (moderately limited)	0.60	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
20C:								
Littlefir	Moderately limited		Moderately limited		Very limited		Not limited	
	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~small stones (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~slope (limited)	0.78		
					~percs slowly (moderately limited)	0.56		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
20C:								
Bismarck	Limited		Limited		Very limited		Not limited	
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~shallow to bedrock (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
					~slope (limited)	0.78		
21B:								
Mazarn	Limited		Limited		Limited		Limited	
	~wetness (limited)	0.96	~wetness (limited)	0.60	~wetness (limited)	0.96	~wetness (limited)	0.60
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~depth to bedrock (slightly limited)	0.21		
					~percs slowly (slightly limited)	0.15		
22B:								
Mazarn	Very limited		Limited		Limited		Limited	
	~flooding (very limited)	1.00	~wetness (limited)	0.60	~wetness (limited)	0.96	~wetness (limited)	0.60
	~wetness (limited)	0.96	~percs slowly (slightly limited)	0.15	~flooding (moderately limited)	0.60		
	~percs slowly (slightly limited)	0.15			~depth to bedrock (slightly limited)	0.21		
23C:								
Mena	Slightly limited		Slightly limited		Moderately limited		Not limited	
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~slope (moderately limited)	0.40		
					~percs slowly (slightly limited)	0.15		
					~small stones (slightly limited)	0.13		
24C:								
Mena	Moderately limited		Moderately limited		Very limited		Not limited	
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~slope (moderately limited)	0.40		
					~percs slowly (slightly limited)	0.15		
24D:								
Mena	Moderately limited		Moderately limited		Very limited		Not limited	
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~slope (very limited)	1.00		
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~small stones (very limited)	1.00		
	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04	~percs slowly (slightly limited)	0.15		
25F:								
Nashoba	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.60	~large stones (limited)	0.60	~small stones (moderately limited)	0.38	~large stones (limited)	0.60

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
25F:								
Bismarck	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~shallow to bedrock (very limited)	1.00	~large stones (limited)	0.60
26B:								
Neff	Limited		Slightly limited		Moderately limited		Slightly limited	
	~flooding (rare) (limited)	0.90	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.50	~wetness (slightly limited)	0.28
	~wetness (moderately limited)	0.50	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15		
	~percs slowly (slightly limited)	0.15						
27D:								
Octavia	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (limited)	0.60
	~large stones (limited)	0.60	~large stones (limited)	0.60	~percs slowly (slightly limited)	0.15		
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (limited)	0.60
	~large stones (limited)	0.60	~large stones (limited)	0.60	~percs slowly (moderately limited)	0.40		
27F:								
Octavia	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.60	~large stones (limited)	0.60	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.60
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.60	~large stones (limited)	0.60	~percs slowly (moderately limited)	0.40	~large stones (limited)	0.60
28G:								
Octavia	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.91

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
28G:								
Carnasaw	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91	~percs slowly (moderately limited)	0.40	~large stones (limited)	0.91
Caston	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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			~slope (very limited)	1.00
29G:								
Octavia	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.91
Caston	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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			~slope (very limited)	1.00
Pirum	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.68	~large stones (limited)	0.68	~percs slowly (slightly limited)	0.15	~large stones (limited)	0.68
30C:								
Sherless	Not limited		Not limited		Limited		Not limited	
					~slope (limited)	0.98		
					~small stones (limited)	0.84		
					~large stones (slightly limited)	0.18		
31C:								
Sherless	Not limited		Not limited		Limited		Not limited	
					~slope (limited)	0.78		
					~small stones (limited)	0.66		
					~large stones (slightly limited)	0.18		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
31C:								
Littlefir	Moderately limited		Moderately limited		Very limited		Not limited	
	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~small stones (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~slope (limited)	0.78		
					~percs slowly (moderately limited)	0.56		
31D:								
Sherless	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00		
					~small stones (moderately limited)	0.57		
Littlefir	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.50
	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~large stones >25% (very limited)	1.00		
	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~percs slowly (moderately limited)	0.56		
31F:								
Sherless	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~small stones (moderately limited)	0.57	~large stones (moderately limited)	0.40
Littlefir	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.92
	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~large stones (moderately limited)	0.50
32C:								
Sherless	Moderately limited		Moderately limited		Very limited		Moderately limited	
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~slope (limited)	0.78	~large surface stones (slightly limited)	0.13
					~small stones (moderately limited)	0.57		
Nashoba	Moderately limited		Moderately limited		Very limited		Moderately limited	
	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.50
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~slope (limited)	0.78	~large surface stones (slightly limited)	0.13
					~small stones (moderately limited)	0.47		

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
32D:								
Sherless	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.40
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large surface stones (slightly limited)	0.13
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~small stones (moderately limited)	0.57		
Nashoba	Limited		Limited		Very limited		Moderately limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~large stones (moderately limited)	0.50
	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones >25% (very limited)	1.00	~large surface stones (slightly limited)	0.13
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~small stones (moderately limited)	0.47		
33F:								
Sherless	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~small stones (moderately limited)	0.57	~large stones (moderately limited)	0.40
Nashoba	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~small stones (moderately limited)	0.47	~large stones (moderately limited)	0.50
Bismarck	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (limited)	0.92
	~shallow to bedrock (limited)	0.90	~shallow to bedrock (limited)	0.90	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
34B:								
Speer	Limited		Not limited		Not limited		Not limited	
	~flooding (rare) (limited)	0.90						
35B:								
Speer	Very limited		Not limited		Moderately limited		Not limited	
	~flooding (very limited)	1.00			~flooding (moderately limited)	0.60		
36:								
Water	Not rated		Not rated		Not rated		Not rated	

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
37C:								
Wetsaw	Moderately limited		Slightly limited		Moderately limited		Slightly limited	
	~wetness (moderately limited)	0.50	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.50	~wetness (slightly limited)	0.28
					~slope (moderately limited)	0.40		
					~small stones (slightly limited)	0.11		
38C:								
Wilburton	Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones (limited)	0.76	~large stones (limited)	0.76	~slope (limited)	0.78	~large stones (limited)	0.76
39C:								
Yanush	Moderately limited		Moderately limited		Very limited		Not limited	
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
					~slope (limited)	0.78		
39D:								
Yanush	Limited		Limited		Very limited		Not limited	
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00		
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (very limited)	1.00		
40G:								
Yanush	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 (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones >25% (very limited)	1.00	~large stones (moderately limited)	0.40
Avant	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones >25% (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.68	~large stones (limited)	0.68	~slope (very limited)	1.00	~large stones (limited)	0.68
					~small stones (moderately limited)	0.55		
41F:								
Yanush	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface 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 stones >25% (very limited)	1.00	~slope (limited)	0.92
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~large stones (moderately limited)	0.40
Bigfork	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (limited)	0.92
	~large stones (limited)	0.91	~large stones (limited)	0.91	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.91

Table 8.--Recreation--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value	Paths and trails: Rating class and limiting features	Value
41G:								
Yanush	Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones >25% (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 (very limited)	1.00
	~large stones (limited)	0.91	~large stones (limited)	0.91			~large stones (limited)	0.91
Bigfork	Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >25% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~large surface 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	~depth to bedrock (slightly limited)	0.07	~slope (very limited)	1.00

Table 9a.--Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant	Very limited		Very limited		Limited		Limited		Limited	
	~droughty (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.76	~large stones (limited)	0.76	~large stones (limited)	0.76
	~large stones >35% (very limited)	1.00	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21
	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.21			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
2C:										
Avilla	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
	~droughty (slightly limited)	0.00								
3C:										
Avilla	Moderately limited		Moderately limited		Slightly limited		Not limited		Not limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50	~small stones (slightly limited)	0.08				
	~small stones (moderately limited)	0.46	~small stones (moderately limited)	0.46						
	~droughty (slightly limited)	0.01								
4D:										
Bengal	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
4D:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
Yanush---------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (limited)	0.94	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73						
	~large stones (limited)	0.73								
4F:										
Bengal---------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
Yanush---------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (limited)	0.94	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73						
	~large stones (limited)	0.73	~slope (moderately limited)	0.60						

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5CD:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (limited)	0.77	~droughty (limited)	0.77	~droughty (limited)	0.77
	~high erodibility (limited)	0.80	~droughty (limited)	0.77			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (limited)	0.77	~droughty (limited)	0.77	~droughty (limited)	0.77
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
Yanush---------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80						
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~small stones (slightly limited)	0.10	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
8D:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
Littlefir------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (limited)	0.84	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~large stones (limited)	0.73	~percs slowly (moderately limited)	0.56						
8F:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
Littlefir------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (limited)	0.84	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~large stones (limited)	0.73	~slope (moderately limited)	0.60						
9G:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
9G:										
Bengal	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
	~large stones (limited)	0.73	~large stones (limited)	0.73						
Bigfork	Very limited		Very limited		Limited		Limited		Limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (limited)	0.61	~droughty (limited)	0.61	~droughty (limited)	0.61
	~droughty (very limited)	1.00	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~large stones (limited)	0.86	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
10C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~small stones (slightly limited)	0.10	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52						
Nashoba	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~large stones (limited)	0.73	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.28			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13
Sherless	Moderately limited		Moderately limited		Not limited		Slightly limited		Slightly limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.48	~depth to bedrock (slightly limited)	0.07						
	~depth to bedrock (slightly limited)	0.07								

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10D:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
Nashoba--------	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~large stones (limited)	0.73	~droughty (slightly limited)	0.28			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13
Sherless-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.52	~depth to bedrock (slightly limited)	0.07						
11CD:										
Carnasaw-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40						
Pirum----------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.12
	~droughty (moderately limited)	0.41	~percs slowly (slightly limited)	0.15						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
12D:										
Carnasaw	Limited ~high erodibility (limited) ~large stones (limited) ~percs slowly (moderately limited)	 0.80 0.73 0.40	Limited ~high erodibility (limited) ~large stones (limited) ~percs slowly (moderately limited)	 0.80 0.73 0.40	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited)	 0.40
Sherless	Limited ~high erodibility (limited) ~large stones (limited) ~droughty (moderately limited)	 0.80 0.73 0.52	Limited ~high erodibility (limited) ~large stones (limited) ~depth to bedrock (slightly limited)	 0.80 0.73 0.07	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited) ~depth to bedrock (slightly limited)	 0.40 0.07	Moderately limited ~large stones (moderately limited) ~depth to bedrock (slightly limited)	 0.40 0.07
12F:										
Carnasaw	Limited ~high erodibility (limited) ~large stones (limited) ~slope (moderately limited)	 0.80 0.73 0.60	Limited ~high erodibility (limited) ~large stones (limited) ~slope (moderately limited)	 0.80 0.73 0.60	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited)	 0.40
Sherless	Limited ~high erodibility (limited) ~large stones (limited) ~slope (moderately limited)	 0.80 0.73 0.60	Limited ~high erodibility (limited) ~large stones (limited) ~slope (moderately limited)	 0.80 0.73 0.60	Moderately limited ~large stones (moderately limited)	 0.40	Moderately limited ~large stones (moderately limited) ~depth to bedrock (slightly limited)	 0.40 0.07	Moderately limited ~large stones (moderately limited) ~depth to bedrock (slightly limited)	 0.40 0.07
13G:										
Caston	Very limited ~large stones >35% (very limited) ~slope (very limited) ~droughty (very limited)	 1.00 1.00 1.00	Very limited ~large stones >35% (very limited) ~slope (very limited) ~high erodibility (limited)	 1.00 1.00 0.80	Very limited ~large stones >75% (very limited) ~droughty (slightly limited)	 1.00 0.03	Very limited ~large stones >75% (very limited) ~droughty (slightly limited)	 1.00 0.03	Very limited ~large stones >75% (very limited) ~droughty (slightly limited)	 1.00 0.03

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13G:										
Clebit---------	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	~shallow to bedrock (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large stones >75% (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00			~large stones >75% (very limited)	1.00	~droughty (very limited)	1.00
Octavia--------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
14B:										
Ceda-----------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~droughty (very limited)	1.00	~flooding (limited)	0.90	~droughty (slightly limited)	0.02	~droughty (slightly limited)	0.02	~droughty (slightly limited)	0.02
	~flooding (limited)	0.90	~droughty (slightly limited)	0.02						
15CD:										
Clebit---------	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	~shallow to bedrock (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large stones >75% (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00			~large stones >75% (very limited)	1.00	~droughty (very limited)	1.00
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
	~droughty (moderately limited)	0.46	~percs slowly (moderately limited)	0.40						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
15CD:										
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.12
	~droughty (moderately limited)	0.44	~percs slowly (slightly limited)	0.15						
15F:										
Clebit---------	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	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large stones (limited)	0.91	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00			~large stones (limited)	0.91	~large stones (limited)	0.91
Carnasaw-------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
Pirum----------	Limited		Limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.12
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
16B:										
Cupco----------	Limited		Limited		Limited		Limited		Very limited	
	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (very limited)	1.00
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15						

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17B:										
Dela-----------	Moderately limited		Moderately limited		Not limited		Not limited		Slightly limited	
	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60					~wetness (slightly limited)	0.01
	~droughty (slightly limited)	0.07								
18B:										
Kenn-----------	Limited		Moderately limited		Slightly limited		Not limited		Not limited	
	~droughty (limited)	0.86	~flooding (moderately limited)	0.60	~small stones (slightly limited)	0.08				
	~flooding (moderately limited)	0.60	~moderate erodibility (moderately limited)	0.50						
	~moderate erodibility (moderately limited)	0.50	~small stones (moderately limited)	0.46						
19B:										
Kenn-----------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~flooding (limited)	0.90	~flooding (limited)	0.90	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~droughty (limited)	0.86	~large stones (limited)	0.86						
	~large stones (limited)	0.86	~moderate erodibility (moderately limited)	0.50						
Ceda-----------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.80	~large stones (limited)	0.80	~large stones (limited)	0.80
	~droughty (very limited)	1.00	~flooding (limited)	0.90	~droughty (slightly limited)	0.02	~droughty (slightly limited)	0.02	~droughty (slightly limited)	0.02
	~flooding (limited)	0.90	~moderate erodibility (moderately limited)	0.50						
20C:										
Littlefir------	Limited		Moderately limited		Slightly limited		Slightly limited		Slightly limited	
	~droughty (limited)	0.84	~percs slowly (moderately limited)	0.56	~small stones (slightly limited)	0.10	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~percs slowly (moderately limited)	0.56	~small stones (moderately limited)	0.52						
	~small stones (moderately limited)	0.52	~moderate erodibility (moderately limited)	0.50						

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~small stones (slightly limited)	0.10	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52						
21B:										
Mazarn	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Limited	
	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (limited)	0.99
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.21	~depth to bedrock (slightly limited)	0.21
	~depth to bedrock (slightly limited)	0.21	~depth to bedrock (slightly limited)	0.21						
22B:										
Mazarn	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Limited	
	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (limited)	0.99
	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60			~depth to bedrock (slightly limited)	0.21	~depth to bedrock (slightly limited)	0.21
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
23C:										
Mena	Moderately limited		Moderately limited		Slightly limited		Slightly limited		Moderately limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.45
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28						
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15						
24C:										
Mena	Moderately limited		Moderately limited		Slightly limited		Slightly limited		Moderately limited	
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.45
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50	~small stones (slightly limited)	0.10				
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
24D:										
Mena-----------	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (moderately limited)	0.45
	~small stones (moderately limited)	0.52	~small stones (moderately limited)	0.52	~small stones (slightly limited)	0.10				
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28						
25F:										
Nashoba--------	Very limited		Limited		Limited		Limited		Limited	
	~droughty (very limited)	1.00	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~large stones >35% (very limited)	0.99	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~high erodibility (limited)	0.80	~slope (moderately limited)	0.60			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (limited)	0.60	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99			~large stones (limited)	0.60	~large stones (limited)	0.60
26B:										
Neff-----------	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.59
	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44						
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15						
27D:										
Octavia--------	Limited		Limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
27D:										
Carnasaw-------	Limited		Limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40						
27F:										
Octavia--------	Limited		Limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
Carnasaw-------	Limited		Limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones (limited)	0.60	~large stones (limited)	0.60	~large stones (limited)	0.60
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
28G:										
Octavia--------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
Carnasaw-------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28G:										
Caston---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80						
29G:										
Octavia--------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
Caston---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80						
Pirum----------	Very limited		Very limited		Limited		Limited		Limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (limited)	0.68	~large stones (limited)	0.68	~large stones (limited)	0.68
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00			~depth to bedrock (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.12
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
30C:										
Sherless-------	Moderately limited		Moderately limited		Not limited		Slightly limited		Slightly limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.48	~depth to bedrock (slightly limited)	0.07						
	~depth to bedrock (slightly limited)	0.07								

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
31C:										
Sherless-------	Moderately limited		Moderately limited		Not limited		Slightly limited		Slightly limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.48	~depth to bedrock (slightly limited)	0.07						
	~depth to bedrock (slightly limited)	0.07								
Littlefir------	Limited		Moderately limited		Slightly limited		Slightly limited		Slightly limited	
	~droughty (limited)	0.84	~percs slowly (moderately limited)	0.56	~small stones (slightly limited)	0.10	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~percs slowly (moderately limited)	0.56	~small stones (moderately limited)	0.52						
	~small stones (moderately limited)	0.52	~moderate erodibility (moderately limited)	0.50						
31D:										
Sherless-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.52	~depth to bedrock (slightly limited)	0.07						
Littlefir------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~droughty (limited)	0.84	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~high erodibility (limited)	0.80	~percs slowly (moderately limited)	0.56						
31F:										
Sherless-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
31F:										
Littlefir------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~droughty (limited)	0.77	~slope (moderately limited)	0.60						
32C:										
Sherless-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~droughty (moderately limited)	0.52	~moderate erodibility (moderately limited)	0.50			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~moderate erodibility (moderately limited)	0.50	~depth to bedrock (slightly limited)	0.07						
Nashoba--------	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~large stones (limited)	0.86	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.28			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13
32D:										
Sherless-------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~droughty (moderately limited)	0.52	~depth to bedrock (slightly limited)	0.07						
Nashoba--------	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~large stones (limited)	0.86	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.28			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
33F:										
Sherless	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~large stones (limited)	0.73	~large stones (limited)	0.73			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60						
Nashoba	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~large stones (limited)	0.86	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50
	~large stones (limited)	0.86	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28
	~high erodibility (limited)	0.80	~slope (moderately limited)	0.60			~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large stones (moderately limited)	0.40	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80			~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
34B:										
Speer	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
35B:										
Speer	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60						
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50						
36:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover): Rating class and limiting features	Value	Domestic grasses and legumes (for use as food and cover): Rating class and limiting features	Value	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value	Upland deciduous trees: Rating class and limiting features	Value
37C:										
Wetsaw---------	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~moderate erodibility (moderately limited)	0.50	~moderate erodibility (moderately limited)	0.50	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.59
	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44						
	~droughty (slightly limited)	0.02								
38C:										
Wilburton------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.76	~large stones (limited)	0.76	~large stones (limited)	0.76
	~droughty (very limited)	1.00	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.15	~droughty (slightly limited)	0.15	~droughty (slightly limited)	0.15
	~moderate erodibility (moderately limited)	0.50	~droughty (slightly limited)	0.15						
39C:										
Yanush---------	Limited		Moderately limited		Slightly limited		Not limited		Not limited	
	~droughty (limited)	0.94	~small stones (moderately limited)	0.52	~small stones (slightly limited)	0.10				
	~small stones (moderately limited)	0.52	~moderate erodibility (moderately limited)	0.50						
	~moderate erodibility (moderately limited)	0.50								
39D:										
Yanush---------	Limited		Limited		Slightly limited		Not limited		Not limited	
	~droughty (limited)	0.94	~high erodibility (limited)	0.80	~small stones (slightly limited)	0.10				
	~high erodibility (limited)	0.80	~small stones (moderately limited)	0.52						
	~small stones (moderately limited)	0.52								
40G:										
Yanush---------	Very limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~droughty (limited)	0.96	~high erodibility (limited)	0.80						
	~high erodibility (limited)	0.80	~large stones (limited)	0.73						

Table 9a.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40G:										
Avant----------	Very limited		Very limited		Limited		Limited		Limited	
	~droughty (very limited)	1.00	~slope (very limited)	1.00	~large stones (limited)	0.68	~large stones (limited)	0.68	~large stones (limited)	0.68
	~slope (very limited)	1.00	~large stones >35% (very limited)	1.00	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21
	~large stones >35% (very limited)	1.00	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
41F:										
Yanush---------	Limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (limited)	0.96	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40
	~high erodibility (limited)	0.80	~large stones (limited)	0.73						
	~large stones (limited)	0.73	~slope (moderately limited)	0.60						
Bigfork--------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (limited)	0.77	~droughty (limited)	0.77	~droughty (limited)	0.77
	~high erodibility (limited)	0.80	~droughty (limited)	0.77			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07
41G:										
Yanush---------	Very limited		Very limited		Limited		Limited		Limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.91	~large stones (limited)	0.91	~large stones (limited)	0.91
	~slope (very limited)	1.00	~slope (very limited)	1.00						
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80						
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (limited)	0.77	~droughty (limited)	0.77	~droughty (limited)	0.77
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07

Table 9b.--Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (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)	0.21	~infrequent flooding (limited)	0.80	~large stones (limited)	0.76			~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.09	~large stones (limited)	0.76	~droughty (slightly limited)	0.21			~seepage (moderately limited)	0.46
2C, 3C:										
Avilla---------	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 (limited)	0.80					~seepage (moderately limited)	0.46
									~slope (moderately limited)	0.31
4D, 4F:										
Bengal---------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.09	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40						
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
4D, 4F:										
Yanush---------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
			~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
5CD:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (limited)	0.77	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~droughty (limited)	0.77			~seepage (moderately limited)	0.46
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (limited)	0.77	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~droughty (limited)	0.77			~seepage (moderately limited)	0.46
Yanush---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (moderately limited)	0.46
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9b.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7C:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~slope (limited)	0.91
									~seepage (moderately limited)	0.46
8D, 8F:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~seepage (moderately limited)	0.46
Littlefir------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.29	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40						
9G:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~seepage (moderately limited)	0.46
Bengal---------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.09	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40						

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
9G:										
Bigfork	Limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (limited)	0.61	~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 (moderately limited)	0.50	~infrequent flooding (limited)	0.80	~droughty (limited)	0.61			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50			~seepage (moderately limited)	0.46
10C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~slope (limited)	0.66
									~seepage (moderately limited)	0.46
Nashoba	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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)	0.28	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~seepage (limited)	0.80
	~depth to bedrock (slightly limited)	0.13	~large stones (moderately limited)	0.40	~droughty (slightly limited)	0.28			~slope (limited)	0.66
Sherless	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~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 (limited)	0.80					~slope (limited)	0.66
									~seepage (moderately limited)	0.46
10D:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
10D:										
Nashoba	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~droughty (slightly limited)	0.28	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.13	~large stones (moderately limited)	0.40	~droughty (slightly limited)	0.28			~seepage (limited)	0.80
Sherless	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
11CD:										
Carnasaw	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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 (limited)	0.80	~large stones (moderately limited)	0.40			~slope (very limited)	1.00
			~large stones (moderately limited)	0.40						
Pirum	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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 (slightly limited)	0.12	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~slope (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (slightly limited)	0.16
12D, 12F:										
Carnasaw	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
			~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40						

Table 9b.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12D:										
Sherless	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
13G:										
Caston	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (slightly limited)	0.03	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80	~droughty (slightly limited)	0.03			~seepage (moderately limited)	0.46
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~deep to water (very limited)	1.00	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~slope (very limited)	1.00
	~droughty (very limited)	1.00	~large stones >75% (very limited)	1.00	~deep to water (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones >75% (very limited)	1.00	~infrequent flooding (limited)	0.80	~large stones >75% (very limited)	1.00			~seepage (limited)	0.80
Octavia	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (slightly limited)	0.16
14B:										
Ceda	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~seepage (very limited)	1.00
	~droughty (slightly limited)	0.02	~large stones (limited)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
					~droughty (slightly limited)	0.02				

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
15CD:										
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~large stones >75% (very limited)	1.00	~deep to water (very limited)	1.00			~slope (very limited)	1.00
	~large stones >75% (very limited)	1.00	~infrequent flooding (limited)	0.80	~large stones >75% (very limited)	1.00			~seepage (limited)	0.80
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
			~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~slope (very limited)	1.00
			~infrequent flooding (limited)	0.80						
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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 (slightly limited)	0.12	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~slope (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (slightly limited)	0.16
15F:										
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~deep to water (very limited)	1.00	~droughty (very limited)	1.00	~deep to water (very limited)	1.00	~slope (very limited)	1.00
	~droughty (very limited)	1.00	~large stones (limited)	0.91	~deep to water (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (limited)	0.91	~infrequent flooding (limited)	0.80	~large stones (limited)	0.91			~seepage (limited)	0.80
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80						

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
15F:										
Pirum----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.60	~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
	~depth to bedrock (slightly limited)	0.12	~infrequent flooding (limited)	0.80	~large stones (limited)	0.60			~deep to water (very limited)	1.00
			~large stones (limited)	0.60					~seepage (slightly limited)	0.16
16B:										
Cupco----------	Very limited		Limited		Not limited		Slightly limited		Slightly limited	
	~wetness (very limited)	1.00	~infrequent flooding (limited)	0.80			~deep to water (slightly limited)	0.15	~seepage (slightly limited)	0.16
			~deep to water (slightly limited)	0.15						
17B:										
Dela-----------	Slightly limited		Very limited		Slightly limited		Very limited		Limited	
	~wetness (slightly limited)	0.01	~deep to water (very limited)	1.00	~deep to water (slightly limited)	0.30	~deep to water (very limited)	1.00	~seepage (limited)	0.79
			~infrequent flooding (moderately limited)	0.50					~deep to water (slightly limited)	0.30
18B:										
Kenn-----------	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)	0.46
19B:										
Kenn-----------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.50	~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
			~large stones (moderately limited)	0.50	~large stones (moderately limited)	0.50			~seepage (moderately limited)	0.46
Ceda-----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.80	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~deep to water (very limited)	1.00	~seepage (very limited)	1.00
	~droughty (slightly limited)	0.02	~large stones (limited)	0.80	~large stones (limited)	0.80			~deep to water (very limited)	1.00
					~droughty (slightly limited)	0.02				

Table 9b.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20C:										
Littlefir------	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	0.29	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80					~slope	0.66
			(limited)						(limited)	
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock	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)	
	~droughty	1.00	~infrequent flooding	0.80	~droughty	1.00			~slope	0.66
	(very limited)		(limited)		(very limited)				(limited)	
									~seepage	0.46
									(moderately limited)	
21B:										
Mazarn---------	Limited		Limited		Not limited		Slightly limited		Slightly limited	
	~wetness	0.99	~infrequent flooding	0.80			~deep to water	0.30	~seepage	0.16
	(limited)		(limited)				(slightly limited)		(slightly limited)	
	~depth to bedrock	0.21	~deep to water	0.30						
	(slightly limited)		(slightly limited)							
22B:										
Mazarn---------	Limited		Moderately limited		Not limited		Slightly limited		Slightly limited	
	~wetness	0.99	~infrequent flooding	0.50			~deep to water	0.30	~seepage	0.16
	(limited)		(moderately limited)				(slightly limited)		(slightly limited)	
	~depth to bedrock	0.21	~deep to water	0.30						
	(slightly limited)		(slightly limited)							
23C, 24C:										
Mena-----------	Moderately limited		Limited		Not limited		Limited		Moderately limited	
	~wetness	0.45	~infrequent flooding	0.80			~deep to water	0.60	~slope	0.31
	(moderately limited)		(limited)				(limited)		(moderately limited)	
			~deep to water	0.60					~seepage	0.16
			(limited)						(slightly limited)	
24D:										
Mena-----------	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					~seepage	0.16
			(limited)						(slightly limited)	

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
25F:										
Nashoba--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.60	~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
	~droughty (slightly limited)	0.28	~infrequent flooding (limited)	0.80	~large stones (limited)	0.60			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.13	~large stones (limited)	0.60	~droughty (slightly limited)	0.28			~seepage (limited)	0.80
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~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	~large stones (limited)	0.60			~seepage (moderately limited)	0.46
26B:										
Neff-----------	Moderately limited		Limited		Not limited		Moderately limited		Slightly limited	
	~wetness (moderately limited)	0.59	~infrequent flooding (limited)	0.80			~deep to water (moderately limited)	0.45	~seepage (slightly limited)	0.16
			~deep to water (moderately limited)	0.45						
27D:										
Octavia--------	Limited		Very limited		Limited		Very limited		Very limited	
	~large stones (limited)	0.60	~deep to water (very limited)	1.00	~large stones (limited)	0.60	~deep to water (very limited)	1.00	~slope (very limited)	1.00
			~infrequent flooding (limited)	0.80	~deep to water (moderately limited)	0.47			~deep to water (moderately limited)	0.47
			~large stones (limited)	0.60					~seepage (slightly limited)	0.16
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.60	~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
			~infrequent flooding (limited)	0.80	~large stones (limited)	0.60			~deep to water (very limited)	1.00
			~large stones (limited)	0.60						

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
27F:										
Octavia	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.60	~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
			~infrequent flooding (limited)	0.80	~large stones (limited)	0.60			~deep to water (very limited)	1.00
			~large stones (limited)	0.60					~seepage (slightly limited)	0.16
Carnasaw	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.60	~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
			~infrequent flooding (limited)	0.80	~large stones (limited)	0.60			~deep to water (very limited)	1.00
			~large stones (limited)	0.60						
28G:										
Octavia	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (slightly limited)	0.16
Carnasaw	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80						
Caston	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (slightly limited)	0.03	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80	~droughty (slightly limited)	0.03			~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
29G:										
Octavia---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (slightly limited)	0.16
Caston----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (slightly limited)	0.03	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80	~droughty (slightly limited)	0.03			~seepage (moderately limited)	0.46
Pirum-----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.68	~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
	~depth to bedrock (slightly limited)	0.12	~infrequent flooding (limited)	0.80	~large stones (limited)	0.68			~deep to water (very limited)	1.00
			~large stones (limited)	0.68					~seepage (slightly limited)	0.16
30C:										
Sherless--------	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~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 (limited)	0.80					~slope (limited)	0.91
									~seepage (moderately limited)	0.46
31C:										
Sherless--------	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~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 (limited)	0.80					~slope (limited)	0.66
									~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
31C:										
Littlefir	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.29	~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 (limited)	0.80					~slope (limited)	0.66
31D, 31F:										
Sherless	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
Littlefir	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.50	~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
	~depth to bedrock (slightly limited)	0.29	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.50			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.50						
32C:										
Sherless	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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 (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~slope (limited)	0.66
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
Nashoba	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.50	~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)	0.28	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.50			~seepage (limited)	0.80
	~depth to bedrock (slightly limited)	0.13	~large stones (moderately limited)	0.50	~droughty (slightly limited)	0.28			~slope (limited)	0.66

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
32D:										
Sherless-------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
Nashoba--------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.50	~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
	~droughty (slightly limited)	0.28	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.50			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.13	~large stones (moderately limited)	0.50	~droughty (slightly limited)	0.28			~seepage (limited)	0.80
33F:										
Sherless-------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.40	~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
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.40			~deep to water (very limited)	1.00
			~large stones (moderately limited)	0.40					~seepage (moderately limited)	0.46
Nashoba--------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (moderately limited)	0.50	~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
	~droughty (slightly limited)	0.28	~infrequent flooding (limited)	0.80	~large stones (moderately limited)	0.50			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.13	~large stones (moderately limited)	0.50	~droughty (slightly limited)	0.28			~seepage (limited)	0.80
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (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
	~droughty (very limited)	1.00	~infrequent flooding (limited)	0.80	~droughty (very limited)	1.00			~deep to water (very limited)	1.00
	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40	~large stones (moderately limited)	0.40			~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
34B:										
Speer----------	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 (limited)	0.80					~seepage (moderately limited)	0.46
35B:										
Speer----------	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)	0.46
36:										
Water----------	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw---------	Moderately limited		Limited		Not limited		Moderately limited		Moderately limited	
	~wetness (moderately limited)	0.59	~infrequent flooding (limited)	0.80			~deep to water (moderately limited)	0.45	~seepage (moderately limited)	0.46
			~deep to water (moderately limited)	0.45					~slope (moderately limited)	0.31
38C:										
Wilburton------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (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	~large stones (limited)	0.76			~slope (limited)	0.66
			~large stones (limited)	0.76	~droughty (slightly limited)	0.15			~seepage (moderately limited)	0.46
39C:										
Yanush---------	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 (limited)	0.80					~slope (limited)	0.66
									~seepage (moderately limited)	0.46

Table 9b.--Wildlife Habitat--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
39D: Yanush	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	 1.00 0.80	Very limited ~deep to water (very limited)	 1.00	Very limited ~deep to water (very limited)	 1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	 1.00 1.00 0.46
40G: Yanush	Moderately limited ~large stones (moderately limited)	 0.40	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (moderately limited)	 1.00 0.80 0.40	Very limited ~deep to water (very limited) ~large stones (moderately limited)	 1.00 0.40	Very limited ~deep to water (very limited)	 1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	 1.00 1.00 0.46
Avant	Limited ~large stones (limited) ~droughty (slightly limited) ~depth to bedrock (slightly limited)	 0.68 0.21 0.09	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (limited)	 1.00 0.80 0.68	Very limited ~deep to water (very limited) ~large stones (limited) ~droughty (slightly limited)	 1.00 0.68 0.21	Very limited ~deep to water (very limited)	 1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	 1.00 1.00 0.46
41F: Yanush	Moderately limited ~large stones (moderately limited)	 0.40	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (moderately limited)	 1.00 0.80 0.40	Very limited ~deep to water (very limited) ~large stones (moderately limited)	 1.00 0.40	Very limited ~deep to water (very limited)	 1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	 1.00 1.00 0.46
Bigfork	Limited ~large stones (limited) ~droughty (limited) ~depth to bedrock (slightly limited)	 0.91 0.77 0.07	Very limited ~deep to water (very limited) ~large stones (limited) ~infrequent flooding (limited)	 1.00 0.91 0.80	Very limited ~deep to water (very limited) ~large stones (limited) ~droughty (limited)	 1.00 0.91 0.77	Very limited ~deep to water (very limited)	 1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	 1.00 1.00 0.46

Table 9b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees: Rating class and limiting features	Value	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value	Irrigated freshwater wetland plants: Rating class and limiting features	Value
41G:										
Yanush	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (limited)	0.91	~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)	0.91	~large stones (limited)	0.91			~deep to water (very limited)	1.00
			~infrequent flooding (limited)	0.80					~seepage (moderately limited)	0.46
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >75% (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
	~droughty (limited)	0.77	~large stones >75% (very limited)	1.00	~large stones >75% (very limited)	1.00			~deep to water (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~infrequent flooding (limited)	0.80	~droughty (limited)	0.77			~seepage (moderately limited)	0.46

Table 10.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant	Moderately limited		Very limited		Very limited		Slightly limited		Very limited	
	~slope (moderately limited)	0.45	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~large stones (slightly limited)	0.29	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.29	~slope (moderately limited)	0.45	~large stones (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.18	~droughty (slightly limited)	0.21
	~depth to bedrock (slightly limited)	0.18	~large stones (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.18	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.12
2C:										
Avilla	Not limited		Not limited		Slightly limited		Not limited		Not limited	
					~slope (slightly limited)	0.15				
3C:										
Avilla	Not limited		Not limited		Slightly limited		Not limited		Moderately limited	
					~slope (slightly limited)	0.15			~small stones (moderately limited)	0.46
									~large stones (slightly limited)	0.19
4D:										
Bengal	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
			~soft bedrock <40" (slightly limited)	0.03					~too acid (slightly limited)	0.12
Bismarck	Limited		Very limited		Very limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~soft bedrock <20" (limited)	0.80	~slope (limited)	0.63	~droughty (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones >30% (very limited)	1.00

Table 10.--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4D:										
Yanush---------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.41	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~slope (limited)	0.63
	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37		
4F:										
Bengal---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.03					~too acid (slightly limited)	0.12
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~soft bedrock <20" (limited)	0.80	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~droughty (very limited)	1.00
Yanush---------	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	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.41	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~large stones >30% (very limited)	1.00
	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37	~large stones (moderately limited)	0.37		
5CD:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (very limited)	1.00	~hard bedrock <40" (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (moderately limited)	0.45	~large stones (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~droughty (limited)	0.77
	~shrink-swell (moderately limited)	0.45	~slope (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~depth to bedrock (slightly limited)	0.14	~depth to bedrock (slightly limited)	0.07
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
6G:										
Bigfork--------	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	~large stones >30% (very limited)	1.00
	~large stones (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~large stones (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~droughty (limited)	0.77
Yanush---------	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
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.41	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~slope (very limited)	1.00
	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~too acid (slightly limited)	0.12
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck-------	Limited		Very limited		Limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
					~slope (limited)	0.68			~droughty (very limited)	1.00
									~small stones (moderately limited)	0.52
8D:										
Bismarck-------	Limited		Very limited		Very limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~soft bedrock <20" (limited)	0.80	~slope (limited)	0.63	~droughty (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones >30% (very limited)	1.00
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
			~soft bedrock <40" (moderately limited)	0.42					~depth to bedrock (slightly limited)	0.29

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
8F:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~soft bedrock <20" (limited)	0.80	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~droughty (very limited)	1.00
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (moderately limited)	0.42					~depth to bedrock (slightly limited)	0.29
9G:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~soft bedrock <20" (limited)	0.80	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~droughty (very limited)	1.00
Bengal---------	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	~slope (very limited)	1.00
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.03					~too acid (slightly limited)	0.12
Bigfork--------	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
	~large stones (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones >30% (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~large stones (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~droughty (limited)	0.61

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
10C:										
Bismarck-------	Limited		Very limited		Limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
					~slope (moderately limited)	0.45			~droughty (very limited)	1.00
									~small stones (moderately limited)	0.52
Nashoba--------	Limited		Very limited		Limited		Limited		Very limited	
	~large stones (limited)	0.81	~hard bedrock <40" (very limited)	1.00	~large stones (limited)	0.81	~large stones (limited)	0.81	~large stones >30% (very limited)	1.00
	~depth to bedrock (slightly limited)	0.25	~large stones (limited)	0.81	~slope (moderately limited)	0.45	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28
					~depth to bedrock (slightly limited)	0.25			~depth to bedrock (slightly limited)	0.13
Sherless-------	Not limited		Slightly limited		Moderately limited		Not limited		Slightly limited	
			~soft bedrock <40" (slightly limited)	0.01	~slope (moderately limited)	0.45			~large stones (slightly limited)	0.19
									~depth to bedrock (slightly limited)	0.07
10D:										
Bismarck-------	Limited		Very limited		Very limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~soft bedrock <20" (limited)	0.80	~slope (limited)	0.63	~droughty (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones >30% (very limited)	1.00
Nashoba--------	Limited		Very limited		Very limited		Limited		Very limited	
	~large stones (limited)	0.81	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~large stones (limited)	0.81	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~large stones (limited)	0.81	~large stones (limited)	0.81	~slope (limited)	0.63	~slope (limited)	0.63
	~depth to bedrock (slightly limited)	0.25	~slope (limited)	0.76	~depth to bedrock (slightly limited)	0.25	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
10D:										
Sherless-------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.00	~soft bedrock <40" (slightly limited)	0.01	~large stones (slightly limited)	0.00	~large stones (slightly limited)	0.00	~slope (limited)	0.63
			~large stones (slightly limited)	0.00					~depth to bedrock (slightly limited)	0.07
11CD:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~slope (very limited)	1.00	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.12
									~slope (slightly limited)	0.04
Pirum----------	Moderately limited		Very limited		Very limited		Slightly limited		Very limited	
	~slope (moderately limited)	0.45	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (slightly limited)	0.23	~large stones >30% (very limited)	1.00
	~depth to bedrock (slightly limited)	0.23	~slope (moderately limited)	0.45	~depth to bedrock (slightly limited)	0.23	~large stones (slightly limited)	0.07	~too acid (slightly limited)	0.30
	~large stones (slightly limited)	0.07	~large stones (slightly limited)	0.07	~large stones (slightly limited)	0.07	~slope (slightly limited)	0.04	~depth to bedrock (slightly limited)	0.12
12D:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
									~too acid (slightly limited)	0.12
Sherless-------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~slope (limited)	0.63
									~depth to bedrock (slightly limited)	0.07

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
12F:										
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
									~too acid (slightly limited)	0.12
Sherless	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	~slope (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~large stones >30% (very limited)	1.00
									~depth to bedrock (slightly limited)	0.07
13G:										
Caston	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 (limited)	0.97	~large stones (limited)	0.97	~large stones (limited)	0.97	~large stones (limited)	0.97	~slope (very limited)	1.00
									~droughty (slightly limited)	0.03
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20" (very limited)	1.00	~hard bedrock <40" (very limited)	1.00	~hard bedrock <20" (very limited)	1.00	~hard bedrock <20" (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~shallow to bedrock (very limited)	1.00
Octavia	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)	0.02	~shrink-swell (slightly limited)	0.14	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~slope (very limited)	1.00
			~large stones (slightly limited)	0.02					~too acid (slightly limited)	0.12

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
14B:										
Ceda	Very limited ~flooding (very limited) ~large stones (limited)	 1.00 0.88	Very limited ~flooding (very limited) ~large stones (limited)	 1.00 0.88	Very limited ~flooding (very limited) ~large stones (limited)	 1.00 0.88	Very limited ~flooding (very limited) ~large stones (limited)	 1.00 0.88	Very limited ~large stones >30% (very limited) ~flooding (very limited) ~droughty (slightly limited)	 1.00 1.00 0.02
15CD:										
Clebit	Very limited ~hard bedrock <20" (very limited) ~large stones (very limited) ~slope (moderately limited)	 1.00 1.00 0.45	Very limited ~hard bedrock <40" (very limited) ~large stones (very limited) ~slope (moderately limited)	 1.00 1.00 0.45	Very limited ~hard bedrock <20" (very limited) ~large stones (very limited) ~slope (very limited)	 1.00 1.00 1.00	Very limited ~hard bedrock <20" (very limited) ~large stones (very limited) ~slope (slightly limited)	 1.00 1.00 0.04	Very limited ~large stones >30% (very limited) ~shallow to bedrock (very limited) ~droughty (very limited)	 1.00 1.00 1.00
Carnasaw	Very limited ~shrink-swell (very limited) ~slope (moderately limited)	 1.00 0.45	Very limited ~shrink-swell (very limited) ~slope (moderately limited)	 1.00 0.45	Very limited ~shrink-swell (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~shrink-swell (very limited) ~slope (slightly limited)	 1.00 0.04	Very limited ~large stones >30% (very limited) ~too acid (slightly limited) ~slope (slightly limited)	 1.00 0.12 0.04
Pirum	Moderately limited ~slope (moderately limited) ~depth to bedrock (slightly limited) ~large stones (slightly limited)	 0.45 0.23 0.20	Very limited ~hard bedrock <40" (very limited) ~slope (moderately limited) ~large stones (slightly limited)	 1.00 0.45 0.20	Very limited ~slope (very limited) ~depth to bedrock (slightly limited) ~large stones (slightly limited)	 1.00 0.23 0.20	Slightly limited ~depth to bedrock (slightly limited) ~large stones (slightly limited) ~slope (slightly limited)	 0.23 0.20 0.04	Very limited ~large stones >30% (very limited) ~too acid (slightly limited) ~depth to bedrock (slightly limited)	 1.00 0.30 0.12
15F:										
Clebit	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (very limited)	 1.00 1.00 0.99	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~large stones (very limited)	 1.00 1.00 0.99	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (very limited)	 1.00 1.00 0.99	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (very limited)	 1.00 1.00 0.99	Very limited ~large stones >30% (very limited) ~slope (very limited) ~shallow to bedrock (very limited)	 1.00 1.00 1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
15F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00
									~too acid (slightly limited)	0.12
Pirum----------	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
	~depth to bedrock (slightly limited)	0.23	~slope (very limited)	1.00	~depth to bedrock (slightly limited)	0.23	~depth to bedrock (slightly limited)	0.23	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.10	~large stones (slightly limited)	0.10	~large stones (slightly limited)	0.10	~large stones (slightly limited)	0.10	~too acid (slightly limited)	0.30
16B:										
Cupco----------	Very limited		Very limited		Very limited		Limited		Limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (rare) (limited)	0.90	~wetness (limited)	0.81
	~wetness (limited)	0.81	~wetness (very limited)	1.00	~wetness (limited)	0.81	~wetness (limited)	0.81		
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45		
17B:										
Dela-----------	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
			~wetness (limited)	0.61						
18B:										
Kenn-----------	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.31	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~small stones (moderately limited)	0.46
									~large stones (slightly limited)	0.19

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
19B:										
Kenn	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.31	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06		
Ceda	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~large stones >30% (very limited)	1.00
	~large stones (limited)	0.85	~large stones (limited)	0.85	~large stones (limited)	0.85	~large stones (limited)	0.85	~flooding (very limited)	1.00
									~droughty (slightly limited)	0.02
20C:										
Littlefir	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~small stones (moderately limited)	0.52
			~soft bedrock <40" (moderately limited)	0.42	~slope (moderately limited)	0.45			~depth to bedrock (slightly limited)	0.29
									~too acid (slightly limited)	0.12
Bismarck	Limited		Very limited		Limited		Limited		Very limited	
	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
					~slope (moderately limited)	0.45			~droughty (very limited)	1.00
									~small stones (moderately limited)	0.52
21B:										
Mazarn	Limited		Very limited		Limited		Limited		Limited	
	~wetness (limited)	0.60	~wetness (very limited)	1.00	~wetness (limited)	0.60	~wetness (limited)	0.60	~wetness (limited)	0.60
			~soft bedrock <40" (slightly limited)	0.20					~too acid (slightly limited)	0.30
									~depth to bedrock (slightly limited)	0.21

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
22B:										
Mazarn---------	Very limited		Very limited		Very limited		Very limited		Limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~wetness (limited)	0.60
	~wetness (limited)	0.60	~wetness (very limited)	1.00	~wetness (limited)	0.60	~wetness (limited)	0.60	~flooding (moderately limited)	0.60
			~soft bedrock <40" (slightly limited)	0.20					~too acid (slightly limited)	0.30
23C:										
Mena-----------	Moderately limited		Very limited		Moderately limited		Moderately limited		Slightly limited	
	~shrink-swell (moderately limited)	0.45	~wetness (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~too acid (slightly limited)	0.12
			~shrink-swell (moderately limited)	0.45	~slope (slightly limited)	0.15				
24C:										
Mena-----------	Moderately limited		Very limited		Moderately limited		Moderately limited		Moderately limited	
	~shrink-swell (moderately limited)	0.45	~wetness (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~small stones (moderately limited)	0.52
			~shrink-swell (moderately limited)	0.45	~slope (slightly limited)	0.15			~too acid (slightly limited)	0.12
24D:										
Mena-----------	Moderately limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~shrink-swell (moderately limited)	0.45	~wetness (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~small stones (moderately limited)	0.52
	~slope (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.12
			~slope (moderately limited)	0.45					~slope (slightly limited)	0.04
25F:										
Nashoba--------	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
	~large stones (limited)	0.99	~slope (very limited)	1.00	~large stones (limited)	0.99	~large stones (limited)	0.99	~large stones >30% (very limited)	1.00
	~depth to bedrock (slightly limited)	0.25	~large stones (limited)	0.99	~depth to bedrock (slightly limited)	0.25	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
25F:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~soft bedrock <20" (limited)	0.80	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06	~droughty (very limited)	1.00
26B:										
Neff-----------	Very limited		Very limited		Very limited		Limited		Slightly limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (rare) (limited)	0.90	~wetness (slightly limited)	0.28
	~shrink-swell (moderately limited)	0.45	~wetness (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~too acid (slightly limited)	0.12
	~wetness (slightly limited)	0.28	~shrink-swell (slightly limited)	0.27	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28		
27D:										
Octavia--------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
	~large stones (slightly limited)	0.00	~wetness (moderately limited)	0.47	~large stones (slightly limited)	0.00	~large stones (slightly limited)	0.00	~slope (limited)	0.63
			~shrink-swell (slightly limited)	0.14					~too acid (slightly limited)	0.12
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
									~too acid (slightly limited)	0.12
27F:										
Octavia--------	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	~slope (very limited)	1.00
	~large stones (slightly limited)	0.00	~shrink-swell (slightly limited)	0.14	~large stones (slightly limited)	0.00	~large stones (slightly limited)	0.00	~large stones >30% (very limited)	1.00
			~large stones (slightly limited)	0.00					~too acid (slightly limited)	0.12

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
27F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
									~too acid (slightly limited)	0.12
28G:										
Octavia--------	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)	0.02	~shrink-swell (slightly limited)	0.14	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~slope (very limited)	1.00
			~large stones (slightly limited)	0.02					~too acid (slightly limited)	0.12
Carnasaw-------	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
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00
									~too acid (slightly limited)	0.12
Caston---------	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 (limited)	0.97	~large stones (limited)	0.97	~large stones (limited)	0.97	~large stones (limited)	0.97	~slope (very limited)	1.00
									~droughty (slightly limited)	0.03
29G:										
Octavia--------	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)	0.02	~shrink-swell (slightly limited)	0.14	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~slope (very limited)	1.00
			~large stones (slightly limited)	0.02					~too acid (slightly limited)	0.12

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
29G:										
Caston----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~large stones >30%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.97	~large stones	0.97	~large stones	0.97	~large stones	0.97	~slope	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~droughty	0.03
									(slightly limited)	
Pirum-----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~large stones >30%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.23	~slope	1.00	~depth to bedrock	0.23	~depth to bedrock	0.23	~slope	1.00
	(slightly limited)		(very limited)		(slightly limited)		(slightly limited)		(very limited)	
	~large stones	0.11	~large stones	0.11	~large stones	0.11	~large stones	0.11	~too acid	0.30
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
30C:										
Sherless--------	Not limited		Slightly limited		Limited		Not limited		Slightly limited	
			~soft bedrock <40"	0.01	~slope	0.68			~large stones	0.19
			(slightly limited)		(limited)				(slightly limited)	
									~depth to bedrock	0.07
									(slightly limited)	
31C:										
Sherless--------	Not limited		Slightly limited		Moderately limited		Not limited		Slightly limited	
			~soft bedrock <40"	0.01	~slope	0.45			~large stones	0.19
			(slightly limited)		(moderately limited)				(slightly limited)	
									~depth to bedrock	0.07
									(slightly limited)	
Littlefir-------	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~small stones	0.52
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
			~soft bedrock <40"	0.42	~slope	0.45			~depth to bedrock	0.29
			(moderately limited)		(moderately limited)				(slightly limited)	
									~too acid	0.12
									(slightly limited)	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
31D:										
Sherless-------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~slope (limited)	0.63
									~depth to bedrock (slightly limited)	0.07
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
			~soft bedrock <40" (moderately limited)	0.42					~depth to bedrock (slightly limited)	0.29
31F:										
Sherless-------	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	~slope (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~large stones >30% (very limited)	1.00
									~depth to bedrock (slightly limited)	0.07
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (moderately limited)	0.42					~depth to bedrock (slightly limited)	0.29
32C:										
Sherless-------	Not limited		Slightly limited		Moderately limited		Not limited		Very limited	
			~soft bedrock <40" (slightly limited)	0.01	~slope (moderately limited)	0.45			~large stones >30% (very limited)	1.00
									~depth to bedrock (slightly limited)	0.07

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
32C:										
Nashoba--------	Limited		Very limited		Limited		Limited		Very limited	
	~large stones (limited)	0.98	~hard bedrock <40" (very limited)	1.00	~large stones (limited)	0.98	~large stones (limited)	0.98	~large stones >30% (very limited)	1.00
	~depth to bedrock (slightly limited)	0.25	~large stones (limited)	0.98	~slope (moderately limited)	0.45	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28
					~depth to bedrock (slightly limited)	0.25			~depth to bedrock (slightly limited)	0.13
32D:										
Sherless-------	Limited		Limited		Very limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~large stones >30% (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~slope (limited)	0.63
									~depth to bedrock (slightly limited)	0.07
Nashoba--------	Limited		Very limited		Very limited		Limited		Very limited	
	~large stones (limited)	0.98	~hard bedrock <40" (very limited)	1.00	~slope (very limited)	1.00	~large stones (limited)	0.98	~large stones >30% (very limited)	1.00
	~slope (limited)	0.76	~large stones (limited)	0.98	~large stones (limited)	0.98	~slope (limited)	0.63	~slope (limited)	0.63
	~depth to bedrock (slightly limited)	0.25	~slope (limited)	0.76	~depth to bedrock (slightly limited)	0.25	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28
33F:										
Sherless-------	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	~slope (very limited)	1.00
			~soft bedrock <40" (slightly limited)	0.01					~large stones >30% (very limited)	1.00
									~depth to bedrock (slightly limited)	0.07
Nashoba--------	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
	~large stones (limited)	0.98	~slope (very limited)	1.00	~large stones (limited)	0.98	~large stones (limited)	0.98	~large stones >30% (very limited)	1.00
	~depth to bedrock (slightly limited)	0.25	~large stones (limited)	0.98	~depth to bedrock (slightly limited)	0.25	~depth to bedrock (slightly limited)	0.25	~droughty (slightly limited)	0.28

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
33F:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~soft bedrock <20" (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~soft bedrock <20" (limited)	0.80	~slope (very limited)	1.00	~soft bedrock <20" (limited)	0.80	~soft bedrock <20" (limited)	0.80	~shallow to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~large stones (slightly limited)	0.02	~droughty (very limited)	1.00
34B:										
Speer	Very limited		Very limited		Very limited		Limited		Not limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (rare) (limited)	0.90		
35B:										
Speer	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (moderately limited)	0.60
36:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw	Slightly limited		Very limited		Slightly limited		Slightly limited		Slightly limited	
	~wetness (slightly limited)	0.28	~wetness (very limited)	1.00	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28
					~slope (slightly limited)	0.15			~large stones (slightly limited)	0.01
38C:										
Wilburton	Limited		Limited		Very limited		Very limited		Very limited	
	~large stones (very limited)	0.99	~large stones (very limited)	0.99	~large stones (very limited)	0.99	~large stones (very limited)	0.99	~large stones >30% (very limited)	1.00
					~slope (moderately limited)	0.45			~droughty (slightly limited)	0.15
39C:										
Yanush	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.41	~slope (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~small stones (moderately limited)	0.52
	~large stones (slightly limited)	0.05	~large stones (slightly limited)	0.05	~shrink-swell (moderately limited)	0.45	~large stones (slightly limited)	0.05		
					~large stones (slightly limited)	0.05				

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
39D:										
Yanush---------	Limited		Limited		Very limited		Limited		Limited	
	~slope	0.76	~slope	0.76	~slope	1.00	~slope	0.63	~slope	0.63
	(limited)		(limited)		(very limited)		(limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.41	~shrink-swell	0.45	~shrink-swell	0.45	~small stones	0.52
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~large stones	0.05	~large stones	0.05	~large stones	0.05	~large stones	0.05		
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)			
40G:										
Yanush---------	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)	
	~shrink-swell	0.45	~shrink-swell	0.41	~shrink-swell	0.45	~shrink-swell	0.45	~large stones >30%	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~large stones	0.16	~large stones	0.16	~large stones	0.16	~large stones	0.16	~too acid	0.12
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Avant----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~large stones >30%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.27	~slope	1.00	~large stones	0.27	~large stones	0.27	~slope	1.00
	(slightly limited)		(very limited)		(slightly limited)		(slightly limited)		(very limited)	
	~depth to bedrock	0.18	~large stones	0.27	~depth to bedrock	0.18	~depth to bedrock	0.18	~droughty	0.21
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
41F:										
Yanush---------	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)	
	~shrink-swell	0.45	~shrink-swell	0.41	~shrink-swell	0.45	~shrink-swell	0.45	~large stones >30%	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~large stones	0.16	~large stones	0.16	~large stones	0.16	~large stones	0.16	~too acid	0.12
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~large stones >30%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	1.00	~slope	1.00	~large stones	1.00	~large stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	0.45	~large stones	1.00	~shrink-swell	0.45	~shrink-swell	0.45	~droughty	0.77
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(limited)	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value	Local roads and streets: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
41G:										
Yanush	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
	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.41	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~slope (very limited)	1.00
	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~large stones (moderately limited)	0.31	~too acid (slightly limited)	0.12
Bigfork	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	~large stones >30% (very limited)	1.00
	~large stones (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~large stones (very limited)	1.00	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~droughty (limited)	0.77

Table 11.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1CD:										
Avant----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.29	~slope (very limited)	1.00	~large stones (slightly limited)	0.21	~slope (slightly limited)	0.04	~small stones (limited)	0.84
	~percs slowly (slightly limited)	0.24	~large stones (limited)	0.95	~too acid (slightly limited)	0.12			~too acid (slightly limited)	0.12
2C:										
Avilla---------	Slightly limited		Moderately limited		Slightly limited		Not limited		Slightly limited	
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~slope (moderately limited)	0.31	~too clayey (slightly limited)	0.21			~too clayey (slightly limited)	0.08
3C:										
Avilla---------	Slightly limited		Moderately limited		Slightly limited		Not limited		Slightly limited	
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~slope (moderately limited)	0.31	~too clayey (slightly limited)	0.21			~too clayey (slightly limited)	0.08
4D:										
Bengal---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.93	~depth to bedrock (very limited)	1.00	~too clayey (limited)	0.80	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~large stones (slightly limited)	0.04	~slope (limited)	0.63			~slope (limited)	0.63
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (limited)	0.80
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~slope (limited)	0.63

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
4D:										
Yanush	Limited		Very limited		Limited		Limited		Limited	
	~slope (limited)	0.63	~slope (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (limited)	0.84
	~large stones (moderately limited)	0.37	~large stones (limited)	0.92	~large stones (moderately limited)	0.38			~slope (limited)	0.63
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.24			~too acid (slightly limited)	0.12
4F:										
Bengal	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~large stones (slightly limited)	0.04	~too clayey (limited)	0.80			~hard to pack (limited)	0.70
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~small stones (limited)	0.80
Yanush	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	~slope (very limited)	1.00
	~large stones (moderately limited)	0.37	~large stones (limited)	0.92	~large stones (moderately limited)	0.38			~small stones (limited)	0.84
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.24			~too acid (slightly limited)	0.12
5CD:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00	~slope (slightly limited)	0.04	~large stones >35% (very limited)	1.00
	~slope (slightly limited)	0.04	~slope (very limited)	1.00	~too clayey (slightly limited)	0.15			~too acid (slightly limited)	0.12
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6G:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00			~large stones >35% (very limited)	1.00
Yanush	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	~slope (very limited)	1.00
	~large stones (moderately limited)	0.31	~large stones (limited)	0.99	~large stones (slightly limited)	0.25			~small stones (limited)	0.94
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.24			~too acid (slightly limited)	0.12
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
			~slope (limited)	0.91	~too acid (slightly limited)	0.12			~small stones >35% (very limited)	1.00
									~too acid (slightly limited)	0.12
8D:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (limited)	0.80
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~slope (limited)	0.63
Littlefir	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.93	~depth to bedrock (very limited)	1.00	~too clayey (limited)	0.80	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~large stones (slightly limited)	0.01	~slope (limited)	0.63			~slope (limited)	0.63

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8F:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~small stones (limited)	0.80
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~large stones (slightly limited)	0.01	~too clayey (limited)	0.80			~hard to pack (limited)	0.70
9G:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~small stones (limited)	0.80
Bengal---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~large stones (slightly limited)	0.04	~too clayey (limited)	0.80			~hard to pack (limited)	0.70
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00			~large stones >35% (very limited)	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
10C:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
			~slope (limited)	0.66	~too acid (slightly limited)	0.12			~small stones >35% (very limited)	1.00
									~too acid (slightly limited)	0.12
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.81	~seepage (very limited)	1.00	~large stones (limited)	0.67	~seepage (limited)	0.76	~large stones (limited)	0.68
			~large stones (very limited)	1.00					~seepage (moderately limited)	0.52
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (limited)	0.66	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.02				
10D:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (limited)	0.80
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~slope (limited)	0.63
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.81	~depth to bedrock (very limited)	1.00	~large stones (limited)	0.67	~seepage (limited)	0.76	~large stones (limited)	0.68
	~slope (limited)	0.63	~seepage (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
10D:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
11CD:										
Carnasaw-------	Limited		Very limited		Very limited		Moderately limited		Limited	
	~percs slowly (limited)	0.93	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (moderately limited)	0.36	~hard to pack (limited)	0.70
	~depth to bedrock (moderately limited)	0.50	~depth to bedrock (moderately limited)	0.50	~too clayey (limited)	0.85	~slope (slightly limited)	0.04	~too clayey (limited)	0.70
	~slope (slightly limited)	0.04			~too acid (slightly limited)	0.30			~depth to bedrock (moderately limited)	0.36
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (very limited)	1.00	~too acid (slightly limited)	0.30	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.30
	~large stones (slightly limited)	0.07	~seepage (moderately limited)	0.53	~slope (slightly limited)	0.04			~slope (slightly limited)	0.04
12D:										
Carnasaw-------	Limited		Very limited		Very limited		Limited		Limited	
	~percs slowly (limited)	0.93	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~depth to bedrock (moderately limited)	0.50	~too clayey (limited)	0.85	~depth to bedrock (moderately limited)	0.36	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.50			~slope (limited)	0.63			~slope (limited)	0.63
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
12F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~depth to bedrock (moderately limited)	0.50	~slope (very limited)	1.00	~depth to bedrock (moderately limited)	0.36	~hard to pack (limited)	0.70
	~depth to bedrock (moderately limited)	0.50			~too clayey (limited)	0.85			~too clayey (limited)	0.70
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
13G:										
Caston---------	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	~slope (very limited)	1.00
	~large stones (limited)	0.97	~large stones (very limited)	1.00	~large stones (limited)	0.88			~large stones (limited)	0.77
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~small stones (moderately limited)	0.47
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00			~large stones >35% (very limited)	1.00
Octavia--------	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	~slope (very limited)	1.00
	~percs slowly (limited)	0.73	~large stones (limited)	0.71	~too clayey (limited)	0.75			~hard to pack (limited)	0.70
	~large stones (slightly limited)	0.02	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too clayey (moderately limited)	0.53

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
14B:										
Ceda	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~seepage (very limited)	1.00
	~flooding (very limited)	1.00	~seepage (very limited)	1.00	~seepage (very limited)	1.00	~seepage (very limited)	1.00	~small stones (limited)	0.71
	~large stones (limited)	0.88	~large stones (very limited)	1.00	~large stones (limited)	0.75			~large stones (moderately limited)	0.50
15CD:										
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~slope (slightly limited)	0.04	~large stones >35% (very limited)	1.00
	~slope (slightly limited)	0.04	~slope (very limited)	1.00	~slope (slightly limited)	0.04			~seepage (moderately limited)	0.52
Carnasaw	Limited		Very limited		Very limited		Moderately limited		Limited	
	~percs slowly (limited)	0.93	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (moderately limited)	0.36	~hard to pack (limited)	0.70
	~depth to bedrock (moderately limited)	0.50	~depth to bedrock (moderately limited)	0.50	~too clayey (limited)	0.85	~slope (slightly limited)	0.04	~too clayey (limited)	0.70
	~slope (slightly limited)	0.04	~large stones (slightly limited)	0.22	~too acid (slightly limited)	0.30			~depth to bedrock (moderately limited)	0.36
Pirum	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (very limited)	1.00	~too acid (slightly limited)	0.30	~slope (slightly limited)	0.04	~too acid (slightly limited)	0.30
	~large stones (slightly limited)	0.20	~large stones (limited)	0.95	~large stones (slightly limited)	0.12			~slope (slightly limited)	0.04
15F:										
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	0.99	~large stones (very limited)	1.00	~large stones (limited)	0.88			~large stones (limited)	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.93	~depth to bedrock	0.50	~slope	1.00	~depth to bedrock	0.36	~hard to pack	0.70
	(limited)		(moderately limited)		(very limited)		(moderately limited)		(limited)	
	~depth to bedrock	0.50	~large stones	0.11	~too clayey	0.85			~too clayey	0.70
	(moderately limited)		(slightly limited)		(limited)				(limited)	
Pirum----------	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	1.00	~depth to bedrock	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.24	~large stones	0.59	~too acid	0.30			~too acid	0.30
	(slightly limited)		(moderately limited)		(slightly limited)				(slightly limited)	
16B:										
Cupco----------	Very limited		Very limited		Very limited		Very limited		Limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.81
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~percs slowly	0.73	~seepage	0.28	~flooding (rare)	0.60	~flooding (rare)	0.60	~too clayey	0.03
	(limited)		(slightly limited)		(moderately limited)		(moderately limited)		(slightly limited)	
	~flooding (rare)	0.60			~too clayey	0.15				
	(moderately limited)				(slightly limited)					
17B:										
Dela-----------	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)	
	~wetness	0.60	~seepage	1.00	~seepage	0.79	~seepage	0.75		
	(moderately limited)		(very limited)		(limited)		(limited)			
			~wetness	0.50	~wetness	0.30				
			(moderately limited)		(slightly limited)					
18B:										
Kenn-----------	Very limited		Very limited		Very limited		Very limited		Slightly limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~too acid	0.30
	(very limited)		(very limited)		(very limited)		(very limited)		(slightly limited)	
	~percs slowly	0.24	~seepage	0.53	~too acid	0.30			~small stones	0.19
	(slightly limited)		(moderately limited)		(slightly limited)				(slightly limited)	
					~large stones	0.12				
					(slightly limited)					

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
19B:										
Kenn-----------	Very limited		Very limited		Very limited		Very limited		Slightly limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~too acid	0.30
	(very limited)		(very limited)		(very limited)		(very limited)		(slightly limited)	
	~percs slowly	0.24	~large stones	0.68	~too acid	0.30			~small stones	0.07
	(slightly limited)		(limited)		(slightly limited)				(slightly limited)	
	~large stones	0.06	~seepage	0.53	~large stones	0.26			~large stones	0.02
	(slightly limited)		(moderately limited)		(slightly limited)				(slightly limited)	
Ceda-----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00	~small stones	0.72
	(very limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~large stones	0.85	~large stones	1.00	~large stones	0.72			~large stones	0.45
	(limited)		(very limited)		(limited)				(moderately limited)	
20C:										
Littlefir------	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	0.93	~slope	0.66	~too clayey	0.80			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
					~too acid	0.30			~too clayey	0.60
					(slightly limited)				(moderately limited)	
Bismarck-------	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	0.66	~too acid	0.12			~small stones >35%	1.00
			(limited)		(slightly limited)				(very limited)	
									~too acid	0.12
									(slightly limited)	
21B:										
Mazarn---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	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)	
	~wetness	1.00	~depth to bedrock	1.00	~wetness	1.00	~wetness	0.99	~wetness	0.60
	(very limited)		(very limited)		(very limited)		(limited)		(moderately limited)	
	~percs slowly	0.73			~too acid	0.30			~too acid	0.30
	(limited)				(slightly limited)				(slightly limited)	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
22B:										
Mazarn	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~depth to bedrock (very limited)	1.00	~flooding (very limited)	1.00	~wetness (moderately limited)	0.60
	~flooding (very limited)	1.00	~depth to bedrock (very limited)	1.00	~wetness (very limited)	1.00	~wetness (limited)	0.99	~too acid (slightly limited)	0.30
23C, 24C:										
Mena	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~seepage (very limited)	1.00	~wetness (limited)	0.60	~hard to pack (limited)	0.70
	~percs slowly (limited)	0.73	~slope (moderately limited)	0.31	~wetness (limited)	0.79			~too acid (moderately limited)	0.54
					~too clayey (limited)	0.75			~too clayey (moderately limited)	0.53
24D:										
Mena	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~seepage (very limited)	1.00	~wetness (limited)	0.60	~hard to pack (limited)	0.70
	~percs slowly (limited)	0.73	~slope (very limited)	1.00	~wetness (limited)	0.79	~slope (slightly limited)	0.04	~too acid (moderately limited)	0.54
	~slope (slightly limited)	0.04			~too clayey (limited)	0.75			~too clayey (moderately limited)	0.53
25F:										
Nashoba	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.99	~seepage (very limited)	1.00	~large stones (limited)	0.92	~seepage (limited)	0.76	~large stones (limited)	0.99
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.00	~too acid (slightly limited)	0.12			~small stones (limited)	0.78

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
26B:										
Neff	Very limited		Very limited		Limited		Limited		Moderately limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~wetness (limited)	0.99	~wetness (limited)	0.80	~wetness (moderately limited)	0.50
	~percs slowly (limited)	0.73	~seepage (moderately limited)	0.53	~flooding (rare) (moderately limited)	0.60	~flooding (rare) (moderately limited)	0.60		
	~flooding (rare) (moderately limited)	0.60			~too clayey (slightly limited)	0.11				
27D:										
Octavia	Limited		Very limited		Limited		Limited		Limited	
	~percs slowly (limited)	0.73	~slope (very limited)	1.00	~too clayey (limited)	0.75	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~seepage (moderately limited)	0.53	~slope (limited)	0.63			~slope (limited)	0.63
	~wetness (moderately limited)	0.52	~wetness (moderately limited)	0.39	~too acid (slightly limited)	0.30			~too clayey (moderately limited)	0.53
Carnasaw	Limited		Very limited		Very limited		Limited		Limited	
	~percs slowly (limited)	0.93	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~depth to bedrock (moderately limited)	0.50	~too clayey (limited)	0.85	~depth to bedrock (moderately limited)	0.36	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.50	~large stones (slightly limited)	0.00	~slope (limited)	0.63			~slope (limited)	0.63
27F:										
Octavia	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	~slope (very limited)	1.00
	~percs slowly (limited)	0.73	~seepage (moderately limited)	0.53	~too clayey (limited)	0.75			~hard to pack (limited)	0.70
	~large stones (slightly limited)	0.00	~large stones (moderately limited)	0.35	~too acid (slightly limited)	0.30			~too clayey (moderately limited)	0.53
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~depth to bedrock (moderately limited)	0.50	~slope (very limited)	1.00	~depth to bedrock (moderately limited)	0.36	~hard to pack (limited)	0.70
	~depth to bedrock (moderately limited)	0.50	~large stones (slightly limited)	0.00	~too clayey (limited)	0.85			~too clayey (limited)	0.70

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
28G:										
Octavia--------	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)	
	~percs slowly	0.73	~large stones	0.71	~too clayey	0.75			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
	~large stones	0.02	~seepage	0.53	~too acid	0.30			~too clayey	0.53
	(slightly limited)		(moderately limited)		(slightly limited)				(moderately limited)	
Carnasaw-------	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)	
	~percs slowly	0.93	~depth to bedrock	0.50	~depth to bedrock	1.00	~depth to bedrock	0.36	~hard to pack	0.70
	(limited)		(moderately limited)		(very limited)		(moderately limited)		(limited)	
	~depth to bedrock	0.50	~large stones	0.11	~too clayey	0.85			~too clayey	0.70
	(moderately limited)		(slightly limited)		(limited)				(limited)	
Caston---------	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	0.97	~large stones	1.00	~large stones	0.88			~large stones	0.77
	(limited)		(very limited)		(limited)				(limited)	
	~percs slowly	0.24	~seepage	0.53	~too acid	0.30			~small stones	0.47
	(slightly limited)		(moderately limited)		(slightly limited)				(moderately limited)	
29G:										
Octavia--------	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)	
	~percs slowly	0.73	~large stones	0.71	~too clayey	0.75			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
	~large stones	0.02	~seepage	0.53	~too acid	0.30			~too clayey	0.53
	(slightly limited)		(moderately limited)		(slightly limited)				(moderately limited)	
Caston---------	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	0.97	~large stones	1.00	~large stones	0.88			~large stones	0.77
	(limited)		(very limited)		(limited)				(limited)	
	~percs slowly	0.24	~seepage	0.53	~too acid	0.30			~small stones	0.47
	(slightly limited)		(moderately limited)		(slightly limited)				(moderately limited)	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
29G:										
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~large stones (limited)	0.68	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
30C:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (limited)	0.91	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.02				
31C:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (limited)	0.66	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.02				
Littlefir------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.93	~slope (limited)	0.66	~too clayey (limited)	0.80			~hard to pack (limited)	0.70
					~too acid (slightly limited)	0.30			~too clayey (moderately limited)	0.60
31D:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
31D:										
Littlefir	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.93	~depth to bedrock (very limited)	1.00	~too clayey (limited)	0.80	~slope (limited)	0.63	~hard to pack (limited)	0.70
	~slope (limited)	0.63	~large stones (slightly limited)	0.03	~slope (limited)	0.63			~slope (limited)	0.63
31F:										
Sherless	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
Littlefir	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.93	~large stones (slightly limited)	0.03	~too clayey (limited)	0.80			~hard to pack (limited)	0.70
32C:										
Sherless	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~slope (limited)	0.66	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
			~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.02				
Nashoba	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.98	~seepage (very limited)	1.00	~large stones (limited)	0.91	~seepage (limited)	0.76	~large stones (limited)	0.98
			~large stones (very limited)	1.00					~seepage (moderately limited)	0.52

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	Sanitary landfill (trench): Rating class and limiting features	Value	Sanitary landfill (area): Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
32D:										
Sherless	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
Nashoba	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.98	~depth to bedrock (very limited)	1.00	~large stones (limited)	0.91	~seepage (limited)	0.76	~large stones (limited)	0.98
	~slope (limited)	0.63	~seepage (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
33F:										
Sherless	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too acid (slightly limited)	0.30			~too acid (slightly limited)	0.30
Nashoba	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.98	~seepage (very limited)	1.00	~large stones (limited)	0.91	~seepage (limited)	0.76	~large stones (limited)	0.98
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.02			~too acid (slightly limited)	0.12			~small stones (limited)	0.80

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34B:										
Speer----------	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Slightly limited	
	~flooding (rare)	0.60	~seepage	0.53	~flooding (rare)	0.60	~flooding (rare)	0.60	~too acid	0.12
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)	
	~percs slowly	0.24			~too acid	0.12				
	(slightly limited)				(slightly limited)					
35B:										
Speer----------	Very limited		Very limited		Very limited		Very limited		Slightly limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~too acid	0.12
	(very limited)		(very limited)		(very limited)		(very limited)		(slightly limited)	
	~percs slowly	0.24	~seepage	0.53	~too acid	0.12				
	(slightly limited)		(moderately limited)		(slightly limited)					
36:										
Water----------	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw---------	Very limited		Very limited		Limited		Limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~wetness	0.99	~wetness	0.80	~wetness	0.50
	(very limited)		(very limited)		(limited)		(limited)		(moderately limited)	
	~percs slowly	0.24	~seepage	0.53	~too clayey	0.45			~too acid	0.30
	(slightly limited)		(moderately limited)		(moderately limited)				(slightly limited)	
			~slope	0.31	~too acid	0.30			~too clayey	0.23
			(moderately limited)		(slightly limited)				(slightly limited)	
38C:										
Wilburton------	Very limited		Very limited		Very limited		Not limited		Very limited	
	~large stones	0.99	~large stones	1.00	~large stones	1.00			~large stones >35%	1.00
	(very limited)		(very limited)		(very limited)				(very limited)	
	~percs slowly	0.24	~slope	0.66	~too acid	0.12			~too acid	0.12
	(slightly limited)		(limited)		(slightly limited)				(slightly limited)	
			~seepage	0.53						
			(moderately limited)							
39C:										
Yanush---------	Slightly limited		Limited		Slightly limited		Not limited		Limited	
	~percs slowly	0.24	~slope	0.66	~too clayey	0.24			~small stones	0.99
	(slightly limited)		(limited)		(slightly limited)				(limited)	
	~large stones	0.05	~seepage	0.53	~too acid	0.12			~too acid	0.12
	(slightly limited)		(moderately limited)		(slightly limited)				(slightly limited)	
			~large stones	0.00	~large stones	0.09			~too clayey	0.10
			(slightly limited)		(slightly limited)				(slightly limited)	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
39D:										
Yanush---------	Limited		Very limited		Limited		Limited		Limited	
	~slope (limited)	0.63	~slope (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (limited)	0.99
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.24			~slope (limited)	0.63
	~large stones (slightly limited)	0.05	~large stones (slightly limited)	0.00	~too acid (slightly limited)	0.12			~too acid (slightly limited)	0.12
40G:										
Yanush---------	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	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~large stones (moderately limited)	0.55	~too clayey (slightly limited)	0.24			~small stones (limited)	0.94
	~large stones (slightly limited)	0.16	~seepage (moderately limited)	0.53	~large stones (slightly limited)	0.17			~too acid (slightly limited)	0.12
Avant----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.27	~large stones (limited)	0.92	~large stones (slightly limited)	0.20			~small stones (limited)	0.85
41F:										
Yanush---------	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	~slope (very limited)	1.00
	~percs slowly (slightly limited)	0.24	~large stones (moderately limited)	0.55	~too clayey (slightly limited)	0.24			~small stones (limited)	0.94
	~large stones (slightly limited)	0.16	~seepage (moderately limited)	0.53	~large stones (slightly limited)	0.17			~too acid (slightly limited)	0.12
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~large stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00			~large stones >35% (very limited)	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41G:										
Yanush---------	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	~slope (very limited)	1.00
	~large stones (moderately limited)	0.31	~large stones (limited)	0.99	~large stones (slightly limited)	0.25			~small stones (limited)	0.94
	~percs slowly (slightly limited)	0.24	~seepage (moderately limited)	0.53	~too clayey (slightly limited)	0.24			~too acid (slightly limited)	0.12
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00			~large stones >35% (very limited)	1.00

Table 12.--Construction Materials and Excavating

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 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: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
1CD:										
Avant	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (slightly limited)	0.29	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~depth to bedrock (limited)	0.62	~large stones (slightly limited)	0.29
2C, 3C:										
Avilla	Not limited		Very limited		Very limited		Very limited		Very limited	
			~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (limited)	0.64	~too clayey (slightly limited)	0.08
							~too acid (slightly limited)	0.30		
4D:										
Bengal	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~slope (limited)	0.63
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~dense layer (limited)	0.61
							~slope (limited)	0.63	~too clayey (moderately limited)	0.60
Bismarck	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
	~large stones (slightly limited)	0.02	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~slope (limited)	0.63
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
4D:										
Yanush---------	Moderately limited		Very limited		Possible source		Very limited		Very limited	
	~shrink-swell	0.41	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(moderately limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.37	~excess fines	1.00	~possible source	0.42	~area reclaim	1.00	~slope	0.63
	(moderately limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
			~small stones	0.30	~small stones	0.30	~large stones >25%	1.00	~large stones	0.37
			(thickest layer)		(thickest layer)		(very limited)		(moderately limited)	
4F:										
Bengal---------	Very limited		Very limited		Very limited		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)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~dense layer	0.61
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
	~slope	0.92					~large stones >25%	1.00	~too clayey	0.60
	(limited)						(very limited)		(moderately limited)	
Bismarck-------	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	~soft bedrock <20"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	0.92	~excess fines	1.00	~excess fines	0.87	~slope	1.00	~slope	1.00
	(limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.02					~small stones	1.00	~cutbanks cave	0.29
	(slightly limited)						(very limited)		(slightly limited)	
Yanush---------	Limited		Very limited		Possible source		Very limited		Very limited	
	~slope	0.92	~excess fines	1.00	~possible source	0.42	~slope	1.00	~slope	1.00
	(limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	0.41	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(moderately limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.37	~small stones	0.30	~small stones	0.30	~area reclaim	1.00	~large stones	0.37
	(moderately limited)		(thickest layer)		(thickest layer)		(very limited)		(moderately limited)	
5CD:										
Bigfork--------	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~large surface stones	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	1.00	~excess fines	1.00	~excess fines	0.99	~large stones >25%	1.00	~large stones	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	0.45	~small stones	0.66	~small stones	0.66	~small stones	1.00	~dense layer	0.56
	(moderately limited)		(thickest layer)		(thickest layer)		(very limited)		(moderately limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
6G:										
Bigfork--------	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	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~small stones (thickest layer)	0.66	~small stones (thickest layer)	0.66	~large stones >25% (very limited)	1.00	~large stones (very limited)	1.00
Yanush---------	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.41	~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 (moderately limited)	0.31	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~area reclaim (very limited)	1.00	~large stones (moderately limited)	0.31
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck-------	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~too acid (slightly limited)	0.12		
8D:										
Bismarck-------	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
	~large stones (slightly limited)	0.02	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~slope (limited)	0.63
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Littlefir------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~dense layer (limited)	0.86
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
							~depth to bedrock (limited)	0.97	~too clayey (moderately limited)	0.60

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
8F:										
Bismarck-------	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	~soft bedrock <20"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	0.92	~excess fines	1.00	~excess fines	0.87	~slope	1.00	~slope	1.00
	(limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.02					~small stones	1.00	~cutbanks cave	0.29
	(slightly limited)						(very limited)		(slightly limited)	
Littlefir------	Very limited		Very limited		Very limited		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)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~dense layer	0.86
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
	~slope	0.92					~large stones >25%	1.00	~too clayey	0.60
	(limited)						(very limited)		(moderately limited)	
9G:										
Bismarck-------	Very limited		Very limited		Limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~soft bedrock <20"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	0.87	~slope	1.00	~slope	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.02					~small stones	1.00	~cutbanks cave	0.29
	(slightly limited)						(very limited)		(slightly limited)	
Bengal---------	Very limited		Very limited		Very 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)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~dense layer	0.61
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
	~shrink-swell	1.00					~large surface stones	1.00	~too clayey	0.60
	(very limited)						(very limited)		(moderately limited)	
Bigfork--------	Very limited		Very limited		Limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	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	0.99	~large surface stones	1.00	~slope	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	1.00	~small stones	0.66	~small stones	0.66	~large stones >25%	1.00	~large stones	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
10C:										
Bismarck-------	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~too acid (slightly limited)	0.12		
Nashoba--------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.81	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.50	~small stones (thickest layer)	0.50	~depth to bedrock (limited)	0.68	~large stones (limited)	0.81
Sherless-------	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (moderately limited)	0.58	~dense layer (moderately limited)	0.56
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~dense layer (moderately limited)	0.56	~cutbanks cave (slightly limited)	0.29
							~small stones (moderately limited)	0.50	~soft bedrock <40" (slightly limited)	0.01
10D:										
Bismarck-------	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
	~large stones (slightly limited)	0.02	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~slope (limited)	0.63
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Nashoba--------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.81	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.50	~small stones (thickest layer)	0.50	~depth to bedrock (limited)	0.68	~large stones (limited)	0.81

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
10D:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
	~large stones (slightly limited)	0.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~dense layer (moderately limited)	0.56
							~depth to bedrock (moderately limited)	0.58	~cutbanks cave (slightly limited)	0.29
11CD:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~large stones >25% (very limited)	1.00	~dense layer (slightly limited)	0.05
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large surface stones (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~large stones (slightly limited)	0.07	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~small stones (limited)	0.88	~large stones (slightly limited)	0.07
12D:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
							~slope (limited)	0.63	~cutbanks cave (slightly limited)	0.29
Sherless-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~dense layer (moderately limited)	0.56
							~depth to bedrock (moderately limited)	0.58	~cutbanks cave (slightly limited)	0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
12F:										
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (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)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36					~large surface stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Sherless	Very limited		Very limited		Very 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)	1.00	~large surface stones (very limited)	1.00	~dense layer (moderately limited)	0.56
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
13G:										
Caston	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.97	~excess fines (bottom layer)	1.00	~possible source (bottom layer)	0.50	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.38	~small stones (thickest layer)	0.38	~area reclaim (very limited)	1.00	~large stones (limited)	0.97
Clebit	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	~depth to bedrock (very limited)	1.00	~dense layer <20" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~slope (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~large stones (very limited)	1.00	~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~small stones (very limited)	1.00	~slope (very limited)	1.00
Octavia	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
	~shrink-swell (slightly limited)	0.14	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~too clayey (moderately limited)	0.53
	~large stones (slightly limited)	0.02					~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
14B:										
Ceda-----------	Limited		Very limited		Possible source		Very limited		Very limited	
	~large stones (limited)	0.88	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.38	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.38	~area reclaim (very limited)	1.00	~large stones (limited)	0.88
			~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~large stones >25% (very limited)	1.00	~flooding (moderately limited)	0.60
15CD:										
Clebit---------	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	~depth to bedrock (very limited)	1.00	~dense layer <20" (very limited)	1.00
	~large stones (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
			~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~dense layer <20" (very limited)	1.00	~large stones (very limited)	1.00
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~large stones >25% (very limited)	1.00	~dense layer (slightly limited)	0.05
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large surface stones (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~large stones (slightly limited)	0.20	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~small stones (limited)	0.88	~large stones (slightly limited)	0.20
15F:										
Clebit---------	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	~depth to bedrock (very limited)	1.00	~dense layer <20" (very limited)	1.00
	~large stones (very limited)	0.99	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~slope (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (limited)	0.92	~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~small stones (very limited)	1.00	~slope (very limited)	1.00

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (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)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36					~large surface stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Pirum----------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.10					~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
16B:										
Cupco----------	Limited		Very limited		Very limited		Limited		Very limited	
	~wetness (limited)	0.96	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~wetness (limited)	0.96	~wetness (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~cutbanks cave (slightly limited)	0.29
									~too clayey (slightly limited)	0.03
17B:										
Dela-----------	Not limited		Very limited		Very limited		Slightly limited		Very limited	
			~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too sandy (slightly limited)	0.28	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~wetness (limited)	0.61
									~flooding (moderately limited)	0.60
18B:										
Kenn-----------	Moderately limited		Very limited		Limited		Very limited		Very limited	
	~shrink-swell (moderately limited)	0.31	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~small stones (bottom layer)	0.66	~small stones (very limited)	1.00	~flooding (moderately limited)	0.60
			~small stones (bottom layer)	0.66	~possible source (bottom layer)	0.38	~too acid (slightly limited)	0.30		

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19B:										
Kenn	Moderately limited		Very limited		Limited		Very limited		Very limited	
	~shrink-swell (moderately limited)	0.31	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.06	~excess fines (bottom layer)	1.00	~small stones (bottom layer)	0.66	~large stones >25% (very limited)	1.00	~flooding (moderately limited)	0.60
			~small stones (bottom layer)	0.66	~possible source (bottom layer)	0.38	~small stones (very limited)	1.00	~large stones (slightly limited)	0.06
Ceda	Limited		Very limited		Possible source		Very limited		Very limited	
	~large stones (limited)	0.85	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.38	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.38	~area reclaim (very limited)	1.00	~large stones (limited)	0.85
			~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~large stones >25% (very limited)	1.00	~flooding (moderately limited)	0.60
20C:										
Littlefir	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~dense layer (limited)	0.86
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (limited)	0.97	~too clayey (moderately limited)	0.60
							~dense layer (limited)	0.86	~soft bedrock <40" (moderately limited)	0.42
Bismarck	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~too acid (slightly limited)	0.12		
21B:										
Mazarn	Very limited		Very limited		Very limited		Limited		Very limited	
	~depth to bedrock (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
	~wetness (limited)	0.86	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (limited)	0.83	~cutbanks cave (slightly limited)	0.29
							~small stones (limited)	0.72	~soft bedrock <40" (slightly limited)	0.20

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
22B:										
Mazarn	Very limited		Very limited		Very limited		Limited		Very limited	
	~depth to bedrock (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
	~wetness (limited)	0.86	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (limited)	0.83	~flooding (moderately limited)	0.60
							~small stones (limited)	0.72	~cutbanks cave (slightly limited)	0.29
23C, 24C, 24D:										
Mena	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (moderately limited)	0.45	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~wetness (very limited)	1.00
	~wetness (slightly limited)	0.12	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (moderately limited)	0.54	~too clayey (moderately limited)	0.53
							~area reclaim (moderately limited)	0.54	~cutbanks cave (slightly limited)	0.29
25F:										
Nashoba	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.99	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.92	~small stones (thickest layer)	0.76	~small stones (thickest layer)	0.76	~large surface stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
Bismarck	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.06					~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
26B:										
Neff	Moderately limited		Very limited		Very limited		Moderately limited		Very limited	
	~wetness (moderately limited)	0.48	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (moderately limited)	0.50	~wetness (very limited)	1.00
	~shrink-swell (slightly limited)	0.27	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~wetness (moderately limited)	0.48	~cutbanks cave (slightly limited)	0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
27D:										
Octavia	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (slightly limited)	0.14	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large surface stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
							~small stones (limited)	0.88	~too clayey (moderately limited)	0.53
Carnasaw	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~slope (limited)	0.63
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
27F:										
Octavia	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope (limited)	0.92	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (slightly limited)	0.14	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.00					~large stones >25% (very limited)	1.00	~too clayey (moderately limited)	0.53
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shrink-swell (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)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.70
	~depth to bedrock (moderately limited)	0.36					~large surface stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
28G:										
Octavia	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
	~shrink-swell (slightly limited)	0.14	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.02					~large stones >25% (very limited)	1.00	~too clayey (moderately limited)	0.53

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28G:										
Carnasaw-------	Very limited		Very limited		Very 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)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~too clayey	0.70
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
	~depth to bedrock	0.36					~large surface stones	1.00	~cutbanks cave	0.29
	(moderately limited)						(very limited)		(slightly limited)	
Caston---------	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	0.99	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.97	~excess fines	1.00	~possible source	0.50	~small stones	1.00	~large stones	0.97
	(limited)		(bottom layer)		(bottom layer)		(very limited)		(limited)	
			~small stones	0.38	~small stones	0.38	~area reclaim	1.00	~cutbanks cave	0.29
			(thickest layer)		(thickest layer)		(very limited)		(slightly limited)	
29G:										
Octavia--------	Very limited		Very limited		Very 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)	
	~shrink-swell	0.14	~excess fines	1.00	~excess fines	1.00	~large surface stones	1.00	~cutbanks cave	1.00
	(slightly limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.02					~large stones >25%	1.00	~too clayey	0.53
	(slightly limited)						(very limited)		(moderately limited)	
Caston---------	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	0.99	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.97	~excess fines	1.00	~possible source	0.50	~small stones	1.00	~large stones	0.97
	(limited)		(bottom layer)		(bottom layer)		(very limited)		(limited)	
			~small stones	0.38	~small stones	0.38	~area reclaim	1.00	~cutbanks cave	0.29
			(thickest layer)		(thickest layer)		(very limited)		(slightly limited)	
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	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	~large surface stones	1.00	~slope	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~large stones	0.11					~large stones >25%	1.00	~cutbanks cave	0.29
	(slightly limited)						(very limited)		(slightly limited)	

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
30C:										
Sherless-------	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (moderately limited)	0.58	~dense layer (moderately limited)	0.56
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~dense layer (moderately limited)	0.56	~cutbanks cave (slightly limited)	0.29
							~small stones (moderately limited)	0.50	~soft bedrock <40" (slightly limited)	0.01
31C:										
Sherless-------	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (moderately limited)	0.58	~dense layer (moderately limited)	0.56
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~dense layer (moderately limited)	0.56	~cutbanks cave (slightly limited)	0.29
							~small stones (moderately limited)	0.50	~soft bedrock <40" (slightly limited)	0.01
Littlefir------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~dense layer (limited)	0.86
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (limited)	0.97	~too clayey (moderately limited)	0.60
							~dense layer (limited)	0.86	~soft bedrock <40" (moderately limited)	0.42
31D:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~dense layer (moderately limited)	0.56
							~depth to bedrock (moderately limited)	0.58	~cutbanks cave (slightly limited)	0.29
Littlefir------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~dense layer (limited)	0.86
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
							~depth to bedrock (limited)	0.97	~too clayey (moderately limited)	0.60

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
31F:										
Sherless-------	Very limited		Very limited		Very 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)	1.00	~large surface stones (very limited)	1.00	~dense layer (moderately limited)	0.56
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Littlefir------	Very limited		Very limited		Very 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
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~dense layer (limited)	0.86
	~slope (limited)	0.92					~large surface stones (very limited)	1.00	~too clayey (moderately limited)	0.60
32C:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large stones >25% (very limited)	1.00	~dense layer (moderately limited)	0.56
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (moderately limited)	0.58	~cutbanks cave (slightly limited)	0.29
							~dense layer (moderately limited)	0.56	~soft bedrock <40" (slightly limited)	0.01
Nashoba--------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.98	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.76	~small stones (thickest layer)	0.76	~depth to bedrock (limited)	0.68	~large stones (limited)	0.98
32D:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~large stones >25% (very limited)	1.00	~slope (limited)	0.63
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~dense layer (moderately limited)	0.56
							~depth to bedrock (moderately limited)	0.58	~cutbanks cave (slightly limited)	0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32D:										
Nashoba--------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.98	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.76	~small stones (thickest layer)	0.76	~depth to bedrock (limited)	0.68	~large stones (limited)	0.98
33F:										
Sherless-------	Very limited		Very limited		Very 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)	1.00	~large surface stones (very limited)	1.00	~dense layer (moderately limited)	0.56
							~large stones >25% (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Nashoba--------	Very limited		Very limited		Very 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	~hard bedrock <40" (very limited)	1.00
	~large stones (limited)	0.98	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.92	~small stones (thickest layer)	0.76	~small stones (thickest layer)	0.76	~large surface stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
Bismarck-------	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	~depth to bedrock (very limited)	1.00	~soft bedrock <20" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.87	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.02					~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
34B:										
Speer----------	Not limited		Very limited		Very limited		Slightly limited		Slightly limited	
			~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too acid (slightly limited)	0.12	~cutbanks cave (slightly limited)	0.29
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00				

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
35B:										
Speer----------	Not limited		Very limited		Very limited		Slightly limited		Moderately limited	
			~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too acid (slightly limited)	0.12	~flooding (moderately limited)	0.60
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~cutbanks cave (slightly limited)	0.29
36:										
Water----------	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw---------	Moderately limited		Very limited		Limited		Very limited		Very limited	
	~wetness (moderately limited)	0.48	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	0.75	~small stones (limited)	0.88	~wetness (very limited)	1.00
							~too clayey (limited)	0.64	~too clayey (slightly limited)	0.23
38C:										
Wilburton------	Limited		Very limited		Very limited		Very limited		Very limited	
	~large stones (very limited)	0.99	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large surface stones (very limited)	1.00	~large stones (very limited)	0.99
			~small stones (bottom layer)	1.00	~small stones (bottom layer)	1.00	~large stones >25% (very limited)	1.00		
39C:										
Yanush---------	Moderately limited		Very limited		Possible source		Very limited		Very limited	
	~shrink-swell (moderately limited)	0.41	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.05	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~area reclaim (very limited)	1.00	~too clayey (slightly limited)	0.10
			~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~too clayey (limited)	0.69	~large stones (slightly limited)	0.05
39D:										
Yanush---------	Moderately limited		Very limited		Possible source		Very limited		Very limited	
	~shrink-swell (moderately limited)	0.41	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~large stones (slightly limited)	0.05	~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.42	~area reclaim (very limited)	1.00	~slope (limited)	0.63
			~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~too clayey (limited)	0.69	~too clayey (slightly limited)	0.10

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
40G:										
Yanush---------	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.41	~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)	0.16	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~area reclaim (very limited)	1.00	~large stones (slightly limited)	0.16
Avant----------	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	~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	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.27	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
41F:										
Yanush---------	Limited		Very limited		Possible source		Very limited		Very limited	
	~slope (limited)	0.92	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.41	~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)	0.16	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~area reclaim (very limited)	1.00	~large stones (slightly limited)	0.16
Bigfork--------	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	~hard bedrock <40" (very limited)	1.00
	~large stones (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.92	~small stones (thickest layer)	0.66	~small stones (thickest layer)	0.66	~large stones >25% (very limited)	1.00	~large stones (very limited)	1.00

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill: Rating class and limiting features	Value	Source for sand: Rating class and limiting features	Value	Source for gravel: Rating class and limiting features	Value	Source for topsoil: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
41G:										
Yanush---------	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope (very limited)	1.00	~excess fines (thickest layer)	1.00	~possible source (bottom layer)	0.42	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.41	~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 (moderately limited)	0.31	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~area reclaim (very limited)	1.00	~large stones (moderately limited)	0.31
Bigfork--------	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	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (very limited)	1.00	~small stones (thickest layer)	0.66	~small stones (thickest layer)	0.66	~large stones >25% (very limited)	1.00	~large stones (very limited)	1.00

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 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: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
1CD:										
Avant----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (limited)	0.75	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~slope (limited)	0.70	~large stones (limited	0.99	~large stones (slightly limited)	0.29	~large stones (very limited)	1.00	~depth to bedrock (limited)	0.75
	~seepage (moderately limited)	0.53	~depth to bedrock (slightly limited)	0.09	~droughty (slightly limited)	0.21	~slope (limited)	0.70	~slope (limited)	0.70
2C, 3C:										
Avilla---------	Moderately limited		Moderately limited		Moderately limited		Slightly limited		Slightly limited	
	~seepage (moderately limited)	0.53	~slope (moderately limited)	0.40	~slope (moderately limited)	0.40	~slope (slightly limited)	0.10	~slope (slightly limited)	0.10
	~slope (slightly limited)	0.10								
4D:										
Bengal---------	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.75	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~slope (limited)	0.99	~depth to bedrock (limited)	0.75
			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09	~large stones (moderately limited)	0.55	~large stones (moderately limited)	0.55
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (limited)	0.99	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~droughty (very limited)	1.00
					~droughty (very limited)	1.00	~slope (limited)	0.99	~large stones (very limited)	1.00
Yanush---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (moderately limited)	0.37	~slope (limited)	0.99	~slope (limited)	0.99

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
4F:										
Bengal---------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.75	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.75
			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09	~large stones (moderately limited)	0.55	~large stones (moderately limited)	0.55
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
					~droughty (very limited)	1.00	~large stones (very limited)	1.00	~droughty (very limited)	1.00
Yanush---------	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (moderately limited)	0.37	~large stones (very limited)	1.00	~large stones (very limited)	1.00
5CD:										
Bigfork--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones (very limited)	1.00
	~slope (limited)	0.70	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~droughty (limited)	0.77
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork--------	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 (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
6G:										
Yanush----------	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	0.53	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	0.99	~large stones	0.31	~large stones	1.00	~large stones	1.00
			(limited		(moderately limited)		(very limited)		(very limited)	
Rock outcrop----	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~shallow to bedrock	1.00	~shallow to bedrock	1.00	~depth to bedrock	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.30	~slope	0.98	~droughty	1.00	~slope	0.30	~droughty	1.00
	(moderately limited)		(limited)		(very limited)		(moderately limited)		(very limited)	
					~slope	0.98	~large stones	0.00	~slope	0.30
					(limited)		(slightly limited)		(moderately limited)	
8D:										
Bismarck--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~slope	1.00	~shallow to bedrock	1.00	~depth to bedrock	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.99	~shallow to bedrock	1.00	~slope	1.00	~large stones	1.00	~droughty	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~droughty	1.00	~slope	0.99	~large stones	1.00
					(very limited)		(limited)		(very limited)	
Littlefir-------	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	0.85	~percs slowly	0.56	~percs slowly	0.56	~slope	0.99	~depth to bedrock	0.85
	(limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~depth to bedrock	0.29	~depth to bedrock	0.29	~large stones	0.70	~large stones	0.70
			(slightly limited)		(slightly limited)		(limited)		(limited)	
8F:										
Bismarck--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~slope	1.00	~shallow to bedrock	1.00	~slope	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~shallow to bedrock	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~droughty	1.00	~large stones	1.00	~droughty	1.00
					(very limited)		(very limited)		(very limited)	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
8F:										
Littlefir	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.85	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.85
			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~large stones (limited)	0.70	~large stones (limited)	0.70
9G:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
			~large surface stones (very limited)	1.00	~droughty (very limited)	1.00	~large surface stones (very limited)	1.00	~droughty (very limited)	1.00
Bengal	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.75	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
			~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~large surface stones (very limited)	1.00	~depth to bedrock (limited)	0.75
Bigfork	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 (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~large surface stones (very limited)	1.00
10C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (slightly limited)	0.20	~slope (limited)	0.78	~droughty (very limited)	1.00	~slope (slightly limited)	0.20	~droughty (very limited)	1.00
					~slope (limited)	0.78	~large stones (slightly limited)	0.00	~slope (slightly limited)	0.20

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
10C:										
Nashoba--------	Very limited		Very limited		Limited		Very limited		Very limited	
	~seepage (very limited)	1.00	~large stones (very limited)	1.00	~large stones (limited)	0.81	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~depth to bedrock (limited)	0.77	~slope (limited)	0.78	~slope (limited)	0.78	~large stones (very limited)	1.00	~depth to bedrock (limited)	0.77
	~slope (slightly limited)	0.20	~depth to bedrock (slightly limited)	0.13	~droughty (slightly limited)	0.28	~slope (slightly limited)	0.20	~droughty (slightly limited)	0.28
Sherless-------	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.74	~slope (limited)	0.78	~slope (limited)	0.78	~depth to bedrock (very limited)	1.00	~large stones (limited)	0.79
	~seepage (moderately limited)	0.53	~large stones (moderately limited)	0.43	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.79	~depth to bedrock (limited)	0.74
	~slope (slightly limited)	0.20	~depth to bedrock (slightly limited)	0.07			~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
10D:										
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (limited)	0.99	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~droughty (very limited)	1.00
					~droughty (very limited)	1.00	~slope (limited)	0.99	~large stones (very limited)	1.00
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~slope (limited)	0.99	~large stones (very limited)	1.00	~large stones (limited)	0.81	~large stones (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.77	~depth to bedrock (slightly limited)	0.13	~droughty (slightly limited)	0.28	~slope (limited)	0.99	~depth to bedrock (limited)	0.77
Sherless-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large stones (moderately limited)	0.43	~depth to bedrock (slightly limited)	0.07	~large stones (very limited)	1.00	~slope (limited)	0.99
	~seepage (moderately limited)	0.53	~depth to bedrock (slightly limited)	0.07	~large stones (slightly limited)	0.00	~slope (limited)	0.99	~depth to bedrock (limited)	0.74

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
11CD:										
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope	0.70	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.47	~slope	1.00	~slope	1.00	~slope	0.70	~slope	0.70
	(moderately limited)		(very limited)		(very limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~depth to bedrock	0.36	~depth to bedrock	0.47
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
Pirum----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	0.76	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.70	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~large stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.53	~large stones	0.51	~percs slowly	0.15	~large stones	1.00	~depth to bedrock	0.76
	(moderately limited)		(moderately limited)		(slightly limited)		(very limited)		(limited)	
12D:										
Carnasaw-------	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)	
	~depth to bedrock	0.47	~percs slowly	0.40	~percs slowly	0.40	~depth to bedrock	0.36	~depth to bedrock	0.47
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
							~large stones	0.31	~large stones	0.31
							(moderately limited)		(moderately limited)	
Sherless-------	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	0.74	~large stones	0.30	~depth to bedrock	0.07	~slope	0.99	~large stones	0.88
	(limited)		(slightly limited		(slightly limited)		(limited)		(limited)	
	~seepage	0.53	~depth to bedrock	0.07			~large stones	0.88	~depth to bedrock	0.74
	(moderately limited)		(slightly limited)				(limited)		(limited)	
12F:										
Carnasaw-------	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	0.47	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~percs slowly	0.40	~percs slowly	0.40	~depth to bedrock	0.36	~depth to bedrock	0.47
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
12F:										
Sherless-------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (very limited)	1.00	~large stones (limited)	0.88
13G:										
Caston---------	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 (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
			~large stones (very limited)	1.00	~large stones (limited)	0.97	~large stones (very limited)	1.00	~large surface stones (very limited)	1.00
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large surface stones (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~seepage (slightly limited)	0.28	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
Octavia--------	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
			~large stones (slightly limited	0.30	~percs slowly (slightly limited)	0.15	~large stones (very limited)	1.00	~large stones (very limited)	1.00
14B:										
Ceda-----------	Very limited		Very limited		Limited		Very limited		Very limited	
	~seepage (very limited)	1.00	~large stones (very limited)	1.00	~flooding (limited)	0.90	~large stones (very limited)	1.00	~large stones (very limited)	1.00
			~flooding (limited)	0.90	~large stones (limited)	0.88			~droughty (slightly limited)	0.02
					~droughty (slightly limited)	0.02				

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
15CD:										
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones (very limited)	1.00
	~slope (limited)	0.70	~large surface stones (very limited)	1.00	~droughty (very limited)	1.00	~depth to bedrock (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~seepage (slightly limited)	0.28	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large stones (very limited)	1.00	~droughty (very limited)	1.00
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope (limited)	0.70	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~depth to bedrock (moderately limited)	0.47	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (limited)	0.88	~large stones (limited)	0.88
			~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~slope (limited)	0.70	~slope (limited)	0.70
Pirum----------	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (limited)	0.76	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~slope (limited)	0.70	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (moderately limited)	0.51	~large stones (slightly limited)	0.20	~large stones (very limited)	1.00	~depth to bedrock (limited)	0.76
15F:										
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~seepage (slightly limited)	0.28	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~droughty (very limited)	1.00
Carnasaw-------	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	~slope (very limited)	1.00
	~depth to bedrock (moderately limited)	0.47	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
			~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~large stones (limited)	0.77	~large stones (limited)	0.77

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
15F:										
Pirum----------	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	0.76	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.53	~large stones	0.51	~percs slowly	0.15	~depth to bedrock	1.00	~large stones	1.00
	(moderately limited)		(moderately limited)		(slightly limited)		(very limited)		(very limited)	
16B:										
Cupco----------	Slightly limited		Slightly limited		Slightly limited		Limited		Limited	
	~seepage	0.28	~percs slowly	0.15	~percs slowly	0.15	~wetness	0.81	~wetness	0.81
	(slightly limited)		(slightly limited)		(slightly limited)		(limited)		(limited)	
17B:										
Dela-----------	Very limited		Limited		Moderately limited		Not limited		Not limited	
	~seepage	1.00	~cutbanks cave	0.90	~flooding	0.60				
	(very limited)		(limited		(moderately limited)					
			~flooding	0.60						
			(moderately limited)							
18B:										
Kenn-----------	Moderately limited		Moderately limited		Moderately limited		Limited		Limited	
	~seepage	0.53	~flooding	0.60	~flooding	0.60	~large stones	0.91	~large stones	0.91
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(limited)	
			~large stones	0.51						
			(moderately limited)							
19B:										
Kenn-----------	Moderately limited		Limited		Limited		Very limited		Very limited	
	~seepage	0.53	~flooding	0.90	~flooding	0.90	~large stones	1.00	~large stones	1.00
	(moderately limited)		(limited)		(limited)		(very limited)		(very limited)	
			~large stones	0.51	~large stones	0.06				
			(moderately limited)		(slightly limited)					
Ceda-----------	Very limited		Very limited		Limited		Very limited		Very limited	
	~seepage	1.00	~large stones	1.00	~flooding	0.90	~large stones	1.00	~large stones	1.00
	(very limited)		(very limited)		(limited)		(very limited)		(very limited)	
			~flooding	0.90	~large stones	0.85			~droughty	0.02
			(limited)		(limited)				(slightly limited)	
					~droughty	0.02				
					(slightly limited)					

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20C:										
Littlefir	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.85	~slope (limited)	0.78	~slope (limited)	0.78	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.85
	~slope (slightly limited)	0.20	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (slightly limited)	0.20	~slope (limited)	0.78	~droughty (very limited)	1.00	~slope (slightly limited)	0.20	~droughty (very limited)	1.00
					~slope (limited)	0.78	~large stones (slightly limited)	0.00	~slope (slightly limited)	0.20
21B:										
Mazarn	Limited		Slightly limited		Slightly limited		Very limited		Limited	
	~depth to bedrock (limited)	0.81	~depth to bedrock (slightly limited)	0.21	~depth to bedrock (slightly limited)	0.21	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.81
			~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60
22B:										
Mazarn	Limited		Moderately limited		Moderately limited		Very limited		Limited	
	~depth to bedrock (limited)	0.81	~flooding (moderately limited)	0.60	~flooding (moderately limited)	0.60	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.81
			~depth to bedrock (slightly limited)	0.21	~depth to bedrock (slightly limited)	0.21	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60
			~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15				
23C, 24C:										
Mena	Slightly limited		Moderately limited		Moderately limited		Slightly limited		Slightly limited	
	~slope (slightly limited)	0.10	~slope (moderately limited)	0.40	~slope (moderately limited)	0.40	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28
			~percs slowly (slightly limited)	0.15	~percs slowly (slightly limited)	0.15	~slope (slightly limited)	0.10	~slope (slightly limited)	0.10

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
24D:										
Mena-----------	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)	
			~percs slowly	0.15	~percs slowly	0.15	~wetness	0.28	~wetness	0.28
			(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
25F:										
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.77	~large stones	1.00	~large stones	0.99	~depth to bedrock	1.00	~large surface stones	1.00
	(limited)		(very limited)		(limited)		(very limited)		(very limited)	
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~slope	1.00	~shallow to bedrock	1.00	~slope	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~shallow to bedrock	1.00	~slope	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	~depth to bedrock	1.00	~large surface stones	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
26B:										
Neff-----------	Moderately limited		Slightly limited		Slightly limited		Moderately limited		Moderately limited	
	~seepage	0.53	~percs slowly	0.15	~percs slowly	0.15	~wetness	0.44	~wetness	0.44
	(moderately limited)		(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)	
27D:										
Octavia--------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.53	~large surface stones	1.00	~large surface stones	1.00	~large stones	1.00	~large stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	0.30	~percs slowly	0.15	~slope	0.99	~slope	0.99
			(slightly limited		(slightly limited)		(limited)		(limited)	
Carnasaw-------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~large surface stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.47	~large surface stones	1.00	~large surface stones	1.00	~slope	0.99	~slope	0.99
	(moderately limited)		(very limited)		(very limited)		(limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~large stones	0.46	~depth to bedrock	0.47
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27F:										
Octavia--------	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	0.53	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	0.30	~percs slowly	0.15	~large stones	1.00	~large stones	1.00
			(slightly limited		(slightly limited)		(very limited)		(very limited)	
Carnasaw-------	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	0.47	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~percs slowly	0.40	~percs slowly	0.40	~large stones	0.46	~depth to bedrock	0.47
			(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
28G:										
Octavia--------	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	0.53	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	0.30	~percs slowly	0.15	~large stones	1.00	~large stones	1.00
			(slightly limited		(slightly limited)		(very limited)		(very limited)	
Carnasaw-------	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	0.47	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~percs slowly	0.40	~percs slowly	0.40	~large stones	0.77	~large stones	0.77
			(moderately limited)		(moderately limited)		(limited)		(limited)	
Caston---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.53	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	1.00	~large stones	0.97	~large stones	1.00	~large surface stones	1.00
			(very limited)		(limited)		(very limited)		(very limited)	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
29G:										
Octavia	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
			~large stones (slightly limited	0.30	~percs slowly (slightly limited)	0.15	~large stones (very limited)	1.00	~large stones (very limited)	1.00
Caston	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 (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
			~large stones (very limited)	1.00	~large stones (limited)	0.97	~large stones (very limited)	1.00	~large surface stones (very limited)	1.00
Pirum	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.76	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (moderately limited)	0.51	~percs slowly (slightly limited)	0.15	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
30C:										
Sherless	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.74	~slope (limited)	0.98	~slope (limited)	0.98	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.74
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~large stones (moderately limited)	0.41	~large stones (moderately limited)	0.41
	~slope (moderately limited)	0.30	~depth to bedrock (slightly limited)	0.07			~slope (moderately limited)	0.30	~slope (moderately limited)	0.30
31C:										
Sherless	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.74	~slope (limited)	0.78	~slope (limited)	0.78	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.74
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~large stones (moderately limited)	0.41	~large stones (moderately limited)	0.41
	~slope (slightly limited)	0.20	~depth to bedrock (slightly limited)	0.07			~slope (slightly limited)	0.20	~slope (slightly limited)	0.20

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31C:										
Littlefir------	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.85	~slope (limited)	0.78	~slope (limited)	0.78	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.85
	~slope (slightly limited)	0.20	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~large stones (slightly limited)	0.06	~large stones (slightly limited)	0.06
31D:										
Sherless-------	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.74	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~slope (limited)	0.99	~large stones (limited)	0.88
	~seepage (moderately limited)	0.53	~depth to bedrock (slightly limited)	0.07			~large stones (limited)	0.88	~depth to bedrock (limited)	0.74
Littlefir------	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.85	~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~slope (limited)	0.99	~depth to bedrock (limited)	0.85
			~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~large stones (limited)	0.78	~large stones (limited)	0.78
31F:										
Sherless-------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~large surface stones (very limited)	1.00	~large stones (limited)	0.88
Littlefir------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.85	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
			~percs slowly (moderately limited)	0.56	~percs slowly (moderately limited)	0.56	~large surface stones (very limited)	1.00	~depth to bedrock (limited)	0.85

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
32C:										
Sherless-------	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock (limited)	0.74	~slope (limited)	0.78	~slope (limited)	0.78	~depth to bedrock (very limited)	1.00	~large stones (limited)	0.88
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~large surface stones (slightly limited)	0.13	~large stones (limited)	0.88	~depth to bedrock (limited)	0.74
	~slope (slightly limited)	0.20	~large surface stones (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.07	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
Nashoba--------	Very limited		Very limited		Limited		Very limited		Very limited	
	~seepage (very limited)	1.00	~large stones (very limited)	1.00	~large stones (limited)	0.98	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~depth to bedrock (limited)	0.77	~slope (limited)	0.78	~slope (limited)	0.78	~large stones (very limited)	1.00	~depth to bedrock (limited)	0.77
	~slope (slightly limited)	0.20	~large surface stones (slightly limited)	0.13	~droughty (slightly limited)	0.28	~slope (slightly limited)	0.20	~droughty (slightly limited)	0.28
32D:										
Sherless-------	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.74	~large stones (slightly limited	0.30	~large surface stones (slightly limited)	0.13	~slope (limited)	0.99	~large stones (limited)	0.88
	~seepage (moderately limited)	0.53	~large surface stones (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.88	~depth to bedrock (limited)	0.74
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~slope (limited)	0.99	~large stones (very limited)	1.00	~large stones (limited)	0.98	~large stones (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.77	~large surface stones (slightly limited)	0.13	~droughty (slightly limited)	0.28	~slope (limited)	0.99	~depth to bedrock (limited)	0.77
33F:										
Sherless-------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (slightly limited	0.30	~depth to bedrock (slightly limited)	0.07	~large surface stones (very limited)	1.00	~large stones (limited)	0.88

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
33F:										
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large 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)	
	~depth to bedrock	0.77	~large surface stones	1.00	~large stones	0.98	~large stones	1.00	~large surface stones	1.00
	(limited)		(very limited)		(limited)		(very limited)		(very limited)	
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in.	1.00	~slope	1.00	~shallow to bedrock	1.00	~slope	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~shallow to bedrock	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	~droughty	1.00	~large surface stones	1.00	~droughty	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
34B:										
Speer----------	Moderately limited		Not limited		Not limited		Not limited		Not limited	
	~seepage	0.53								
	(moderately limited)									
35B:										
Speer----------	Moderately limited		Moderately limited		Moderately limited		Not limited		Not limited	
	~seepage	0.53	~flooding	0.60	~flooding	0.60				
	(moderately limited)		(moderately limited)		(moderately limited)					
36:										
Water----------	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw---------	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~seepage	0.53	~large stones	0.51	~slope	0.40	~wetness	0.44	~wetness	0.44
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~slope	0.10	~slope	0.40			~slope	0.10	~slope	0.10
	(slightly limited)		(moderately limited)				(slightly limited)		(slightly limited)	
38C:										
Wilburton------	Moderately limited		Very limited		Very limited		Very limited		Very limited	
	~seepage	0.53	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.20	~large stones	1.00	~large stones	0.99	~large stones	1.00	~large surface stones	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~slope	0.78	~slope	0.78	~slope	0.20	~slope	0.20
			(limited)		(limited)		(slightly limited)		(slightly limited)	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value	Irrigation: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Grassed waterways: Rating class and limiting features	Value
39C:										
Yanush---------	Moderately limited		Limited		Limited		Very limited		Very limited	
	~seepage (moderately limited)	0.53	~large stones (limited	0.99	~slope (limited)	0.78	~large stones (very limited)	1.00	~large stones (very limited)	1.00
	~slope (slightly limited)	0.20	~slope (limited)	0.78	~large stones (slightly limited)	0.05	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
39D:										
Yanush---------	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~large stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (limited	0.99	~large stones (slightly limited)	0.05	~slope (limited)	0.99	~slope (limited)	0.99
40G:										
Yanush---------	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (limited	0.99	~large stones (slightly limited)	0.16	~large stones (very limited)	1.00	~large stones (very limited)	1.00
Avant----------	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	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.75	~large stones (limited	0.99	~large stones (slightly limited)	0.27	~depth to bedrock (very limited)	1.00	~large stones (very limited)	1.00
	~seepage (moderately limited)	0.53	~depth to bedrock (slightly limited)	0.09	~droughty (slightly limited)	0.21	~large stones (very limited)	1.00	~depth to bedrock (limited)	0.75
41F:										
Yanush---------	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
			~large stones (limited	0.99	~large stones (slightly limited)	0.16	~large stones (very limited)	1.00	~large stones (very limited)	1.00
Bigfork--------	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 (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41G:										
Yanush---------	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	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
			~large stones (limited	0.99	~large stones (moderately limited)	0.31	~large stones (very limited)	1.00	~large stones (very limited)	1.00
Bigfork--------	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 (very limited)	1.00
	~depth to bedrock (limited)	0.74	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~seepage (moderately limited)	0.53	~large stones (very limited)	1.00	~large stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00

Table 14.--Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 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: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
1CD:										
Avant----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~slope (limited)	0.70	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~slope (limited)	0.70	~slope (very limited)	1.00
2C, 3C:										
Avilla---------	Not limited		Not limited		Slightly limited		Slightly limited		Very limited	
					~slope (slightly limited)	0.10	~slope (slightly limited)	0.10	~percs slowly (very limited)	1.00
									~slope (moderately limited)	0.31
4D:										
Bengal---------	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~percs slowly (limited)	0.99	~slope (limited)	0.99	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (limited)	0.99	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Yanush---------	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (very limited)	1.00
									~too cobbly (limited)	0.87

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
4F:										
Bengal	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	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (very limited)	1.00	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Yanush	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	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (very limited)	1.00
									~too cobbly (limited)	0.87
5CD:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~too stony (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (limited)	0.77	~droughty (limited)	0.77	~droughty (limited)	0.77	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
6G:										
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~too stony (very limited)	1.00
	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
6G:										
Yanush	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface 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 stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
7C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (moderately limited)	0.30	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (moderately limited)	0.30	~too acid (slightly limited)	0.12	~slope (limited)	0.91
8D:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (limited)	0.99	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Littlefir	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~percs slowly (limited)	0.99	~slope (limited)	0.99	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
8F:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~droughty (very limited)	1.00	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
8F:										
Littlefir	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	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
9G:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
Bengal	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	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (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
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
Bigfork	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	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (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
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (limited)	0.86	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
10C:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (slightly limited)	0.20	~too acid (slightly limited)	0.12	~slope (limited)	0.66

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
10C:										
Nashoba	Limited		Limited		Limited		Very limited		Very limited	
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~large stones (limited)	0.73	~too cobbly (very limited)	1.00
	~depth to bedrock (slightly limited)	0.13	~depth to bedrock (slightly limited)	0.13	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~slope (limited)	0.66
Sherless	Slightly limited		Slightly limited		Slightly limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
					~depth to bedrock (slightly limited)	0.07	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00
									~slope (limited)	0.66
10D:										
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (limited)	0.99	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Nashoba	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00
	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~large stones (limited)	0.73	~too cobbly (very limited)	1.00
Sherless	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (limited)	0.99	~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
11CD:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~slope (limited)	0.70	~large stones (limited)	0.73	~large surface stones (very limited)	1.00
12D:										
Carnasaw-------	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Sherless-------	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (limited)	0.99	~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
12F:										
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (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
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
12F:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
13G:										
Caston---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (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	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
Clebit---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones >35% (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
Octavia--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface 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 stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
14B:										
Ceda-----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~poor filter (very limited)	1.00	~too cobbly (limited)	0.96
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~too stony (slightly limited)	0.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
15CD:										
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large stones >35% (very limited)	1.00	~too stony (very limited)	1.00
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~large surface stones (very limited)	1.00
Pirum	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~slope (limited)	0.70	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
15F:										
Clebit	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~depth to bedrock (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	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
Carnasaw	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (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 (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
15F:										
Pirum----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
16B:										
Cupco----------	Limited		Limited		Limited		Limited		Very limited	
	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~percs slowly (very limited)	1.00
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~wetness (very limited)	1.00
	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30		
17B:										
Dela-----------	Limited		Limited		Limited		Limited		Limited	
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~wetness (limited)	0.99
									~flooding (moderately limited)	0.60
									~percs slowly (moderately limited)	0.32
18B:										
Kenn-----------	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
									~too cobbly (moderately limited)	0.35
19B:										
Kenn-----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (limited)	0.86	~flooding (very limited)	1.00
									~too cobbly (limited)	0.68

Table 14.--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19B:										
Ceda-----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00
	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~flooding (very limited)	1.00	~poor filter (very limited)	1.00	~too cobbly (limited)	0.96
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00		
20C:										
Littlefir------	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~slope (limited)	0.66
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (slightly limited)	0.20	~too acid (slightly limited)	0.12	~slope (limited)	0.66
21B:										
Mazarn---------	Moderately limited		Moderately limited		Moderately limited		Very limited		Very limited	
	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~wetness (moderately limited)	0.60	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~percs slowly (moderately limited)	0.60	~wetness (very limited)	1.00
22B:										
Mazarn---------	Limited		Limited		Limited		Very limited		Very limited	
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60	~flooding (limited)	0.90	~depth to bedrock (very limited)	1.00
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~wetness (moderately limited)	0.60	~wetness (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
23C, 24C:										
Mena	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (very limited)	1.00
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (moderately limited)	0.31
24D:										
Mena	Moderately limited		Moderately limited		Limited		Limited		Very limited	
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~slope (limited)	0.70	~slope (limited)	0.70	~percs slowly (very limited)	1.00
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~wetness (very limited)	1.00
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~slope (very limited)	1.00
25F:										
Nashoba	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
Bismarck	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
26B:										
Neff	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (moderately limited)	0.60	~percs slowly (very limited)	1.00
	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (very limited)	1.00
	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30		

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
27D:										
Octavia--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~large surface stones (very limited)	1.00
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~slope (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (limited)	0.99	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00
27F:										
Octavia--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (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 stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large surface stones (very limited)	1.00
Carnasaw-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (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 stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~large stones >35% (very limited)	0.99	~depth to bedrock (very limited)	1.00
28G:										
Octavia--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface 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 stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
28G:						
Carnasaw	Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00
Caston	Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00
29G:						
Octavia	Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00
Caston	Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00
Pirum	Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00

Map symbol and soil name	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
28G:				
Carnasaw	Very limited		Very limited	
	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00
Caston	Very limited		Very limited	
	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
29G:				
Octavia	Very limited		Very limited	
	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
Caston	Very limited		Very limited	
	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
Pirum	Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
30C:										
Sherless-------	Slightly limited		Slightly limited		Moderately limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~slope (moderately limited)	0.30	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
					~depth to bedrock (slightly limited)	0.07	~slope (moderately limited)	0.30	~depth to bedrock (very limited)	1.00
									~slope (limited)	0.91
31C:										
Sherless-------	Slightly limited		Slightly limited		Slightly limited		Very limited		Very limited	
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
					~depth to bedrock (slightly limited)	0.07	~slope (slightly limited)	0.20	~depth to bedrock (very limited)	1.00
									~slope (limited)	0.66
Littlefir------	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~slope (limited)	0.66
31D:										
Sherless-------	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (limited)	0.99	~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
Littlefir------	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.86	~large stones (limited)	0.86	~percs slowly (limited)	0.99	~slope (limited)	0.99	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~large stones (limited)	0.86	~percs slowly (limited)	0.99	~depth to bedrock (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
31F:										
Sherless	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
Littlefir	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
32C:										
Sherless	Limited		Limited		Limited		Very limited		Very limited	
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~slope (slightly limited)	0.20	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00
	~depth to bedrock (slightly limited)	0.07	~depth to bedrock (slightly limited)	0.07	~large surface stones (slightly limited)	0.13	~slope (slightly limited)	0.20	~slope (limited)	0.66
Nashoba	Limited		Limited		Limited		Very limited		Very limited	
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (limited)	0.86	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~large stones (limited)	0.86	~too cobbly (very limited)	1.00
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~slope (limited)	0.66
32D:										
Sherless	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (limited)	0.99	~slope (very limited)	1.00
	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~large surface stones (slightly limited)	0.13	~large stones (limited)	0.73	~depth to bedrock (very limited)	1.00

Table 14.--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	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32D:										
Nashoba--------	Limited		Limited		Limited		Very limited		Very limited	
	~large stones (limited)	0.86	~large stones (limited)	0.86	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~large stones (limited)	0.86	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00
	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~droughty (slightly limited)	0.28	~large stones (limited)	0.86	~too cobbly (very limited)	1.00
33F:										
Sherless-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
Nashoba--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (limited)	0.86	~large stones (limited)	0.86	~large stones (limited)	0.86	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
Bismarck-------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~droughty (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
34B:										
Speer----------	Slightly limited		Slightly limited		Slightly limited		Slightly limited		Very limited	
	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~percs slowly (very limited)	1.00
35B:										
Speer----------	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 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
36:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	
37C:										
Wetsaw	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~wetness (moderately limited)	0.44	~percs slowly (very limited)	1.00
					~slope (slightly limited)	0.10	~slope (slightly limited)	0.10	~wetness (very limited)	1.00
									~slope (moderately limited)	0.31
38C:										
Wilburton	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00
	~droughty (slightly limited)	0.15	~droughty (slightly limited)	0.15	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~too cobbly (very limited)	1.00
39C:										
Yanush	Not limited		Not limited		Slightly limited		Slightly limited		Very limited	
					~slope (slightly limited)	0.20	~slope (slightly limited)	0.20	~percs slowly (very limited)	1.00
									~slope (limited)	0.66
									~too cobbly (slightly limited)	0.28
39D:										
Yanush	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
									~slope (very limited)	1.00
									~too cobbly (slightly limited)	0.28

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
40G:										
Yanush	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	~percs slowly (very limited)	1.00
	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~slope (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too cobbly (moderately limited)	0.48
Avant	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	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~droughty (slightly limited)	0.21	~large stones >35% (very limited)	1.00	~depth to bedrock (very limited)	1.00
41F:										
Yanush	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (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 stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large stones (limited)	0.73	~large surface stones (very limited)	1.00
Bigfork	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~too stony (very limited)	1.00
	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
41G:										
Yanush	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface 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 stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00

Table 14.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste: Rating class and limiting features	Value	Land application of municipal sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Treatment of wastewater by slow rate process: Rating class and limiting features	Value	Treatment of wastewater by rapid infiltration process: Rating class and limiting features	Value
41G:										
Bigfork--------	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~too stony (very limited)	1.00
	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones >35% (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00

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

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 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 *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

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, SP-SM.

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 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

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

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

Physical and Chemical Properties

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

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

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

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (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 soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Cation-exchange capacity is 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. 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. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

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.

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 factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy 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.

Soil Features

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

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Water Features

Table 18 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.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 18 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

Table 15.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
1CD:												
Avant-----------	0-4	CBV-SIL	SC, GC-GM, GM, ML	A-2, A-4	0-10	45-65	50-80	40-75	35-75	25-70	15-25	NP-8
	4-9	GRV-SIL, GRV-L, CBV-SIL	ML, GC-GM, GM, SC	A-1, A-2, A-4	0	0-50	30-80	25-50	20-50	20-40	15-25	NP-8
	9-14	GRV-SIL, GRV-L, CBV-SIL	GC-GM, GM, SC	A-1, A-2, A-4	0	0-50	30-80	25-50	20-50	20-40	20-30	4-10
	14-22	GRV-SICL, GRV-SIL, GRV-L, GRX-SICL, GRX-SIL, GRX-L, CBV-SICL, CBV-SIL, CBV-L	CL, CL-ML, GC, GC-GM	A-2, A-4, A-6	0	0-50	30-80	25-50	20-50	20-40	25-35	6-15
	22-37	GRV-SICL, GRV-SIL, GRV-L, GRX-SICL, GRX-SIL, GRX-L, CBV-SICL, CBV-SIL, CBV-L	GC-GM, GC, CL, CL-ML	A-2, A-4, A-6	0	0-50	30-80	25-50	20-50	20-40	25-35	6-15
	37-40	UWB	---	---	0	0	0	0	0	0	0-14	---
2C:												
Avilla----------	0-3	FSL	SM, SC-SM	A-2, A-4	0	0	80-100	75-100	55-85	30-50	0-20	NP-5
	3-7	FSL, L, SIL	CL, CL-ML, SC-SM, SM	A-2, A-4	0	0	80-100	75-100	55-100	30-90	0-30	NP-10
	7-21	CL, L, SCL	CL, SC	A-2, A-4, A-6	0	0	80-100	75-100	60-100	25-80	25-38	8-15
	21-43	CL, SCL	SC, CL	A-2, A-6, A-7	0	0-5	80-100	75-100	60-100	25-80	30-45	11-20
	43-56	CL, SCL, GR-CL, GR-SCL	CL, SC, GC	A-2, A-6, A-7	0	0-5	55-100	50-100	40-100	20-80	30-45	11-20
	56-72	GRV-CL, GRV-SCL, GR-CL, GR-SCL	GP-GC, SC, GC, CL	A-7, A-2, A-6	0	0-10	35-75	25-75	20-75	12-60	30-45	11-20
3C:												
Avilla----------	0-3	GR-FSL	SC-SM, GC-GM, GM, SM	A-1, A-2, A-4	0	0-15	50-75	50-75	40-75	15-45	15-26	NP-7
	3-7	FSL, L, SIL	CL-ML, CL, SC-SM, SM	A-2, A-4	0	0	80-100	75-100	55-100	30-90	0-30	NP-10
	7-21	CL, L, SCL	CL, SC	A-2, A-4, A-6	0	0	80-100	75-100	60-100	25-80	25-38	8-15
	21-43	CL, SCL	CL, SC	A-2, A-6, A-7	0	0-5	80-100	75-100	60-100	25-80	30-45	11-20
	43-56	CL, SCL, GR-CL, GR-SCL	GC, SC, CL	A-2, A-6, A-7	0	0-5	55-100	50-100	40-100	20-80	30-45	11-20
	56-72	GRV-CL, GRV-SCL, GR-CL, GR-SCL	SC, GP-GC, GC, CL	A-7, A-2, A-6	0	0-10	35-75	25-75	20-75	12-60	30-45	11-20

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
4D, 4F:												
Bengal----------	0-4	CB-SIL	SC-SM, SC, CL-ML, CL	A-2, A-4	0-10	25-45	80-100	75-100	55-100	30-90	10-30	NP-10
	4-7	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	CL, CL-ML, SC, SC-SM	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-14	GR-CL, GR-SICL, SICL, CL	SC, GC, CL, CH	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	14-32	CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, C, SIC, SICL, CL	CL, CH	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	32-37	CN-SIC, CN-C, C, SIC, GR-C	CH, CL	A-7	0	0-5	55-100	55-100	50-100	50-95	45-66	25-39
	37-40	WB	---	---	---	---	---	---	---	---	---	---
Bismarck--------	0-4	CB-SIL	CL-ML, SC-SM, ML, SM	A-1, A-2, A-4	0-10	25-45	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
Yanush----------	0-5	CB-SIL	CL-ML, CL	A-4	0-10	25-45	80-95	75-90	65-90	50-80	10-30	5-10
	5-12	GRV-SIL, GR-SIL, CB-SIL	CL-ML, CL, SC-SM, GC	A-1, A-2, A-4	0	0-50	30-75	25-75	25-75	20-70	10-30	5-10
	12-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6	0	0-60	20-50	15-50	15-50	10-45	30-38	8-15
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6, A-7	0	0-60	20-50	15-50	15-50	10-45	30-43	8-18
5CD:												
Bigfork---------	0-5	STX-L	SC, CL, CL-ML, SC-SM	A-4, A-6	65-85	15-25	60-80	55-75	45-75	36-70	22-32	5-11
	5-9	CBV-L, CBV-SIL, CB-L, CB-SIL, GRV-SIL	SC, GC, CL	A-7, A-2, A-6	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	9-38	CBV-SICL, CBV-CL, STV-SICL, STV-CL, GRV-SICL, GRV-CL	CL, GC, GP-GC, SC	A-2, A-6, A-7	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	38-40	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
6G:												
Bigfork	0-5	STV-L	CL-ML, CL, SC, SC-SM	A-4, A-6	65-85	15-25	60-80	55-75	45-75	36-70	22-32	5-11
	5-9	CBV-L, CBV-SIL, CB-L, CB-SIL, GRV-SIL	CL, SC, GC	A-7, A-2, A-6	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	9-38	CBV-SICL, CBV-CL, STV-SICL, STV-CL, GRV-SICL, GRV-CL	SC, GC, GP-GC, CL	A-2, A-6, A-7	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	38-40	UWB	---	---	---	---	---	---	---	---	---	---
Yanush	0-5	STV-SIL	CL, CL-ML, ML, SC-SM	A-2, A-4, A-6	40-60	10-30	75-95	75-95	55-95	30-90	14-37	NP-14
	5-12	GRV-SIL, GR-SIL, CB-SIL	CL, CL-ML, SC, SC-SM	A-1, A-2, A-4	0	0-30	30-75	25-75	25-75	20-70	10-30	5-10
	12-18	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6	0	0-50	20-50	15-50	15-50	10-45	30-38	8-15
	18-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
Rock outcrop.												
7C:												
Bismarck	0-4	GR-SIL	SM, CL-ML, ML, SC-SM	A-2, A-4	0	0-5	55-80	50-75	45-75	30-70	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	0-5	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	SM, GM, GC-GM, SC-SM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	0-14	---
8D, 8F:												
Bismarck	0-4	CB-SIL	ML, CL-ML, SM, SC-SM	A-1, A-2, A-4	0-10	25-45	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SM, GM, GC-GM, SC-SM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	SC-SM, SM, GM, GC-GM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
8D, 8F:												
Littlefir-------	0-4	CB-SIL	SC-SM, SC, CL-ML, CL	A-2, A-4	0-10	25-45	80-100	75-100	55-100	30-90	10-30	NP-10
	4-7	GR-L, GR-SIL, GR-FSL, CB-L, CB-SIL, CB-FSL, L, SIL, FSL	CL, CL-ML, SC, SC-SM	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-12	SIC, SICL, CL, CN-SIC, CN-SICL, CN-CL, GR-SIC, GR-SICL, GR-CL	SC, CH, CL, GC	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	12-23	C, SIC, SICL, CL, CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	23-30	SIC, C, SICL, CL, CN-C, CN-SIC, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, CNV-C, CNV-SIC, CNV-SICL, CNV-CL, GRV-C, GRV-SIC, GRV-SICL, GRV-CL	CH, CL	A-7	0	0-5	55-100	40-100	35-100	30-95	45-66	25-39
	30-40	WB	---	---	---	---	---	---	---	---	---	---
9G:												
Bismarck--------	0-4	ST-SIL	ML, SC-SM, SM, CL-ML	A-1, A-2, A-4	0-10	25-45	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	GM, SC-SM, SM, GC-GM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
Bengal----------	0-4	ST-L	CL-ML, CL	A-4	0-10	25-45	85-90	85-90	70-85	55-75	24-30	4-10
	4-7	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	SC-SM, SC, CL, CL-ML	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-14	GR-CL, GR-SICL, SICL, CL	CL, CH, GC, SC	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	14-32	CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, C, SIC, SICL, CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	32-37	CN-SIC, CN-C, C, SIC, GR-C	CH, CL	A-7	0	0-5	55-100	55-100	50-100	50-95	45-66	25-39
	37-40	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
9G:												
Bigfork---------	0-5	ST-L	CL, CL-ML, SC, SC-SM	A-4, A-6	0-20	25-45	60-80	55-75	45-75	36-70	22-32	5-15
	5-9	CBV-L, CBV-SIL, CB-L, CB-SIL, GRV-SIL	GC, SC, CL	A-7, A-2, A-6	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	9-38	CBV-SICL, CBV-CL, STV-SICL, STV-CL, GRV-SICL, GRV-CL	CL, GC, GP-GC, SC	A-2, A-6, A-7	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	38-40	UWB	---	---	---	---	---	---	---	---	---	---
10C:												
Bismarck--------	0-4	GR-SIL	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0-5	55-80	50-75	45-75	30-70	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SC-SM, GM, SM, GC-GM	A-1, A-2, A-4	0	0-5	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
Nashoba---------	0-4	CB-FSL	SC-SM, GM, GC-GM, SM	A-1, A-2, A-4	0-10	25-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-24	GRV-L, GRV-FSL, CBV-L, CBV-FSL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-10	20-50	40-70	40-70	25-65	15-50	15-26	NP-7
	24-36	GRV-L, GRV-FSL, CBV-L, CBV-FSL, GRX-L, GRX-FSL	SM, GC-GM, GM, SC-SM	A-1, A-2, A-4	0-10	20-50	40-70	40-70	25-65	15-50	15-26	NP-7
	36-40	UWB	---	---	---	---	---	---	---	---	---	---
Sherless--------	0-4	GR-FSL	SC-SM, SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	4-10	FSL, GR-FSL	SC-SM, SC, SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	CL, SC	A-2, A-4, A-6	0	0-25	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-25	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SM, SC-SM, ML, CL	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
10D:												
Bismarck--------	0-4	CB-SIL	ML, SM, SC-SM, CL-ML	A-4, A-1, A-2	0-10	20-45	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	SC-SM, GM, GC-GM, SM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
10D:												
Nashoba----------	0-4	CB-FSL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-10	20-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-24	GRV-L, GRV-FSL, CBV-L, CBV-FSL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-10	20-50	40-70	40-70	25-65	15-50	15-26	NP-7
	24-36	GRV-L, GRV-FSL, CBV-L, CBV-FSL, GRX-L, GRX-FSL	SM, GM, GC-GM, SC-SM	A-1, A-2, A-4	0-10	20-50	40-70	40-70	25-65	15-50	15-26	NP-7
	36-40	UWB	---	---	---	---	---	---	---	---	---	---
Sherless---------	0-4	CB-FSL	SC, SM, SC-SM	A-2, A-4	0-10	20-45	75-90	70-85	65-80	25-49	0-26	NP-8
	4-10	FSL, GR-FSL	SM, SC-SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	SC, CL	A-2, A-4, A-6	0	0-25	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-25	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	ML, SM, SC-SM, CL	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
11CD:												
Carnasaw---------	0-4	ST-SIL	CL	A-4, A-6	25-45	0-10	85-95	85-95	75-95	55-95	30-37	8-14
	4-7	GR-SIL, SIL, CB-SIL	SC-SM, CL-ML, CL, SM	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CH, CL	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CH, CL	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CH, CL	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---
Pirum------------	0-4	ST-L	CL, ML, SC-SM, SM	A-4	25-45	0-10	75-100	75-100	70-90	36-65	15-30	3-10
	4-7	CB-L, CB-FSL, GR-L, GR-FSL, L, FSL	CL, ML, SC-SM, SM	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	7-11	L, FSL, GR-L, GR-FSL, CB-L, CB-FSL	SC-SM, ML, CL, SM	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	11-36	SCL, CL, L, GR-SCL, GR-CL, GR-L, CB-SCL, CB-CL, CB-L	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0-10	0-30	75-100	50-100	45-100	20-80	23-40	7-15
	36-40	UWB	---	---	0	---	---	---	---	---	0-14	---
12D:												
Carnasaw---------	0-4	CB-SIL	CL-ML, SM, SC, CL	A-4, A-6	0-10	25-45	85-95	85-95	60-95	35-90	14-37	NP-14
	4-7	GR-SIL, SIL, CB-SIL	SC-SM, SM, CL-ML, CL	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CL, CH	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CL, CH	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CL, CH	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
12D:												
Sherless--------	0-4	CB-FSL	SC, SM, SC-SM	A-2, A-4	0-10	25-45	75-90	70-85	65-80	25-49	0-26	NP-8
	4-10	FSL, GR-FSL	SC, SC-SM, SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SM, SC-SM, ML, CL	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
12F:												
Carnasaw--------	0-4	ST-SIL	CL	A-4, A-6	25-45	0-10	85-95	85-95	75-95	55-95	30-37	8-14
	4-7	GR-SIL, SIL, CB-SIL	CL-ML, CL, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CL, CH	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CL, CH	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CH, CL	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---
Sherless--------	0-4	ST-FSL	SM, SC-SM	A-2, A-4	25-45	0-10	90-95	85-90	60-80	30-50	15-25	NP-7
	4-10	FSL, GR-FSL	SM, SC-SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SM, SC-SM, ML, CL	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
13G:												
Caston----------	0-4	STX-FSL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	50-70	40-50	55-85	50-70	35-65	20-50	14-25	2-7
	4-8	CBV-L, CBV-FSL, GRV-L, GRV-FSL	SM, ML, GM, CL-ML	A-1, A-2, A-4	0-25	5-60	55-85	25-50	20-50	20-45	14-25	2-7
	8-21	CBV-L, CBV-FSL, GRV-L, GRV-FSL	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	10-25	5-60	25-75	20-50	15-45	8-45	14-30	2-7
	21-72	CBV-CL, CBV-SCL, GRV-CL, GRV-SCL	GC, GP-GC	A-2, A-4, A-6	0-5	5-60	25-55	20-50	15-50	7-40	25-40	8-15
Clebit----------	0-5	STX-FSL	SM, CL-ML, SC-SM, ML	A-2, A-4	55-75	25-45	70-90	65-85	45-80	25-60	15-25	NP-7
	5-17	GRV-L, GRV-FSL, CBV-L, CBV-FSL	GC, GM, SC, SC-SM	A-1, A-2, A-4	0-20	0-60	25-70	20-70	15-70	12-50	15-25	NP-8
	17-20	UWB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
13G:												
Octavia---------	0-4	STV-L	CL-ML, CL, SC-SM, SC	A-2, A-4	40-60	10-40	60-90	60-90	45-85	25-65	15-30	3-10
	4-7	CB-L, GR-L	SM, CL-ML, ML, SC-SM	A-2, A-4	0-20	5-40	60-90	60-90	45-85	25-65	15-25	3-7
	7-11	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	CL-ML, CL, SC, SC-SM	A-2, A-4	0-5	0-40	60-90	60-90	45-85	25-65	15-30	3-10
	11-28	CL, SICL, GR-CL, GR-SICL	GC, CL, SC	A-2, A-4, A-6	0	0-15	60-90	60-90	50-90	25-70	25-40	8-15
	28-72	CN-SIC, CN-C, CN-CL, CN-SICL, GR-C, GR-SIC, GR-CL, GR-SICL, C, SIC, SICL, CL	CH, SC, CL, ML	A-2, A-6, A-7	0	0-20	55-90	55-90	50-90	40-85	37-60	16-28
	72-79	WB	---	---	---	---	---	---	---	---	---	---
14B:												
Ceda------------	0-6	CBV-FSL	CL-ML, ML, SC-SM, SM	A-2, A-4	0-25	45-65	70-95	60-90	40-90	25-80	22-29	2-7
	6-20	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GC-GM, GM, GP-GM	A-1, A-2, A-4, A-6	---	0-60	15-50	15-50	10-50	5-45	0-40	NP-18
	20-39	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GC, GC-GM, GP-GC	A-6, A-2, A-4	5-20	5-60	15-50	15-50	10-50	5-45	25-40	7-18
	39-64	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GM, GC-GM, GP-GM	A-1, A-2, A-4, A-6	---	0-60	15-50	15-50	10-50	5-45	0-40	NP-18
15CD:												
Clebit----------	0-5	STX-FSL	CL-ML, ML, SC-SM, SM	A-2, A-4	55-75	25-45	70-90	65-85	45-80	25-60	15-25	NP-7
	5-17	GRV-L, GRV-FSL, CBV-L, CBV-FSL	GC, GM, SC, SC-SM	A-1, A-2, A-4	0-20	0-60	25-70	20-70	15-70	12-50	15-25	NP-8
	17-20	UWB	---	---	---	---	---	---	---	---	---	---
Carnasaw--------	0-4	STV-SIL	CL, CL-ML, ML, SC-SM	A-2, A-4, A-6	40-60	20-40	75-95	75-95	55-95	30-90	14-37	NP-14
	4-7	GR-SIL, SIL, CB-SIL	CL, CL-ML, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CH, CL	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CL, CH	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CL, CH	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---
Pirum-----------	0-4	STV-L	SM, SC-SM, ML, CL	A-4	40-60	20-40	75-100	75-100	70-90	36-65	15-30	3-10
	4-7	CB-L, CB-FSL, GR-L, GR-FSL, L, FSL	SM, ML, CL, SC-SM	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	7-11	L, FSL, GR-L, GR-FSL, CB-L, CB-FSL	CL, ML, SC-SM, SM	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	11-36	SCL, CL, L, GR-SCL, GR-CL, GR-L, CB-SCL, CB-CL, CB-L	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0-10	0-30	75-100	50-100	45-100	20-80	23-40	7-15
	36-40	UWB	---	---	0	---	---	---	---	---	0-14	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
15F:												
Clebit----------	0-5	STV-FSL	CL-ML, ML, SC-SM, SM	A-2, A-4	40-60	10-30	70-90	65-85	45-80	25-60	15-25	NP-7
	5-17	GRV-L, GRV-FSL, CBV-L, CBV-FSL	SC, SC-SM, GM, GC	A-1, A-2, A-4	0-20	0-60	25-70	20-70	15-70	12-50	15-25	NP-8
	17-20	UWB	---	---	---	---	---	---	---	---	---	---
Carnasaw--------	0-4	ST-FSL	SC-SM, SM, CL-ML, SC	A-2, A-4	40-60	10-30	85-95	85-95	75-85	30-60	0-30	NP-10
	4-7	GR-SIL, SIL, CB-SIL	CL-ML, SM, SC-SM, CL	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CL, CH	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CL, CH	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CH, CL	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---
Pirum-----------	0-4	ST-L	SC-SM, CL, ML, SM	A-4	20-40	10-30	75-100	75-100	70-90	36-65	15-30	3-10
	4-7	CB-L, CB-FSL, GR-L, GR-FSL, L, FSL	SC-SM, CL, SM, ML	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	7-11	L, FSL, GR-L, GR-FSL, CB-L, CB-FSL	SM, ML, CL, SC-SM	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	11-36	SCL, CL, L, GR-SCL, GR-CL, GR-L, CB-SCL, CB-CL, CB-L	SC-SM, CL-ML, SC, CL	A-2, A-4, A-6	0-10	0-30	75-100	50-100	45-100	20-80	23-40	7-15
	36-40	UWB	---	---	0	---	---	---	---	---	0-14	---
16B:												
Cupco-----------	0-3	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	96-100	80-97	25-37	5-13
	3-9	SIL, L	CL	A-4, A-6	0	0	100	95-100	85-95	60-95	24-40	8-20
	9-31	SICL, CL	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	96-100	80-98	25-43	5-19
	31-65	SICL, CL	CL	A-6, A-7	0	0	100	100	98-100	90-98	33-42	12-19
	65-79	SICL, CL	CL	A-6, A-7	0	0	100	100	96-100	80-98	33-43	12-20
17B:												
Dela------------	0-17	FSL	SC, SM, ML, CL	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	17-42	FSL, SL, LFS	SM, SC, ML, CL	A-4	0	0	100	98-100	94-100	36-70	15-30	NP-10
	42-80	SR- LFS FSL	SC, ML, CL, SM	A-2, A-4	0	0	100	98-100	90-100	15-60	15-30	NP-10
18B:												
Kenn------------	0-8	GR-FSL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	0-15	50-75	50-75	40-75	15-45	15-26	NP-7
	8-39	CL, SCL, GR-CL, GR-SCL, CB-CL, CB-SCL	CL, GC, SC	A-2, A-4, A-6	0	0-30	50-90	50-90	35-90	15-80	25-40	8-18
	39-51	GRV-CL, GRV-SCL, CBV-CL, CBV-SCL	GP-GC, GC	A-2, A-4, A-6	0	0-55	25-50	25-50	20-50	10-45	25-40	8-18
	51-72	CBX-L, GRX-FSL, GRX-L	GP-GC, GC, GP-GM, GM	A-1, A-2, A-4	0	15-65	15-50	15-50	10-50	5-45	15-31	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
19B:												
Kenn------------	0-8	CB-FSL	SM, SC-SM	A-1, A-2, A-4	0-10	25-45	75-90	75-85	40-75	20-50	15-26	NP-7
	8-39	CL, SCL, GR-CL, GR-SCL, CB-CL, CB-SCL	CL, SC, GC	A-2, A-4, A-6	0	0-30	50-90	50-90	35-90	15-80	25-40	8-18
	39-51	GRV-CL, GRV-SCL, CBV-CL, CBV-SCL	GC, GP-GC	A-2, A-4, A-6	0	0-55	25-50	25-50	20-50	10-45	25-40	8-18
	51-72	CBX-L, GRX-FSL, GRX-L	GC, GP-GM, GP-GC, GM	A-1, A-2, A-4	0	15-65	15-50	15-50	10-50	5-45	15-31	NP-10
Ceda------------	0-6	CBV-FSL	CL-ML, ML, SC-SM, SM	A-4, A-2	0-15	45-65	70-95	60-90	40-90	25-80	22-29	2-7
	6-20	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GC-GM, GM, GP-GM	A-1, A-2, A-4, A-6	---	0-60	15-50	15-50	10-50	5-45	0-40	NP-18
	20-39	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GC, GC-GM, GP-GC	A-6, A-2, A-4	5-20	5-60	15-50	15-50	10-50	5-45	25-40	7-18
	39-64	GRV-FSL, GRV-L, GRX-FSL, GRX-L, CBX-FSL, CBX-L	GP-GM, GM, GC-GM	A-1, A-2, A-4, A-6	---	0-60	15-50	15-50	10-50	5-45	0-40	NP-18
20C:												
Littlefir-------	0-4	GR-SIL	SC-SM, SC, CL, CL-ML	A-1, A-2, A-4	0	0-5	55-80	50-75	45-75	20-65	14-30	NP-10
	4-7	GR-L, GR-SIL, GR-FSL, CB-L, CB-SIL, CB-FSL, L, SIL, FSL	SC-SM, CL, CL-ML, SC	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-12	SIC, SICL, CL, CN-SIC, CN-SICL, CN-CL, GR-SIC, GR-SICL, GR-CL	SC, GC, CL, CH	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	12-23	C, SIC, SICL, CL, CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	23-30	C, SIC, SICL, CL, CN-C, CN-SIC, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, CNV-C, CNV-SIC, CNV-SICL, CNV-CL, GRV-C, GRV-SIC, GRV-SICL, GRV-CL	CH, CL	A-7	0	0-5	55-100	40-100	35-100	30-95	45-66	25-39
	30-40	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
20C:												
Bismarck--------	0-4	GR-SIL	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0-5	55-80	50-75	45-75	30-70	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SM, SC-SM, GC-GM, GM	A-1, A-2, A-4	0	0-5	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	GM, SC-SM, SM, GC-GM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
21B, 22B												
Mazarn----------	0-3	SIL	CL-ML, CL	A-4	0	0	100	95-100	85-95	60-90	0-30	4-10
	3-12	SIL, L, SICL	CL	A-4, A-6	0	0	100	95-100	85-95	60-95	24-40	8-20
	12-33	SICL, SIL, GR-SICL, GR-SIL, CN-SICL, CN-SIL	SC, CL	A-6, A-7	0	0	75-100	55-100	50-95	35-85	28-48	10-24
	33-40	WB	---	---	---	---	---	---	---	---	---	---
23C:												
Mena------------	0-4	SIL	CL-ML, ML	A-4	0	0-5	80-100	75-100	65-100	50-90	0-25	NP-7
	4-10	SIL, L, GR-SIL, GR-L	CL-ML, ML, SC-SM, SM	A-2, A-4, A-6	0	0-5	60-100	50-100	45-100	30-90	0-30	3-11
	10-23	C, SIC, SICL, CL, SIL	ML, MH, CL, CH	A-7	0	0-5	80-100	75-100	70-100	60-95	40-60	15-28
	23-46	C, SIC, SICL, CL	ML, MH, CL, CH	A-7	0	0-5	80-100	75-100	70-100	60-95	40-60	15-28
	46-60	CB-C, CB-SIC, CB-SICL, CB-CL, GR-C, GR-SIC, GR-SICL, GR-CL	SC, GC, CL, CH	A-2, A-6, A-7	0-5	5-50	30-80	50-75	25-75	20-70	35-55	13-25
	60-72	CB-C, CB-SIC, CB-SICL, CB-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL, SC, GC	A-2, A-6, A-7	0-5	5-50	30-80	50-75	25-75	20-70	35-55	13-25
	72-80	WB	---	---	0	---	---	---	---	---	0-14	---
24C, 24D:												
Mena------------	0-4	GR-SIL	CL-ML, SC-SM, SM, ML	A-4, A-2	0	0-5	60-80	50-75	45-75	30-70	0-25	NP-7
	4-10	SIL, L, GR-SIL, GR-L	SM, ML, CL-ML, SC-SM	A-2, A-4, A-6	0	0-5	60-100	50-100	45-100	30-90	0-30	3-11
	10-23	C, SIC, SICL, CL, SIL	CH, ML, CL, MH	A-7	0	0-5	80-100	75-100	70-100	60-95	40-60	15-28
	23-46	C, SIC, SICL, CL	CH, MH, ML, CL	A-7	0	0-5	80-100	75-100	70-100	60-95	40-60	15-28
	46-60	CB-C, CB-SIC, CB-SICL, CB-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL, GC, SC	A-2, A-6, A-7	0-5	5-50	30-80	50-75	25-75	20-70	35-55	13-25
	60-72	CB-C, CB-SIC, CB-SICL, CB-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL, SC, GC	A-2, A-6, A-7	0-5	5-50	30-80	50-75	25-75	20-70	35-55	13-25
	72-80	WB	---	---	0	---	---	---	---	---	0-14	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
25F:												
Nashoba---------	0-4	ST-FSL	SC-SM, SM	A-1, A-2, A-4	25-45	5-25	50-85	50-85	45-80	17-50	15-26	NP-7
	4-24	GRV-L, GRV-FSL, CBV-L, CBV-FSL	GM, GC-GM, SM, SC-SM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	24-36	GRV-L, GRV-FSL, CBV-L, CBV-FSL, GRX-L, GRX-FSL	SC-SM, SM, GM, GC-GM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	36-40	UWB	---	---	---	---	---	---	---	---	---	---
Bismarck--------	0-4	ST-SIL	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4	25-45	5-25	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	SC-SM, GM, GC-GM, SM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
26B:												
Neff------------	0-5	L	CL	A-4, A-6	0	0	100	100	96-100	75-97	30-37	8-14
	5-20	SIL, L	CL	A-4, A-6	0	0	100	100	96-100	75-97	30-37	8-14
	20-57	SIL, SICL	CL	A-4, A-6, A-7	0	0	100	100	90-100	80-95	30-42	8-19
	57-80	SIL, SICL	CL	A-4, A-6, A-7	0	0	100	100	90-100	80-95	28-43	8-19
27D, 27F:												
Octavia---------	0-4	ST-L	SC-SM, CL-ML, CL, SC	A-2, A-4	25-45	5-25	60-90	60-90	45-85	25-65	15-30	3-10
	4-7	CB-L, GR-L	SM, CL-ML, ML, SC-SM	A-2, A-4	0-20	5-40	60-90	60-90	45-85	25-65	15-25	3-7
	7-11	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	SC-SM, CL, CL-ML, SC	A-2, A-4	0-5	0-40	60-90	60-90	45-85	25-65	15-30	3-10
	11-28	CL, SICL, GR-CL, GR-SICL	SC, CL, GC	A-2, A-4, A-6	0	0-15	60-90	60-90	50-90	25-70	25-40	8-15
	28-72	CN-SIC, CN-C, CN-CL, CN-SICL, GR-C, GR-SIC, GR-CL, GR-SICL, C, SIC, SICL, CL	SC, ML, CL, CH	A-2, A-6, A-7	0	0-20	55-90	55-90	50-90	40-85	37-60	16-28
	72-79	WB	---	---	---	---	---	---	---	---	---	---
Carnasaw--------	0-4	ST-SIL	CL	A-4, A-6	25-45	5-25	85-95	85-95	75-95	55-95	30-37	8-14
	4-7	GR-SIL, SIL, CB-SIL	SC-SM, CL, CL-ML, SM	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CL, CH	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CH, CL	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CL, CH	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
28G:												
Octavia---------	0-4	STV-L	SC, SC-SM, CL-ML, CL	A-2, A-4	40-60	10-30	60-90	60-90	45-85	25-65	15-30	3-10
	4-7	CB-L, GR-L	CL-ML, ML, SM, SC-SM	A-2, A-4	0-20	5-40	60-90	60-90	45-85	25-65	15-25	3-7
	7-11	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	SC-SM, CL, CL-ML, SC	A-2, A-4	0-5	0-40	60-90	60-90	45-85	25-65	15-30	3-10
	11-28	CL, SICL, GR-CL, GR-SICL	CL, GC, SC	A-2, A-4, A-6	0	0-15	60-90	60-90	50-90	25-70	25-40	8-15
	28-72	CN-SIC, CN-C, CN-CL, CN-SICL, GR-C, GR-SIC, GR-CL, GR-SICL, C, SIC, SICL, CL	CH, CL, ML, SC	A-2, A-6, A-7	0	0-20	55-90	55-90	50-90	40-85	37-60	16-28
	72-79	WB	---	---	---	---	---	---	---	---	---	---
Carnasaw--------	0-4	STV-SIL	SC-SM, ML, CL-ML, CL	A-2, A-4, A-6	40-60	10-30	75-95	75-95	55-95	30-90	14-37	NP-14
	4-7	GR-SIL, SIL, CB-SIL	SM, SC-SM, CL, CL-ML	A-1, A-2, A-4, A-6	0	0-30	55-95	55-95	35-95	20-90	14-37	NP-14
	7-12	SICL, CL, SIC	CL, CH	A-6, A-7	0	0-10	85-95	85-95	75-95	65-90	37-65	18-35
	12-37	C, SIC	CH, CL	A-7	0	0-10	85-95	85-95	85-90	85-90	41-65	18-35
	37-53	CN-C, CN-SIC, C, SIC	CH, CL	A-7	0	0-10	55-90	55-90	55-85	50-80	41-65	18-35
	53-72	WB	---	---	---	---	---	---	---	---	---	---
Caston----------	0-4	STX-FSL	GM, SC-SM, SM, GC-GM	A-1, A-2, A-4	50-70	40-50	55-85	50-70	35-65	20-50	14-25	2-7
	4-8	CBV-L, CBV-FSL, GRV-L, GRV-FSL	CL-ML, SM, ML, GM	A-1, A-2, A-4	0-25	5-60	55-85	25-50	20-50	20-45	14-25	2-7
	8-21	CBV-L, CBV-FSL, GRV-L, GRV-FSL	SM, SP-SM, GP-GM, GM	A-1, A-2, A-4	10-25	5-60	25-75	20-50	15-45	8-45	14-30	2-7
	21-72	CBV-CL, CBV-SCL, GRV-CL, GRV-SCL	GC, GP-GC	A-2, A-4, A-6	0-5	5-60	25-55	20-50	15-50	7-40	25-40	8-15
29G:												
Octavia---------	0-4	STV-L	SC-SM, SC, CL-ML, CL	A-2, A-4	40-60	10-30	60-90	60-90	45-85	25-65	15-30	3-10
	4-7	CB-L, GR-L	CL-ML, ML, SC-SM, SM	A-2, A-4	0-20	5-40	60-90	60-90	45-85	25-65	15-25	3-7
	7-11	GR-L, GR-SIL, CB-L, CB-SIL, L, SIL	SC-SM, SC, CL-ML, CL	A-2, A-4	0-5	0-40	60-90	60-90	45-85	25-65	15-30	3-10
	11-28	CL, SICL, GR-CL, GR-SICL	SC, CL, GC	A-2, A-4, A-6	0	0-15	60-90	60-90	50-90	25-70	25-40	8-15
	28-72	CN-SIC, CN-C, CN-CL, CN-SICL, GR-C, GR-SIC, GR-CL, GR-SICL, C, SIC, SICL, CL	ML, CL, CH, SC	A-2, A-6, A-7	0	0-20	55-90	55-90	50-90	40-85	37-60	16-28
	72-79	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
29G:												
Caston----------	0-4	STX-FSL	SM, SC-SM, GC-GM, GM	A-1, A-2, A-4	50-70	40-50	55-85	50-70	35-65	20-50	14-25	2-7
	4-8	CBV-L, CBV-FSL, GRV-L, GRV-FSL	ML, GM, SM, CL-ML	A-1, A-2, A-4	0-25	5-60	55-85	25-50	20-50	20-45	14-25	2-7
	8-21	CBV-L, CBV-FSL, GRV-L, GRV-FSL	SP-SM, GP-GM, SM, GM	A-1, A-2, A-4	10-25	5-60	25-75	20-50	15-45	8-45	14-30	2-7
	21-72	CBV-CL, CBV-SCL, GRV-CL, GRV-SCL	GC, GP-GC	A-2, A-4, A-6	0-5	5-60	25-55	20-50	15-50	7-40	25-40	8-15
Pirum-----------	0-4	STV-L	ML, SC-SM, SM, CL	A-4	40-60	0-10	75-100	75-100	70-90	36-65	15-30	3-10
	4-7	CB-L, CB-FSL, GR-L, GR-FSL, L, FSL	CL, SC-SM, SM, ML	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	7-11	L, FSL, GR-L, GR-FSL, CB-L, CB-FSL	SM, ML, SC-SM, CL	A-1, A-2, A-4	0-10	0-30	75-100	50-100	30-95	15-55	15-30	3-10
	11-36	SCL, CL, L, GR-SCL, GR-CL, GR-L, CB-SCL, CB-CL, CB-L	CL-ML, SC, SC-SM, CL	A-2, A-4, A-6	0-10	0-30	75-100	50-100	45-100	20-80	23-40	7-15
	36-40	UWB	---	---	0	---	---	---	---	---	0-14	---
30C:												
Sherless--------	0-4	GR-FSL	SC, SC-SM, SM	A-2, A-4	0	0-15	75-90	70-80	65-80	25-49	0-26	NP-8
	4-10	FSL, GR-FSL	SC-SM, SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SC-SM, ML, CL, SM	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
31C:												
Sherless--------	0-4	GR-FSL	SM, SC-SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	4-10	FSL, GR-FSL	SC, SC-SM, SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SM, SC-SM, ML, CL	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
31C:												
Littlefir-------	0-4	GR-L	SC-SM, CL-ML, SC, CL	A-1, A-2, A-4	0	0-5	55-80	50-75	45-75	20-65	14-30	NP-10
	4-7	GR-L, GR-SIL, GR-FSL, CB-L, CB-SIL, CB-FSL, L, SIL, FSL	CL, CL-ML, SC, SC-SM	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-12	SIC, SICL, CL, CN-SIC, CN-SICL, CN-CL, GR-SIC, GR-SICL, GR-CL	SC, GC, CH, CL	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	12-23	SIC, C, SICL, CL, CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	23-30	SIC, C, SICL, CL, CN-C, CN-SIC, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, CNV-C, CNV-SIC, CNV-SICL, CNV-CL, GRV-C, GRV-SIC, GRV-SICL, GRV-CL	CH, CL	A-7	0	0-5	55-100	40-100	35-100	30-95	45-66	25-39
	30-40	WB	---	---	---	---	---	---	---	---	---	---
31D:												
Sherless--------	0-4	CB-FSL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-10	20-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-10	FSL, GR-FSL	SM, SC, SC-SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	SC-SM, SM, CL, ML	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---

le 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
31D:												
Littlefir	0-4	CB-L	SC-SM, SC, CL-ML, CL	A-2, A-4	0-20	25-45	80-100	75-100	55-100	30-90	10-30	NP-10
	4-7	GR-L, GR-SIL, GR-FSL, CB-L, CB-SIL, CB-FSL, L, SIL, FSL	CL, CL-ML, SC, SC-SM	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-12	SIC, SICL, CL, CN-SIC, CN-SICL, CN-CL, GR-SIC, GR-SICL, GR-CL	SC, GC, CL, CH	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	12-23	C, SIC, SICL, CL, CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	23-30	SIC, C, SICL, CL, CN-C, CN-SIC, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, CNV-C, CNV-SIC, CNV-SICL, CNV-CL, GRV-C, GRV-SIC, GRV-SICL, GRV-CL	CH, CL	A-7	0	0-5	55-100	40-100	35-100	30-95	45-66	25-39
	30-40	WB	---	---	---	---	---	---	---	---	---	---
31F:												
Sherless	0-4	CB-FSL	GM, SC-SM, GC-GM, SM	A-2, A-4, A-1	0-10	20-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-10	FSL, GR-FSL	SM, SC-SM, SC	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	CL, SC	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	ML, CL, SM, SC-SM	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
31F:												
Littlefir-------	0-4	ST-L	CL-ML, CL	A-4	0-20	25-45	85-90	85-90	70-85	55-75	24-30	4-10
	4-7	GR-L, GR-SIL, GR-FSL, CB-L, CB-SIL, CB-FSL, L, SIL, FSL	SC-SM, CL-ML, SC, CL	A-2, A-4	0-5	10-35	80-100	75-100	55-100	30-90	10-30	NP-10
	7-12	SIC, SICL, CL, CN-SIC, CN-SICL, CN-CL, GR-SIC, GR-SICL, GR-CL	CL, GC, SC, CH	A-2, A-6, A-7	0-5	0-20	60-100	55-100	45-100	20-95	36-57	15-32
	12-23	C, SIC, SICL, CL, CN-SIC, CN-C, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL	CH, CL	A-7	0	0-5	75-100	60-100	55-100	50-95	45-66	25-39
	23-30	C, SIC, SICL, CL, CN-C, CN-SIC, CN-SICL, CN-CL, GR-C, GR-SIC, GR-SICL, GR-CL, CNV-C, CNV-SIC, CNV-SICL, CNV-CL, GRV-C, GRV-SIC, GRV-SICL, GRV-CL	CL, CH	A-7	0	0-5	55-100	40-100	35-100	30-95	45-66	25-39
	30-40	WB	---	---	---	---	---	---	---	---	---	---
32C, 32D:												
Sherless--------	0-4	CB-FSL	SM, SC-SM, GM, GC-GM	A-1, A-4, A-2	0-10	20-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-10	FSL, GR-FSL	SC, SM, SC-SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	CL, ML, SC-SM, SM	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
Nashoba---------	0-4	CB-FSL	GM, SC-SM, SM, GC-GM	A-1, A-2, A-4	0-20	25-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-24	GRV-L, GRV-FSL, CBV-L, CBV-FSL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	24-36	GRV-L, GRV-FSL, CBV-L, CBV-FSL, GRX-L, GRX-FSL	GM, SM, GC-GM, SC-SM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	36-40	UWB	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
33F:												
Sherless--------	0-4	CB-FSL	GM, SM, SC-SM, GC-GM	A-1, A-2, A-4	0-10	20-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-10	FSL, GR-FSL	SC, SC-SM, SM	A-2, A-4	0	0-15	75-90	70-85	65-80	25-49	0-26	NP-8
	10-21	CL, SCL, GR-CL, GR-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	21-34	CL, SCL, GR-CL, GR-SCL, CN-CL, CN-SCL	SC, CL	A-2, A-4, A-6	0	0-20	75-95	70-90	45-85	25-80	25-40	8-18
	34-38	FSL, SCL, CL, GR-FSL, GR-SCL, GR-CL, CN-FSL, CN-SCL, CN-CL	ML, CL, SM, SC-SM	A-1, A-2, A-4	0-10	0-20	75-100	50-100	30-95	15-55	15-30	3-10
	38-45	WB	---	---	---	---	---	---	---	---	---	---
Nashoba---------	0-4	CB-FSL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-20	25-45	50-85	50-85	45-80	17-50	15-26	NP-7
	4-24	GRV-L, GRV-FSL, CBV-L, CBV-FSL	SM, SC-SM, GM, GC-GM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	24-36	GRV-L, GRV-FSL, CBV-L, CBV-FSL, GRX-L, GRX-FSL	GC-GM, GM, SM, SC-SM	A-1, A-2, A-4	0-10	25-60	40-70	40-70	25-65	15-50	15-26	NP-7
	36-40	UWB	---	---	---	---	---	---	---	---	---	---
Bismarck--------	0-4	CB-SIL	CL-ML, SM, SC-SM, ML	A-1, A-2, A-4	0-10	25-45	80-95	75-95	35-70	20-60	0-25	NP-10
	4-8	CNV-SIL, CN-SIL, CN-L, GRV-SIL, GR-SIL	GM, SC-SM, GC-GM, SM	A-1, A-2, A-4	0-5	0-20	35-80	25-75	20-75	15-70	0-25	NP-10
	8-14	CNX-SIL, CNX-L, CNV-SIL	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	0-10	25-70	15-50	12-50	12-45	0-25	NP-10
	14-20	WB	---	---	0	---	---	---	---	---	---	---
34B, 35B:												
Speer-----------	0-3	FSL	SM, SC-SM, ML, CL-ML	A-4	0	0	100	98-100	94-100	36-60	15-26	NP-7
	3-10	FSL, L	ML, SC-SM, SM, CL-ML	A-4	0	0	100	98-100	94-100	36-60	15-26	NP-7
	10-39	CL, SCL, L	ML, CL, SM, SC	A-4, A-6	0	0	100	98-100	90-100	36-85	22-40	2-18
	39-51	CL, SCL, L	CL, SC	A-4, A-6	0	0	100	100	90-100	36-90	25-40	7-18
	51-61	L, FSL	CL, ML, SC, SM	A-4, A-6	0	0	100	98-100	90-100	36-85	22-40	2-18
	61-89	L, FSL	CL-ML, ML, SC-SM, SM	A-4	0	0	100	80-100	80-100	36-85	15-29	NP-7
36. Water												
37C:												
Wetsaw----------	0-6	L	ML, CL-ML	A-4	0	0-10	90-100	75-100	71-100	30-85	22-29	2-7
	6-14	FSL, L	SM, SC-SM, ML, CL-ML	A-4	0	0-10	90-100	75-100	60-95	36-75	15-25	NP-5
	14-20	L, CL, SCL	SC, CL	A-2, A-4, A-6	0	0-10	90-100	75-100	67-100	30-90	26-40	8-18
	20-34	L, CL, SCL	GC, CL, SC	A-2, A-6, A-7	0	0-5	55-100	50-100	40-100	20-80	30-45	11-20
	34-44	CL, SCL, L	GC, CL, SC	A-2, A-6, A-7	0	0-5	55-100	50-100	40-100	20-80	30-45	11-20
	44-72	GR-CL, GR-SCL, GRV-CL, GRV-SCL	GP-GC, GC, CL	A-2, A-4, A-6, A-7	0	0-30	20-70	20-70	15-70	5-65	26-55	8-25

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
38C:												
Wilburton-------	0-4	CBV-L	SC-SM, CL, CL-ML, ML	A-2, A-4	0-10	45-65	80-95	75-90	55-85	30-65	0-30	2-10
	4-12	CB-L, CBV-L, CB-CL	CL, ML, SC, SM	A-2, A-4, A-6	0-5	25-60	80-95	75-95	55-90	30-70	0-40	4-13
	12-31	CBV-CL, CBV-SCL, CBV-L, GRV-CL, GRV-SCL, GRV-L, CBX-CL, CBX-SCL, CBX-L, GRX-CL, GRX-SCL, GRX-L	SC, GC	A-2, A-4, A-6	0-5	15-75	45-75	40-70	35-65	15-50	25-35	8-13
	31-51	CBV-CL, CBV-SCL, CBV-L, GRV-CL, GRV-SCL, GRV-L, CBX-CL, CBX-SCL, CBX-L, GRX-CL, GRX-SCL, GRX-L	GC, SC	A-2, A-4, A-6	0-5	15-75	45-75	40-70	35-65	15-50	25-35	8-13
	51-58	CBV-CL, CBV-SCL, CBV-L, GRV-CL, GRV-SCL, GRV-L, CBX-CL, CBX-SCL, CBX-L, GRX-CL, GRX-SCL, GRX-L	GC, SC	A-2, A-4, A-6	0-5	15-75	45-60	40-55	35-55	15-45	25-35	8-13
	58-72	CBV-CL, CBV-SCL, CBV-L, CBX-CL, CBX-SCL, CBX-L	SC, GC, GC-GM, SC-SM	A-1, A-2, A-4, A-6	0-5	40-75	50-60	45-55	35-55	20-45	25-40	3-13
39C, 39D:												
Yanush----------	0-5	GR-SIL	SC-SM, SC, CL-ML, CL	A-2, A-4	0	0-5	55-75	50-75	45-75	30-70	10-30	5-10
	5-12	GRV-SIL, GR-SIL, CB-SIL	SC-SM, CL, SC, CL-ML	A-1, A-2, A-4	0	0-30	30-75	25-75	25-75	20-70	10-30	5-10
	12-18	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6	0	0-50	20-50	15-50	15-50	10-45	30-38	8-15
	18-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
40G:												
Yanush----------	0-5	CB-SIL	SM, SC, CL-ML, CL	A-4, A-6	0-10	25-45	85-95	85-95	60-95	35-90	14-37	NP-14
	5-12	GRV-SIL, GR-SIL, CB-SIL	CL-ML, SC, SC-SM, CL	A-1, A-2, A-4	0	0-30	30-75	25-75	25-75	20-70	10-30	5-10
	12-18	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6	0	0-50	20-50	15-50	15-50	10-45	30-38	8-15
	18-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
Avant-----------	0-4	CBV-SIL	GC-GM, GM, SC, ML	A-2, A-4	0-10	40-60	50-80	40-75	35-75	25-70	15-25	NP-8
	4-9	GRV-SIL, GRV-L, CBV-SIL	GC-GM, GM, SC, ML	A-1, A-2, A-4	0	0-50	30-80	25-50	20-50	20-40	15-25	NP-8
	9-14	GRV-SIL, GRV-L, CBV-SIL	SC, GM, GC-GM	A-1, A-2, A-4	0	0-50	30-80	25-50	20-50	20-40	20-30	4-10
	14-22	GRV-SICL, GRV-SIL, GRV-L, GRX-SICL, GRX-SIL, GRX-L, CBV-SICL, CBV-SIL, CBV-L	GC, CL-ML, CL, GC-GM	A-2, A-4, A-6	0	0-50	30-80	25-50	20-50	20-40	25-35	6-15
	22-37	GRV-SICL, GRV-SIL, GRV-L, GRX-SICL, GRX-SIL, GRX-L, CBV-SICL, CBV-SIL, CBV-L	CL, CL-ML, GC, GC-GM	A-2, A-4, A-6	0	0-50	30-80	25-50	20-50	20-40	25-35	6-15
	37-40	UWB	---	---	0	0	0	0	0	0	0-14	---
41F:												
Yanush----------	0-5	ST-SIL	CL	A-4, A-6	25-45	0-10	85-95	85-95	75-95	55-95	30-37	8-14
	5-12	GRV-SIL, GR-SIL, CB-SIL	CL, SC-SM, SC, CL-ML	A-1, A-2, A-4	0	0-30	30-75	25-75	25-75	20-70	10-30	5-10
	12-18	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6	0	0-50	20-50	15-50	15-50	10-45	30-38	8-15
	18-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
41F:												
Bigfork---------	0-5	STV-L	SC-SM, SC, CL-ML, CL	A-4, A-6	45-65	5-25	60-80	55-75	45-75	36-70	22-32	5-11
	5-9	CBV-L, CBV-SIL, CB-L, CB-SIL, GRV-SIL	SC, GC, CL	A-7, A-2, A-6	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	9-38	CBV-SICL, CBV-CL, STV-SICL, STV-CL, GRV-SICL, GRV-CL	SC, CL, GP-GC, GC	A-2, A-6, A-7	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	38-40	UWB	---	---	---	---	---	---	---	---	---	---
41G:												
Yanush----------	0-5	STV-SIL	SC-SM, ML, CL-ML, CL	A-2, A-4, A-6	40-60	10-30	75-95	75-95	55-95	30-90	14-37	NP-14
	5-12	GRV-SIL, GR-SIL, CB-SIL	CL, CL-ML, SC, SC-SM	A-1, A-2, A-4	0	0-30	30-75	25-75	25-75	20-70	10-30	5-10
	12-18	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6	0	0-50	20-50	15-50	15-50	10-45	30-38	8-15
	18-36	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GC, GP-GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
	36-72	GRV-SICL, GRV-CL, GRX-SICL, GRX-CL, CBV-SICL, CBV-CL	GP-GC, GC	A-2, A-4, A-6, A-7	0	0-50	20-50	15-50	15-50	10-45	30-43	8-18
Bigfork---------	0-5	STV-L	CL, CL-ML, SC, SC-SM	A-4, A-6	65-85	15-25	60-80	55-75	45-75	36-70	22-32	5-11
	5-9	CBV-L, CBV-SIL, CB-L, CB-SIL, GRV-SIL	CL, GC, SC	A-7, A-2, A-6	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	9-38	CBV-SICL, CBV-CL, STV-SICL, STV-CL, GRV-SICL, GRV-CL	CL, GC, GP-GC, SC	A-2, A-6, A-7	15-50	20-60	20-80	25-75	20-75	15-70	33-43	12-20
	38-40	UWB	---	---	---	---	---	---	---	---	---	---

Table 16.--Physical and Chemical 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	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
1CD:															
Avant----------------	0-4	5-20	1.30-1.60	4.23-14.11	0.06-0.11	---	5.0-15	4.5-6.0	0.0-2.9	2.0-4.0	.24	.43	2	8	0
	4-9	5-20	1.30-1.60	4.23-14.11	0.06-0.11	---	3.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	9-14	10-25	1.25-1.55	4.23-14.11	0.06-0.11	---	5.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	14-22	15-35	1.20-1.50	4.23-14.11	0.06-0.11	---	5.0-25	4.5-6.0	0.0-2.9	0.0-0.5	.20	.37			
	22-37	15-35	1.20-1.50	4.23-14.11	0.06-0.11	---	5.0-25	4.5-6.0	0.0-2.9	0.0-0.5	.20	.37			
	37-40	---	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
2C:															
Avilla---------------	0-3	8-15	1.30-1.50	4.23-14.11	0.10-0.12	5.0-15	---	4.5-6.5	0.0-2.9	0.5-2.0	.24	.28	5	3	86
	3-7	8-27	1.30-1.50	4.23-14.11	0.10-0.18	---	5.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.24	.43			
	7-21	20-35	1.35-1.50	4.23-14.11	0.14-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	21-43	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	43-56	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	56-72	25-40	1.35-1.55	4.00-14.00	0.08-0.17	---	5.0-25	4.5-5.5	0.0-2.9	0.0-0.5	.24	.32			
3C:															
Avilla---------------	0-3	10-20	1.30-1.60	4.23-14.11	0.06-0.11	7.0-13	---	5.1-6.5	0.0-2.9	0.5-2.0	.17	.24	5	3	86
	3-7	8-27	1.30-1.50	4.23-14.11	0.10-0.18	---	5.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.24	.43			
	7-21	20-35	1.35-1.50	4.23-14.11	0.14-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	21-43	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	43-56	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	56-72	25-40	1.35-1.55	4.00-14.00	0.08-0.17	---	5.0-25	4.5-5.5	0.0-2.9	0.0-0.5	.24	.32			
4D, 4F:															
Bengal---------------	0-4	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-14	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	14-32	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	32-37	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Bismarck-------------	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
Yanush---------------	0-5	18-26	1.30-1.55	4.23-14.11	0.11-0.16	11-16	---	5.1-6.5	0.0-2.9	0.5-2.0	.28	---	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-36	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
5CD:															
Bigfork	0-5	15-26	1.30-1.55	4.23-14.11	0.02-0.12	3.0-10	---	5.1-6.5	0.0-2.9	0.5-2.0	.15	.37	2	8	0
	5-9	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	9-38	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	38-40	---	1.85-2.35	0.00-0.07	---	---	---	---	---	---	---	---			
Rock outcrop.															
6G:															
Bigfork	0-5	15-26	1.30-1.55	4.23-14.11	0.02-0.12	3.0-10	---	5.1-6.5	0.0-2.9	0.5-2.0	.15	.37	2	8	0
	5-9	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	9-38	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	38-40	---	1.85-2.35	0.00-0.07	---	---	---	---	---	---	---	---			
Yanush	0-5	10-26	1.30-1.60	4.23-14.11	0.06-0.12	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-18	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	18-36	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
Rock outcrop.															
7C:															
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.11-0.17	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	2	8	0
	4-8	10-18	1.30-1.55	4.23-14.11	0.07-0.17	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
8D, 8F:															
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
Littlefir	0-4	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-12	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	12-23	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	23-30	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	30-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
9G:															
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
9G:															
Bengal	0-4	10-20	1.30-1.60	4.23-14.11	0.13-0.20	---	6.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-14	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	14-32	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	32-37	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Bigfork	0-5	15-26	1.30-1.55	4.23-14.11	0.05-0.16	3.0-10	---	5.1-6.5	0.0-2.9	0.5-2.0	.15	.37	2	8	0
	5-9	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	9-38	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	38-40	---	1.85-2.35	0.00-0.07	---	---	---	---	---	---	---	---			
10C:															
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.11-0.17	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	2	8	0
	4-8	10-18	1.30-1.55	4.23-14.11	0.07-0.17	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
Nashoba	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Sherless	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24	3	5	56
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
10D:															
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
Nashoba	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
10D:															
Sherless-------------	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.12	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
11CD:															
Carnasaw-------------	0-4	15-26	1.30-1.60	4.23-14.11	0.10-0.16	---	9.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Pirum----------------	0-4	10-27	1.30-1.60	4.23-14.11	0.08-0.12	---	2.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.20	.28	2	8	0
	4-7	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	7-11	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	11-36	18-35	1.25-1.60	4.23-14.11	0.11-0.18	---	2.0-10	4.5-5.5	0.0-2.9	0.2-0.5	.32	.32			
	36-40	0-0	---	1.41-4.23	0.00-0.00	---	---	---	---	---	---	---			
12D:															
Carnasaw-------------	0-4	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Sherless-------------	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.12	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
12F:															
Carnasaw-------------	0-4	15-26	1.30-1.60	4.23-14.11	0.10-0.16	---	9.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
12F:															
Sherless-------------	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.10	4.0-11	---	4.5-7.3	0.0-2.9	1.0-3.0	.20	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
13G:															
Caston---------------	0-4	10-20	1.30-1.55	4.23-14.11	0.04-0.12	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.37	5	8	0
	4-8	10-20	1.30-1.55	4.23-14.11	0.06-0.13	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.24			
	8-21	15-20	1.40-1.60	4.23-14.11	0.05-0.13	---	10-12	4.5-5.5	0.0-2.9	0.0-0.5	.15	.37			
	21-72	20-35	1.45-1.60	4.23-14.11	0.08-0.12	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.24	.32			
Clebit--------------	0-5	10-20	1.30-1.60	14.11-42.34	0.05-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	5-17	10-20	1.30-1.60	14.11-42.34	0.04-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.0-0.5	.15	.32			
	17-20	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Octavia-------------	0-4	10-25	1.30-1.55	4.23-14.11	0.06-0.11	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	---	5	8	0
	4-7	10-25	1.30-1.60	4.23-14.11	0.07-0.14	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	---			
	7-11	10-25	1.35-1.60	4.23-14.11	0.08-0.16	---	7.0-16	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	11-28	20-35	1.40-1.60	4.23-14.11	0.12-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	28-72	35-60	1.35-1.60	1.41-4.23	0.12-0.19	---	21-36	4.5-5.5	3.0-5.9	0.0-1.0	.28	---			
	72-79	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
14B:															
Ceda-----------------	0-6	10-18	1.30-1.55	42.34-141.14	0.06-0.13	6.0-11	---	5.6-6.5	0.0-2.9	0.5-2.0	.24	.32	5	8	0
	6-20	15-32	1.40-1.70	42.34-141.14	0.02-0.16	---	---	5.6-6.5	0.0-2.9	---	.28	.32			
	20-39	15-32	1.40-1.70	42.34-141.14	0.06-0.13	9.0-20	---	5.6-6.5	0.0-2.9	0.0-0.5	.28	.32			
	39-64	15-32	1.40-1.70	42.34-141.14	0.02-0.16	---	---	5.6-6.5	0.0-2.9	---	.28	.32			
15CD:															
Clebit--------------	0-5	10-20	1.30-1.60	14.11-42.34	0.05-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	5-17	10-20	1.30-1.60	14.11-42.34	0.04-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.0-0.5	.15	.32			
	17-20	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Carnasaw------------	0-4	10-26	1.30-1.60	4.23-14.11	0.06-0.12	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
15CD:															
Pirum----------------	0-4	18-27	1.30-1.60	4.23-14.11	0.05-0.12	---	2.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.17	.28	2	8	0
	4-7	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	7-11	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	11-36	18-35	1.25-1.60	4.23-14.11	0.11-0.18	---	2.0-10	4.5-5.5	0.0-2.9	0.2-0.5	.32	.32			
	36-40	0-0	---	1.41-4.23	0.00-0.00	---	---	---	---	---	---	---			
15F:															
Clebit---------------	0-5	10-20	1.30-1.60	14.11-42.34	0.05-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	5-17	10-20	1.30-1.60	14.11-42.34	0.04-0.10	6.0-13	---	4.5-6.5	0.0-2.9	0.0-0.5	.15	.32			
	17-20	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Carnasaw-------------	0-4	10-20	1.30-1.60	4.23-14.11	0.07-0.10	---	6.0-13	4.5-6.0	0.0-2.9	0.5-2.0	.24	.32	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Pirum----------------	0-4	10-27	1.30-1.60	4.23-14.11	0.08-0.12	---	2.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.20	.28	2	8	0
	4-7	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	7-11	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	11-36	18-35	1.25-1.60	4.23-14.11	0.11-0.18	---	2.0-10	4.5-5.5	0.0-2.9	0.2-0.5	.32	.32			
	36-40	0-0	---	1.41-4.23	0.00-0.00	---	---	---	---	---	---	---			
16B:															
Cupco----------------	0-3	15-26	1.30-1.50	4.23-14.11	0.16-0.24	10-16	---	4.5-6.5	0.0-2.9	0.5-2.0	.37	.37	5	6	48
	3-9	18-35	1.30-1.60	1.41-14.11	0.16-0.20	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.37	.37			
	9-31	15-30	1.30-1.60	1.41-14.11	0.15-0.24	10-18	---	4.5-6.5	3.0-5.9	0.5-1.0	.37	.37			
	31-65	27-35	1.45-1.60	1.41-4.23	0.18-0.22	17-21	---	4.5-6.5	3.0-5.9	0.0-1.0	.32	.32			
	65-79	27-35	1.45-1.60	1.41-4.23	0.15-0.22	17-21	---	5.1-7.3	3.0-5.9	0.0-0.5	.32	.32			
17B:															
Dela-----------------	0-17	5-18	1.30-1.60	14.00-42.00	0.10-0.15	4.0-11	---	5.1-7.3	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	17-42	5-18	1.50-1.70	14.00-42.00	0.10-0.20	4.0-11	---	5.1-7.3	0.0-2.9	0.0-0.5	.32	.32			
	42-80	5-18	1.50-1.70	14.00-42.00	0.07-0.15	4.0-11	---	5.1-7.3	0.0-2.9	0.0-0.5	.20	.20			
18B:															
Kenn-----------------	0-8	10-20	1.30-1.60	4.23-14.11	0.06-0.11	7.0-13	---	5.1-6.5	0.0-2.9	0.5-2.0	.17	.24	5	5	56
	8-39	20-30	1.45-1.70	4.23-14.11	0.06-0.18	---	13-18	4.5-5.5	3.0-5.9	0.0-1.0	.28	.32			
	39-51	20-30	1.45-1.70	4.23-14.11	0.02-0.10	---	13-18	4.5-5.5	3.0-5.9	0.0-0.5	.28	.32			
	51-72	10-25	1.40-1.70	4.23-14.11	0.02-0.05	---	7.0-15	4.5-5.5	0.0-2.9	0.0-0.5	.32	.37			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
											Kw	Kf	T		
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
19B:															
Kenn	0-8	10-20	1.30-1.60	4.23-14.11	0.08-0.10	7.0-13	---	5.1-6.5	0.0-2.9	0.5-2.0	.20	.24	5	8	0
	8-39	20-30	1.45-1.70	4.23-14.11	0.06-0.18	---	13-18	4.5-5.5	3.0-5.9	0.0-1.0	.28	.32			
	39-51	20-30	1.45-1.70	4.23-14.11	0.02-0.10	---	13-18	4.5-5.5	3.0-5.9	0.0-0.5	.28	.32			
	51-72	10-25	1.40-1.70	4.23-14.11	0.02-0.05	---	7.0-15	4.5-5.5	0.0-2.9	0.0-0.5	.32	.37			
Ceda	0-6	10-18	1.30-1.55	42.34-141.14	0.06-0.13	6.0-11	---	5.6-6.5	0.0-2.9	0.5-2.0	.24	.32	5	8	0
	6-20	15-32	1.40-1.70	42.34-141.14	0.02-0.16	---	---	5.6-6.5	0.0-2.9	---	.28	.32			
	20-39	15-32	1.40-1.70	42.34-141.14	0.06-0.13	9.0-20	---	5.6-6.5	0.0-2.9	0.0-0.5	.28	.32			
	39-64	15-32	1.40-1.70	42.34-141.14	0.02-0.16	---	---	5.6-6.5	0.0-2.9	---	.28	.32			
20C:															
Littlefir	0-4	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-12	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	12-23	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	23-30	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	30-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Bismarck	0-4	10-18	1.30-1.50	4.23-14.11	0.11-0.17	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	2	8	0
	4-8	10-18	1.30-1.55	4.23-14.11	0.07-0.17	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
21B, 22B:															
Mazarn	0-3	10-25	1.30-1.50	4.23-14.11	0.18-0.22	---	5.0-15	4.5-5.5	0.0-2.9	2.0-4.0	.37	.37	3	5	56
	3-12	18-35	1.30-1.60	1.41-14.11	0.16-0.20	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.37	.37			
	12-33	18-40	1.30-1.50	1.41-4.23	0.12-0.20	---	5.0-15	4.5-5.5	0.0-2.9	0.0-0.5	.32	.37			
	33-40	---	1.30-1.50	0.07-4.23	---	---	---	---	---	---	---	---			
23C:															
Mena	0-4	6-20	1.35-1.50	4.23-14.11	0.14-0.20	---	10-16	4.5-6.0	0.0-2.9	2.0-4.0	.37	.43	4	5	56
	4-10	10-27	1.30-1.50	4.23-14.11	0.12-0.20	---	4.0-10	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43			
	10-23	35-60	1.25-1.40	1.41-4.23	0.16-0.20	---	12-25	3.6-5.5	3.0-5.9	0.5-1.0	.32	.37			
	23-46	35-60	1.25-1.40	1.41-4.23	0.16-0.20	---	12-25	3.6-5.5	3.0-5.9	0.5-1.0	.32	.37			
	46-60	30-55	1.25-1.40	1.41-4.23	0.08-0.16	---	12-20	3.6-5.5	3.0-5.9	0.5-1.0	.28	.32			
	60-72	30-55	1.25-1.40	1.41-4.23	0.08-0.16	---	12-20	3.6-5.5	3.0-5.9	0.5-1.0	.28	.32			
	72-80	0-0	---	---	0.00-0.00	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
24C, 24D:															
Mena-----------------	0-4	6-20	1.35-1.50	4.23-14.11	0.12-0.16	---	10-16	4.5-6.0	0.0-2.9	2.0-4.0	.32	.43	4	5	56
	4-10	10-27	1.30-1.50	4.23-14.11	0.12-0.20	---	4.0-10	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43			
	10-23	35-60	1.25-1.40	1.41-4.23	0.16-0.20	---	12-25	3.6-5.5	3.0-5.9	0.5-1.0	.32	.37			
	23-46	35-60	1.25-1.40	1.41-4.23	0.16-0.20	---	12-25	3.6-5.5	3.0-5.9	0.5-1.0	.32	.37			
	46-60	30-55	1.25-1.40	1.41-4.23	0.08-0.16	---	12-20	3.6-5.5	3.0-5.9	0.5-1.0	.28	.32			
	60-72	30-55	1.25-1.40	1.41-4.23	0.08-0.16	---	12-20	3.6-5.5	3.0-5.9	0.5-1.0	.28	.32			
	72-80	0-0	---	---	0.00-0.00	---	---	---	---	---	---	---			
25F:															
Nashoba--------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.20	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Bismarck-------------	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
26B:															
Neff-----------------	0-5	15-26	1.30-1.55	4.23-14.11	0.14-0.20	---	10-16	4.5-6.0	0.0-2.9	0.5-3.0	.43	.43	5	6	48
	5-20	18-26	1.30-1.55	4.23-14.11	0.14-0.20	---	11-16	4.5-6.0	0.0-2.9	0.5-2.0	.43	.43			
	20-57	25-35	1.30-1.50	1.41-4.23	0.14-0.20	15-21	---	4.5-6.5	3.0-5.9	0.5-1.0	.32	.32			
	57-80	18-35	1.30-1.50	1.41-4.23	0.14-0.20	11-21	---	4.5-6.5	3.0-5.9	0.5-1.0	.32	.32			
27D, 27F:															
Octavia--------------	0-4	10-25	1.30-1.55	4.23-14.11	0.06-0.11	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	---	5	8	0
	4-7	10-25	1.30-1.60	4.23-14.11	0.07-0.14	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	---			
	7-11	10-25	1.35-1.60	4.23-14.11	0.08-0.16	---	7.0-16	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	11-28	20-35	1.40-1.60	4.23-14.11	0.12-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	28-72	35-60	1.35-1.60	1.41-4.23	0.12-0.19	---	21-36	4.5-5.5	3.0-5.9	0.0-1.0	.28	---			
	72-79	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Carnasaw-------------	0-4	15-26	1.30-1.60	4.23-14.11	0.10-0.16	---	9.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
28G:															
Octavia	0-4	10-25	1.30-1.55	4.23-14.11	0.06-0.11	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	---	5	8	0
	4-7	10-25	1.30-1.60	4.23-14.11	0.07-0.14	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	---			
	7-11	10-25	1.35-1.60	4.23-14.11	0.08-0.16	---	7.0-16	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	11-28	20-35	1.40-1.60	4.23-14.11	0.12-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	28-72	35-60	1.35-1.60	1.41-4.23	0.12-0.19	---	21-36	4.5-5.5	3.0-5.9	0.0-1.0	.28	---			
	72-79	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Carnasaw	0-4	10-26	1.30-1.60	4.23-14.11	0.06-0.12	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	4	8	0
	4-7	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	7-12	35-45	1.45-1.70	1.41-4.23	0.10-0.19	---	21-27	4.5-5.5	6.0-8.9	0.0-0.5	.37	.37			
	12-37	40-65	1.35-1.60	0.42-1.41	0.10-0.15	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	37-53	40-65	1.35-1.60	0.42-1.41	0.08-0.12	---	24-39	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	53-72	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
Caston	0-4	10-20	1.30-1.55	4.23-14.11	0.04-0.12	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.37	5	8	0
	4-8	10-20	1.30-1.55	4.23-14.11	0.06-0.13	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.24			
	8-21	15-20	1.40-1.60	4.23-14.11	0.05-0.13	---	10-12	4.5-5.5	0.0-2.9	0.0-0.5	.15	.37			
	21-72	20-35	1.45-1.60	4.23-14.11	0.08-0.12	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.24	.32			
29G:															
Octavia	0-4	10-25	1.30-1.55	4.23-14.11	0.06-0.11	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	---	5	8	0
	4-7	10-25	1.30-1.60	4.23-14.11	0.07-0.14	---	7.0-16	4.5-6.0	0.0-2.9	0.5-1.0	.24	---			
	7-11	10-25	1.35-1.60	4.23-14.11	0.08-0.16	---	7.0-16	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	11-28	20-35	1.40-1.60	4.23-14.11	0.12-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-1.0	.28	---			
	28-72	35-60	1.35-1.60	1.41-4.23	0.12-0.19	---	21-36	4.5-5.5	3.0-5.9	0.0-1.0	.28	---			
	72-79	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Caston	0-4	10-20	1.30-1.55	4.23-14.11	0.04-0.12	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.37	5	8	0
	4-8	10-20	1.30-1.55	4.23-14.11	0.06-0.13	7.0-12	---	5.1-7.3	0.0-2.9	0.5-1.0	.15	.24			
	8-21	15-20	1.40-1.60	4.23-14.11	0.05-0.13	---	10-12	4.5-5.5	0.0-2.9	0.0-0.5	.15	.37			
	21-72	20-35	1.45-1.60	4.23-14.11	0.08-0.12	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.24	.32			
Pirum	0-4	18-27	1.30-1.60	4.23-14.11	0.05-0.12	---	2.0-15	4.5-5.5	0.0-2.9	0.5-2.0	.17	.28	2	8	0
	4-7	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	7-11	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	11-36	18-35	1.25-1.60	4.23-14.11	0.11-0.18	---	2.0-10	4.5-5.5	0.0-2.9	0.2-0.5	.32	.32			
	36-40	0-0	---	1.41-4.23	0.00-0.00	---	---	---	---	---	---	---			
30C:															
Sherless	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24	3	5	56
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
31C:															
Sherless-------------	0-4	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24	3	5	56
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Littlefir------------	0-4	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-12	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	12-23	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	23-30	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	30-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
31D:															
Sherless-------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Littlefir------------	0-4	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-12	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	12-23	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	23-30	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	30-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			
31F:															
Sherless-------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Littlefir------------	0-4	10-20	1.30-1.60	4.23-14.11	0.13-0.20	---	6.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	3	8	0
	4-7	10-20	1.30-1.60	4.23-14.11	0.11-0.16	---	7.0-12	4.5-6.0	0.0-2.9	0.5-2.0	.28	.28			
	7-12	27-50	1.30-1.60	1.41-14.11	0.08-0.17	---	16-30	4.5-5.5	3.0-5.9	0.5-1.0	.28	.28			
	12-23	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	23-30	40-60	1.25-1.50	0.42-1.41	0.13-0.18	---	24-36	4.5-5.5	6.0-8.9	0.0-0.5	.32	.32			
	30-40	---	1.85-2.00	0.00-1.41	---	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
32C:															
Sherless-------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Nashoba--------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
32D:															
Sherless-------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Nashoba--------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
33F:															
Sherless-------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	3	8	0
	4-10	5-18	1.30-1.60	14.11-42.34	0.08-0.13	4.0-11	---	4.5-7.3	0.0-2.9	0.5-1.0	.20	.24			
	10-21	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	21-34	20-35	1.45-1.70	4.23-14.11	0.09-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.28	.32			
	34-38	10-27	1.30-1.60	4.23-14.11	0.08-0.17	---	2.0-10	4.5-5.5	0.0-2.9	0.5-1.0	.24	.32			
	38-45	---	1.85-2.00	1.41-14.11	---	---	---	---	---	---	---	---			
Nashoba--------------	0-4	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24	2	8	0
	4-24	10-18	1.30-1.60	14.11-42.34	0.05-0.14	7.0-11	---	5.1-6.0	0.0-2.9	0.5-1.0	.17	.24			
	24-36	10-18	1.40-1.70	14.11-42.34	0.02-0.12	7.0-11	---	5.1-6.0	0.0-2.9	0.0-0.5	.17	.24			
	36-40	---	1.85-2.35	1.41-14.11	---	---	---	---	---	---	---	---			
Bismarck-------------	0-4	10-18	1.30-1.50	4.23-14.11	0.10-0.16	---	5.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43	2	8	0
	4-8	10-18	1.30-1.50	4.23-14.11	0.07-0.16	---	2.0-15	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	8-14	12-20	1.30-1.50	4.23-14.11	0.03-0.13	---	2.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.28	.43			
	14-20	0-0	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
34B, 35B:															
Speer----------------	0-3	12-18	1.30-1.60	4.23-14.11	0.11-0.15	8.0-11	---	5.1-7.3	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	3-10	12-18	1.30-1.60	4.23-14.11	0.11-0.15	8.0-11	---	5.1-7.3	0.0-2.9	0.5-1.0	.24	.24			
	10-39	15-22	1.40-1.65	4.23-14.11	0.11-0.20	---	10-14	4.5-6.0	0.0-2.9	0.0-1.0	.32	.32			
	39-51	20-30	1.40-1.70	4.23-14.11	0.12-0.20	---	13-18	4.5-6.0	0.0-2.9	0.0-0.5	.28	.28			
	51-61	15-22	1.40-1.65	4.23-14.11	0.11-0.20	---	10-14	4.5-6.0	0.0-2.9	0.0-1.0	.32	.32			
	61-89	12-18	1.40-1.70	4.23-14.11	0.11-0.20	8.0-11	---	4.5-6.5	0.0-2.9	0.0-0.5	.28	.37			
36.															
Water															
37C:															
Wetsaw---------------	0-6	8-20	1.30-1.55	4.23-14.11	0.14-0.19	6.0-12	---	5.1-6.5	0.0-2.9	0.5-2.0	.24	.32	5	5	56
	6-14	5-15	1.35-1.55	4.23-14.11	0.08-0.18	4.0-10	---	5.1-6.5	0.0-2.9	0.5-1.0	.24	.32			
	14-20	20-35	1.40-1.65	4.23-14.11	0.08-0.18	---	12-21	4.5-5.5	0.0-2.9	0.0-0.5	.32	.43			
	20-34	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	34-44	25-40	1.35-1.50	4.23-14.11	0.11-0.18	---	5.0-25	4.5-5.5	0.0-2.9	0.5-1.0	.28	.32			
	44-72	20-55	1.40-1.70	4.23-14.11	0.08-0.15	---	12-33	4.5-5.5	3.0-5.9	0.0-0.5	.32	.37			
38C:															
Wilburton------------	0-4	10-25	1.30-1.60	14.11-42.34	0.06-0.11	6.0-15	---	5.1-6.5	0.0-2.9	0.5-2.0	.20	.37	4	8	0
	4-12	10-30	1.40-1.65	4.23-14.11	0.06-0.16	6.0-18	---	5.1-6.5	0.0-2.9	0.5-1.0	.28	.37			
	12-31	20-30	1.40-1.65	4.23-14.11	0.05-0.11	---	12-18	4.5-6.0	0.0-2.9	0.5-1.0	.28	.37			
	31-51	20-30	1.40-1.65	4.23-14.11	0.05-0.11	---	12-18	4.5-6.0	0.0-2.9	0.5-1.0	.28	.37			
	51-58	20-30	1.40-1.65	4.23-14.11	0.05-0.11	---	12-18	4.5-6.0	0.0-2.9	0.5-1.0	.28	.37			
	58-72	15-30	1.40-1.65	4.23-14.11	0.05-0.11	9.0-18	---	5.1-6.5	0.0-2.9	0.5-1.0	.28	.37			
39C, 39D:															
Yanush---------------	0-5	18-26	1.30-1.55	4.23-14.11	0.11-0.16	11-16	---	5.1-6.5	0.0-2.9	0.5-2.0	.28	---	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-18	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	18-36	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
40G:															
Yanush---------------	0-5	10-26	1.30-1.60	4.23-14.11	0.08-0.18	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-18	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	18-36	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
40G:															
Avant	0-4	5-20	1.30-1.60	4.23-14.11	0.06-0.11	---	5.0-15	4.5-6.0	0.0-2.9	2.0-4.0	.24	.43	2	8	0
	4-9	5-20	1.30-1.60	4.23-14.11	0.06-0.11	---	3.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	9-14	10-25	1.25-1.55	4.23-14.11	0.06-0.11	---	5.0-15	4.5-6.0	0.0-2.9	0.5-1.0	.24	.43			
	14-22	15-35	1.20-1.50	4.23-14.11	0.06-0.11	---	5.0-25	4.5-6.0	0.0-2.9	0.0-0.5	.20	.37			
	22-37	15-35	1.20-1.50	4.23-14.11	0.06-0.11	---	5.0-25	4.5-6.0	0.0-2.9	0.0-0.5	.20	.37			
	37-40	---	---	0.07-4.23	0.00-0.00	---	---	---	---	---	---	---			
41F:															
Yanush	0-5	15-26	1.30-1.60	4.23-14.11	0.10-0.16	---	9.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.32	.43	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-18	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	18-36	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
Bigfork	0-5	15-26	1.30-1.55	4.23-14.11	0.02-0.12	3.0-10	---	5.1-6.5	0.0-2.9	0.5-2.0	.15	.37	2	8	0
	5-9	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	9-38	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	38-40	---	1.85-2.35	0.00-0.07	---	---	---	---	---	---	---	---			
41G:															
Yanush	0-5	10-26	1.30-1.60	4.23-14.11	0.06-0.12	---	7.0-16	4.5-6.0	0.0-2.9	0.5-2.0	.24	.43	5	8	0
	5-12	15-26	1.35-1.60	4.23-14.11	0.08-0.16	---	10-16	4.5-6.0	0.0-2.9	0.5-1.0	.28	---			
	12-18	27-35	1.30-1.50	4.23-14.11	0.06-0.13	---	17-21	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	18-36	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
	36-72	27-40	1.30-1.50	4.23-14.11	0.06-0.13	---	17-24	4.5-6.0	3.0-5.9	0.0-0.5	.28	---			
Bigfork	0-5	15-26	1.30-1.55	4.23-14.11	0.02-0.12	3.0-10	---	5.1-6.5	0.0-2.9	0.5-2.0	.15	.37	2	8	0
	5-9	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	9-38	27-35	1.45-1.70	4.23-14.11	0.02-0.11	---	5.0-15	4.5-6.0	3.0-5.9	0.0-0.5	.15	.32			
	38-40	---	1.85-2.35	0.00-0.07	---	---	---	---	---	---	---	---			

Table 17.--Soil Features

(See text for definitions of terms used in this table. Only the soils with a restrictive layer are listed.)

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top
		In
1CD:		
Avant	Bedrock (lithic)	20-40
4D, 4F:		
Bengal	Bedrock (paralithic)	20-40
Bismarck	Bedrock (paralithic)	10-20
Yanush.		
5CD:		
Bigfork	Bedrock (lithic)	20-40
Rock outcrop.		
6G:		
Bigfork	Bedrock (lithic)	20-40
Yanush.		
Rock outcrop.		
7C:		
Bismarck	Bedrock (paralithic)	10-20
8D, 8F:		
Bismarck	Bedrock (paralithic)	10-20
Littlefir	Bedrock (paralithic)	20-50
9G:		
Bismarck	Bedrock (paralithic)	10-20
Bengal	Bedrock (paralithic)	20-40
Bigfork	Bedrock (lithic)	20-40
10C, 10D:		
Bismarck	Bedrock (paralithic)	10-20
Nashoba	Bedrock (lithic)	20-40
Sherless	Bedrock (paralithic)	20-40
11CD:		
Carnasaw	Bedrock (paralithic)	40-60
Pirum	Bedrock (lithic)	22-50

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top
		In
12D, 12F:		
Carnasaw	Bedrock (paralithic)	40-60
Sherless	Bedrock (paralithic)	20-40
13G:		
Caston.		
Clebit	Bedrock (lithic)	10-20
Octavia.		
15CD, 15F:		
Clebit	Bedrock (lithic)	10-20
Carnasaw	Bedrock (paralithic)	40-60
Pirum	Bedrock (lithic)	22-50
20C:		
Littlefir	Bedrock (paralithic)	20-50
Bismarck	Bedrock (paralithic)	10-20
21B, 22B:		
Mazarn	Bedrock (paralithic)	20-40
25F:		
Nashoba	Bedrock (lithic)	20-40
Bismarck	Bedrock (paralithic)	10-20
27D, 27F:		
Octavia.		
Carnasaw	Bedrock (paralithic)	40-60
28G:		
Octavia.		
Carnasaw	Bedrock (paralithic)	40-60
Caston.		
29G:		
Octavia.		
Caston.		
Pirum	Bedrock (lithic)	22-50
30C:		
Sherless	Bedrock (paralithic)	20-40

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top
		In
31C, 31D, 31F:		
Sherless	Bedrock (paralithic)	20-40
Littlefir	Bedrock (paralithic)	20-50
32C, 32D:		
Sherless	Bedrock (paralithic)	20-40
Nashoba	Bedrock (lithic)	20-40
33F:		
Sherless	Bedrock (paralithic)	20-40
Nashoba	Bedrock (lithic)	20-40
Bismarck	Bedrock (paralithic)	10-20
40G:		
Yanush.		
Avant	Bedrock (lithic)	20-40
41F, 41G:		
Yanush.		
Bigfork	Bedrock (lithic)	20-40

Table 18.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
1CD:						
Avant	B					
		Jan-Dec	---	---	---	None
2C, 3C:						
Avilla	B					
		Jan-Dec	---	---	---	None
4D, 4F:						
Bengal	C					
		Jan-Dec	---	---	---	None
Bismarck	D					
		Jan-Dec	---	---	---	None
Yanush	B					
		Jan-Dec	---	---	---	None
5CD:						
Bigfork	C					
		Jan-Dec	---	---	---	None
Rock outcrop.						
		Jan-Dec	---	---	---	None
6G:						
Bigfork	C					
		Jan-Dec	---	---	---	None
Yanush	B					
		Jan-Dec	---	---	---	None
Rock outcrop.						
		Jan-Dec	---	---	---	None
7C:						
Bismarck	D					
		Jan-Dec	---	---	---	None
8D, 8F:						
Bismarck	D					
		Jan-Dec	---	---	---	None
Littlefir	C					
		Jan-Dec	---	---	---	None
9G:						
Bismarck	D					
		Jan-Dec	---	---	---	None
Bengal	C					
		Jan-Dec	---	---	---	None
Bigfork	C					
		Jan-Dec	---	---	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
10C, 10D:						
Bismarck	D					
		Jan-Dec	---	---	---	None
Nashoba	C					
		Jan-Dec	---	---	---	None
Sherless	B					
		Jan-Dec	---	---	---	None
11CD:						
Carnasaw	C					
		Jan-Dec	---	---	---	None
Pirum	B					
		Jan-Dec	---	---	---	None
12D, 12F:						
Carnasaw	C					
		Jan-Dec	---	---	---	None
Sherless	B					
		Jan-Dec	---	---	---	None
13G:						
Caston	B					
		Jan-Dec	---	---	---	None
Clebit	D					
		Jan-Dec	---	---	---	None
Octavia	B					
		Jan-Dec	---	---	---	None
14B:						
Ceda	B					
		Jan-May	---	---	Very brief	Frequent
		Jun-Nov	---	---	---	None
		Dec	---	---	Very brief	Frequent
15CD, 15F:						
Clebit	D					
		Jan-Dec	---	---	---	None
Carnasaw	C					
		Jan-Dec	---	---	---	None
Pirum	B					
		Jan-Dec	---	---	---	None
16B:						
Cupco	C					
		Jan-May	0.5-2.0	1.0-2.5	---	Rare
		Jun-Oct	---	---	---	None
		Nov	0.5-2.0	1.0-2.5	---	None
		Dec	0.5-2.0	1.0-2.5	---	Rare
17B:						
Dela	B					
		Jan-May	3.0-5.0	>6.0	Very brief	Occasional
		Jun-Oct	---	---	---	None
		Nov-Dec	3.0-5.0	>6.0	Very brief	Occasional

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
18B:						
Kenn	B					
		Jan-May	---	---	Very brief	Occasional
		Jun-Nov	---	---	---	None
		Dec	---	---	Very brief	Occasional
19B:						
Kenn	B					
		Jan-May	---	---	Very brief	Frequent
		Jun-Nov	---	---	---	None
		Dec	---	---	Very brief	Frequent
Ceda	B					
		Jan-May	---	---	Very brief	Frequent
		Jun-Nov	---	---	---	None
		Dec	---	---	Very brief	Frequent
20C:						
Littlefir	C					
		Jan-Dec	---	---	---	None
Bismarck	D					
		Jan-Dec	---	---	---	None
21B:						
Mazarn	C					
		Jan-May	1.0-2.0	2.5-3.4	---	None
		Jun-Nov	---	---	---	None
		Dec	1.0-2.0	2.5-3.4	---	None
22B:						
Mazarn	C					
		Jan-May	1.0-2.0	2.5-3.4	Brief	Occasional
		Jun-Nov	---	---	---	None
		Dec	1.0-2.0	2.5-3.4	Brief	Occasional
23C, 24C, 24D:						
Mena	C					
		Jan-Apr	2.0-3.0	3.0-4.0	---	None
		May-Nov	---	---	---	None
		Dec	2.0-3.0	3.0-4.0	---	None
25F:						
Nashoba	C					
		Jan-Dec	---	---	---	None
Bismarck	D					
		Jan-Dec	---	---	---	None
26B:						
Neff	C					
		Jan-May	1.5-2.5	2.0-3.0	---	Rare
		Jun-Oct	---	---	---	None
		Nov	1.5-2.5	2.0-3.0	---	None
		Dec	1.5-2.5	2.0-3.0	---	Rare

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
27D:						
Octavia	B					
		Jan-Jun	3.5-5.0	4.0-6.0	---	None
		Jul-Oct	---	---	---	None
		Nov-Dec	3.5-5.0	4.0-6.0	---	None
Carnasaw	C					
		Jan-Dec	---	---	---	None
27F:						
Octavia	B					
		Jan-Dec	---	---	---	None
Carnasaw	C					
		Jan-Dec	---	---	---	None
28G:						
Octavia	B					
		Jan-Dec	---	---	---	None
Carnasaw	C					
		Jan-Dec	---	---	---	None
Caston	B					
		Jan-Dec	---	---	---	None
29G:						
Octavia	B					
		Jan-Dec	---	---	---	None
Caston	B					
		Jan-Dec	---	---	---	None
Pirum	B					
		Jan-Dec	---	---	---	None
30C:						
Sherless	B					
		Jan-Dec	---	---	---	None
31C, 31D, 31F:						
Sherless	B					
		Jan-Dec	---	---	---	None
Littlefir	C					
		Jan-Dec	---	---	---	None
32C, 32D:						
Sherless	B					
		Jan-Dec	---	---	---	None
Nashoba	C					
		Jan-Dec	---	---	---	None
33F:						
Sherless	B					
		Jan-Dec	---	---	---	None
Nashoba	C					
		Jan-Dec	---	---	---	None
Bismarck	D					
		Jan-Dec	---	---	---	None

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
34B:						
Speer	B					
		Jan-May	---	---	---	Rare
		Jun-Nov	---	---	---	None
		Dec	---	---	---	Rare
35B:						
Speer	B					
		Jan-May	---	---	Very brief	Occasional
		Jun-Nov	---	---	---	None
		Dec	---	---	Very brief	Occasional
36:						
Water.						
37C:						
Wetsaw	C					
		Jan-May	1.5-2.5	>6.0	---	None
		Jun-Oct	---	---	---	None
		Nov-Dec	1.5-2.5	>6.0	---	None
38C:						
Wilburton	B					
		Jan-Dec	---	---	---	None
39C:						
Yanush	B					
		Jan-Dec	---	---	---	None
39D:						
Yanush	B					
		Jan-Dec	---	---	---	None
40G:						
Yanush	B					
		Jan-Dec	---	---	---	None
Avant	B					
		Jan-Dec	---	---	---	None
41F, 41G:						
Yanush	B					
		Jan-Dec	---	---	---	None
Bigfork	C					
		Jan-Dec	---	---	---	None

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(6)*. 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 on laboratory measurements.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplaquents (*Hapl*, meaning minimal horizonation, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

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

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

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

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other 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” *(7)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(8)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series as they occur in the survey area.

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

Avant Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum from highly fractured chert
Landform position: Hills and mountains underlain with chert bedrock
Commonly associated soils: Bengal, Bigfork, Bismarck, Carnasaw, Yanush
Slope range: 3 to 60 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Avant very cobbly silt loam (fig. 16), 3 to 15 percent slopes, SW1/4SW1/4SE1/4 sec. 2, T. 3 S., R. 28 W.; USGS Pine Ridge topographic quadrangle; latitude 34 degrees 30 minutes 30 seconds N.; longitude 94 degrees 57 minutes 30 seconds W.; elevation 1,200 feet.

A—0 to 4 inches; dark grayish brown (10YR 4/2) very cobbly silt loam; weak fine granular structure; friable; common fine and many medium roots; few fine pores; about 40 percent, by volume, angular chert fragments up to 10 inches in diameter; moderately acid; clear smooth boundary.

E—4 to 9 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak medium granular structure; friable; common fine and medium roots; about 40 percent, by volume, angular chert fragments less than 3 inches in diameter; strongly acid; clear smooth boundary.

BE—9 to 14 inches; yellowish brown (10YR 5/6) very gravelly silt loam; weak fine subangular blocky structure; friable; common medium roots; about 40 percent, by volume, angular chert fragments less than 3 inches in diameter; strongly acid; gradual wavy boundary.

Bt1—14 to 22 inches; strong brown (7.5YR 5/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; few medium roots; common faint clay films on faces of peds; about 40 percent, by volume, angular chert fragments less than 3 inches in diameter; very strongly acid; clear smooth boundary.

Bt2—22 to 37 inches; yellowish red (5YR 5/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; few medium roots; common faint clay films on faces of peds; about 50 percent, by volume, angular chert fragments less than 3 inches in diameter; very strongly acid; abrupt irregular boundary.

R/C—37 to 40 inches; R material consists of highly fractured chert with thin strata of C material in the fractures; C material consists of thin strata of yellowish red (5YR 5/6) and gray (10YR 6/1) clay loam that is very strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter.

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable within short distances due to the irregular boundary between the lower Bt horizon and the underlying tilted bedrock. This is because of faulting and folding.

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—very cobbly silt loam
Rock fragments—35 to 60 percent chert less than 10 inches
Reaction—moderately acid or strongly acid

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—very gravelly silt loam or very cobbly silt loam
Rock fragments—35 to 60 percent chert less than 10 inches
Reaction—moderately acid or strongly acid

BE horizon:
Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4 or 6
Texture—very gravelly silt loam or very cobbly silt loam
Rock fragments—35 to 60 percent chert less than 10 inches
Reaction—moderately acid or strongly acid

Bt horizon:
Color—hue of 7.5YR, value of 5, and chroma of 4 or 6; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8
Texture—very gravelly silty clay loam, very gravelly silt loam, very gravelly loam, or their very cobbly or extremely gravelly analogs
Rock fragments—35 to 90 percent chert less than 10 inches
Reaction—moderately acid to very strongly acid

R/C horizon:
Consists of alternating strata of highly fractured, hard chert bedrock and fine earth material tilted with a dip ranging from 30 degrees to near vertical. The R material is typically highly fractured, hard chert bedrock. The fine earth or C material has stratified texture ranging from clay to very fine sandy loam. Colors are in shades of brown, gray, red, or yellow.

Avilla Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Gravelly and loamy alluvium
Landform position: Stream terraces
Commonly associated soils: Ceda, Cupco, Kenn, Mazarn, Mena, Speer, Wetsaw, Wilburton, Yanush
Slope range: 1 to 6 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Avilla fine sandy loam, 1 to 6 percent slopes, NE1/4NW1/4SW1/4 sec. 8, T. 2 S., R. 28 W.; USGS Board

Camp topographic quadrangle; latitude 34 degrees 35 minutes 30 seconds N.; longitude 94 degrees 1 minute 0 seconds W.; elevation 900 feet.

Ap—0 to 3 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine roots; few fine pores; moderately acid; abrupt smooth boundary.

BA—3 to 7 inches; strong brown (7.5YR 5/6) loam; weak fine subangular blocky structure; friable; common fine roots; few fine pores; strongly acid; clear smooth boundary.

Bt1—7 to 21 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; common fine roots; strongly acid; clear smooth boundary.

Bt2—21 to 43 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds and in pore linings; few fine roots; strongly acid; gradual smooth boundary.

Bt3—43 to 56 inches; red (2.5YR 4/6) gravelly clay loam; common medium prominent yellowish brown (10YR 5/6) iron accumulations and few fine prominent light brownish gray (10YR 6/2) iron depletions; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds and in pore linings; about 15 percent, by volume, rounded sandstone fragments less than 3 inches in diameter; very strongly acid; gradual smooth boundary.

BC—56 to 72 inches; red (2.5YR 4/6), yellowish red (10YR 5/6), and light brownish gray (10YR 6/2) very gravelly clay loam; weak medium subangular blocky structure; friable; about 40 percent, by volume, rounded sandstone fragments less than 3 inches in diameter; very strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter.

Solum thickness and depth to bedrock: 60 to more than 80 inches

A horizon:

Color—hue of 10YR, value of 4, and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4
Texture—fine sandy loam or gravelly fine sandy loam
Rock fragments—0 to 25 percent sandstone less than 3 inches
Reaction—moderately acid or strongly acid, except where amendments have been applied

E horizon (where present):

Color—hue of 10YR, value of 5, and chroma of 3 or 4
Texture—fine sandy loam or very fine sandy loam
Rock fragments—0 to 15 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid, except where amendments have been applied

BA horizon:

Color—hue of 7.5YR, value of 5, and chroma of 4, 6, or 8, or value of 4 and chroma of 4
Texture—fine sandy loam, loam, or silt loam
Rock fragments—0 to 15 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

Bt1 horizon:

Color—hue of 5YR or 7.5YR, value of 5, and chroma of 6 or 8
Texture—clay loam, loam, or sandy clay loam
Rock fragments—0 to 15 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

Bt2 horizon:

Color—hue of 2.5YR, value of 4, and chroma of 6 or 8; or hue of 5YR or 7.5YR, value of 5, and chroma of 6 or 8
Texture—clay loam or sandy clay loam
Rock fragments—0 to 15 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

Bt3 horizon:

Color—hue of 2.5YR, value of 4, and chroma of 6 or 8; or hue of 5YR, value of 5, and chroma of 6 or 8
Texture—clay loam, sandy clay loam, or their gravelly analogs
Redoximorphic features—iron depletions and accumulations are in shades of gray and brown
Rock fragments—0 to 35 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

BC horizon:

Color—hue of 2.5YR, value of 4, and chroma of 6 or 8; or hue of 5YR, value of 5, and chroma of 6 or 8; or variegated in shades of red, brown, yellow, and gray
Texture—gravelly clay loam, gravelly sandy clay loam, very gravelly clay loam, or very gravelly sandy clay loam
Redoximorphic features—iron depletions and accumulations are in shades of gray and brown
Rock fragments—15 to 60 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

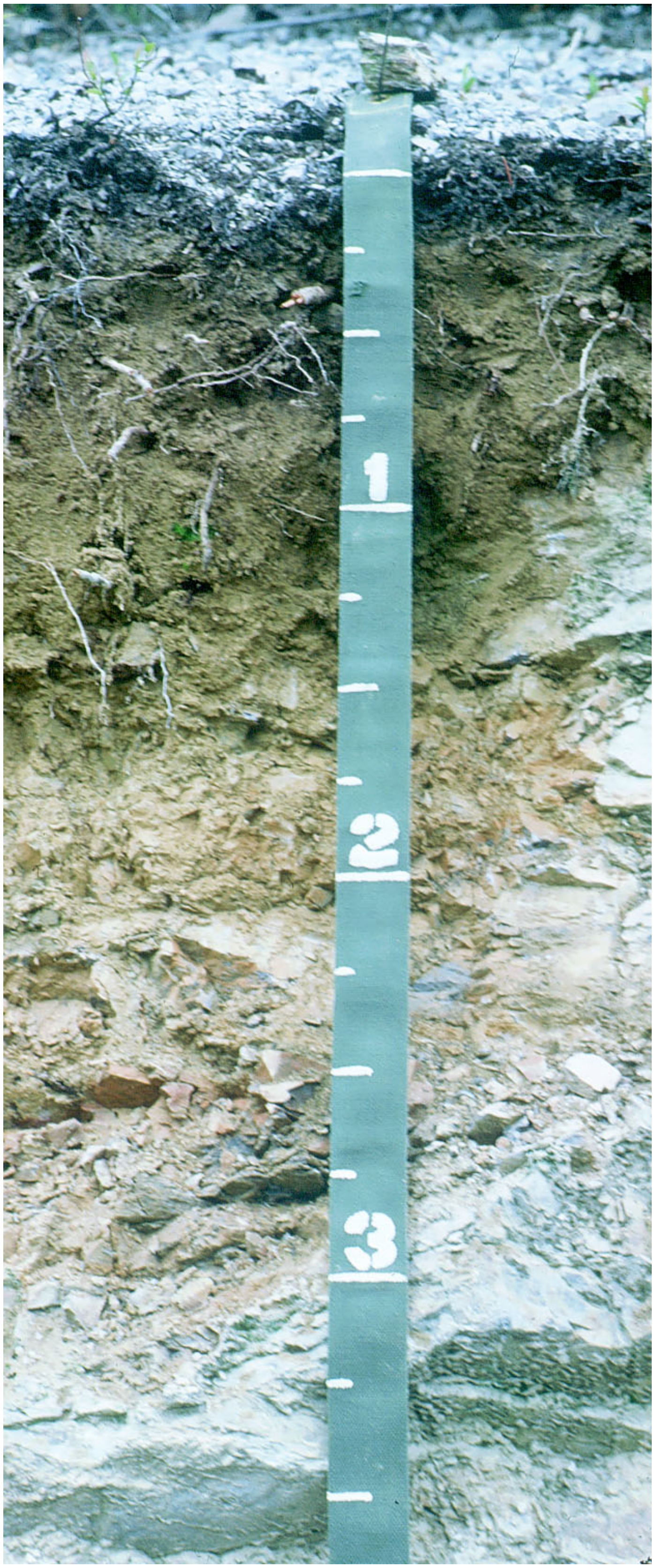

Figure 16.—Typical pedon of Avant very cobbly silt loam.

Figure 17.—Typical pedon of Bengal cobbly loam.

Bengal Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Parent material: Loamy colluvium over residual shale
Landform position: Hills and mountains
Commonly associated soils: Avant, Bigfork, Bismarck, Carnasaw, Yanush
Slope range: 8 to 60 percent
Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Bengal cobbly loam (fig. 17), in an area of Bismarck-Bengal-Bigfork complex, 35 to 60 percent slopes, extremely stony, NW1/4SE1/4SE1/4 sec. 17, T. 3 S., R. 28 W.; Nichols Mountain USGS topographic quadrangle; latitude 34 degrees 29 minutes 30 seconds N.; longitude 94 degrees 0 minutes 30 seconds W.; elevation 1,340 feet.

A—0 to 4 inches; brown (10YR 4/3) cobbly loam; weak fine granular structure; friable; many fine and medium and common coarse roots; common fine pores; about 30 percent, by volume, chert fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.

E—4 to 7 inches; brown (7.5YR 5/4) gravelly loam; weak fine subangular blocky structure; friable; common fine and medium and few coarse roots; common fine pores; about 25 percent, by volume, chert fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

Bt1—7 to 14 inches; yellowish red (5YR 5/8) gravelly clay loam; moderate fine and medium subangular blocky structure; friable; few fine and medium and few coarse roots; common distinct clay films on faces of peds and lining pores; about 25 percent, by volume, chert fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

2Bt2—14 to 24 inches; yellowish red (5YR 5/8) silty clay with common medium distinct yellowish brown (10YR 5/6) iron accumulations; moderate medium subangular blocky structure; firm; few fine and medium roots; few fine pores; many distinct clay films on faces of peds and lining pores; about 10 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; clear smooth boundary.

2Bt3—24 to 32 inches; yellowish red (5YR 5/8) channery silty clay with common fine distinct yellowish brown (10YR 5/6) iron accumulations and few fine prominent gray (10YR 6/1) iron depletions; moderate medium and coarse subangular blocky structure; firm; few fine pores; many distinct clay films on faces of peds; about 15 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; diffuse wavy boundary.

2BC—32 to 37 inches; yellowish red (5YR 5/8), red (2.5YR 4/6), and gray (10YR 6/1) channery silty clay; moderate medium and coarse subangular blocky structure; firm; about 30 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; diffuse irregular boundary.

2Cr—37 to 40 inches; red (2.5YR 4/6), yellowish red (5YR 5/8), and gray (10YR 6/1) fractured and tilted, soft, acid shale.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable within short distances due to the irregular boundary between the lower 2Bt or 2BC horizon and the underlying tilted bedrock

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4
Texture—cobbly silt loam or cobbly loam
Rock fragments—15 to 35 percent sandstone or chert less than 24 inches
Reaction—moderately acid or strongly acid

E horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—silt loam, loam, or their gravelly, cobbly, or channery analogs
Rock fragments—5 to 35 percent sandstone or chert less than 10 inches or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

Bt1 horizon:
Color—hue of 5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8
Texture—clay loam, silty clay loam, or their gravelly or channery analogs
Rock fragments—5 to 35 percent sandstone or chert less than 3 inches or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

2Bt horizon:
Color—hue of 5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8; or hue of 7.5YR, value of 4 or 5, and chroma of 4, 6, or 8
Texture—silty clay, silty clay loam, clay loam, clay, or their gravelly or channery analogs

Redoximorphic features—iron depletions and accumulations are in shades of gray, yellow, and brown
Rock fragments—0 to 20 percent sandstone or chert less than 3 inches or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

2BC horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8; or variegated in shades of red, yellow, brown, and gray
Texture—silty clay, clay, or their channery analogs
Redoximorphic features—iron depletions and iron accumulations in shades of gray, brown, and red
Rock fragments—0 to 30 percent shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

2Cr horizon:
Consists of soft, fractured, and tilted shale in various shades of red, brown, and gray. Thin strata of sandstone or chert and/or novaculite may occur in some pedons. This parent material may contain seams and/or pockets of soil material deeper than 40 inches.

Bigfork Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum from novaculite
Landform position: Mountains
Commonly associated soils: Avant, Bengal, Bismarck, Yanush
Slope range: 3 to 60 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Bigfork very stony loam, in an area of Yanush-Bigfork complex, 35 to 60 percent slopes, rubbly, NE1/4SE1/4NW1/4 sec. 28, T. 3 S., R. 29 W.; Nichols Mountain USGS topographic quadrangle; latitude 34 degrees 27 minutes 30 seconds N.; longitude 94 degrees 6 minutes 0 seconds W.; elevation 1,600 feet.

A—0 to 5 inches; brown (10YR 4/3) very stony loam; weak fine granular structure; friable; many fine and medium roots; few fine pores; about 40 percent, by volume, novaculite fragments up to 24 inches in diameter; strongly acid; clear smooth boundary.

E—5 to 9 inches; yellowish brown (10YR 5/4) very cobbly loam; weak fine subangular blocky structure; friable; common fine and medium roots; about 40 percent, by volume, novaculite fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.

Bt—9 to 38 inches; strong brown (7.5YR 5/8) very cobbly silty clay loam; moderate medium subangular blocky structure; firm; common medium roots; common faint clay films on faces of peds; about 50 percent, by volume, novaculite fragments up to 10 inches in diameter; very strongly acid; abrupt irregular boundary.

R—38 to 40 inches; tilted, hard novaculite bedrock.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable due to the irregular boundary between the Bt horizon and the underlying tilted bedrock

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—stony loam, very stony loam, extremely stony loam, or cobbly loam
Rock fragments—15 to 80 percent novaculite up to 24 inches
Reaction—slightly acid to strongly acid

E horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—very cobbly loam, cobbly silt loam, very cobbly silt loam, or very gravelly silt loam
Rock fragments—15 to 60 percent novaculite less than 10 inches
Reaction—slightly acid to strongly acid

Bt horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8
Texture—very gravelly clay loam, very cobbly clay loam, very stony clay loam, very gravelly silty clay loam, very cobbly silty clay loam, or very stony silty clay loam
Rock fragments—35 to 60 percent novaculite up to 24 inches
Reaction—moderately acid to very strongly acid

R layer:
Consists of novaculite that is typically hard, massive, and tilted 20 to 60 degrees from the horizontal

Bismarck Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderate
Parent material: Shale
Landform position: Hills, ridges, and mountains
Commonly associated soils: Avant, Bengal, Bigfork, Carnasaw, Littlefir, Mazarn, Mena, Nashoba, Sherless, Yanush
Slope range: 1 to 60 percent
Taxonomic class: Loamy-skeletal, mixed, semiactive, thermic, shallow Typic Dystrochrepts

Typical Pedon

Bismarck gravelly silt loam (fig. 18), 3 to 8 percent slopes, NE$^1/_4$NW$^1/_4$SE$^1/_4$ sec. 9, T. 2 S., R. 29 W.; Board Camp USGS topographic quadrangle; latitude 34 degrees 35 minutes 15 seconds N.; longitude 94 degrees 5 minutes 30 seconds W.; elevation 960 feet.

Ap—0 to 4 inches; very dark grayish brown (10YR 3/2) gravelly silt loam; weak fine granular structure; friable; few fine pores; about 20 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; abrupt smooth boundary.
E—4 to 8 inches; brown (10YR 4/3) channery silt loam; weak fine subangular blocky structure; friable; few fine roots; few fine pores; about 30 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; abrupt wavy boundary.
Bw—8 to 14 inches; strong brown (7.5YR 5/6) very channery silt loam; weak medium subangular blocky structure; friable; few fine pores; about 55 percent, by volume, shale fragments less than 6 inches in length; extremely acid; clear wavy boundary.
Cr—14 to 20 inches; very dark gray and brown fractured and tilted, soft, acid shale.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 10 to 20 inches; may be extremely variable due to the irregular boundary between the Bw horizon and the underlying tilted bedrock

Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4
Texture—gravelly silt loam, cobbly silt loam, or stony silt loam
Rock fragments—15 to 35 percent sandstone, chert, or novaculite less than 24 inches
Reaction—strongly acid or very strongly acid, except where amendments have been applied

E horizon:
Color—hue of 10YR, value of 4, 5, or 6, and chroma of 3 or 4; or hue of 7.5YR, value of 4 or 5, and chroma of 4
Texture—channery silt loam, gravelly silt loam, or their very channery or very gravelly analogs
Rock fragments—15 to 60 percent of sandstone, chert, or novaculite less than 3 inches, or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 or 6
Texture—very channery silt loam or extremely channery silt loam
Rock fragments—35 to 85 percent shale less than 6 inches in length
Reaction—strongly acid to extremely acid

Cr horizon:
Consists of fractured and tilted, soft, acid shale with or without thin strata of interbedded sandstone and/or siltstone. This parent material is in various shades of gray, brown, yellow, and red, and may contain seams and/or pockets of soil material deeper than 20 inches.

Carnasaw Series

Depth class: Deep
Drainage class: Well drained
Permeability: Slow
Parent material: Residuum from shale
Landform position: Mountains
Commonly associated soils: Avant, Bengal, Bismarck, Caston, Clebit, Littlefir, Octavia, Pirum, Sherless, Yanush
Slope range: 3 to 60 percent
Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Carnasaw cobbly silt loam, in an area of Carnasaw-Sherless complex, 8 to 15 percent slopes, SE$^1/_4$SE$^1/_4$SE$^1/_4$ sec. 10, T. 1 S., R. 29 W.; Y City USGS topographic quadrangle; latitude 34 degrees 40 minutes 15 seconds N.; longitude 94 degrees 4 minutes 30 seconds W.; elevation 1,400 feet.

A—0 to 4 inches; brown (10YR 4/3) cobbly silt loam; weak fine granular structure; friable; common fine and

Figure 18.—Typical pedon of Bismarck gravelly silt loam.

Figure 19.—Typical pedon of Ceda very cobbly fine sandy loam.

medium roots; common fine pores; about 15 percent, by volume, sandstone fragments up to 10 inches in diameter; very strongly acid; abrupt smooth boundary.

E—4 to 7 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak fine subangular blocky structure; friable; common fine and medium roots; common fine pores; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear smooth boundary.

Bt1—7 to 12 inches; yellowish red (5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear smooth boundary.

Bt2—12 to 24 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear smooth boundary.

Bt3—24 to 37 inches; red (2.5YR 4/6) clay with common medium prominent strong brown (7.5YR 5/8) mottles; strong medium angular blocky structure; firm; many distinct clay films on faces of peds; about 5 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; clear smooth boundary.

BC—37 to 53 inches; red (2.5YR 4/6), light gray (10YR 7/1), and strong brown (7.5YR 5/6) channery clay; strong coarse to moderate angular blocky structure; firm; about 15 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; gradual wavy boundary.

Cr—53 to 72 inches; red (2.5YR 4/6), light gray (10YR 7/1), and strong brown (7.5YR 5/6) soft, acid shale that is fractured and tilted. In some pedons, there may be thin strata of interbedded, soft sandstone and/or siltstone.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 40 to 60 inches; may be extremely variable within short distances because of the irregular boundary between the BC or lower Bt horizon and the underlying bedrock

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—cobbly silt loam, stony silt loam, or very stony silt loam
Rock fragments—15 to 60 percent sandstone or quartzite up to 24 inches
Reaction—moderately acid to very strongly acid

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—silt loam, gravelly silt loam, or cobbly silt loam
Rock fragments—0 to 35 percent sandstone or quartzite up to 10 inches
Reaction—moderately acid to very strongly acid

Bt1 horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8
Texture—silty clay loam, clay loam, or silty clay
Rock fragments—0 to 10 percent sandstone or quartzite up to 3 inches or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

Bt2 and Bt3 horizons:
Color—hue of 2.5YR or 5YR, value of 4, 5, or 6, and chroma of 6 or 8; mottles in shades of brown are common
Texture—silty clay or clay
Rock fragments—0 to 10 percent sandstone or quartzite less than 3 inches or shale less than 6 inches in length
Reaction—strongly acid or very strongly acid

BC horizon:
Color—hue of 2.5YR or 5YR, value of 4, 5, or 6, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, yellow, and gray
Texture—silty clay, clay, or their channery analogs
Rock fragments—10 to 35 percent shale fragments less than 6 inches in length
Reaction—strongly acid or very strongly acid

Cr horizon:
Consists of soft, acid shale with or without thin strata of interbedded sandstone and/or siltstone. This horizon is typically fractured and tilted more than 20 degrees from the horizontal. This parent material is in various shades of red, brown, and gray, and may contain seams and/or pockets of soil material deeper than 60 inches.

Caston Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Colluvium from sandstone and shale
Landform position: Colluvial benches, footslopes, and cove positions of mountains
Commonly associated soils: Carnasaw, Clebit, Octavia, Pirum, Wilburton

Slope range: 35 to 60 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Caston extremely stony fine sandy loam, in an area of Octavia-Carnasaw-Caston complex, 35 to 60 percent slopes, very rubbly, NW1/4NW1/4NW1/4 sec. 16, T. 1 S., R. 31 W.; Rich Mountain USGS topographic quadrangle; latitude 34 degrees 40 minutes 30 seconds N.; longitude 94 degrees 19 minutes 30 seconds W.; elevation 1,900 feet.

A—0 to 4 inches; brown (10YR 4/3) extremely stony fine sandy loam; weak fine granular structure; friable; common coarse and medium roots; common fine pores; about 70 percent, by volume, sandstone fragments up to 24 inches in diameter; strongly acid; clear smooth boundary.
E—4 to 8 inches; yellowish brown (10YR 5/4) very cobbly loam; weak medium granular structure; friable; common fine pores; common coarse and medium roots; about 40 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.
BE—8 to 21 inches; strong brown (7.5YR 5/6) very cobbly loam; weak medium subangular blocky structure; friable; common fine pores; few coarse and medium roots; about 40 percent, by volume, sandstone fragments up to 10 inches in diameter; very strongly acid; gradual wavy boundary.
Bt1—21 to 49 inches; yellowish red (5YR 5/6) very cobbly clay loam; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few medium roots; about 40 percent, by volume, sandstone fragments up to 10 inches in diameter; very strongly acid; gradual wavy boundary.
Bt2—49 to 72 inches; yellowish red (5YR 5/6) very cobbly clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 50 percent, by volume, sandstone fragments up to 10 inches in diameter; very strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4
Texture—extremely stony fine sandy loam
Rock fragments—60 to 80 percent sandstone up to 24 inches
Reaction—strongly acid or very strongly acid

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—very cobbly loam, very cobbly fine sandy loam, very gravelly loam, or very gravelly fine sandy loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

BE horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8
Texture—very gravelly loam, very gravelly fine sandy loam, very cobbly loam, or very cobbly fine sandy loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4, 5, or 6, and chroma of 6 or 8; or hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8
Texture—very gravelly clay loam, very cobbly clay loam, very gravelly sandy clay loam, or very cobbly sandy clay loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

Ceda Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Parent material: Gravelly and cobbly alluvium
Landform position: Flood plains
Commonly associated soils: Avilla, Dela, Kenn, Speer, Wilburton, Yanush
Slope range: 0 to 3 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, nonacid, thermic Typic Udifluvents

Typical Pedon

Ceda very cobbly fine sandy loam (fig. 19), in an area of Kenn-Ceda complex, 0 to 3 percent slopes, frequently flooded, NW1/4NW1/4SW1/4 sec. 33, T. 1 S., R. 31 W.; Rich Mountain USGS topographic quadrangle; latitude 34 degrees 37 minutes 30 seconds N.; longitude 94 degrees 19 minutes 0 seconds W.; elevation 1,180 feet.

A—0 to 6 inches; dark brown (10YR 3/3) very cobbly fine sandy loam; weak fine granular structure; very friable; about 50 percent, by volume, sandstone fragments up to 10 inches in diameter; moderately acid; clear smooth boundary.
C1—6 to 20 inches; brown (10YR 4/3) very gravelly fine sandy loam; massive; friable; about 50 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; clear wavy boundary.
C2—20 to 39 inches; dark yellowish brown (10YR 4/4) extremely gravelly loam; massive; friable; about 60 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; diffuse wavy boundary.
C3—39 to 65 inches; dark yellowish brown (10YR 4/4) extremely cobbly fine sandy loam; massive; friable; about 80 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 3, 4, or 5, and chroma of 2 or 3
Texture—very cobbly fine sandy loam
Rock fragments—35 to 60 percent sandstone, chert, or novaculite fragments up to 10 inches
Reaction—slightly acid to strongly acid

C horizon:
Color—hue of 7.5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6; or hue of 10YR, value of 4 or 5, and chroma of 3 or 4, or value of 5 and chroma of 6
Texture—very gravelly fine sandy loam, very gravelly loam, or their extremely gravelly or extremely cobbly analogs
Rock fragments— 35 to 85 percent sandstone, chert, or novaculite up to 10 inches
Reaction—slightly acid to strongly acid

Clebit Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Hard sandstone
Landform position: Mountaintops and mountainslopes
Commonly associated soils: Carnasaw, Caston, Nashoba, Octavia, Pirum, Sherless
Slope range: 3 to 60 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Lithic Dystrudepts

Typical Pedon

Clebit extremely stony fine sandy loam (fig. 20), in an area of Clebit-Carnasaw-Pirum complex, 3 to 15 percent slopes, very rubbly, NW1/4SE1/4NE1/4 sec. 22, T. 1 S., R. 31 W.; Rich Mountain USGS topographic quadrangle; latitude 34 degrees 39 minutes 0 seconds N.; longitude 94 degrees 17 minutes 30 seconds W.; elevation 2,460 feet.

A—0 to 5 inches; dark brown (10YR 3/3) extremely stony fine sandy loam; weak fine granular structure; friable; common fine pores; about 55 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.
Bw—5 to 17 inches; strong brown (7.5YR 5/6) very gravelly loam; weak fine subangular blocky structure; friable; common fine pores; about 50 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear irregular boundary.
R—17 to 20 inches; hard sandstone bedrock that is fractured and tilted.

Range in Characteristics

Note: Rock fragment content is given by size, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 10 to 20 inches; may be extremely variable within short distances due to the irregular boundary between the Bw horizon and the underlying tilted bedrock

A horizon:
Color—hue of 10YR, value of 3, 4, or 5, and chroma of 2 or 3
Texture—very stony fine sandy loam or extremely stony fine sandy loam
Rock fragments—35 to 80 percent sandstone fragments up to 24 inches
Reaction—slightly acid to strongly acid

Bw horizon:
Color—hue of 7.5YR, value of 4, 5, or 6, and chroma of 4 or 6; or hue of 10YR, value of 4, 5, or 6, and chroma of 3 or 4, or value of 5 or 6 and chroma of 6
Texture—very gravelly loam, very gravelly fine sandy loam, very cobbly loam, or very cobbly fine sandy loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—slightly acid to very strongly acid

R layer:
Consists of hard sandstone that is fractured and tilted more than 20 degrees from the horizontal

Figure 20.—Typical pedon of Clebit extremely stony fine sandy loam.

Figure 21.—Typical pedon of Kenn gravelly fine sandy loam.

Cupco Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Loamy alluvium
Landform position: Flood plains
Commonly associated soils: Avilla, Dela, Kenn, Neff, Speer
Slope range: 0 to 2 percent
Taxonomic class: Fine-silty, siliceous, active, thermic Typic Epiaqualfs

Typical Pedon

Cupco silt loam, 0 to 2 percent slopes, rarely flooded, SE$^1/_4$NE$^1/_4$SE$^1/_4$ sec. 1, T. 2 S., R. 30 W.; Mena USGS topographic quadrangle; latitude 34 degrees 36 minutes 30 seconds N.; longitude 94 degrees 8 minutes 30 seconds W.; elevation 1,080 feet.

Ap—0 to 3 inches; brown (10YR 5/3) silt loam with few medium faint yellowish brown (10YR 5/6) mottles; weak fine granular structure; friable; common fine roots; common fine pores; moderately acid; abrupt smooth boundary.

E—3 to 9 inches; light brownish gray (10YR 6/2) silt loam with common medium distinct yellowish brown (10YR 5/8) iron accumulations; weak fine subangular blocky structure; friable; few fine roots; common fine pores; strongly acid; clear smooth boundary.

Bt1—9 to 31 inches; brown (10YR 5/3) and light brownish gray (10YR 6/2) silty clay loam; weak medium subangular blocky structure; firm; common faint clay films on faces of peds and in pore linings; strongly acid; clear smooth boundary.

Bt2—31 to 65 inches; brown (10YR 5/3) and light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds and in pore linings; very strongly acid; clear smooth boundary.

Bt3—65 to 80 inches; grayish brown (10YR 5/2) clay loam with common medium distinct yellowish brown (10YR 5/6) iron accumulations; moderate medium subangular blocky structure; firm; common distinct clay film on faces of peds and in pore linings; very strongly acid.

Range in Characteristics

Solum thickness and depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—slightly acid to very strongly acid, except for areas where amendments have been applied

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2
Texture—silt loam
Reaction—slightly acid to very strongly acid, except for areas where amendments have been applied

Bt1 and Bt2 horizons:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silty clay loam or clay loam
Redoximorphic features—iron depletions and accumulations are in shades of brown, yellow, and gray in the Bt1 and Bt2 horizons; some peds have coatings with chroma of 1 or 2 on faces of peds
Reaction—slightly acid to very strongly acid

Bt3 horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3; some pedons do not have a dominant matrix hue and are variegated in shades of brown, yellow, and gray
Texture—silty clay loam or clay loam
Redoximorphic features—iron depletions and accumulations are in shades of brown, yellow, and gray; some peds have coatings with chroma of 1 or 2 on faces of peds.
Reaction—neutral to very strongly acid

BC horizon (where present):
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3; some pedons do not have a dominant matrix hue and are variegated in shades of brown, yellow, and gray
Texture—silty clay loam or clay loam; some pedons may range to silty clay or clay
Redoximorphic features—iron depletions and accumulations are in shades of red or brown; some peds have coatings with chroma of 1 or 2 on faces of peds
Reaction—neutral to strongly acid; some pedons may range to alkaline

Dela Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately rapid
Parent material: Loamy and sandy alluvium
Landform position: Flood plains
Commonly associated soils: Ceda, Cupco, Kenn, Neff, Speer
Slope range: 0 to 2 percent
Taxonomic class: Coarse-loamy, siliceous, active, nonacid, thermic Typic Udifluvents

Typical Pedon

Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded, SW1/4SE1/4NE1/4 sec. 14, T. 4 S., R. 32 W.; Cove USGS topographic quadrangle; latitude 34 degrees 25 minutes 0 seconds N.; longitude 94 degrees 22 minutes 30 seconds W.; elevation 1,080 feet.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.
A2—3 to 17 inches; brown (10YR 4/3) fine sandy loam; weak medium granular structure; very friable; few fine roots; common fine pores; strongly acid; clear smooth boundary.
C1—17 to 42 inches; yellowish brown (10YR 5/6) fine sandy loam; massive; very friable; thin strata of brown (10YR 4/3) fine sandy loam; strongly acid; clear smooth boundary.
C2—42 to 62 inches; yellowish brown (10YR 5/6) fine sandy loam; few fine distinct light brownish gray (10YR 6/2) iron depletions; massive; very friable; thin strata of brown (10YR 4/3) fine sandy loam; strongly acid; clear smooth boundary.
C3—42 to 80 inches; light brownish gray (10YR 6/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) iron accumulations; massive; very friable; thin strata of brown (10YR 4/3) loamy fine sand; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 3, 4, or 5, and chroma of 2 or 3
Texture—fine sandy loam
Reaction—slightly acid to strongly acid, except for areas where amendments have been applied

C horizon:
Color—hue of 7.5YR, value of 5 or 6, and chroma of 6; or hue of 10YR, value of 4, and chroma of 3 or 4, or value of 5 or 6 and chroma of 3, 4, or 6
Texture—fine sandy loam, sandy loam, or loamy fine sand and is stratified with thin strata of finer or coarser material
Redoximorphic features—iron depletions with chroma of 2 or less occur at depths of 24 to 48 inches
Reaction—neutral to strongly acid

Kenn Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy and gravelly alluvium
Landform position: Flood plains
Commonly associated soils: Avilla, Ceda, Cupco, Dela, Neff, Speer, Wetsaw, Wilburton
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, siliceous, active, thermic Ultic Hapludalfs

Typical Pedon

Kenn gravelly fine sandy loam (fig. 21), 0 to 3 percent slopes, occasionally flooded, NW1/4SE1/4SE1/4 sec. 21, T. 2 S., R. 29 W.; Board Camp USGS topographic quadrangle; latitude 34 degrees 33 minutes 30 seconds N.; longitude 94 degrees 5 minutes 30 seconds W.; elevation 900 feet.

A—0 to 8 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak fine granular structure; friable; many fine roots; common fine pores; about 15 percent, by volume, sandstone fragments less than 3 inches in diameter; moderately acid; clear smooth boundary.
Bt—8 to 39 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine roots; about 10 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; clear irregular boundary.
2BC—39 to 51 inches; brown (7.5YR 4/4) very gravelly clay loam; weak fine subangular blocky structure; friable; few faint clay films on faces of peds; about 40 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; gradual wavy boundary.
2C—51 to 72 inches; brown (7.5YR 4/4) extremely cobbly loam; massive; friable; about 70 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness: 40 to 60 inches
Depth to bedrock: More than 60 inches

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2, 3, or 4
Texture—gravelly fine sandy loam or cobbly fine sandy loam
Rock fragments—15 to 35 percent sandstone up to 10 inches
Reaction—slightly acid to strongly acid, except in areas where amendments have been applied

BA horizon (where present):
Color—hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6
Texture—loam, fine sandy loam, or their gravelly or cobbly analogs
Rock fragments—5 to 35 percent sandstone or novaculite up to 10 inches
Reaction—moderately acid or strongly acid

Bt horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 7.5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8
Texture—clay loam, sandy clay loam, or their gravelly or cobbly analogs
Rock fragments—5 to 35 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

2BC horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 6; or hue of 7.5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6
Texture—very gravelly clay loam, very cobbly clay loam, very gravelly sandy clay loam, or very cobbly sandy clay loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

2C horizon:
Color—hue of 7.5YR, value of 4, and chroma of 4; or hue of 10YR, value of 4, and chroma of 3 or 4, or value of 5 and chroma of 4 or 6
Texture—extremely gravelly loam, extremely gravelly fine sandy loam, extremely cobbly fine sandy loam, or extremely cobbly loam
Rock fragments—60 to 90 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

Littlefir Series

Depth class: Moderately deep to deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Residual shale or interbedded shale and sandstone
Landform position: Hills and ridges
Commonly associated soils: Bismarck, Carnasaw, Mazarn, Mena, Nashoba, Sherless
Slope range: 1 to 35 percent
Taxonomic class: Fine, mixed, semiactive, thermic Oxyaquic Hapludults

Typical Pedon

Littlefir cobbly loam, in an area of Sherless-Littlefir complex, 15 to 35 percent slopes, extremely stony, NW$^1/_4$SW$^1/_4$SE$^1/_4$ sec. 7, T. 2 S., R. 30 W.; Mena USGS topographic quadrangle; latitude 34 degrees 35 minutes 15 seconds N.; longitude 94 degrees 14 minutes 30 seconds W.; elevation 1,200 feet.

A—0 to 4 inches; brown (10YR 4/3) cobbly loam; weak fine granular structure; friable; many fine and medium and common coarse roots; common fine pores; about 15 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.
E—4 to 7 inches; yellowish brown (10YR 5/4) gravelly loam; weak fine subangular blocky structure; friable; common fine and medium and few coarse roots; common fine pores; about 15 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.
Bt1—7 to 12 inches; strong brown (7.5YR 5/6) silty clay; moderate fine and medium subangular blocky structure; firm; few fine and medium and few coarse roots; few fine pores; common distinct clay films on faces of peds and in pore linings; about 10 percent, by volume, shale fragments less than 6 inches in length; strongly acid; clear smooth boundary.
Bt2—12 to 23 inches; yellowish red (5YR 5/8) channery silty clay with common fine distinct yellowish brown (10YR 5/6) iron accumulations; moderate medium and coarse subangular blocky structure; firm; few fine pores; many distinct clay films on faces of peds and in pore linings; about 15 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; clear irregular boundary.
Bt3—23 to 30 inches; yellowish red (5YR 5/8) channery silty clay with common fine distinct yellowish brown (10YR 5/6) iron accumulations and few fine prominent gray (10YR 6/1) iron depletions; moderate medium and coarse subangular blocky structure; firm; many faint clay films on faces of peds; about 30 percent, by volume, shale fragments less than 6 inches in length; very strongly acid; diffuse irregular boundary.
Cr—30 to 50 inches; yellowish red, yellowish brown, and gray, soft, acid shale that is fractured and tilted.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 20 to 50 inches; may be extremely variable within short distances due to the irregular boundary between the lower Bt or BC horizon and the underlying tilted bedrock

A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4

Texture—gravelly silt loam, cobbly silt loam, stony silt loam, gravelly loam, cobbly loam, or stony loam

Rock fragments—15 to 35 percent sandstone and/or quartzite up to 24 inches

Reaction—moderately acid or strongly acid, except for areas where amendments have been applied

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—loam, silt loam, fine sandy loam, or their gravelly or cobbly analogs

Rock fragments—0 to 35 percent sandstone and/or quartzite up to 10 inches

Reaction—strongly acid or very strongly acid

Bt1 horizon:

Color—hue of 5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8

Texture—clay loam, silty clay loam, silty clay, or their channery or gravelly analogs

Rock fragments—0 to 35 percent sandstone and/or quartzite or shale less than 6 inches in length

Reaction—strongly acid or very strongly acid

Bt2 horizon:

Color—hue of 5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8; or hue of 7.5YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—silty clay loam, clay loam, silty clay, clay, or their gravelly or channery analogs

Redoximorphic features—iron accumulations in shades of brown, red, and yellow range from none to common

Rock fragments—0 to 35 percent sandstone and/or quartzite less than 3 inches or shale less than 6 inches in length

Reaction—strongly acid or very strongly acid

Bt3 horizon (and BC horizon, where present):

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, yellow, and gray

Texture—channery silty clay, channery clay, channery silty clay loam, channery clay loam, or their very channery, gravelly, or very gravelly analogs

Redoximorphic features—iron accumulations and depletions in shades of red, brown, yellow, and gray

Rock fragments—15 to 75 percent sandstone less than 3 inches and/or shale less than 6 inches in length; some peds contain pockets of partially weathered sandstone.

Reaction—strongly acid or very strongly acid

Cr horizon:

Consists of soft, weathered, fractured and tilted, shale bedrock or interbedded shale and sandstone or siltstone bedrock in various shades of black, olive, gray, brown, red, and yellow. Some pedons contain lenses or fragments of quartzite that are interbedded between shale and sandstone beds or plates. This parent material may contain seams and/or pockets of soil material below 50 inches.

Mazarn Series

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Local pedisediments over residual shale or interbedded shale and sandstone or siltstone
Landform position: Upland drainageways and concave uplands
Commonly associated soils: Avilla, Bismarck, Littlefir, Nashoba, Sherless
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults

Typical Pedon

Mazarn silt loam, 0 to 3 percent slopes, SW$^1/_4$SW$^1/_4$SW$^1/_4$ sec. 14, T. 2 S., R. 31 W.; Potter USGS topographic quadrangle; latitude 34 degrees 34 minutes 30 seconds N.; longitude 94 degrees 17 minutes 0 seconds W.; elevation 1,060 feet.

Ap—0 to 3 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; many fine roots; common fine pores; moderately acid; abrupt smooth boundary.

Bt1—3 to 12 inches; brown (10YR 5/3) silt loam with few fine faint light brownish gray (10YR 6/2) iron depletions; weak fine and medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—12 to 33 inches; yellowish brown (10YR 5/4) and brownish yellow (10YR 6/8) silty clay loam with common medium faint light brownish gray iron depletions; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds and lining pores; strongly acid; gradual wavy boundary.

2Cr—33 to 40 inches; soft, acid shale that is tilted and fractured. It is laminated with seams of clay material between the fractures.

Range in Characteristics

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable within short distances due to the irregular boundary between the lower Bt horizon and the underlying tilted bedrock

A horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2, 3, or 4

Texture—silt loam

Reaction—slightly acid to very strongly acid, except for areas where amendments have been applied

E horizon (where present):

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—silt loam

Reaction—slightly acid to very strongly acid

Bt1 horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4; or hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6

Texture—silt loam, silty clay loam, or loam

Redoximorphic features—iron depletions and accumulations are in shades of red, gray, yellow, and brown

Reaction—strongly acid or very strongly acid

Bt2 horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3, 4, 6, or 8; or hue of 2.5Y, value of 5 or 6, and chroma of 4; some pedons may not have a dominant matrix hue and are variegated in shades of brown, yellow, and gray

Texture—silt loam, silty clay loam, or their channery or gravelly analogs

Redoximorphic features—iron depletions and accumulations are in shades of gray, yellow, or brown

Rock fragments—0 to 35 percent sandstone less than 3 inches in diameter and/or shale less than 6 inches in length

Reaction—strongly acid or very strongly acid

2Bt3 horizon (where present):

Color—hue of 10YR, value of 5 or 6, and chroma of 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2 or 4; some pedons do not have a dominant matrix hue and are variegated in shades of brown, yellow, and gray

Texture—silty clay loam, clay loam, silty clay, or their channery or gravelly analogs

Redoximorphic features—iron depletions and accumulations are in shades of gray, yellow, brown, or red

Rock fragments—0 to 35 sandstone less than 3 inches in diameter and/or shale fragments less than 6 inches in length

Reaction—strongly acid or very strongly acid

2Cr horizon:

Consists of soft, acid shale or interbedded shale and sandstone or siltstone that is tilted and fractured and typically has seams of soil material between the fractures

Mena Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Pedisediments over old alluvium and residuum
Landform position: Uplands and old terraces
Commonly associated soils: Avilla, Bismarck, Littlefir, Nashoba, Sherless, Wetsaw, Wilburton
Slope range: 1 to 12 percent
Taxonomic class: Fine, mixed, semiactive, thermic Aquic Paleudults

Typical Pedon

Mena silt loam, 1 to 6 percent slopes, SE$^1/_4$SW$^1/_4$NE$^1/_4$ sec. 1, T. 2 S., R. 29 W.; Board Camp USGS topographic quadrangle; latitude 34 degrees 36 minutes 30 seconds N.; longitude 94 degrees 2 minutes 30 seconds W.; elevation 1,100 feet.

Ap—0 to 4 inches; dark brown (10YR 3/3) silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; slightly acid; abrupt smooth boundary.

BA—4 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common fine and medium roots; common fine pores; moderately acid; clear smooth boundary.

Bt1—10 to 23 inches; red (2.5YR 4/6) clay; moderate medium angular blocky structure; firm; many distinct clay films on faces of peds and lining pores; common fine and medium roots; common fine pores; common medium irregular shaped Fe-Mg concretions; very strongly acid; gradual smooth boundary.

Bt2—23 to 46 inches; red (2.5YR 4/6) clay; common medium distinct yellowish brown (10YR 5/6) iron accumulations and few fine prominent light brownish gray (10YR 6/2) iron depletions; strong medium angular blocky structure; firm; many distinct clay films on faces of peds and in pore linings; few fine roots; common fine pores; few fine irregular shaped Fe-Mg concretions; very strongly acid; gradual smooth boundary.

2Bt3—46 to 60 inches; red (2.5YR 4/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) cobbly clay; moderate medium angular blocky structure; firm; many distinct clay films on faces of peds and in pore linings; common fine pores; about 15 percent, by volume, rounded sandstone fragments up to 10 inches in diameter; few fine irregular shaped Fe-Mg concretions; very strongly acid; gradual smooth boundary.

2Bt4—60 to 72 inches; red (2.5YR 4/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) cobbly clay; moderate medium subangular blocky structure; firm; many distinct clay films on faces of peds; common fine pores; about 30 percent, by volume, sandstone fragments up to 10 inches in diameter; few fine irregular Fe-Mg concretions; very strongly acid; clear smooth boundary.

3Cr—72 to 80 inches; red and gray, soft, acid shale that is fractured and tilted and interbedded with thin layers of soft sandstone.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 60 to 80 inches or more

A horizon:

Color—hue of 10YR, value of 4, and chroma of 2, 3, or 4, or value of 3 and chroma of 3

Texture—silt loam or gravelly silt loam

Rock fragments—0 to 35 percent sandstone less than 3 inches

Reaction—strongly acid or very strongly acid, except for areas where amendments have been applied

BA horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 4; or hue of 7.5YR, value of 4 or 5, and chroma of 4

Texture—silt loam, gravelly silt loam, loam, or gravelly loam

Rock fragments—0 to 35 percent sandstone less than 3 inches

Reaction—moderately acid to very strongly acid

Bt1 horizon:

Color—hue of 7.5YR, value of 5, and chroma of 6 or 8; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6 or 8

Texture—silt loam, silty clay loam, clay loam, silty clay, or clay

Redoximorphic features—iron depletions and accumulations are in shades of red, yellow, brown, and gray, if present

Rock fragments—0 to 15 percent sandstone less than 3 inches

Reaction—strongly acid or very strongly acid

Bt2 horizon:

Color—hue of 7.5YR, value of 5, and chroma of 6 or 8; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6 or 8

Texture—silty clay loam, clay loam, silty clay, or clay

Redoximorphic features—iron depletions with chroma of 2 or less and iron accumulations in shades of red, brown, or yellow range from few to many

Rock fragments—0 to 15 percent sandstone less than 3 inches

Reaction—strongly acid or very strongly acid

2Bt horizon:

Color—hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, yellow, and gray

Texture—gravelly silty clay, gravelly clay, gravelly silty clay loam, gravelly clay loam, cobbly silty clay, cobbly clay, cobbly silty clay loam, or cobbly clay loam

Redoximorphic features—iron depletions and accumulations are in shades of red, gray, brown, or yellow

Rock fragments—15 to 35 sandstone fragments up to 10 inches

Reaction—strongly acid or very strongly acid

2BC horizon (where present):

Color—hue of 5YR, value of 5, and chroma 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, yellow, and gray

Texture—very gravelly silty clay, very gravelly clay, very gravelly silty clay loam, very gravelly clay loam, very cobbly silty clay, very cobbly clay, very cobbly silty clay loam, very cobbly clay loam, very channery silty clay, very channery clay, very channery silty clay loam, or very channery clay loam

Redoximorphic features—iron accumulations and depletions in shades of red, brown, yellow, and gray

Rock fragments—35 to 60 percent sandstone up to 10 inches or shale less than 6 inches in length

Reaction—strongly acid or very strongly acid

3Cr horizon:
Consists of soft, acid shale or interbedded shale and sandstone or siltstone in various shades of red, brown, and gray. Beds are fractured and tilted.

Nashoba Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum from hard sandstone
Landform position: Hills and ridges
Commonly associated soils: Bismarck, Clebit, Littlefir, Mazarn, Mena, Sherless
Slope range: 1 to 35 percent
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Dystrudepts

Typical Pedon

Nashoba cobbly fine sandy loam (fig. 22), in an area of Sherless-Nashoba-Bismarck complex, 15 to 35 percent slopes, extremely stony, SW$^1/_4$SW$^1/_4$NW$^1/_4$ sec. 26, T. 4 S., R. 32 W.; Cove USGS topographic quadrangle; latitude 34 degrees 23 minutes 0 seconds N.; longitude 94 degrees 23 minutes 45 seconds W.; elevation 1,040 feet.

A—0 to 4 inches; brown (10YR 4/3) cobbly fine sandy loam; weak fine granular structure; friable; many fine and medium roots; common fine pores; about 15 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.
Bw—4 to 24 inches; yellowish brown (10YR 5/6) very gravelly loam; weak fine subangular blocky structure; friable; common fine roots; about 50 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; abrupt irregular boundary.
Cr/Bw—24 to 36 inches; about 90 percent fine-grained soft, acid sandstone interbedded with thin layers of shale and siltstone; about 10 percent yellowish brown (10YR 5/6) fine sandy loam in the fractures between the layers of bedrock; weak medium granular structure; very friable; very strongly acid; abrupt irregular boundary.
R—36 to 40 inches; hard sandstone bedrock that is fractured and tilted.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable within short distances due to the irregular boundary between the Bw horizon and the underlying tilted bedrock

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—gravelly fine sandy loam, cobbly fine sandy loam, or stony fine sandy loam
Rock fragments—15 to 35 percent sandstone up to 24 inches
Reaction—strongly acid or very strongly acid

Bw horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3, 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8
Texture—very gravelly loam, very cobbly loam, very gravelly fine sandy loam, or very cobbly loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—strongly acid or very strongly acid

Cr/Bw horizon (Cr part):
Consists of fractured and tilted, soft, acid sandstone with thin layers of interbedded shale and/or siltstone in some pedons

Cr/Bw horizon (Bw part):
Color—hue of 10YR, value of 5 or 6, and chroma of 3, 4, or 6
Texture—loam or fine sandy loam
Reaction—strongly acid or very strongly acid

R layer:
Consists of hard sandstone that is fractured and tilted 20 to 90 degrees from the horizontal

Neff Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Loamy alluvium
Landform position: Flood plains
Commonly associated soils: Cupco, Dela, Kenn, Speer
Slope range: 0 to 2 percent
Taxonomic class: Fine-silty, siliceous, active, thermic Aquultic Hapludalfs

Typical Pedon

Neff loam, 0 to 2 percent slopes, rarely flooded, NE$^1/_4$NW$^1/_4$SW$^1/_4$ sec. 19, T. 2 S., R. 28 W.; Board Camp USGS topographic quadrangle; latitude 34 degrees 33 minutes 30 seconds N.; longitude 94 degrees 2 minutes 0 seconds W.; elevation 840 feet.

A—0 to 5 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; friable; many fine roots;

common fine pores; moderately acid; clear smooth boundary.

BA—5 to 20 inches; yellowish brown (10YR 5/4) loam with common fine faint brown (10YR 5/3) mottles; weak fine subangular blocky structure; friable; common fine roots; moderately acid; clear smooth boundary.

Bt1—20 to 30 inches; pale brown (10YR 6/3) silt loam with common medium faint yellowish brown (10YR 5/8) iron accumulations and common fine faint light brownish gray (10YR 6/2) iron depletions; weak fine and medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—30 to 57 inches; light brownish gray (10YR 6/2) and yellowish brown (10YR 5/4) silt loam with common fine distinct strong brown (7.5YR 5/8) iron accumulations; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

BC—57 to 80 inches; pale brown (10YR 6/3), yellowish brown (10YR 5/4), and brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches

A horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2, 3, or 4

Texture—loam

Reaction—moderately acid or strongly acid, except for areas where amendments have been applied

BA horizon:

Color—hue of 10YR, value of 4, 5, or 6, and chroma of 2, 3, or 4

Texture—loam or silt loam

Reaction—moderately acid or strongly acid

Bt1 horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 2, 3, or 4

Texture—silt loam or silty clay loam

Redoximorphic features—most pedons have iron depletions and accumulations in shades of gray, brown, and yellow

Reaction—slightly acid to very strongly acid

Bt2 horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 2, 3, or 4

Texture—silt loam or silty clay loam

Redoximorphic features—most pedons have iron depletions and accumulations in shades of brown, yellow, and gray

Reaction—moderately acid to very strongly acid

BC horizon:

Color—hue of 10YR, value of 4 , 5, or 6, and chroma of 3 or 4.; most pedons do not have a matrix color but contain approximate equal amounts of colors in various shades of brown, yellow, and gray

Texture—silt loam or silty clay loam

Redoximorphic features—iron depletions and accumulations are in shades of brown, yellow, red, and gray

Rock fragments—0 to 15 percent sandstone less than 3 inches in diameter

Reaction—moderately acid to very strongly acid

Octavia Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Parent material: Loamy colluvium over clayey residuum

Landform position: Colluvial benches, footslopes, and side slopes of mountains

Commonly associated soils: Carnasaw, Caston, Clebit, Pirum, Wilburton

Slope range: 8 to 60 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Octavia very stony loam, in an area of Octavia-Carnasaw-Caston complex, 35 to 60 percent slopes, very rubbly, NW1/4NE1/4NW1/4 sec. 17, T. 1 S., R. 31 W.; Rich Mountain USGS topographic quadrangle; latitude 34 degrees 40 minutes 15 seconds N.; longitude 94 degrees 20 minutes 0 seconds W.; elevation 2,400 feet.

A—0 to 4 inches; brown (10YR 4/3) very stony loam; weak fine granular structure; friable; about 50 percent, by volume, sandstone fragments up to 24 inches in diameter; strongly acid; clear wavy boundary.

E—4 to 7 inches; yellowish brown (10YR 5/4) cobbly loam; weak medium granular structure; friable; about 20 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear wavy boundary.

BE—7 to 11 inches; strong brown (7.5YR 5/6) gravelly loam; weak fine subangular blocky structure; friable; about 15 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; gradual smooth boundary.

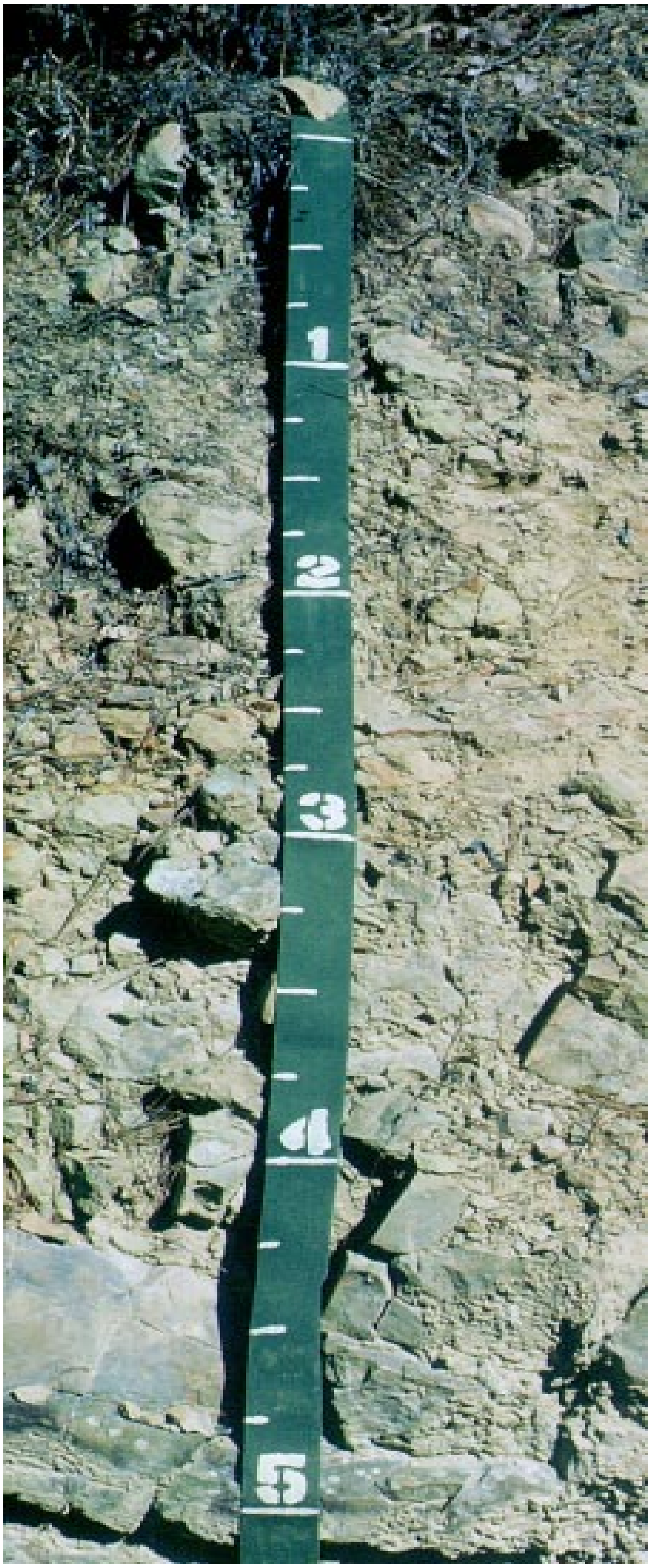

Figure 22.—Typical pedon of Nashoba cobbly fine sandy loam.

Figure 23.—Typical pedon of Sherless gravelly fine sandy loam.

Bt1—11 to 28 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 10 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; gradual wavy boundary.

2Bt2—28 to 49 inches; yellowish red (5YR 5/6), strong brown (7.5YR 5/6), and red (2.5YR 4/6) silty clay; strong medium angular blocky structure; firm; common distinct clay films on faces of peds; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; gradual wavy boundary.

2Bt3—49 to 72 inches; red (2.5YR 4/6), strong brown (7.5YR 5/6), and gray (10YR 6/1) channery silty clay; strong medium angular blocky structure; firm; common distinct clay films on faces of peds; about 20 percent, by volume, shale fragments less than 6 inches in length; extremely acid; diffuse irregular boundary.

2Cr—72 to 80 inches; soft, acid shale that is fractured and tilted and in shades of red, brown, and gray.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: More than 60 inches

A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—stony loam or very stony loam
Rock fragments—15 to 60 percent sandstone up to 24 inches
Reaction—strongly acid or very strongly acid

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—cobbly loam or gravelly loam
Rock fragments—15 to 35 percent sandstone up to 10 inches in diameter
Reaction—strongly acid or very strongly acid

BE horizon:

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3, 4, or 6
Texture—loam, silt loam, or their gravelly or cobbly analogs
Rock fragments—5 to 35 percent sandstone fragments up to 10 inches
Reaction—strongly acid or very strongly acid

Bt horizon:

Color—hue of 7.5YR, value of 5, and chroma of 6 or 8; or hue of 5YR or 2.5YR, value of 5 or 6, and chroma of 6 or 8
Texture—clay loam, silty clay loam, or their gravelly analogs
Rock fragments—5 to 35 percent sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

2Bt horizon:

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, and gray
Texture—clay loam, silty clay loam, silty clay, clay, or their channery or gravelly analogs
Redoximorphic features—iron depletions with chroma of 2 or less range from none to common
Rock fragments—5 to 35 percent shale less than 6 inches in length or sandstone less than 3 inches
Reaction—strongly acid or very strongly acid

2Cr horizon:

Consists of fractured and tilted, soft, acid shale in various shades of red, brown, and gray. Some pedons may contain thin layer of interbedded, soft sandstone and/or siltstone.

Pirum Series

Depth class: Moderately deep to deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum from hard sandstone
Landform position: Mountains
Commonly associated soils: Carnasaw, Caston, Clebit, Octavia
Slope range: 3 to 60 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Pirum very stony loam, in an area of Octavia-Caston-Pirum complex, 35 to 60 percent slopes, very rubbly, NW$^1/_4$SE$^1/_4$NW$^1/_4$ sec. 8, T. 1 S., R. 32 W.; Mountain Fork USGS topographic quadrangle; latitude 34 degrees 41 minutes 15 seconds N.; longitude 94 degrees 26 minutes 15 seconds W.; elevation 2,240 feet.

A—0 to 4 inches; dark brown (10YR 3/3) very stony loam; weak fine granular structure; friable; about 50 percent, by volume, sandstone fragments up to 24 inches in diameter; strongly acid; clear smooth boundary.

E—4 to 7 inches; yellowish brown (10YR 5/4) cobbly loam; weak fine subangular blocky structure; friable; about 30 percent, by volume, sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.

BE—7 to 11 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; abrupt smooth boundary.

Bt1—11 to 31 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear smooth boundary.

Bt2—31 to 36 inches; yellowish red (5YR 5/6) gravelly sandy clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; about 25 percent sandstone fragments less than 3 inches in diameter; very strongly acid.

R—36 to 40 inches; hard sandstone that is fractured and tilted.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 22 to 50 inches; may be extremely variable within short distances due to the irregular boundary between the lower Bt horizon and the underlying tilted bedrock

A horizon:

Color—hue of 7.5YR, value of 4, and chroma of 2, 3, or 4; or hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4

Texture—stony loam or very stony loam

Rock fragments—15 to 60 percent sandstone up to 24 inches

Reaction—strongly acid or very strongly acid

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—loam, fine sandy loam, or their gravelly or cobbly analogs

Rock fragments—0 to 35 percent sandstone up to 10 inches

Reaction—strongly acid or very strongly acid

BE horizon:

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8

Texture—loam, fine sandy loam, or their gravelly or cobbly analogs

Rock fragments—0 to 35 percent sandstone less than 10 inches

Reaction—strongly acid or very strongly acid

Bt horizon:

Color—hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8

Texture—sandy clay loam, loam, clay loam, or their gravelly or cobbly analogs

Rock fragments—0 to 35 percent sandstone less than 10 inches

Reaction—strongly acid or very strongly acid

R layer:

Consists of hard sandstone that is fractured and tilted and, in some pedons, contains thin layers of interbedded siltstone and shale

Sherless Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum from sandstone, shale, or interbedded sandstone and shale
Landform position: Hills, ridges, and mountains
Commonly associated soils: Bismarck, Carnasaw, Clebit, Littlefir, Mazarn, Mena, Nashoba
Slope range: 1 to 35 percent
Taxonomic class: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Sherless gravelly fine sandy loam (fig. 23), 1 to 6 percent slopes, SW1/4SW1/4SW1/4 sec. 20, T. 3 S., R. 31 W.; Vandervoort USGS topographic quadrangle; latitude 34 degrees 28 minutes 30 seconds N.; longitude 94 degrees 20 minutes 0 seconds W.; elevation 1,060 feet.

A—0 to 4 inches; dark grayish brown (10YR 4/2) gravelly fine sandy loam; weak fine granular structure; friable; many fine roots; common fine pores; about 15 percent, by volume, sandstone fragments less than 3 inches in diameter; strongly acid; clear smooth boundary.

E—4 to 10 inches; light yellowish brown(10YR 6/4) fine sandy loam; weak fine subangular blocky structure; friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.

Bt1—10 to 21 inches; yellowish red (5YR 5/8) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—21 to 34 inches; yellowish red (5YR 5/6) clay loam with common medium distinct yellowish brown (10YR 5/8) and red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 5 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear wavy boundary.

BC—34 to 38 inches; yellowish red (5YR 5/6), yellowish brown (10YR 5/8), and gray (10YR 6/1) loam; weak fine and medium subangular blocky structure; friable; about 10 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid; clear irregular boundary.

Cr—38 to 45 inches; yellowish red, yellowish brown, and gray, soft, acid sandstone that is fractured and tilted.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness and depth to bedrock: 20 to 40 inches; may be extremely variable due to the irregular boundary between the lower Bt or BC horizon and the underlying tilted bedrock. Typically, the bedrock is rippable and may contain seams or pockets of soil material below 40 inches.

A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3

Texture—gravelly fine sandy loam, cobbly fine sandy loam, or stony fine sandy loam

Rock fragments—15 to 35 percent sandstone up to 24 inches

Reaction—moderately acid or strongly acid, except for areas where amendments have been applied

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 4

Texture—fine sandy loam or gravelly fine sandy loam

Rock fragments—0 to 35 percent sandstone less than 3 inches

Reaction—strongly acid or very strongly acid

Bt1 horizon:

Color—hue of 5YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8; mottles in shades of brown and red range from none to common

Texture—clay loam, sandy clay loam, or their gravelly analogs

Rock fragments—0 to 35 percent sandstone less than 3 inches

Reaction—strongly acid or very strongly acid

Bt2 horizon:

Color—hue of 5YR or 7.5YR, value of 5, and chroma of 6 or 8; mottles in shades of brown, red, and yellow range from none to common

Texture—clay loam, sandy clay loam, or their gravelly or channery analogs

Rock fragments—0 to 35 percent sandstone less than 3 inches or shale less than 6 inches in length

Reaction—strongly acid or very strongly acid

BC horizon:

Color—hue of 5YR or 7.5YR, value of 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6 or 8; or hue of 10YR, value of 5 or 6, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of brown, red, gray, and yellow

Texture—loam, fine sandy loam, clay loam, sandy clay loam, or their gravelly, channery, or cobbly analogs

Rock fragments—5 to 60 percent sandstone up to 10 inches and/or shale less than 6 inches in length; some peds contain pockets of partially weathered sandstone

Reaction—strongly acid to extremely acid

Cr horizon:

Consists of fractured and tilted, soft, acid sandstone or interbedded sandstone and shale in various shades of red, brown, yellow, and gray. Some pedons may have thin layers of siltstone interbedded with the sandstone and shale. This parent material may contain seams and/or pockets of soil material deeper than 40 inches.

Speer Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy alluvium
Landform position: Flood plains
Commonly associated soils: Avilla, Ceda, Cupco, Dela, Kenn, Neff
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, siliceous, active, thermic Ultic Hapludalfs

Typical Pedon

Speer fine sandy loam (fig. 24), in an area of Speer fine sandy loam, 0 to 2 percent slopes, rarely flooded, NE$^1/_4$SW$^1/_4$SE$^1/_4$ sec. 18, T. 2 S., R. 29 W.; Mena USGS topographic quadrangle; latitude 34 degrees 34 minutes 30 seconds N.; longitude 94 degrees 7 minutes 30 seconds W.; elevation 930 feet.

Ap—0 to 3 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine roots; few fine pores; moderately acid; abrupt smooth boundary.

BA—3 to 10 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; friable;

common fine roots; few fine pores; moderately acid; clear smooth boundary.

Bt1—10 to 39 inches; yellowish red (5YR 5/6) loam; weak fine and medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine roots; few fine pores; strongly acid; gradual smooth boundary.

Bt2—39 to 51 inches; yellowish red (5YR 4/6) sandy clay loam; weak to moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; few fine pores; strongly acid; gradual smooth boundary.

BC—51 to 61 inches; yellowish red (5YR 4/6) loam; common medium prominent yellowish brown (10YR 5/6) iron accumulations and common fine prominent light brownish gray (10YR 6/2) iron depletions; weak fine subangular blocky structure; friable; few fine pores; strongly acid; clear smooth boundary.

C—61 to 89 inches; yellowish red (5YR 4/6), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) fine sandy loam; massive; friable; few medium pores; very strongly acid.

Range in Characteristics

Solum thickness: 40 to more than 60 inches
Depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—fine sandy loam
Reaction—moderately acid or strongly acid, except for areas where amendments have been applied

BA horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4, or value of 5 and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8
Texture—fine sandy loam or loam
Reaction—moderately acid or strongly acid

Bt horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 4, 6, or 8; or hue of 7.5YR, value of 4, and chroma of 4, or value of 5 or 6 and chroma of 6 or 8
Texture—sandy clay loam, loam, or clay loam
Reaction—moderately acid to very strongly acid

BC horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3, 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 4 or 6; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8
Texture—loam or fine sandy loam
Redoximorphic features—iron depletions with chroma of 2 or less and iron accumulations in various shades of red, yellow, and brown range from none to many
Reaction—strongly acid or very strongly acid

C horizon:
Color—hue of 5YR, value of 4, 5, or 6, and chroma of 3, 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 6; or hue of 10YR, value of 5 or 6, and chroma of 3, 4, 6, or 8; some pedons do not have a dominant matrix hue and are variegated in shades of brown, yellow, and gray
Texture—fine sandy loam or loam
Redoximorphic features—iron depletions with chroma of 2 or less and iron accumulations in various shades of red, yellow, and brown range from none to many
Rock fragments—0 to 15 percent sandstone less than 3 inches in diameter
Reaction—strongly acid or very strongly acid

Wetsaw Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Loamy and gravelly alluvium over clayey residuum
Landform position: Stream terraces
Commonly associated soils: Avilla, Kenn, Mena
Slope range: 1 to 6 percent
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Aquic Paleudalfs

Typical Pedon

Wetsaw loam, 1 to 6 percent slopes, NW$^1/_4$NW$^1/_4$NW$^1/_4$ sec. 25, T. 2 S., R. 29 W.; Board Camp USGS topographic quadrangle; latitude 34 degrees 33 minutes 0 seconds N.; longitude 94 degrees 3 minutes 0 seconds W.; elevation 900 feet.

A—0 to 6 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; many fine roots; common fine pores; moderately acid; clear smooth boundary.

E—6 to 14 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common fine roots; common fine pores; strongly acid; clear smooth boundary.

Bt1—14 to 20 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—20 to 34 inches; yellowish brown (10YR 5/6) clay loam with common medium prominent red (2.5YR 4/6) iron

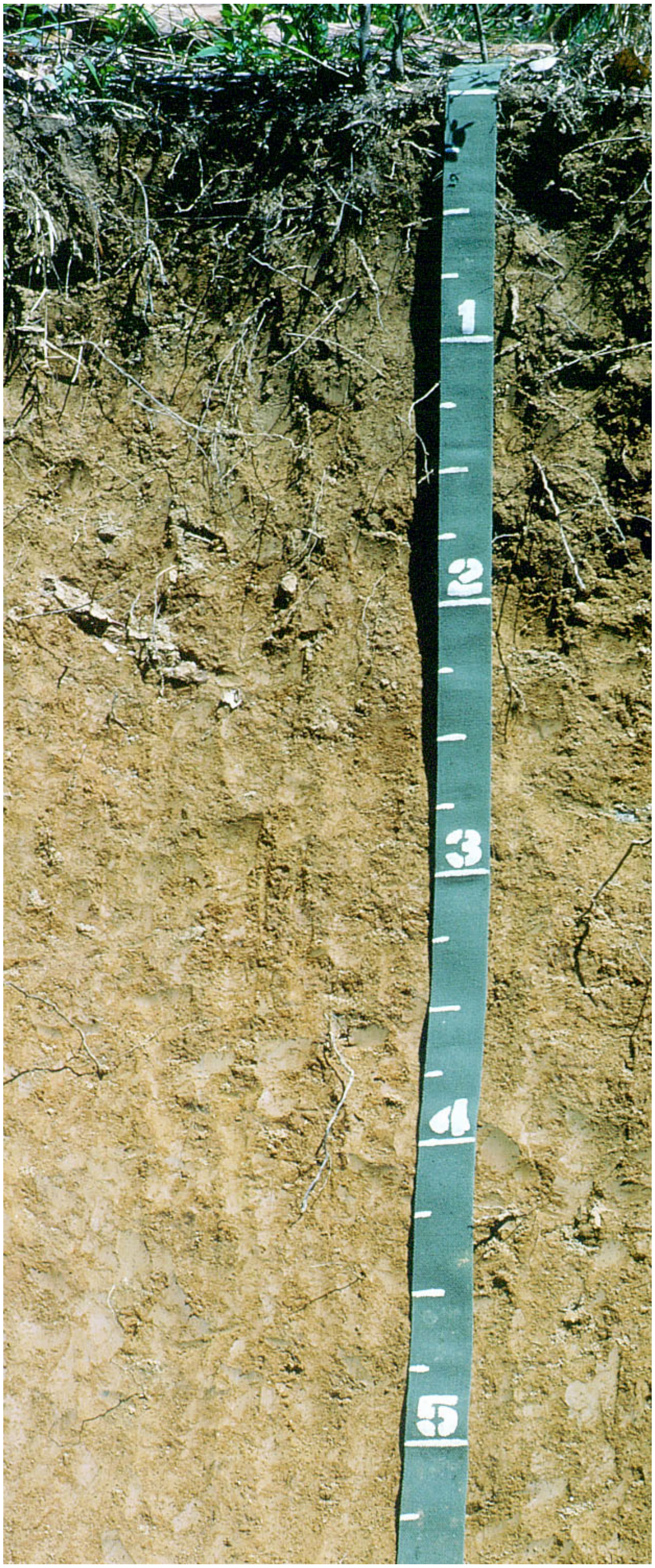

Figure 24.—Typical pedon of Speer fine sandy loam.

Figure 25.—Typical pedon of Yanush very stony silt loam.

accumulations and common fine faint light brownish gray iron depletions; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—34 to 44 inches; yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) clay loam with common fine prominent red (2.5YR 4/6) iron accumulations; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt4—44 to 70 inches; yellowish brown (10YR 5/8) and gray (10YR 6/1) gravelly clay loam with common fine prominent yellowish red (5YR 4/6) iron accumulations; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; about 15 percent, by volume, sandstone fragments less than 3 inches in diameter; very strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.
Solum thickness: More than 60 inches

A horizon:
- Color—hue of 10YR, value of 3, 4, or 5, and chroma of 2 or 3
- Texture—loam
- Rock fragments—0 to 15 percent sandstone less than 3 inches
- Reaction—moderately acid or strongly acid, except in areas where amendments have been applied

E horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
- Texture—loam or fine sandy loam
- Rock fragments—0 to 15 percent sandstone less than 3 inches
- Reaction—moderately acid or strongly acid

Bt1 horizon:
- Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8
- Texture—clay loam or loam
- Redoximorphic features—iron depletions with chroma of 2 or less range from none to common
- Rock fragments—0 to 15 percent sandstone less than 3 inches
- Reaction—strongly acid or very strongly acid

Bt2 horizon:
- Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8
- Texture—clay loam, loam, or sandy clay loam
- Redoximorphic features—iron depletions and accumulations are in shades of red, yellow, and brown
- Rock fragments—0 to 15 percent sandstone less than 3 inches
- Reaction—strongly acid or very strongly acid

Bt3 horizon:
- Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8; some pedons do not have a dominant matrix hue and are variegated in shades of red, brown, gray, or yellow
- Texture—clay loam, loam, or sandy clay loam
- Redoximorphic features—iron depletions and accumulations are in shades of gray, red, yellow, and brown
- Rock fragments—0 to 15 percent sandstone less than 3 inches
- Reaction—strongly acid or very strongly acid

2Bt4 horizon:
- Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8; most pedons do not have a dominant matrix hue and are variegated in shades of red, brown, gray, or yellow
- Texture—gravelly clay loam, gravelly sandy clay loam, or their very gravelly analogs
- Redoximorphic features—iron depletions and accumulations are in shades of gray, red, yellow, and brown
- Rock fragments—15 to 60 percent sandstone less than 3 inches
- Reaction—strongly acid or very strongly acid

Wilburton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy and cobbly colluvium and alluvium from sandstone
Landform position: Uplands adjacent to terraces and flood plains
Commonly associated soils: Avilla, Caston, Ceda, Kenn, Mena, Octavia
Slope range: 1 to 8 percent
Taxonomic class: Loamy-skeletal, siliceous, active, thermic Ultic Hapludalfs

Typical Pedon

Wilburton very cobbly loam, 1 to 8 percent slopes, very rubbly, SE¼SE¼NE¼ sec. 24, T. 1 S., R. 31 W.; Acorn USGS topographic quadrangle; latitude 34 degrees 39 minutes 0 seconds N.; longitude 94 degrees 15 minutes 0 seconds W.; elevation 1,500 feet.

A—0 to 4 inches; brown (10YR 4/3) very cobbly loam; weak fine granular structure; friable; about 50 percent, by volume, sub-rounded sandstone fragments up to 10 inches in diameter; strongly acid; clear smooth boundary.
BA—4 to 12 inches; strong brown (7.5YR 5/6) very cobbly loam; weak medium subangular blocky structure; friable; about 40 percent, by volume, sub-rounded sandstone fragments up to 10 inches in diameter; strongly acid; clear wavy boundary.
Bt1—12 to 31 inches; yellowish red (5YR 4/6) very cobbly clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 40 percent, by volume, sub-rounded sandstone fragments less than 10 inches in diameter; strongly acid; clear wavy boundary.
Bt2—31 to 51 inches; yellowish red (5YR 5/6) very cobbly clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 50 percent, by volume, sub-rounded sandstone fragments up to 10 inches in diameter; very strongly acid; diffuse wavy boundary.
BC—51 to 58 inches; yellowish red (5YR 5/6) extremely cobbly clay loam; weak medium subangular blocky structure; firm; about 70 percent, by volume, sub-rounded sandstone fragments up to 10 inches in diameter; very strongly acid; diffuse wavy boundary.
C—58 to 72 inches; yellowish red (5YR 5/6) extremely cobbly sandy clay loam; massive; friable; about 80 percent, by volume, sub-rounded sandstone fragments up to 10 inches in diameter; very strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness: 40 to 60 inches
Depth to bedrock: More than 60 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2, 3, or 4
Texture—very cobbly loam
Rock fragments—35 to 60 percent sandstone up to 10 inches
Reaction—moderately acid to very strongly acid, except in areas where amendments have been applied

BA horizon:
Color—hue of 7.5YR, value of 4, and chroma of 4, or value of 5 and chroma of 6 or 8
Texture—cobbly loam or very cobbly loam
Rock fragments—20 to 60 percent sandstone up to 10 inches
Reaction—moderately acid to very strongly acid

Bt horizon:
Color—hue of 5YR, value of 4 or 5, and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8
Texture—very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam, or their very cobbly, extremely cobbly, or extremely gravelly analogs
Rock fragments—35 to 75 percent sandstone up to 10 inches in diameter
Reaction—moderately acid to very strongly acid

BC horizon:
Color—hue of 5YR or 7.5YR, value of 5 or 6, and chroma of 6
Texture—very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam, or their extremely gravelly, very cobbly, or extremely cobbly analogs
Rock fragments—35 to 85 percent sandstone up to 10 inches in diameter
Reaction—moderately acid to very strongly acid

C horizon:
Color—hue of 5YR, 7.5YR, or 10YR, value of 4, and chroma of 4, or value of 5 and chroma of 6
Texture—very cobbly loam, very cobbly clay loam, very cobbly sandy clay loam, or their extremely cobbly analogs
Rock fragments—50 to 90 percent sandstone up to 24 inches
Reaction—slightly acid to very strongly acid

Yanush Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy and gravelly colluvium from novaculite and/or chert
Landform position: Side slopes and footslopes of mountains
Commonly associated soils: Avant, Avilla, Bigfork, Bismarck, Bengal, Carnasaw, Ceda
Slope range: 1 to 60 percent
Taxonomic class: Loamy-skeletal, siliceous, active, thermic Typic Paleudalfs

Typical Pedon

Yanush very stony silt loam (fig. 25), in an area of Yanush-Bigfork complex, 35 to 60 percent slopes, rubbly, NE$^1/_4$SE$^1/_4$NE$^1/_4$ sec. 18, T. 4 S., R. 28 W.; Nichols Mountain USGS topographic quadrangle; latitude 34 degrees 24 minutes 0 seconds N.; longitude 94 degrees 2 minutes 0 seconds W.; elevation 1,600 feet.

A—0 to 5 inches; brown (10YR 4/3) very stony silt loam; weak fine granular structure; friable; common fine roots; few fine pores; about 40 percent, by volume, novaculite fragments up to 24 inches in diameter; strongly acid; clear smooth boundary.

E—5 to 12 inches; yellowish brown (10YR 5/4) very gravelly silt loam; medium fine granular structure; friable; few fine roots; few fine pores; about 40 percent, by volume, novaculite fragments less than 3 inches in diameter; strongly acid; abrupt smooth boundary.

Bt1—12 to 18 inches; strong brown (7.5YR 5/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; about 40 percent, by volume, novaculite fragments less than 3 inches in diameter; strongly acid; clear smooth boundary.

Bt2—18 to 36 inches; yellowish red (5YR 5/8) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; about 40 percent, by volume, novaculite fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

Bt3—36 to 72 inches; yellowish red (5YR 5/8) very cobbly silty clay loam; moderate medium subangular blocky structure; firm; about 50 percent, by volume, novaculite fragments up to 10 inches in diameter; strongly acid.

Range in Characteristics

Note: Rock fragment content is given by volume, and size by diameter, unless otherwise specified.

Solum thickness: More than 60 inches

A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2, 3, or 4; or hue of 7.5YR, value of 4, and chroma of 2, 3, or 4

Texture—gravelly silt loam, cobbly silt loam, stony silt loam, or very stony silt loam

Rock fragments—15 to 60 percent novaculite and/or chert up to 24 inches

Reaction—slightly acid to strongly acid

E horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4

Texture—gravelly silt loam, very gravelly silt loam, or cobbly silt loam

Rock fragments—15 to 35 percent novaculite and/or chert up to 10 inches

Reaction—moderately acid to very strongly acid

Bt horizon:

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8

Texture—very gravelly silty clay loam, very gravelly clay loam, or their extremely gravelly or very cobbly analogs

Rock fragments—35 to 80 percent novaculite and/or chert up to 10 inches

Reaction—moderately acid to very strongly acid

Table 19.--Classification of the Soils

Soil name	Family or higher taxonomic class
Avant	Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults
Avilla	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Bengal	Fine, mixed, semiactive, thermic Typic Hapludults
Bigfork	Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults
Bismarck	Loamy-skeletal, mixed, semiactive, thermic, shallow Typic Dystrochrepts
Carnasaw	Fine, mixed, semiactive, thermic Typic Hapludults
Caston	Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults
Ceda	Loamy-skeletal, siliceous, semiactive, nonacid, thermic Typic Udifluvents
Clebit	Loamy-skeletal, siliceous, semiactive, thermic Lithic Dystrudepts
Cupco	Fine-silty, siliceous, active, thermic Typic Epiaqualfs
Dela	Coarse-loamy, siliceous, active, nonacid, thermic Typic Udifluvents
Kenn	Fine-loamy, siliceous, active, thermic Ultic Hapludalfs
Littlefir	Fine, mixed, semiactive, thermic Oxyaquic Hapludults
Mazarn	Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults
Mena	Fine, mixed, semiactive, thermic Aquic Paleudults
Nashoba	Loamy-skeletal, siliceous, semiactive, thermic Typic Dystrudepts
Neff	Fine-silty, siliceous, active, thermic Aquultic Hapludalfs
Octavia	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Pirum	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Sherless	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Speer	Fine-loamy, siliceous, active, thermic Ultic Hapludalfs
Wetsaw	Fine-loamy, siliceous, semiactive, thermic Aquic Paleudalfs
Wilburton	Loamy-skeletal, siliceous, active, thermic Ultic Hapludalfs
Yanush	Loamy-skeletal, siliceous, active, thermic Typic Paleudalfs

Formation of the Soils

In this section, the factors of soil formation are discussed and related to the soils in Polk County. In addition, the processes of soil formation are described.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon the soil. The characteristics of the soil at any given point depend upon parent material, climate, living organisms, relief, and time. Each factor acts on the soil and modifies the effect of the other four. When climate, living organisms, or any other one of the five factors is varied to a significant extent, a different soil may be formed.

Climate and living organisms are the active forces in soil formation. Relief modifies the effects of climate and living organisms, mainly by its influence on temperature and runoff. Because climate, vegetation, parent material, and relief interact over time, time is the fifth factor of soil formation. Thus, the effect of time is also reflected in the soil characteristics.

The interaction of the five factors of soil formation is more complex for some soils than for others. The five factors and how they interact to form some of the soils in Polk County are discussed in the following paragraphs.

Parent Material

Soil in Polk County formed in three broad classes of parent material: residuum; colluvium; and alluvium. The kind of parent material influences the rate at which the soil forms; the physical, chemical, and mineral composition of the soil; and the color of the soil. For example, soils that weather from shale usually have a higher silt and/or clay content than do soils weathering from sandstone. This is due, in part, to the shale having minerals that are finer in size and less resistant to weathering than those in the sandstone. Most of the parent material in the county consists of material weathered from sandstone, shale, siltstone, novaculite, and chert (fig. 26). Most of the sandstone and shale are interbedded. The chert is extremely fractured, and the novaculite is generally hard and massive. Most of this parent material is tilted 20 degrees or more, which is caused by folding and faulting.

Clebit, Nashoba, and Pirum soils formed in residuum weathered from hard sandstone. Bengal, Bismarck, and Carnasaw soils formed in residuum weathered from shale. Littlefir and Sherless soils formed in residuum weathered from a combination of sandstone and shale, though Littlefir is influenced dominantly by shale and Sherless by sandstone. Caston, Octavia, and Wilburton soils formed in colluvium derived from sandstone and shale. Wilburton soils also can form from a combination of colluvium and alluvium. Avant soil formed in residuum weathered from chert, and Bigfork soil formed in residuum weathered from novaculite. Yanush soil formed in colluvium derived from novaculite and chert.

Sediments deposited by the Ouachita River, Mountain Fork River, Irons Fork Creek, and numerous other tributaries throughout the county are the parent material of soils on terraces, flood plains, and in some drainageways. This alluvium is a mixture of material derived from several different kinds of soil, rock, and unconsolidated material. It was transported by water from uplands of Polk County and from adjacent counties in eastern Oklahoma. Avilla, Ceda, Cupco, Dela, Kenn, Mazarn, Mena, Neff, Speer, and Wetsaw soils formed in this material.

Climate

From an overall standpoint, climate is perhaps the most influential factor of soil formation in Polk County. To a great extent it determines the nature of the weathering that occurs. For example, temperature and precipitation directly influence the rate of chemical and physical processes. These processes, in turn, directly influence the rate of soil profile development.

The climate of Polk County is characterized by warm summers, mild winters, and fairly abundant rainfall. The present climate is probably similar to the climate that influenced soil formation in the past. For additional information about climate, refer to the section “General Nature of the County.”

The warm, moist climate promotes rapid soil formation and encourages rapid chemical reactions. The large amount of water that moves through the soil is instrumental in moving dissolved or suspended material downward in the soil profile. Plant remains decompose rapidly, and the organic acid that forms hastens the removal of carbonates and the formation of clay minerals.

Because the soil is frozen only to shallow depth and for a

Figure 26.—The intricate and complex pattern of soils in Polk County is a direct reflection of the tilted and interbedded characteristics of the underlying geology. Soft and fractured shale and sandstone are on the left; hard, massive sandstone is on the right.

relatively short period, soil formation continues almost year round. The climate throughout the county is relatively uniform, but its effect is modified locally by elevation, slope steepness, and slope aspect. Climate alone does not account for differences in the soils of the county.

Living Organisms

Plants and animals, including insects, bacteria, and fungi, are important in the formation of soils. Among the changes they cause are gains in organic matter and nitrogen in the soil, gains of losses in plant nutrients, and changes in soil structure and porosity.

In addition, the burrowing activities of animals and tree uprooting over long periods of time contribute a mechanical dimension to the chemical dimension of the role of living organisms. The cumulative effect of both of these may provide some new insights into gaining more understanding into the process of soil formation.

Before Polk County was settled, the native vegetation had more influence on soil formation than did animal activity. In the mountainous area of the county, the native vegetation consisted of forests of oaks, hickory, red cedar, and shortleaf pine. Only the upper few inches of the soils in these areas have a significant accumulation of organic matter and a dark color. Avant, Bigfork, Carnasaw, Caston, Clebit, Octavia, Pirum, and Yanush soils formed on these uplands. These soils differ chiefly in age and degree of weathering, in relief, and in the kind of parent material. On hills and ridges the native vegetation was scattered hardwoods, cedars, and pines that had an understory of tall grasses. Bengal, Bismarck, Littlefir, Nashoba, and Sherless soils formed here. These soils are moderately deep to deep and shallow, and they differ chiefly in age and degree of weathering. In the narrow valleys and along the streams and drainageways in the sloping and hilly parts of the county, the native trees were mixed pines and hardwoods. Avilla, Cupco, Dela, Kenn, Mazarn, Mena, Speer, Wetsaw, and Wilburton soils formed in these areas. Most of these soils are very deep and deep and they differ chiefly in age, relief, and degree of weathering.

Differences in native vegetation in the county are related partly to variations in the available water capacity and in the surface and internal drainage of the soils. Slope, aspect, and soil fertility also cause minor variations. Only the major differences in the original vegetation are reflected to any extent in the characteristics of the soils. People are important to the future rate and direction of soil formation. They clear the forests, cultivate the soils, and introduce new kinds of plants. Fertilizers, lime, and chemicals for insect, disease, and weed control are added to the soil.

Constructing levees and dams for flood control, improving drainage, and grading the soil surface also affect the development of soils. Some results of these changes will not be evident for many centuries, nevertheless, the complex of living organisms affecting soil formation in this county has been drastically changed by these activities.

Relief

The relief, or topography, of the land can increase or slow down the work of climatic forces. In smooth, flat areas, excess water is removed at a slower rate than on a rolling landscape. More water reaches the soil to aid in soil profile development. The rolling topography encourages more surface runoff and some natural erosion of the surface layer. If the runoff and erosion are extensive, the formation of a deep soil can be eliminated. The role of relief in the process of soil formation is primarily one of modifying the effects of the climate and vegetative factors.

Relief or differences in elevation in Polk County has been brought about chiefly by faulting, folding, and the subsequent entrenchment of drainage channels into the land surface. The highest recorded elevation in the county, about 2,681 feet above sea level, is on Rich Mountain in the northwestern part of the county within the boundary of the Ouachita National Forest. The lowest elevation, about 800 feet above sea level, is the eastern part of the county along the Ouachita River.

Some of the greatest differences in the soils of Polk County are caused by differences in relief through its effect on drainage, runoff, erosion, and percolation of water through the soil. The landscape ranges from near vertical bluffs to broad flats.

Some soils on steeper slopes and narrow ridges are shallower because they have lost so much soil material through geologic erosion. Examples are Bismarck and Clebit soils. In contrast, broad areas of the nearly level to gently sloping soils have lost little soil material, and the soils are deep or very deep. Examples are Avilla and Mena soils.

Slopes on the tops and sides of mountains and ridges are shaped so that excess water is removed soon after it falls on the surface. Even when precipitation is more than sufficient to saturate, the soils are saturated for only short periods during and after rainfall or snowfall. Consequently, these soils are usually well drained, though some are slowly permeable. This is reflected by the dominantly brown and red colors of Avant, Bengal, Bigfork, Carnasaw, Littlefir, Pirum, and Sherless soils that formed in these areas.

Deep accumulations of material that washed or slid down from adjoining steep or very steep slopes are on footslopes and in coves. The Caston, Octavia, and Yanush soils are in such areas. In places where rocks have broken off and rolled downslope, these soils are stony.

Soils in nearly level to depressional areas and concave uplands in valleys have slow or ponded surface drainage, and the soils are somewhat poorly drained to poorly drained. Permeability is slow. The soils have gray mottles or are gray because of the reduction of iron and have a seasonal high water table. The Mazarn soils are in such areas.

It is believed that the nearly level to moderately sloping uplands and terraces are relics of old stream terraces which are now usually far removed from the original water source due to continued stream entrenchment. In the ensuing years, other soil-forming influences have contributed to a well-developed soil profile. The Mena soils have formed in this setting.

On nearly level to gently sloping stream terraces, soils formed in deep, loamy material washed from uplands and redeposited on stream flood plains before the streams were further entrenched. The Avilla and Wetsaw soils formed in these areas.

The flood plains of the larger tributaries of Polk County such as Irons Fork Creek and the lower Ouachita River are level to nearly level. The floodwater, loaded with soil particles, moved at different speeds, depending partly on the topography. Rapidly moving water deposited the loamy sediment in which the Kenn and Speer soils formed. The less rapidly moving water deposited mixed sediment that was high in silt. The Neff and Cupco soils formed in this sediment.

The soils in flood plains of the smaller tributaries of the county were formed by the deposition of material washed from local uplands. These areas are narrower and consequently contain more gravels and cobbles than do the broader flood plains. The Kenn and Ceda soils are the dominant soils formed here.

Time

The time required for soil formation depends largely on other factors of soil formation. Less time generally is required if the climate is warm and humid and the vegetation abundant. If other factors are equal, less time is also required if the parent material is loamy than if it is clayey. In terms of geological time, most of the soils of Polk County are old, regardless of whether they are on mountaintops, mountainsides, or stream terraces. The young soils are along streams and rivers.

The soils on uplands are old. They formed in material weathered form sandstone and shale of Pennsylvanian age or in material weathered form novaculite, shale, and sandstone of the Ordovician, Silurian, and Mississippian ages. Most of these soils are old enough that most of the bases have been leached out. The reaction is strongly acid or very strongly acid. Considerable weathering and translocation of clay has occurred, and the horizons are dearly expressed. Iron, as well as clay, has been translocated from the A horizon to the B horizon and then oxidized, giving the B horizon stronger red, brown, and yellow colors than the A horizon. Carnasaw and Sherless soils clearly show the impact of time acting with other soil forming factors on parent material.

The Ceda and Dela soils are examples of young soils. They formed in recent alluvium on narrow flood plains. No definite horizons have formed below the A horizon. Instead, these soils still have the depositions rock structure, or bedding plans, and little or no soil structure.

Processes of Soil Formation

The effects of the soil-forming factors are reflected in the soil profile. The soil profile is a succession of layers, or horizons, from the surface to the parent rock. These horizons differ in one or more properties, such as color, texture, structure, consistency, and porosity. Most soil profiles contain three major horizons, the A, B, and C horizons. Very young soils do not have a B horizon.

The A horizon, or surface layer, is the horizon of maximum accumulation of organic matter. The horizon of maximum leaching of dissolved or suspended material is called the E horizon, or subsurface layer.

The B horizon, or subsoil, is below the A or E horizon. It is the horizon of maximum accumulation of suspended material, such as clay and iron. The B horizon commonly has blocky structure and is firmer than the horizons immediately above or below it.

The C horizon is below the B horizon. This horizon is little affected by soil-forming processes, but it can be materially modified by weathering. In some young soils, the C horizon immediately underlies the A horizon and has been slightly modified by living organisms as well as weathering.

In Polk County, several processes have been active in the formation of soil horizons. These processes are the accumulation of organic matter, the leaching of bases, the oxidation or reduction and transfer of iron, and the formation and translocation of silicate clay minerals. In most of the soils, more than one of these processes were involved.

Physical weathering of rocks, through heating and cooling and wetting and drying, slowly breaks the rocks into small pieces that form the parent material of residual soils. The effects of weathering are most evident in Bismarck and Clebit soils.

The accumulation of organic matter in the upper part of the profile (A horizon) is readily evident in the Octavia soils. These soils have a light-color subsurface layer from which organic matter, clay, and iron oxides have been removed.

Leaching of bases has occurred to some degree in nearly all of the soils of Polk County. Soil scientists generally agree that bases are leached downward in soils before silicate clay minerals begin to move. Most of the soils in the county are moderately leached. Kenn and Speer soils are moderately leached, and Carnasaw, Sherless, and Bismarck soils are strongly leached.

Oxidation of iron is evident in the moderately well drained and well drained soils in the county. Red and brown colors in the B horizon of the Bengal, Littlefir, Nashoba, Mena, and Sherless soils indicate the oxidation of iron.

Translocation of silicate clay minerals has contributed to horizon development in most of the soils in the county. In cultivated areas, most of the elevated E horizon has been destroyed. Where the E horizon remains distinct, it generally has weak subangular blocky structure, has less clay than the lower horizons, and is lighter in color than the rest of the soil.

Clay films generally have accumulated in pores and on the surface of peds in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before translocation of silicate clay occurred, even though the content of bases is still higher in some of the soils on low lands.

Leaching of bases and translocation of silicate clay are among the most important processes in horizon differentiation in the soils of Polk County.

Geology

Charles G. Stone, geologist, Arkansas Geological Commission, contributed to this section.

Most of the soils in Polk County formed in and from material of weathered, consolidated bedrock of the Ordovician through Pennsylvanian Periods of the Paleozoic Era (see the general geology map immediately following the tables).

Nearly all of the rocks in the area are of sedimentary origin, which were deposited as nearly flat layers of mud, sand, gravel, silica, and carbonate in the marine waters of an ancient deep basin that occupied the region. With the load and weight of the overlying sediments, they were subsequently converted to shale, sandstone, conglomerate, limestone, chert, and novaculite. In addition, there are volcanic components in the lower Stanley Formation indicating a series of massive volcanic explosions which came from an ancient land mass to the south (called Llanoria). These components are in the form of volcanic ash and tuff.

These rocks were then subjected to intense compressive forces in late Paleozoic time that transported them towards the north causing them to bend and fold and, in many places, to rupture and fault. Ultimately, the region was uplifted, forming an extensive mountain range. This deformation, called the Ouachita orogeny, caused elevated pressures and temperatures that slightly metamorphosed these rocks in places, changing some shale to slate and sandstone to quartzite, and creating milky quartz veins and crystals that often fill fractures, dissecting these rocks. Subsequent to the Ouachita orogeny, the region has been eroded and dissected with minor arching and extensional faulting.

The uplift produced prominent east-west folds and large thrust faults in the typically steeply dipping strata. Almost without exception, the present landforms are a reflection of the underlying bedrock. The softer, less resistant shale and impure sandstone, tuff, and limestone are more susceptible to erosion and form most of the basins, valley floors, and lower hills. The harder, more resistant novaculite, chert, and relatively pure sandstone form the mountains, ridges, and peaks.

During various glacial-interglacial climatic cycles in Pleistocene and Recent times (The Quarternary), rock debris was further processed to form river alluvium, river terrace deposits, and deposits of colluvium on the surrounding hills. In the following paragraphs, the individual geologic formations will be described in order of their age, from oldest to youngest. This discussion will be limited to the general areas where the formations are exposed and the associated soils of each of the formations.

The Mazarn Shale is of early Ordovician age and is exposed near the Opal community. It consists mostly of black shale with some interbedded olive-green shale and silty shale, thinly laminated gray siltstone, brown sandstone, dense blue-gray limestone, and bluish-black chert. The alternating black and olive-green shale layers, often with crosscutting cleavage, give it a banded appearance. The Mazarn Shale typically forms valleys with some noticeable low ridges. Bengal, Bismarck, and Carnasaw soils formed from weathered shale, Nashoba soils formed from weathered sandstone, Littlefir soils formed from weathered shale or shale and sandstone, and Yanush and Avant soils formed from chert.

The Womble Shale is of middle Ordovician age and is exposed in small bands that finger a short distance into eastern Polk County. This formation consists mostly of gray-black shale with intervals of dense, bluish-gray limestone and calcareous siltstone. Minor amounts of gray chert, fine-grained quartzose sandstone, and conglomerate are also present. This formation typically forms low, fairly broad valleys with minor east-west trending, irregular hills. Bengal, Bismarck, and Carnasaw soils formed in weathered shale, and Littlefir soils formed in weathered shale or shale and sandstone.

The Bigfork Chert is of middle-late Ordovician age and is exposed mainly in the extreme east-central portion of Polk County, although narrow bands of it are found scattered throughout the southeastern part of the county. It is composed mainly of thin-bedded, highly fractured, gray chert; dense gray limestone; calcareous siltstone; and some interbedded black shale. Irregularly shaped “potato” hills are often produced by the weathering of the Bigfork Chert. Intense fracturing creates good aquifer conditions in the formation. Because of its finely broken nature, the Bigfork Chert has considerable potential for local supplies of rock aggregate. Avant soils formed in weathered chert and Yanush soils formed in colluvial material from chert on the hillsides.

The Polk Creek Shale is of late Ordovician age. It is a grayish-black sooty shale with some very thin gray chert and a few thin blue-gray limestone intervals. This formation is exposed mostly in narrow bands in valleys adjacent to the Bigfork Chert in the extreme east-central part of the county. Soil similar to the Avant and Yanush soils formed in residuum and colluvium, respectively, from this material. Bengal soils formed in residuum from the shale.

The Blaylock Sandstone is of early Silurian age. It consists of alternating thin brownish gray, very fine-grained silty sandstone and gray shale layers. It typically forms narrow ridges or jagged strips on mountain slopes between the Missouri Mountain Shale and the Polk Creek Shale. This formation is exposed in small areas in the southeastern part of Polk County. Nashoba and Sherless soils formed in weathered sandstone, and Bismarck soils formed in weathered shale. Littlefir soils formed in weathered shale or shale and sandstone.

The Missouri Mountain Shale is of late Silurian age. It is exposed in narrow bands normally between the Arkansas Novaculite and the Blaylock Sandstone or, in places, to the Polk Creek Shale. Typically, it is a red, green, or buff shale or slate with minor novaculite and sandy conglomerate layers. It is generally poorly exposed and forms narrow valleys or slopes. Bismarck, Carnasaw, and Littlefir soils formed in weathered shale.

The Arkansas Novaculite is of Devonian-Mississippian age. It lies in close proximity to the Missouri Mountain Shale and Polk Creek Shale and, in places, to the Blaylock Sandstone and Stanley Shale Formations. This formation is exposed extensively in the southeastern portion of Polk County. It consists predominantly of white to light gray novaculite with lesser amounts of gray chert, olive-green to black shale, conglomerate, and sandstone. Novaculite is a hard, dense rock made up essentially of partially recrystallized silica, usually white to light gray and resembling unglazed porcelain in general appearance and texture. The Lower Division of the Arkansas Novaculite is extremely resistant and forms high, sharp-crested ridges along east-west belts. Novaculite is probably best known as a raw material for making whetstones. Yanush soils formed in the colluvial material from novaculite, and Bigfork soils formed in weathered novaculite. Bengal and Carnasaw soils formed in weathered shale, Avant soils formed in weathered chert, and Nashoba and Sherless soils formed in weathered sandstone.

The Stanley Shale is of late Mississippian age and is the most extensively exposed formation in Polk County. It is exposed in a broad band across the central and southwestern portions of the county. It is composed mostly of blackish gray to brownish green shale with lesser quantities of thin to massive, silty fine-grained gray to brown feldspathic sandstone and some glossy black to gray chert. In addition, there are volcanic tuffaceous sandstones and tuffs in the lower part of the formation in the southern part of the county. The sandstone decomposes upon weathering and forms low ridges, and the shale decomposes to form valleys. Thus, the Stanley Shale typically forms valleys with a series of low hills. Where the tuffaceous sandstones dominate (primarily in the Hatton vicinity), a narrow mountain range exists. Bismarck soils formed in material weathered from shale, and Nashoba soils formed in material weathered from sandstone. Littlefir and Sherless soils formed in material weathered from a combination of sandstone and shale. Yanush, Bigfork, and Avant soils formed in material that weathered from chert and tuffaceous sandstones.

The Jackfork Sandstone is of early Pennsylvanian age and is exposed across the extreme northern part of the county. This formation rests on the Stanley Shale Formation and consists of thin to massive, light brown to gray, fine-grained, quartzitic sandstone, blue-black to brown siltstone, and interbedded blackish-gray shale. The massive sandstones are fairly resistant to weathering and typically form high ridges with many rock exposures. Clebit and Pirum soils formed in material that weathered from sandstone, and Carnasaw and Bengal soils formed in material weathered from shale. Octavia and Caston soils formed in colluvium from both sandstone and shale.

The Johns Valley Shale is of early Pennsylvanian age and is exposed on a very small area in the extreme northernmost part of the county near the Scott County boundary. It consists primarily of grayish-black shale with thinly interbedded layers of grayish brown sandstone, some grayish-black chert, and some erratic limestone masses. This formation characteristically forms hills adjacent to large mountains. Carnasaw and Bengal soils formed in material weathered from the shale, and Sherless, Pirum, and Clebit soils formed in material weathered from the sandstone.

The Lower Atoka Formation is of middle Pennsylvanian age making it the youngest geologic formation exposed in Polk County. This formation is exposed along the northern border of the county and consists of thin to rather massive, fine to medium-grained subgraywacke (silty) sandstones and interbedded blackish-gray shales. Carnasaw soils formed in material weathered from shale, and Sherless and Clebit soils formed in material weathered from sandstone. Octavia soils formed in colluvium from both sandstone and shale.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

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.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils 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.

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 stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

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

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.

Bulk density. Bulk density $^1/_3$ bar or $^1/_{10}$ bar is the oven-dried weight of the less than 2 millimeters soil material per unit volume of soil at a water tension of $^1/_3$ bar or $^1/_{10}$ bar.

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

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

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

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.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

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

Complex slope. Irregular or variable slope. Planning or 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 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 are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

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. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a “wire” when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

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

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

Cemented.—Hard; little affected by moistening.

Contour stripcropping. 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.

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

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

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

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

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

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

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

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

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

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.

Droughty (in tables). Soil holds too little water for plants during dry periods.

Dry season. Time when climatic and vegetation factors combine to produce, in general, low soil moistures. For temperate, humid climates, the dry season is from about the first of May to the first of November. In this season, evaporation of water from the soil is high because of long days, high temperatures, and few clouds, and water is rapidly extracted from the soil and transpired to the atmosphere by growing plants. A dry season may also occur at other times of the year as a result of long periods of fair weather. Areas of arid climates may be considered to be constant in a dry season.

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.

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

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

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

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 is not a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salt (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The movement of water into the soil is rapid.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

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

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

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

Footslope. The inclined surface at the base of a hill.

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

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.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

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 up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.

Ground water (geology). 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.

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 at the surface of a mineral soil.

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 O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

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 A or B horizon. 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 rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

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

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

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

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Large stones (in tables). Rock fragments that are 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 $^{1}/_{3}$- or $^{1}/_{10}$-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.

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.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

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.

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

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates attributes retained from the geologic source rather than from pedogenesis. Descriptive categories are as follows: quantity, size, contrast, color, and moisture state. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

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

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

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

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

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

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

Pediment. A gently sloping erosional surface developed at the foot of a receding hill or mountain slope. The surface may be essentially bare, exposing earth material that extends beneath adjacent uplands; or it may be thinly mantled with alluvium and colluvium, ultimately in transit from upland front to basin or valley lowland. In hill-footslope terrain, the mantle is designated “pedisediment.”

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is, or was, being transported across a pediment.

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 or micrometers per second, are as follows:

	in/hr	um/sec
Extremely slow	0.0 to 0.01	0.0 to 0.01
Very slow	0.01 to 0.06	0.01 to 0.42
Slow	0.06 to 0.2	0.42 to 1.4
Moderately slow	0.2 to 0.6	1.4 to 4
Moderate	0.6 inch to 2.0	4 to 14
Moderately rapid	2.0 to 6.0	14 to 42
Rapid	6.0 to 20	42 to 141
Very rapid	more than 20	141 to 705

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

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

Piping (in tables). Subsurface tunnels or pipelike cavities are formed 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.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

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 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.

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.

Reaction, soil. A measure of the 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:

Extremely acid	below 4.5
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.

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.

Riverwash. Unstabilized sandy, silty, clayey, or gravelly sediment that is flooded, washed, and reworked frequently by rivers.

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

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

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

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

Rubble land. Areas of cobbles, stones, and boulders. Rubble land is commonly at the base of mountains, but some areas are deposits of cobbles, stones, and boulders left on mountainsides by glaciation or by periglacial processes.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline	0 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

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.

Seasonal wetness (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil 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 or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

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.

Shrink-swell. 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.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

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.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

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

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.

Stony soil material. Material that is 15 to 35 percent, by volume, rock fragments 10 to 24 inches (7.6 to 61 centimeters) in diameter. Very stony soil material has 35 to 60 percent of these rock fragments, and extremely stony soil material has more than 60 percent.

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.

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 organic matter content than the overlying surface layer.

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 runoff. The loss of water from an area by flow over the land surface. Index surface runoff classes follow:

Slope Pct.	Permeability Class					
	Rapid and very rapid	Moderately rapid	Moderate	Moderately slow	Slow	Very slow and impermeable
Concave	N	N	N	N	N	N
<1	N	N	N	L	M	H
1 to 5	N	LV	L	M	H	HV
5 to 10	LV	L	M	H	HV	HV
10 to 20	LV	L	M	H	HV	HV
>20	L	M	H	HV	HV	HV

Abbreviations: N—Negligible; LV—Very low; L—Low; M—Medium; H—High; HV—Very high

Surface stones and boulders (classes). The class limits that follow are given in terms of the approximate amount of stones and boulders at the surface:

Class 1, 0.01-0.1 percent .... stony or bouldery
Class 2, 0.1-3.0 percent .... very stony or very bouldery
Class 3, 3.0-15 percent ... extremely stony or extremely bouldery
Class 4, 15-50 percent .... rubbly
Class 5, 50-90 percent .... very rubbly

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

Talus slope. A portion of a hillslope or a mountain slope mantled by talus and lying below a rockfall source.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

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 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, SR—stratified, ST—stony, STV—very stony, and STX—extremely stony.*

Thin layer (in tables). An 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 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). An excessive amount of toxic substances in the soil, such as sodium or sulfur, severely hinders the establishment of vegetation or severely restricts plant growth.

Trace elements. Chemical elements, such as 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.

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

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.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. 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.

Wet season. Time in which weather conditions combine to produce high soil moistures. In temperate, humid climates, the wet season extends from about the first of November to the first of May. During the wet season, frequent rains, low temperatures, heavy cloud cover, and the absence of growing plants tend to keep soil moisture near a maximum value. Melting of snow and thawing of previously frozen soils may also produce wet soil conditions. Wet seasons may occur at any time as a result of prolonged rains, floods, or irrigation. Adding moisture to a soil affects the strength of that soil; the effect differs with soil types.

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

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