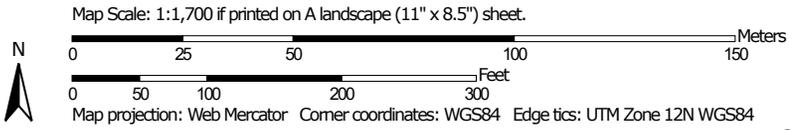


Custom Soil Resource Report Soil Map SKR 698-10-BV Pad



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
44	Happle very channery sandy loam, 3 to 12 percent slopes	5.5	86.6%
46	Happle-Rock outcrop association, 25 to 65 percent slopes	0.9	13.4%
Totals for Area of Interest		6.4	100.0%

Map Unit Descriptions

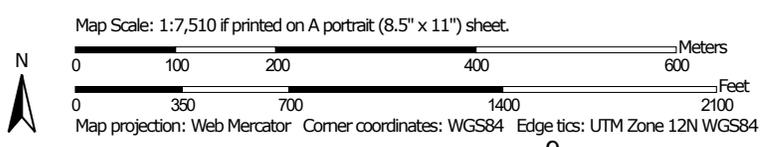
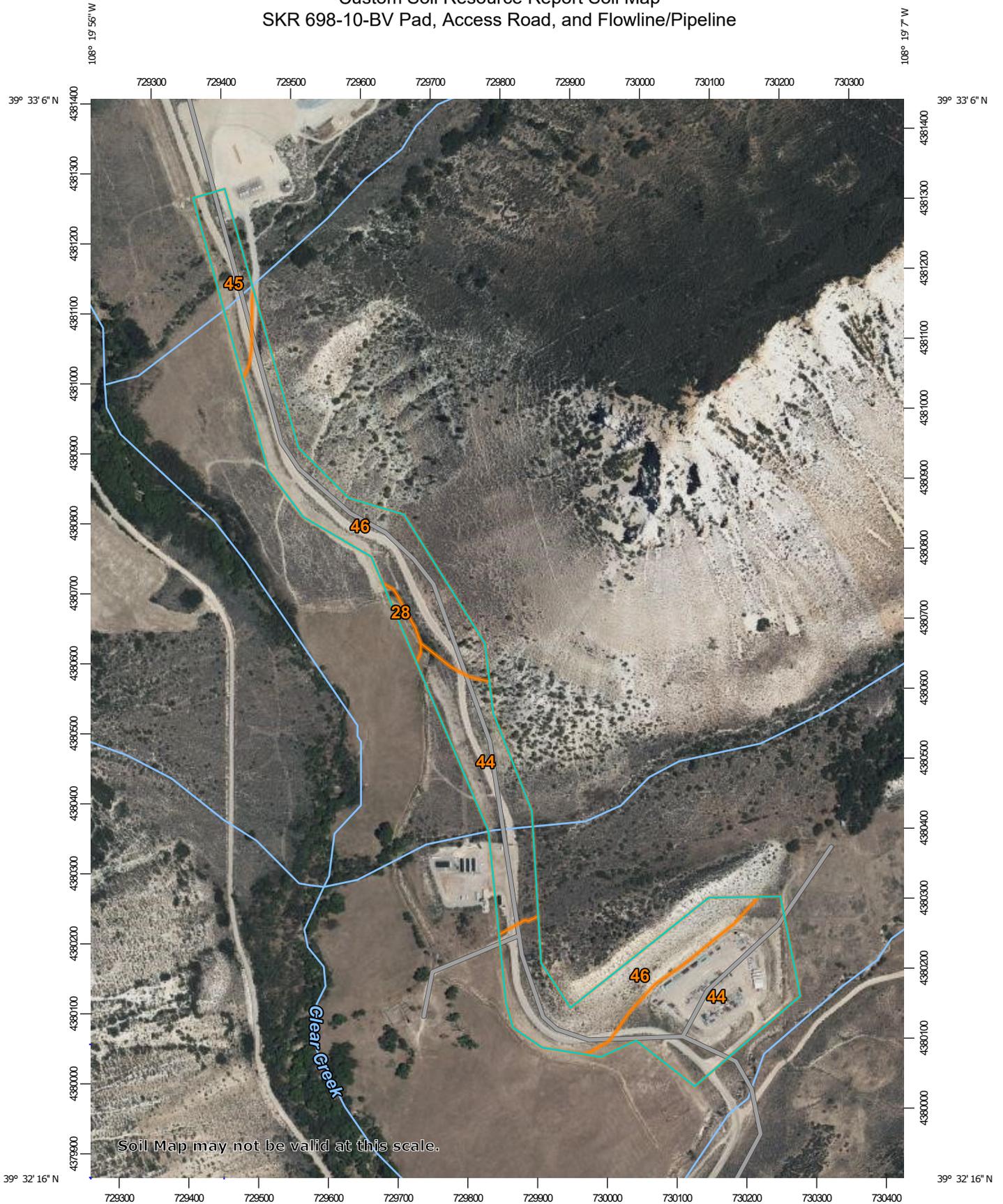
The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

Custom Soil Resource Report Soil Map
SKR 698-10-BV Pad, Access Road, and Flowline/Pipeline



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Douglas-Plateau Area, Colorado, Parts of Garfield and Mesa Counties
 Survey Area Data: Version 16, Aug 22, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 24, 2020—Jul 8, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
28	Cumulic Haploborolls, 1 to 3 percent slopes	0.4	1.2%
44	Happle very channery sandy loam, 3 to 12 percent slopes	15.9	45.0%
45	Happle very channery sandy loam, 12 to 25 percent slopes	2.6	7.4%
46	Happle-Rock outcrop association, 25 to 65 percent slopes	16.4	46.5%
Totals for Area of Interest		35.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Douglas-Plateau Area, Colorado, Parts of Garfield and Mesa Counties

28—Cumulic Haploborolls, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: jnv6

Elevation: 5,800 to 7,400 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 40 to 46 degrees F

Frost-free period: 80 to 110 days

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Cumulic haploborolls and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cumulic Haploborolls

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Wasatch shale formation alluvium and/or green river shale formation alluvium

Typical profile

H1 - 0 to 8 inches: gravelly sandy clay loam

H2 - 8 to 20 inches: very channery sandy clay loam

H3 - 20 to 28 inches: clay loam

H4 - 28 to 60 inches: stratified very gravelly sand to extremely gravelly loamy sand

Properties and qualities

Slope: 1 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)

Depth to water table: About 36 to 72 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R048AY285CO - Foothill Swale

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

44—Happle very channery sandy loam, 3 to 12 percent slopes

Map Unit Setting

National map unit symbol: jnvs
Elevation: 5,200 to 6,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Happle and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Happle

Setting

Landform: Alluvial fans
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Green river formation alluvium derived from shale

Typical profile

H1 - 0 to 7 inches: very channery sandy loam
H2 - 7 to 14 inches: very channery sandy loam
H3 - 14 to 32 inches: very channery sandy clay loam
H4 - 32 to 60 inches: extremely channery sandy loam

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Custom Soil Resource Report

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R034BY306UT - Upland Loam (Wyoming Big Sagebrush)

Hydric soil rating: No

Minor Components

Cumulic haploborolls

Percent of map unit: 10 percent

Hydric soil rating: No

Debeque

Percent of map unit: 10 percent

Hydric soil rating: No

45—Happle very channery sandy loam, 12 to 25 percent slopes

Map Unit Setting

National map unit symbol: jnvt

Elevation: 5,400 to 6,200 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 100 to 150 days

Farmland classification: Not prime farmland

Map Unit Composition

Happle and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Happle

Setting

Landform: Mountains, alluvial fans

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Green river formation alluvium derived from shale and/or green river formation colluvium derived from shale

Typical profile

H1 - 0 to 7 inches: very channery sandy loam

H2 - 7 to 14 inches: very channery sandy loam

H3 - 14 to 32 inches: very channery sandy clay loam

H4 - 32 to 60 inches: extremely channery sandy loam

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Properties and qualities

Slope: 12 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY303CO - Loamy Slopes
Hydric soil rating: No

Minor Components

Toska

Percent of map unit: 10 percent
Hydric soil rating: No

Debeque

Percent of map unit: 10 percent
Hydric soil rating: No

46—Happle-Rock outcrop association, 25 to 65 percent slopes

Map Unit Setting

National map unit symbol: jnvv
Elevation: 6,200 to 7,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Happle and similar soils: 50 percent
Rock outcrop: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Happle

Setting

Landform: Canyons, mountains
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Green river formation colluvium derived from shale

Typical profile

H1 - 0 to 7 inches: very channery sandy loam
H2 - 7 to 14 inches: very channery sandy loam
H3 - 14 to 32 inches: very channery sandy clay loam
H4 - 32 to 60 inches: extremely channery sandy loam

Properties and qualities

Slope: 25 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R034BY334UT - Upland Stony Loam (Wyoming big sagebrush)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 40 to 65 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

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Minor Components

Other soils

Percent of map unit: 15 percent

Hydric soil rating: No