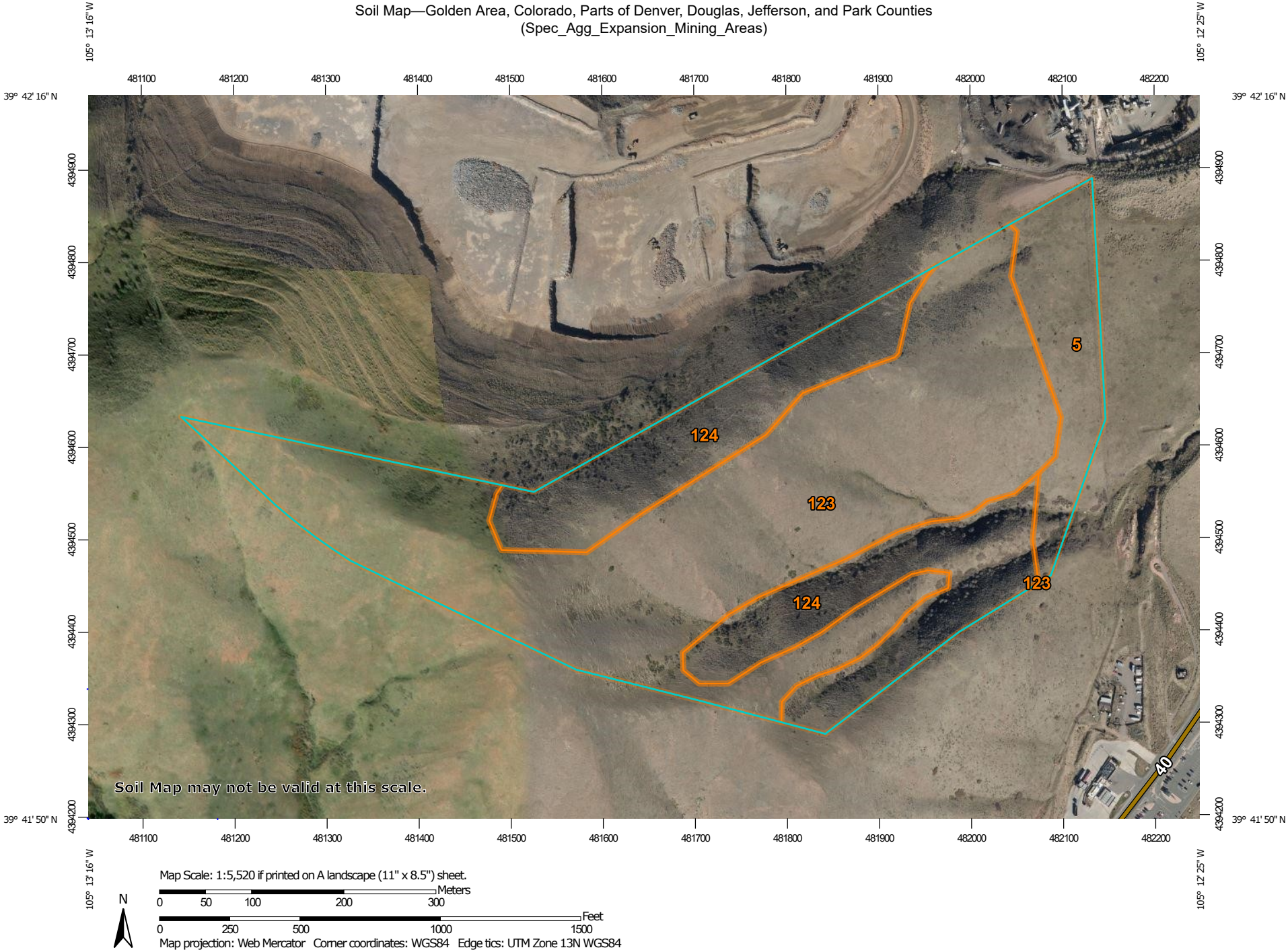
Specification Aggregates Quarry Amendment
Exhibit I (Rule 6.4.9) – Soils

Soils within the current mine permit boundary were documented in the original permit application and the 2003 Amendment. The soils in the amendment area were identified using the United States Department of Agriculture Natural Resource Conservation Service (USDA-NRCS) Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm). A copy of the Soils Report and the soils data from the USDA-NRCS Web Soil Survey for the expansion area are attached.

Soil Map—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
(Spec_Agg_Expansion_Mining_Areas)



Map Scale: 1:5,520 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

Soil Map—Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
(Spec_Agg_Expansion_Mining_Areas)

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: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

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

Date(s) aerial images were photographed: Jul 4, 2010—Apr 9, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background 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
5	Argiustolls-Rock outcrop complex, 15 to 60 percent slopes	6.2	9.7%
123	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes	39.6	61.7%
124	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes	18.3	28.6%
Totals for Area of Interest		**64.1**	**100.0%**

Survey Area Map Unit Symbols and Names

Report—Survey Area Map Unit Symbols and Names

Survey Area Map Unit Symbols and Names–Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties		
National Map Symbol	**Published Map Symbol**	**Map Unit Name**
jpp6	5	Argiustolls-Rock outcrop complex, 15 to 60 percent slopes
jpl5	123	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes
jpl6	124	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

Map Unit Description

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 in this report, along with the maps, can be used to determine the composition and properties of a unit.

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Most of the soils similar to the major components 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. Some minor components, however, have properties and behavior 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 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*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given 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.

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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.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

5—Argiustolls-Rock outcrop complex, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: jpp6
Elevation: 5,600 to 6,500 feet

Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

Argiustolls and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Argiustolls

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly, stony, loamy colluvium and/or residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 10 inches: stony sandy loam
H2 - 10 to 35 inches: very gravelly sandy loam, very gravelly sandy clay loam
H2 - 10 to 35 inches: unweathered bedrock
H3 - 35 to 39 inches:

Properties and qualities

Slope: 15 to 60 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY206CO - Rocky Foothill
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, free face

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

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

Minor Components

Ascalon

Percent of map unit: 8 percent
Landform: Fans, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Urban land

Percent of map unit: 7 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

Map Unit Description

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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*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given 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.

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Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

123—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: jpl5
Elevation: 6,500 to 7,800 feet

Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Ratake and similar soils: 35 percent
Cathedral and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ratake

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very gravelly sandy loam, very gravelly loam
H2 - 3 to 12 inches: weathered bedrock
H3 - 12 to 16 inches:

Properties and qualities

Slope: 25 to 60 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 low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Cathedral

Setting

Landform: Mountain slopes, ridges

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: very stony sandy loam
H2 - 3 to 11 inches: very gravelly sandy loam
H3 - 11 to 15 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Igneous and metamorphic rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

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

Minor Components

Curecanti
Percent of map unit: 3 percent
Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Urban land
Percent of map unit: 3 percent
Hydric soil rating: No

Breece
Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Lininger
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

Trag
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

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Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

124—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes

Map Unit Setting

National map unit symbol: jpl6
Elevation: 6,500 to 7,800 feet

Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Ratake, north slopes, and similar soils: 35 percent
Cathedral, north slopes, and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ratake, North Slopes

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very gravelly sandy loam, very gravelly loam
H2 - 3 to 12 inches: weathered bedrock
H3 - 12 to 16 inches:

Properties and qualities

Slope: 25 to 60 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 low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Cathedral, North Slopes

Setting

Landform: Ridges, mountain slopes

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: very stony sandy loam
H2 - 3 to 11 inches: very gravelly sandy loam
H3 - 11 to 15 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Igneous and metamorphic rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

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

Minor Components

Urban land
Percent of map unit: 3 percent
Hydric soil rating: No

Trag
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

Curecanti
Percent of map unit: 3 percent
Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Breece
Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Lininger
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

Component Text Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The component descriptions in this report, 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 associated 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 (components) for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Component Nontechnical Descriptions" report gives a brief, general description of the soil components that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Component Text Descriptions

Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

Map Unit: 5—Argiustolls-Rock outcrop complex, 15 to 60 percent slopes

Description Category: GENSOIL

Argiustolls: 65 percent

The Argiustolls component makes up 65 percent of the map unit. Slopes are 15 to 60 percent. This component is on hillslopes. The parent material consists of gravelly, stony, loamy colluvium and/or residuum weathered from sedimentary rock. Depth to a root restrictive layer, bedrock, lithic, inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R048AY206CO Rocky Foothill ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Rock outcrop: 20 percent

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Description Category: GENSOIL

Ascalon: 8 percent

The Ascalon component makes up 8 percent of the map unit. Slopes are 15 to 60 percent. This component is on fans, hillslopes. The parent material consists of calcareous, loamy eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY202CO Loamy Foothill ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Urban land: 7 percent

Generated brief soil descriptions are created for major soil components. The Urban land soil is a minor component.

Map Unit: 123—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes

Description Category: GENSOIL

Ratake: 35 percent

The Ratake component makes up 35 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes, ridges. The parent material consists of stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, paralithic, inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY229CO Rocky Loam ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Cathedral: 30 percent

The Cathedral component makes up 30 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes, ridges. The parent material consists of stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, lithic, inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY229CO Rocky Loam ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Rock outcrop: 20 percent

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Description Category: GENSOIL

Curecanti: 3 percent

The Curecanti component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on fans, mountain slopes. The parent material consists of noncalcareous, stony & gravelly colluvium derived from schist and/or granite and gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY237CO Stony Loam ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Urban land: 3 percent

Generated brief soil descriptions are created for major soil components. The Urban land soil is a minor component.

Description Category: GENSOIL

Breece: 3 percent

The Breece component makes up 3 percent of the map unit. Slopes are 5 to 15 percent. This component is on drainageways on mountains, fans on mountains. The parent material consists of noncalcareous, loamy alluvium and/or colluvium derived from igneous and metamorphic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Lininger: 3 percent

The Lininger component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes. The parent material consists of stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, paralithic, inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Trag: 3 percent

The Trag component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes. The parent material consists of loamy alluvium and/or colluvium derived from igneous and metamorphic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Map Unit: 124—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes

Description Category: GENSOIL

Ratake, north slopes: 35 percent

The Ratake, north slopes component makes up 35 percent of the map unit. Slopes are 25 to 60 percent. This component is on ridges, north-facing mountain slopes. The parent material consists of stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, paralithic, inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY229CO Rocky Loam ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Cathedral, north slopes: 30 percent

The Cathedral, north slopes component makes up 30 percent of the map unit. Slopes are 25 to 60 percent. This component is on ridges, north-facing mountain slopes. The parent material consists of stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, lithic, inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R048AY229CO Rocky Loam ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Rock outcrop: 20 percent

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Description Category: GENSOIL

Urban land: 3 percent

Generated brief soil descriptions are created for major soil components. The Urban land soil is a minor component.

Description Category: GENSOIL

Trag: 3 percent

The Trag component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes. The parent material consists of loamy alluvium and/or colluvium derived from igneous and metamorphic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Curecanti: 3 percent

The Curecanti component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on fans, mountain slopes. The parent material consists of noncalcareous, stony & gravelly colluvium derived from schist and/or granite and gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY237CO Stony Loam ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Breece: 3 percent

The Breece component makes up 3 percent of the map unit. Slopes are 5 to 15 percent. This component is on drainageways on mountains, fans on mountains. The parent material consists of noncalcareous, loamy alluvium and/or colluvium derived from igneous and metamorphic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Description Category: GENSOIL

Lininger: 3 percent

The Lininger component makes up 3 percent of the map unit. Slopes are 25 to 60 percent. This component is on mountain slopes. The parent material consists of stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock. Depth to a root restrictive layer, bedrock, paralithic, inches. The natural drainage class is well drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This component is in the R048AY222CO Loamy Park ecological site. This soil does not meet hydric criteria.

Data Source Information

Soil Survey Area: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020