

RECLAMATION PLAN

WHITE ROCK FIELD

ARAPAHOE AND ELBERT COUNTIES, COLORADO

September 2024

Prepared for:

GMT EXPLORATION COMPANY, LLC

4949 South Niagara Street, Suite 250

Denver, Colorado 80237

Prepared by:

CDH CONSULTING, LLC

Thornton, Colorado 80229

720.431.7468



TABLE OF CONTENTS

1.0 Introduction and Site Background 1

1.1 Site History..... 1

1.2 Soil Description 1

1.3 Pre-Disturbance Vegetation..... 1

1.4 Proposed Sequence for Major Construction Activities 2

2.0 Interim Reclamation 2

2.1 Compaction Alleviation (1003.c)..... 2

2.2 Recontouring..... 2

2.3 Re-establish and Stabilize Drainage Features 2

2.4 Establish Desired Plant Community (1003.e)..... 3

2.5 Seedbed Preparation and Seeding (1003.e) 3

2.6 Fencing3

2.7 Management of Invasive Plants (1003.f) 3

 2.7.1 Cereal Rye Identification and Management 4

 2.7.2 Spring 2025 Weed Mitigation Plan 4

2.8 Practices to Achieve Stabilization 4

 2.8.1 Fall 2024 Seeding Schedule 5

2.9 Reclamation Monitoring, Inspection, Maintenance, and Reporting..... 5

2.10 Interim Reclamation Completion Notice, Form 4 [1003.e.(3)] 5

3.0 Final Reclamation (1004.a) 6

TABLES

TABLE 1 PAD AND LOCATION LISTING

TABLE 2 SEED MIX

TABLE 3 HERBICIDES FOR RANGE AND PASTURE LANDS

APPENDICES

APPENDIX A SOIL SURVEY

APPENDIX B CPW RECOMMENDED SEED MIXES

APPENDIX C FACILITY CONTACTS

1.0 Introduction and Site Background

CDH Consulting, (CDH) on behalf of GMT Exploration Company, LLC. (GMT) has prepared this reclamation plan. The purpose of this document is to outline a path forward with regard to interim reclamation activities including reseeding and weed mitigation efforts, with specific efforts to address Cereal rye (*Secale cereale*). The plan is intended to include all of GMT's facilities, which are located in Arapahoe and Elbert Counties, Colorado.

Copies of this plan are retained digitally on the GMT internal server and can be accessed from the GMT office.

1.1 Site History

GMT active assets in southern Arapahoe County and northern Elbert County consist of seven separate facilities and the related lease roads, which is denoted as the White Rock field. Production began in June of 2022. Interim stabilization efforts began in the spring and summer of 2023 at four of the pads.

The following facilities are applicable for interim reclamation as of the current date of this plan. This plan will be updated as other sites are developed and reach interim reclamation status.

TABLE 1

LIST OF LOCATIONS INCLUDED IN THIS PLAN

Production Pad Name	Pad Location Lat/Long	Status
Vulcan 6-64 Pad	39.545483 / -104.542233	Interim Reclamation
Crystal Ruby Pad	39.512209 / -104.645752	Interim Reclamation
Irwin Taylor Pad	39.509592 / -104.625946	Interim Reclamation
Marble Redstone Pad	39.510864 / -104.617644	Interim Reclamation
State 35-13	39.567655 / -104.639861	Interim Reclamation
Cinnamon Pad	39.514816 / -104.602009	Construction
Ragged Pad	39.562385 / -104.551646	Construction

1.2 Soil Description

The White Rock Field is a large area covering portions of Arapahoe and Elbert Counties. Referencing the Natural Resources Conservation Service Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) topsoil varies within the area but is predominantly classified as Bresser-Stapleton sandy loam, Bresser-Truckton fine sandy loam, and various other soil types. Percentages of each type of topsoil vary widely throughout the area. Soil descriptions for the most predominant types can be found in Appendix A.

1.3 Pre-Disturbance Vegetation

The location is arid rangeland. According to an on-site environmental review, vegetation is Blue Grama, Sideoats Grama, Western Wheatgrass, Great Plains Yucca, One-seed Juniper, Plains Prickly Pear, and Tree Cholla. There was approximately 65 percent (%) vegetative cover observed prior to construction.

1.4 Proposed Sequence for Major Construction Activities

Approximately twelve to seventeen acres of land is disturbed during the construction of a new pad site. The construction phase includes the following sequence of activities: control measure installation, clearing and grubbing, grading, trenching (where required) installation of the working surface material (gravel or compacted road base), and stabilization of cut and fill slopes and stockpiles. After completion of pad construction, the oil and gas wells are drilled and completed. Production facility pads will have the additional steps of equipment and pipeline installation.

Completed wells are connected to the production equipment located at the production facility and production begins. The production phase includes the production of oil and gas and from a reclamation perspective, the ongoing monitoring and maintenance of control measures implemented to manage stabilized areas that have not yet reached eighty percent (80 %) revegetation per the Colorado Energy and Carbon Management Commission (ECMC) Rule 1003.e.(2). Oil and gas wells in the field are projected to produce for approximately 20 to 30 years.

After drilling and completions activities have been completed and production has commenced, interim reclamation activities are initiated. Interim reclamation is the process of restoring any land not needed for ongoing oil and gas production operations to its original purpose and configuration. Crop land is returned to agricultural use and other lands are regraded, capped with topsoil and revegetated. Once this interim reclamation is completed and vegetation has been restored to 80% of pre-disturbance cover, the site is considered to be stabilized.

2.0 Interim Reclamation

Per ECMC Rule 1003.e.(2), 'interim reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, compacted, covered, paved, or otherwise stabilized in such a way as to minimize erosion to the extent practicable, or a uniform vegetative cover has been established that reflects pre-disturbance or reference area forbs, shrubs, and grasses with total percent plant cover of at least eighty percent (80%) of pre-disturbance levels or reference areas, excluding noxious weeds'.

2.1 Compaction Alleviation (ECMC Rule 1003.c)

To de-compact soil layers, areas to be reclaimed will be ripped to a minimum depth of 8 inches unless restrictive features are encountered at a shallower depth. Decompaction will be used to improve the soil structure and to promote soil aeration, water infiltration, and microbial activity, which will promote plant growth.

2.2 Recontouring

The reclaimed area will be blended with the surrounding surface to restore the natural grade and hydrology patterns.

2.3 Re-establish and Stabilize Drainage Features

During interim reclamation, each facility will be recontoured to blend with the pre-disturbance surface and restore natural drainage patterns. Reclamation during the first growing season will stabilize the soils to avoid stormwater runoff. While vegetation is establishing, control measures will be placed, as needed, along perimeters of the pad

corresponding to surface flow direction to prevent erosion runnels and avoid soils or sediment from leaving the location. The segregated, stored soil horizons will be replaced in their original relative positions and contoured to support revegetation.

2.4 Establish Desired Plant Community (ECMC Rule 1003.e)

The anticipated seed mix will be identified as a site-specific seed mix in coordination with the Natural Resource Conservation Service District Conservationist (NRCS), Colorado Parks and Wildlife (CPW) and the surface owner. The previously planned seed mix is listed in Table 2 while CPW’s recommended seed mix is provided in Appendix B.

TABLE 2. ANTICIPATED SEED MIX Anticipated Species	MIX (PERCENTAGE)
Blue Grama	20%
Sideoats Grama	25%
Western Wheatgrass	30%
Buffalo Grass	15%
Green Needlegrass	10%
TOTAL	100%

GMT will review the CPW recommended mixes with the landowner and establish a plan for future seeding. The seed weight (pounds/acre) and application rate will be provided to the operator by the seed mix provider. The seed mix will be certified weed-free.

2.5 Seedbed Preparation and Seeding (ECMC Rule 1003.e)

Salvaged topsoil will be replaced and contoured to maximize erosion control and soil stability. Soil amendments may be introduced at this stage to promote moisture retention and soil stabilization. The area will be tilled to re-establish a seedbed as applicable. Seedbed preparation will be conducted immediately before seeding to ensure that the seedbed provides the maximum benefit for revegetation success. The reclamation provider will confirm whether drill seeding will be performed to further promote vegetation. Drill seeding is typically conducted on slopes flatter than 3:1.

2.6 Fencing

Livestock fencing may be installed, as approved by the landowner, to restrict unauthorized access and discourage unnecessary surface disturbance, in accordance with ECMC Rules 603.h and 1002.a.(1).

2.7 Management of Invasive Plants (ECMC Rule 1003.f)

The site operator will be trained on noxious and invasive weeds to monitor at the location. Routine weed mitigation will be conducted, where needed, to prevent establishment and spread of noxious weeds. The weed treatment will be conducted according to Colorado Department of Agriculture recommendations by weed species. GMT has contracted with Jomax Construction, to provide routine weed spraying and mechanical removal. Facility contact information is provided in Appendix C.

2.7.1 Cereal Rye Identification and Management

Commonly referred to as feral rye, (*Secale cereale*) it is also known as annual rye or cereal rye. Cereal rye is widely distributed because it has been used as a cover crop and as forage in hay, pastures and range. It has been included in wildlife and soil conservation seed mixes. Cereal rye can readily become established on open rangeland, waste places, roadsides and crops lands. Cereal rye can easily form a monoculture that out competes and prevents other vegetation from establishing. Management methods include 1) the establishment of aggressive native grasses to control of Cereal rye; 2) implementation of good grazing management to stimulate grass growth and keep pastures healthy; 3) mechanical removal via mowing and tillage; and 4) the application of herbicides. The following are recommendations for herbicides that can be applied to range and pasture lands.

**Table 3
Herbicides for Range and Pasture Lands**

Herbicide	Rate	Application Timing/Comments
Plateau or Panoramic 2SL	8 oz/acre	Fall application as an early post-emergent treatment prior to a hard freeze is optimum for control.
Glyphosate	16 to 24 oz/acre	Apply in fall or early spring when other grasses are dormant.
Rejuvra and Laramie 25DF	5 oz/acre and 4 oz/acre	An early post-emergent option around October
Esplanade Sure * 1-year grazing restriction.	4.5 oz/acre	An early post-emergent option around October.
Rejuvra or Esplanande 200SC	5 oz/acre	A pre-emergent chemical labeled. Apply from June to August depending on the year. Can be tank mixed with Plateau or Panoramic in the fall if rye has germinated.

2.7.2 Spring 2025 Weed Mitigation Plan

GMT has contracted with Jomax Construction to provide weed mitigation and management through the spring and summer of 2025. Jomax will also monitor and remove any cereal rye that migrates beyond the limits of construction of each pad and lease road.

2.8 Practices to Achieve Stabilization

Areas to be reclaimed will be reseeded using appropriate seed mixes as directed by NRCS, CPW, the surface owner, or contractors intimately familiar with local conditions. Seed mixes will be planted in the amount specified in pounds of pure live seed per acre. No primary or secondary noxious weeds will be in the seed mix.

Drill seeding will be conducted where topography and soil conditions enable operation of equipment to meet the seeding requirements of the species being planted. On terrain where drill seeding and/or thatch/mulch are effective, seed may be planted using a seed drill equipped with a depth regulator to ensure proper seed depths and will be evenly and uniformly planted across the area to be reclaimed.

Broadcast seeding will be conducted on steep terrain and areas where the cut vegetation and rocks from construction activities have been redistributed.

Hydraulic mulch is effective for stabilizing disturbed areas requiring temporary protection until permanent stabilization is established and/or for disturbed areas that will be re-disturbed following an extended period of inactivity. When appropriate, hydraulic mulch will be applied by deploying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydro-mulching equipment, to temporarily protect exposed soil from precipitation and wind erosion.

Seeding and re-seeding events will occur when seasonal and weather conditions are most favorable according to schedules identified by NRCS, CPW, reclamation contractor, or landowner. Whenever possible, seeding will be timed to take advantage of moisture, such as early spring or late fall, which will benefit from winter precipitation.

Mulch will be distributed during re-vegetation where appropriate. Cut vegetation and rocks will suffice as mulch in the areas where they have been redistributed. Where straw or hay mulch are applied, the mulch be broadcast and will be crimped into the soil, if necessary. The landowner and specialized contractors, having direct knowledge of local practices, will provide guidance as to the utility of soil amendments and fertilizers.

During reclamation, sediment control measures will remain in use, when necessary.

2.8.1 Fall 2024 Seeding Schedule

GMT has contracted with M&M Excavation to conduct fieldwide topsoil pile reseeding, cut/fill slope reseeding and spot seeding in late September and early October 2024.

2.9 Reclamation Monitoring, Inspection, Maintenance, and Reporting

The site operator will be on location weekly to monitor the production operations. The vegetative success will be monitored as part of these routine site visits. Invasive weeds, evidence of erosion, and areas requiring reseeding will be identified and addressed through weed treatment, adapting stormwater controls, and application of additional seed and soil amendment or fertilizer. Vegetative success will be considered at least 80% of pre-disturbance reference area cover, consistent with ECMC Rule 1003.e.(2). A plant count for plant density will be conducted to assess percent cover. Documentation will include the operator's maintenance records for the location, stormwater inspections, and Change Management Checklist.

2.10 Interim Reclamation Completion Notice, Form 4 [ECMC Rule 1003.e.(3)]

Upon achieving sufficient plant coverage, GMT will submit a Form 4 Sundry Notice describing the reclamation procedures, any mitigation measures, any changes to the final land use, and the total vegetative cover. A minimum of four photos will be taken during the growing season showing each cardinal direction to document the success of interim reclamation. One photo will document the total cover of live perennial vegetation of adjacent or nearby undisturbed land or the reference area.

3.0 Final Reclamation (ECMC Rule 1004.a)

When the oil and/or natural gas production of a well is exhausted, the well(s) will be plugged and abandoned and the associated production equipment will be removed. This is a ground disturbing activity and instances where more than one acre of ground is disturbed, the location will be reactivated in GMT's stormwater management program. This may entail installation of control measures, and it will entail reinstating inspections and monitoring until compliance with the stormwater permit approved.

After plugging and abandonment of the well and the removal of the production equipment the remaining pad area will be reclaimed by contouring disturbed soil to conform to the surrounding terrain. Crop land will be returned to agricultural use and all other lands will be revegetated with native grasses or a seed mix agreed upon with the landowner and through consultation with CPW. These activities will be monitored until uniform vegetation has been established that covers least eighty percent (80%) of pre-disturbance levels and the ECMC Director has notified the operator that final reclamation has been approved.

APPENDIX A: SOIL SURVEY



United States
Department of
Agriculture

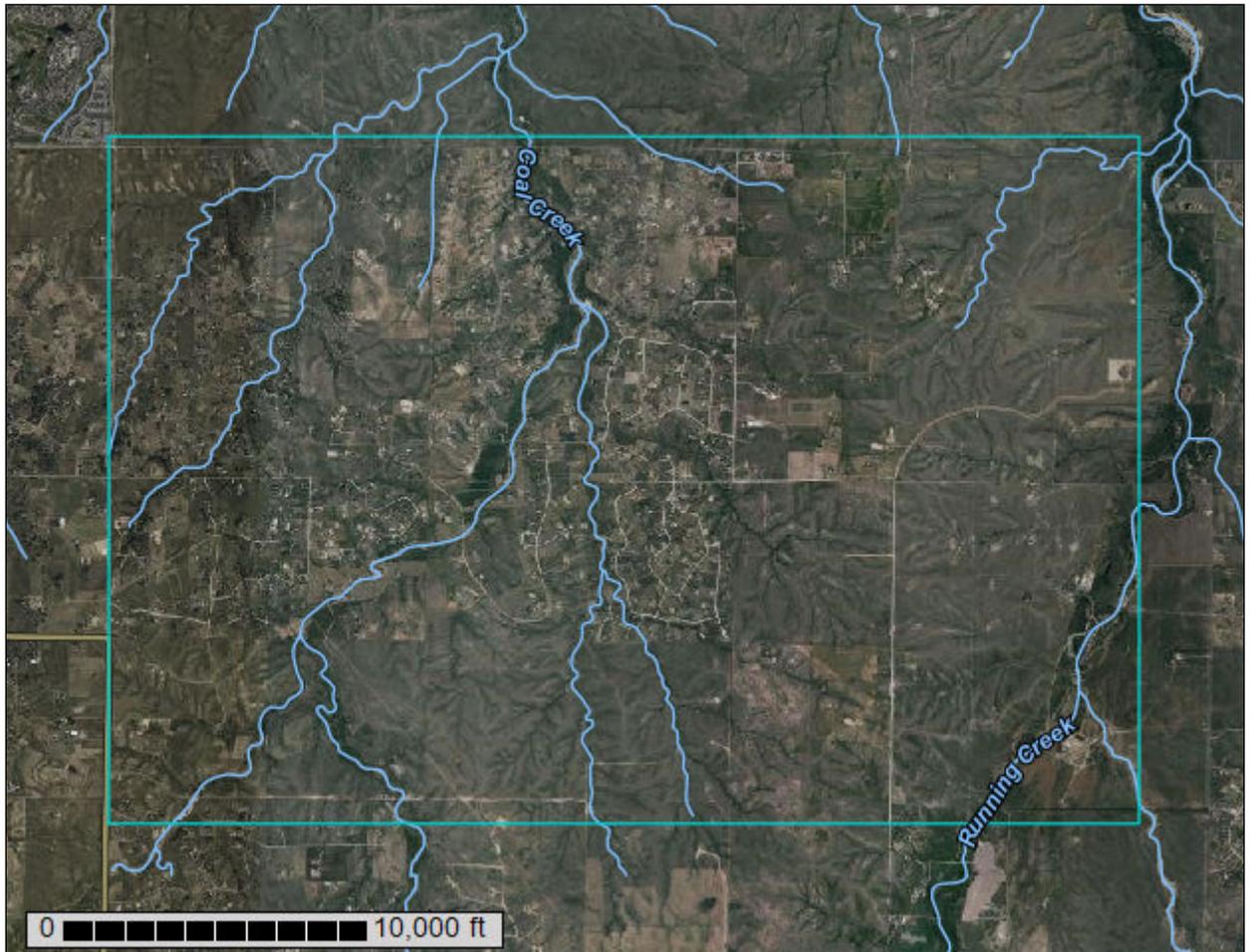
NRCS

Natural
Resources
Conservation
Service

A product 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
participants

Custom Soil Resource Report for Arapahoe County, Colorado; Castle Rock Area, Colorado; and Elbert County, Colorado, Western Part

White Rock Field



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. 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.

The National Cooperative Soil Survey is 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 (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	6
Soil Map	9
Soil Map.....	10
Legend.....	11
Map Unit Legend.....	13
Map Unit Descriptions.....	14
Arapahoe County, Colorado.....	17
BIB—Bijou sandy loam, 0 to 3 percent slopes.....	17
BuD—Bresser-Stapleton sandy loams, 3 to 9 percent slopes.....	18
BuE—Bresser-Stapleton sandy loams, 9 to 20 percent slopes.....	20
BvE—Bresser-Truckton sandy loams, 5 to 20 percent slopes.....	22
BxC—Buick loam, 3 to 5 percent slopes.....	23
BxD—Buick loam, 5 to 9 percent slopes.....	25
FdB—Fondis silt loam, 1 to 3 percent slopes.....	26
FdC—Fondis silt loam, 3 to 5 percent slopes.....	27
FoC—Fondis-Colby silt loams, 3 to 5 percent slopes.....	28
Gr—Gravelly land.....	30
Lv—Loamy alluvial land.....	31
NIB—Nunn loam, 1 to 3 percent slopes.....	32
RhD—Renohill-Buick loams, 3 to 9 percent slopes.....	33
Su—Sandy alluvial land.....	35
SwE—Stapleton sandy loam, 9 to 30 percent slopes.....	36
WrB—Weld-Deertrail silt loams, 0 to 3 percent slopes.....	37
Wt—Wet alluvial land.....	39
Castle Rock Area, Colorado.....	41
BrD—Bresser sandy loam, cool, 5 to 9 percent slopes.....	41
BtE—Bresser-Truckton sandy loams, 5 to 25 percent slopes.....	42
KuD—Kutch clay loam, 4 to 8 percent slopes.....	44
St—Stapleton-Bresser association.....	45
Elbert County, Colorado, Western Part.....	48
5—Bresser sandy loam, 0 to 4 percent slopes.....	48
6—Bresser sandy loam, cool, 5 to 9 percent slopes.....	49
8—Bresser-Stapleton sandy loams, 8 to 25 percent slopes.....	50
9—Bresser-Truckton sandy loams, 8 to 25 percent slopes.....	52
19—Ellicott loamy coarse sand, 0 to 4 percent slopes.....	54
20—Englewood clay loam, 0 to 4 percent slopes.....	55
22—Haplustolls, moderately coarse, nearly level*.....	57
23—Haplustolls, loamy, nearly level*.....	58
32—Nunn clay loam, 0 to 4 percent slopes.....	59
38—Renohill clay loam, 4 to 8 percent slopes.....	61
41—Truckton sandy loam, 3 to 9 percent slopes.....	62
43—Weld loam, 0 to 4 percent slopes.....	63
44—Weld loam, 4 to 8 percent slopes.....	65

Custom Soil Resource Report

References.....67

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

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

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

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.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

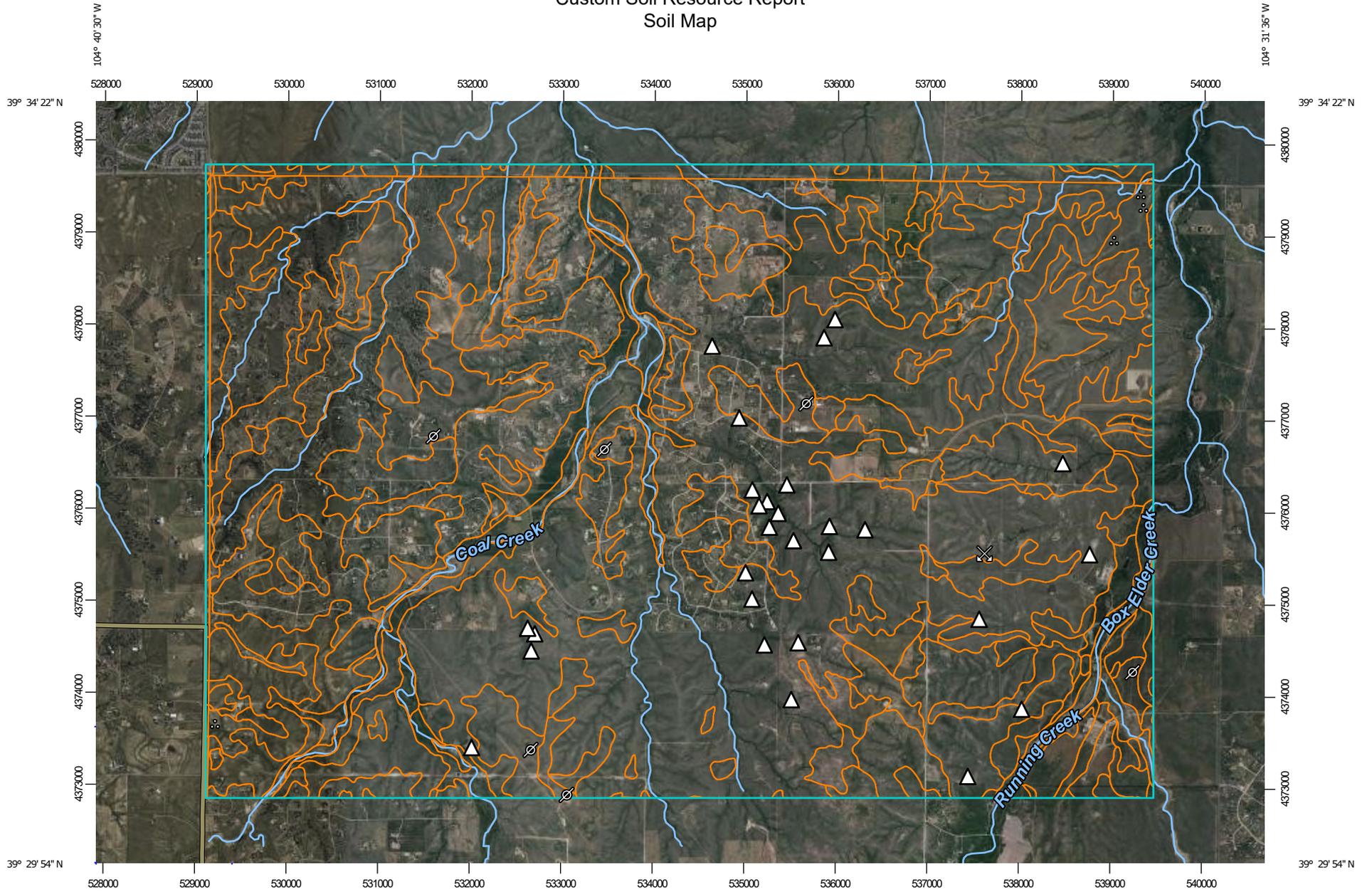
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:58,300 if printed on A landscape (11" x 8.5") sheet.

0 500 1000 2000 3000 Meters

0 2500 5000 10000 15000 Feet

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



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 scales ranging from 1:20,000 to 1:24,000.

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: Arapahoe County, Colorado
 Survey Area Data: Version 19, Aug 24, 2023

Soil Survey Area: Castle Rock Area, Colorado
 Survey Area Data: Version 16, Aug 24, 2023

Soil Survey Area: Elbert County, Colorado, Western Part
 Survey Area Data: Version 19, Aug 24, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jun 9, 2021—Sep 1, 2023

MAP LEGEND

MAP INFORMATION

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
BIB	Bijou sandy loam, 0 to 3 percent slopes	4.1	0.0%
BuD	Bresser-Stapleton sandy loams, 3 to 9 percent slopes	23.9	0.1%
BuE	Bresser-Stapleton sandy loams, 9 to 20 percent slopes	141.7	0.8%
BvE	Bresser-Truckton sandy loams, 5 to 20 percent slopes	28.4	0.2%
BxC	Buick loam, 3 to 5 percent slopes	9.1	0.1%
BxD	Buick loam, 5 to 9 percent slopes	24.0	0.1%
FdB	Fondis silt loam, 1 to 3 percent slopes	48.3	0.3%
FdC	Fondis silt loam, 3 to 5 percent slopes	8.5	0.0%
FoC	Fondis-Colby silt loams, 3 to 5 percent slopes	7.6	0.0%
Gr	Gravelly land	0.7	0.0%
Lv	Loamy alluvial land	0.9	0.0%
NIB	Nunn loam, 1 to 3 percent slopes	35.1	0.2%
RhD	Renohill-Buick loams, 3 to 9 percent slopes	13.5	0.1%
Su	Sandy alluvial land	14.7	0.1%
SwE	Stapleton sandy loam, 9 to 30 percent slopes	33.5	0.2%
WrB	Weld-Deertrail silt loams, 0 to 3 percent slopes	3.0	0.0%
Wt	Wet alluvial land	2.7	0.0%
Subtotals for Soil Survey Area		399.7	2.3%
Totals for Area of Interest		17,677.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BrD	Bresser sandy loam, cool, 5 to 9 percent slopes	31.6	0.2%
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	19.7	0.1%
KuD	Kutch clay loam, 4 to 8 percent slopes	4.4	0.0%
St	Stapleton-Bresser association	12.5	0.1%
Subtotals for Soil Survey Area		68.2	0.4%

Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Totals for Area of Interest		17,677.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Bresser sandy loam, 0 to 4 percent slopes	396.4	2.2%
6	Bresser sandy loam, cool, 5 to 9 percent slopes	3,313.1	18.7%
8	Bresser-Stapleton sandy loams, 8 to 25 percent slopes	3,266.5	18.5%
9	Bresser-Truckton sandy loams, 8 to 25 percent slopes	6,425.9	36.4%
19	Ellicott loamy coarse sand, 0 to 4 percent slopes	163.0	0.9%
20	Englewood clay loam, 0 to 4 percent slopes	34.4	0.2%
22	Haplustolls, moderately coarse, nearly level*	484.0	2.7%
23	Haplustolls, loamy, nearly level*	632.4	3.6%
32	Nunn clay loam, 0 to 4 percent slopes	162.1	0.9%
38	Renohill clay loam, 4 to 8 percent slopes	138.9	0.8%
41	Truckton sandy loam, 3 to 9 percent slopes	94.0	0.5%
43	Weld loam, 0 to 4 percent slopes	873.2	4.9%
44	Weld loam, 4 to 8 percent slopes	1,222.1	6.9%
Subtotals for Soil Survey Area		17,206.1	97.3%
Totals for Area of Interest		17,677.0	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

Custom Soil Resource Report

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 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.

Custom Soil Resource Report

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.

Arapahoe County, Colorado

BIB—Bijou sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 34xw

Elevation: 4,400 to 6,000 feet

Mean annual precipitation: 14 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 140 to 180 days

Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Bijou and similar soils: 85 percent

Minor components: 15 percent

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

Description of Bijou

Setting

Landform: Stream terraces, streams

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: From the dawson formation alluvium

Typical profile

H1 - 0 to 6 inches: sandy loam

H2 - 6 to 34 inches: coarse sandy loam

H3 - 34 to 60 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 9 percent

Custom Soil Resource Report

Hydric soil rating: No

Blakeland

Percent of map unit: 6 percent

Hydric soil rating: No

BuD—Bresser-Stapleton sandy loams, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34y3

Elevation: 4,700 to 6,800 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 135 to 170 days

Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 60 percent

Stapleton and similar soils: 30 percent

Minor components: 10 percent

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

Description of Bresser

Setting

Landform: Drainageways, stream terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Noncalcareous sandy alluvium and/or noncalcareous sandy eolian deposits

Typical profile

H1 - 0 to 10 inches: sandy loam

H2 - 10 to 34 inches: sandy clay loam

H3 - 34 to 44 inches: gravelly sandy loam

H4 - 44 to 60 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 3 to 9 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

Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Description of Stapleton

Setting

Landform: Hills, knobs
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic sandstone

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 16 inches: sandy loam
H3 - 16 to 25 inches: sandy loam
H4 - 25 to 29 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
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 supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Buick

Percent of map unit: 5 percent
Hydric soil rating: No

Renohill

Percent of map unit: 5 percent
Hydric soil rating: No

BuE—Bresser-Stapleton sandy loams, 9 to 20 percent slopes

Map Unit Setting

National map unit symbol: 34y4
Elevation: 5,300 to 6,800 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 41 percent
Stapleton and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser

Setting

Landform: Drainageways, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous sandy alluvium and/or noncalcareous sandy eolian deposits

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 18 inches: sandy clay loam
H3 - 18 to 28 inches: gravelly sandy loam
H4 - 28 to 60 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 9 to 15 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
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill

Custom Soil Resource Report

Hydric soil rating: No

Description of Stapleton

Setting

Landform: Hills, ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Arkosic sandstone

Typical profile

H1 - 0 to 6 inches: sandy loam

H2 - 6 to 19 inches: gravelly sandy loam

H3 - 19 to 23 inches: weathered bedrock

Properties and qualities

Slope: 9 to 20 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Medium

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 supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Buick

Percent of map unit: 10 percent

Hydric soil rating: No

Litle

Percent of map unit: 5 percent

Hydric soil rating: No

Reno Hill

Percent of map unit: 5 percent

Hydric soil rating: No

BvE—Bresser-Truckton sandy loams, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: 34y6
Elevation: 4,500 to 6,800 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 125 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Bresser

Setting

Landform: Drainageways, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous sandy alluvium and/or noncalcareous sandy eolian deposits

Typical profile

H1 - 0 to 5 inches: sandy loam
H2 - 5 to 16 inches: sandy clay loam
H3 - 16 to 28 inches: gravelly sandy loam
H4 - 28 to 60 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 5 to 20 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
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B

Custom Soil Resource Report

Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Description of Truckton

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile

H1 - 0 to 5 inches: sandy loam
H2 - 5 to 17 inches: sandy loam
H3 - 17 to 60 inches: sandy loam

Properties and qualities

Slope: 5 to 20 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): High (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Ascalon

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

Nunn

Percent of map unit: 5 percent
Hydric soil rating: No

BxC—Buick loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 34y8
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 45 to 46 degrees F

Custom Soil Resource Report

Frost-free period: 150 to 170 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Buick and similar soils: 85 percent

Minor components: 15 percent

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

Description of Buick

Setting

Landform: Drainageways, hills

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Head slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 6 inches: loam

H2 - 6 to 22 inches: clay loam

H3 - 22 to 60 inches: sandy clay loam

Properties and qualities

Slope: 3 to 5 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 (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: C

Ecological site: R049XB202CO - Loamy Foothill

Hydric soil rating: No

Minor Components

Renohill

Percent of map unit: 5 percent

Hydric soil rating: No

Weld

Percent of map unit: 5 percent

Hydric soil rating: No

Colby

Percent of map unit: 5 percent

Hydric soil rating: No

BxD—Buick loam, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34y9
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 150 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Buick

Setting

Landform: Drainageways, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Head slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 5 inches: loam
H2 - 5 to 19 inches: clay loam
H3 - 19 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 9 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R049XB202CO - Loamy Foothill
Hydric soil rating: No

Minor Components

Colby

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

Renohill

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

FdB—Fondis silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 34yh
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 150 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fondis and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fondis

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and/or loamy

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 27 inches: clay
H3 - 27 to 60 inches: clay loam

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 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
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R049XB202CO - Loamy Foothill
Hydric soil rating: No

Minor Components

Weld

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

Buick

Percent of map unit: 5 percent
Hydric soil rating: No

FdC—Fondis silt loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 34yj
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 150 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fondis and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fondis

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy and/or silty

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 24 inches: clay
H3 - 24 to 32 inches: silty clay loam
H4 - 32 to 46 inches: loam
H5 - 46 to 84 inches: clay loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Custom Soil Resource Report

Runoff class: Low

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

Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: C

Ecological site: R049XB202CO - Loamy Foothill

Hydric soil rating: No

Minor Components

Weld

Percent of map unit: 8 percent

Hydric soil rating: No

Buick

Percent of map unit: 7 percent

Hydric soil rating: No

FoC—Fondis-Colby silt loams, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 34yl

Elevation: 4,700 to 6,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 150 to 170 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fondis and similar soils: 65 percent

Colby and similar soils: 25 percent

Minor components: 10 percent

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

Description of Fondis

Setting

Landform: Drainageways

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Silty and/or loamy

Custom Soil Resource Report

Typical profile

H1 - 0 to 5 inches: silt loam
H2 - 5 to 17 inches: clay
H3 - 17 to 60 inches: clay loam

Properties and qualities

Slope: 3 to 5 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 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
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R049XB202CO - Loamy Foothill
Hydric soil rating: No

Description of Colby

Setting

Landform: Ridges
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy eolian deposits and/or fine-silty eolian deposits

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 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 (0.57 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: 20 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R049XB202CO - Loamy Foothill
Hydric soil rating: No

Minor Components

Weld

Percent of map unit: 6 percent
Hydric soil rating: No

Ft collins

Percent of map unit: 4 percent
Hydric soil rating: No

Gr—Gravelly land

Map Unit Setting

National map unit symbol: 34yn
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 150 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Gravelly land: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravelly Land

Setting

Landform: Drainageways, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy or gravelly loamy

Typical profile

H1 - 0 to 4 inches: very gravelly sandy loam
H2 - 4 to 60 inches: very gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

The dalund

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

Ascalon

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

Lv—Loamy alluvial land

Map Unit Setting

National map unit symbol: 34yt
Elevation: 4,000 to 6,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Loamy alluvial land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loamy Alluvial Land

Setting

Landform: Flood plains, drainageways, streams
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 60 inches: stratified loam to clay loam

Properties and qualities

Slope: 0 to 3 percent
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Frequency of flooding: Occasional
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

Minor Components

Nunn

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

Satanta

Percent of map unit: 5 percent
Landform: Paleoterraces
Hydric soil rating: No

NIB—Nunn loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tln2
Elevation: 3,900 to 6,250 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 6 inches: loam
Bt1 - 6 to 10 inches: clay loam
Bt2 - 10 to 26 inches: clay loam
Btk - 26 to 31 inches: clay loam
Bk1 - 31 to 47 inches: loam
Bk2 - 47 to 80 inches: loam

Properties and qualities

Slope: 1 to 3 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 low to moderately high (0.06 to 0.20 in/hr)

Custom Soil Resource Report

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Wages

Percent of map unit: 8 percent
Landform: Alluvial fans, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Fort collins

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Haverson, very rarely flooded

Percent of map unit: 2 percent
Landform: Alluvial fans, drainageways, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

RhD—Renohill-Buick loams, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34z0
Elevation: 3,600 to 6,200 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 45 to 48 degrees F

Custom Soil Resource Report

Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Renohill and similar soils: 65 percent
Buick and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Renohill

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loam silty and clayey alluvium

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 18 inches: clay
H3 - 18 to 30 inches: clay loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
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
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Description of Buick

Setting

Landform: Ridges
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 20 inches: clay loam
H3 - 20 to 60 inches: sandy clay loam

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 8 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Fondis

Percent of map unit: 5 percent
Hydric soil rating: No

Litle

Percent of map unit: 5 percent
Hydric soil rating: No

Su—Sandy alluvial land

Map Unit Setting

National map unit symbol: 34zc
Elevation: 2,500 to 4,500 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 110 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Sandy alluvial land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sandy Alluvial Land

Setting

Landform: Streams, drainageways

Custom Soil Resource Report

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium and/or loamy alluvium

Typical profile

H1 - 0 to 10 inches: sand
H2 - 10 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Frequency of flooding: Frequent
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

SwE—Stapleton sandy loam, 9 to 30 percent slopes

Map Unit Setting

National map unit symbol: 34zf
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 15 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 150 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Stapleton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic sandstone

Custom Soil Resource Report

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 16 inches: sandy loam
H3 - 16 to 25 inches: sandy loam
H4 - 25 to 29 inches: unweathered bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
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 supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY056CO - Sandstone Breaks
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent
Hydric soil rating: No

Truckton

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

Sandy alluvial land

Percent of map unit: 2 percent
Hydric soil rating: No

WrB—Weld-Deertrail silt loams, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 34zv
Elevation: 3,600 to 6,200 feet
Mean annual precipitation: 13 to 17 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Weld and similar soils: 60 percent

Custom Soil Resource Report

Deertrail and similar soils: 25 percent

Minor components: 15 percent

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

Description of Weld

Setting

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loam silty and clayey eolian deposits

Typical profile

H1 - 0 to 5 inches: silt loam

H2 - 5 to 14 inches: silty clay

H3 - 14 to 26 inches: silty clay loam

H4 - 26 to 60 inches: silt loam

Properties and qualities

Slope: 0 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 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

Calcium carbonate, maximum content: 6 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: C

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Description of Deertrail

Setting

Landform: Depressions

Down-slope shape: Linear

Across-slope shape: Linear

Typical profile

H1 - 0 to 2 inches: silt loam

H2 - 2 to 9 inches: clay

H3 - 9 to 12 inches: silty clay

H4 - 12 to 32 inches: silty clay loam

H5 - 32 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Custom Soil Resource Report

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

Calcium carbonate, maximum content: 15 percent

Gypsum, maximum content: 2 percent

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

Sodium adsorption ratio, maximum: 35.0

Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R067BY047CO - Alkaline Plains

Hydric soil rating: No

Minor Components

Heldt

Percent of map unit: 7 percent

Hydric soil rating: No

Colby

Percent of map unit: 6 percent

Hydric soil rating: No

Adena

Percent of map unit: 2 percent

Hydric soil rating: No

Wt—Wet alluvial land

Map Unit Setting

National map unit symbol: 34zw

Elevation: 3,500 to 4,500 feet

Mean annual precipitation: 13 to 17 inches

Mean annual air temperature: 46 to 55 degrees F

Frost-free period: 110 to 165 days

Farmland classification: Not prime farmland

Map Unit Composition

Wet alluvial land: 75 percent

Minor components: 25 percent

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

Description of Wet Alluvial Land

Setting

Landform: Flood plains, streams
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium and/or loamy alluvium

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 2 percent
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 6.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Occasional

Interpretive groups

Land capability classification (irrigated): 6w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: D
Ecological site: R067BY038CO - Wet Meadow
Hydric soil rating: Yes

Minor Components

Heldt

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

Edgewater

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

Loamy alluvial land

Percent of map unit: 5 percent
Hydric soil rating: No

Castle Rock Area, Colorado

BrD—Bresser sandy loam, cool, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2t1pk
Elevation: 5,500 to 6,960 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser, cool, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser, Cool

Setting

Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Tertiary aged alluvium derived from arkose

Typical profile

Ap - 0 to 5 inches: sandy loam
Bt1 - 5 to 8 inches: sandy loam
Bt2 - 8 to 27 inches: sandy clay loam
Bt3 - 27 to 36 inches: sandy loam
C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 5 to 9 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
(0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Truckton

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

BtE—Bresser-Truckton sandy loams, 5 to 25 percent slopes

Map Unit Setting

National map unit symbol: jqy9
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Bresser

Setting

Landform: Terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 30 inches: sandy clay loam

Custom Soil Resource Report

H3 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 5 to 15 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 (0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Description of Truckton

Setting

Landform: Terraces

Landform position (three-dimensional): Riser, tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from arkosic sedimentary rock

Typical profile

H1 - 0 to 4 inches: sandy loam

H2 - 4 to 19 inches: sandy loam

H3 - 19 to 60 inches: sandy loam

Properties and qualities

Slope: 10 to 25 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): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Newlin

Percent of map unit: 5 percent

Custom Soil Resource Report

Hydric soil rating: No

Blakeland

Percent of map unit: 5 percent

Hydric soil rating: No

Stapleton

Percent of map unit: 4 percent

Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 1 percent

Landform: Swales

Hydric soil rating: Yes

KuD—Kutch clay loam, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: jqz6

Elevation: 5,500 to 6,800 feet

Mean annual precipitation: 15 to 19 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 120 to 135 days

Farmland classification: Not prime farmland

Map Unit Composition

Kutch and similar soils: 85 percent

Minor components: 15 percent

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

Description of Kutch

Setting

Landform: Hills, mesas, erosion remnants

Landform position (three-dimensional): Crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Calcareous fine-loamy clayey shale

Typical profile

H1 - 0 to 6 inches: clay loam

H2 - 6 to 32 inches: clay

H3 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 4 to 8 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

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)

Custom Soil Resource Report

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Fondis

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

Loamy alluvial land

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

Aquic haplustolls

Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

St—Stapleton-Bresser association

Map Unit Setting

National map unit symbol: jr09
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Stapleton and similar soils: 60 percent
Bresser and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Landform: Ridges, knobs, valley sides
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear

Parent material: Weathered alluvium derived from arkose

Typical profile

H1 - 0 to 7 inches: sandy loam

H2 - 7 to 16 inches: sandy loam

H3 - 16 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 30 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
(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Description of Bresser

Setting

Landform: Valley sides

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy alluvium and/or sandy eolian deposits

Typical profile

H1 - 0 to 8 inches: sandy loam

H2 - 8 to 30 inches: sandy clay loam

H3 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 8 to 15 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
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Loamy alluvial land

Percent of map unit: 14 percent

Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 1 percent

Landform: Swales

Hydric soil rating: Yes

Elbert County, Colorado, Western Part

5—Bresser sandy loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: jnl4
Elevation: 5,300 to 6,400 feet
Mean annual precipitation: 14 to 17 inches
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Bresser

Setting

Landform: Ridges, hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or arkosic residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 20 inches: sandy clay loam
H3 - 20 to 29 inches: sandy loam
H4 - 29 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 4 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 (0.60 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
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Ascalon

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

Truckton

Percent of map unit: 5 percent
Hydric soil rating: No

Weld

Percent of map unit: 4 percent
Hydric soil rating: No

Aquic haplustoll

Percent of map unit: 1 percent
Landform: Terraces
Hydric soil rating: Yes

6—Bresser sandy loam, cool, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2tlpk
Elevation: 5,500 to 6,960 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser, cool, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser, Cool

Setting

Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Tertiary aged alluvium derived from arkose

Typical profile

Ap - 0 to 5 inches: sandy loam
Bt1 - 5 to 8 inches: sandy loam
Bt2 - 8 to 27 inches: sandy clay loam
Bt3 - 27 to 36 inches: sandy loam
C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Truckton

Percent of map unit: 5 percent

Landform: Interfluves

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

8—Bresser-Stapleton sandy loams, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: jnl7

Elevation: 5,300 to 6,400 feet

Mean annual precipitation: 14 to 17 inches

Frost-free period: 120 to 155 days

Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 50 percent

Stapleton and similar soils: 25 percent

Custom Soil Resource Report

Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser

Setting

Landform: Valley sides, ridges, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or arkosic residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 20 inches: sandy clay loam
H3 - 20 to 29 inches: sandy loam
H4 - 29 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 8 to 20 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 (0.60 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
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Description of Stapleton

Setting

Landform: Hills, ridges, valley sides
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or arkosic residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 37 inches: sandy loam
H2 - 37 to 60 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

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

Cushman

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

Weld

Percent of map unit: 6 percent
Hydric soil rating: No

Aquic haplustoll

Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

9—Bresser-Truckton sandy loams, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: jnl8
Elevation: 5,300 to 6,400 feet
Mean annual precipitation: 14 to 17 inches
Frost-free period: 125 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Bresser and similar soils: 45 percent
Truckton and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bresser

Setting

Landform: Valley sides, ridges, hills

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or arkosic residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 7 inches: sandy loam

H2 - 7 to 20 inches: sandy clay loam

H3 - 20 to 29 inches: sandy loam

H4 - 29 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 8 to 20 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 (0.60 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

Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Description of Truckton

Setting

Landform: Hills, ridges, valley sides

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or arkosic residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 5 inches: sandy loam

H2 - 5 to 15 inches: sandy loam

H3 - 15 to 60 inches: sandy loam

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Custom Soil Resource Report

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: R049XB210CO - Sandy Foothill

Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 8 percent

Hydric soil rating: No

Cushman

Percent of map unit: 7 percent

Hydric soil rating: No

Kutch

Percent of map unit: 4 percent

Hydric soil rating: No

Aquic haplustoll

Percent of map unit: 1 percent

Landform: Swales

Hydric soil rating: Yes

19—Ellicott loamy coarse sand, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: jnk5

Elevation: 5,300 to 6,800 feet

Mean annual precipitation: 14 to 19 inches

Frost-free period: 130 to 140 days

Farmland classification: Not prime farmland

Map Unit Composition

Ellicott and similar soils: 90 percent

Minor components: 10 percent

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

Description of Ellicott

Setting

Landform: Flood plains, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Noncalcareous, arkosic sandy alluvium

Typical profile

H1 - 0 to 7 inches: loamy coarse sand

H2 - 7 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 0 to 4 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A

Ecological site: R049XY031CO - Sandy Bottomland

Hydric soil rating: No

Minor Components

Haplustolls

Percent of map unit: 6 percent

Hydric soil rating: No

Psammaquentic haplustoll

Percent of map unit: 4 percent

Landform: Terraces

Hydric soil rating: Yes

20—Englewood clay loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: jnk7

Elevation: 6,000 to 6,800 feet

Mean annual precipitation: 14 to 17 inches

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Englewood and similar soils: 90 percent

Minor components: 10 percent

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

Description of Englewood

Setting

Landform: Valley sides, alluvial fans, hills

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey alluvium

Typical profile

H1 - 0 to 4 inches: clay loam

H2 - 4 to 40 inches: clay

H3 - 40 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 4 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 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

Calcium carbonate, maximum content: 15 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: R049XB208CO - Clayey Foothill

Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 5 percent

Hydric soil rating: No

Fluvaquentic haplustoll

Percent of map unit: 4 percent

Landform: Terraces

Hydric soil rating: Yes

Other soils

Percent of map unit: 1 percent

Hydric soil rating: No

22—Haplustolls, moderately coarse, nearly level*

Map Unit Setting

National map unit symbol: jnk9
Elevation: 5,000 to 7,400 feet
Mean annual precipitation: 8 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Haplustolls, moderately coarse, nearly level, and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haplustolls, Moderately Coarse, Nearly Level

Setting

Landform: Flood plains, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous alluvium

Typical profile

H1 - 0 to 6 inches: variable
H2 - 6 to 60 inches: stratified sandy loam to very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.20 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Minor Components

Bresser

Percent of map unit: 13 percent
Hydric soil rating: No

Fluvaquents

Percent of map unit: 7 percent
Landform: Terraces
Hydric soil rating: Yes

Ellicott

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

Other soils

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

23—Haplustolls, loamy, nearly level*

Map Unit Setting

National map unit symbol: jnkb
Elevation: 5,000 to 7,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Haplustolls, loamy, nearly level, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haplustolls, Loamy, Nearly Level

Setting

Landform: Fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Nonclacareous loamy alluvium

Typical profile

H1 - 0 to 6 inches: clay loam
H2 - 6 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 12 to 36 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Gypsum, maximum content: 1 percent

Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: D

Ecological site: R067BY036CO - Overflow

Hydric soil rating: No

Minor Components

Nunn

Percent of map unit: 11 percent

Hydric soil rating: No

Fluvaquent

Percent of map unit: 9 percent

Landform: Terraces

Hydric soil rating: Yes

Bresser

Percent of map unit: 5 percent

Hydric soil rating: No

32—Nunn clay loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2tlpq

Elevation: 5,450 to 6,430 feet

Mean annual precipitation: 15 to 19 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 100 to 130 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent

Minor components: 15 percent

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

Description of Nunn

Setting

Landform: Terraces, pediments
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 6 inches: clay loam
Bt - 6 to 18 inches: clay
Btk - 18 to 30 inches: clay
Bk - 30 to 47 inches: clay loam
BCK - 47 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 4 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 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
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Heldt

Percent of map unit: 10 percent
Landform: Terraces, pediments
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Englewood

Percent of map unit: 5 percent
Landform: Terraces, pediments
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB208CO - Clayey Foothill

Hydric soil rating: No

38—Renohill clay loam, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: jnkv
Elevation: 5,300 to 6,400 feet
Mean annual precipitation: 14 to 17 inches
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Renohill

Setting

Landform: Ridges, hills
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 2 inches: clay loam
H2 - 2 to 14 inches: clay
H3 - 14 to 24 inches: clay loam
H4 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 4 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
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
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R049XB208CO - Clayey Foothill
Hydric soil rating: No

Minor Components

Kutch

Percent of map unit: 6 percent
Hydric soil rating: No

Cushman

Percent of map unit: 6 percent
Hydric soil rating: No

Wiley

Percent of map unit: 5 percent
Hydric soil rating: No

Baca

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

41—Truckton sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j2
Elevation: 5,300 to 6,850 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 85 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 12 inches: sandy loam
Bt2 - 12 to 19 inches: sandy loam
C - 19 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 9 percent

Custom Soil Resource Report

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): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 8 percent
Landform: Interfluves, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Landform: Interfluves, low hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

43—Weld loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2x0hz
Elevation: 4,550 to 6,900 feet
Mean annual precipitation: 13 to 20 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 115 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Weld and similar soils: 85 percent

Minor components: 15 percent

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

Description of Weld

Setting

Landform: Interfluves

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Calcareous loess

Typical profile

Ap - 0 to 8 inches: loam

Bt1 - 8 to 12 inches: clay

Bt2 - 12 to 15 inches: clay loam

Btk - 15 to 28 inches: loam

Bk - 28 to 60 inches: silt loam

C - 60 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 4 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 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

Calcium carbonate, maximum content: 14 percent

Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 5.0

Available water supply, 0 to 60 inches: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): 3c

Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: C

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 5 percent

Landform: Interfluves

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Wiley

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Baca

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

44—Weld loam, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: jnl2
Elevation: 5,300 to 6,400 feet
Mean annual precipitation: 14 to 17 inches
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Weld

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits

Typical profile

H1 - 0 to 5 inches: loam
H2 - 5 to 45 inches: silty clay
H3 - 45 to 60 inches: clay loam
H4 - 60 to 64 inches: silt loam

Properties and qualities

Slope: 4 to 8 percent

Custom Soil Resource Report

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
Calcium carbonate, maximum content: 6 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R049XC202CO - Loamy Foothill 14-19 PZ
Hydric soil rating: No

Minor Components

Baca

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

Wiley

Percent of map unit: 6 percent
Hydric soil rating: No

Bresser

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

Aquic haplustoll

Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX B: CPW-RECOMMENDED SEED MIXES



Cooperator/Project Name CPW mitigation mix for deer, PSTG & GPC Date 09/10/2024
 Tract/Field No _____ Acres 1

Requirements for Seed: All seed must be of USA or Canada origin. Seed must be mixed and bagged as shown below. Any substitutions for plant species or cultivars must be approved by NRCS. Bulk pounds for each species must be on the seed tag or provided on a separate sheet from the seed dealer.

Common Name	Genus, species	Cultivar	Pounds Pure Live Seed (PLS)
Fluffy Seeds (Bag 1):			
Little bluestem	Schizachyrium scoparium	Pastura, Camper, Cimm., Blaze	0.34
Yellow indiagrass	Sorghastrum nutans	Cheyenne, Holt Llano	0.51
Big bluestem	Andropogon gerardii	Bison, Champ, Kaw, Pawnee	0.44
Blanketflower	Gaillardia aristata		0.22
Fourwing Saltbush	Atriplex canescens		0.40
Large Hard Seeds (Bag 2):			
Green needlegrass	Nassella viridula	Lodorm	0.24
Indian ricegrass	Achnatherum hymenoides	Paloma	0.06
Purple prairie clover	Dalea purpurea purpurea	Kaneb	0.06
Small burnet	Sanguisorba minor	Delar	0.83
Sainfoin	Onobrychis vicifolia	Shoshone	0.70
Skunkbush Sumac	Rhus trilobata		0.70
Winterfat	Krascheninnikovia lanata		0.14
Small Hard Seeds (Bag 3):			
Switchgrass	Panicum virgatum	Blackwell, Neb28, Pathfinder	0.22
Maxmilian sunflower	Helianthus maximiliani	Prairie Gold	0.10
Prairie Coneflower	Ratibida columnifera		0.07
Annual sunflower	Helianthus annuus		0.15
Alfalfa	Medicago sativa	Ladak	0.12
Yellow sweetclover	Melilotus officinale		0.07
Blue flax	Linum perenne	Appar	0.21
Black-eyed Susan	Rudbeckia hirta		0.03
Western Yarrow	Achillea lanulosa		0.02
Rocky mtn. penstemon	Penstemon strictus	Bandera	0.02

Cooperator/Project Name CPW recommended mitigation mix for pronghorn
 Tract/Field No _____

Date 9/10/2024
 Acres 1

Requirements for Seed: All seed must be of USA or Canada origin. Seed must be mixed and bagged as shown below. Any substitutions for plant species or cultivars must be approved by NRCS. Bulk pounds for each species must be on the seed tag or provided on a separate sheet from the seed dealer.

Common Name	Genus, species	Cultivar	Pounds Pure Live Seed (PLS)
Fluffy Seeds (Bag 1):			
Blanketflower	Gaillardia aristata		0.22
Fourwing Saltbush	Atriplex canescens		0.40
Large Hard Seeds (Bag 2):			
Green needlegrass	Nassella viridula	Lodorm	0.24
Needleandthread	Hesperostipa comata		0.27
Indian ricegrass	Achnatherum hymenoides	Paloma	0.31
Slim-leaf penstemon	Penstemon angustifolius		0.14
Dotted Gayfeather	Liatris punctata		0.14
Tahoka Daisy	Machaeranthera Tanacetifolia		0.11
Sainfoin	Onobrychis vicifolia	Shoshone	1.74
Rocky Mountain Beeplant	Cleome serrulata		0.68
Small burnet	Sanguisorba minor	Delar	1.04
Winterfat	Krascheninnikovia lanata		0.14
Rubber rabbitbrush	Ericameria nauseosa		0.04
Small Hard Seeds (Bag 3):			
Sandberg bluegrass	Poa secunda		0.05
Alfalfa	Medicago sativa	Ladak	0.20
Blue flax	Linum perenne	Appar	0.15
Cicer milkvetch	Astragalus cicer	Lutana, Monarch	0.22
Pale evening primrose	Oenothera pallida		0.07
Prairie Coneflower	Ratibida columnifera		0.05
Prickly poppy	Argemone polyanthemus		0.03
Rocky mtn. penstemon	Penstemon strictus	Bandera	0.09
Scarlet globemallow	Sphaeralcea coccinea		0.09

APPENDIX C: FACILITY CONTACTS

FACILITY CONTACTS

COMPANY	TITLE	EMAIL	TELEPHONE
FACILITY OWNER			
GMT EXPLORATION COMPANY	Production and Operations Manager	bjcox@gmtexploration.com	303-586-9274 307-354-8895
GMT EXPLORATION COMPANY	Regulatory Manager	mblair@gmtexploration.com	303-586-9291 720-862-4503
CONSULTANT			
CDH Consultants CDH Consultants	Reclamation Advisor Manager	krabida@cdhconsult.com cshephard@cdhconsult.com	720-391-1442 303-229-7233
RECLAMATION CONTRACTOR			
M&M Excavating	Reclamation Contractor		970-352-5220
JOMAX Construction	Reclamation Contractor		970-702-7540
Crossenergy	Reclamation Contractor		970-388-4032