DRAINAGE LETTER

Wal-Mart Fueling Station #4335-543
11550 Meridian Market View
Falcon, CO, 92345

CEI Project No. 32639

June 8, 2023

Add text:
EPC's EDARP Filing #:
PPR2324

CEI Engineering Associates, Inc.
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Fresno, CA 93711
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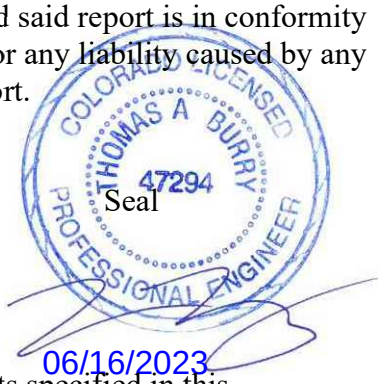
Contents

Exhibits

Engineer and Developer's Statements:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the city/county for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.



06/16/2023

_____
Name

Developer's Statement:
the developer have read and will comply with all of the requirements specified in this drainage report and plan.

_____
Business Name

By:
Title:
Address:

EL PASO COUNTY ONLY:
Filed in accordance with Section 51.1

_____
~~Director of Public works~~

Conditions:

Update Statements and signature blocks per example
Developer to sign

Design Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

_____ _____
[Name, P.E. #_____] Date

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

_____ _____
[Name, Title] Date
[Business Name]
[Address]

El Paso County:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

_____ _____
County Engineer / ECM Administrator Date

Conditions:

Remove

Intent of Report:

It is the intent of this report to show that the proposed stormwater management facilities for the proposed Wal-Mart Fueling Station meet the requirements of the City of Falcon, El Paso County, and general engineering practices for safe conveyance of storm water within and/or from the site without damage to downstream property and life. The work includes approximately 1.2 acres of disturbed area that is being redeveloped from the previous Walmart parking lot, into a Walmart fueling station. The original drainage design for the Walmart development will not be negatively impacted by the fueling station.

Project Description:

The proposed Wal-Mart Fueling Station, 11550 Meridian Market View, is to be located in the northeastern portion of the Wal-Mart Shopping Center (see Exhibit 1 for *Vicinity Map*). The approximately 1-acre site currently serves as a portion of the existing Walmart's parking lot. The site is bordered on the north by E Woodmen Road, Wal-Mart parking to the south, commercial shops as well as Meridian Road to the East, and the Walmart Supercenter to the west.

No portions of the Wal-Mart Fueling station proposed development are located within the 100-year floodplain, the site is located within Zone X. In this area a LOMR 21-08-0534P was completed on February 22, 2022 (see Exhibit 2 for *Flood Insurance Rate Map Panel #08041C0553G, December 07, 2018*). Zone X is defined as areas determined to be outside the 0.2% annual chance floodplain. The LOMR states the flood discharge from the 100-year event will be contained in structure.

Soils Description:

Based on the Soils Report of the site (see Exhibit 3), the site area consists of the site consists of Blakeland-Fluvaquentic Haplaquolls. This soil is characterized as sandy alluvium derived from arkose and/or eolian deposits derived from arkose. The water table is located more than 80 inches below the surface. According the report, these soils are considered "somewhat excessively drained" with a low runoff class. The soil's typical Ksat ranges from high to very high (5.95 to 19.98 in/hr).

Existing Conditions:

The site has approximately 1.2 acres of disturbed area. Existing area conditions are approximately 1.2 acre of asphalt parking lot. The site generally slopes from north to south at approximately 1-3%. The project site has a small amount of run-on flows from the existing Walmart parking and landscaping areas.

CEI Engineering Associates, Inc. is not aware of nor has been made aware of flooding concerns in the vicinity of the site.

Include discussion of previous drainage reports referenced by report name and date

Please include the Four-Step Process (ECM Appendix I.7.2.A.)

Proposed Conditions:

The development of the site is proposed to include the construction of an approximately 1440 square foot fuel station convenience store with 8 fuel islands, and other related site features such as a canopy for the fuel islands, paved parking and drive aisles, utilities, and landscape improvements as required by the City of Falcon.

The proposed development will add approximately 6,034 square feet (9%) of pervious area. The total impervious area will be approximately 45,654 square feet (68%). The total pervious area of the proposed site will be approximately 21,812 square feet (32%). There will be two porous landscape detention areas on this site, see Exhibit 4 for Drainage Management Areas. There is an increase in pervious area from the original Walmart parking design, therefore the original design for the major drainage systems will not be negatively impacted. The original storm drain system will be sufficient for the proposed conditions.

LID/Water Quality:

clarify their respective names (North PLD and South PLD)

add: "treatment of the"

Per the Drainage Criteria Manual for El Paso County, commercial sites one acre or larger require Water Quality Capture Volume (WQCV). The method to meet the WQCV on this site was chosen as Porous Landscape Detention (PLD). There will be two porous landscape detention areas located on this site. One for the northern area, one for the southern area. There are small amounts of run off that cannot be contained from the site, but there are run on flows from the north that are larger in area than the areas that cannot be captured. The PLDs were sized using the provided worksheet in the Drainage Criteria Manual (see Exhibit 5). The north PLD is approximately 529 square feet in area, and the south PLD is approximately 1744 square feet. Both PLDs will be lined with an underdrain connecting to the existing Walmart storm system.

Discuss the need or lack thereof for detention. Since imperviousness is actually reduced with this development, it is obvious, but it just needs to be explicitly stated. Was the conveyance of the existing parking lot previously routed through the same Walmart storm system? Discuss that as well (that the outfall conveyance is the same).

Clarify if the two areas have the same land use and imperviousness

Conclusion:

The proposed development of the Wal-Mart Fueling Station in the Wal-Mart Shopping Center out lot at 11550 Meridian Market View, meets the general provisions of the ~~City of Falcon,~~ or general engineering practices with regard to the manag

El Paso County Drainage Criteria Manual

This report has been prepared in general accordance with the current requirements of the applicable storm water jurisdictions and approving agencies. In addition, storm events/frequencies, runoff calculations, discharge criteria, evaluation methods (including computer software applications), etc., have been based on the guidelines/requirements of these permitting entities and reflect the application of generally accepted standard of engineering practice. This design is based on, and limited by, the weather data, the analysis and their applicability as presented herein.

Include a cost estimate for each PBMP with line items for all components (ex: riprap, road base, forebay, trickle channel, outlet structure, outlet pipe, spillway, etc). Input the total value into the FAE form under “Permanent Pond/BMP (provide engineer’s estimate)” in Section 1. The total should not include grading, which is a separate line item in Section 1: “Earthwork.”

Soils Report states that groundwater was encountered at 7-11ft. Discuss design depth of PLDs and any GW mitigation that may be necessary.

Engineer must confirm in the Drainage Report that the existing offsite or onsite PBMPs (in this case, the downstream detention pond) that the site is tributary to are functioning as intended. Also reference the original design report for that existing pond and state/confirm that was designed with enough capacity for the proposed development.

EXHIBIT 1

Vicinity Map

Vicinity Map

Walmart Fueling Station 4335-543

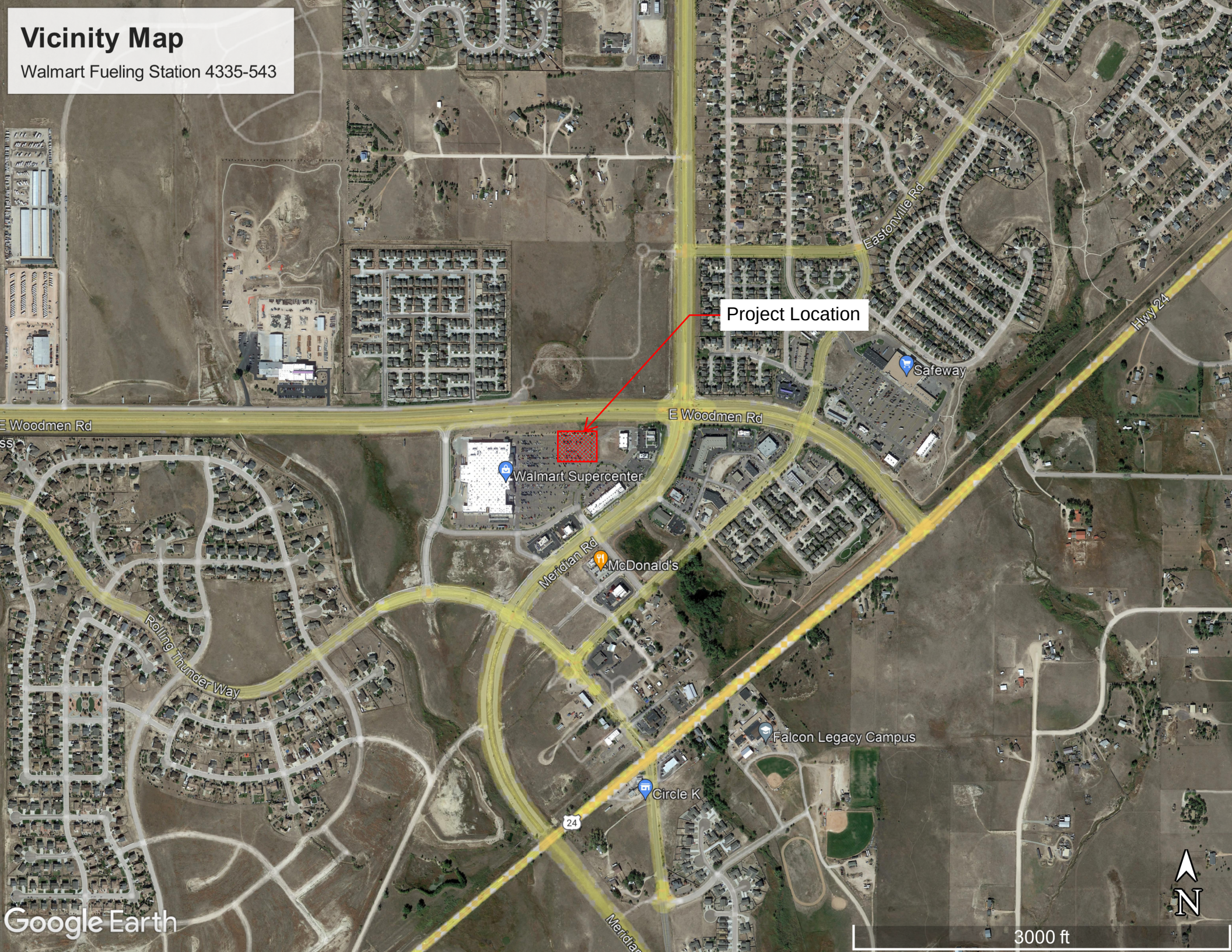


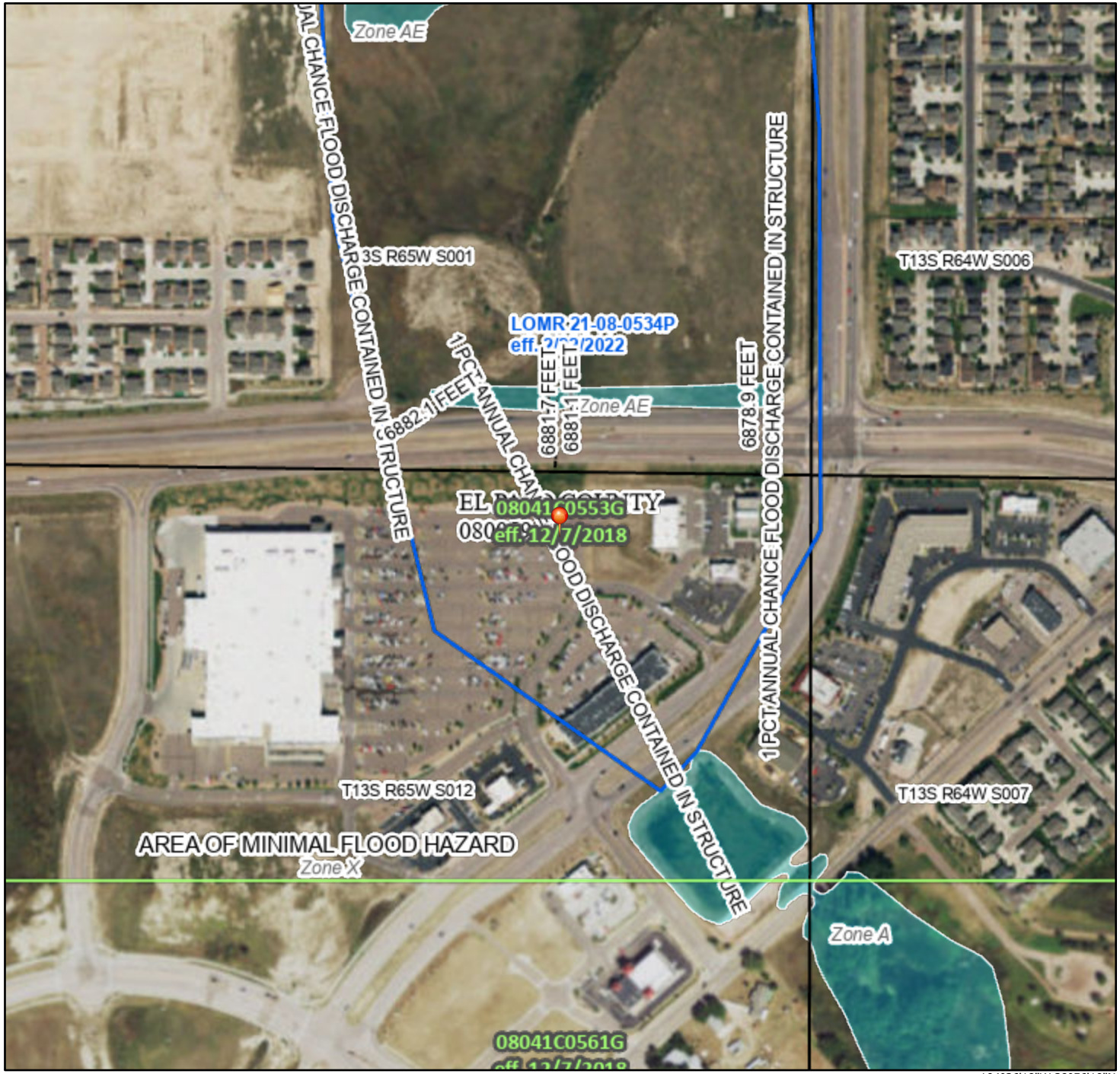
EXHIBIT 2

FIRM Map

National Flood Hazard Layer FIRMette

FEMA

104°36'56"W 38°56'38"N



104°36'18"W 38°56'10"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/27/2022 at 10:38 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

EXHIBIT 3

Soils Report

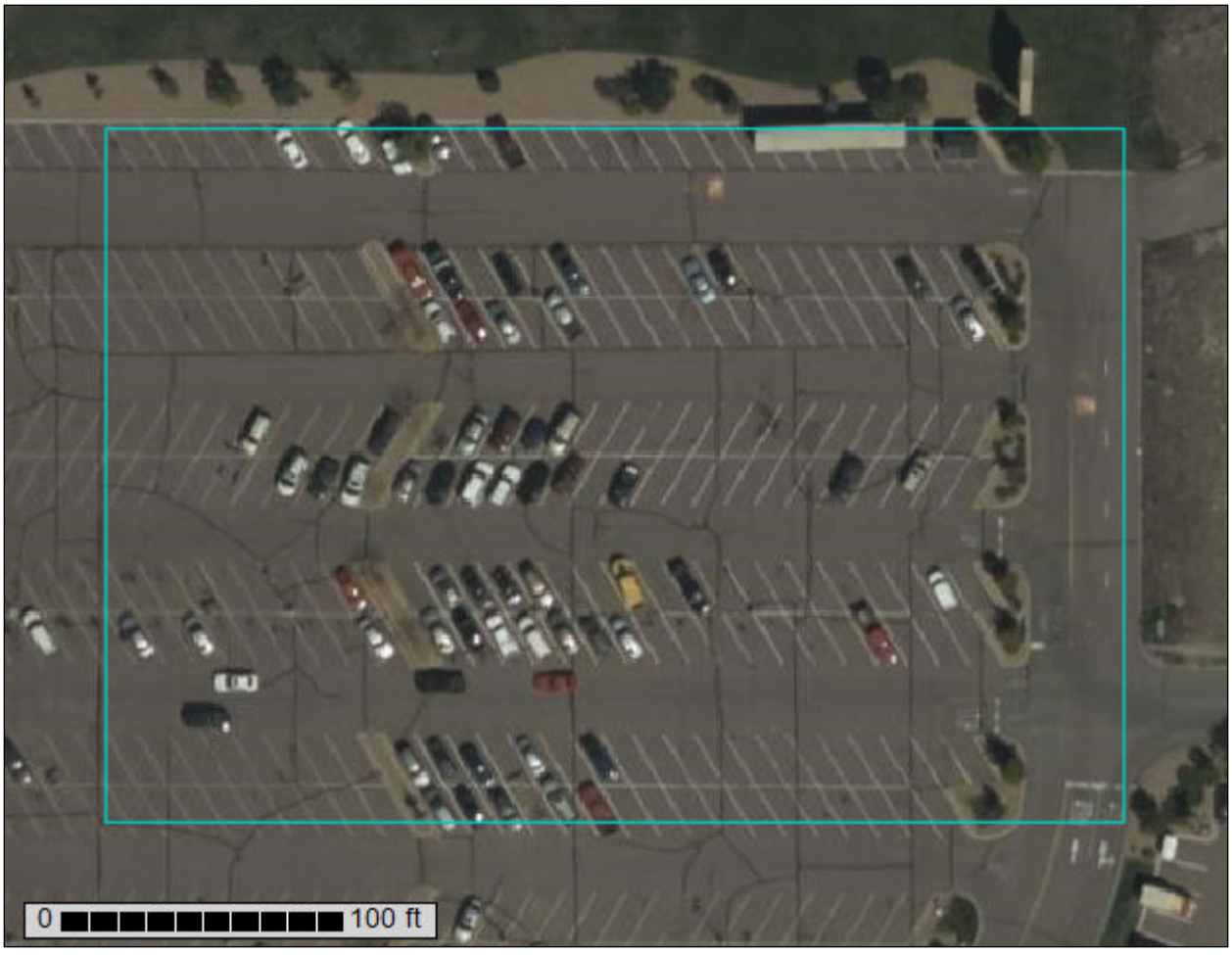
United States Department of Agriculture

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 El Paso County Area, Colorado



June 27, 2022

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

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Contents

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

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.

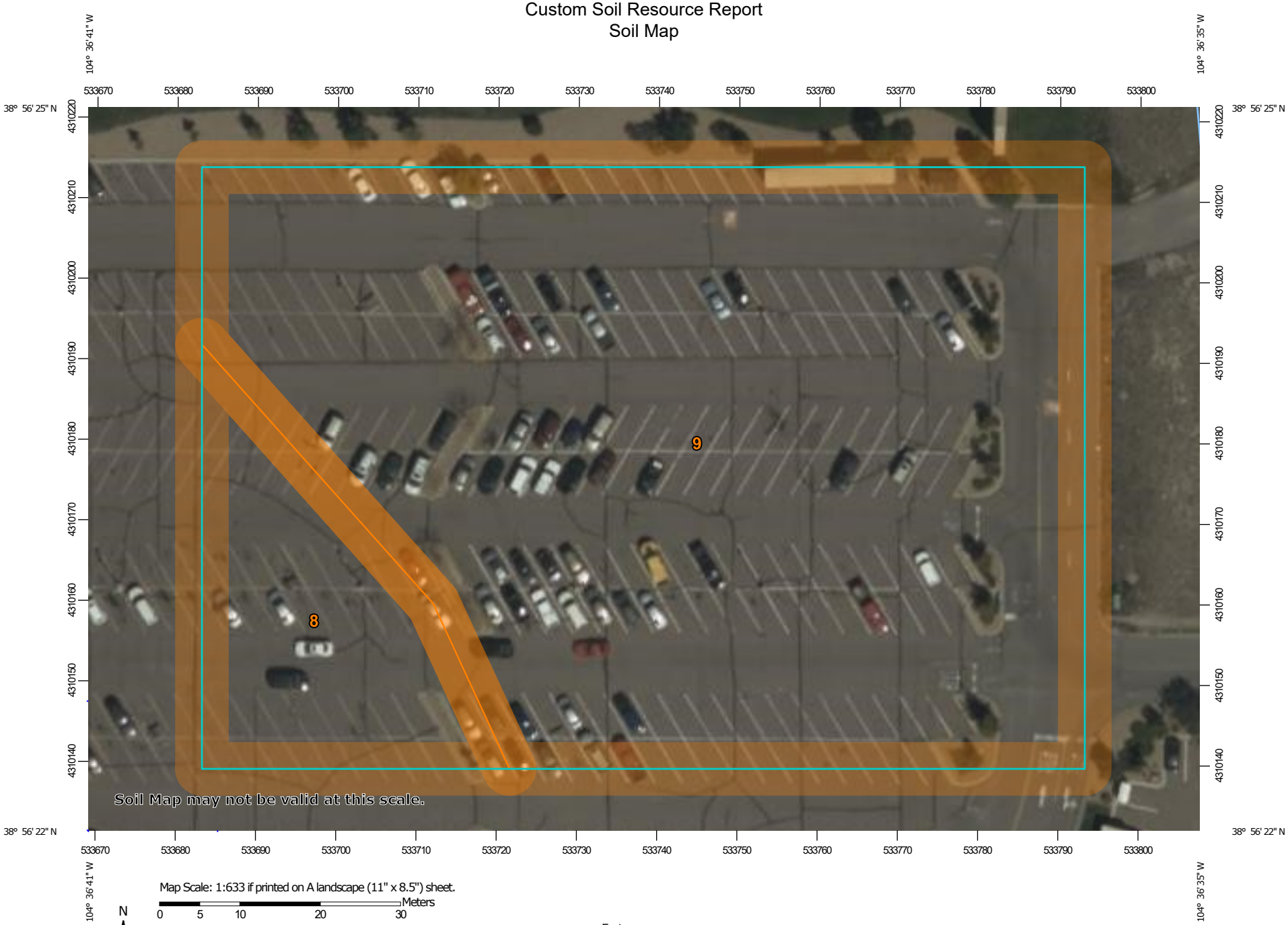
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: 1:633 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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
8	Blakeland loamy sand, 1 to 9 percent slopes	0.3	14.0%
9	Blakeland-Fluvaquentic Haplaquolls	1.8	86.0%
Totals for Area of Interest		**2.0**	**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 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.

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.

El Paso County Area, Colorado

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent

Hydric soil rating: No

Pleasant

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

9—Blakeland-Fluvaquentic Haplaquolls

Map Unit Setting

National map unit symbol: 36b6
Elevation: 3,500 to 5,800 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

Blakeland and similar soils: 60 percent
Fluvaquentic haplaquolls and similar soils: 38 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose and/or eolian deposits derived from arkose

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Description of Fluvaquentic Haplaquolls

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 12 inches: variable
H2 - 12 to 60 inches: stratified very gravelly sand to loam

Properties and qualities

Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
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
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 6w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: D
Ecological site: R048AY241CO - Mountain Meadow
Hydric soil rating: Yes

Minor Components

Pleasant

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

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

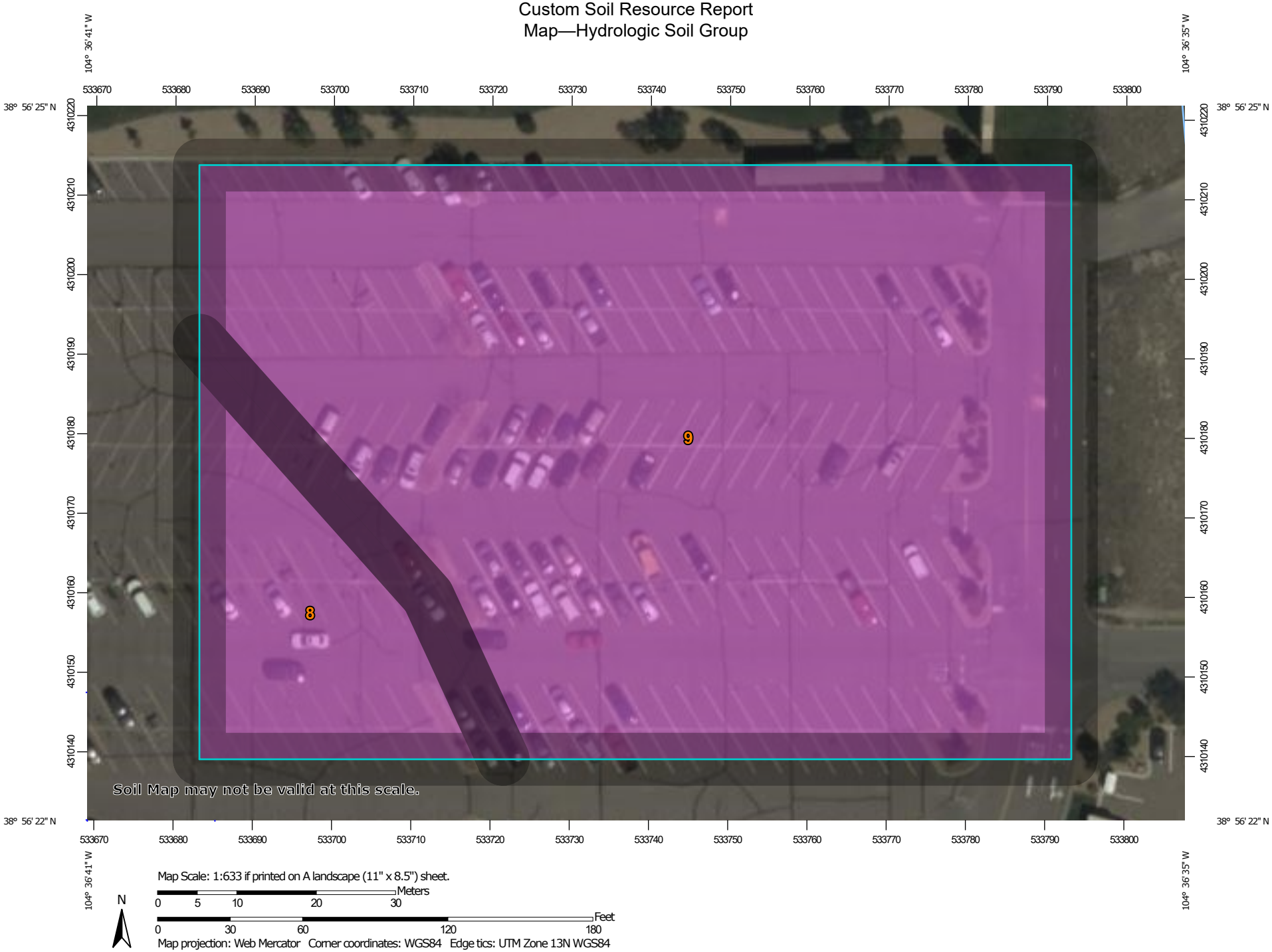
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.


104° 36' 41" W
104° 36' 35" W
38° 56' 25" N
38° 56' 22" N
533670
533680
533690
533700
533710
533720
533730
533740
533750
533760
533770
533780
533790
533800
4310220
4310210
4310200
4310190
4310180
4310170
4310160
4310150
4310140
8
9
Soil Map may not be valid at this scale.
Map Scale: 1:633 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 5 10 20 30
Feet
0 30 60 120 180
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 Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	0.3	14.0%
9	Blakeland-Fluvaquentic Haplaquolls	A	1.8	86.0%
Totals for Area of Interest			**2.0**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Add REF
El Paso County Engineering and Drainage Criteria Manuals

References

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Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

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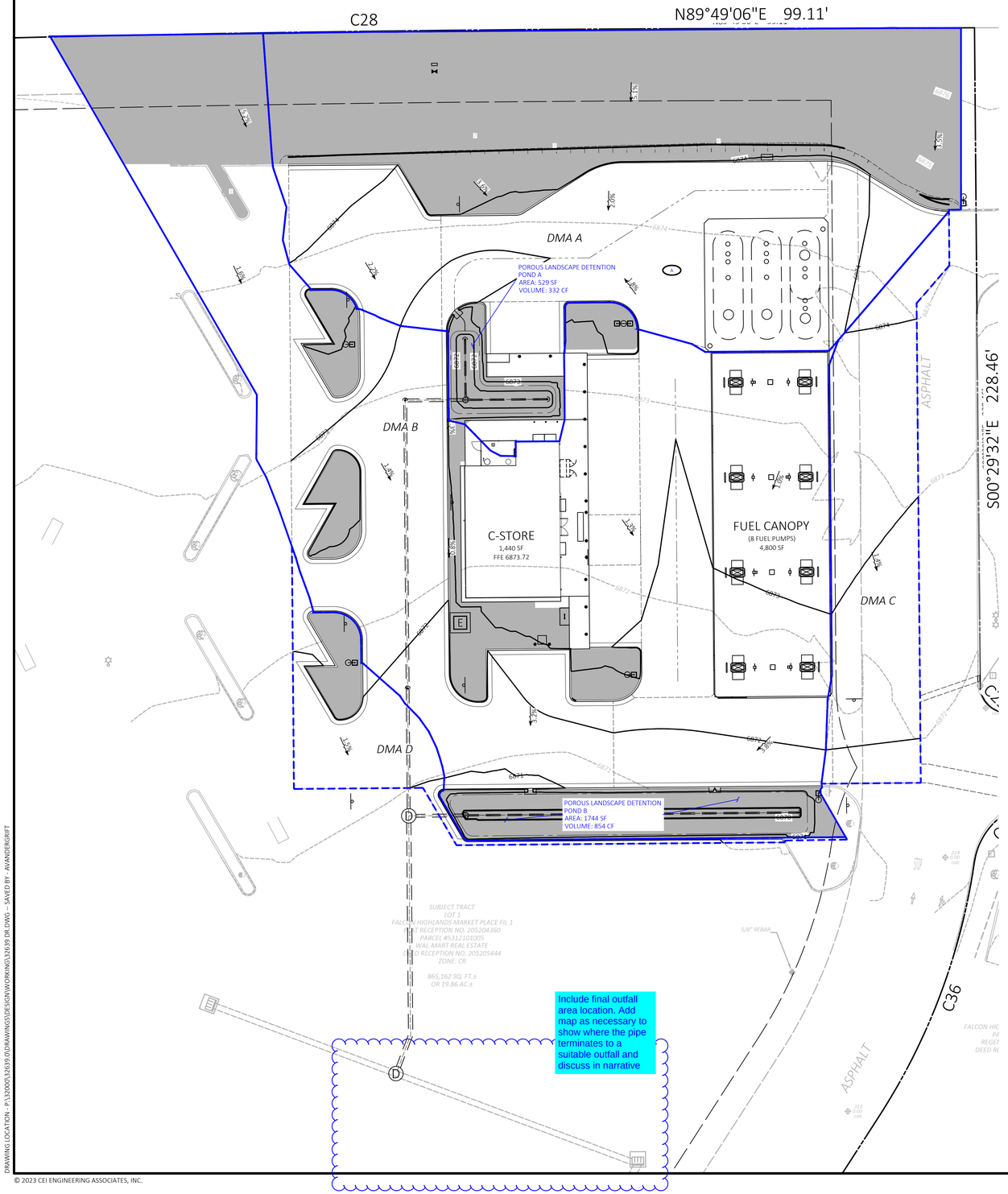
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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

EXHIBIT 4

Drainage Area Map



SITE BENCHMARK

BENCHMARK #1
N: 1409727.92'
E: 3252699.81' (GROUND)
ELEV.: 6876.81
5/8" REBAR WITH CAP CEI SET ON THE NORTH SIDE OF SUBJECT AREA.

BENCHMARK #2
N: 1408269.66'
E: 3253046.66'
ELEV.: 6869.96'
MAGNAIL WITH WASTER CEI SET SOUTH OF SUBJECT AREA, 19.96' SOUTHWEST OF A 5/8" REBAR AND 57.68' SOUTHWEST OF A DECIDUOUS TREE.

NOTE:
SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF PORCHES, RAMPS, VESTIBULE, SLOPED PAVING, TRUCK DOCKS, BUILDING UTILITY ENTRANCE LOCATIONS AND PRECISE BUILDING DIMENSIONS.

Know what's **below.**
Call before you dig.

0 20' 30' 40'
SCALE IN FEET

ALERT TO CONTRACTOR:

ALL WM GENERAL CONTRACTOR WORK TO BE COMPLETED (EARTHWORK, FINAL UTILITIES, AND FINAL GRADING) BY THE MILESTONE DATE IN PROJECT DOCUMENTS.

EXISTING LEGEND

BACKFLOW PREVENTOR	LIGHT POLE - 3 LIGHTS
BENCH	SANITARY SEWER - MANHOLE
CONTROL - BRASS CAP	SIGN
CONTROL - CHISELED CROSS	SIGN - STOP
CONTROL - IRON PIPE	STORM DRAIN - GRATE
CONTROL - NAIL SET	STORM DRAIN - MANHOLE
CONTROL - REBAR FOUND	STRIPING - ARROW LEFT
DOME	STRIPING - ARROW RIGHT
ELECTRIC - BOX	STRIPING - ARROW STRAIGHT
ELECTRIC - CABINET	STRIPING - STOP
ELECTRIC - METER	TELEPHONE - MANHOLE
ELECTRIC - TRANSFORMER	TRAFFIC SIGNAL
ELECTRIC - VAULT	TRAFFIC SIGNAL - BOX
FIRE HYDRANT	TRAFFIC SIGNAL - SHORT
IRRIGATION CONTROL VALVE	TREE - DECIDUOUS
LIGHT POLE	WATER - METER
LIGHT POLE - 2 LIGHTS	WATER - VALVE

ROAD CENTERLINE
STORM LINE - UNDERGROUND
PROPERTY BOUNDARY LINE
FEMA BOUNDARY LINE
SETBACK LINE

PROPOSED LEGEND

HYDRAULIC SOIL GROUP
ONSITE DRAINAGE MANAGEMENT AREA - CAPTURED
ONSITE DRAINAGE MANAGEMENT AREA - NOT CAPTURED
PERVIOUS AREA
IMPERVIOUS AREA

DRAINAGE MANAGEMENT AREAS (DMA)

DMA LABEL	TOTAL (SF)	PERVIOUS (SF)	IMPERVIOUS (SF)
A	25,118	13,273	11,845
B	34,305	8,063	26,242
C	5,405	0	5,405
D	2,638	476	2,162
TOTAL	67,466	21,812	45,654
EXISTING	67,466	15,778	51,668
DIFFERENCE	0	6,034	-6,034

We need to know how much disturbed area is untreated and if there are any exclusions that apply to those areas. So please create a basic overview map (or modify an existing drainage map) with color shading/hatching that shows areas tributary to each PBMP (pond, runoff reduction, SNOUT, etc.) and those disturbed areas that are not treated by a PBMP, with the applicable exclusion labeled (ex: 20% up to 1ac of development can be excluded per ECM App I.7.1.C.1 and exclusions listed in ECM App I.7.1.B.#). An accompanying summary table on this map would also be very helpful (two examples provided, one detailed one in excel format here and another more simple one via a screenshot):

Remember that all areas of disturbance need to be accounted for through WQ treatment or an applicable WQ exclusion, not just related to added impervious areas.

PBMP SUMMARY TABLE

BASINS	PBMP TRIBUTARY AREA (AC)	PBMP
A1.1	1.43	RG-A1.1
A3.1	1.87	RG-A3.1
B1,B2	8.60	EDB-B
OA2,A2	0.95	EXCLUDED*

* EXCLUDED BASED ON < 1-ACRE OF DEVELOPED ROADWAY AREA PER ECM APP. 17.C.1.a

CEI ENGINEERING ASSOC., INC.
710 W PINEDALE AVE
FRESNO, CA 93711
PHONE: (559) 447-3119
FAX: (559) 447-3129

REVISION		
NO.	DESCRIPTION	DATE
	REV-X	XX/XX/XXXX

FUEL STATION #4335
11550 MERIDIAN MARKET VIEW
FALCON, CO

Preliminary
This document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document

PROFESSIONAL OF RECORD	TB
PROJECT MANAGER	JPD
DESIGNER	JSC
CEI PROJECT NUMBER	32639
DATE	6/6/2023
REVISION	REV-0

DMA EXHIBIT
SHEET TITLE
SHEET NUMBER
EX-4

DRAWING LOCATION - P:\32000\32639\01DRAWINGS\DESIGN\WORKING\32639 DR.DWG - SAVED BY - AVANDERGRIFT

EXHIBIT 5

Calculations

Drainage Management Areas Post

DMA Label	Total Area (SF)	Pervious Area (SF)	Impervious Area (SF)	Pervious Area (%)	Impervious Area (%)
A	25118	13273	11845	53%	47%
B	34305	8063	26242	24%	76%
C	5405	0	5405	0%	100%
D	2638	476	2162	18%	82%
Total	67466	21812	45654	32%	68%

Drainage Area Comparison

DMA Label	Total Area (SF)	Pervious Area (SF)	Impervious Area (SF)	Pervious Area (%)	Impervious Area (%)
Existing Site	67466	15778	51688	23%	77%
Proposed Site	67466	21812	45654	32%	68%
Change (Prop - Exist)	0	6034	-6034	9%	-9%

Drainage Flow Rates

DMA Label	Total Area (AC)	Pervious Area C= 0.25 (SF)	Impervious Area C= 0.90 (SF)	C-Value	Intensity 10 year - 5 min (in/hr)	Flow Rate 10 Year (CFS)
A	0.58	0.30	0.27	0.56	5.50	1.76
B	0.79	0.19	0.60	0.75	5.50	3.24
C	0.12	0.00	0.12	0.90	5.50	0.61
D	0.06	0.01	0.05	0.78	5.50	0.26
Total	1.55	0.50	1.05	0.69	5.50	5.88

Unable to review these PLD calcs, no details provided. Calcs will be reviewed once a detail is provided that shows the outlet structure and spillway.

Design Procedure Form: Porous Landscape Detention (PLD)

Designer: Ashley Vandergrift
Company: CEI Engineering Associates
Date: 9-2-2022
Project: Walmart Fuel - 4335-543
Location: Falcon, CO - North PLD

1. Basin Storage Volume (I_a = 100% if all paved and roofed areas u/s of PLD) A) Tributary Area's Imperviousness Ratio (i = I_a / 100) B) Contributing Watershed Area Including the PLD (Area) C) Water Quality Capture Volume (WQCV) (WQCV = 0.8 * (0.91 * I^3 - 1.19 * I^2 + 0.78 * I)) D) Design Volume: Vol_{PLD} = (WQCV / 12) * Area	I_a = 47 % i = 0.47 Area = 25118 square feet WQCV = 0.159 watershed inches Vol = 331.9 cubic feet
2. PLD Surface Area (A_{PLD}) and Average Depth (d_{av}) (d_{av}: = (Vol / A_{PLD}), Min=0.5', Max=1.0')	A_{PLD} = 529 square feet d_{av} = 0.63 feet
3. Base Course (See Figure PLD-1)	X 6" (Min.) Sandy Loam Turf Layer, Plus 18" (Min.) Layer of 25% Peat and 75% Sand Mix, Plus 9" (Min.) Layer of ASSHTO #8 Coarse Aggregate (CDOT Section 703 Specification). __ Other: __
5. Draining of porous pavement (Check a, **or** b, **or** c, **answer** d) Based on answers to 5a through 5d, check the appropriate method a) Check box if subgrade is heavy or expansive clay b) Check box if subgrade is silty or clayey sands c) Check box if subgrade is well-draining soils ✔ d) Does tributary catchment contain land uses that may have petroleum products, greases, or other chemicals present, such as gas station, hardware store, restaurant, etc.? yes ✔ no	☐ Infiltration to Subgrade with Permeable Membrane: 5(c) checked **and** 5(d) = no ☑ Underdrain with Impermeable Membrane: 5(a) checked **or** 5(d) = yes ☐ Underdrain with Permeable Membrane: 5(b) checked **and** 5(d) = no ☐ Other:

Notes:

Please use the latest version of MHFD's UD-BMP spreadsheet (v3.07). The above version from the EPC DCM is very outdated.

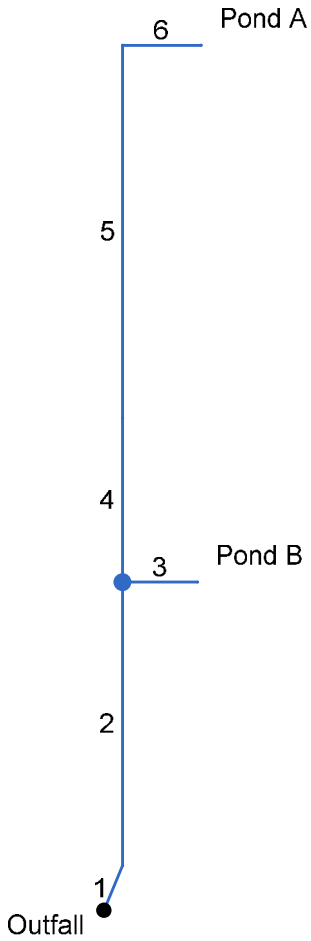
Design Procedure Form: Porous Landscape Detention (PLD)

Designer: Ashley Vandergrift
Company: CEI Engineering Associates
Date: 9-2-2022
Project: Walmart Fuel - 4335-543
Location: Falcon, CO - South PLD DMA B

1. Basin Storage Volume (I_a = 100% if all paved and roofed areas u/s of PLD) A) Tributary Area's Imperviousness Ratio (i = I_a / 100) B) Contributing Watershed Area Including the PLD (Area) C) Water Quality Capture Volume (WQCV) (WQCV = 0.8 * (0.91 * I^3 - 1.19 * I^2 + 0.78 * I)) D) Design Volume: Vol_{PLD} = (WQCV / 12) * Area	I_a = 76 % i = 0.76 Area = 34305 square feet WQCV = 0.244 watershed inches Vol = 697.4 cubic feet
2. PLD Surface Area (A_{PLD}) and Average Depth (d_{av}) (d_{av}: = (Vol / A_{PLD}), Min=0.5', Max=1.0')	A_{PLD} = 1744 square feet d_{av} = 0.50 feet
3. Base Course (See Figure PLD-1)	X 6" (Min.) Sandy Loam Turf Layer, Plus 18" (Min.) Layer of 25% Peat and 75% Sand Mix, Plus 9" (Min.) Layer of ASSHTO #8 Coarse Aggregate (CDOT Section 703 Specification). ____ Other: ____
5. Draining of porous pavement (Check a, **or** b, **or** c, **answer** d) Based on answers to 5a through 5d, check the appropriate method a) Check box if subgrade is heavy or expansive clay b) Check box if subgrade is silty or clayey sands c) Check box if subgrade is well-draining soils ✔ d) Does tributary catchment contain land uses that may have petroleum products, greases, or other chemicals present, such as gas station, hardware store, restaurant, etc.? yes ✔ no	☐ Infiltration to Subgrade with Permeable Membrane: 5(c) checked **and** 5(d) = no ☑ Underdrain with Impermeable Membrane: 5(a) checked **or** 5(d) = yes ☐ Underdrain with Permeable Membrane: 5(b) checked **and** 5(d) = no ☐ Other: ____

Notes:

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 32639 Walmart Fuel - Falcon, CO.stm	Number of lines: 6	Date: 6/8/2023

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1		None	6869.00	n/a	n/a	n/a	18	Cir	6866.00	18	Cir	6866.00
2		Manhole	6870.90	Cir	4.00	4.00	18	Cir	6866.38	12 12	Cir Cir	6866.88 6866.88
3	Pond B	None	6869.77	n/a	n/a	n/a	12	Cir	6867.73			
4		None	6871.80	n/a	n/a	n/a	12	Cir	6867.10	12	Cir	6867.10
5		None	6872.82	n/a	n/a	n/a	12	Cir	6867.60	12	Cir	6867.60
6	Pond A	None	6872.50	n/a	n/a	n/a	12	Cir	6869.16			

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1		0.00	5.00	0.00	5.00	None	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
2		0.00	5.00	0.00	5.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	1
3	Pond B	3.24*	0.00	0.00	3.24	None	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	2
4		0.00	1.76	0.00	1.76	None	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	2
5		0.00	1.76	0.00	1.76	None	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	4
6	Pond A	1.76*	0.00	0.00	1.76	None	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	5

Project File: 32639 Walmart Fuel - Falcon, CO.stm | Number of lines: 6 | Run Date: 6/8/2023

NOTES: Inlet N-Values = 0.016; Known Qs only; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

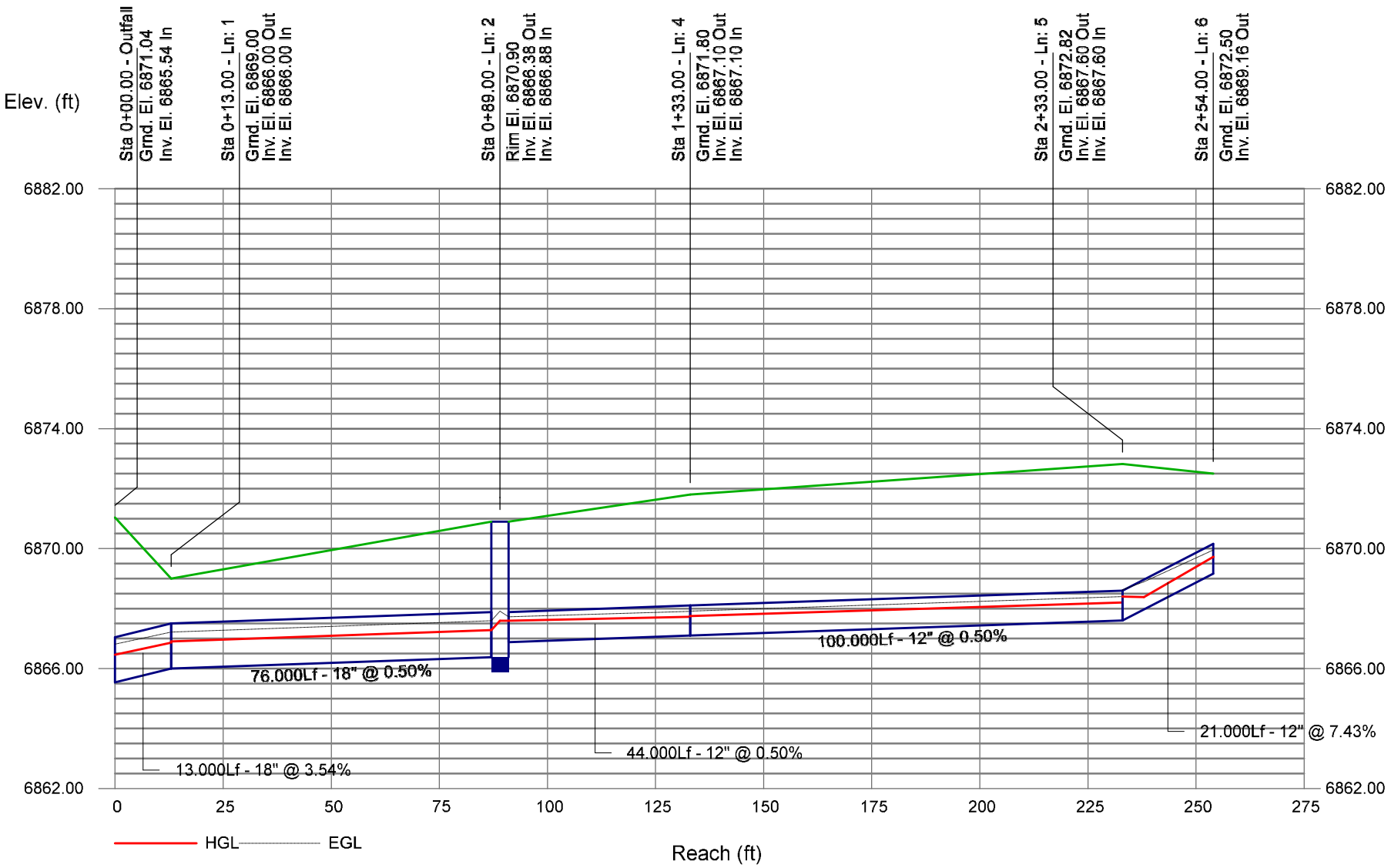
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	5.00	6865.54	6866.46	0.92	1.05	4.40	0.35	6866.81	0.000	13.000	6866.00	6866.86	0.86**	1.05	4.78	0.35	6867.21	0.000	0.000	n/a	0.44	n/a
2	18	5.00	6866.00	6866.90	0.90*	1.11	4.51	0.32	6867.22	0.499	76.000	6866.38	6867.28	0.90	1.11	4.52	0.32	6867.60	0.502	0.500	0.380	1.00	0.32
3	12	3.24	6866.88	6867.60	0.72	0.60	5.37	0.39	6867.99	0.000	20.000	6867.73	6868.50	0.77**	0.65	4.99	0.39	6868.89	0.000	0.000	n/a	1.00	n/a
4	12	1.76	6866.88	6867.60	0.72	0.60	2.92	0.13	6867.73	0.327	44.000	6867.10	6867.73	0.63	0.52	3.41	0.18	6867.91	0.478	0.403	0.177	0.15	0.03
5	12	1.76	6867.10	6867.75	0.65	0.54	3.25	0.16	6867.92	0.423	100.000	6867.60	6868.20	0.60	0.49	3.59	0.20	6868.40	0.545	0.484	0.484	1.00	0.20
6	12	1.76	6867.60	6868.40	0.80	0.46	2.62	0.23	6868.63	0.000	21.000	6869.16	6869.72 j	0.56**	0.46	3.86	0.23	6869.96	0.000	0.000	n/a	1.00	0.23

Project File: 32639 Walmart Fuel - Falcon, CO.stm | Number of lines: 6 | Run Date: 6/8/2023

Notes: * Normal depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: 32639 Walmart Fuel - Falcon, CO.stm



Storm Sewer Profile

Proj. file: 32639 Walmart Fuel - Falcon, CO.stm