Final Drainage Report

Clearview Food Mart, Convenience Store & Gas Station
Lot 1 of Clearview West Filing No. 2
4815 Yucatan Dr.
Colorado Springs, CO 80911

Prepared for (Owner):
FATEH, LLC
4609 Desert Varnish Dr.
Colorado Springs, Colorado 80922
Contact: Karanjeet Singh

Prepared by:
Kimley-Horn and Associates, Inc.
2 North Nevada Avenue, Suite 900
Colorado Springs, Colorado 80903
Contact: Mitchell Hess, P.E.
(719) 453-0180

Project #: 196192000

PCD File No. PPR-22-17

Prepared: February 20, 2023

Kimley»Horn

CERTIFICATION

ENGINEERS 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.

SIGNATURE (Affix Seal): _____

Mitchell Hess, Colorado P.E. No. 53916 Date

DEVELOPER'S STATEMENT

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

FATEH LLC
Name of Developer

Karanjeet Singh 06-09-2023
Authorized Signature Date

Karanjeet Singh (Owner)
Printed Name

Property Owner
Title

4609 Desert Varnish Drive, Colorado Springs, CO 80903
Address: Project address: 4815 Yucatan Drive, Colorado Springs, CO 80911

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.

APPROVED
Engineering Department
07/07/2023 1:39:47 PM
dotnijkamp
EPC Planning & Community Development Department

Joshua Palmer, P.E.
County Engineer / ECM Administrator

Conditions:

Kimley»Horn

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INTRODUCTION

PURPOSE AND SCOPE OF STUDY

The purpose of this drainage report is to outline the drainage facilities for 4815 Yucatan Drive (the "Property") Colorado Springs, El Paso County, Colorado (the "County"). This drainage letter identifies drainage patterns and infrastructure for the Site and proposes to safely route storm water to adequate outfalls. The Property is 1.028 acres in size.

The Property is located in an unstudied drainage basin and is tributary to the Little Johnson Drainage Basin. The Site is discussed in the *Little Johnson/Security Creek Drainage Basin Planning Study*, dated April 1988 and prepared by Simons, LI & Associates, Inc. ("DBPS").

GENERAL PROJECT DESCRIPTION

The project improvements consist of minor on-site improvements, including the addition of two underground gas tanks and associated pumps and a single canopy as well as construction of some curb and gutter at the edge of the parking lot on the southwest side of the Site. The Project will be processed through El Paso County.

The Project is located in a portion of the west 1/2 of Section 1, Township 15 south, Range 66 west of the 6th P.M., County of El Paso, State of Colorado (see Vicinity Map in Appendix A). More specifically, the site is located at 4815 Yucatan Drive, Colorado Springs, CO. The Property is bounded by Hancock Expressway to the west, Yucatan Drive to the north, and privately owned vacant commercial lots to the south and east. The Property currently consists of a single building (convenience store) and associated surface parking. The site is accessed via Yucatan Drive via a private driveway. Stormwater will ultimately outfall to the Little Johnson Reservoir after surface flowing onto the surrounding landscape perimeter areas and then discharging to the right-of-way where any excess runoff is collected within public storm drain inlets.

Survey data gathered from contours provided with the Clearview Market Site Development Plan (County File No. AL-09-002) along with references from the 2011 NAVD88 Contours (CSU GIS Utility Mapping) are the basis for design for the drainage improvements.

PROJECT CHARACTERISTICS

The Project Site is 1.028 acres (44,800 SF) in size. The Project involves the construction of 2 underground gasoline tanks with associated gas pumps and a gas canopy. The proposed impervious area will decrease slightly from 68.4% to 68.1%. Additionally, stormwater flows will remain nearly identical to existing conditions while implementing runoff reduction practices per the Green Infrastructure Manual. Additional mitigation measures include the addition of rooftops over existing paved areas and the removal of pavement in other areas. The existing building is a convenience store. As reported by the owner, the property was previously a gas station before the tanks were eventually removed. Historical aerials as well as state underground tank records indicate that the gas station use at the site was in place until as recent as 2006. The proposed redevelopment at this site would reinstate the gas station use at this property, without expanding the use area.

The existing Project Site generally slopes from northeast to southwest at grades of approximately 1–2%. The proposed drainage patterns will be nearly identical to the existing conditions. The Site

consists of a single convenience store and surface parking. The Site does not have any existing stormwater infrastructure, with rainfall surface draining off the Site.

DRAINAGE BASIN PLANNING STUDY INFRASTRUCTURE AND ANALYSIS

The Project Site is contained within the Little Johnson Drainage Basin and is discussed within the DBPS. According to the DBPS, "This basin shall utilize a regional detention pond system in conjunction with storm sewers and open channels, including an independent outfall to Fountain Creek".

SOILS CONDITIONS

NRCS soil data is available for this Site and it has been noted that onsite soils are primarily Truckton Sandy Loam (USGS Type A). The NRSC Soils map and report has been provided in Appendix B.

DRAINAGE DESIGN CRITERIA

REGULATIONS

The proposed development does not propose any deviations from The City of Colorado Springs/El Paso County Drainage Criteria Manual, dated October 12, 1994 or any subsequent revisions.

DEVELOPMENT DESIGN CRITERIA REFERENCE AND CONSTRAINTS

The FEMA Flood Insurance Rate Map (FIRM) map included in Appendix B (Map Number 08041C0763G, dated 12/7/2018) shows the Site to be located outside of the 100-year flood plain. The proposed private storm facilities follow The City of Colorado Springs/El Paso County Drainage Criteria Manual (the "CRITERIA"), El Paso County Engineering Criteria Manual (the "ECM), and the Urban Storm Drainage Criteria Manual (the "MANUAL"). Site drainage is impacted by constraints of existing development. The proposed Project is a minor redevelopment of an existing convenience store. Further detail regarding onsite drainage patterns has been provided in the Proposed Drainage Conditions Section.

HYDROLOGIC CRITERIA

The 5-year and 100-year design storm events were used in determining rainfall and runoff for the proposed drainage system per Chapter 6 of the CRITERIA. Table 6-2 of the CRITERIA is the source for rainfall data for the 5-year and 100-year design storm events. Design runoff was calculated using the Rational Method for developed conditions as established in the CRITERIA and MANUAL. Runoff coefficients for the proposed development were determined using Table 6-6 of the CRITERIA by calculating weighted impervious values for each specific site sub-basin.

HYDRAULIC CRITERIA

No proposed flows for the site are routed through drainage swales and/or underground storm drain pipes. As such, no hydraulic analysis has been completed for the proposed redevelopment.

VARIANCES FROM CRITERIA

1 Variance from the Drainage Criteria Manual is to be reviewed by El Paso County as a part of

this project and is attached as a part of the appendix for this report. The variance is as follows:

- Using Runoff Reduction and Grass Buffering for stormwater quality treatment in place of a specialized BMP

EXISTING DRAINAGE CONDITIONS

EXISTING DRAINAGE BASIN

The existing property contains 3 sub-basins.

Sub-Basin E1 is located on the northwest portion of the property, containing an asphalt parking lot and drive aisles and landscape areas, is 0.54 acres in size, and has a basin impervious value of 73.8% and 5-year and 100-year storm event direct runoff values of 1.65 and 3.23 cubic feet per second (cfs) respectively. Stormwater runoff flows within Sub-Basin E1 generally flow west and southwest to landscape areas before discharging into the Hancock Expressway ROW.

Sub-Basin E2 is located on the southeast portion of the property, includes asphalt drive aisles and landscape areas, is 0.43 acres in size, and has a basin impervious value of 58.7%. 5-year and 100-year storm events generate direct runoff of 0.99 and 2.10 cfs respectively. Stormwater runoff flows within Sub-Basin E2 generally flow south and southeast to landscape areas before discharging to the property south of the site.

Sub-Basin ER contains the rooftop of the existing building and is 0.06 acres (2,424 square feet) in size, with an impervious value of 90.0%. The 5-year and 100-year storm events generate direct runoff of 0.20 and 0.37 cfs respectively. Stormwater flows within this basement are outletted into sub-basin E2 via roof drains on the rear of the building. These roof drains splash on grade and join the surface runoff from sub-basin E2, flowing south and southeast to landscape areas.

PROPOSED DRAINAGE CONDITIONS

While ground disturbance is proposed as a part of this project, no significant re-grading is anticipated. All pavement replacement will return grades to near existing conditions and will not impact the drainage characteristics of the site. As a result, the proposed development will also contain 3 sub-basins.

Sub-basin 1 is identical in shape and size to Sub-Basin E1 but includes the proposed gas dispenser canopy which will cover existing asphalt paved areas. The impervious value of this sub-basin is 80.8% and the 5-year and 100-year storm event direct runoff values with the sub-basin are proposed to be 1.83 and 3.49 cfs respectively. Stormwater runoff within Sub-Basin P1 will continue to follow its historical path.

Sub-basin 2 is also identical in size to Sub-Basin E2. The impervious value of this sub-basin is 49.0% and the 5-year and 100-year storm event direct runoff values with the sub-basin are proposed to be 0.81 and 1.84 cfs respectively. Stormwater runoff within Sub-Basin P2 will continue to follow its historical path.

Sub-Basin R is identical to Sub-Basin ER. The impervious value of this sub-basin is 90.0% and the 5-year and 100-year storm events generate direct runoff of 0.20 and 0.37 respectively. Stormwater flows within this drainage basin will remain unaltered relative to existing conditions.

The proposed development keeps the same basin delineation as the existing conditions. Under proposed conditions, the addition of the canopy roof areas in Sub-Basin P1 above the gas dispensers and the removal of asphalt areas redistributes the impervious surfaces and extends the time of concentration. The peak runoff from the site ends up being reduced (after considering runoff reduction implementation, reference the Runoff Reduction Calculations and Exhibit in the Appendix) in both the 5 and 100-year storm events. No additional stormwater infrastructure is proposed, other than the canopy roof drains, which will outfall onto the existing parking lot surface. The proposed site changes will not affect the existing drainage patterns in Sub-Basin P2.

The proposed development will have a weighted I Factor of 68.1% (reduced from 68.4% under existing conditions), 5-year and 100-year C Factors of 0.63 and 0.76 (compared to existing values of 0.56 and 0.71), and peak 5-year and 100-year runoff of 2.85 and 5.71 cfs (compared to 2.84 and 5.70 cfs under existing conditions), respectively. Because the stormwater flows are reduced relative to existing conditions after considering runoff reduction calculations, the proposed renovation of the lot conforms with all drainage requirements.

CONFORMANCE WITH THE DBPS

The proposed Project complies with the DBPS. As stated within the DBPS, “The concept of detention and retention of stormflows has been limited to the development of regional ponds. Regional ponds have been defined as ponds receiving stormwater from more than one subdivision. On-site detention/retention has been specifically ruled out as a future stormwater management alternative, excepting those individual ponds which may serve as an interim facility, prior to the construction of downstream facilities”. It is assumed at this time that the downstream regional detention pond is operational.

EMERGENCY OVERFLOW ROUTING

All overflow routing will be directed to the existing landscape areas. Excess runoff within the landscape areas will continue to follow historic flow patterns and drain west into Hancock Expressway or south into vacant land. This flow path matches the historical stormwater runoff path.

HYDRAULIC ANALYSIS METHODOLOGY

The proposed drainage facilities were designed in accordance with the CRITERIA and MANUAL. Floodplain identification was determined using a custom FIRMette map by FEMA and information provided in the CRITERIA. No underground storm drain pipes are proposed for the development. There are no proposed variances from the City of Colorado Springs/El Paso County Criteria for the proposed development.

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No inlets have been proposed as part of the Project.

Four-Step Process

The Site was designed in accordance with the four-step process to minimize adverse impacts of urbanization, as outlined in Section I.7.2 BMP Selection of the CRITERIA. The four-step process per the CRITERIA provides guidance and requirements for the selection of siting of structural Best Management Practices (BMPs) for new development and significant redevelopment.

Step 1: Employ Runoff Reduction Practices

Both the existing and proposed conditions for the site employ runoff reduction methods. The methods used include directing stormwater runoff flows to landscaped areas, grass buffers,

where the runoff can infiltrate into the ground. The proposed redevelopment of the site was designed to conserve as much of the existing vegetation as possible and to minimize the extent of paved areas (increasing landscaping overall). Additionally, the site was designed to eliminate underground storm drains, which promotes stormwater infiltration and reduces stormwater runoff.

As shown within the Runoff Reduction Exhibit and Calculations included in the appendix, the proposed development green infrastructure practices reduce the water quality control volume by 94%.

Step 2: Stabilize Drainageways
There are no known drainageways in the immediate vicinity of the site. The project does promote green infrastructure or runoff reduction practices though, which allows more stormwater to infiltrate into the ground. These practices ultimately reduce the amount of stormwater runoff flows within downstream drainageways, which helps keep drainageways stabilized.

Step 3: Provide Water Quality Capture Volume (WQCV)
As noted in step 1, the existing and proposed development employ runoff reduction practices which result in a WQCV reduction of 94%. As such, the runoff reduction methods, which consist of landscape areas and grass buffers, satisfy the requirements of step 3.

Furthermore, Part I.E.4.a of the County's MS4 Permit allows for the runoff reduction standard to satisfy the control measure requirements (with the exception of high risk sites), which does not include this site. In the event of gasoline spills, secondary containment measures and cleaning protocols will be used to ensure that there is no transmission of pollutants to receiving waters. To meet this standard, a WQCV reduction of 60% is required. With a 94% WQCV reduction, the runoff reduction standards exceed the requirements for the development.

Step 4: Consider Need for Industrial and Commercial BMPs
The proposed Project consists of redeveloping an existing convenience store back into a gas station. Gas Stations are regulated at the federal, state and local levels to reduce pollution from petroleum products. Spill Prevention, Control and Countermeasure (SPCC) Plans are often required by the EPA which assist in planning for and preventing petroleum discharges that could reach water bodies. Additionally, specific federal and state regulations for underground storage tanks (USTS), specify minimum requirements related to the design, installation, operation, maintenance and monitoring of UTSs. By following federal, state and local regulations related to gas stations and underground storage tanks, best management practices for the proposed development will be in place and will help reduce the risk of petroleum releases into drainageways and stormwater systems.

DETENTION AND WATER QUALITY REQUIREMENTS

As discussed in the *Proposed Drainage Conditions* Section, the overall imperviousness of the site is being decreased and the stormwater runoff amounts for the major and minor storm events are less than or equal to the existing stormwater runoff amounts. Because of this, detention facilities are required or needed for the proposed development.

The water quality requirements for the site are being met by Option C of Part I.E.4.a.iv of the County's MS4 Permit, the *Runoff Reduction Standard*. Additionally, a grass buffer control measure will be employed at the site. All of the stormwater runoff that will pass by the proposed gas tanks and dispensers will be routed to the existing grass buffer area. A drainage easement

will be dedicated over the grass buffer area to ensure that the grass buffer control measure stays in place to provide water quality treatment for the site.

Other Water Quality BMPs were evaluated for the site such as porous pavement detention, porous landscape detention, extended detention basins, sand filter, and extended detention basins. Based on the small size of the site and limited size of impervious areas, the desire to reduce stormwater runoff through infiltration, the existing established landscape areas and grass buffers, and the desire to reduce additional disturbance to the site and reduce erosion, the grass buffer control measure was chosen for this development.

EROSION CONTROL PLAN

Erosion Control Plans will be submitted separately as a standalone construction document.

FLOODPLAIN STATEMENT

The FEMA Flood Insurance Rate Map (FIRM) map included in Appendix B (Map Number 08041C0763G, dated 12/7/2018) shows the Site to be located outside of the 100-year flood plain.

FEES DEVELOPMENT

APPLICABLE FEES

The site was previously platted as Lot 1 of Clearview West Filing Number 2. As Drainage and Bridge Fees are required to be paid at the time of Final Plat recording and the site has already been platted, no fees should be due at this time.

CONSTRUCTION COST OPINION

An opinion of probable construction cost for the construction of the private drainage facilities for the Project has been included in Appendix E. There are no public drainage ponds proposed as part of the Project.

MAINTENANCE AND OPERATIONS

Detention BMP's are not proposed as part of the development. The grass buffers, which will provide water quality treatment will require annual inspections and maintenance.

Grass buffer vegetation should be inspected at least twice annually for uniform cover and any traffic impacts (if applicable). The grass buffer area should also be inspected to identify if any sediment has accumulated and if any rill and gullies have developed.

Maintenance of the grass buffer area should include litter, debris and trash removal, annual aeration (2" holes, no more than 4" apart) when the ground is not frozen and when conditions are not extremely hot and dry, and mowing when grasses reach heights above 6". Finally, as recommended by the Criteria, grass buffers should be fertilized by using the "…minimum amount of biodegradable nontoxic fertilizer and herbicides needed to establish and maintain dense vegetation cover that is reasonably free of weeds".

GROUNDWATER CONSIDERATIONS

Groundwater was not encountered during boring or at the conclusion of drilling and is not expected to affect this site, per the Subsurface Soil Investigation performed by Entech Engineering, Inc. (Jan. 16, 2023) as a part of this project and included in the appendix.

Underground storage tanks for gasoline have previously been permitted through the Colorado Department of Public Health and Environment. It is anticipated that groundwater levels are deep enough to allow new underground storage tanks to be installed at this development.

SUMMARY

COMPLIANCE WITH STANDARDS

The drainage design presented within this report for the Clearview Food Mart, Convenience Store & Gas Station Development conforms to the City of Colorado Springs/El Paso County Storm Drainage Criteria and the Urban Drainage and Flood Control District Manual. Additionally, the Site runoff and private storm sewer facilities will not adversely affect the downstream and surrounding developments or waterways. This report and its findings are consistent with the drainage requirements documented in the DBPS.

REFERENCES

1. The City of Colorado Springs Drainage Criteria Manual, May 2014, Revised December 2020 and January 2021.

2. El Paso County Drainage Criteria Manual, Vol. 1 and 2, October 1994

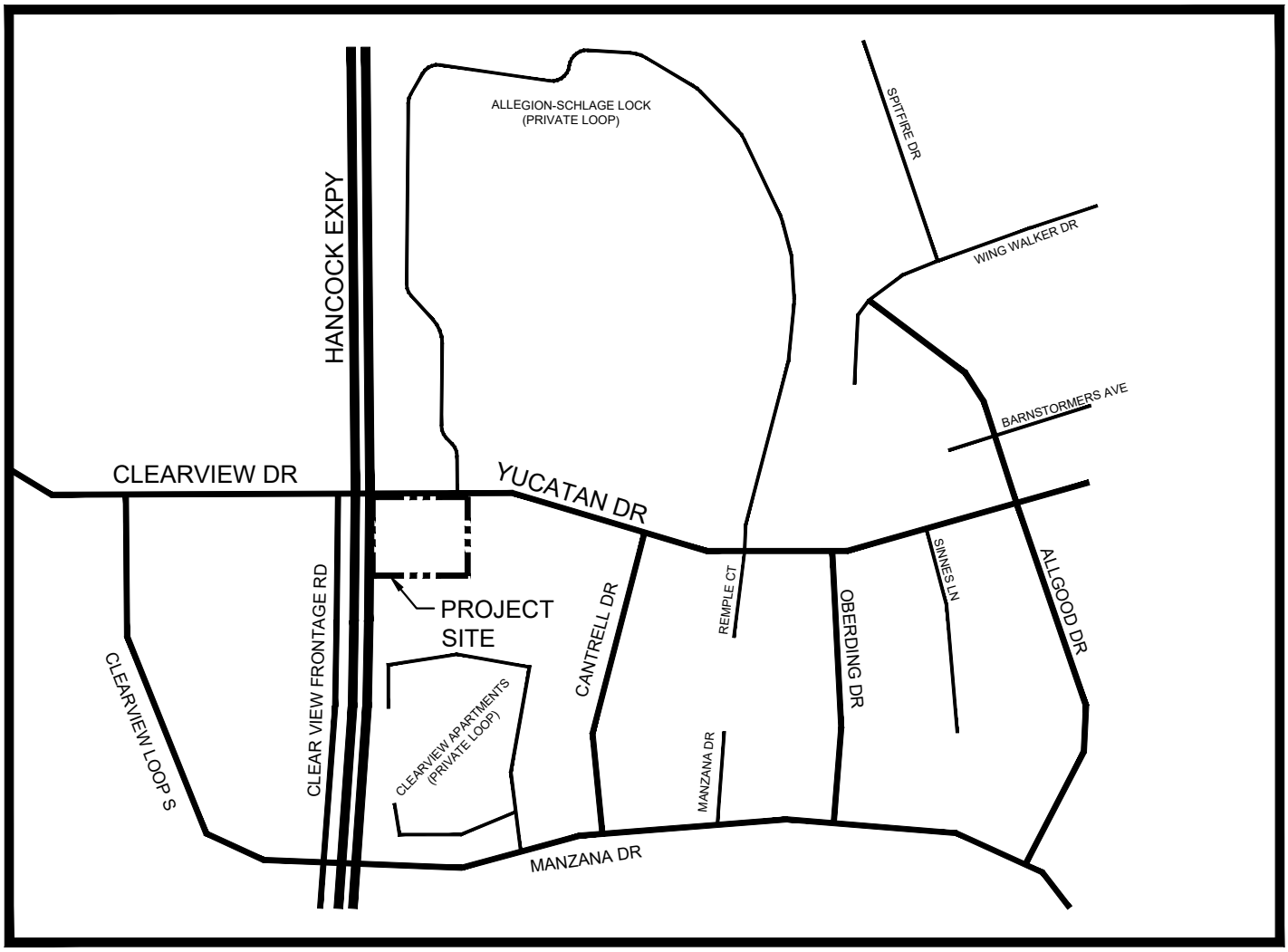
3. Urban Drainage and Flood Control District Drainage Criteria Manual (UDFCDCM), Vol. 1, prepared by Wright-McLaughlin Engineers, June 2001, with latest revisions.

4. Flood Insurance Rate Map, El Paso County, Colorado and Incorporated Areas, Map Number 08041C0763G, Effective Date December 7, 2018, prepared by the Federal Emergency Management Agency (FEMA).

5. Little Johnson/Security Creek Drainage Basin Planning Study. Prepared by Simons, LI & Associates, April 1988.

APPENDIX

APPENDIX A - VICINITY MAP



VICINITY MAP
CLEARVIEW FOOD MART C-STORE & GAS STATION

4815 YUCATAN DR.
COLORADO SPRINGS, CO 80911

\\kimley-horn\mt_cos2\COS_LA\196192000 - Yucatan C-Store\CADD\Exhibits\2021-0929 Vicinity Map.dwg

11/16/2021

Kimley»Horn

2 N NEVADA AVE, SUITE 300, COLORADO SPRINGS, CO 80903
PHONE: 719-453-0180

APPENDIX B - SOILS MAP AND REPORT AND FEMA FIRM PANEL

United States Department of Agriculture

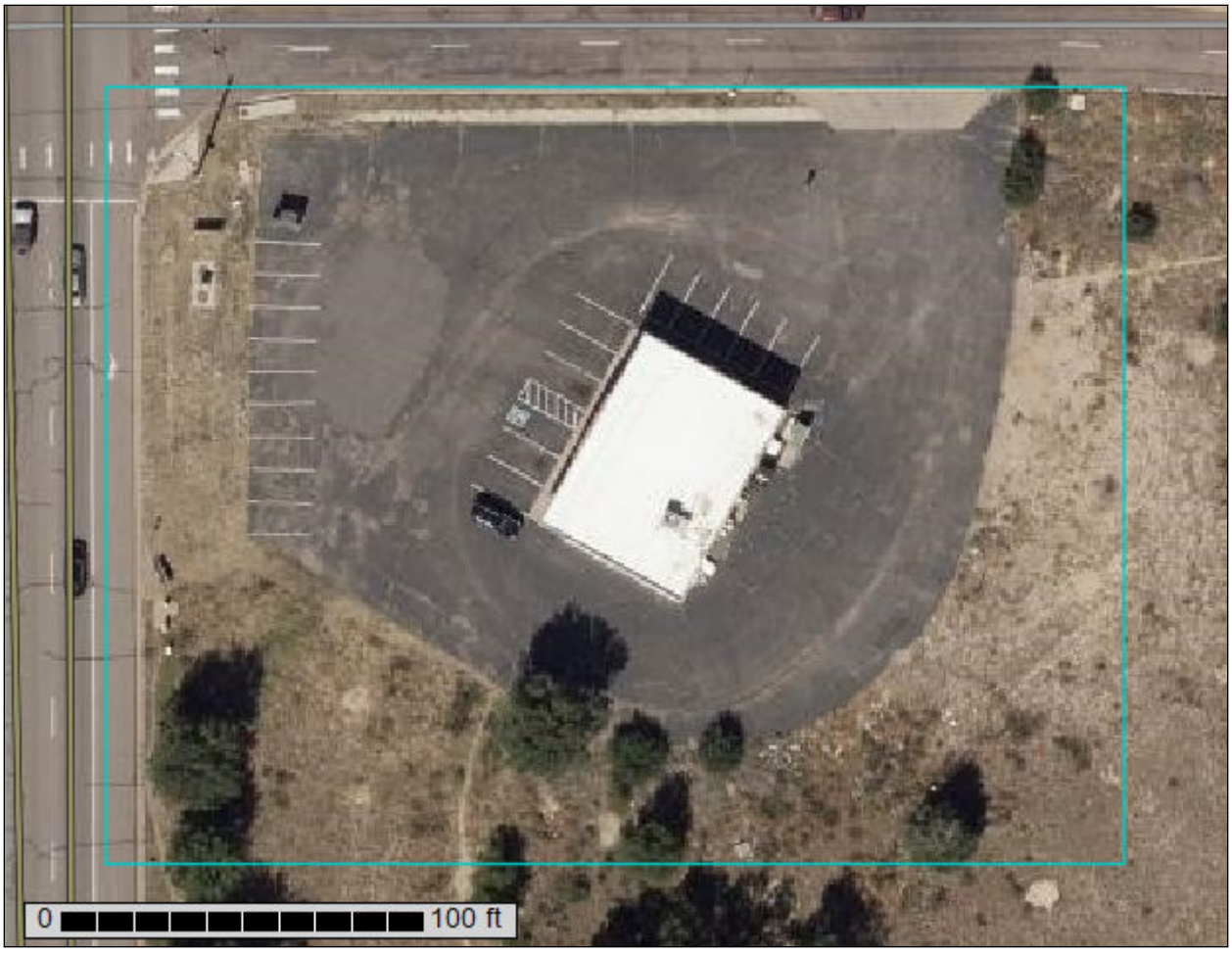
NRCS

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

Yucatan Drive



February 8, 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

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

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 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: Aug 19, 2018—Sep 23, 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	0.0	0.1%
96	Truckton sandy loam, 0 to 3 percent slopes	1.4	99.9%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

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

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

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

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

96—Truckton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2yvrd
Elevation: 5,400 to 7,000 feet
Mean annual precipitation: 14 to 23 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 90 to 155 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

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, fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind 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: 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: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 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

Blakeland

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

Pleasant, frequently ponded

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Upland Depression
Hydric soil rating: Yes

Urban land

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

Ellicott, occasionally flooded

Percent of map unit: 1 percent
Landform: Flood plains, drainageways
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R067BY031CO - Sandy Bottomland
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 Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Map Scale: 1:552 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
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: Aug 19, 2018—Sep 23, 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—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	.10	0.0	0.1%
96	Truckton sandy loam, 0 to 3 percent slopes	.28	1.4	99.9%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

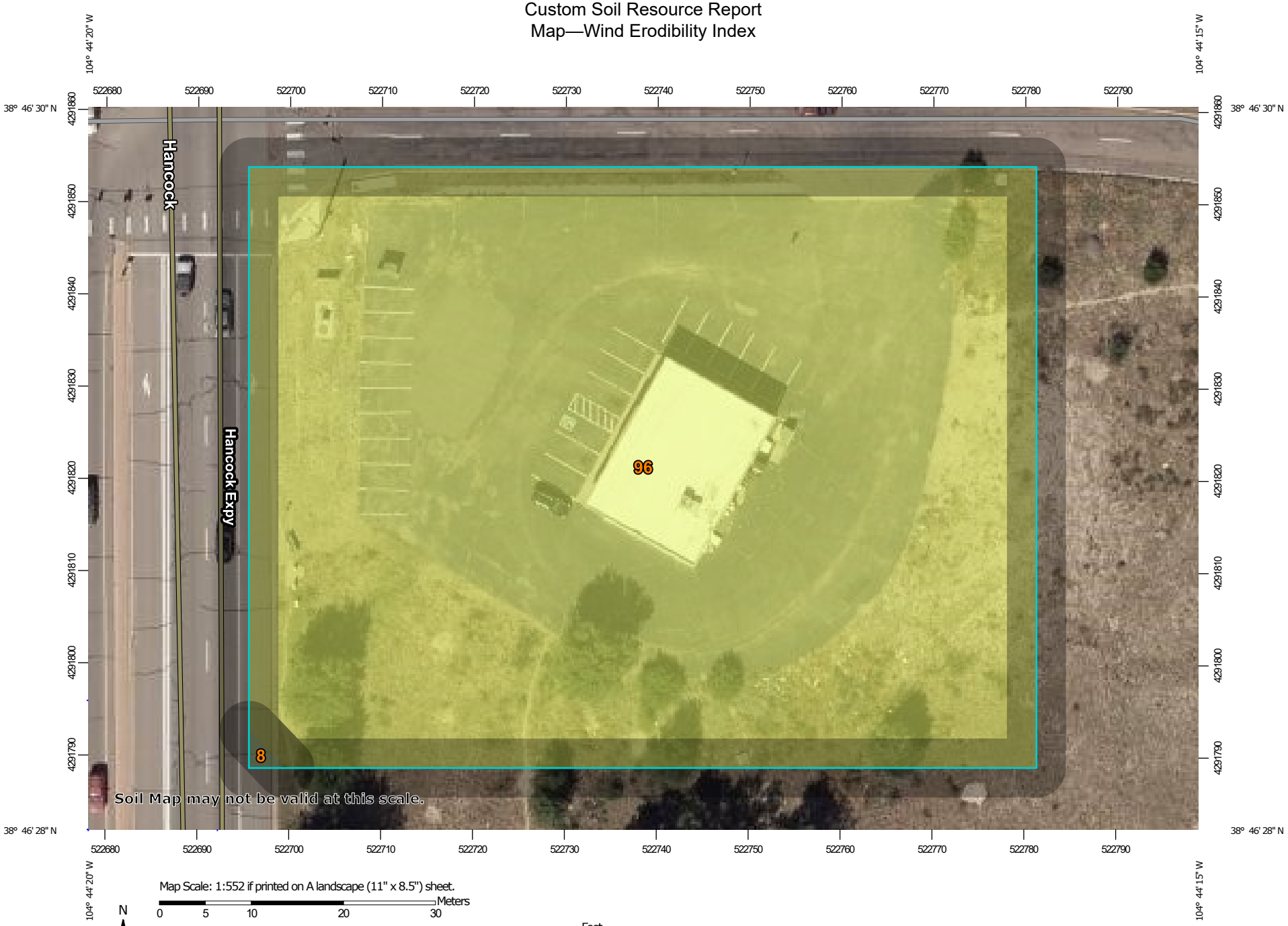
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Wind Erodibility Index

The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.



Map Scale: 1:552 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

0
38
48
56
86
134
160
180
220
250
310
Not rated or not available

Soil Rating Lines

0
38
48
56
86
134
160
180
220
250
310
Not rated or not available

Soil Rating Points

0
38
48
56
86
134
160
180
220
250
310
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)

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Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 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—Wind Erodibility Index

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	134	0.0	0.1%
96	Truckton sandy loam, 0 to 3 percent slopes	86	1.4	99.9%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Wind Erodibility Index

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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° 44' 20" W
104° 44' 15" W
38° 46' 30" N
38° 46' 28" N
522680
522690
522700
522710
522720
522730
522740
522750
522760
522770
522780
522790
4291860
4291850
4291840
4291830
4291820
4291810
4291800
4291790
Hancock
Hancock Expy
96
8
Soil Map may not be valid at this scale.
N
Map Scale: 1:552 if printed on A landscape (11" x 8.5") sheet.
Meters
0 5 10 20 30
Feet
0 25 50 100 150
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

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Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 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	0.0	0.1%
96	Truckton sandy loam, 0 to 3 percent slopes	A	1.4	99.9%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, City of Fountain, Bureau of Land Management, National Oceanic and Atmospheric Administration, United States Geological Survey, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

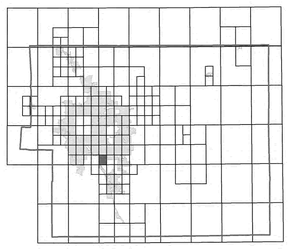
Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

El Paso County Vertical Datum Offset Table

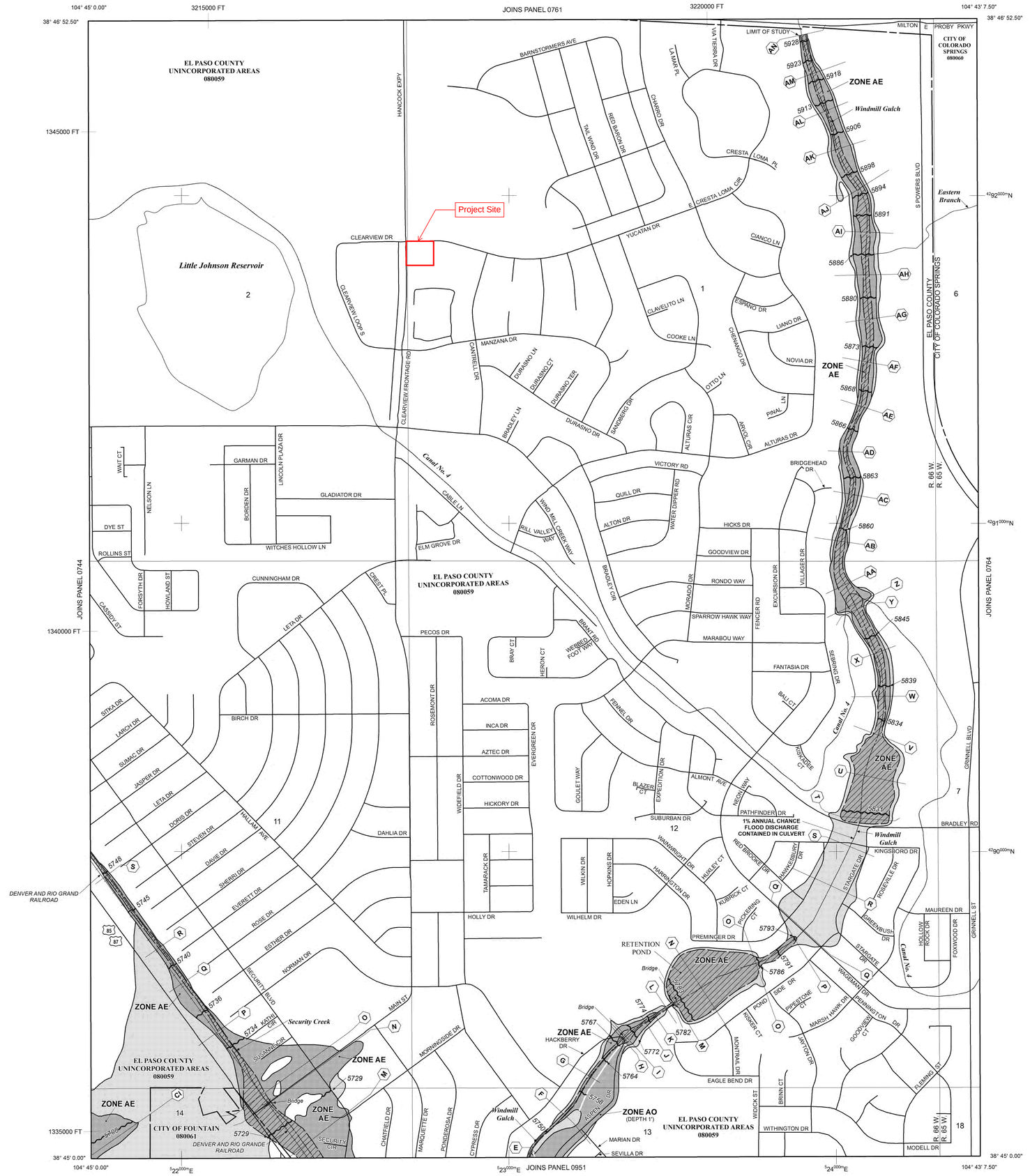
Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 15 SOUTH, RANGE 65 WEST, AND TOWNSHIP 15 SOUTH, RANGE 66 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D Boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A — Cross section line
23 — 23 — Transect line
97° 07' 30.00" / 32° 22' 30.00" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT — 5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 ● — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0763G

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 763 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0763	G
EL PASO COUNTY	080059	0763	G
FOUNTAIN, CITY OF	080061	0763	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0763G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

APPENDIX C - HYDROLOGIC CALCULATIONS

Onsite Existing Weighted Imperviousness Calculations

SUB-BASIN	AREA (SF)	AREA (Acres)	ROOF AREA	ROOF IMPERVIOUSNESS	ROOF C2	ROOF C5	ROOF C10	ROOF C100	LANDSCAPE AREA	LANDSCAPE IMPERVIOUSNESS	LANDSCAPE C2	LANDSCAPE C5	LANDSCAPE C10	LANDSCAPE C100	PAVEMENT AREA	PAVEMENT IMPERVIOUSNESS	PAVEMENT C2	PAVEMENT C5	PAVEMENT C10	PAVEMENT C100	WEIGHTED IMPERVIOUSNESS	WEIGHTED COEFFICIENTS C2	WEIGHTED COEFFICIENTS C5	WEIGHTED COEFFICIENTS C10	WEIGHTED COEFFICIENTS C100
E1	23,736	0.54	0	90%	0.71	0.73	0.75	0.81	6,212	0%	0.02	0.08	0.15	0.35	17,524	100%	0.89	0.90	0.92	0.96	73.8%	0.66	0.69	0.72	0.80
E2	18,642	0.43	0	90%	0.71	0.73	0.75	0.81	7,698	0%	0.02	0.08	0.15	0.35	10,944	100%	0.89	0.90	0.92	0.96	58.7%	0.53	0.56	0.60	0.71
ER	2,424	0.06	2,424	90%	0.71	0.73	0.75	0.81	0	0%	0.02	0.08	0.15	0.35	0	100%	0.89	0.90	0.92	0.96	90.0%	0.71	0.73	0.75	0.81
TOTAL	44,802	1.03	2,424	90%	0.71	0.73	0.75	0.81	13,910	0%	0.02	0.08	0.15	0.35	28,468	100%	0.89	0.90	0.92	0.96	68.4%	0.53	0.56	0.60	0.71

Yucatan Convenience Store (Existing Conditions) - Drainage Report
Existing Runoff Calculations
Time of Concentration

Watercourse Coefficient

Forest & Meadow	2.50	Short Grass Pasture & Lawns	7.00	Grassed Waterway	15.00
Fallow or Cultivation	5.00	Nearly Bare Ground	10.00	Paved Area & Shallow Gutter	20.00

	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)					T(c) CHECK (URBANIZED BASINS)			FINAL T(c)
DESIGN POINT	DRAIN BASIN	AREA sq. ft.	AREA ac.	C(5)	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps	T(t) min.	COMP. T(c)	TOTAL LENGTH	L/180+10	min.
1	E1	23,736	0.54	0.69	100	1.5%	6.6	250	1.5%	20.00	2.4	1.7	8.3	350	11.9	8.3
2	E2	18,642	0.43	0.56	100	1.5%	8.6	200	1.5%	20.00	2.4	1.4	10.0	300	11.7	10.0
R	ER	2,424	0.06	0.73	48	0.5%	5.9	0	0.0%	20.00	0.0	0.0	5.9	48	10.3	5.9

Yucatan Convenience Store (Existing Conditions) - Drainage Report
Existing Runoff Calculations ***Design Storm 5 Year***
(Rational Method Procedure)

BASIN INFORMATION				DIRECT RUNOFF				CUMMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
1	E1	0.54	0.69	8.3	0.37	4.41	1.65					
2	E2	0.43	0.56	10.0	0.24	4.14	0.99					
R	ER	0.06	0.73	5.9	0.04	4.92	0.20					

Yucatan Convenience Store (Existing Conditions) - Drainage Report
Existing Runoff Calculations ***Design Storm*** ***100 Year***
(Rational Method Procedure)

BASIN INFORMATION				DIRECT RUNOFF				CUMMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
1	E1	0.54	0.80	8.3	0.44	7.40	3.23					
2	E2	0.43	0.71	10.0	0.30	6.94	2.10					
R	ER	0.06	0.81	5.9	0.05	8.26	0.37					

SUMMARY - EXISTING RUNOFF TABLE

DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
1	E1	0.54	1.65	3.23	1.65	3.23
2	E2	0.43	0.99	2.10	1.19	2.48
R	ER	0.06	0.20	0.37	--	--
Total:		1.03	2.84	5.70	2.84	5.70

Weighted Imperviousness Calculations

SUB-BASIN	AREA (SF)	AREA (Acres)	ROOF AREA	ROOF IMPERVIOUSNESS	ROOF C2	ROOF C5	ROOF C10	ROOF C100	LANDSCAPE AREA	LANDSCAPE IMPERVIOUSNESS	LANDSCAPE C2	LANDSCAPE C5	LANDSCAPE C10	LANDSCAPE C100	PAVEMENT AREA	PAVEMENT IMPERVIOUSNESS	PAVEMENT C2	PAVEMENT C5	PAVEMENT C10	PAVEMENT C100	WEIGHTED IMPERVIOUSNESS	WEIGHTED COEFFICIENTS C2	WEIGHTED COEFFICIENTS C5	WEIGHTED COEFFICIENTS C10	WEIGHTED COEFFICIENTS C100
1	23,736	0.54	1,440	90%	0.71	0.73	0.75	0.81	4,409	0%	0.02	0.08	0.15	0.35	17,887	100%	0.89	0.90	0.92	0.96	80.8%	0.72	0.74	0.77	0.84
2	18,642	0.43	0	90%	0.71	0.73	0.75	0.81	9,516	0%	0.02	0.08	0.15	0.35	9,126	100%	0.89	0.90	0.92	0.96	49.0%	0.45	0.48	0.53	0.65
R	2,424	0.06	2,424	90%	0.71	0.73	0.75	0.81	0	0%	0.02	0.08	0.15	0.35	0	100%	0.89	0.90	0.92	0.96	90.0%	0.71	0.73	0.75	0.81
ONSITE TOTAL	44,802	1.03	3,864	90%	0.71	0.73	0.75	0.81	13,925	0%	0.02	0.08	0.15	0.35	27,013	100%	0.89	0.90	0.92	0.96	68.1%	0.60	0.63	0.67	0.76

Yucatan Convenience Store - Drainage Report

Proposed Runoff Calculations

Time of Concentration

Watercourse Coefficient

Forest & Meadow	2.50	Short Grass Pasture & Lawns	7.00	Grassed Waterway	15.00
Fallow or Cultivation	5.00	Nearly Bare Ground	10.00	Paved Area & Shallow Gutter	20.00

	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)					T(c) CHECK (URBANIZED BASINS)			FINAL T(c)
DESIGN POINT	DRAIN BASIN	AREA sq. ft.	AREA ac.	C(5)	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps	T(t) min.	COMP. T(c)	TOTAL LENGTH	L/180+10	min.
1	1	23,736	0.54	0.74	100	1.5%	5.8	250	1.5%	20.00	2.4	1.7	7.5	350	11.9	7.5
2	2	18,642	0.43	0.48	100	1.5%	9.9	200	1.5%	20.00	2.4	1.4	11.3	300	11.7	11.3
R	R	2,424	0.06	0.73	48	0.5%	5.9	0	0.0%	20.00	0.0	0.0	5.9	48	10.3	5.9

Yucatan Convenience Store - Drainage Report

Proposed Runoff Calculations ***Design Storm 5 Year***

(Rational Method Procedure)

BASIN INFORMATION				DIRECT RUNOFF				CUMMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
1	1	0.54	0.74	7.5	0.40	4.56	1.83					
2	2	0.43	0.48	11.3	0.21	3.95	0.81					
R	R	0.06	0.73	5.9	0.04	4.92	0.20					

Yucatan Convenience Store - Drainage Report

Proposed Runoff Calculations ***Design Storm*** ***100 Year***

(Rational Method Procedure)

BASIN INFORMATION				DIRECT RUNOFF				CUMMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
1	1	0.54	0.84	7.5	0.46	7.66	3.49					
2	2	0.43	0.65	11.3	0.28	6.63	1.84					
R	R	0.06	0.81	5.9	0.05	8.26	0.37					

SUMMARY - PROPOSED RUNOFF TABLE

DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
1	1	0.54	1.83	3.49	1.83	3.49
2	2	0.43	0.81	1.84	1.01	2.21
R	R	0.06	0.20	0.37	--	--
Total:		1.03	2.85	5.71	2.85	5.71

Design Procedure Form: Runoff Reduction

UD-BMP (Version 3.07, March 2018)

Designer: Kimley-Horn & Associates
Company: BBKern Designs
Date: February 15, 2023
Project: Clearview Food Mart
Location: 4815 Yucatan Drive, Colorado Springs, CO 80911

SITE INFORMATION (User Input in Blue Cells)

WQCV Rainfall Depth: 0.60 inches
Depth of Average Runoff Producing Storm, d_6 = 0.43 inches (for Watersheds Outside of the Denver Region, Figure 3-1 in USDCM Vol. 3)

Area Type	UIA:RPA	UIA:RPA	SPA	DCIA	DCIA	SPA						
Area ID	1	2	3	4	5	6						
Downstream Design Point ID	1	2	3	4	5	6						
Downstream BMP Type	None	None	None	None	None	None						
DCIA (ft^2)	--	--	--	678	1,205	--						
UIA (ft^2)	16,882	10,706	--	--	--	--						
RPA (ft^2)	6,950	5,854	--	--	--	--						
SPA (ft^2)	--	--	271	--	--	2,295						
HSG A (%)	100%	100%	100%	--	--	100%						
HSG B (%)	0%	0%	0%	--	--	0%						
HSG C/D (%)	0%	0%	0%	--	--	0%						
Average Slope of RPA (ft/ft)	0.010	0.010	--	--	--	--						
UIA:RPA Interface Width (ft)	216.00	178.00	--	--	--	--						

CALCULATED RUNOFF RESULTS

Area ID	1	2	3	4	5	6						
UIA:RPA Area (ft^2)	23,832	16,560	--	--	--	--						
L / W Ratio	0.51	0.52	--	--	--	--						
UIA / Area	0.7084	0.6465	--	--	--	--						
Runoff (in)	0.00	0.00	0.00	0.50	0.50	0.00						
Runoff (ft^3)	0	0	0	28	50	0						
Runoff Reduction (ft^3)	703	446	14	0	0	115						

CALCULATED WQCV RESULTS

Area ID	1	2	3	4	5	6						
WQCV (ft^3)	703	446	0	28	50	0						
WQCV Reduction (ft^3)	703	446	0	0	0	0						
WQCV Reduction (%)	100%	100%	0%	0%	0%	0%						
Untreated WQCV (ft^3)	0	0	0	28	50	0						

CALCULATED DESIGN POINT RESULTS (sums results from all columns with the same Downstream Design Point ID)

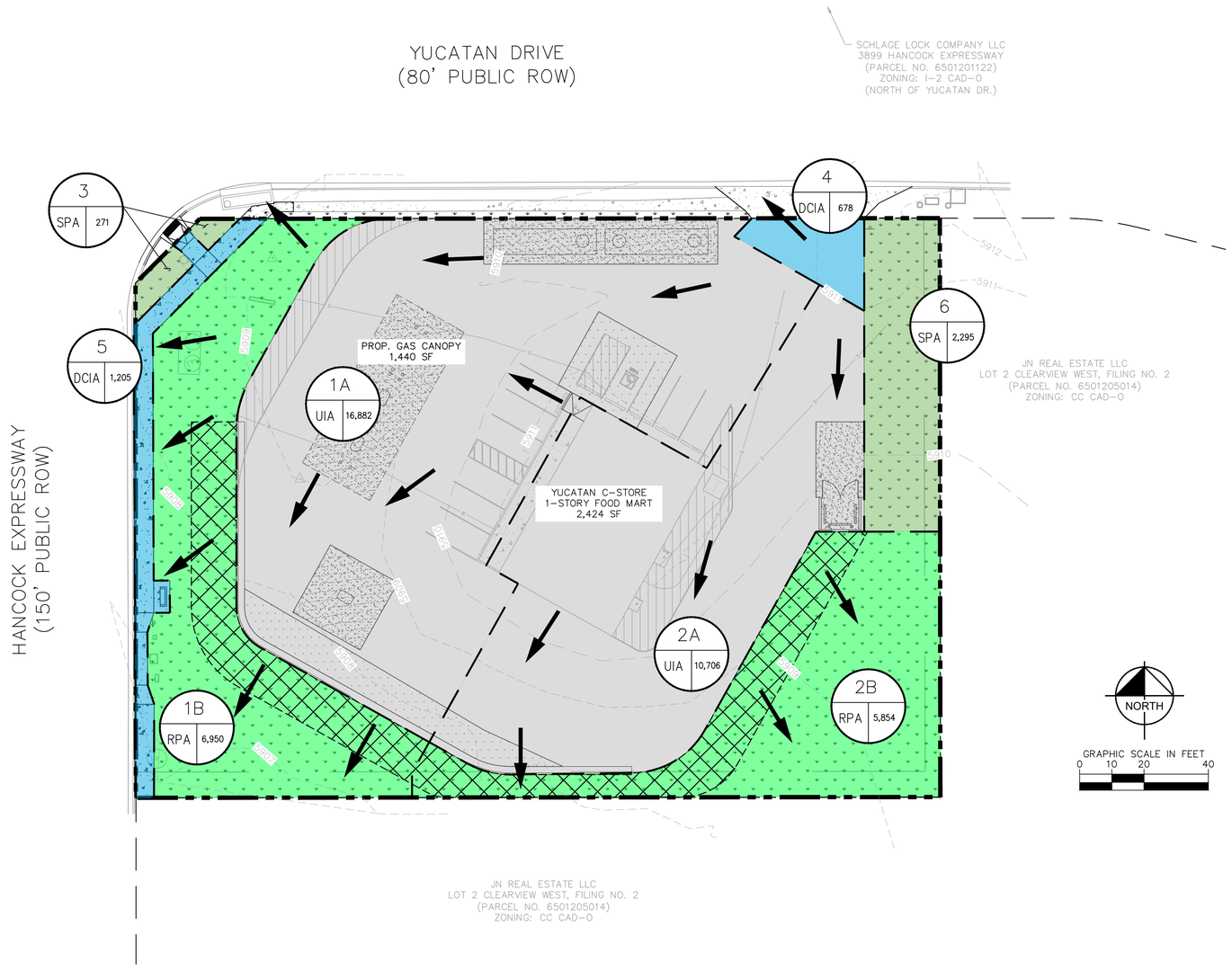
Downstream Design Point ID	1	2	3	4	5	6						
DCIA (ft^2)	0	0	0	678	1,205	0						
UIA (ft^2)	16,882	10,706	0	0	0	0						
RPA (ft^2)	6,950	5,854	0	0	0	0						
SPA (ft^2)	0	0	271	0	0	2,295						
Total Area (ft^2)	23,832	16,560	271	678	1,205	2,295						
Total Impervious Area (ft^2)	16,882	10,706	0	678	1,205	0						
WQCV (ft^3)	703	446	0	28	50	0						
WQCV Reduction (ft^3)	703	446	0	0	0	0						
WQCV Reduction (%)	100%	100%	0%	0%	0%	0%						
Untreated WQCV (ft^3)	0	0	0	28	50	0						

CALCULATED SITE RESULTS (sums results from all columns in worksheet)

Total Area (ft^2)	44,841
Total Impervious Area (ft^2)	29,471
WQCV (ft^3)	1,228
WQCV Reduction (ft^3)	1,150
WQCV Reduction (%)	94%
Untreated WQCV (ft^3)	78

YUCATAN CONVENIENCE STORE - 4815 YUCATAN DR.

RUNOFF REDUCTION EXHIBIT



LEGEND

ID
TYPE | SF

- DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)
- UNCONNECTED IMPERVIOUS AREA (UIA)
- RECEIVING PERVIOUS AREA (RPA)
- SEPARATE PERVIOUS AREA (SPA)
- PROP. FLOW DIRECTION
- PROPERTY LINE
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- RUNOFF AREA DELINEATION LINE
- PROTECTED RECEIVING AREA EASEMENT (±4000 SF)

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

YUCATAN C-STORE
RUNOFF REDUCTION MAP
02/15/2023

Kimley»Horn

2 N NEVADA AVE., SUITE 900, COLORADO SPRINGS, 80903
PHONE: 719-453-0180

APPENDIX D - EOPCC

Kimley»Horn

Kimley-Horn & Associates, Inc. **Opinion of Probable Construction Cost**

Client:	**BBKern Designs**	**Date:**	**2/15/2023**
Project:	**Clearview Food Mart, Convenience Store & Gas Station**	**Prepared By:**	**GMP**
KHA No.:	**196192000**	**Checked By:**	**MOH**

Sheet: **1 of 1**

This OPC is not intended for basing financial decisions, or securing funding. Review all notes and assumptions. Since Kimley-Horn & Associates, Inc. has no control over the cost of labor, materials, equipment, or services furnished by others, or over methods of determining price, or over competitive bidding or market conditions, any and all opinions as to the cost herein, including but not limited to opinions as to the costs of construction materials, shall be made on the basis of experience and best available data. Kimley-Horn & Associates, Inc. cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinions on costs shown herein. The total costs and other numbers in this Opinion of Probable Cost have been rounded.

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Private Storm Sewer (Non-Reimbursible)				
1	*Curb and Gutter, Type A (6" Vertical, Slotted)	152	LF	$31.00	$4,712
2	*Curb and Gutter, 0' Height (Concrete Banding)	36	LF	$28.00	$1,008
			Subtotal:		$5,720
			Contingency (%,+/-)	10%	$572
			Project Total:		**$6,292**

Basis for Cost Projection:

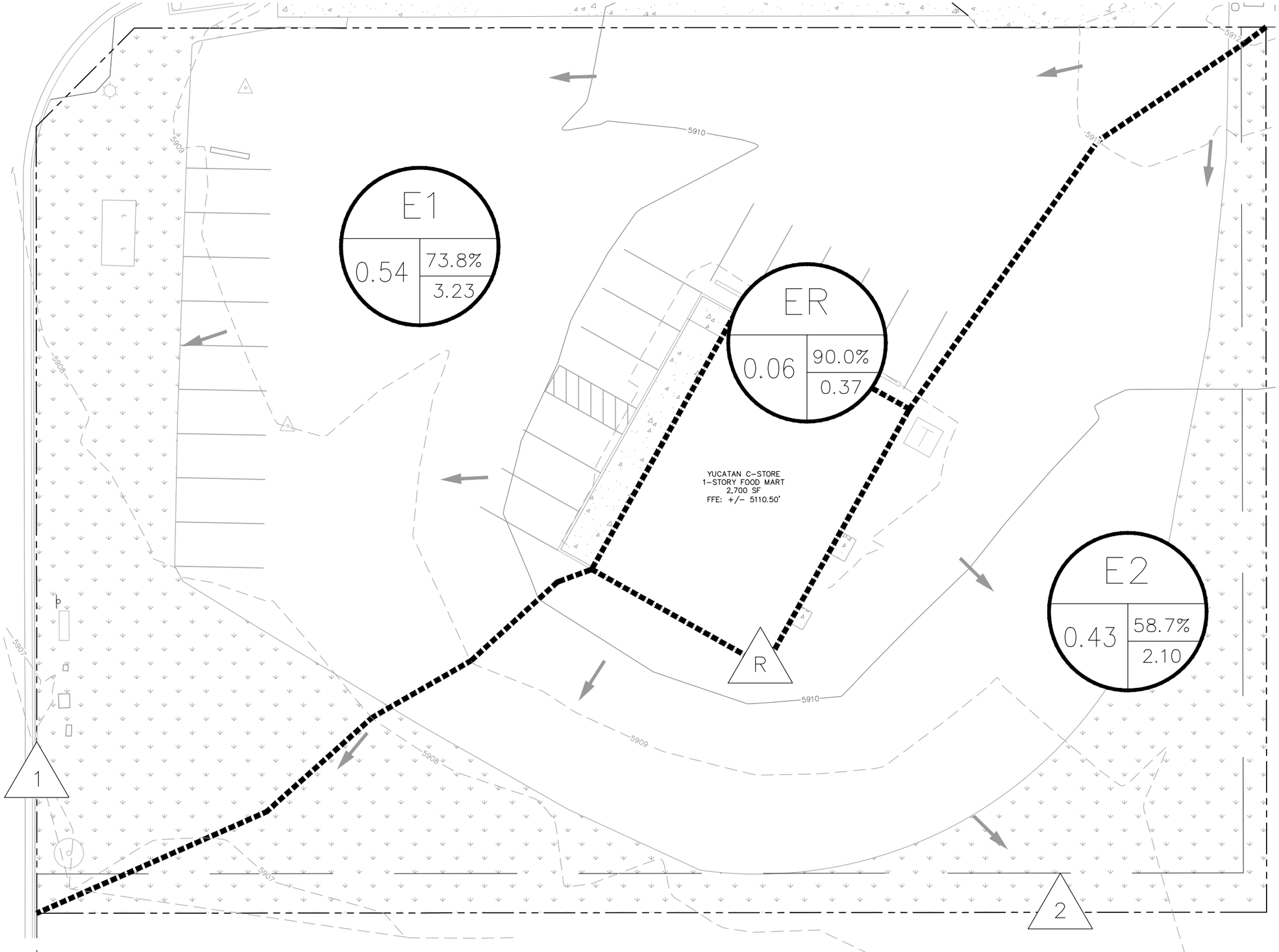
- ☐ No Design Completed
- ☐ Preliminary Design
- ☑ Final Design

*Curb and gutter is to be used as a level-spreader for the existing grass buffer control measure.

Design Engineer:

Mitchell O. Hess
Registered Professional Engineer, State of Colorado No. 53916

APPENDIX E – DRAINAGE EXHIBITS



LEGEND

A = BASIN DESIGNATION
B = AREA (ACRES)
C = BASIN IMPERVIOUSNESS
D = 100YR DESIGN STORM RUNOFF (CFS)

= DESIGN POINT

FLOW DIRECTION

PROPERTY LINE

DRAINAGE BASIN BOUNDARY

XXXX EXISTING MAJOR CONTOUR

XXXX EXISTING MINOR CONTOUR

EDGE OF PAVEMENT

GRASS AND LANDSCAPING

SUMMARY - EXISTING RUNOFF TABLE

DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
1	E1	0.54	1.65	3.23	1.65	3.23
2	E2	0.43	0.99	2.10	1.19	2.48
R	ER	0.06	0.20	0.37	--	--
Total:		1.03	2.84	5.70	2.84	5.70

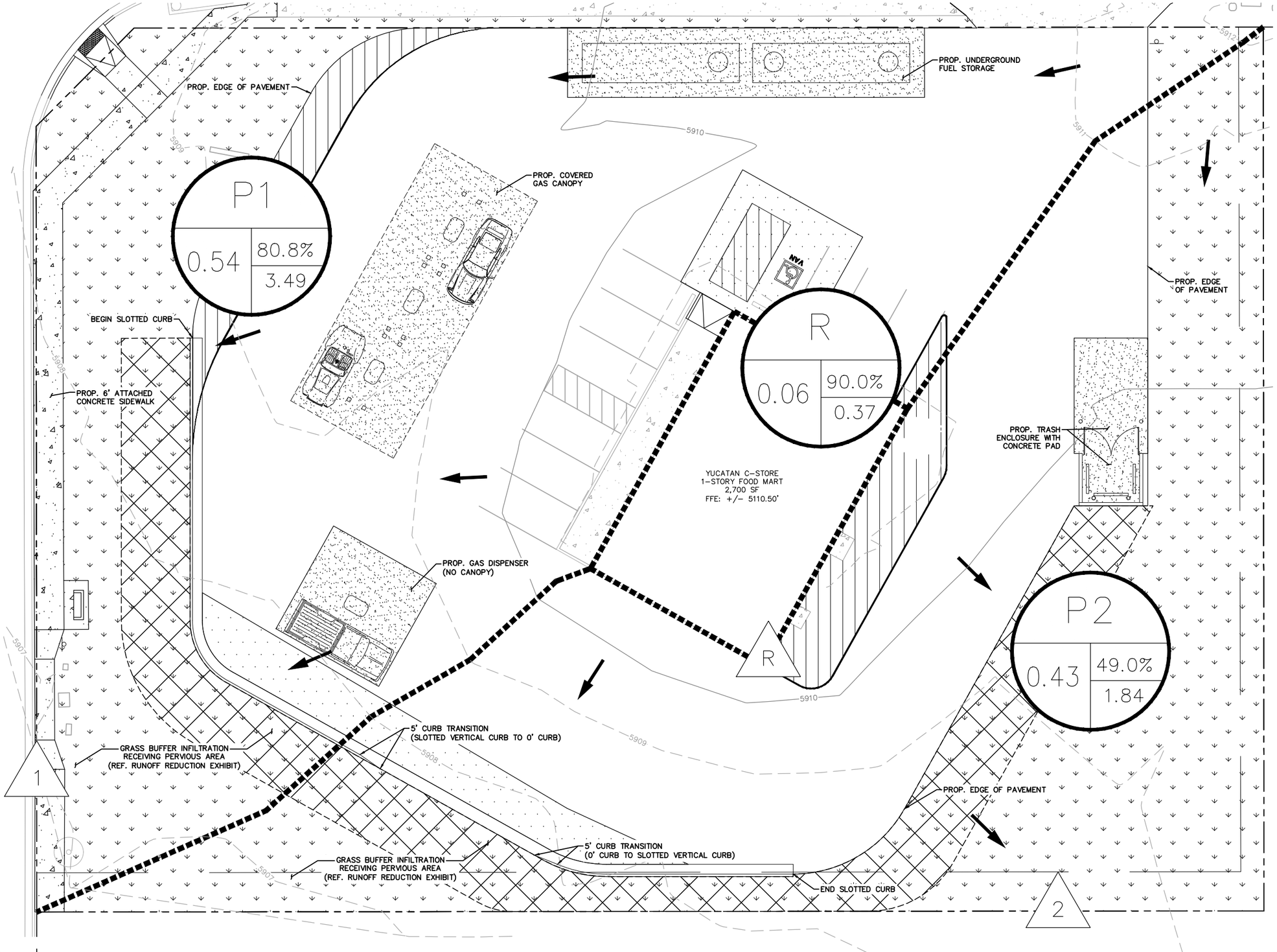
NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

CLEARVIEW FOOD MART & C-STORE
EXISTING CONDITIONS
02/20/2023

Kimley»Horn

2 N NEVADA AVE., SUITE 900, COLORADO SPRINGS, 80903
PHONE: 719-453-0180



LEGEND

- A = BASIN DESIGNATION
- B = AREA (ACRES)
- C = BASIN IMPERVIOUSNESS
- D = 100YR DESIGN STORM RUNOFF (CFS)
- # = DESIGN POINT
- FLOW DIRECTION
- PROPERTY LINE
- DRAINAGE BASIN BOUNDARY
- XXXX EXISTING MAJOR CONTOUR
- XXXX EXISTING MINOR CONTOUR
- PROPOSED GAS DISPENSER CANOPY
- PROP. CONCRETE
- PROP. ASPHALT PAVEMENT
- GRASS AND LANDSCAPING (REPLACE WHERE DISTURBED)
- GRASS BUFFER (RECEIVING PERVIOUS AREA)

SUMMARY - PROPOSED RUNOFF TABLE

DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
1	1	0.54	1.83	3.49	1.83	3.49
2	2	0.43	0.81	1.84	1.01	2.21
R	R	0.06	0.20	0.37	--	--
Total:		1.03	2.85	5.71	2.85	5.71

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

CLEARVIEW FOOD MART & C-STORE
PROPOSED CONDITIONS
02/20/2023

Kimley»Horn

2 N NEVADA AVE., SUITE 900, COLORADO SPRINGS, 80903
PHONE: 719-453-0180

APPENDIX F – PROJECT DEVIATIONS (EL PASO COUNTY)

Planning and Community Development Department
2880 International Circle
Colorado Springs, Colorado 80910
Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

See file for approved version

PROJECT INFORMATION

Project Name :	Yucatan Convenience Store
Schedule No.(s) :	6501205016
Legal Description :	Lot 1 Clearview West Filing No. 2 (4815 Yucatan Dr. Colorado Springs, CO 80911)

APPLICANT INFORMATION

Company :	BBKerns Design
Name :	Bernie Kern, CPBD
	☐ Owner ☒ Consultant ☐ Contractor
Mailing Address :	1253 N Meade Ave Colorado Springs, CO 80909
Phone Number :	719-375-4956
FAX Number :	N/A
Email Address :	bbkerndesigns@q.com

ENGINEER INFORMATION

Company :	Kimley-Horn		
Name :	Mitchell Hess	Colorado P.E. Number :	0053916
Mailing Address :	2 N Nevada Ave, Suite 900 Colorado Springs, CO 80903		
Phone Number :	719-284-7281		
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OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

_____ _____

Signature of owner (or authorized representative) Date

Engineer's Seal, Signature
And Date of Signature

PCD File No. _____

DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards of or in Section **I.7.2.D (Figure I-1)** of the Engineering Criteria Manual (ECM) 2 is requested.

Identify the specific DCM standard which a deviation is requested:

Section I.7.2.D (Figure I-1) of the ECM - BMP Requirements Flowchart for New Development and Redevelopment Sites - For Selecting Post-Construction BMPs in Compliance with El Paso County's Stormwater NPDES Permit

Specialized BMPs are required for the site due to the site's use being classified as high risk (convenience store and gas station). Figure I-2 goes on to state, "WQCV for site should be provided in PLD or SFB, or EBD should be used in conjunction with specialized BMP with equivalent removal rates as PLD or SFB".

State the reason for the requested deviation:

Due to site area constraints, the inclusion of a detention pond, sand filter, or other specialized BMP is not feasible.

The existing site is currently a convenience store and historically was a gas station. The owner would like to return the site to its original use of a gas station. Currently, stormwater sheet flows off of the paved areas and onto well stabilized landscape areas. In order to reduce erosion and the opportunity for pollutants to enter stormwater, we have proposed allowing the same drainage patterns to occur as currently found at the site. To help spread stormwater out evenly across the existing receiving previous areas though, slotted curb would be installed to maximize the interface of impervious area and receiving pervious areas.

If another BMP were to be installed at this existing/developed site, such as an extended detention basin or pervious landscape detention facility, it would require disturbance of well-established landscape areas that could take years to re-establish. This disturbance would result in the opportunity for more pollution at the site. In using the runoff reduction standard for this site, stormwater will be treated in landscape areas similar to the concept of a pervious landscape detention facility. With the minor redevelopments of the site though, the stormwater runoff volumes are being reduce and so a detention pond is not required.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

The water quality requirements for the site are being met by Option C of Part 1.E.4.a.iv of the County MS4 Permit, the “Runoff Reduction Standard”.

Additionally, a grass buffer structural control measure will be employed at the site. All stormwater runoff that will pass by the proposed gas tanks and dispensers will be routed to the grass buffer area. As recommended by the Mile High Flood District, the grass buffers are a minimum of 14-ft wide. A drainage easement will be dedicated over the grass buffer area to ensure that the grass buffer control measure stays in place to provide water quality treatment for the site.

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LIMITS OF CONSIDERATION
(At least one of the conditions listed below must be met for this deviation request to be considered.)

☐ The ECM standard is inapplicable to the particular situation.
☒ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

With the recent adoption of the Green Infrastructure Manual to supplement the Drainage Criteria Manual, opportunities for implementing runoff reduction techniques have become available to developers to accomplish the goals of reducing runoff and maintaining a high standard for water quality upon discharge from the site.

Currently, stormwater sheet flows off of the paved areas and onto well stabilized landscape areas. In order to reduce erosion and the opportunity for pollutants to enter stormwater, we have proposed allowing the same drainage patterns to occur as currently found at the site. To help spread stormwater out evenly across the existing receiving previous areas though, slotted curb would be installed to maximize the interface of impervious area and receiving pervious areas.

If another BMP were to be installed at this existing/developed site, such as an extended detention basin or pervious landscape detention facility, it would require disturbance of well-established landscape areas that could take years to re-establish. This disturbance would result in the opportunity for more pollution at the site. In using the runoff reduction standard for this site, stormwater will be treated in landscape areas similar to the concept of a pervious landscape detention facility. With the minor redevelopments of the site though, the stormwater runoff volumes are being reduce and so a detention pond is not required.

CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is **not based exclusively on financial considerations**. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with **all of the following criteria**:

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

By this deviation, we will be able to limit disturbed areas and preserve existing conditions on the site to a significantly higher degree than trying to implement a specialized BMP while also providing water quality requirements and meeting the requirements of El Paso County's MS4.

The deviation will not adversely affect safety or operations.

By limiting the scope of construction and preserving existing conditions to the degree possible, safety and operations will be preserved by the granting of this deviation.

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The deviation will not adversely affect maintenance and its associated cost.

The routine maintenance of a grass buffer BMP is significantly easier and more cost-effective as comparted to a detention basin, sand filter, or other specialized BMP.

The deviation will not adversely affect aesthetic appearance.

The addition of a sand filter or extended detention basin would result in a worse aesthetic appearance when compared with a grass buffer BMP, which will be incorporated into the proposed landscaping and be more cohesive with the site as a whole.

The deviation meets the design intent and purpose of the ECM standards.

The design intent and purpose of the DCM Standards are to provide an opportunity for particulate matter and pollutants to settle out of stormwater, maintaining its quality before it is discharged from the site. The grass buffer BMP and runoff reduction will achieve these same goals with a smaller footprint while also allowing the well-established landscaping at the site to remain in place. Needlessly disturbing the existing vegetation could allow for more stormwater pollution to occur and it could take years to fully reestablish vegetated areas.

The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

This deviation is covered and specifically allowed for by Option C within Part I.E.4 of the El Paso Count MS4 Permit.

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REVIEW AND RECOMMENDATION:

Approved by the ECM Administrator
This request has been determined to have met the criteria for approval. A deviation from Section _____ of the ECM is hereby granted based on the justification provided.

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Denied by the ECM Administrator
This request has been determined not to have met criteria for approval. A deviation from Section _____ of the ECM is hereby denied.

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ECM ADMINISTRATOR COMMENTS/CONDITIONS:

PCD File No. _____

1.1. PURPOSE

The purpose of this resource is to provide a form for documenting the findings and decision by the ECM Administrator concerning a deviation request. The form is used to document the review and decision concerning a requested deviation. The request and decision concerning each deviation from a specific section of the ECM shall be recorded on a separate form.

1.2. BACKGROUND

A deviation is a critical aspect of the review process and needs to be documented to ensure that the deviations granted are applied to a specific development application in conformance with the criteria for approval and that the action is documented as such requests can point to potential needed revisions to the ECM.

1.3. APPLICABLE STATUTES AND REGULATIONS

Section 5.8 of the ECM establishes a mechanism whereby an engineering design standard can be modified when if strictly adhered to, would cause unnecessary hardship or unsafe design because of topographical or other conditions particular to the site, and that a departure may be made without destroying the intent of such provision.

1.4. APPLICABILITY

All provisions of the ECM are subject to deviation by the ECM Administrator provided that one of the following conditions is met:

- The ECM standard is inapplicable to a particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

1.5. TECHNICAL GUIDANCE

The review shall ensure all criteria for approval are adequately considered and that justification for the deviation is properly documented.

1.6. LIMITS OF APPROVAL

Whether a request for deviation is approved as proposed or with conditions, the approval is for project-specific use and shall not constitute a precedent or general deviation from these Standards.

1.7. REVIEW FEES

A Deviation Review Fee shall be paid in full at the time of submission of a request for deviation. The fee for Deviation Review shall be as determined by resolution of the BoCC.