DRAINAGE LETTER

for

LOT 4, OWL MARKETPLACE

11745 Owl Place
Falcon, Colorado

October 21, 2024

PCD File No:

Prepared for:

Starbucks Corporation
2401 Utah Avenue S, STE #800
Seattle, WA 98134
Contact: Brian Zurek
(480) 313-2724

Prepared by:

Drexel, Barrell & Co.
101 Sahwatch Street, STE #100
Colorado Springs, CO 80903
Contact: Tim McConnell, P.E.
(719) 260-0887

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APPENDICES

DRAINAGE LETTER

for

LOT 4, OWL MARKETPLACE

1.0 CERTIFICATION STATEMENTS

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 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.

SIGNATURE (Affix Seal):_____

For and on behalf of Drexel, Barrell & Co. Date
Katherine Varnum, P.E. #53459

Developer's Statement

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

_____

Authorized Signature Date
Starbucks Corporation
2401 Utah Avenue S, STE #800
Seattle, WA 98134

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.

_____

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

Conditions:

DRAINAGE LETTER
for
LOT 4, OWL MARKETPLACE

2.0 PURPOSE

The purpose of this letter is to supplement the Final Drainage Report for Owl Marketplace (approved June 17, 2024) with regards to the development of Lot 4 in order to establish that the development is in conformance with the approved drainage design.

Runoff patterns, drainage facilities and the ability to safely pass developed runoff to historic downstream facilities shall be presented.

3.0 GENERAL SITE DESCRIPTION

Location

Lot 4 Owl Marketplace is located in Falcon, El Paso County, Colorado, within the Southeast Quarter of Section 1, Township 13 South, Range 65 West of the 6th P.M. The property is bounded by Lot 3 to the south and by the Owl Place roadway to the north, Meridian Road to the east, and Meridian Park Drive to the west.

Proposed Development

The proposed development of Lot 4 is the construction of a commercial coffee restaurant building, with associated parking and landscaping. The proposed disturbed area consists of 1.01-acres. The imperviousness of the site will increase with this development, but is slightly less than that assumed in the approved Final Drainage Report for the overall Owl Marketplace development, as described above.

Soils

According to the Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, the site is underlain by the Columbine gravelly sandy loam (Soil No. 19), a hydrologic type A soil. See appendix for Soils map.

Climate

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region. Winters are generally cold and dry, and summers relatively warm and dry. Precipitation ranges from 12 to 14 inches per year, with the majority of this moisture occurring in the spring and summer in the form of rainfall. Thunderstorms are common during the summer months.

Floodplain Statement

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate

Map (FIRM) Panel 08041C0553G (December 7, 2018), a portion of the site lies within LOMR 21-08-0534P (February 22, 2022).

4.0 DRAINAGE CRITERIA

The drainage analysis has been prepared in accordance with the current El Paso County Drainage Criteria Manual. Calculations were performed to determine runoff quantities during the 5-year and 100-year frequency storms for existing and developed conditions using the Rational Method as required for basins containing less than 100 acres.

5.0 EXISTING CONDITION

The existing condition is as described in the aforementioned approved Final Drainage Report for the overall Owl Marketplace development, as part of Basin A (see appendix for drainage map excerpt). Overlot grading has been completed and access roadway, detention facilities and utility infrastructure have been installed. The site generally follows a 2%-3% grade from northeast to southwest and drains directly into the water quality/detention facility located outside of the southeastern boundary of the property. A 18" RCP storm sewer stub has been installed to the southwestern corner of the lot.

6.0 DEVELOPED CONDITION

The proposed development consists of a restaurant building, and associated parking and landscaping. The proposed grading will route flows to the southwest where they will be passed to the existing 18" RCP storm sewer and directed towards the existing detention facility.

See below for basin/design point table and description:

BASIN	DP	AREA (AC)	Q5 (cfs)	Q100 (cfs)
A	DP1	0.06	0.3	0.5
B		0.33	1.4	2.6
DP1+B	DP2	0.39	1.7	3.0
OS1	DP3	0.07	0.1	0.3
C		0.30	1.1	2.1
D		0.17	0.6	1.2
DP3+C+D	DP4	0.54	1.8	3.5
DP2+DP4	DP5	0.92	3.5	6.6
E	DP6	0.02	0.1	0.2
OS2	DP7	0.07	0.05	0.2

Basin A is represented by the roof of the proposed fast-food restaurant building. All rainfall that is captured within this area will be captured by roof drains around the edges of the roof (See building plans for more details). These roof drains (Design-Point 1) will capture the Q_5=0.3 cfs and Q_{100}=0.5 cfs of runoff, transferring via the proposed 12" HDPE storm sewer.

Basin B consists of the entire parking area located south of the proposed building. This 0.33-acre basin will direct all of the flows captured within this basin via curb and gutters to the southwest where they will be captured by a proposed, private 5' Type R storm inlet (Design-Point 2). The flowrates generated within this basin will total Q_5=1.4 cfs and Q_{100}=2.6 cfs.

Basin OS1 is east, outside of the construction boundaries of Lot 4, but are within the property lines, so will remain unchanged from the previously approved Final Drainage Report for Owl Marketplace. The 0.07-acre basin will create runoff which will be directed southwest, into basin C through Design-Point 3 (DP3). The runoff generated by this basin is Q_5=0.1 cfs and Q_{100}=0.3 cfs.

Basin C is 0.30-acres, that wraps along the eastern and southern boundaries of the proposed building, made up primarily of asphalt drive lane and drive-thru lane. The runoff rates of Q_5=1.1 cfs and Q_{100}=2.1 cfs that are generated within this basin will be directed west. This runoff will be combined with that from basin OS1 which will all continue west and eventually into the proposed, private 5' Type R storm inlet that represents Design-Point 4.

Basin D is 0.17-acres of primarily drive-thru lane directly north and west of the proposed building. All the runoff generated within this area will be channeled via curb and gutters to the west and south, where they will flow into a proposed, private 5' Type R storm inlet at (Design-Point 4). The runoff generated within basin C will be Q_5=0.6 cfs and Q_{100}=1.2 cfs.

Design Point 4 represents the combined runoff reaching the private 5' Type R storm inlet from both Basins C and D. This runoff will combine to create runoff rates of Q_5=1.8 cfs and Q_{100}=3.5 cfs at the inlet entrance.

Design-Point 5 is the location at which the proposed 18" RCP storm sewers carrying flows from DP2 and the runoff captured by the inlet at DP4 will join before continuing south into the existing 24" RCP storm sewer. The combined flowrates at this point will total Q_5=3.5 cfs and Q_{100}=6.6 cfs.

Basin E is the southwestern most basin within the construction boundary of the site. This basin is 0.02-acres, made up of entirely asphalt drive lane. The runoff rates of Q_5=0.1 cfs and Q_{100}=0.2 cfs that are generated within this basin will be directed southwest, into Meridian Park Drive. These flows have already been anticipated and will not adversely affect the overall Owl Marketplace Development.

Basin OS2 is 0.07-acres running along the western edge of the site. OS2 will create runoff rates of Q_5=0.05 cfs and Q_{100}=0.2 cfs, that will discharge directly into Meridian Park Drive. Runoff which is discharge into Meridian Park Drive, will follow the curbline south before being captured by an existing 10' Type R storm inlet.

7.0 DRAINAGE & BRIDGE FEES

Drainage and bridge fees are not required as the site has been previously platted.

8.0 SUMMARY

Development of Lot 4 Owl Marketplace will not adversely affect surrounding or downstream developments. The runoff coefficients established by Final Drainage Report for Owl Marketplace for Basin A were C_5=0.81 and C_{100}=0.88, the combined runoff coefficients for Basins OS1, OS2 and A-E for this development are smaller at C_5=0.71 and C_{100}=0.81, this means that it is acceptable to state the drainage design for Lot 4 is in conformance with the Final Drainage Report for the overall Owl Marketplace development.

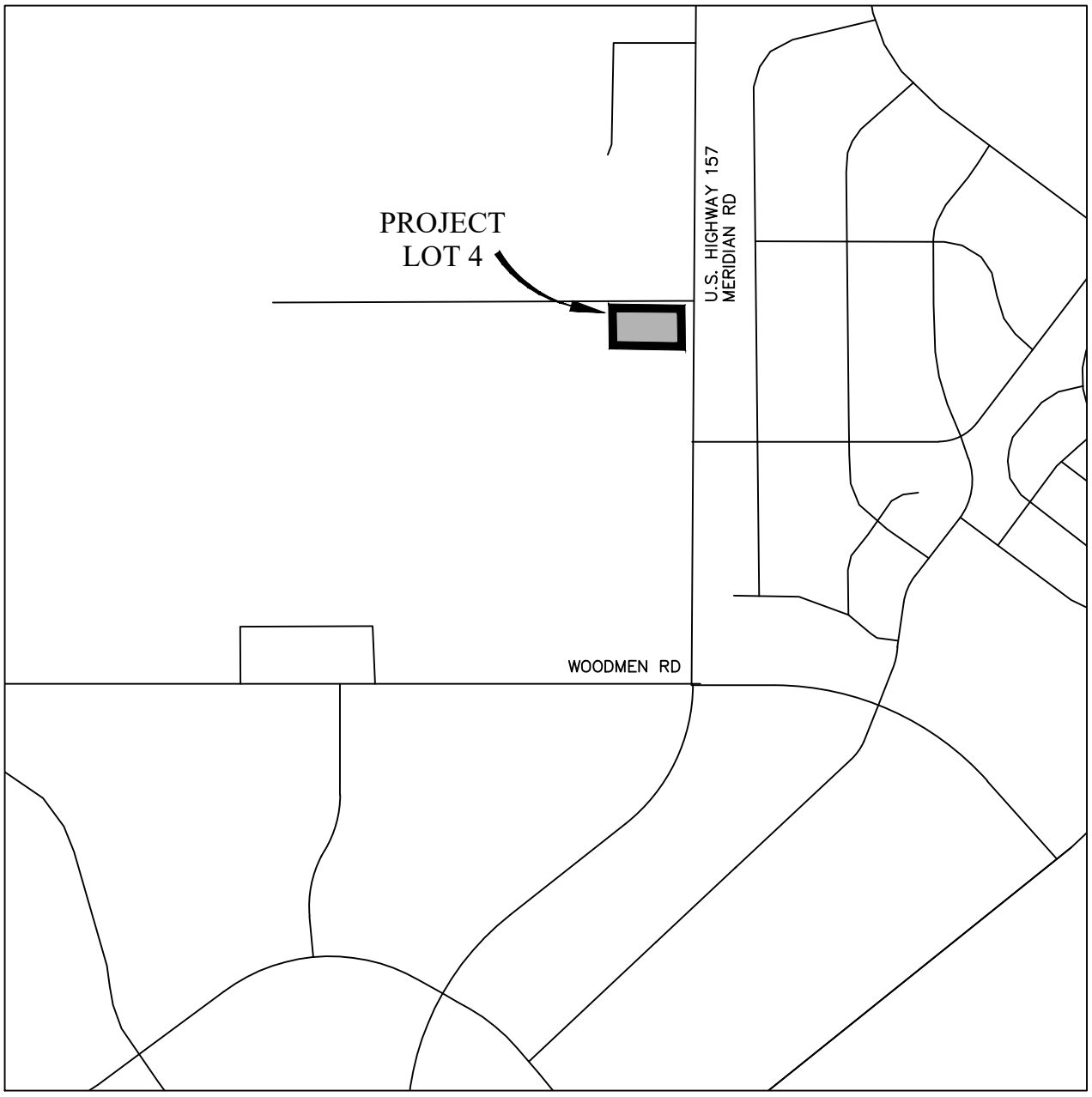
9.0 REFERENCES

The sources of information used in the development of this study are listed below:

1. El Paso County Drainage Criteria Manual, 10-31-2018.

2. Final Drainage Report for Owl Marketplace Filing No. 1 (Drexel, Barrell & Co.) 12-19-2019.

Appendix



Vicinity Map
Not to scale

-N-

LOT 4 OWL MARKETPLACE
EL PASO COUNTY, CO
VICINITY MAP

Drexel, Barrell & Co.
Engineers • Surveyors

DATE: 8-23-2024
JOB NO: 21611-03CSCV
DWG. NO. VMAP
SHEET 1 OF 1

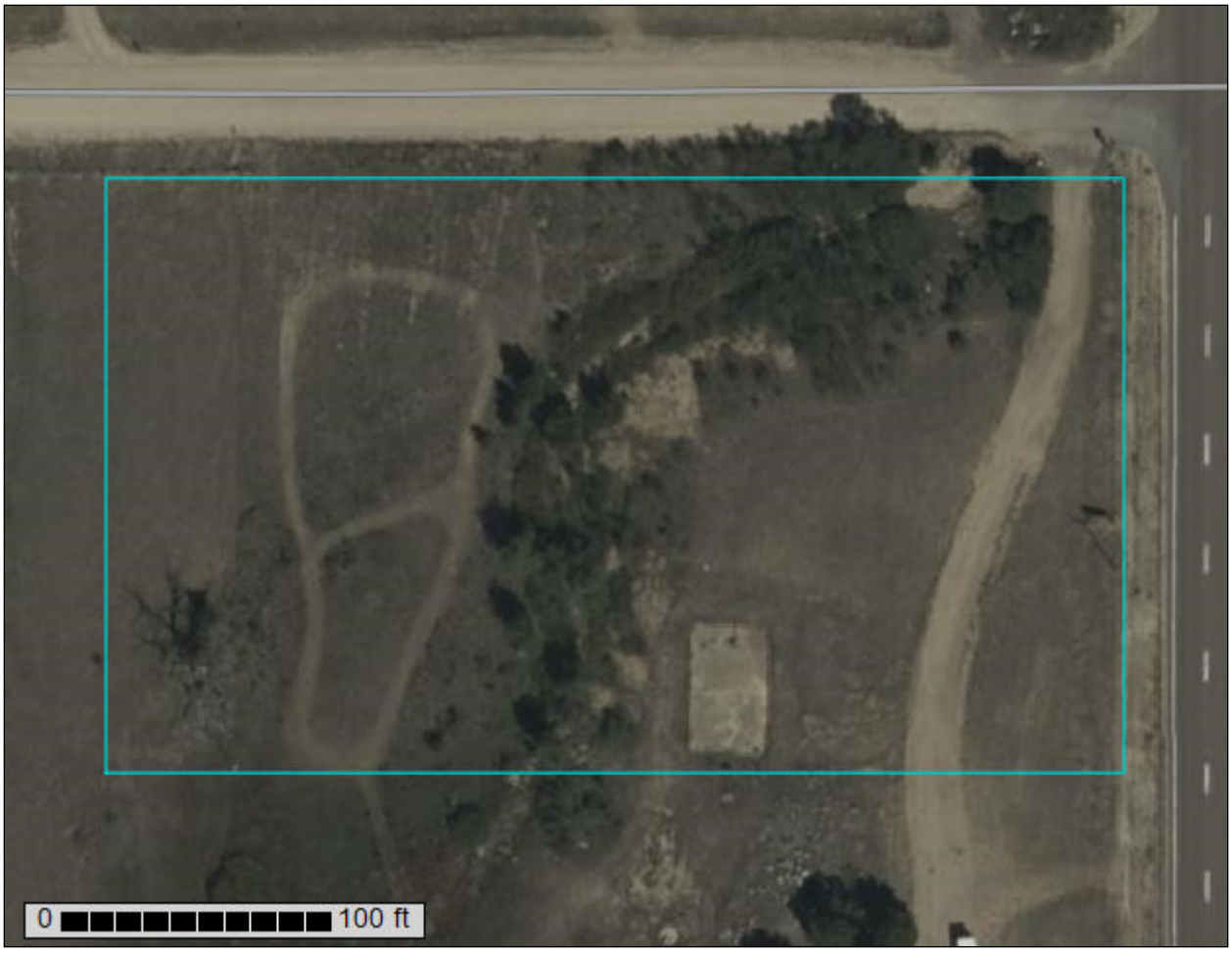
United States Department of Agriculture

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



August 23, 2024

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.

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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: 1:632 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 21, Aug 24, 2023

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
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	1.9	100.0%
Totals for Area of Interest		**1.9**	**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

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Flood plains, fan terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High 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
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

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

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

References

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National Flood Hazard Layer FIRMette

FEMA

104°36'49"W 38°56'59"N

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

1:6,000

104°36'11"W 38°56'31"N

Basemap Imagery Source: USGS National Map 2023

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 8/23/2024 at 3:05 PM 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.

PROJECT INFORMATION

PROJECT:	Lot 4 Owl Marketplace
PROJECT NO:	21611-03
DESIGN BY:	CGH
REV. BY:	KGV
AGENCY:	El Paso County
REPORT TYPE:	Final
DATE:	10/21/2024
Soil Type: A	

Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	90
Asphalt/Sidewalk/Roof		0.90		0.95	100

*C-Values and Basin Imperviousness based on Table 5-1, El Paso County Drainage Criteria Manual Vol 1

PROPOSED

SUB-BASIN	SURFACE DESIGNATION	AREA	COMPOSITE RUNOFF COEFFICIENTS				% IMPERV
		ACRE	C2	C5	C10	C100	
A	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.06		0.90		0.95	100
	WEIGHTED AVERAGE			0.90		0.97	100%
TOTAL A		0.06					
B	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.11		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.22		0.90		0.95	100
	WEIGHTED AVERAGE			0.86		0.92	96%
TOTAL B		0.33					
C	Open Space	0.07		0.08		0.35	0
	Commercial Development	0.03		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.20		0.90		0.95	100
	WEIGHTED AVERAGE			0.70		0.80	76%
TOTAL C		0.30					
D	Open Space	0.04		0.08		0.35	0
	Commercial Development	0.03		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.11		0.90		0.95	100
	WEIGHTED AVERAGE			0.71		0.81	77%
TOTAL D		0.17					
E	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.02		0.90		0.95	100
	WEIGHTED AVERAGE			0.90		0.95	100%
TOTAL E		0.02					
OS1	Open Space	0.04		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.02		0.90		0.95	100
	WEIGHTED AVERAGE			0.35		0.55	33%
TOTAL OS1		0.07					
OS2	Open Space	0.06		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	90
	Asphalt/Sidewalk/Roof	0.01		0.90		0.95	100
	WEIGHTED AVERAGE			0.15		0.40	8%
TOTAL OS2		0.07					

PROJECT INFORMATION

PROJECT: Lot 4 Owl Marketplace
PROJECT NO: 21611-03
DESIGN BY: CGH
REV. BY: KGV
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 10/21/2024

Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

PROPOSED TIME OF CONCENTRATION STANDARD FORM SF-2

SUB-BASIN DATA					INITIAL/OVERLAND TIME (t_i)				TRAVEL TIME (t_t)					TIME OF CONC. t_c		FINAL t_c
BASIN	DESIGN PT:	C_5	C_{100}	AREA	LENGTH	HT	SLOPE	t_i	LENGTH	HT	SLOPE	VEL.	t_t	COMP.	MINIMUM	
				Ac	Ft	FT	%	Min	Ft	FT	%	FPS	Min	t_c	t_c	**Min**
A	DP1	0.90	0.97	0.06	40		0.5	2.9	40		0.5	3.8	0.2	3.1	5	**5.0**
B		0.86	0.92	0.33	35		3.3	1.8	228		2.1	4.7	0.8	2.6	5	**5.0**
DP1+B	DP2	0.87	0.93	0.39				5.0	49		1.5	3.5	0.2	5.2	5	**5.2**
OS1	DP3	0.35	0.55	0.07	40		2.3	6.7	176		1.9	4.1	0.7	7.4	5	**7.4**
C		0.70	0.80	0.30	20		2.1	2.6	356		2.1	4.9	1.2	3.8	5	**5.0**
D		0.71	0.81	0.17	20		2.5	2.4	321		2.1	4.8	1.1	3.5	5	**5.0**
DP3+C+D	DP4	0.66	0.77	0.54				5.2						5.2	5	**5.2**
DP2+DP4	DP5	0.75	0.84	0.92				5.0	30		3.3	4.9	0.1	5.1	5	**5.1**
E	DP6	0.90	0.95	0.02	30		3.2	1.4	50		3.3	4.1	0.2	1.6	5	**5.0**
OS2	DP7	0.15	0.40	0.07	30		2.2	7.5	140		2.0	4.1	0.6	8.1	5	**8.1**

PROJECT INFORMATION

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DESIGN BY: CGH
REV. BY: KGV
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 10/21/2024

Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

PROPOSED **RUNOFF** **5 YR STORM** **P1=** **1.50**

			DIRECT RUNOFF				
BASIN (S)	**DESIGN POINT**	**AREA (AC)**	**RUNOFF COEFF**	**t_c (MIN)**	**C * A**	**I (IN/HR)**	**Q (CFS)**
A	DP1	0.06	0.90	5.0	0.05	5.10	**0.3**
B		0.33	0.86	5.0	0.28	5.10	**1.4**
DP1+B	DP2	0.39	0.87	5.2	0.34	5.05	**1.7**
OS1	DP3	0.07	0.35	7.4	0.02	4.56	**0.1**
C		0.30	0.70	5.0	0.21	5.10	**1.1**
D		0.17	0.71	5.0	0.12	5.10	**0.6**
DP3+C+D	DP4	0.54	0.66	5.2	0.35	5.05	**1.8**
DP2+DP4	DP5	0.92	0.75	5.1	0.69	5.08	**3.5**
E	DP6	0.02	0.90	5.0	0.02	5.10	**0.1**
OS2	DP7	0.07	0.15	8.1	0.01	4.43	**0.05**

PROJECT INFORMATION

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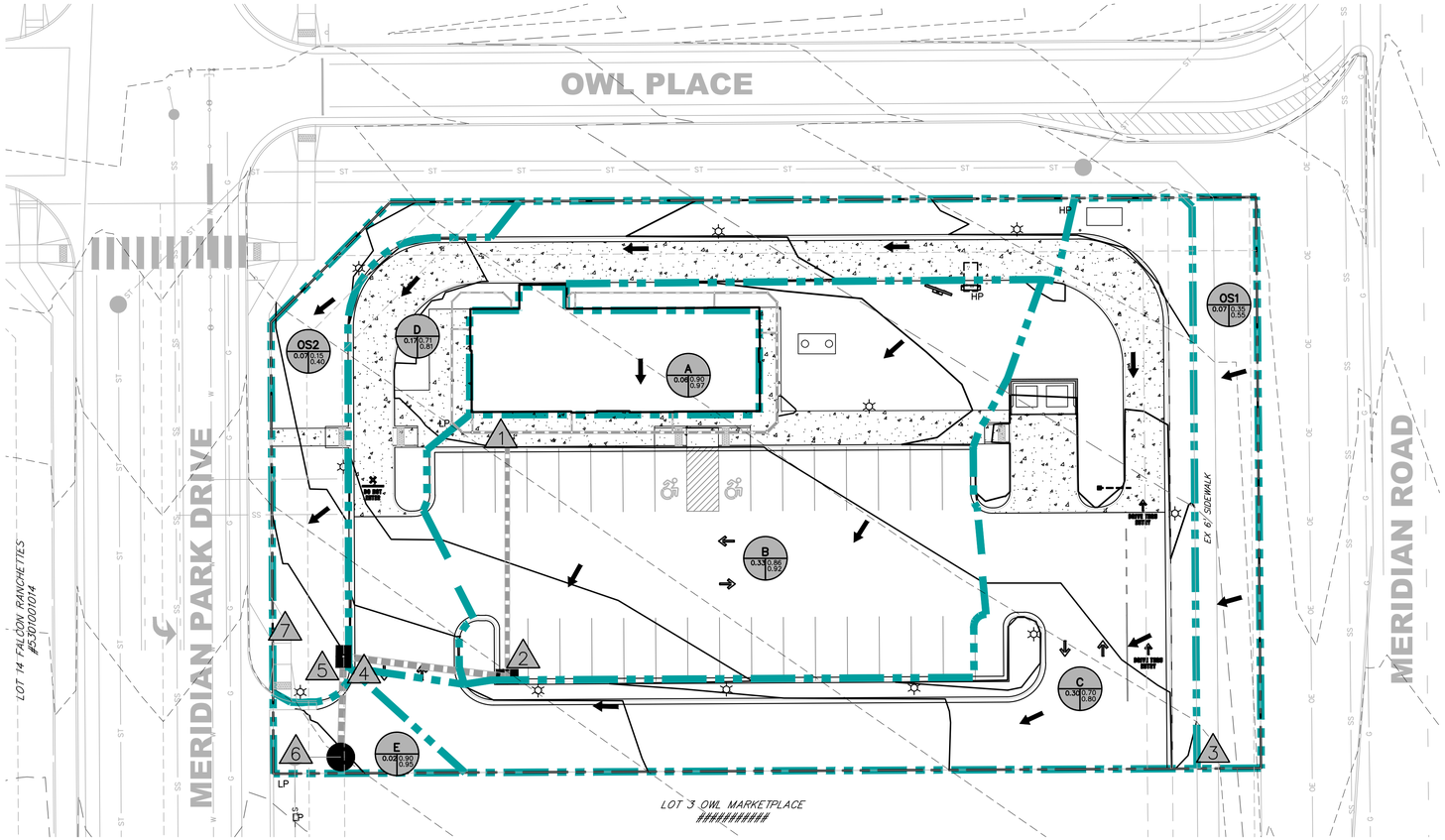
PROJECT NO: 21611-03
DESIGN BY: CGH
REV. BY: KGV
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 10/21/2024

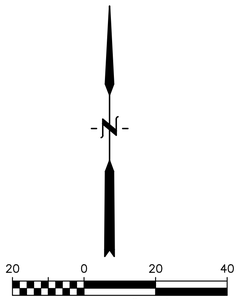
Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

PROPOSED **RUNOFF** **100 YR STORM** **P1=** **2.52**

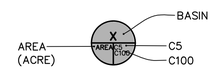
			DIRECT RUNOFF				
BASIN (S)	**DESIGN POINT**	**AREA (AC)**	**RUNOFF COEFF**	**t_c (MIN)**	**C * A**	**I (IN/HR)**	**Q (CFS)**
A	DP1	0.06	0.97	5.0	0.06	8.58	**0.5**
B		0.33	0.92	5.0	0.30	8.58	**2.6**
DP1+B	DP2	0.39	0.93	5.2	0.36	8.48	**3.0**
OS1	DP3	0.07	0.55	7.4	0.04	7.66	**0.3**
C		0.30	0.80	5.0	0.24	8.58	**2.1**
D		0.17	0.81	5.0	0.14	8.58	**1.2**
DP3+C+D	DP4	0.54	0.77	5.2	0.42	8.48	**3.5**
DP2+DP4	DP5	0.92	0.84	5.1	0.77	8.53	**6.6**
E	DP6	0.02	0.95	5.0	0.02	8.58	**0.2**
OS2	DP7	0.07	0.40	8.1	0.03	7.45	**0.2**





LEGEND

- PROPOSED INTERMEDIATE CONTOUR 5522
- PROPOSED INDEX CONTOUR 5520
- *EX. INTERMEDIATE CONTOUR* *5364*
- *EX. INDEX CONTOUR* *5365*
- DIRECTION OF FLOW .....
- HIGH POINT ..... HP
- LOW POINT ..... LP
- PROPOSED INLET .....
- PROPOSED MANHOLE .....
- BASIN BOUNDARY
- FLOW DIRECTION
- DESIGN POINT



BASIN	DP	AREA (AC)	Q5 (cfs)	Q100 (cfs)
A	DP1	0.06	0.3	0.5
B		0.33	1.4	2.6
DP1+B	DP2	0.39	1.7	3.0
OS1	DP3	0.07	0.1	0.3
C		0.30	1.1	2.1
D		0.17	0.6	1.2
DP3+C+D	DP4	0.54	1.8	3.5
DP2+DP4	DP5	0.92	3.5	6.6
E	DP6	0.02	0.1	0.2
OS2	DP7	0.07	0.05	0.2

PREPARED BY:

DREXEL, BARRELL & CO.
Engineers • Surveyors
101 SAHWATCH ST, #100
COLORADO SPGS, COLORADO 80903
CONTACT: TIM D. McCONNELL, P.E.
(719)260-0887
COLORADO SPRINGS • LAFAYETTE

CLIENT:

BH RE INVESTMENTS, LLC
450 N McCLINTOCK DRIVE,
CHANDLER, AZ 85226

GRADING & EROSION CONTROL PLANS FOR:

LOT 4, OWL MARKETPLACE

COLORADO SPRINGS, COLORADO

ISSUE	DATE
INITIAL ISSUE	10/21/24

DESIGNED BY:	CGH
DRAWN BY:	CGH
CHECKED BY:	KGV
FILE NAME:	21611-03-DRN

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

DRAWING SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: N/A

PROPOSED DRAINAGE PLAN

PROJECT NO. 21611-03CSCV

DRAWING NO.

DRN

SHEET: 1 OF 1