FINAL DRAINAGE REPORT

HEARTLAND DENTAL FALCON

PCD File No. PPR-21-045
Lot 2, Meridian Crossing Filing No. 1
7225 N. Meridian Road
Peyton, CO 80831

Prepared For:

WMG DEVELOPMENT

1200 Network Center Drive, Suite 3
Effingham, IL 62401

Prepared By:

Baseline Engineering Corporation

112 N. Rubey Drive, #210
Golden, CO 80403

April 2022

BASELINE
Engineering · Planning · Surveying

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Statements and Certifications

Engineer's Statement

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the county for drainage reports and said report is in conformity with the 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.

COLORADO LICENSED
NOAH J. NEMMERS
4.19.2022
39820
PROFESSIONAL ENGINEER

Noah Nemmers, P.E. Colorado 39820 Date

Developer's Statement

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

Name of Developer: WMG Development, LLC

Authorized Signature/Date:

Printed Name: Brian Schrock

Title: Sr. Project Mgr.

Address: PO Box 768 Effingham, IL 62401

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
05/10/2022 4:49:45 PM
dsdnijkamp
EPC Planning & Community Development Department

Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Date

Conditions:

General Location and Description

This Final Drainage Report has been prepared to accompany the submittal of a Site Development Plan for Heartland Dental Falcon. This site is located at 7225 N. Meridian Road. It is Lot 2 of the Meridian Crossing subdivision and covers 1.09 acres. The site is located in the Northeast ¼ of Section 12, Township 13 South, Range 65 West of the 6th P.M. in El Paso County, Colorado. It is located on the southeast side of North Meridian Road approximately 500 feet north of Rolling Thunder Way. The site is bounded to the northeast by McDonald's, to the southeast by the Falcon Liquor outlet, to the southwest by the undeveloped Lot 1 of Meridian Crossing Filing 1, and to the northwest by N. Meridian Road.

Currently, the lot is undeveloped, with existing sparse native grass coverage and a rock landscaping area along N. Meridian Road with the Meridian Crossing subdivision monument sign. The proposed development will include a dental office and associated parking lot with additional landscaping around the lot. Total disturbance for the site is 0.70 acres. This drainage report will describe the proposed runoff patterns, estimate runoff quantities, and ensure safe and appropriate routing of stormwater to meet County requirements and the design intent of the Meridian Crossing Final Drainage Report prepared by Springs Engineering in July 2008 (SF-07-024).

In general, the site drains at grades between 2% to 5% to the southeast onto private drives within the Meridian Crossing Subdivision. Water sheet flows into a detention basin located within Lot 6. According to the National Resources Conservation Service, the soil underlaying the site is identified as Blakeland loamy sand. This soil is categorized as Hydrologic Soil Group A, which is a well-draining soil with a high infiltration rate. The soil survey map is included in the Appendix. The site lies within the Falcon CHWS1400 drainage basin. Per FEMA FIRM Panel 08041C0561G, dated 12/7/2018, the property lies within Zone X, an area of minimal flood hazard. A Firmette including the site location is also in the Appendix.

Drainage Basins and Sub-Basins

A description of the basins used in the drainage design of this site are included as follows.

Basin EX (1.30 acres) is undeveloped, with existing sparse native grass coverage and a rock landscaping area along N. Meridian Road. The existing site imperviousness is 31%. Runoff quantities of Q_5= 1.5 cfs and Q_{100}= 4.2 cfs discharge overland to the southeast across the private drive within the Meridian Crossing subdivision into Lot 6, where an existing detention basin is located.

Basin P1 (0.27 acres) includes portions of private drives, parking lot, and landscaped areas. The imperviousness is 70%. Runoff quantities of Q_5= 0.87 cfs and Q_{100}= 1.7 cfs will flow into the private drives of the subdivision and travel to the regional detention pond.

Basin P2 (0.32 acres) includes landscaping and portions of the parking lot. Runoff flows through a curb cut to the private drives that direct water to the regional pond. The sub-basin imperviousness is 66%. Runoff totals from this basin are Q_5= 0.87 cfs and Q_{100}= 1.76 cfs.

Basin P3 (0.07 acres) includes landscaping, sidewalk, and parking areas. Runoff flows into a catch curb and flows out a 2' curb cut. It then travels into private drives and eventually to the regional detention pond. The proposed imperviousness is 92%. Runoff totals for this basin are Q_5= 0.27 cfs and Q_{100}= 0.49 cfs.

Basin P4 (0.35 acres) includes landscaping areas, roof runoff, and portions of sidewalk. A drainage swale diverts runoff around the north portion of the building to the private drive southwest of the project property where the runoff continues to the regional detention pond. The proposed basin imperviousness is 36%. Runoff totals for this basin are Q_5= 0.52 cfs and Q_{100}= 1.36 cfs.

Basin P5 (0.03 acres) is a small portion of the site that includes landscaping areas and a portion of curb and gutter. Runoff flows directly onto the private drive then continues into the regional detention pond. The proposed site imperviousness is 33%. Runoff totals for this subbasin are Q_5= 0.05 cfs and Q_{100}= 0.12 cfs.

Basin P6 (0.26 acres) includes portions of the McDonald's site to the east, landscaping, and the private drive. Water flows southeast into a private drive and eventually into the regional detention pond. The proposed site imperviousness is 73%. Runoff totals for the basin are Q_5= 0.82 cfs and Q_{100}= 1.61.

Basin PR (1.30 acres) includes all of the proposed sub-basins, incorporating the proposed dental office, parking lot, and landscaping. A drainage swale diverts runoff around the north portion of the building to the private drive along the east portion of Lot 2, and the rest of the site runoff flows south overland onto the private drives surrounding the property. The total proposed site imperviousness is 61%. Runoff quantities of Q_5= 3.1 cfs and Q_{100}= 6.5 cfs will continue to flow into the Lot 6 detention basin as they have previously. The 100-year flow in the original Meridian Crossing report for this location was 31.8 cfs, so the proposed design has much lower runoff than the subdivision design.

Drainage Design Criteria

This drainage analysis has been prepared in accordance with the current El Paso County Drainage Criteria Manual as of December 2021. Drainage studies referenced in the preparation of this report include:

1. Meridian Crossing Final Drainage Report, prepared by Springs Engineering, dated July 2008. (SF-07-024)

The design of this project incorporates the 4 step process for selecting structural BMPs in newly developing areas as follows. For Step 1, the site was designed to maximizing the usable area with the minimum amount of impervious paving. A permanent grass swale around the north side of the site allows stormwater to flow and infiltrate before discharging into the subdivision. Regarding Step 2, no major drainageways are incorporated in the site. However, permanent seeding and landscaping will help to minimize erosion due to stormwater runoff. Step 3 is being handled by the regional detention pond, and since the runoff from this site is less than that proposed in the Meridian Crossing Drainage Report, the drainage facilities shall still function as intended. Step 4 does not pertain to this site past construction, but a stormwater management plan has been drafted that includes measures for construction material storage/handling areas and spill prevention, among many other BMPs to ensure surrounding properties are not adversely affected by construction activities.

Off-site drainage from the north, west, and south all drain away from the proposed site. A portion of off-site drainage from the east will travel into the proposed site via overland flow across the parking lot and outlet at the south corner of the site.

Once stormwater runoff leaves the property, it will sheet flow to gutters across the private drive and travel via gutter pans to the east porous landscape detention pond in the south section of Lot 6. From there, it will flow west via a storm system into a swale that directs water to Pond WU. This system will cover the water quality treatment and detention of site runoff.

The existing and proposed conditions at the site for 5-year and 100-year storms have been estimated using the Rational Method for runoff computations as required by the El Paso County Drainage Criteria Manual for sites with less than 100 acres. A summary of all runoff calculations has been included in the Appendix of this report.

Stormwater Maintenance

Per the Meridian Crossing Final Drainage Report, maintenance of the streets and major facilities within the subdivision, including the roads, drainage facilities, and water quality ponds, is the responsibility of the Meridian Crossing Property Owners Association (POA).

Any on-site stormwater BMPs within Lot 2 will be maintained by the owner to ensure compliance with requirements of El Paso County and the Meridian Crossing POA. Heartland Dental will not be directly responsible for maintenance of any offsite drainage facilities.

Summary

The Heartland Dental Falcon site will include a dental office, parking lot, landscaping, and drainage swale. The estimated runoff from this site of 3.1 cfs for the 5-year storm and 6.5 cfs for the 100-yr storm is below the estimates put forth in the Meridian Crossing Final Drainage Report that previously covered this property and designed the downstream detention facilities. This will allow the proposed site and downstream detention facilities operate as they were designed without any additional modifications.

The development of this site and drainage analysis has been designed in accordance with the requirements of the El Paso County Drainage Criteria Manual. The site described in this Final Drainage Report will not adversely affect the downstream and surrounding developments. Supporting information is included in the Appendix.

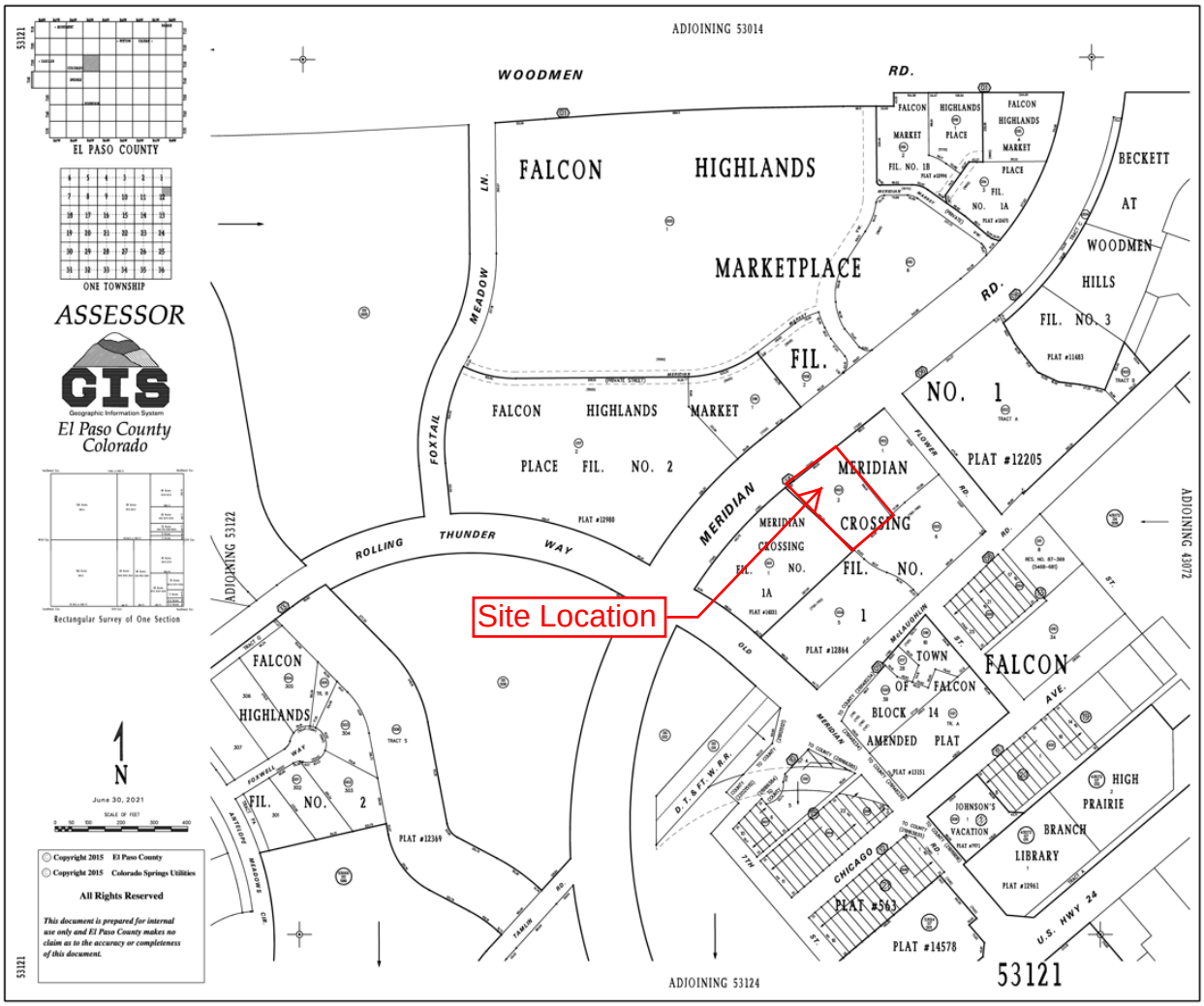
References

1. El Paso County Engineering Criteria Manual. Appendix I, Appendix G. Version: October 14, 2020.

2. El Paso County Drainage Criteria Manual. Volumes 1 and 2. Version: October 31, 2018.

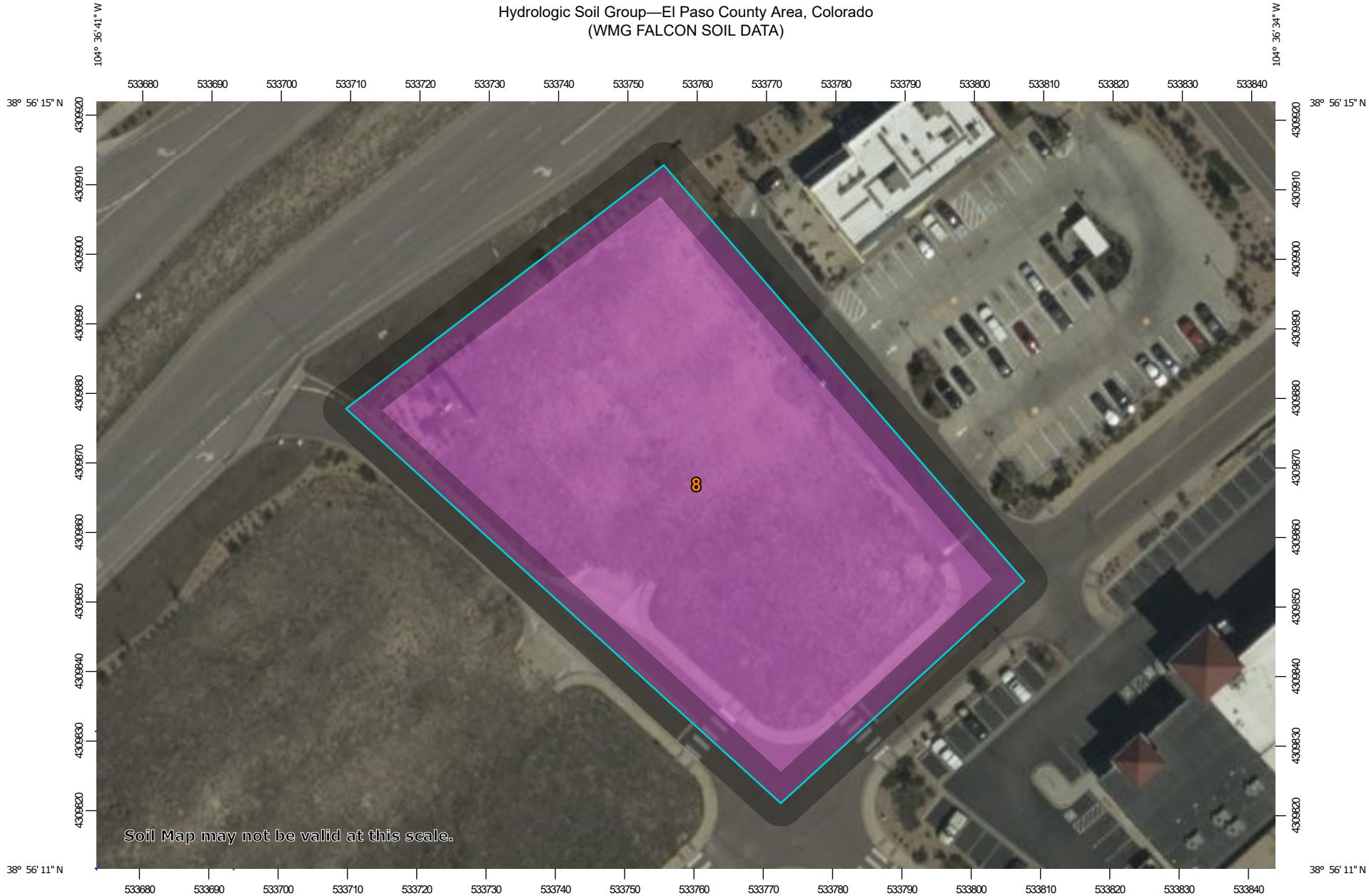
3. City of Colorado Springs Drainage Criteria Manual. Volume 1, Chapter 6. May 2014. Rev. Jan 2021.

Appendix



Vicinity Map

Hydrologic Soil Group—El Paso County Area, Colorado
(WMG FALCON SOIL DATA)



Map Scale: 1:778 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

Streams and Canals

Transportation

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

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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	1.1	100.0%
Totals for Area of Interest			**1.1**	**100.0%**

Description

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.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

FEMA

104°36'57"W 38°56'28"N

104°36'19"W 38°56'N

Feet

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

1:6,000

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

Legend

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

SPECIAL FLOOD HAZARD AREAS

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

OTHER AREAS OF FLOOD HAZARD

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

OTHER AREAS

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

GENERAL STRUCTURES

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

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 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

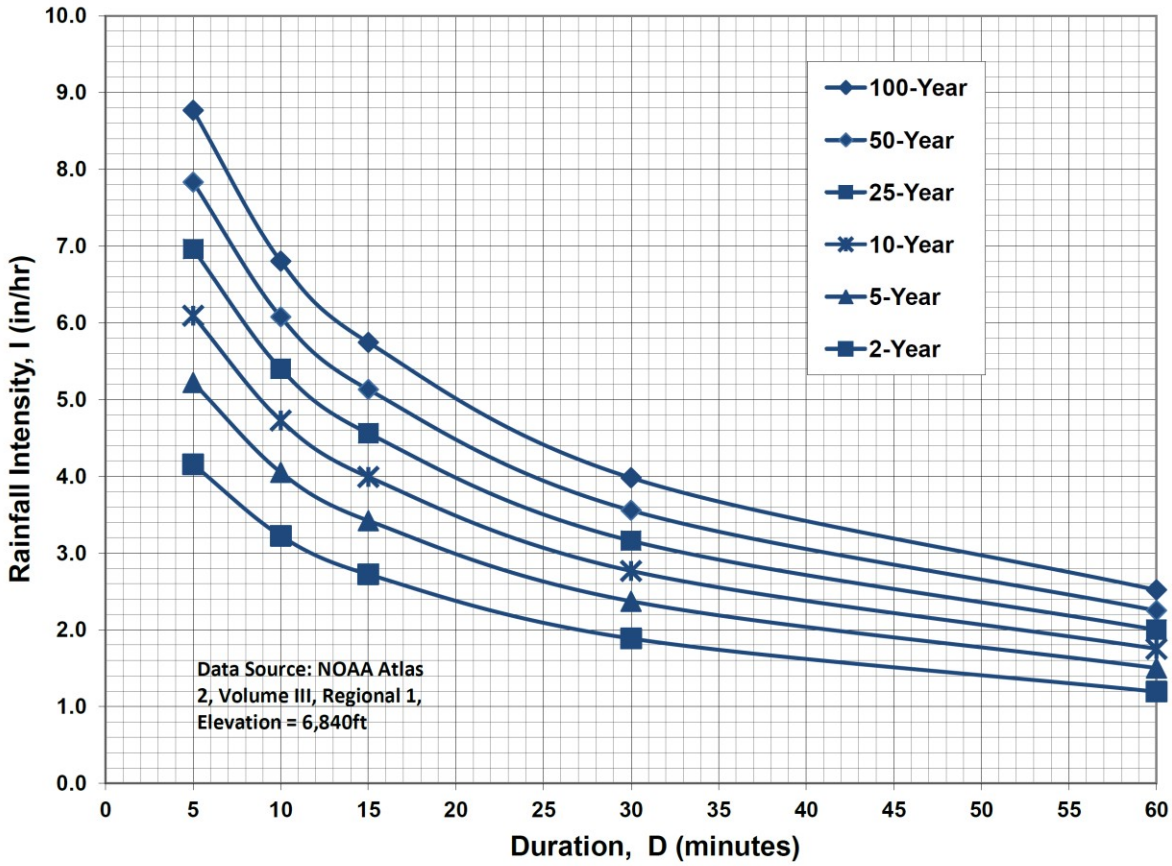
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 11/3/2021 at 5:09 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.

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency



IDF Equations	D = 60 min.
I_{100} = -2.52 ln(D) + 12.735	= 2.41
I_{50} = -2.25 ln(D) + 11.375	= 2.16
I_{25} = -2.00 ln(D) + 10.111	= 1.92
I_{10} = -1.75 ln(D) + 8.847	= 1.68
I_5 = -1.50 ln(D) + 7.583	= 1.44
I_2 = -1.19 ln(D) + 6.035	= 1.16

Note: Values calculated by equations may not precisely duplicate values read from figure.

Figure 6-6a. Example Nomograph for Determination of 1-Hour Rainfall Depth for Range of Recurrence Intervals
based on 2- and 100-year 1-Hour Values (NOAA Atlas 2)

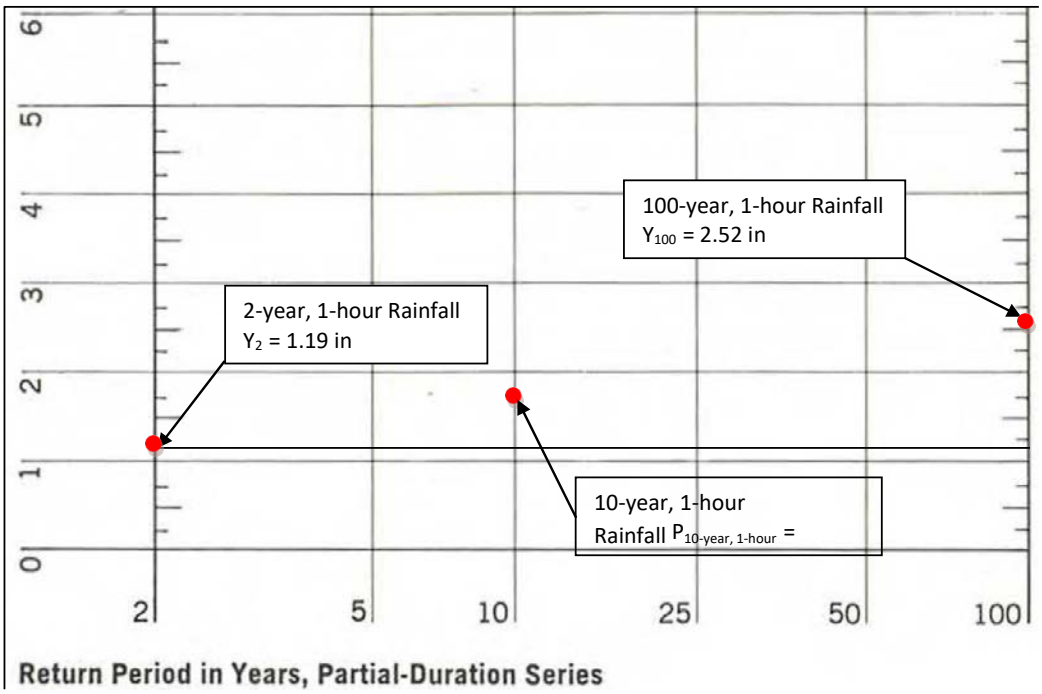
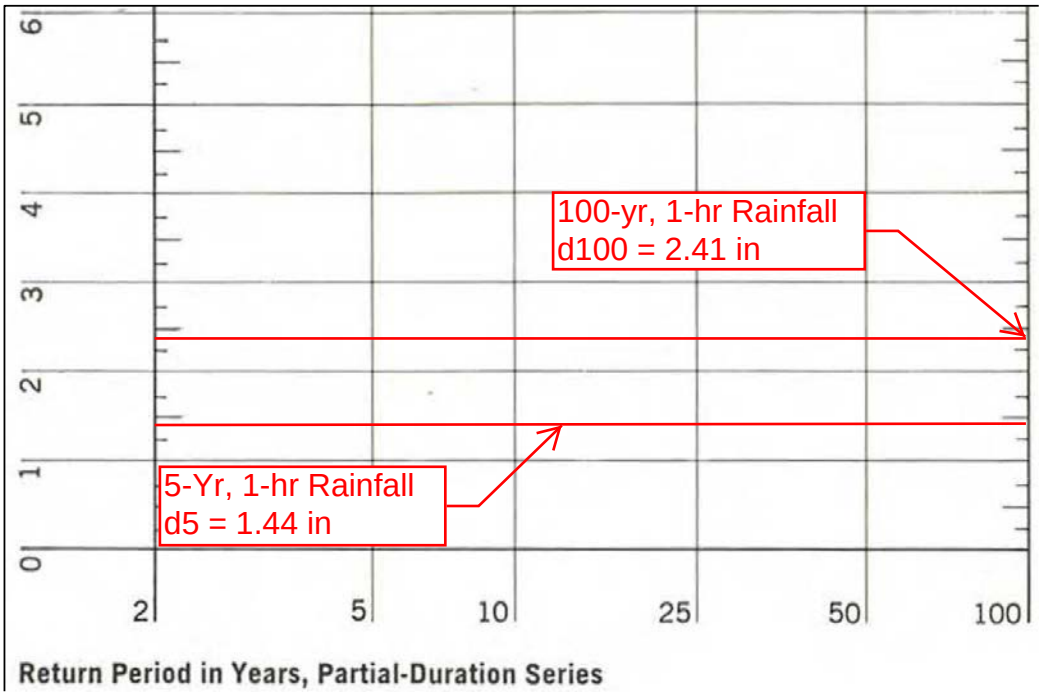


Figure 6-6b. Blank Nomograph for Determination of 1-Hour Rainfall Depth for Range of Recurrance Intervals
based on 2- and 100-year 1-Hour Values (NOAA Atlas 2)



SF-1
RUNOFF COEFFICIENTS

PROJECT NAME: WMG Falcon
PROJECT NUMBER: co35036CS
CALCULATED BY: LDS
CHECKED BY: NJN

DATE: 2/24/2022

LAND USE:	DRIVE & WALKS	ROOF AREA	LAWNS	ROCK	HISTORIC ANALYSIS
% IMPERVIOUS	100%	90%	0%	100%	2%
2-YEAR COEFF.	0.89	0.71	0.02	0.89	0.03
5-YEAR COEFF.	0.90	0.73	0.08	0.90	0.09
10-YEAR COEFF.	0.92	0.75	0.15	0.92	0.17
100-YEAR COEFF.	0.96	0.81	0.35	0.96	0.36

HYDROLOGIC SOIL TYPE = A

DESIGN BASIN	DESIGN POINT	DRIVE & WALKS	ROOF AREA	LAWNS	ROCK	HISTORIC ANALYSIS	TOTAL AREA	RUNOFF COEFFICIENTS				PERCENT IMPERVIOUS
		(AC)	(AC)	(AC)	(AC)	(AC)	(AC)	C_2	C_5	C_{10}	C_{100}	(%)
EX	1	0.34	0.00	0.00	0.05	0.91	**1.30**	0.29	0.33	0.40	0.54	31%
HISTORIC BASIN		**0.34**	**0.00**	**0.00**	**0.05**	**0.91**	**1.30**	**0.29**	**0.33**	**0.40**	**0.54**	**31%**
SUBTOTAL		26.2%	0.0%	0.0%	3.8%	70.0%	100%					
P1	1	0.19	0.00	0.08	0.00		**0.27**	0.63	0.66	0.69	0.78	70%
P2	2	0.20	0.00	0.11	0.01		**0.32**	0.59	0.62	0.66	0.75	66%
P3	3	0.06	0.00	0.01	0.00		**0.07**	0.82	0.84	0.86	0.91	92%
P4	4	0.01	0.10	0.21	0.03		**0.35**	0.31	0.35	0.40	0.55	36%
P5	5	0.00	0.00	0.02	0.01		**0.03**	0.31	0.35	0.41	0.55	33%
P6	6	0.18	0.00	0.07	0.01		**0.26**	0.66	0.68	0.71	0.80	73%
PR	PR	0.64	0.10	0.50	0.06		**1.30**	0.54	0.57	0.61	0.71	61%
DEVELOPED BASIN		**0.64**	**0.10**	**0.50**	**0.06**	**0.00**	**1.30**	**0.54**	**0.57**	**0.61**	**0.71**	**60.46%**
SUBTOTAL		48.9%	7.7%	38.1%	4.6%	0.0%	100%					

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STANDARD FORM SF-2
TIME OF CONCENTRATION

PROJECT NAME: WMG Falcon
PROJECT NUMBER: co35036CS
CALCULATED BY: LDS
CHECKED BY: NJN

DATE: 2/24/2022

SUB-BASIN DATA			INITIAL TIME (T_i)			TRAVEL TIME (T_t)							FIRST DESIGN POINT Tc CHECK (URBANIZED BASINS)				FINAL Tc	RUNOFF COEFF.	
DESIGN BASIN (1)	AREA Ac (2)	C_5 (3)	LENGTH Ft (4)	SLOPE % (5)	T_i Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	Land Surface (9)	C_v (10)	VEL fps (11)	T_t Min. (12)	COMP. T_c (13)	URBAN BASIN? (14)	i (15)	CHANNELIZED LENGTH (16)	T_c = Eq 6-5 Min. (17)	Min. (18)	C_{10} (19)	C_{100} (20)
EX	1.30	0.31	150	4.7%	10.6	150	3.3%	Short Pasture/Lawn	7.0	1.3	2.0	**12.6**	No	0.54			**12.6**	0.62	0.72
P1	0.27	0.66	41	6.5%	2.8	147	2.5%	Paved Areas	20.0	3.2	0.8	**3.6**	No	0.78			**5.0**	0.66	0.69
P2	0.32	0.62	125	4.6%	6.0	207	2.0%	Paved Areas	20.0	2.8	1.2	**7.2**	No	0.75			**7.2**	0.62	0.66
P3	0.07	0.84	34	4.1%	1.8	79	3.4%	Paved Areas	20.0	3.7	0.4	**2.1**	No	0.91			**5.0**	0.84	0.86
P4	0.35	0.35	75	7.5%	6.1	148	1.0%	Grassed Waterway	15.0	1.5	1.6	**7.7**	No	0.55			**7.7**	0.35	0.40
P5	0.03	0.35	67	4.2%	7.0	21	3.4%	Paved Areas	20.0	3.7	0.1	**7.1**	No	0.55			**7.1**	0.35	0.41
P6	0.26	0.68	132	4.5%	5.4	142	3.7%	Paved Areas	20.0	3.8	0.6	**6.0**	No	0.80			**6.0**	0.68	0.71
PR	1.30	0.54	125	4.6%	6.9	255	2.3%	Paved Areas	20.0	3.0	1.4	**8.3**	No	0.71			**8.3**	0.57	0.61

$$T_i = \frac{0.395(1.1-C)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60\ V} \qquad t_{c(urban)} = \min\left\{t_i + t_t\left|(26-17i) + \frac{L_t}{60(14i+9)\sqrt{S_t}}\right.\right\}$$

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STANDARD FORM SF-3
STORM DRAINAGE DESIGN - RATIONAL METHOD 5-YEAR EVENT

PROJECT NAME: WMG Falcon
PROJECT NUMBER: co35036CS
CALCULATED BY: LDS
CHECKED BY: NJN

DATE: 3/8/2022

P_1 (1-Hour Rainfall) = 1.44 in. (5-yr)

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
STORM LINE	DESIGN POINT	DESIGN BASIN	AREA (AC)	RUNOFF COEFF C_5	tc (min)	C*A(ac)	I (in/hr)	Q (cfs)	tc (min)	Σ(C*A) (ac)	I (in/hr)	Q (cfs)	SLOPE (%)	STREET FLOW(cfs)	DESIGN FLOW(cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	tt (min)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	1	EX	1.30	0.33	12.6	0.43	3.54	1.53													
	1	P1	0.27	0.66	5.0	0.18	4.88	0.87													
	2	P2	0.32	0.62	7.2	0.20	4.39	0.87													
	3	P3	0.07	0.84	5.0	0.05	4.88	0.27													
	4	P4	0.35	0.35	7.7	0.12	4.29	0.52													
	5	P5	0.03	0.35	7.1	0.01	4.42	0.05													
	6	P6	0.26	0.68	6.0	0.18	4.65	0.82													
	PR	PR	1.30	0.57	8.3	0.74	4.18	3.11													

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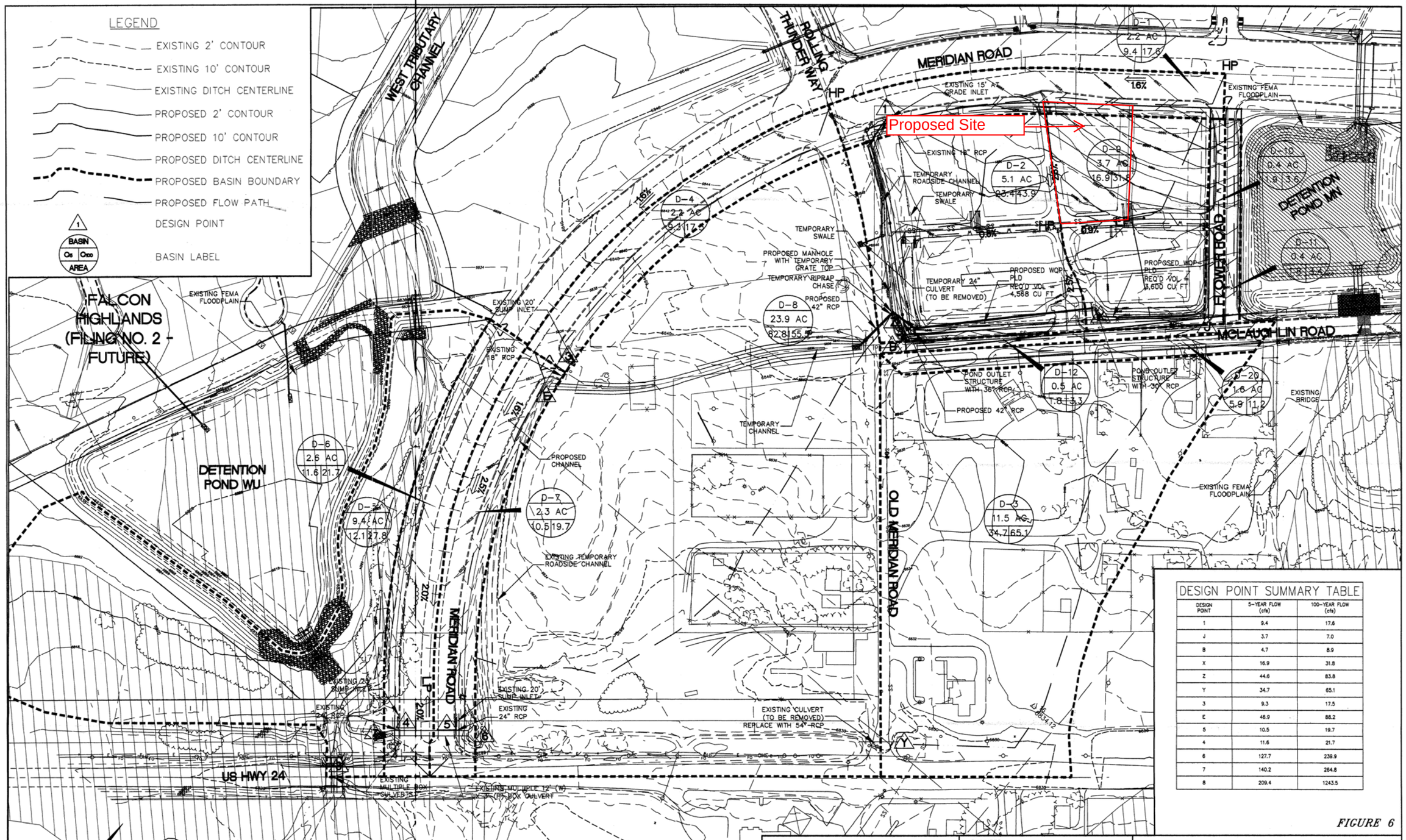
STANDARD FORM SF-3
STORM DRAINAGE DESIGN - RATIONAL METHOD 100-YEAR EVENT

PROJECT NAME: WMG Falcon
PROJECT NUMBER: co35036CS
CALCULATED BY: LDS
CHECKED BY: NJN

DATE: 2/24/2022

P_1 (1-Hour Rainfall) = 2.41 in. (100-yr)

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
STORM LINE	DESIGN POINT	DESIGN BASIN	AREA (AC)	RUNOFF COEFF C_{100}	tc (min)	C*A(ac)	I (in/hr)	Q (cfs)	tc (min)	Σ(C*A) (ac)	I (in/hr)	Q (cfs)	SLOPE (%)	STREET FLOW(cfs)	DESIGN FLOW(cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	tt (min)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	1	EX	1.30	0.54	12.6	0.70	5.93	4.16													
	1	P1	0.27	0.78	5.0	0.21	8.17	1.72													
	2	P2	0.32	0.75	7.2	0.24	7.35	1.76													
	3	P3	0.07	0.91	5.0	0.06	8.17	0.49													
	4	P4	0.35	0.55	7.7	0.19	7.18	1.36													
	5	P5	0.03	0.55	7.1	0.02	7.39	0.12													
	6	P6	0.26	0.80	6.0	0.21	7.78	1.61													
	PR	PR	1.30	0.71	8.3	0.93	7.00	6.49													



DESIGN POINT SUMMARY TABLE

DESIGN POINT	5-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)
1	9.4	17.6
J	3.7	7.0
B	4.7	8.9
X	16.9	31.8
Z	44.6	83.8
Y	34.7	65.1
3	9.3	17.5
E	46.9	88.2
5	10.5	19.7
4	11.6	21.7
6	127.7	239.9
7	140.2	264.8
8	209.4	1243.5

FIGURE 6

REVISIONS:

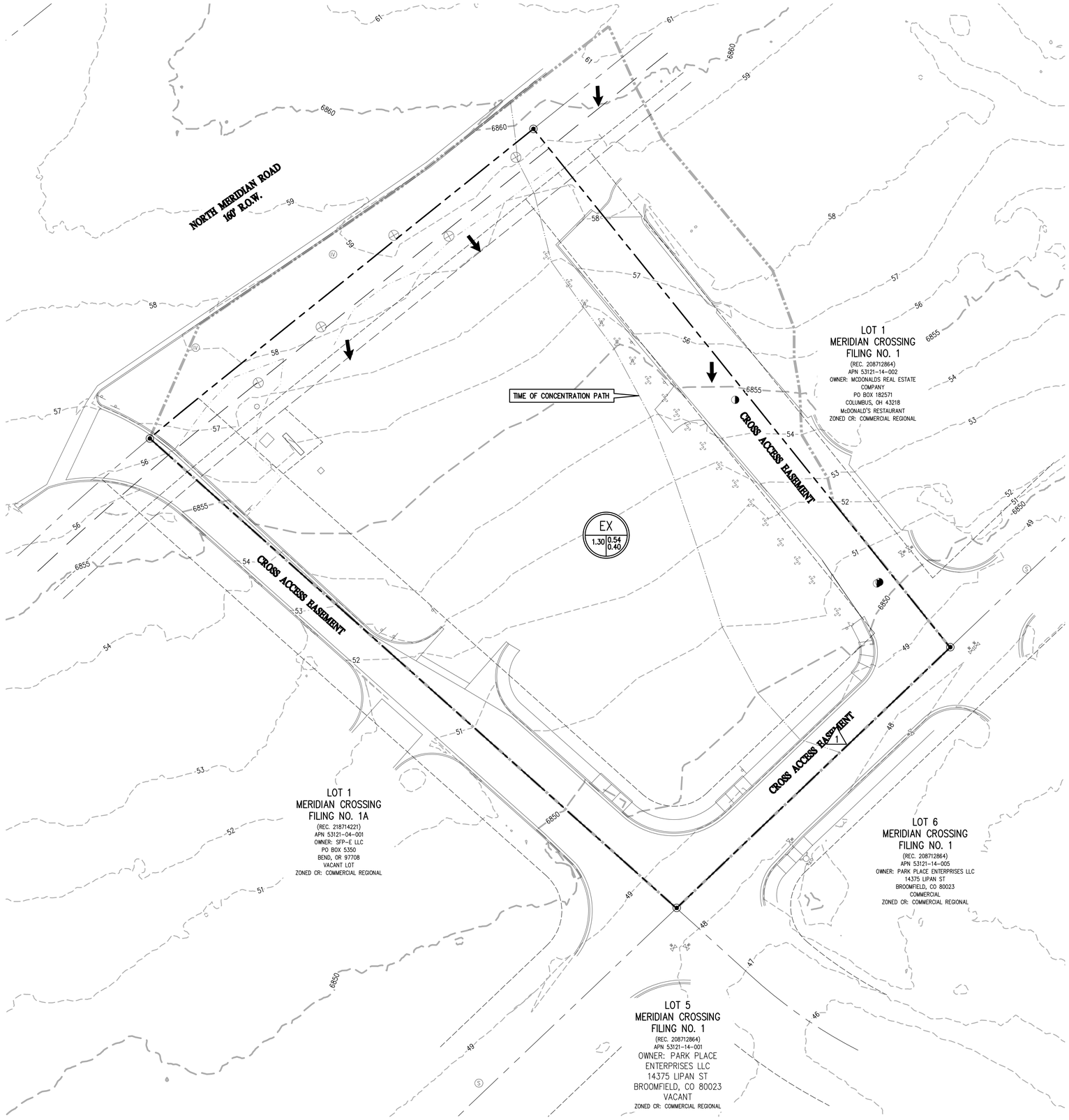
NO.	DESCRIPTION	DATE

ENGINEER:
DESIGNED BY: CMS DATE: 3/14/07
DRAWN BY: CMS DATE: 3/14/07
CHECKED BY: DATE:

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
1-800-922-1987
CITY OF COLORADO SPRINGS DEPT. OF UTILITIES GAS, ELECTRIC, WATER AND WASTEWATER

SE Springs Engineering
31 N. TEJON, SUITE 315
COLORADO SPRINGS, CO 80903
P: (719) 227-7388
F: (719) 227-7392

PROJECT MERIDIAN CROSSING FILING NO.1
SHEET TITLE PROPOSED DRAINAGE PLAN
FROM N/A TO N/A
JOB NO. 057-07-032 SHEET 1 OF 1



LEGEND

EXISTING LINETYPES	PROPOSED LINETYPES	
81	81	MINOR CONTOUR (1' INTERVAL)
		LOT LINE
		EASEMENT
		CURB AND GUTTER (SPILL/CATCH)
		EDGE OF ASPHALT
		EDGE OF BUILDING
		DRAINAGE BASIN
		TIME OF CONCENTRATION PATH

EXISTING SYMBOLS	PROPOSED SYMBOLS	
		FIRE HYDRANT
		WATER VALVE
		SANITARY MANHOLE
		DECIDUOUS TREE
		SIGN
		ADA PARKING STALL
		DEAD TREE
		FLOW DIRECTION
	1	DESIGN POINT DESIGNATION
	A / B C D	A = BASIN DESIGNATION B = BASIN AREA (ac) C = 100-YR C-FACTOR D = 5-YR C-FACTOR

SITE DRAINAGE INFORMATION

BASIN	AREA (ACRES)	AREA (SQ. FT.)	IMPERVIOUSNESS (%)	C10	C100	Q10 (CFS)	Q100 (CFS)
P1	0.27	11,762	70	0.69	0.78	1.06	1.72
P2	0.32	13,940	66	0.66	0.75	1.07	1.76
P3	0.07	3,050	92	0.86	0.91	0.32	0.49
P4	0.35	15,246	36	0.40	0.55	0.70	1.36
P5	0.03	1,307	33	0.41	0.55	0.06	0.12
P6	0.26	11,326	73	0.71	0.80	1.00	1.61
PR (COMBINED BASIN)	1.30	56,631	61	0.61	0.71	3.87	6.49
EX	1.30	56,631	28	0.40	0.54	2.12	4.16

N

GRAPHIC SCALE
20 0 20 40
(GRAPHIC SCALE)
20 0 (IN FEET) 20 40
1 INCH = 20 FT
(IN FEET)
1 INCH = 20 FT

1 / DR1 DR1
HISTORIC DRAINAGE PLAN

PCD FILE NO. PPR-21-045

BASELINE
Engineering · Planning · Surveying
192 N. RUBEY DRIVE, SUITE 210 · GOLDEN, COLORADO 80403
P: 303.940.9966 · F: 303.940.9969 · www.baselinecorp.com

DESIGNED BY LDS
DRAWN BY JDD
CHECKED BY MRB

REVISION DESCRIPTION	PREPARED BY	DATE

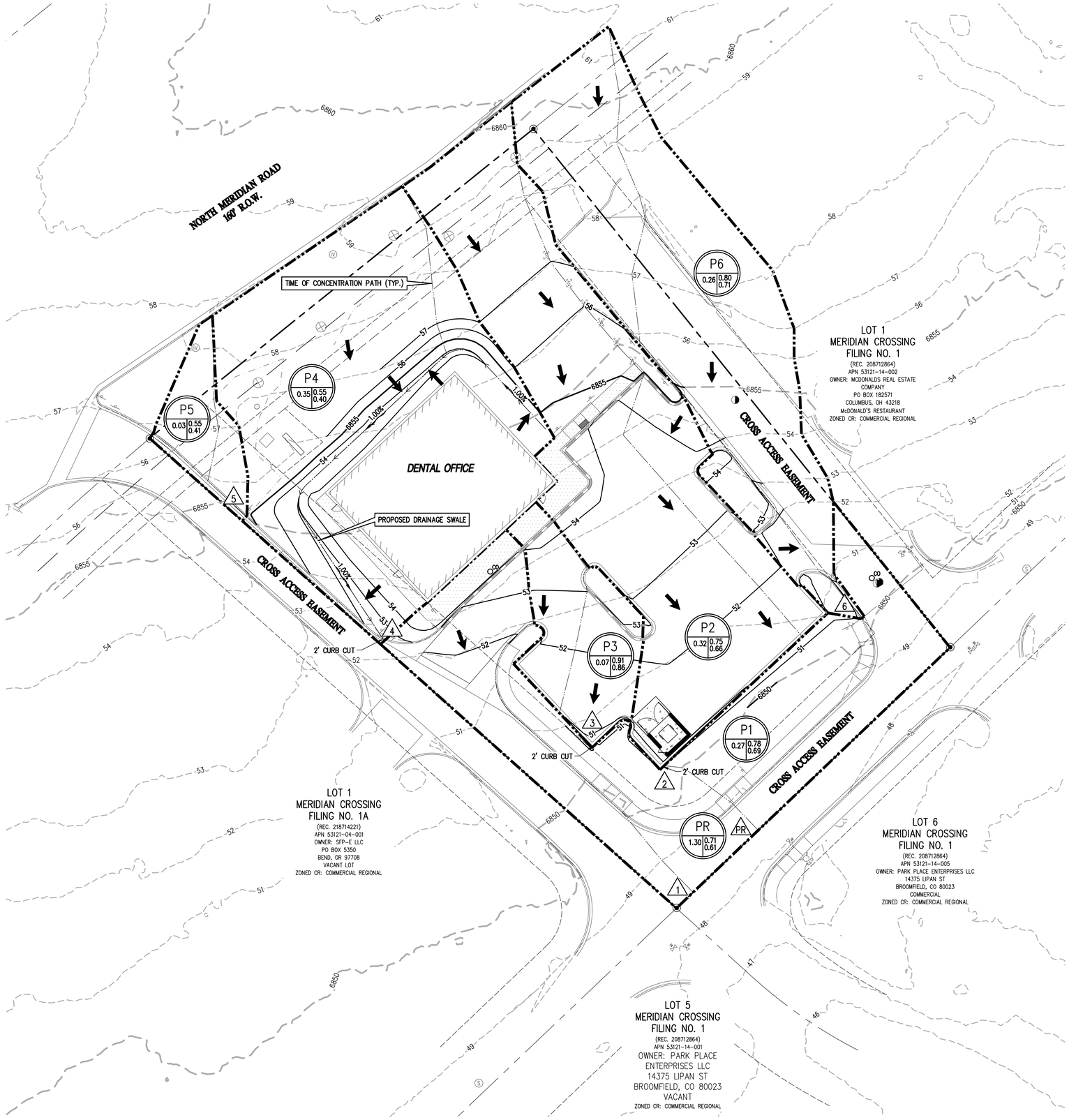
WMG FALCON
LOT 2, MERIDIAN CROSSING FILING 1
7225 N. MERIDIAN ROAD
HISTORIC DRAINAGE PLAN
EL PASO COUNTY
FALCON, COLORADO

PREPARED UNDER THE DIRECT SUPERVISION OF
COLORADO LICENSED NOAH T. NEMMERS 39820 PROFESSIONAL ENGINEER

FOR AND ON BEHALF OF BASELINE CORPORATION

INITIAL SUBMITTAL	8/25/2021
DRAWING SIZE	24" X 36"
SURVEY FIRM BEC	SURVEY DATE 4/08/2021
JOB NO.	C035036
DRAWING NAME 35036 DRNG PLAN.dwg	
SHEET 1 OF 2	

DR1



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N

GRAPHIC SCALE
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(IN FEET)
1 INCH = 20 FT

1 / DR2 DR2 PROPOSED DRAINAGE PLAN

PCD FILE NO. PPR-21-045

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SHEET 2 OF 2	

DR2