DRAINAGE LETTER

Falcon Landing

EL PASO COUNTY, COLORADO

March 4, 2019

PREPARED FOR:

Falcon Properties, LLC

9230 Gingerhill Ct.

Colorado Springs, Co. 80920

PREPARED BY:

Dakota Springs Engineering

31 N. Tejon Street, Suite 500

Colorado Springs, CO 80903

PROJECT NO. PPR-18-053

Design Engineer's Statement:

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

3/26/19

Charles Cothern, P.E. #24997 — Date

Owner/Developer's Statement:

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

Joe Pahk — 3/26/19

Joe Pahk, Manager — Date

Falcon Properties, LLC

9230 Gingerhill Ct.

Colorado Springs, CO 80920

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.

Jennifer Irvine, P.E. — Date

County Engineer / ECM Administrator

Approved

By: Elizabeth NijKamp

Date:04/09/2019

El Paso County Planning & Community Development

Conditions:

Table of Contents

Appendixes

1 – Purpose

Falcon Properties, LLC is proposing a new retail building within Beckett at Woodmen Hills, Filing No. 3. The scope of the project will be to construct a new 11,042 sq. ft. retail building, parking, drive, and landscape areas on a pad-ready site.

2 – Description

This project will be on Lot 3, Beckett at Woodmen Hills, Filing No. 3, which is 1.073 acres. Of the 1.073 acres, 0.107 acres were previously developed with portions of the access road in the area per the guidelines of the *Final Drainage Report for Beckett at Woodmen Hills Filing No. 3*. The site is bound by Lot 4 and Tract A, Beckett at Woodmen Hills, Filing No. 3, an Access Drive (30.0 foot private R.O.W.), on the north and west, and McLaughlin Road (80' R.O.W.) on the east. Lot 3 is a vacant, pad-ready site with utilities stubbed to the site. The site currently slopes in a generally north to south direction at approximately 1.0% to 3.0%. Flows from the site sheet flow to the curb and gutter of McLaughlin Rd, with a percentage of the surface flow passing over portions of both Lot 4 and Tract A of Becket at Woodmen Hills Filing No. 3. Before reaching the road. Once in the roadway, flow is directed generally southerly to an existing inlet that discharges directly into the local flood plain. The site lies within flood zone X per FEMA panel 08041C0553G revised December 7th, 2018; a copy of the panel is included in Appendix II.

The project area lies within Basins 1, 3, and 4, as defined by the *Final Drainage Report for Beckett at Woodmen Hills Filing No. 3*, prepared by URS, May 2003 (El Paso County Job No. VR-03-005). Basin 4 is 2.34 acres and is assumed to be 100% impervious per said report. A copy of the drainage map from the *Final Drainage Report for Beckett at Woodmen Hills Filing No. 3* has been provided in Appendix III.

3 – Proposed Development

The proposed development on Lot 3 will consist of roughly 5 onsite basins as depicted by the drainage plan in Appendix V:

- Basin EX-1 is the portion of the existing access road within the property that is part of Basin 1 from Beckett at Woodmen Hills Filing No. 3 Drainage Report. No changes or construction are to be performed within this basin and it continues to flow as described in said Drainage Report. As this basin has no proposed construction within its boundary, it can be assumed that flows within this basin met the requirements dictated by the URS report at time of construction.
- Basin EX-2 is the portion of the existing access road within the property that is part of Basin 3 from Beckett at Woodmen Hills Filing No. 3 Drainage Report. No changes or construction are to be performed within this basin and it continues to flow as described in said Drainage Report. As this basin has no proposed construction within its boundary, it can be assumed that flows within this basin met the requirements dictated by the URS report at time of construction.
- Basin D-1 (0.78 acres, 81% impervious) consists of parking, drive, roof area for the proposed retail store and landscape areas that will drain to a proposed PLD pond (estimated cost $5000) that drains to an existing inlet on the northerly access road. Said inlet is conveyed via storm sewer to the existing Regional Detention Pond No. 5 as described in the URS drainage report. The 0.78 acres of this basin represent 86.7% of the area to be developed. Q_5=2.3, Q_{100}=4.1
- Basin D-2 (0.07 acres, 10% impervious) consists of landscape areas and will continue to drain to an existing inlet in the southeast corner of said Basin 4. Said inlet discharges directly into the FEMA floodplain (design point 4 from Beckett at Woodmen Hills Filing No. 3 Drainage Report). Q_5=0.1, Q_{100}=0.2
- Basin D-3 (0.05 acres, 47% impervious) consists of landscape areas and the loading bay and will continue to drain to an existing inlet in the southeast corner of said Basin 4. Said inlet

discharges directly into the FEMA floodplain (design point 4 from Beckett at Woodmen Hills Filing No. 3 Drainage Report). Q_5=0.1, Q_{100}=0.2

- The project site is in Basin 4 of the Beckett at Woodmen Hills Filing No. 3 Final Drainage Report; this Basin has calculated design flows of Q5=6.0 cfs and Q100=13 cfs. Our site is calculated to be approximately 42% of Basin 4 therefore projected runoff would be approximately Q5=2.5 cfs and Q100=5.5 cfs. Our calculated flows for the site are Q5=2.5 cfs and Q100=4.5 cfs resulting in storm flows equal to or below anticipated.
- Primary detention for both 5 and 100 year storms is within the existing Regional Detention Pond No. 5 being located just East of the proposed site, see Appendix IV for pond location. This facility was designed to accept flows from the properties within Beckett at Woodmen Hills, Filing No. 3 and is sized to accept flows greater than the proposed flows developed within Woodmen Hills Filing 7, Phase 3, Woodmen Hills Filing 7A, and Becket at Woodmen Hills Filing No. 3 as the drainage reports for all 3 filings assumed 100% imperious development when calculating said flows.

4 – 4-Step Process

Development of the site uses the four-step process.

Step 1: Runoff is routed across or through landscape areas as often as possible.

Step 2: No existing channels exist that require stabilization. Concrete rundowns are utilized in proposed design to create stable drainage ways into the porous landscape detention pond. Offsite, downstream channels are mitigated by the existing storm sewer system and detention pond utilized to accept storm flows from this site.

Step 3: The Falcon Landing project includes a porous landscape detention basin serving as a Water Quality Capture Volume before entering the existing drainage system.

Step 4: No Industrial or Commercial BMPs are used or needed for the Falcon Landing project. The nature of the proposed site does not require these types of BMPs.

5 – Conclusion

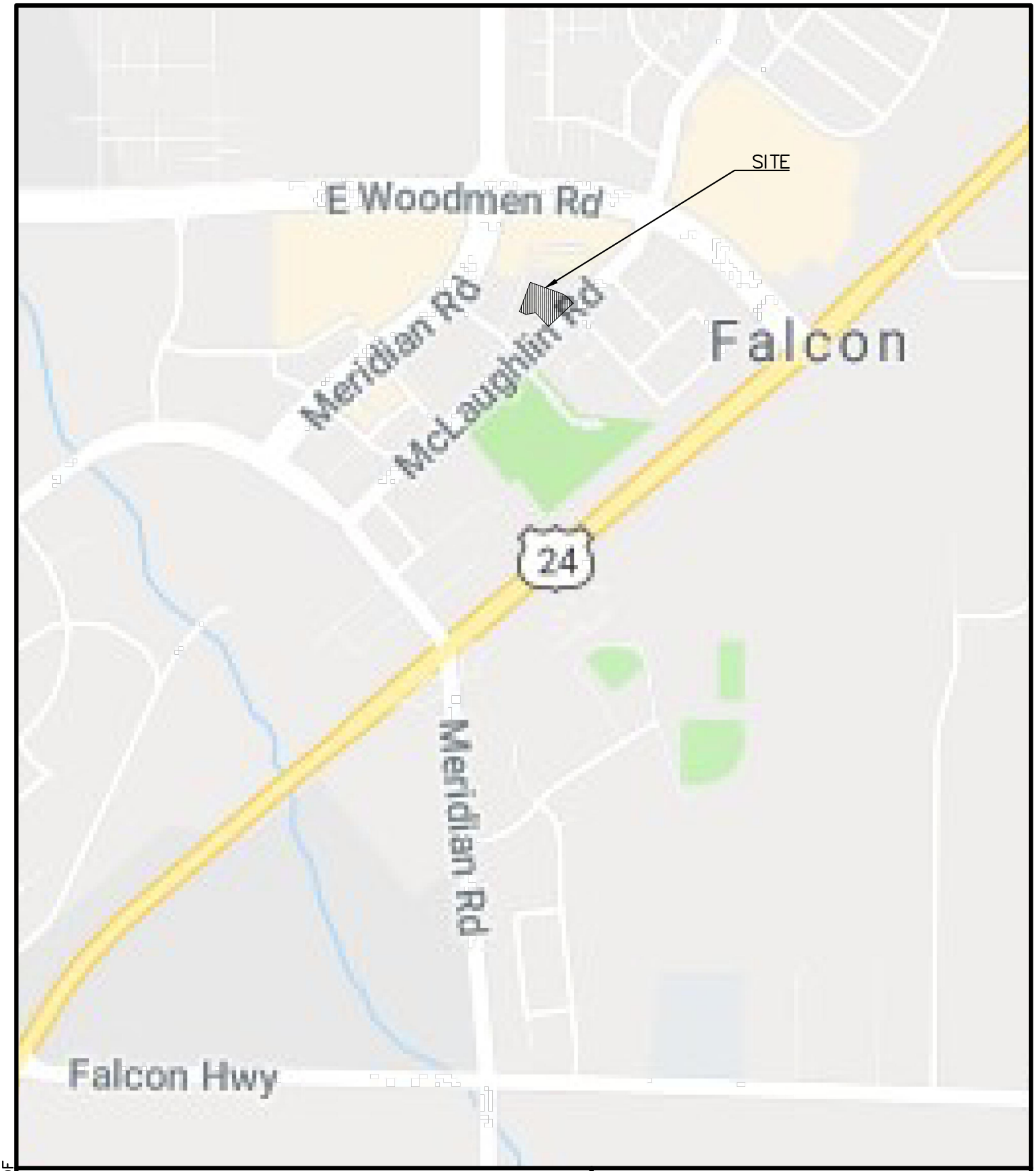
In conclusion, the proposed Falcon Landing development on Lot 3 complies with the drainage concept outlined in the URS report. Proposed development on Lot 3 will total approximately 74% impervious, which is significantly less than the 100% impervious assumed in the URS report. As such, the proposed development is in conformance with El Paso County drainage criteria. Additionally, as flows are significantly less than previously designed, there are no negative impacts to downstream facilities or owners.

Sincerely,

Charles Cothern, PE
For and on behalf of
Dakota Springs Engineering, LLC

Appendix I

Vicinity Map



FALCON LANDING

VICINITY MAP

SHEET 1 OF 1

PROJECT NUMBER: 01-13

DSE Dakota Springs Engineering
31 N. TEJON, SUITE 500
COLORADO SPRINGS, CO 80903
P: (719) 227-7388
F: (719) 227-7392

J-CAD
J-CADDESIGNS.COM
719-377-0002

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

Appendix II

FEMA Floodplain Panel 08041C0553G Revised 12/7/18

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.

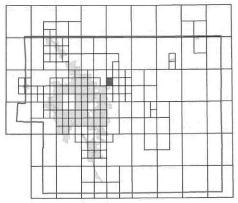
Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this 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

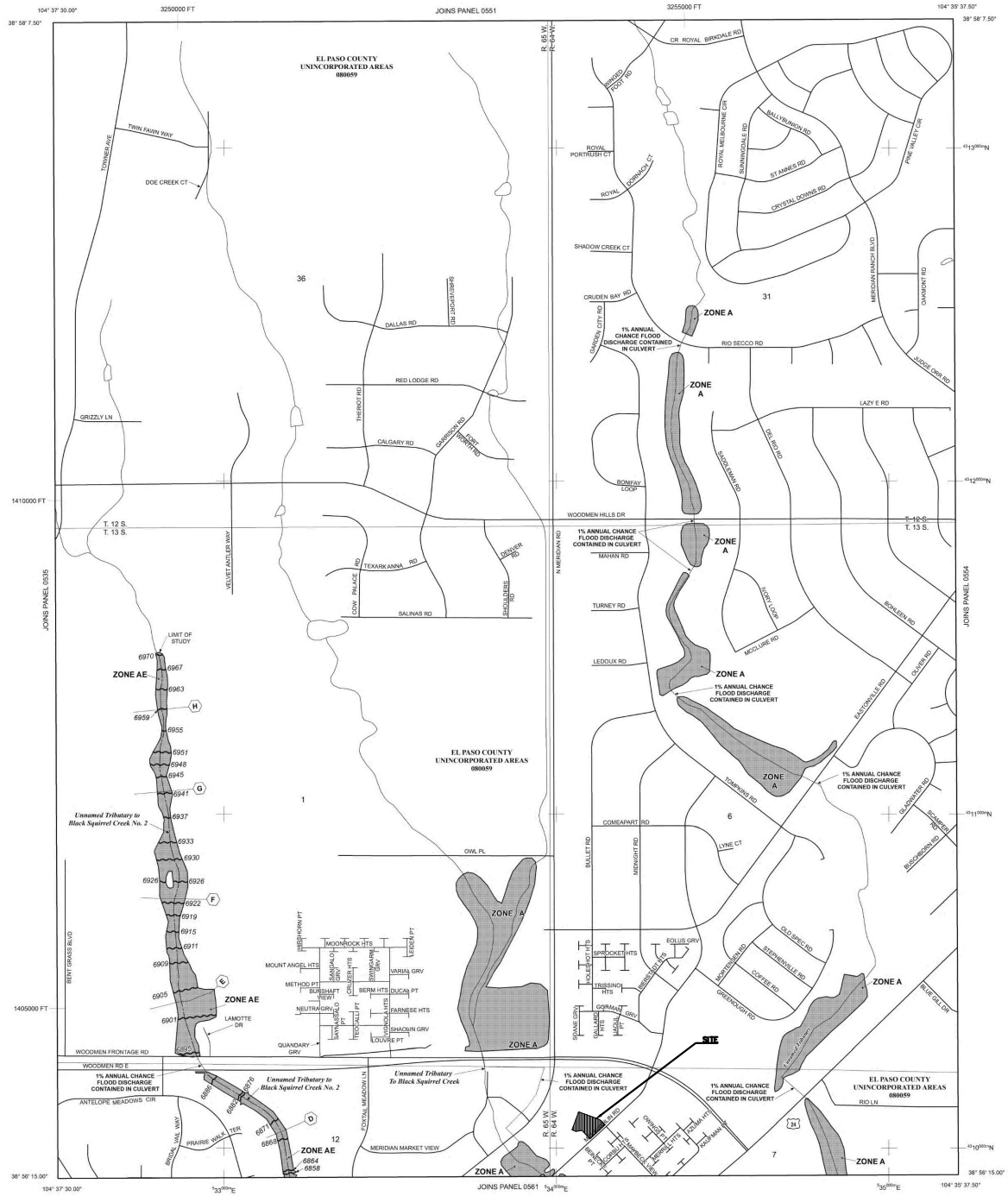
Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

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.



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)
4273000mN 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 0553G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 553 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY	080059	0553	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
08041C0553G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

Appendix III

Selected Drainage Map from Beckett at Woodmen Hills Filing No. 3 Drainage Report

SCALE: 1"=50'

50 0 50 100

NOTE: CONTOURS SHOWN ARE FOR OVERLOT GRADING ONLY. FINAL GRADING PLAN WILL BE DEVELOPED FOR EACH INDIVIDUAL LOT.

FUTURE MERIDIAN ROAD

WOODMEN ROAD

McLAUGHLIN ROAD

PLAT BOUNDRY

PROPERTY BOUNDARY

RETAINING WALL FINAL DESIGN BY LOT OWNER

2-10' SUMP INLETS
Qs=15 CFS
Q100=28 CFS

Qs=14 CFS
Q100=26 CFS

APPROXIMATE INLET LOCATION
INLETS DISCHARGE TO FEMA FLOODPLAIN FROM ROUTING
Qs=10 CFS
Q100=25 CFS

15" INLET
Qs(i)=10 CFS
Qs(by pass)=7 CFS
Q100(i)=13 CFS
Q100(by pass)=18 CFS

EXISTING STORM SYSTEM TO POND #5

FLOW TO INLETS

SITE

HP

LP

BECKETT AT WOODMEN HILLS FILING NO. 1

BECKETT AT WOODMEN HILLS FILING NO. 2

LEGEND

BASIN / ACRES / 5yr / 100yr

BASIN BOUNDARY

RETAINING WALL

DESIGN POINT

REVISIONS:		
NO.	DESCRIPTION	DATE

ENGINEER:
DESIGNED BY: DC DATE: 2-1-01
DRAWN BY: DC DATE: 2-1-01
CHECKED BY: CKC DATE: 2-1-01

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

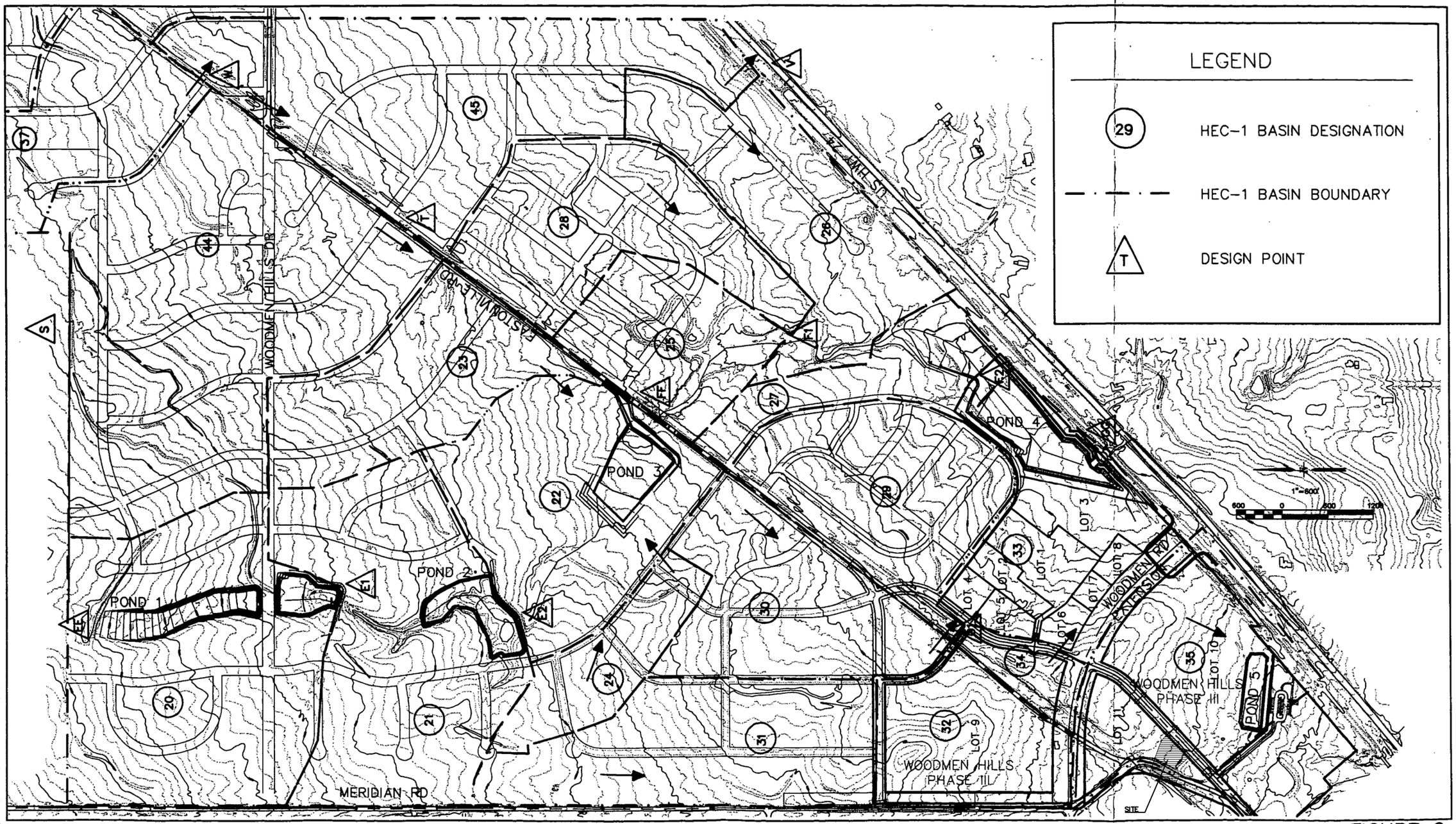
URS
8415 EXPLORER DRIVE, SUITE 110
COLORADO SPRINGS, COLORADO
PHONE: (719) 531-0001
FAX: (719) 531-0007

PROJECT BECKETT AT WOODMEN HILLS
SHEET TITLE GRADING AND DRAINAGE PLAN
FROM ____ TO ____
JOB NO. 6742451 SHEET 1 OF 1

Appendix IV

Selected Drainage Map from Woodmen Hills Filing No. 7A Drainage Report

WOODMEN HILLS PHASE III: HEC-1 BASINS



WOODMEN HILLS
ROOM TO GROW

FIGURE 6

URS Greiner
8415 EXPLORER DR. STE 110
COLORADO SPRINGS, CO 80920
(719) 531-0001

\874223A\CAD\FLUNCT\FLUT-DRA\THEC1.DWG AJR 12/16/96

Appendix V

Drainage Plan

Appendix VI

Basin Calculations

Falcon Landing

(RATIONAL METHOD Q=CIA)

BASIN	TOTAL FLOWS				AREA TOTAL	WEIGHTED		OVERLAND				CHANNEL				Tc TOTAL	INTENSITY		COMMENTS
	Q(5)	Q(100)	CA(equiv.)			C(5)	C(100)	C(5)	Length	Slope	Tc	Length	Slope	Velocity	Tc		I(5)	I(100)	
	(c.f.s.)	(c.f.s.)	5 YR	100 YR	(Ac)				(ft)	(ft)	(min)	(ft)	(%)	(fps)	(min)	(min)	(in/hr)	(in/hr)	
Proposed																			
D-1	2.3	4.1	0.63	0.63	0.78	0.81	0.81	0.35	117	2.0%	12.1	19	18.8%	1.9	0.2	12.2	3.7	6.5	
D-2	0.1	0.2	0.02	0.02	0.07	0.35	0.35	0.35	37	21.0%	3.1	0	0.0%	1.9	0.0	5.0	5.2	9.1	
D-3	0.1	0.2	0.02	0.02	0.05	0.47	0.47	0.35	59	33.3%	3.4	43	0.5%	1.9	0.4	5.0	5.2	9.1	

Appendix VII

Pond Calculations

Design Procedure Form: Rain Garden (RG)

Designer:	**Charles Cothern**
Company:	**Dakota Springs Engineering**
Date:	**March 9, 2019**
Project:	**Falcon Landing**
Location:	**7344 McLaughlin Rd**

1. Basin Storage Volume	
A) Effective Imperviousness of Tributary Area, I_a (100% if all paved and roofed areas upstream of rain garden)	I_a = 89.0 %
B) Tributary Area's Imperviousness Ratio ($i = I_a/100$)	i = 0.890
C) Water Quality Capture Volume (WQCV) for a 12-hour Drain Time ($WQCV = 0.8 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i)$)	WQCV = 0.31 watershed inches
D) Contributing Watershed Area (including rain garden area)	Area = 33,934 sq ft
E) Water Quality Capture Volume (WQCV) Design Volume Vol = (WQCV / 12) * Area	V_{WQCV} = 889 cu ft
F) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm	d_6 = _____ in
G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume	$V_{WQCV\ OTHER}$ = _____ cu ft
H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired)	$V_{WQCV\ USER}$ = _____ cu ft
2. Basin Geometry	
A) WQCV Depth (12-inch maximum)	D_{WQCV} = 12 in
B) Rain Garden Side Slopes (Z = 4 min., horiz. dist per unit vertical) (Use "0" if rain garden has vertical walls)	Z = 4.00 ft / ft
C) Mimimum Flat Surface Area	A_{Min} = 593 sq ft
D) Actual Flat Surface Area	A_{Actual} = 815 sq ft
E) Area at Design Depth (Top Surface Area)	A_{Top} = 987 sq ft
F) Rain Garden Total Volume ($V_T = ((A_{Top} + A_{Actual}) / 2) * Depth$)	V_T = 901 cu ft
3. Growing Media	Choose One ◉ 18" Rain Garden Growing Media ○ Other (Explain):
4. Underdrain System	
A) Are underdrains provided?	Choose One ◉ YES ○ NO
B) Underdrain system orifice diameter for 12 hour drain time	
i) Distance From Lowest Elevation of the Storage Volume to the Center of the Orifice	y = 1.8 ft
ii) Volume to Drain in 12 Hours	Vol_{12} = 889 cu ft
iii) Orifice Diameter, 3/8" Minimum	D_O = 0.70 in

Design Procedure Form: Rain Garden (RG)

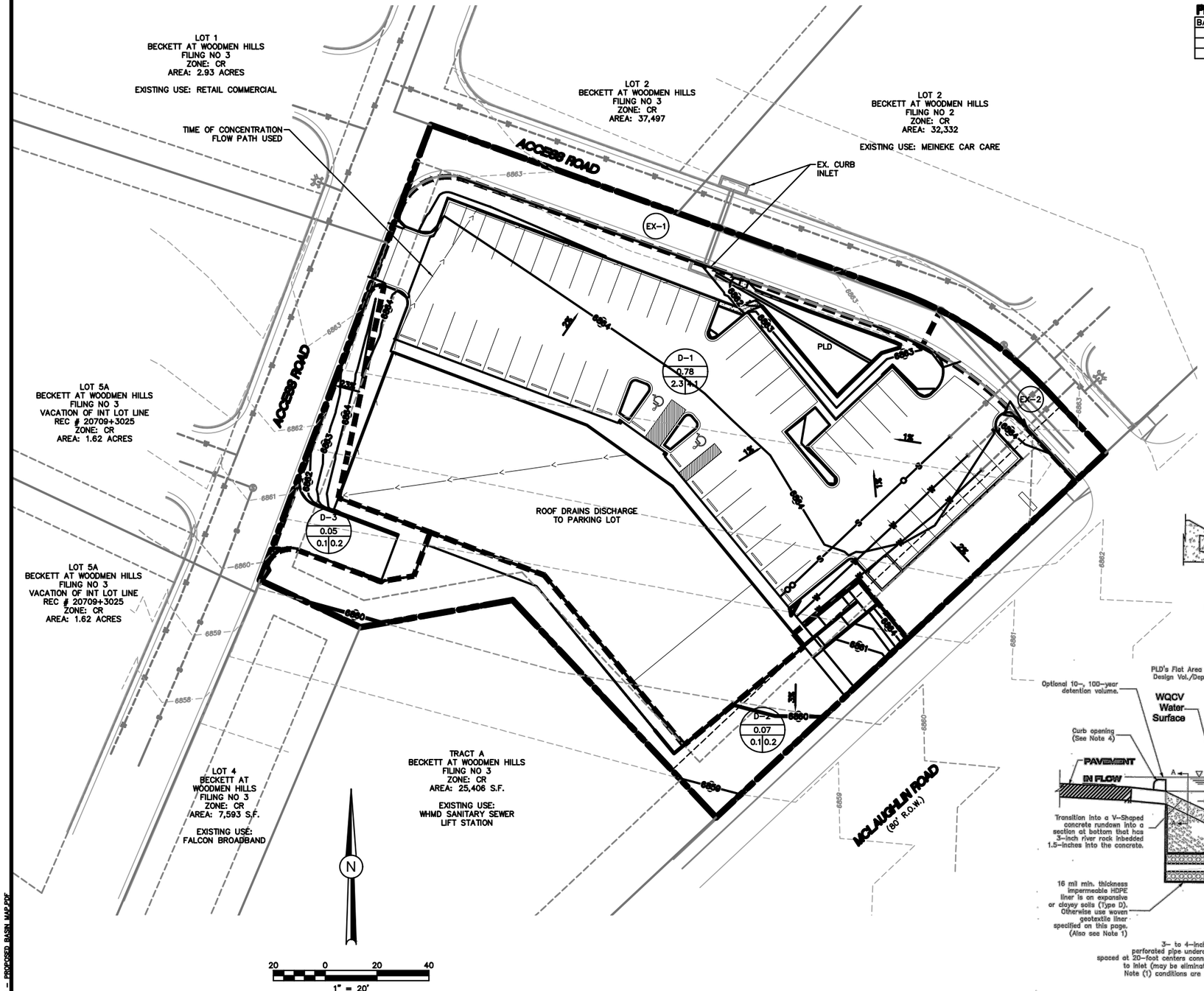
Designer: Charles Cothern
Company: Dakota Springs Engineering
Date: March 9, 2019
Project: Falcon Landing
Location: 7344 McLaughlin Rd

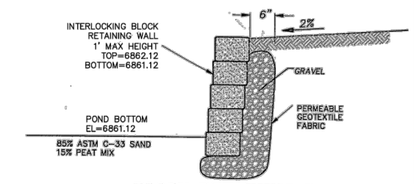
5. Impermeable Geomembrane Liner and Geotextile Separator Fabric A) Is an impermeable liner provided due to proximity of structures or groundwater contamination?	Choose One ◉ YES ○ NO **PROVIDE A 30 MIL (MIN) PVC LINER WITH CDOT CLASS B GEOTEXTILE ABOVE IT. USE THE SAME GEOTEXTILE BELOW THE LINER IF THE SUBGRADE IS ANGULAR**
6. Inlet / Outlet Control A) Inlet Control	Choose One ○ Sheet Flow- No Energy Dissipation Required ◉ Concentrated Flow- Energy Dissipation Provided
7. Vegetation	Choose One ◉ Seed (Plan for frequent weed control) ○ Plantings ○ Sand Grown or Other High Infiltration Sod
8. Irrigation A) Will the rain garden be irrigated?	Choose One ○ YES ○ NO

Notes:

PROPOSED BASINS

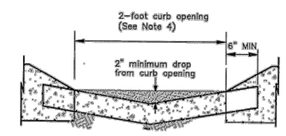
BASIN ID	Q_5	Q_{100}
D-1	2.3	4.1
D-2	0.1	0.2
D-3	0.1	0.2





BLOCK RETAINING WALL
PLD VETICAL WALL SECTION

N.T.S.



3-feet wide 2-inch deep **V-pan**
Inbed a 6-inch layer of 3-inch river rock into the soil for one foot on each side of the pan if a 2 foot curb opening is **used.**

SECTION
A-A

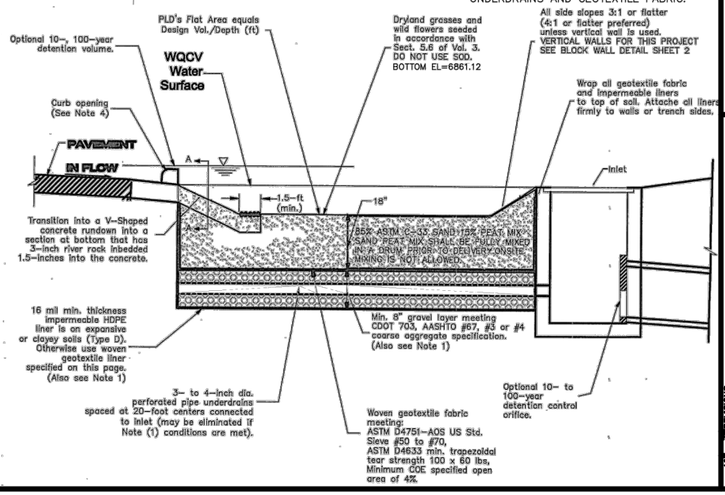
(1) When certified tests show ercolation rates of less than 60 minutes per inch of drawdown under the PLD's bottom and infiltration is allowed, eliminate the gravel layer, underdrains and geotextile fabric.

(2) When Type C soils are present and when infiltration is allowed, unless percolations show otherwise, use underdrains and geotextile liner instead of an impermeable liner under the gravel.

(3) When the underlying soils are NRCS Type D or expansive, when existing of proposed building is within 10 feet, and/or when land uses pose a risk for groundwater contamination, use impermeable liner under and on sides of the PLD basin.

(4) Provide a minimum of a 1-to 2-foot wide curb opening every 10 feet (20 feet for 2-wide opening) of curb.

CERTIFIED PERCOLATION TESTS ARE REQUIRED TO BE SUBMITTED TO PCD ENGINEERING AND WRITTEN APPROVAL FROM PCD ENGINEERING IS REQUIRED PRIOR TO ELIMINATION OF THE GRAVEL LAYER, UNDERDRAINS AND GEOTEXTILE FABRIC.



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J-CADCONSULTING.COM
719-377-0002

DESIGNED BY: JJM DATE: 1/8/19
DRAWN BY: JJM DATE: 1/8/19
CHECKED BY: DATE:

SCALE: HORIZ: 1"=20' VERT:
STATION: FROM: TO:

FALCON LANDING

PROPOSED BASIN MAP

REVISIONS: NO. DESCRIPTION DATE

PROJECT NUMBER: 01-13

SHEET 1 OF 1

PDF: 1 - PROPOSED BASIN MAP.PDF