FINAL DRAINAGE REPORT

for

THE COMMONS AT FALCON FIELD FILING NO. 2

El Paso County, Colorado

April 2026

PCD FILE NO. SF255

Prepared for:

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Falcon, Colorado

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 El Paso 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 omission on my part in preparing this report.

_____

Tim D. McConnell, P.E. Date
Colorado P.E. License No. 33797
For and on Behalf of Drexel, Barrell & Co.

DEVELOPER'S STATEMENT

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

Business Name: Proterra Properties

By: _____

Steve Rossoll Date
Address: 1864 Woodmoor Dr.
Monument, CO 80132

EL PASO COUNTY

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

_____

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

2.0 PURPOSE

This report is prepared by Drexel, Barrel & Co in support of The Commons at Falcon Field Filing No. 2 project. The purpose of this report is to identify onsite and offsite drainage patterns, storm sewer, inlet locations, and areas tributary to the site, and to safely route developed storm water runoff to adequate outfall facilities.

3.0 GENERAL SITE DESCRIPTION

Location

The Commons at Falcon Field Filing No. 2 site is approximately 18.9 acres and is bounded by Rio Lane to the north, the Commons at Falcon Field Filing 1 to the west, and a large-lot residential development to the east and south. The site is in the east half of Section 7, Township 13 South, Range 64 West of the 6th PM.

Historic Site Conditions

The historic condition of the site is open grass land. There are no known utilities on site. Offsite runoff enters the site through a culvert under Rio Land, along the northern boundary of the property. The culvert discharges through the site via open drainage to the south.

The Commons at Falcon Field Filing No. 1 development is currently in review with El Paso County and will include overlot grading for this project area known as Tract F Filing no. 1, to be replatted as Filing No. 2. Stockpiling of import fill on the property has begun and is monitored by El Paso County under CDR2411. See Soils section below for a discussion of the imported soils.

Proposed Site Conditions

The Commons at Falcon Field Filing No. 2 is a proposed single-family development and is proposed to consist of 74 lots, along with associated roadways, open space and a private full-spectrum extended detention basin.

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 Columbine gravelly sandy loam (Soil No. 19), which is a type 'A' hydrological soil group. See appendix for map. Imported soils are also considered to meet the same hydrological parameters as indicated by the soils report included in the appendix.

Climate

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region, roughly 15 inches annually. The climate of the site is typical of a sub-humid to semi-arid climate with mild summers and winters.

Floodplain Statement

The Flood Insurance Rate Maps (FIRM No. 08041C0553G & 08041C0561G both dated 12/7/18) indicate that there is a Zone A floodplain area that covers the "Falcon Creek East Tributary" that bisects Filing No. 2 at the southwest corner of the site, but this area is not a designated regulatory floodway. This floodway is proposed to be contained with an 8'x4' box culvert through the site before discharging into an open channel and following historic drainage patterns to the southeast. The culvert installation will occur as part of the Filing No. 1 development. A CLOMR for this reach was approved as case number 23-08-0708R (July 23, 2024).

Previous Drainage Studies

The site is located within the East Tributary Basin of the Falcon Basin Watershed, as studied in the Falcon Drainage Basin Planning Study, prepared by Matrix Design Group, September, 2015.

The *Preliminary Drainage Report for The Commons at Falcon Field"* by Drexel, Barrell & Co., was approved in December 2024. The *Final Drainage Report for The Commons at Falcon Field Filing No. 1 (Filing 1 FDR)* is currently in review with El Paso County. The Filing No. 1 FDR covers the entire Commons at Falcon Field development and establishes the existing condition for Filing 2 considered in this report.

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 historic and developed conditions using the Rational Method as required for basins containing less than 100 acres.

In addition, Inlet Capacity Charts from the El Paso County Drainage Criteria Manual, and the following Mile High Flood District (MHFD) provided spreadsheets, MHFD-Detention v4.06 and SCM-Design-v4.02 were used for the design of the detention facility, WQCV reduction, and associated storm sewer infrastructure.

Hydraulic grade line calculations utilizing Autodesk Hydraflow (Standard Step Headloss Method) for the 5-year and 100-year condition are included in the appendix. Tailwater elevations are based upon 80% of the downstream invert for the 5-year condition, and the pipe crown at the outfall for the 100-year condition. Where piping discharges into the proposed detention facility, tailwater elevations are based on the water surface elevation listed on the MHFD-Detention spreadsheet for the respective design storm.

5.0 EXISTING CONDITION

The following existing condition description section is an excerpt from The Commons at Falcon Field Final Drainage Report for Filing 1, which now represents the existing condition of this Filing 2.

A-group basins represent flows at the eastern residential portion of the site that will be intercepted by a Temporary Sedimentation Basin (Future Pond A), ultimately discharging out to the redefined tributary open channel. This area of the site is intended to be platted with Filing 1 as Tract F and is to be replatted in the future as Filing No. 2, a residential subdivision. A Final Drainage Report for this portion of the site will be completed prior to its development. Currently, this portion of the site is to be overlot graded but remain undeveloped.

Basin OSA is an offsite basin north of Rio Lane. This basin is generally as described in the existing condition as Existing Basin OS5, with the exception of the proposed asphalt knuckle at the intersection of Jackdaw Drive and Rio Lane. The existing 18" CMP culvert across Rio Lane is proposed to remain in place, and as such the flows entering the site will remain as established by the max. culvert capacity at Q_5=7.8 cfs and Q_{100}=11.3 cfs as **Design Point OSA1**. Bypass flows of Q_5=0.0 cfs and Q_{100}=17.0 cfs will continue to the east via existing roadside ditch.

Rational Method Runoff Summary (A-group)

BASIN & DESIGN POINT SUMMARY				
BASIN	**DP**	**AREA (AC)**	**Q5**	**Q100**
A-BASINS				
OSA		16.62	7.8	28.3
OSA @ 18" culvert (max capacity)	OSA1		7.8	11.3
A1	A1	0.18	0.8	1.5
A2		2.56	0.7	4.8
DPA1+A2	A2	2.74	1.1	5.4
A3	A3	4.15	0.9	6.6
A4		3.86	1.1	7.6
DPA3+A4	A4	8.02	1.7	12.0
A5		3.80	0.8	5.9
DPA2+DPA4+A5	A5	14.55	3.4	22.1
A6		0.69	0.2	1.5
DPA5+A6	A6	15.24	3.5	23.1
A7	A7	0.33	1.5	2.6
A8		1.03	0.3	2.1
DPA7+A8	A8	1.36	1.3	4.0
OSA1+A8	A8A	0.00	9.2	15.3
A9		1.86	1.0	4.9
DPA8+A9	A9	3.22	1.8	6.9
OSA1+A9	A9A	0.00	9.7	18.2
A10	A10	1.08	0.4	2.9
A11		0.10	0.4	0.8

Basin A1 covers a 0.18-acre portion of the Rio Lane south side improvements. Installation of curb, gutter and sidewalk along the south side of Rio Lane will occur as part of this Filing 1 development. Runoff generated by this basin (Q_5=0.8 cfs and Q_{100}=1.5 cfs) will be directed via curb and gutter to the east where it will ultimately

discharge into Basin A2 to the south at **Design Point DPA1.** As the impervious portion of this basin is not tributary to a full spectrum detention facility during the overlot stage, application of WQCV exclusion ECM 1.7.1.C.1 is requested. See further discussion below.

Basin A2 covers a 2.56-acre area along the west side of Tract F. This basin will be overlot graded as part of the Filing 1 development but remain undeveloped. Runoff generated by this basin (Q_5=0.7 cfs and Q_{100}=4.8 cfs) will combine with runoff from upstream Basin A1 and be directed along the anticipated future roadway alignment (rough cut streets), and then by diversion swale towards **Design Point DPA2** and a Temporary Sedimentation Basin (Future Pond A) in the southwest corner of Tract F.

Basin A3 covers a central 4.15-acre area of Tract F. This basin will be overlot graded as part of the Filing 1 development but remain undeveloped. Runoff generated by this basin (Q_5=0.9 cfs and Q_{100}=6.6 cfs) will be directed along the anticipated future roadway alignment (rough cut streets) towards **Design Point DPA3.**

Basin A4 covers a 3.86-acre central area of side of Tract F. This basin will be overlot graded as part of the Filing 1 development but remain undeveloped. Runoff generated by this basin (Q_5=1.1 cfs and Q_{100}=7.6 cfs) will combine with runoff from upstream Basin A3 and be directed along the anticipated future roadway alignment (rough cut streets), and then by diversion swale **Design Point DPA4** and a Temporary Sedimentation Basin (Future Pond A) in the southwest corner of Tract F.

Basin A5 covers 3.80-acres along the east and south sides of side of Tract F. This basin will be overlot graded as part of the Filing 1 development but remain undeveloped. Runoff generated by this basin (Q_5=0.8 cfs and Q_{100}=5.9 cfs) will be directed along the anticipated future roadway alignment (rough cut streets), and then by diversion swale towards **Design Point DPA5** and a Temporary Sedimentation Basin (Future Pond A) in the southwest corner of Tract F.

Design Point A5 is located at the low point in the future roadway alignment and in the overlot condition will act as the entry point for concentrated flows to enter the temporary sediment basin. A riprap rundown will be provided for flows to be safely conveyed into the detention basin. See appendix for calculations and sizing.

Basin A6 covers the temporary sediment basin and is the location of the future pond A. Runoff generated by this basin will be captured by the temporary sediment basin in its entirety at **Design Point DPA6.** The temporary sediment basin will discharge into the proposed redefined channel to the west.

Basin A7 covers a 0.33-acre portion of the Rio Lane south side improvements. Installation of curb, gutter and sidewalk along the south side of Rio Lane will occur as part of this Filing 1 development. Runoff generated by this basin (Q_5=1.5 cfs and Q_{100}=2.6 cfs) will be directed via curb and gutter to the east where it will ultimately discharge into Basin A8 to the south at **Design Point DPA7.** As the impervious

portion of this basin is not tributary to a full spectrum detention facility during the overlot stage, application of WQCV exclusion ECM 1.7.1.C.1 is requested. See further discussion below.

Basin A8 covers a portion of Tract F along the northern boundary at Rio Lane and will consist of overlot graded undeveloped land. Flows generated by this 1.03-acre basin (Q_5=0.3 cfs and Q_{100}=2.1 cfs) are proposed to be channelized along the northern boundary via 2' deep open grass lined swale – owned and maintained by the Falcon Field Metropolitan District where they will combine with flows from Basin A7 **(Design Point DPA8)** before continuing into Basin A9 to the east. Flows from the upstream cross culvert are added in at **Design Point DPA8A.** In the interim condition Basin A8 will discharge offsite without treatment for water quality, however as the basin will remain undeveloped it is considered to be self-treating and not subject to any further requirements.

Basin A9 covers the northeasterly corner and eastern boundary of Tract F and will consist of overlot graded undeveloped land. Flows generated by this 1.86-acre basin (Q_5=1.0 cfs and Q_{100}=4.9 cfs) combine with flows from DPA7 and are proposed to be channelized along the eastern boundary via 2' deep open grass lined swale – owned and maintained by the Falcon Field Metropolitan District, before discharging via level spreader as offsite overland sheet flow at **Design Point DPA9**. Flows from the upstream cross culvert are added in at **Design Point DPA9A.** Flows reaching this design point are intended to match existing rates upon completion of the development of Filing 2, thereby mitigating any potential for downstream change in flows. In the interim condition Basin A9 will discharge offsite without treatment for water quality, however as the basin will remain undeveloped it is considered to be self-treating and not subject to any further requirements. A level spreader installed at the outfall will aid in dissipating concentrated flows prior to discharge. See appendix for calculations and design details.

Basin A10 covers a portion of Tract F along the southern boundary. Flows generated by this 1.08-acre basin (Q_5=0.4 cfs and Q_{100}=2.9 cfs) are directed offsite as overland sheet flow at **Design Point DPA10.** Basin A10 will discharge offsite without treatment for water quality, however as the basin will remain undeveloped it is considered to be self-treating and not subject to any further requirements.

Basin A11 covers a portion of Rio Lane along the northern boundary that will drain directly offsite due to the installation of curb and gutter along the south side of Rio Lane. Flows generated by this 0.10-acre basin (Q_5=0.4 cfs and Q_{100}=0.8 cfs) are directed offsite to the east following existing drainage patterns**.** As the impervious portion of this basin is not tributary to a full spectrum detention facility, application of WQCV exclusion ECM 1.7.1.C.1 is requested. See further discussion below.

A-group Water Quality Exclusions

Basin A1 is not tributary to a full spectrum detention facility during the overlot stage. The development of Filing 2 will bring this basin into compliance with the installation of the detention facility. In the interim condition, application of WQCV exclusion ECM 1.7.1.C.1 is requested for this 0.18-acre area.

Basins A7-A10 are not tributary to the proposed detention facility. The widening of Rio Lane will occur with the development of Filing 1, however the remaining area will be overlot graded but remain undeveloped. The development of Filing 2 will bring these basins into compliance with the consideration of the proposed open swale along the eastern boundary as RPA - to be owned and maintained by the Falcon Field Metropolitan District. In the interim condition, application of WQCV exclusion ECM 1.7.1.C.1 is requested for Basin A7 (0.33)-acre impervious area, with the rest (Basins A8-A10) considered as self-treating SPA.

Basin A11 is not tributary to a full spectrum detention facility. This basin will discharge offsite without treatment as a result of the existing grade of Rio Lane. Application of WQCV exclusion ECM 1.7.1.C.1 is requested for this 0.10-acre area.

Total ECM 1.7.1.C.1 exclusion area requested: 0.61-acres.

6.0 DEVELOPED CONDITION

This proposed Filing 2 development consists of 74 residential lots, along with associated roadway and utility improvements. Overlot grading for this area will have been completed as part of the Filing 1 development, however there are some significant features of the overall property that are reiterated here for reference:

Groundwater: A site investigation to evaluate existing groundwater conditions has been completed, see report on file with El Paso County (File No. SF-2435). In order to mitigate potential issues, the site grading in several areas of the entire Falcon Field site will be raised from the existing condition and as such, will increase the separation above shallow water areas. In addition, an active underdrain will be installed – generally alongside the proposed sanitary sewer – in order to capture and discharge groundwater into a gravel exfiltration basin located on the adjoining property to the south. An easement has been acquired from the adjacent property owner. Ownership and maintenance of the underdrain and exfiltration basin will be by the Falcon Field Metropolitan District.

Captured groundwater will not be discharged above grade, nor into the storm system or detention facilities. This system will be responsibility of the Falcon Field Metropolitan District. In accordance with a maintenance agreement and O&M plan, any State and Groundwater District permitting for discharges will also be the responsibility of the Falcon Field Metropolitan District.

Detention Facilities: It is anticipated that the underdrain system will reduce the groundwater levels below the bottom of proposed detention facilities, thereby eliminating the potential for groundwater seepage. Groundwater depths will be monitored during construction of the detention facilities to ensure at least 2' clearance between pond bottom and groundwater elevations. If groundwater is encountered at shallower depths measures will be taken in coordination with County staff to determine what further mitigation is required, e.g. impermeable clay liner or synthetic liner.

Existing Floodplain: The existing channel through the Filing 1 site is proposed to be piped via 8'x4' box culvert from the existing outfall south of U.S. Highway 24, through the Filing 1 site before discharging into a redefined open channel to the south of the proposed Retail

Row St. A CLOMR study for this reach has been approved by FEMA, case No. 23-08-0708R, 7/23/24.

In coordination with CDOT, and in anticipation of a future widening of US Highway 24, the existing dual 12'x6' box culvert is proposed to be extended to the southwest, tying into a proposed junction box that will connect the proposed Falcon Field 8'x4' culvert to the existing dual 12'x6'. A hydraulic analysis of the culvert extension and junction box has been completed and is included in appendix. It is anticipated that the two systems will remain hydraulically separate. This work will occur as part of the Filing 1 development and these changes to the CLOMR study will be addressed with FEMA at the LOMR stage.

Developed Drainage Analysis

The following describes the individual basins established for the developed condition, runoff rates listed are those calculated by the rational method.

Basin OSA is an offsite basin north of Rio Lane, established by the Filing 1 FDR. As noted, the runoff generated by this basin is captured by a roadside ditch and travels towards an existing 18" CMP culvert underneath Rio Lane, located approximately two-thirds of the way along the project boundary. The full-flow capacity of this existing 18" CMP culvert at 1.0% (field-surveyed grade) however is 11.3 cfs. As field observations indicate no evidence of roadway overtopping in this area, it is assumed that the existing roadside ditch along the north side of Rio Lane acts as emergency overflow bypass for flows not captured by the existing culvert. Bypass flows appear to continue on to the east before reaching an additional culvert across Rio Lane and discharging via historic drainage patterns to the south. As such, **Design Point O1** conservatively represents the flows that enter the site via the cross culvert (Q_5=7.8 cfs and Q_{100}=11.3 cfs), assuming full flow condition. An extension of this culvert is proposed, to redirect flow to the east and south via open grassed swale, as further described in Basin A4 below.

In order to avoid diverting runoff from an existing drainage sub-basin it is proposed that developed Basins A1-A4 discharge to the southeast without passing through the proposed detention facility (Pond A). Water quality treatment/runoff reductions calculations (see appendix) indicate that the grass-lined swales along the northern and eastern boundary will provide for 100% runoff reduction for the A1-A4 basin area. The swale is located within a tract that will be owned and maintained by the Falcon Field Metropolitan District. In order to meet ECM detention requirements for land disturbance areas over 1-acre the proposed detention facility (Pond A) has been oversized to accommodate detention for basins A1-A4.

Basin A1 is located at the north and central portion of the site, just south of Rio Lane. Runoff will flow north and east via a grass lined swale at rates of Q_5=0.6 cfs and Q_{100}=2.3 cfs towards a proposed private Type C area inlet and Design Point 1.

As noted above, Basin A1 has been analyzed for runoff reduction. The portion to the north of lots 7-9 and along the upslope edge of the rear swale (**SPA1**) is considered as self-treating SPA as it will remain as open space. The remaining portion is considered as UIA:RPA (**UIA1 & RPA1**) as the open swale **(Swale 1)** will receive flow from the rear of developed lots 10-16. See further discussion below and drainage map in the appendix.

BASIN & DESIGN POINT SUMMARY				
BASIN	**DP**	**AREA (AC)**	**Q5**	**Q100**
OSA		16.62	7.8	28.3
OSA @ 18" culvert (max capacity)	O1		7.8	11.3
A1		0.98	0.6	2.3
O1+A1	1	0.00	8.4	13.6
A2		0.39	1.6	2.8
DP1+A2	2	1.36	9.6	15.6
A3		0.25	0.7	1.4
DP2+A3	3	1.62	10.0	16.6
A4		1.63	1.7	5.2
DP3+A4	4	3.25	11.4	20.7
A5	5	1.16	2.4	4.9
A6		2.99	5.7	11.9
DP5+A6	6	4.15	7.1	14.8
A7	7	2.63	4.8	10.0
DP6+DP7	J1	6.78	10.6	22.1
A8	8	0.57	1.3	2.7
A9		3.21	6.5	13.4
DP8+A9	9	3.79	7.3	15.1
A10	10	2.65	2.9	8.4
A11		1.16	2.3	4.9
DP10+A11	11	4.38	5.2	18.4
DP9+DP11	J2	8.17	12.2	32.2
DPJ1+DPJ2	J3	14.94	23.8	56.4
A12		0.86	0.3	2.3
DPJ3+A12	12	15.81	24.0	57.9
Pond A Outfall			0.4	13.9
A13	13	1.08	0.4	2.9
A14	14	0.09	0.4	0.7

Design Point 1 represents flows from Basins OSA and A1 that will discharge to the east from the proposed area inlet (Q_5=8.4 cfs and Q_{100}=13.6 cfs) via private 24" storm sewer.

Basin A2 is positioned directly north of Basin A1 and contains the southern half of Rio Lane. This basin will generate runoff at rates of Q_5=1.6 cfs and Q_{100}=2.8, channeling them east via curb and gutter, towards a proposed public 5' Type R sump inlet.

As noted above, Basin A2 has been analyzed for runoff reduction. As this area **(EX1)** is almost entirely impervious and directly connected to the proposed storm sewer, exclusion ECM 1.7.1.C.1 is requested. See further discussion below and drainage map in the appendix.

Design Point 2 is the location at which the runoff coming from **DP1** will combine with that

from Basin A2. After which the runoff will continue east at rates of Q_5=9.6 cfs and Q_{100}=15.6 cfs via public 24" storm sewer.

Basin A3 is a relatively small, 0.25-acre, basin that makes up the 2 northern most lots along the east side of Tody Way. This basin will direct runoff northwest towards a proposed public 5' Type R sump inlet located at Design Point 3, via curb and gutter at rates of Q_5=0.7 cfs and Q_{100}=1.4 cfs. As runoff from this basin is not able to be directed towards the detention facility, WQCV exclusion ECM 1.7.1.C.1 is requested – see further discussion below.

As noted above, Basin A3 has been analyzed for runoff reduction. As most of this basin area **(EX1)** is impervious and directly connected to the proposed storm sewer, exclusion ECM 1.7.1.C.1 is requested. See further discussion below and drainage map in the appendix.

Design Point 3 is the location at which the runoff coming from **DP2** will combine with that from Basin A3. After which the runoff will continue east before discharging into Basin A4 at rates of Q_5=10.0 cfs and Q_{100}=16.6 cfs. A riprap pad is proposed at the outfall of the private 24" storm sewer to aid with mitigation of scour and downstream erosion.

Basin A4 covers the eastern boundary of the site. Flows generated by this 1.63-acre basin combine with the flows from **DP3** and are proposed to be channelized along the eastern boundary via grass lined swale, before discharging via low impact tailwater basin as offsite overland sheet flow at **Design Point 4** with rates of Q_5=11.4 cfs and Q_{100}=20.7 cfs.

As noted above Basin A4 has been analyzed for runoff reduction. The portion to the east along the upslope edge of the rear swale (**SPA2**) is considered as self-treating SPA as it will remain as open space. The remaining portion is considered as UIA:RPA (**UIA2 & RPA2**) as the open swale **(Swale 2)** will receive flow from the rear of developed lots 17-29. See further discussion below and drainage map in the appendix.

Basin A5 is located directly south of Basin A1 and is bound by Sapoya Place to the south. Runoff will flow east via curb and gutter at rates of Q_5=2.4 cfs and Q_{100}=4.9 cfs towards **Design Point 5.** At DP5, flows will continue south, into basin A6, via the western curb and gutter along Tody Way.

Basin A6 is the eastern island of the 2 central islands within the Filing 2 residential development. Runoff generated within this basin will flow around the island via the curb and gutters at rates of Q_5=5.7 cfs and Q_{100}=11.9 cfs towards **Design Point 6.** At DP6, flows will be captured by a proposed public 15' Type R at-grade inlet which is located at the southwest corner of the basin. All flows are anticipated to be collected by this inlet, but any bypass flows will continue on to the low point to the west.

Basin A7 makes up the majority of the residential lots east of Tody Way stretching down around the knuckle of Buteos Lane. Runoff will flow south via curb and gutter before turning east towards **Design Point 7** at rates of Q_5=4.8 cfs and Q_{100}=10.0 cfs**.** At DP7, flows will be captured by a proposed public 10' Type R at-grade inlet. All flows are anticipated to be collected by this inlet, but any bypass flows will continue on to the low point to the west.

Design Point J1 is the location at which the flows from DP6 and DP7 will combine within the storm sewer pipe network. Located directly between the 2 design points, the flows will combine and continue west via public 36" storm sewer towards the proposed detention pond A at rates of Q_5=10.6 cfs and Q_{100}=22.1 cfs.

Basin A8 makes up a small, 0.57-acres, of residential development on the northeast side of the intersection of Sapoya Place and Jacamar Place. This basin will direct flows via curb and gutter towards the southwest corner of the basin. Where, at rates of Q_5=1.3 cfs and Q_{100}=2.7 cfs, runoff will travel through **Design Point 8** and continue south via curb and gutter.

Basin A9 is located directly south of Basin A8, and is the western of the 2 central islands within the Filing 2 residential development. Basin A9 will receive all of the runoff coming from DP8, continuing to carry them south with its own runoff. Similar to Basin A6, runoff will flow around the island via curb and gutter, making their way towards the southwest corner of the basin to be captured by a proposed public 15' Type R sump inlet, **Design Point 9.** DP9 will receive runoff at rates of Q_5=7.3 cfs and Q_{100}=15.1 cfs.
Basin A10 is bounded by Rio Lane to the north, Jackdaw Drive to the west, Jacamar Place to the east, and Basin A12 to the south. This 2.65-acre basin will direct runoff (Q_5=2.9 cfs and Q_{100}=8.4 cfs) south via curb and gutter towards **Design Point 10** and ultimately a proposed public 15' Type R.

Basin A11 is 1.16-acres of residential development along the southwest side of Buteos Lane. This basin will direct runoff to the northwest via curb and gutter at rates of Q_5=2.3 cfs and Q_{100}=4.9 cfs, where they will eventually combined with flows from DP10 at **Design Point 11** (Q_5=5.2 cfs and Q_{100}=18.4 cfs) and be captured by the proposed public 15' Type R inlet.

Design Point J2 is the location at which the flows from DP9 and DP11 will combine within the storm sewer pipe network. Located directly below the inlet at DP11, the flows will combine and continue southwest towards the proposed detention pond A at rates of Q_5=12.2 cfs and Q_{100}=32.2 cfs.

Design Point J3 is the location at which the flows from DPJ1 and DPJ2 will combine within the storm sewer pipe network. Located 30' east of the proposed detention pond A, the flows will combine and before being discharged into the proposed detention pond at rates of Q_5=23.8 cfs and Q_{100}=56.4 cfs.

Basin A12 is located in the southwestern corner of the site and contains Pond A, the proposed full-spectrum Extended Detention Basin. Runoff generated within this basin will total Q_5=0.3 cfs and Q_{100}=2.3 cfs before combining with the runoff from DPJ3 and being released at or below historical rates**. Design Point 12** is located at the bottom of Pond A and represents all captured flows, which equate to Q_5=24.0 cfs and Q_{100}=57.9 cfs.

Basin A13 makes up 1.08-acres along the southern boundary of the site. This basin will be regraded but remain undeveloped as an open space tract. With no larger basin feeding into it, this basin will generate runoff rates of Q_5=0.4 cfs and Q_{100}=2.9 cfs as overland sheet flow through **Design Point 13** and offsite**.**

As the majority of this basin is to be regraded but remain undeveloped, the bulk of it can be considered as self-treating SPA **(SPA3)**, with no further water quality treatment required. A small portion of this basin **(EX3),** however covers the rear of lots 30-31, as this developed area is not tributary to the open swale along the east boundary, exclusion ECM 1.7.1.C.1 is requested. See further discussion below and drainage map in the appendix.

Basin A14 makes up a small 0.09-acre portion of Rio Lane, that due to the installation of curb and gutter will discharge offsite to the east at rates of Q_5=0.4 cfs and Q_{100}=0.7 cfs.

As this area **(EX2)** is almost entirely impervious and not tributary to the proposed detention facility or the open swale, exclusion ECM 1.7.1.C.1 is requested. See further discussion below and drainage map in the appendix

Total (EX1-EX3) requested ECM 1.7.1.C.1 exclusion area: 0.77-acres.

7.0 FLOW COMPARISON

The table below outlines the comparison between existing, interim developed (Filing 1) and proposed developed (Filing 2) flows exiting the Falcon Field site at comparable locations.

East Sub-Basin

Existing (Filing 1)			Interim Developed (Filing 1)			Ultimate Developed (Filing 2)		
DP	**Q5**	**Q100**	**DP**	**Q5**	**Q100**	**DP**	**Q5**	**Q100**
DPN	0.7	3.8	Basin A10	0.4	0.8	DP14	0.4	0.7
DPM1	10.3	24.2	DPA9A	9.7	18.2	DP4	11.4	20.7
Total	*11.0*	*28.0*	*Total*	*10.1*	*19.0*	*Total*	*11.8*	*21.4*

Central Sub-Basin

Existing			Interim Developed (Filing 1)			Ultimate Developed (Filing 2)		
DP	**Q5**	**Q100**	**DP**	**Q5**	**Q100**	**DP**	**Q5**	**Q100**
DPB	41.2	348.1	RET090	36.0	320.0	RET090	36.0	320.0
			Filing 1 Basin B12	0.3	2.0	Filing 1 Basin B12	0.3	2.0
			Pond A (interim)	1.0	1.0	Pond A (ultimate)	0.4	14.5
			Pond B (interim)	0.3	3.8	Pond B (interim)	0.3	3.8
DPJ	2.1	10.4	Basin A10	0.4	2.9	DP13	0.4	2.9
Total	*43.3*	*358.5*	*Total*	*38.0*	*329.7*	*Total*	*37.4*	*343.2*

These tables illustrate that by mimicking historic flow rates and outfall points, zero downstream impact is anticipated as a result of the site development.

8.0 PROPOSED FULL-SPECTRUM DETENTION FACILITY

Pond A, a private 2.6 ac-ft full-spectrum Extended Detention Basin is proposed in the southwestern corner of Filing No. 2, to intercept and treat flows from Basins A5-A12 (including overdetention for basins A1-A4 & A13-A14) and discharge at historic rates into the adjacent redefined open drainage. Overdetention has been provided in order to meet ECM detention requirements for land disturbance areas over 1-acre. Applicable WQ exclusions for the non-tributary basins (A7-A10) are noted above in Section 7.0.

The proposed facility is based on a 19.64 ac-ft watershed area with a tributary imperviousness of 53.6%. The outlet structure will consist of a modified Type C outlet structure with an orifice plate and a grate on top. The orifice plate will have two 2.95 sq. inch round orifices and a 2.00 sq. inch round orifice, in order to release the EURV within the timeline established by criteria. The elevation of the grate is set at 6829.56, which is below the 100-year detention volume elevation. The outlet pipe has been set as a 18" private storm pipe with a restrictor plate set 13.0" above invert that will release the 100-year flow at historic rates. The outlet pipe discharges to the west into the redefined drainage, which is to be completed as a part of Filing 1. With these release rates the WQCV will drain in 40 hours, the EURV in 71 hours, and the 100-year storm volume in 74 hours. A 40' long spillway is located on the west side of the pond and is placed 1.56' below the crest of the pond to allow for 1' of freeboard above the spillway design flow depth. In the event that water overtops the spillway, it will discharge to the west into the open channel and follow historic drainage patterns to the south.

Maintenance access will be provided and is further outlined in the detention facility construction documents.

9.0 FOUR STEP PROCESS

1. ***Employ Runoff Reduction Practices*:**
   Proposed impervious areas on this site (roofs, asphalt/sidewalk) will sheet flow across landscaped ground as much as possible to slow runoff and increase time of concentration prior to being conveyed to the proposed public streets and storm sewer system. This will minimize directly connected impervious areas within the project site.

2. ***Implement CM's that provide a Water Quality Capture Volume with slow release*:**
   The majority of runoff generated by Filing 2 will be treated through capture and slow release of the WQCV by the permanent full spectrum extended detention facility (Pond A) designed per current drainage criteria.

   As mentioned earlier, in order to avoid diverting developed flow from an existing drainage sub-basin it is proposed that developed basins A1-A4 discharge to the southeast without passing through the proposed detention facility (Pond A). Water quality treatment/runoff reduction calculations (see appendix) indicate that the grass-lined swales along the northern (swale 1) and eastern (swale 2) boundary will provide for 100% runoff reduction for the A1-A4 basin area. The swales are located within tracts that will be owned and maintained by the Falcon Field Metropolitan District.

Application of WQCV exclusion ECM 1.7.1.C.1 is requested for 0.77-acres of improvements along Rio Lane, that are not tributary to Pond A. All other basins that discharge offsite without treatment are to remain undeveloped and are therefore considered as self-treating.

3. ***Stabilize Drainage Ways*:** Stabilization of the existing drainageway through the site will occur with Filing 1 via extension of the existing dual 12'x6' box culvert and installation of a proposed 8'x4' concrete box culvert through the site with a small section of open channel as the drainageway exits the property.

   A hydraulic analysis of the downstream drainageway has been completed (see Filing 1 Final Drainage Report). This analysis, factored in the runoff reduction efforts and established that the Falcon Field development will not significantly affect downstream flow volumes, durations or velocities.

4. ***Implement Site Specific and Other Source Control CM's*:** Standard residential and commercial source control will be utilized in order to minimize potential pollutants entering the storm system. Example source control measures consist of: indoor storage of household chemicals; and trash receptacles in common areas.

10.0 DRAINAGE & BRIDGE FEES

The project lies within the Falcon Drainage Basin. As Drainage and Bridge Fees will not be due for Tract F at the time of Filing 1 plat recording, the replat of Tract F into The Commons at Falcon Field Filing No 2 (residential lots) will result in the following fees being due:

2025 Falcon Drainage Basin		Filing 2 Impervious Acreage (ac)	Total
Drainage Fee	$43,094.00	10.347	$445,893.62
Bridge Fee	$5,920.00	10.347	$61,254.24

As per the following breakdown:

Filing 2 Total Area: **18.954 Acres**			
	Area (ac)	Impervious %	Impervious Acres
ROW	3.470	95%	3.297
Lots	10.846	65%	7.050
Tracts	4.637	0%	0.000
Total	**18.954**		**10.347**

11.0 CONSTRUCTION COST ESTIMATE

PUBLIC (NON-REIMBURSABLE)				
Description	**Unit**	**Quantity**	**Unit Cost**	**Cost**
5' Type R Inlet	EA	2	$7,753	$15,506
10' Type R Inlet	EA	1	$10,669	$10,669
15' Type R Inlet	EA	3	$13,875	$41,625
18" RCP Storm	LF	9	$88	$792
24" RCP Storm	LF	176	$105	$18,480
30" RCP Storm	LF	38	$132	$5,016
36" RCP Storm	LF	356	$162	$57,672
Manhole, Slab Base	EA	1	$8,946	$8,946
			Subtotal	$158,706
			Engineering & Contingency (10%)	$15,871
			PUBLIC (NON REIMBURSABLE) TOTAL	$174,577

PRIVATE (NON-REIMBURSABLE)				
18" RCP Storm	LF	12	$88	$1,056
24" RCP Storm	LF	128	$105	$13,440
30" RCP Storm	LF	18	$132	$2,376
36" RCP Storm	LF	44	$162	$7,128
Type C Area Inlet	EA	1	$6,490	$6,490
Manhole, Slab Base	EA	2	$8,946	$17,892
POND C				
Concrete Forebay	LF	1	$5,000	$5,000
Concrete Trickle Channel	SF	1545	$15	$23,175
Concrete Micropool	EA	1	$3,500	$3,500
Modified Type C Outlet	EA	1	$10,000	$10,000
18" Outlet Pipe	LF	53	$88	$4,664
Maintenance Access	SF	2535	$1.50	$3,803
Spillway - Type L Riprap	CY	165	$70	$11,550
			Subtotal	$110,074
			Engineering & Contingency (10%)	$11,007
			PRIVATE (NON REIMBURSABLE) TOTAL	$121,081

12.0 CONCLUSION

The Commons at Falcon Field Filing No. 2 project has been designed in accordance with El Paso County criteria. The full-spectrum detention facility has been designed to limit the release of storm runoff to historic flows. This development will not negatively impact the downstream facilities.

13.0 REFERENCES

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

1. 1 El Paso County Drainage Crtieria Manual, October 2018

2. El Paso County Engineering Criteria Manual, January 2025

3. City of Colorado Springs Drainage Criteria Manual Volumes 1 & 2, May 2014, Revised January 2021.

4. Urban Storm Drainage Criteria Manual Volumes 1, 2 & 3 - Mile High Flood District. January 2016

5. Natural Resources Conservation Service (NRCS) Web Soil Survey

6. Federal Emergency Management Agency, Flood Insurance Rate Map, El Paso County, Colorado and Unincorporated Areas, Map Numbers 8041C0553G & 8041C0561G, Effective Date December 7, 2018.

7. EL Paso County Board Resolution No 15-042: El Paso County adoption of Chapter 6 and Section 3.2.1, Chapter 13 of the City of Colorado Springs Drainage Criteria Manual, May 2014.

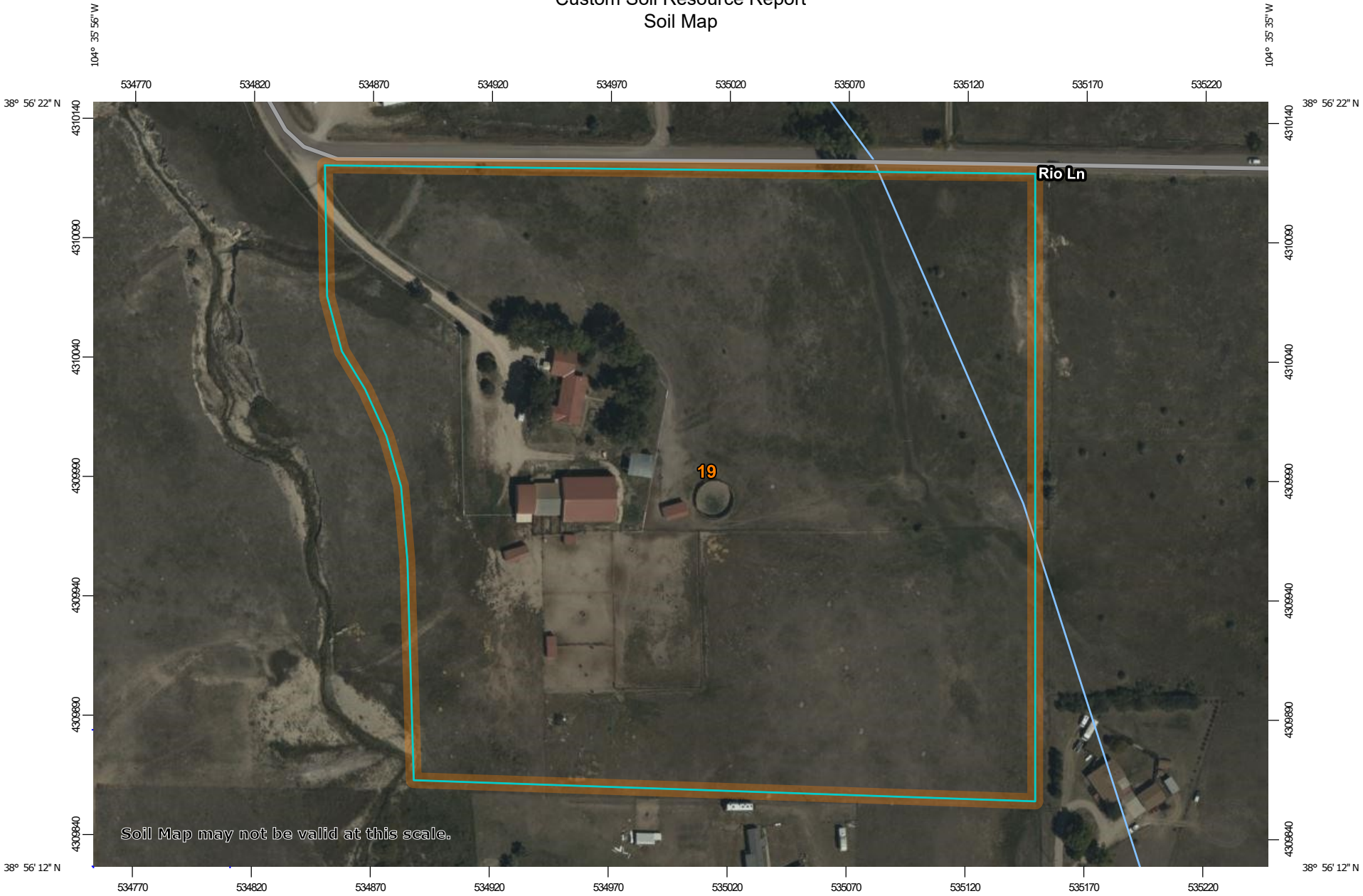
8. Falcon Drainage Basin Planning Study. Prepared by Matrix Design Group, September 2015.

9. Preliminary Drainage Report for The Commons at Falcon Field, by Drexel Barrell & Co., July 2024

10. Final Drainage Report for The Commons at Falcon Field Filing No. 1, by Drexel Barrell & Co, November 2025

Appendix

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,260 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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 22, Sep 3, 2024

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	17.8	100.0%
Totals for Area of Interest		**17.8**	**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: Fans, fan terraces, flood plains
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

Floodplain Map

National Flood Hazard Layer FIRMette

FEMA

104°36'16"W 38°56'26"N

104°35'38"W 38°55'58"N

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

1:6,000

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

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/12/2022 at 2:02 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.

Existing condition
Hydrology Calculations
Excerpt from Falcon Field FIling
1 Final Drainage Report

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 1
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 4/2/2026

Drexel, Barrell & Co.

EXCERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

DEVELOPED CONIDTION

SUB-BASIN	SURFACE DESIGNATION	AREA ACRE	COMPOSITE RUNOFF COEFFICIENTS C2	C5	C10	C100	% IMPERV
			A-BASINS				
OSA	Open Space	13.96		0.08		0.35	0
	Roofs	0.05		0.73		0.81	90
	Lawns	0.00		0.08		0.35	0
	Streets: Paved	2.27		0.90		0.96	100
	Streets: Gravel	0.39		0.59		0.70	80
	WEIGHTED AVERAGE			0.21		0.44	16%
TOTAL OSA		16.62					
A1	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.18		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.90		0.96	100%
TOTAL A1		0.18					
A2	Open Space	2.56		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A2		2.56					
A3	Open Space	4.13		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.02		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	1%
TOTAL A3		4.15					
A4	Open Space	3.84		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.02		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	1%
TOTAL A4		3.86					

PROJECT INFORMATION

PROJECT:	Commons at Falcon Field Filing 1
PROJECT NO:	21604-00
DESIGN BY:	CGH
REV. BY:	TDM
AGENCY:	El Paso County
REPORT TYPE:	Final
DATE:	4/2/2026

Drexel, Barrell & Co.

EXCERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

A5	Open Space	3.80		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A5		3.80					
A6	Open Space	0.69		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A6		0.69					
A7	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.33		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.90		0.96	100%
TOTAL A7		0.33					
A8	Open Space	1.03		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A8		1.03					
A9	Open Space	1.75		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.11		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.13		0.39	6%
TOTAL A9		1.86					
A10	Open Space	1.08		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 1
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 4/2/2026

Drexel, Barrell & Co.

EXCERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A10		1.08					
A11	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.10		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.90		0.96	100%
TOTAL A11		0.10					

Area tributary to TSB (Future Pond A) **19.64** **0.11** **0.37** **3.88%**
Including overdetention

B-BASINS							
OSB1	Open Space	0.51		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.36		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.42		0.60	41%
TOTAL OSB1		0.87					
OSB2	Open Space	0.11		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.20		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.61		0.74	64%
TOTAL OSB2		0.31					
OSB3	Open Space	0.09		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.43		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.76		0.85	82%
TOTAL OSB3		0.52					

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 1
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 4/2/2026

Drexel, Barrell & Co.

EXERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED TIME OF CONCENTRATION

SUB-BASIN DATA							INITIAL/OVERLAND TIME (t_i)			TRAVEL TIME (t_t)				PIPE TRAVEL TIME (t_t)				TIME OF CONCENTRATION		FINAL
BASIN	DESIGN PT:	C_5	C_{100}	AREA	COMP		LENGTH	SLOPE	t_i	LENGTH	SLOPE	VEL.	t_t	LENGTH	SLOPE	VEL.	t_t	COMP.	MINIMUM	t_c
				Ac			Ft	%	Min	Ft	%	FPS	Min	Ft	%	FPS	Min	t_c	t_c	Min
A-BASINS																				
OSA		0.21	0.44	16.62	*3.42*	*7.36*	75	2.0	11.3	2500	1.5	1.8	22.7					34.0	5.0	**34.0**
A1	A1	0.90	0.96	0.18	*0.16*	*0.17*	25	2.0	1.5	215	1.0	2.0	1.8					3.2	5.0	**5.0**
A2		0.08	0.35	2.56	*0.21*	*0.90*	100	2.2	14.4	825	2.9	3.4	4.0					18.4	5.0	**18.4**
DPA1+A2	A2	0.13	0.39	2.74	*0.37*	*1.07*	From A2		18.4	325	0.8	1.8	3.0					21.4	5.0	**21.4**
A3	A3	0.08	0.35	4.15	*0.35*	*1.47*	80	0.8	17.9	1223	1.6	2.5	8.1					26.0	5.0	**26.0**
A4		0.08	0.35	3.86	*0.33*	*1.36*	80	2.2	12.8	720	2.0	2.8	4.2					17.0	5.0	**17.0**
DPA3+A4	A4	0.08	0.35	8.02	*0.68*	*2.83*	From DPA3		26.0	325	0.8	1.8	3.0					29.0	5.0	**29.0**
A5		0.08	0.35	3.80	*0.30*	*1.33*	80	0.8	18.0	1265	1.3	2.3	9.2					27.3	5.0	**27.3**
DPA2+DPA4+A5	A5	0.09	0.36	14.55	*1.35*	*5.23*	From DPA4		29.0	25	1.3	2.3	0.2					29.2	5.0	**29.2**
A6		0.08	0.35	0.69	*0.05*	*0.24*	25	0.5	11.8	215	1.4	2.4	1.5					13.3	5.0	**13.3**
DPA5+A6	A6	0.09	0.36	15.24	*1.40*	*5.47*	From DPA5		29.2	50	20.0	8.9	0.1					29.3	5.0	**29.3**
A7	A7	0.90	0.96	0.33	*0.30*	*0.32*	25	2.0	1.5	485	1.4	1.8	4.6					6.0	5.0	**6.0**
A8		0.08	0.35	1.03	*0.08*	*0.36*	50	2.0	10.5	515	1.4	1.8	4.8					15.3	5.0	**15.3**
DPA7+A8	A8	0.28	0.50	1.36	*0.38*	*0.68*	From DPA8		15.3									15.3	5.0	**15.3**
A9		0.13	0.39	1.86	*0.24*	*0.72*	25	10.0	4.1	957	1.5	2.4	6.5					10.6	5.0	**10.6**
DPA8+A9	A9	0.19	0.43	3.22	*0.62*	*1.40*	From DPA8		15.3	957	1.5	2.4	6.5					21.8	5.0	**21.8**
A10	A10	0.08	0.35	1.08	*0.09*	*0.38*	100	17.8	7.2	169	12.6	7.1	0.4					7.6	5.0	**7.6**
A11		0.90	0.96	0.10	*0.09*	*0.09*	15	2.0	1.1	170	1.0	2.0	1.4					2.5	5.0	**5.0**
B-BASINS																				
OSB1		0.42	0.60	0.87	*0.37*	*0.53*	40	2.0	6.4	250	2.0	2.8	1.5					7.9	5.0	**7.9**
OSB2		0.61	0.74	0.31	*0.19*	*0.23*	40	2.0	4.6	30	20.0	8.9	0.1					4.7	5.0	**5.0**
OSB3		0.76	0.85	0.52	*0.40*	*0.45*	40	2.0	3.2	20	20.0	8.9	0.0					3.3	5.0	**5.0**
B1		0.81	0.88	2.24	*1.82*	*1.98*	60	2.3	3.2	285	3.3	3.6	1.3					4.5	5.0	**5.0**
OSB1+B1	B1	0.70	0.80	3.12	*2.18*	*2.50*	From OSB1		7.9	300	3.3	3.6	1.4					9.2	5.0	**9.2**
B2		0.81	0.88	1.12	*0.91*	*0.99*	40	4.0	2.2	200	4.0	4.0	0.8					3.0	5.0	**5.0**
OSB2+B2	B2	0.77	0.85	1.43	*1.10*	*1.22*	From OSB2		5.0	200	4.0	4.0	0.8					5.8	5.0	**5.8**
B3	B3	0.90	0.96	0.44	*0.40*	*0.42*	20	2.0	1.3	200	3.3	3.6	0.9					2.2	5.0	**5.0**
B4		0.81	0.88	1.54	*1.25*	*1.36*	50	3.5	2.5	280	2.0	2.8	1.6					4.2	5.0	**5.0**
OSB3+B4	B4	0.80	0.87	2.07	*1.65*	*1.81*	From OSB3		5.0	280	2.0	2.8	1.6					6.6	5.0	**6.6**
DPB3+DP4	B4A	0.81	0.89	2.51	*2.04*	*2.23*	From DPB3		5.0					280	1.0	7.2	0.6	5.6	5.0	**5.6**
DPB1+DPB2+DPB4A	B4B	0.75	0.84	7.06	*5.33*	*5.95*	From DPB1		9.2					195	1.0	7.2	0.5	9.7	5.0	**9.7**
B5	B5	0.90	0.96	0.35	*0.32*	*0.34*	20	2.0	1.3	400	1.5	2.4	2.7					4.0	5.0	**5.0**
B6		0.90	0.96	0.50	*0.45*	*0.48*	20	2.0	1.3	340	1.5	2.4	2.3					3.6	5.0	**5.0**
DPB5+B6	B6	0.90	0.96	0.85	*0.77*	*0.82*	From DPB5		5.0					30	1.0	7.2	0.1	5.1	5.0	**5.1**
B7		0.81	0.88	1.57	*1.28*	*1.39*	40	2.0	2.7	310	2.3	3.0	1.7					4.4	5.0	**5.0**
DPB4B+DPB6+B7	B7	0.78	0.86	9.49	*7.37*	*8.15*	From DPB4B		9.7					251	1.0	7.2	0.6	10.3	5.0	**10.3**
B8	B8	0.81	0.88	1.33	*1.08*	*1.17*	40	1.0	3.4	210	2.8	3.3	1.1					4.5	5.0	**5.0**
B9		0.90	0.96	1.76	*1.58*	*1.69*	30	2.0	1.6	800	1.5	2.4	5.4					7.1	5.0	**7.1**
DPB8+B9	B9	0.86	0.93	3.09	*2.66*	*2.86*	From Basin B9		7.1									7.1	5.0	**7.1**
B10		0.90	0.96	1.18	*1.06*	*1.13*	30	2.0	1.6	530	1.5	2.4	3.6					5.2	5.0	**5.2**
DPB9+B10	B10	0.87	0.94	4.27	*3.72*	*3.99*	From DPB9		7.1					46	1.0	7.2	0.1	7.2	5.0	**7.2**
B11		0.08	0.35	1.20	*0.10*	*0.42*	30	13.0	4.4	150	3.0	3.5	0.7					5.2	5.0	**5.2**
DPB7+DPB10+B11	B11	0.75	0.84	14.96	*11.19*	*12.57*	From DPB7		10.3					142	2.0	7.2	0.3	10.6	5.0	**10.6**
B12		0.08	0.35	0.72	*0.06*	*0.25*	25	25.0	3.3	250	0.5	1.4	2.9					6.2	5.0	**6.2**
B13		0.08	0.35	0.19	*0.02*	*0.07*	25	25.0	3.3	25	25.0	10.0	0.0					3.3	5.0	**5.0**

PROJECT INFORMATION

PROJECT:	Commons at Falcon Field Filing 1
PROJECT NO:	21604-00
DESIGN BY:	CGH
REV. BY:	TDM
AGENCY:	El Paso County
REPORT TYPE:	Final
DATE:	4/2/2026

Drexel, Barrell & Co.

EXCERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED RUNOFF 5 YR STORM P1= 1.50

BASIN (S)	DESIGN POINT	AREA (AC)	DIRECT RUNOFF RUNOFF COEFF	t_c (MIN)	C * A	I (IN/HR)	Q (CFS)
A-BASINS							
OSA		16.62	0.21	34.0	3.42	2.30	**7.8**
OSA @ 18" culvert (max capacity)	OSA1						**7.8**
A1	A1	0.18	0.90	5.0	0.16	5.17	**0.8**
A2		2.56	0.08	18.4	0.21	3.21	**0.7**
DPA1+A2	A2	2.74	0.13	21.4	0.37	2.98	**1.1**
A3	A3	4.15	0.08	26.0	0.35	2.70	**0.9**
A4		3.86	0.08	17.0	0.33	3.33	**1.1**
DPA3+A4	A4	8.02	0.08	29.0	0.68	2.53	**1.7**
A5		3.80	0.08	27.3	0.30	2.62	**0.8**
DPA2+DPA4+A5	A5	14.55	0.09	29.2	1.35	2.52	**3.4**
A6		0.69	0.08	13.3	0.05	3.70	**0.2**
DPA5+A6	A6	15.24	0.09	29.3	1.40	2.52	**3.5**
A7	A7	0.33	0.90	6.0	0.30	4.89	**1.5**
A8		1.03	0.08	15.3	0.08	3.49	**0.3**
DPA7+A8	A8	1.36	0.28	15.3	0.38	3.49	**1.3**
OSA1+A8							**9.2**
A9		1.86	0.13	10.6	0.24	4.04	**1.0**
DPA8+A9	A9	3.22	0.19	21.8	0.62	2.96	**1.8**
OSA1+A9							**9.7**
A10	A10	1.08	0.08	7.6	0.09	4.55	**0.4**
A11		0.10	0.90	5.0	0.09	5.17	**0.4**
B-BASINS							
RET090 (DBPS)							**36.0**
OSB1		0.87	0.42	7.9	0.37	4.49	**1.6**
OSB2		0.31	0.61	5.0	0.19	5.17	**1.0**
OSB3		0.52	0.76	5.0	0.40	5.17	**2.0**
B1		2.24	0.81	5.0	1.82	5.17	**9.4**
OSB1+B1	B1	3.12	0.70	9.2	2.18	4.25	**9.3**
B2		1.12	0.81	5.0	0.91	5.17	**4.7**
OSB2+B2	B2	1.43	0.77	5.8	1.10	4.94	**5.4**
B3	B3	0.44	0.90	5.0	0.40	5.17	**2.1**
B4		1.54	0.81	5.0	1.25	5.17	**6.5**
OSB3+B4	B4	2.07	0.80	6.6	1.65	4.74	**7.8**
DPB3+DP4	B4A	2.51	0.81	5.6	2.04	4.99	**10.2**
DPB1+DPB2+DPB4A	B4B	7.06	0.75	9.7	5.33	4.18	**22.3**
B5	B5	0.35	0.90	5.0	0.32	5.17	**1.6**

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 1
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 4/2/2026

Drexel, Barrell & Co.

EXCERPT FROM FALCON FIELD FILING 1 FINAL DRAINAGE REPORT

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED RUNOFF 100 YR STORM P1= 2.52

BASIN (S)	DESIGN POINT	AREA (AC)	DIRECT RUNOFF RUNOFF COEFF	t_c (MIN)	C * A	I (IN/HR)	Q (CFS)
A-BASINS							
OSA		16.62	0.44	34.0	7.36	3.85	**28.3**
OSA @ 18" culvert (max capacity)	OSA1						**11.3**
A1	A1	0.18	0.96	5.0	0.17	8.68	**1.5**
A2		2.56	0.35	18.4	0.90	5.39	**4.8**
DPA1+A2	A2	2.74	0.39	21.4	1.07	5.01	**5.4**
A3	A3	4.15	0.35	26.0	1.47	4.52	**6.6**
A4		3.86	0.35	17.0	1.36	5.59	**7.6**
DPA3+A4	A4	8.02	0.35	29.0	2.83	4.25	**12.0**
A5		3.80	0.35	27.3	1.33	4.40	**5.9**
DPA2+DPA4+A5	A5	14.55	0.36	29.2	5.23	4.23	**22.1**
A6		0.69	0.35	13.3	0.24	6.21	**1.5**
DPA5+A6	A6	15.24	0.36	29.3	5.47	4.22	**23.1**
A7	A7	0.33	0.96	6.0	0.32	8.22	**2.6**
A8		1.03	0.35	15.3	0.36	5.86	**2.1**
DPA7+A8	A8	1.36	0.50	15.3	0.68	5.86	**4.0**
OSA1+A8	A8A						**15.3**
A9		1.86	0.39	10.6	0.72	6.78	**4.9**
DPA8+A9	A9	3.22	0.43	21.8	1.40	4.96	**6.9**
OSA1+A9	A9A						**18.2**
A10	A10	1.08	0.35	7.6	0.38	7.64	**2.9**
A11		0.10	0.96	5.0	0.09	8.68	**0.8**
B-BASINS							
RET090 (DBPS)							**320.0**
OSB1		0.87	0.60	7.9	0.53	7.54	**4.0**
OSB2		0.31	0.74	5.0	0.23	8.68	**2.0**
OSB3		0.52	0.85	5.0	0.45	8.68	**3.9**
B1		2.24	0.88	5.0	1.98	8.68	**17.1**
OSB1+B1	B1	3.12	0.80	9.2	2.50	7.13	**17.8**
B2		1.12	0.88	5.0	0.99	8.68	**8.6**
OSB2+B2	B2	1.43	0.85	5.8	1.22	8.29	**10.1**
B3	B3	0.44	0.96	5.0	0.42	8.68	**3.7**
B4		1.54	0.88	5.0	1.36	8.68	**11.8**
OSB3+B4	B4	2.07	0.87	6.6	1.81	7.96	**14.4**
DPB3+DP4	B4A	2.51	0.89	5.6	2.23	8.37	**18.7**
DPB1+DPB2+DPB4A	B4B	7.06	0.84	9.7	5.95	7.01	**41.7**
B5	B5	0.35	0.96	5.0	0.34	8.68	**2.9**

Developed Condition
Hydrology Calculations

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 2
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 11/12/2025

Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

DEVELOPED CONIDTION

SUB-BASIN	SURFACE DESIGNATION	AREA	COMPOSITE RUNOFF COEFFICIENTS				% IMPERV
		ACRE	C2	C5	C10	C100	
OSA	Open Space	13.94		0.08		0.35	0
	Roofs	0.05		0.73		0.81	90
	Lawns	0.00		0.08		0.35	0
	Streets: Paved	2.25		0.90		0.96	100
	Streets: Gravel	0.39		0.59		0.70	80
	WEIGHTED AVERAGE			0.20		0.44	16%
TOTAL OSA		16.62					
A1	Open Space	0.67		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.30		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.19		0.42	20%
TOTAL A1		0.98					
A2	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.39		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.90		0.96	100%
TOTAL A2		0.39					
A3	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.17		0.45		0.59	65
	Streets: Paved	0.08		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.60		0.71	77%
TOTAL A3		0.25					
A4	Open Space	0.94		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.62		0.45		0.59	65
	Streets: Paved	0.07		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.25		0.47	29%
TOTAL A4		1.63					
A5	Open Space	0.00		0.08		0.35	0

PROJECT INFORMATION

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PROJECT NO: 21604-00
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REV. BY: TDM
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Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.86		0.45		0.59	65
	Streets: Paved	0.30		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.57		0.68	74%
TOTAL A5		1.16					
A6	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	2.55		0.45		0.59	65
	Streets: Paved	0.44		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.52		0.64	70%
TOTAL A6		2.99					
A7	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	2.30		0.45		0.59	65
	Streets: Paved	0.33		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.51		0.64	69%
TOTAL A7		2.63					
A8	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.37		0.45		0.59	65
	Streets: Paved	0.20		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.61		0.72	77%
TOTAL A8		0.57					
A9	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	2.65		0.45		0.59	65
	Streets: Paved	0.57		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.53		0.66	71%
TOTAL A9		3.21					
A10	Open Space	1.43		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.97		0.45		0.59	65

PROJECT INFORMATION

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Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

	Streets: Paved	0.24		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.29		0.49	33%
TOTAL A10		2.65					
A11	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.99		0.45		0.59	65
	Streets: Paved	0.17		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.52		0.65	70%
TOTAL A11		1.16					
A12	Open Space	0.86		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A12		0.86					
A13	Open Space	1.08		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.00		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.08		0.35	0%
TOTAL A13		1.08					
A14	Open Space	0.00		0.08		0.35	0
	Commercial Development	0.00		0.81		0.88	95
	Residential (< 1/8 Acre)	0.00		0.45		0.59	65
	Streets: Paved	0.09		0.90		0.96	100
	Streets: Gravel	0.00		0.59		0.70	80
	WEIGHTED AVERAGE			0.90		0.96	100%
TOTAL A14		0.09					

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Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Open Space		0.08		0.35	0
Commercial Development		0.81		0.88	95
Residential (< 1/8 Acre)		0.45		0.59	65
Streets: Paved		0.90		0.96	100
Streets: Gravel		0.59		0.70	80

Area tributary to Pond A (A5-A12)	**15.24**	**0.46**	**0.61**	**60.4%**
Total Site for A1-A14	**19.64**			**53.6%**
(Overdetention for A1-A4 & A13-A14)				

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Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED TIME OF CONCENTRATION

SUB-BASIN DATA							INITIAL/OVERLAND TIME (t_i)			TRAVEL TIME (t_t)				PIPE TRAVEL TIME (t_t)				TIME OF CONCENTRATION		FINAL t_c
BASIN	DESIGN PT:	C_5	C_{100}	AREA	*COMP*		LENGTH	SLOPE	t_i	LENGTH	SLOPE	VEL.	t_t	LENGTH	SLOPE	VEL.	t_t	COMP.	MINIMUM	
				Ac			Ft	%	Min	Ft	%	FPS	Min	Ft	%	FPS	Min	t_c	t_c	Min
A-BASINS																				
OSA		0.20	0.44	16.62	*3.40*	*7.35*	75	2.0	11.3	2500	1.5	1.8	22.7					34.0	5.0	**34.0**
A1	1	0.19	0.42	0.98	*0.19*	*0.41*	100	1.7	13.9	513	1.1	2.1	4.1					18.0	5.0	**18.0**
A2		0.90	0.96	0.39	*0.35*	*0.37*	15	1.5	1.2	813	1.0	2.0	6.8					8.0	5.0	**8.0**
DP1+A2	2	0.39	0.58	1.36	*0.54*	*0.79*	From DP1		18.0					26	0.5	4.1	0.1	18.1	5.0	**18.1**
A3		0.60	0.71	0.25	*0.15*	*0.18*	75	2.1	6.2	185	3.0	3.5	0.9					7.1	5.0	**7.1**
DP2+A3	3	0.43	0.60	1.62	*0.69*	*0.97*	From DP2		18.1					7	0.5	4.1	0.0	18.1	5.0	**18.1**
A4		0.25	0.47	1.63	*0.41*	*0.76*	25	10.0	3.6	957	1.4	2.4	6.7					10.3	5.0	**10.3**
DP3+A4	4	0.34	0.53	3.25	*1.10*	*1.73*	From DP3		18.1									18.1	5.0	**18.1**
A5	5	0.57	0.68	1.16	*0.66*	*0.79*	100	1.3	9.0	516	0.9	1.9	4.5					13.5	5.0	**13.5**
A6		0.52	0.64	2.99	*1.54*	*1.93*	100	1.9	8.6	652	1.3	2.3	4.8					13.4	5.0	**13.4**
DP5+A6	6	0.53	0.66	4.15	*2.20*	*2.72*	From DP5		13.5	622	1.3	2.3	4.5					18.1	5.0	**18.1**
A7	7	0.51	0.64	2.63	*1.33*	*1.68*	100	2.2	8.4	871	1.4	2.4	6.1					14.5	5.0	**14.5**
DP6+DP7	J1	0.52	0.65	6.78	*3.53*	*4.39*	From DP6		18.1					902	0.7	4.8	3.2	21.2	5.0	**21.2**
A8	8	0.61	0.72	0.57	*0.35*	*0.41*	100	0.6	10.7	207	1.8	2.7	1.3					12.0	5.0	**12.0**
A9		0.53	0.66	3.21	*1.70*	*2.11*	100	1.9	8.4	804	2.7	3.3	4.1					12.5	5.0	**12.5**
DP8+A9	9	0.54	0.66	3.79	*2.05*	*2.52*	From DP8		12.0	438	2.2	3.0	2.5					14.5	5.0	**14.5**
A10	10	0.29	0.49	2.65	*0.77*	*1.31*	100	4.0	9.3	636	2.9	3.4	3.1					12.5	5.0	**12.5**
A11		0.52	0.65	1.16	*0.60*	*0.75*	100	2.2	8.2	453	1.3	2.3	3.3					11.5	5.0	**11.5**
DP10+A11	11	0.31	0.66	4.38	*1.37*	*2.88*	From A10		12.5									12.5	5.0	**12.5**
DP9+DP11	J2	0.42	0.66	8.17	*3.42*	*5.40*	From DP9		14.5					43	0.5	4.1	0.2	14.7	5.0	**14.7**
DPJ1+DPJ2	J3	0.47	0.66	14.94	*6.95*	*9.79*	From DPJ2		14.7					369	0.7	4.8	1.3	15.9	5.0	**15.9**
A12		0.08	0.35	0.86	*0.07*	*0.30*	75	15.9	6.4	250	3.8	3.9	1.1					7.5	5.0	**7.5**
DPJ3+A12	12	0.44	0.64	15.81	*7.02*	*10.09*	From DPJ3		15.9					31	0.5	4.1	0.1	16.1	5.0	**16.1**
A13	13	0.08	0.35	1.08	*0.09*	*0.38*	100	17.8	7.2	169	12.6	7.1	0.4					7.6	5.0	**7.6**
A14	14	0.90	0.96	0.09	*0.08*	*0.08*	20	2.0	1.3	125	1.0	2.0	1.0					2.3	5.0	**5.0**

PROJECT INFORMATION

PROJECT: Commons at Falcon Field Filing 2
PROJECT NO: 21604-00
DESIGN BY: CGH
REV. BY: TDM
AGENCY: El Paso County
REPORT TYPE: Final
DATE: 11/12/2025

Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED 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-BASINS							
OSA		16.62	0.20	34.0	3.40	2.30	**7.8**
OSA @ 18" culvert (max capacity)	O1						**7.8**
A1		0.98	0.19	18.0	0.19	3.25	**0.6**
O1+A1	1						**8.4**
A2		0.39	0.90	8.0	0.35	4.46	**1.6**
DP1+A2	2	1.36	0.39	18.1	0.54	3.24	**9.6**
A3		0.25	0.60	7.1	0.15	4.65	**0.7**
DP2+A3	3	1.62	0.43	18.1	0.69	3.24	**10.0**
A4		1.63	0.25	10.3	0.41	4.08	**1.7**
DP3+A4	4	3.25	0.34	18.1	1.10	3.24	**11.4**
A5	5	1.16	0.57	13.5	0.66	3.68	**2.4**
A6		2.99	0.52	13.4	1.54	3.69	**5.7**
DP5+A6	6	4.15	0.53	18.1	2.20	3.24	**7.1**
A7	7	2.63	0.51	14.5	1.33	3.57	**4.8**
DP6+DP7	J1	6.78	0.52	21.2	3.53	3.00	**10.6**
A8	8	0.57	0.61	12.0	0.35	3.85	**1.3**
A9		3.21	0.53	12.5	1.70	3.79	**6.5**
DP8+A9	9	3.79	0.54	14.5	2.05	3.57	**7.3**
A10		2.65	0.29	12.5	0.77	3.80	**2.9**
A11		1.16	0.52	11.5	0.60	3.92	**2.3**
DP10+A11	11	4.38	0.31	12.5	1.37	3.80	**5.2**
DP9+DP11	J2	8.17	0.42	14.7	3.42	3.56	**12.2**
DPJ1+DPJ2	J3	14.94	0.47	15.9	6.95	3.43	**23.8**
A12		0.86	0.08	7.5	0.07	4.56	**0.3**
DPJ3+A12	12	15.81	0.44	16.1	7.02	3.42	**24.0**
Pond A out							**0.4**
A13	13	1.08	0.08	7.6	0.09	4.55	**0.4**
A14	14	0.09	0.90	5.0	0.08	5.17	**0.4**

PROJECT INFORMATION

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DESIGN BY:	CGH
REV. BY:	TDM
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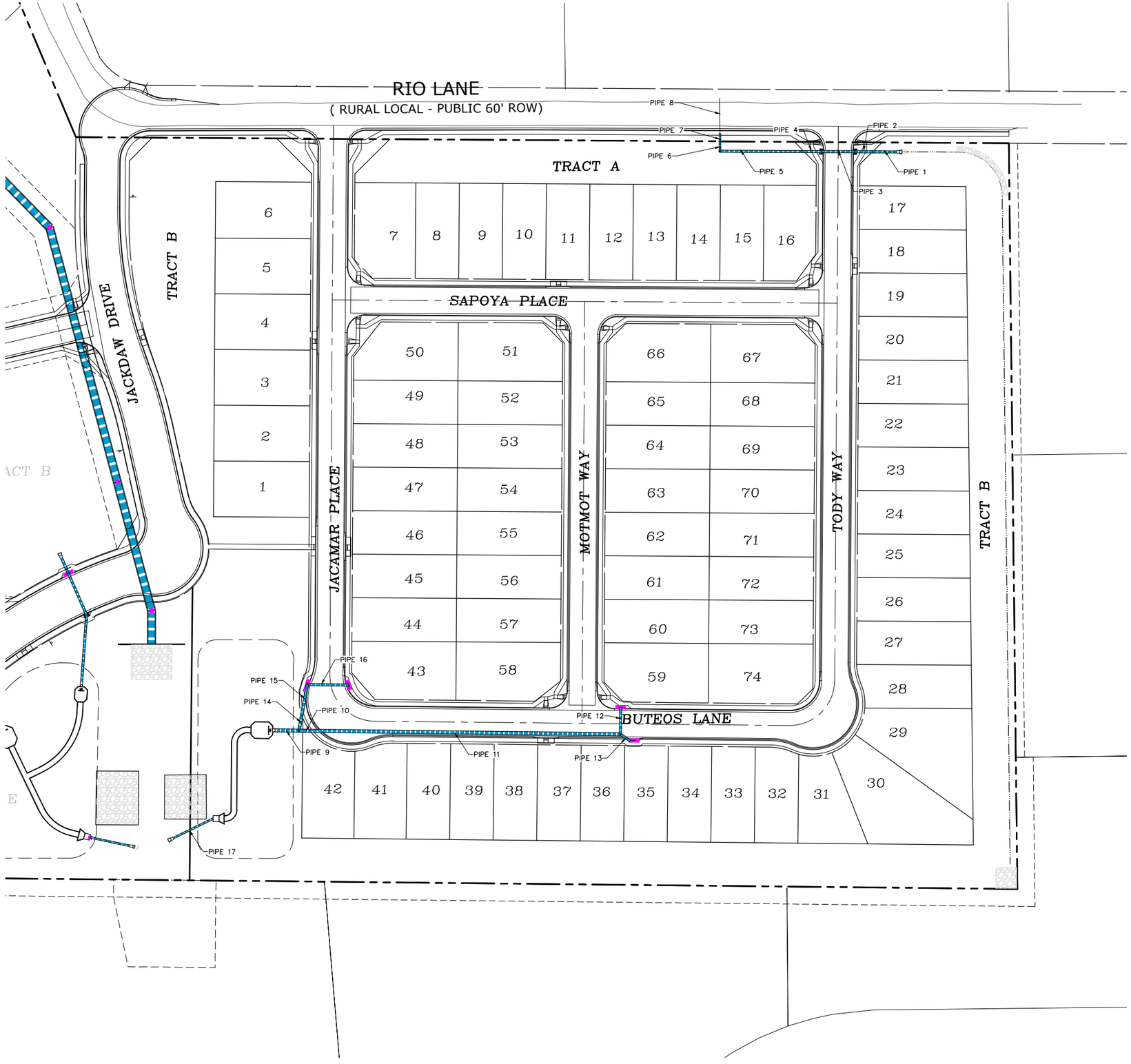
Drexel, Barrell & Co.

RATIONAL METHOD CALCULATIONS FOR STORM WATER RUNOFF

DEVELOPED RUNOFF 100 YR STORM P1= 2.52

BASIN (S)	DESIGN POINT	AREA (AC)	DIRECT RUNOFF RUNOFF COEFF	t_c (MIN)	C * A	I (IN/HR)	Q (CFS)
A-BASINS							
OSA		16.62	0.44	34.0	7.35	3.85	**28.3**
OSA @ 18" culvert (max capacity)	O1						**11.3**
A1		0.98	0.42	18.0	0.41	5.45	**2.3**
O1+A1	1						**13.6**
A2		0.39	0.96	8.0	0.37	7.49	**2.8**
DP1+A2	2	1.36	0.58	18.1	0.79	5.44	**15.6**
A3		0.25	0.71	7.1	0.18	7.80	**1.4**
DP2+A3	3	1.62	0.60	18.1	0.97	5.43	**16.6**
A4		1.63	0.47	10.3	0.76	6.85	**5.2**
DP3+A4	4	3.25	0.53	18.1	1.73	5.43	**20.7**
A5	5	1.16	0.68	13.5	0.79	6.17	**4.9**
A6		2.99	0.64	13.4	1.93	6.19	**11.9**
DP5+A6	6	4.15	0.66	18.1	2.72	5.44	**14.8**
A7	7	2.63	0.64	14.5	1.68	6.00	**10.0**
DP6+DP7	J1	6.78	0.65	21.2	4.39	5.04	**22.1**
A8	8	0.57	0.72	12.0	0.41	6.47	**2.7**
A9		3.21	0.66	12.5	2.11	6.37	**13.4**
DP8+A9	9	3.79	0.66	14.5	2.52	6.00	**15.1**
A10		2.65	0.49	12.5	1.31	6.38	**8.4**
A11		1.16	0.65	11.5	0.75	6.57	**4.9**
DP10+A11	11	4.38	0.66	12.5	2.88	6.38	**18.4**
DP9+DP11	J2	8.17	0.66	14.7	5.40	5.97	**32.2**
DPJ1+DPJ2	J3	14.94	0.66	15.9	9.79	5.76	**56.4**
A12		0.86	0.35	7.5	0.30	7.65	**2.3**
DPJ3+A12	12	15.81	0.64	16.1	10.09	5.74	**57.9**
Pond A Out							**13.9**
A13	13	1.08	0.35	7.6	0.38	7.64	**2.9**
A14	14	0.09	0.96	5.0	0.08	8.68	**0.7**

Hydraulic Calculations


RIO LANE
(RURAL LOCAL - PUBLIC 60' ROW)
PIPE 8
PIPE 7
PIPE 4
PIPE 2
PIPE 6
PIPE 5
PIPE 1
PIPE 3
TRACT A
TRACT B
JACKDAW DRIVE
SAPOYA PLACE
JACAMAR PLACE
MOTMOT WAY
TODY WAY
BUTEOS LANE
PIPE 16
PIPE 15
PIPE 14
PIPE 10
PIPE 12
PIPE 9
PIPE 11
PIPE 13
PIPE 17
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MyReport

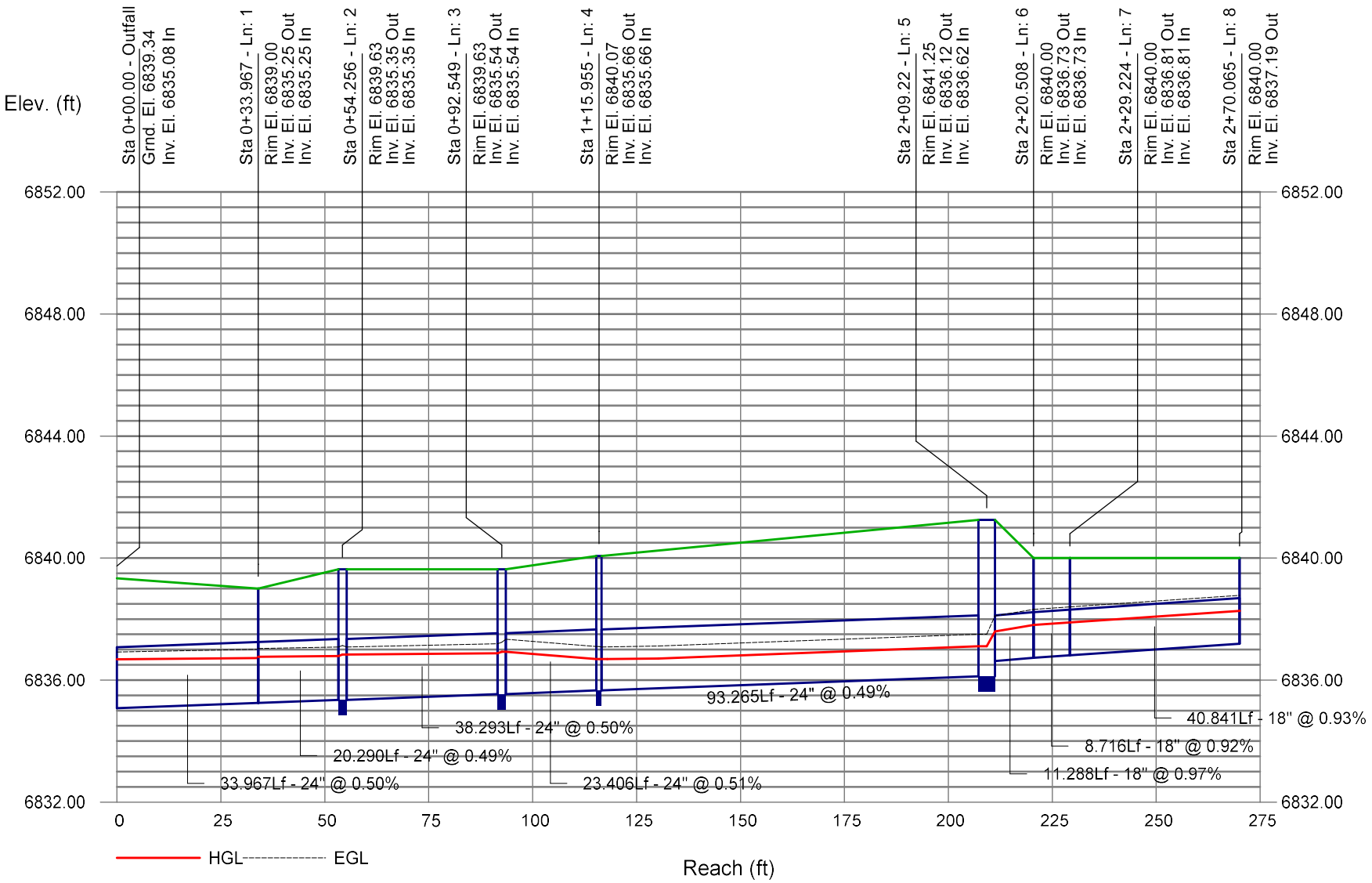
Line No.	Line ID	Flow Rate (cfs)	Line Size (in)	Line Length (ft)	Invert Dn (ft)	Invert Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Minor Loss (ft)	Vel Ave (ft/s)	J-Loss Coeff	
1	7A	10.60	24	33.967	6835.08	6835.25	6839.34	6839.00	6836.68	6836.72	0.04	4.11	0.15	
2	6A	10.60	24	20.290	6835.25	6835.35	6839.00	6839.63	6836.76	6836.79	0.04	4.26	0.15	
3	5A	10.00	24	38.293	6835.35	6835.54	6839.63	6839.63	6836.84	6836.88	0.05	4.24	0.15	
4	4A	8.40	24	23.406	6835.54	6835.66	6839.63	6840.07	6836.93	6836.69	0.06	4.38	0.15 z	
5	3A	7.80	24	93.265	6835.66	6836.12	6840.07	6841.25	6836.69	6837.11 j	n/a	4.89	1.00 z	
6	2A	7.80	18	11.288	6836.62	6836.73	6841.25	6840.00	6837.59	6837.81	0.08	6.08	0.15 z	
7	1A	7.80	18	8.716	6836.73	6836.81	6840.00	6840.00	6837.81	6837.89	0.08	5.72	0.15 z	
8	EX	7.80	18	40.841	6836.81	6837.19	6840.00	6840.00	6837.89	6838.27	0.51	5.72	1.00 z	
9	8A	22.10	36	30.568	6825.80	6826.11	6830.63	6832.54	6828.20	6827.62	n/a	4.92	0.99 z	
10	9A	11.90	36	12.500	6826.11	6826.19	6832.54	6832.75	6827.62	6827.28	0.06	4.22	0.15 z	
11	10A	11.90	36	356.738	6826.19	6828.53	6832.75	6835.80	6827.28	6829.62	0.41	5.11	1.00 z	
12	11A	7.10	24	30.974	6831.18	6832.11	6835.80	6836.11	6831.76	6833.06	0.37	7.16	1.00 z	
13	12A	4.80	24	13.638	6831.18	6831.45	6835.80	6836.30	6831.71	6832.22	0.29	5.80	1.00 z	
14	13A	10.20	30	18.036	6826.61	6826.92	6832.54	6833.00	6827.62	6827.99	n/a	5.30	0.15 z	
15	14A	10.20	30	35.726	6826.92	6827.54	6833.00	6833.22	6827.99	6828.61	n/a	5.11	0.99 z	
16	15A	7.30	24	47.671	6828.04	6828.59	6833.22	6833.39	6828.79	6829.55	n/a	5.83	1.00 z	
17	PND A PIPE	0.40	18	57.170	6825.00	6825.50	6828.21	6828.71	6826.20	6825.73	n/a	1.27	1.00 z	

Project File: 5-YEAR REV.stm | Number of lines: 17 | Date: 11/12/2025

NOTES: ** Critical depth

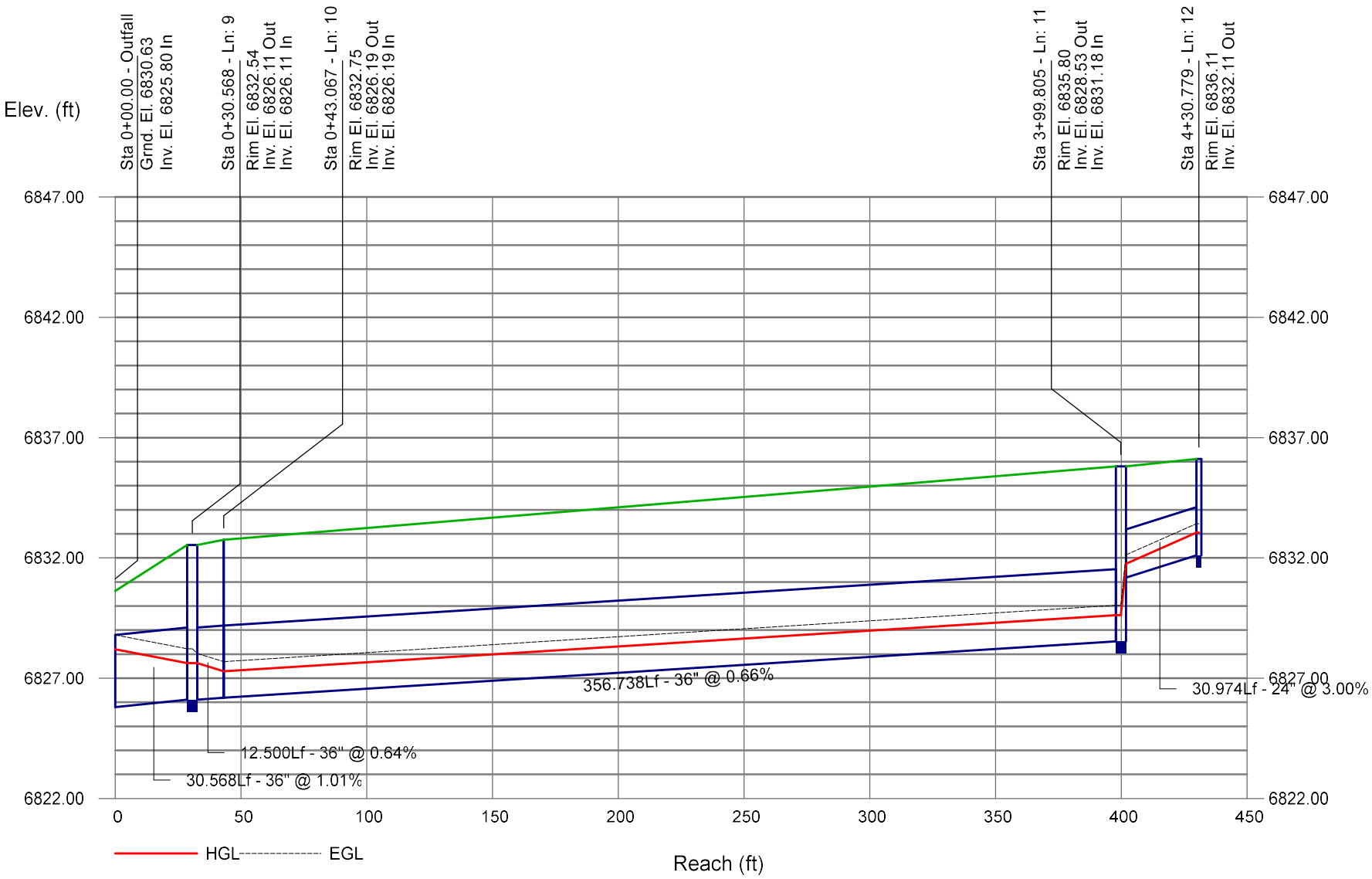
Storm Sewer Profile

Proj. file: 5-YEAR REV.stm



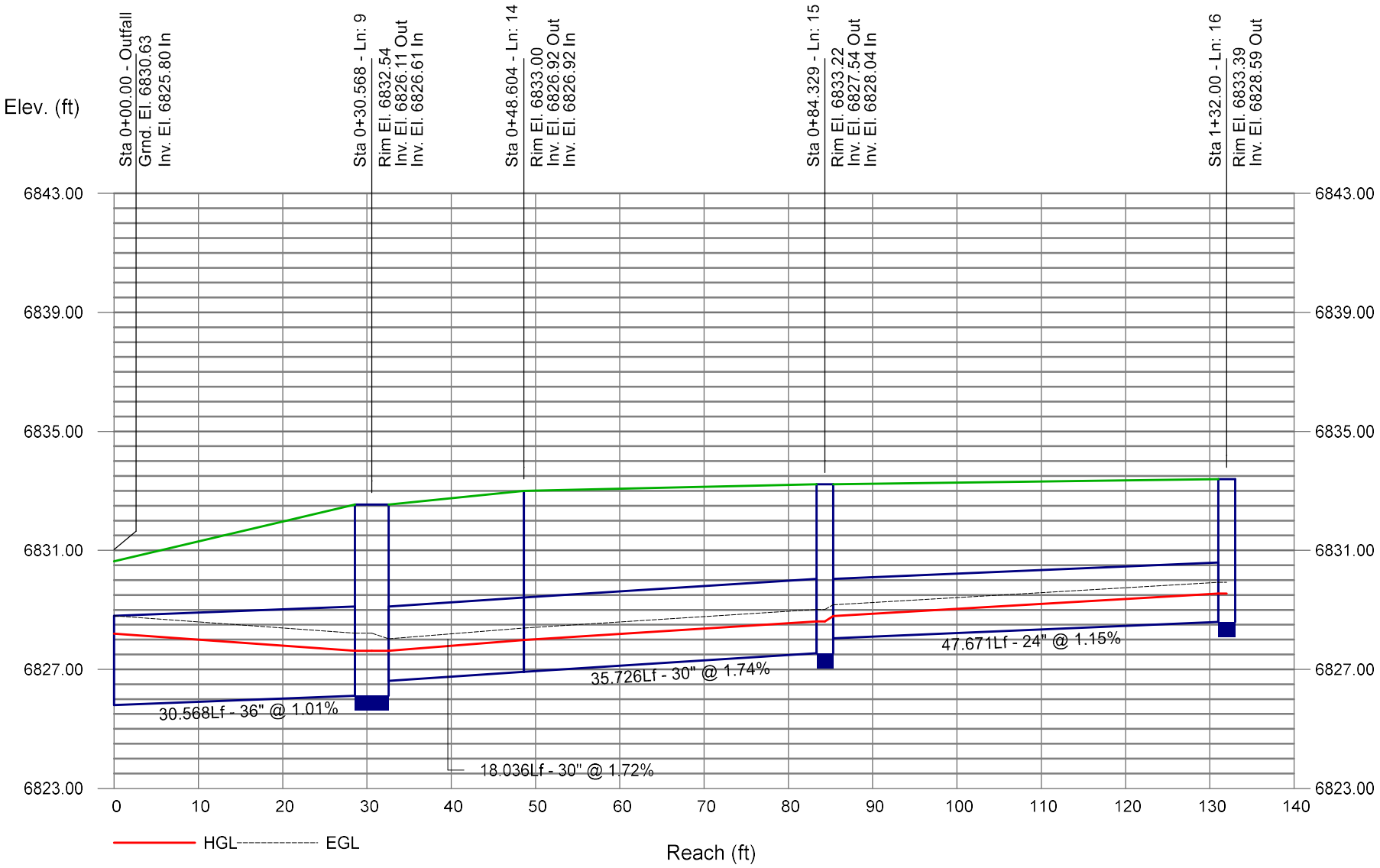
Storm Sewer Profile

Proj. file: 5-YEAR REV.stm



Storm Sewer Profile

Proj. file: 5-YEAR REV.stm



MyReport

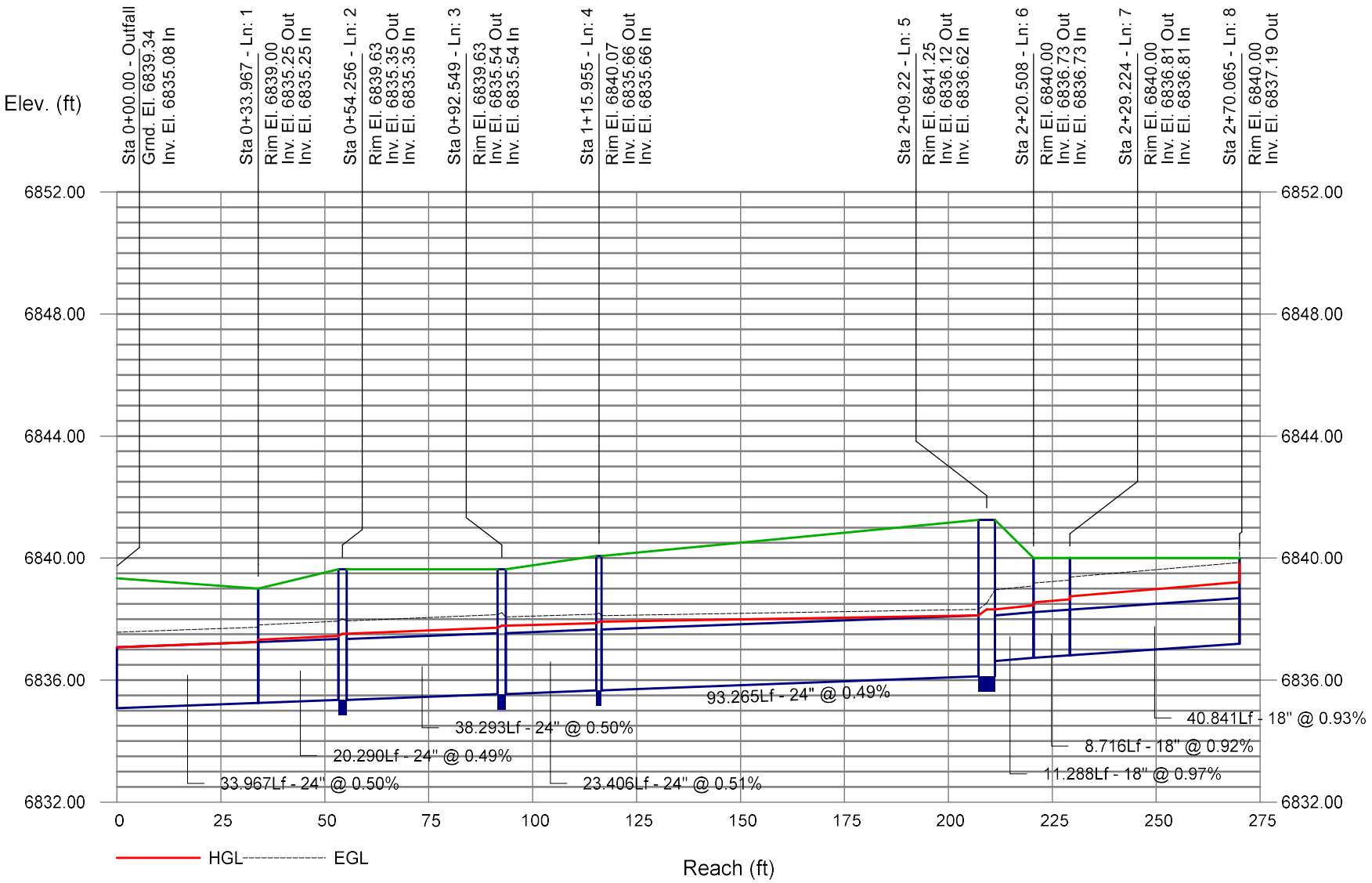
Line No.	Line ID	Flow Rate (cfs)	Line Size (in)	Line Length (ft)	Invert Dn (ft)	Invert Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Minor Loss (ft)	Vel Ave (ft/s)	J-Loss Coeff	
1	7A	17.60	24	33.967	6835.08	6835.25	6839.34	6839.00	6837.08	6837.25	0.07	5.60	0.15	
2	6A	17.60	24	20.290	6835.25	6835.35	6839.00	6839.63	6837.32	6837.45	0.07	5.60	0.15	
3	5A	16.40	24	38.293	6835.35	6835.54	6839.63	6839.63	6837.52	6837.72	0.06	5.22	0.15	
4	4A	13.60	24	23.406	6835.54	6835.66	6839.63	6840.07	6837.78	6837.87	0.04	4.33	0.15	
5	3A	11.30	24	93.265	6835.66	6836.12	6840.07	6841.25	6837.91	6838.12	0.20	3.60	1.00	
6	2A	11.30	18	11.288	6836.62	6836.73	6841.25	6840.00	6838.32	6838.45	0.10	6.40	0.15	
7	1A	11.30	18	8.716	6836.73	6836.81	6840.00	6840.00	6838.55	6838.65	0.10	6.40	0.15	
8	EX	11.30	18	40.841	6836.81	6837.19	6840.00	6840.00	6838.74	6839.22	0.64	6.40	1.00	
9	8A	48.30	36	30.568	6825.80	6826.11	6830.63	6832.54	6828.80	6828.91	0.76	6.94	0.99	
10	9A	24.80	36	12.500	6826.11	6826.19	6832.54	6832.75	6829.67	6829.69	0.03	3.51	0.15	
11	10A	24.80	36	356.738	6826.19	6828.53	6832.75	6835.80	6829.71	6830.24	0.55	4.73	1.00	
12	11A	14.80	24	30.974	6831.18	6832.11	6835.80	6836.11	6832.03	6833.50	n/a	8.99	1.00 z	
13	12A	10.00	24	13.638	6831.18	6831.45	6835.80	6836.30	6831.95	6832.58	0.46	7.21	1.00 z	
14	13A	23.50	30	18.036	6826.61	6826.92	6832.54	6833.00	6829.67	6829.73	0.05	4.79	0.15	
15	14A	23.50	30	35.726	6826.92	6827.54	6833.00	6833.22	6829.78	6829.87	0.37	4.86	0.99	
16	15A	15.10	24	47.671	6828.04	6828.59	6833.22	6833.39	6830.24	6830.41	0.39	4.92	1.00	
17	PND A PIPE	13.90	18	57.170	6825.00	6825.50	6828.21	6828.71	6826.50	6827.50	0.96	7.87	1.00	

Project File: 100-YEAR REV.stm | Number of lines: 17 | Date: 11/12/2025

NOTES: ** Critical depth

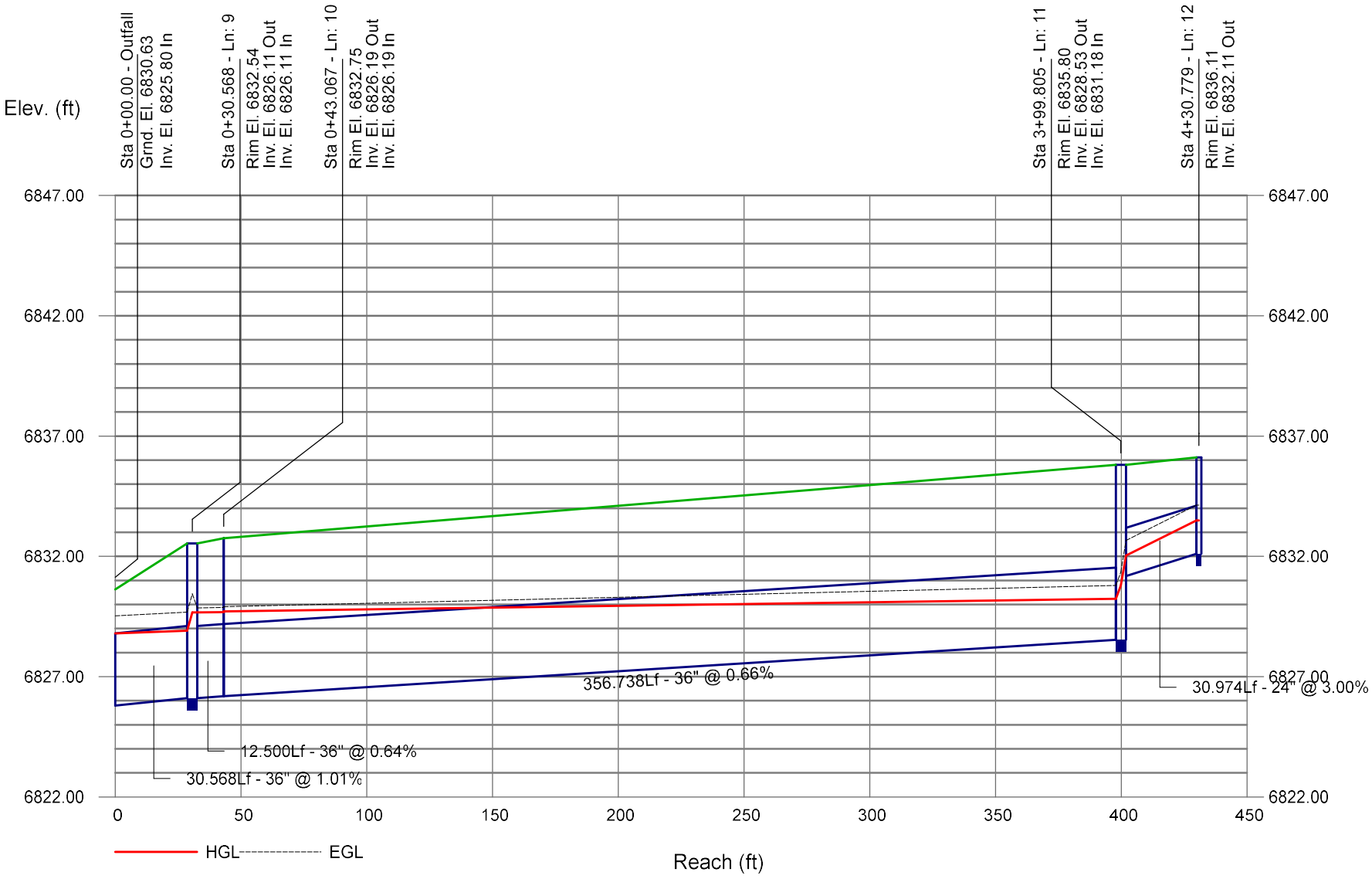
Storm Sewer Profile

Proj. file: 100-YEAR REV.stm



Storm Sewer Profile

Proj. file: 100-YEAR REV.stm



Storm Sewer Profile

Proj. file: 100-YEAR REV.stm

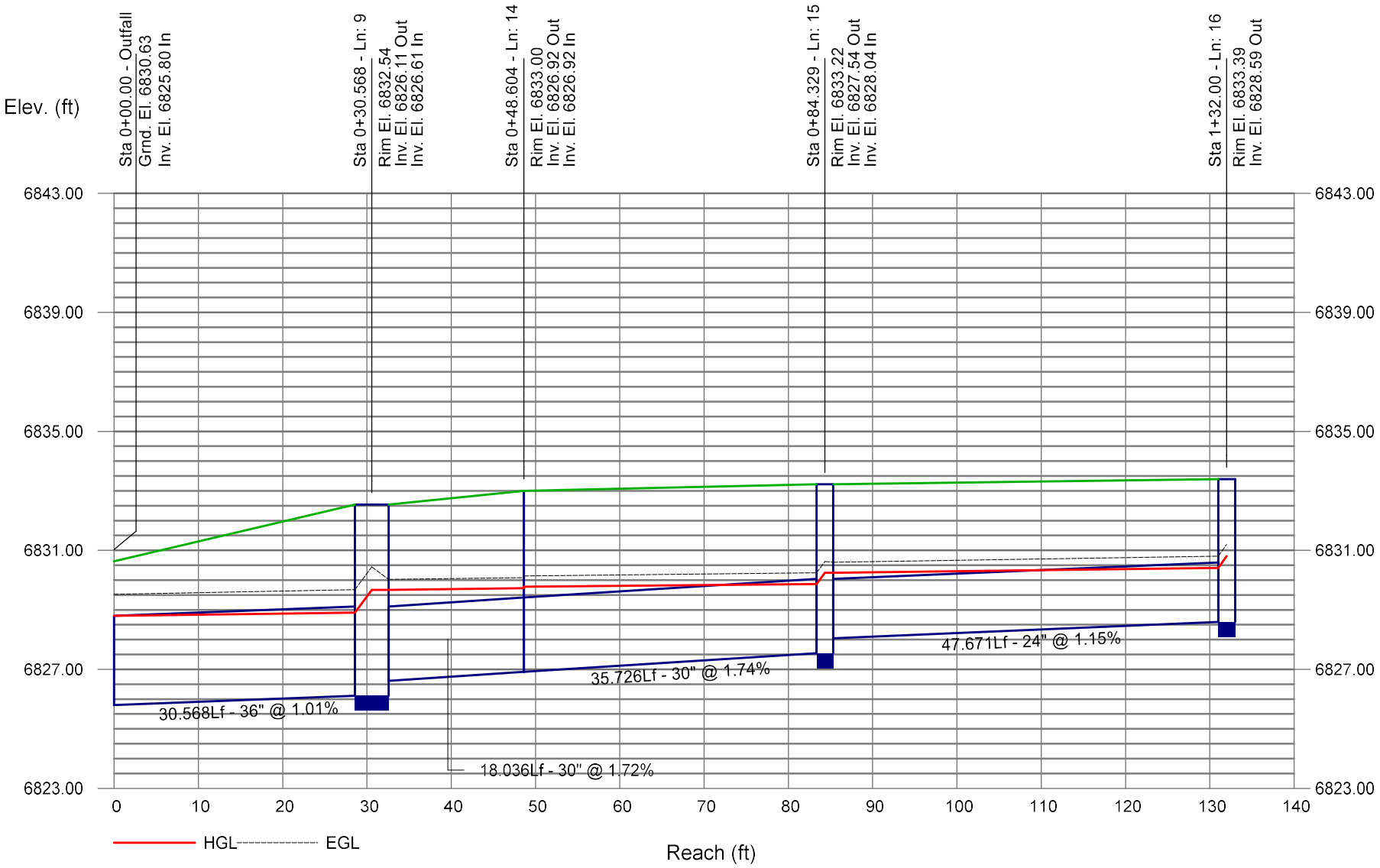
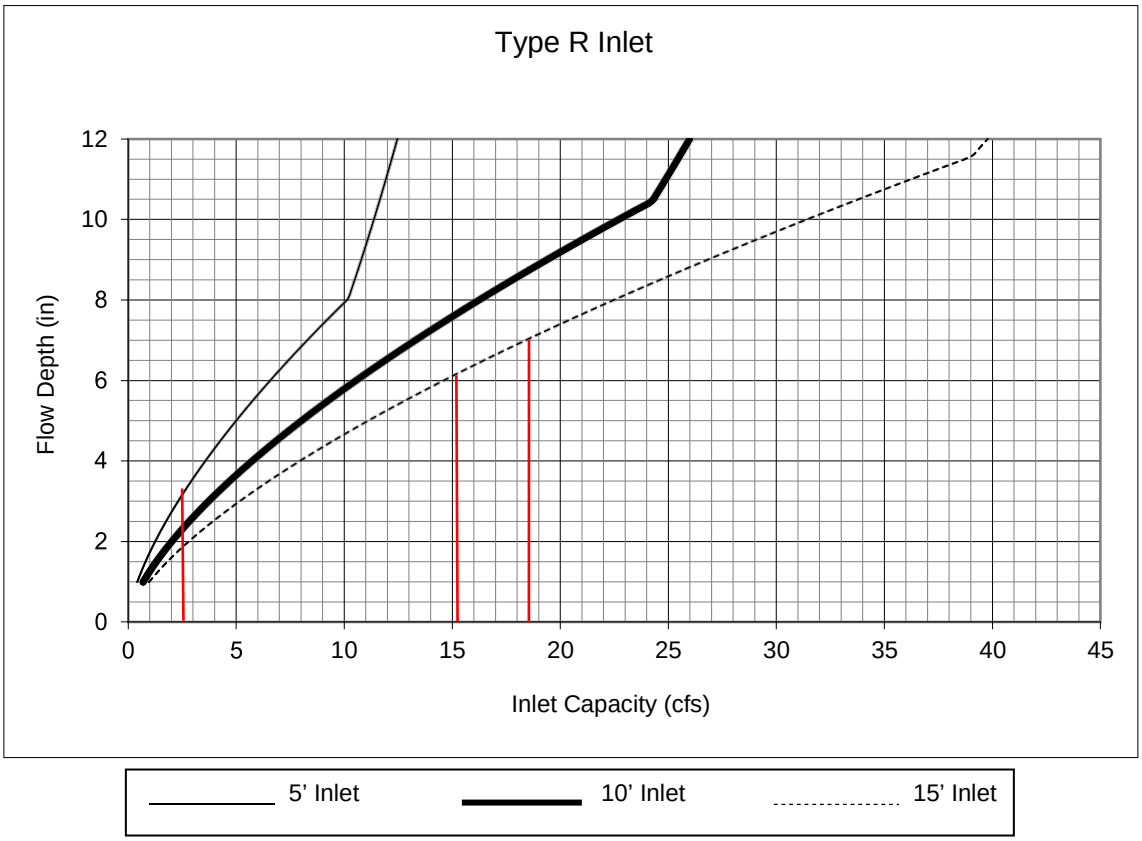


Figure 8-11. Inlet Capacity Chart Sump Conditions , Curb Opening (Type R) Inlet



BASIN A2:
Q100=2.8 cfs
5' Type R

BASIN A3
Q100=1.4 cfs
5' Type R

DP9:
Q100=15.1 cfs
15' Type R

DP11:
Q100=18.4 cfs
15' Type R

Notes:

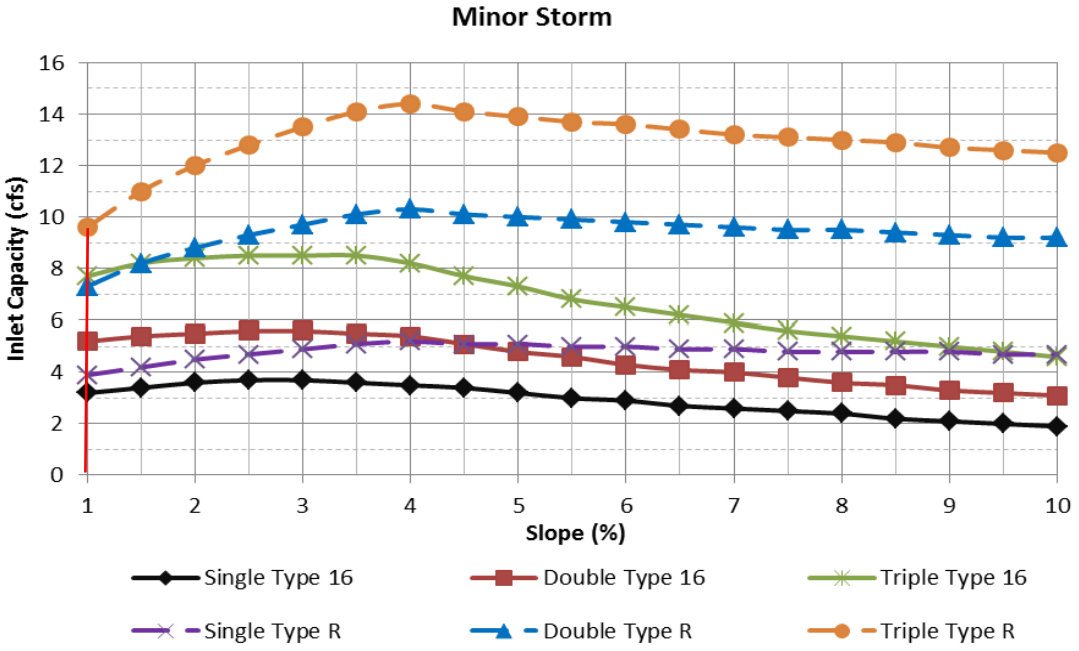
1. The standard inlet parameters must apply to use this chart.

Figure 8-7. Inlet Capacity Chart Continuous Grade Conditions, Residential (Local)
(Attached and Detached Sidewalk)

Street Section Data: Street Width Flowline to Flowline = 34'
Type of Curb and Gutter: D-10-R = 8" vertical
Type 16 = 6" vertical

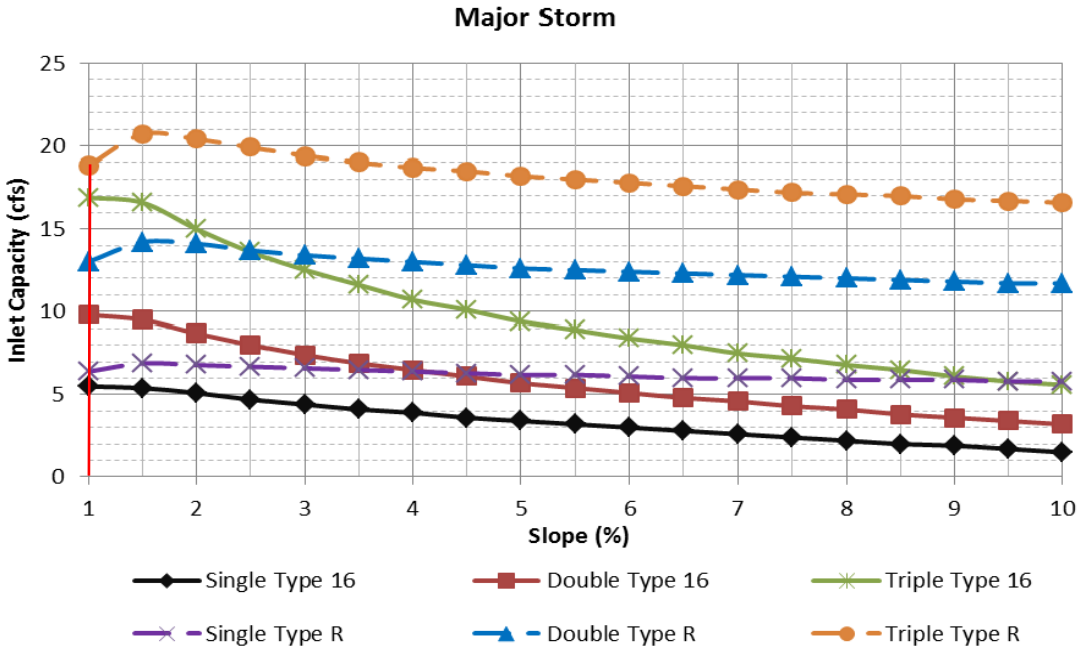
DP6:
Q5=7.1 cfs
15' Type R

DP7:
Q5=4.8 cfs
10' Type R



DP6:
Q100=14.8 cfs
15' Type R

DP7:
Q100=10.0 cfs
10' Type R



The standard street section parameters as defined in Chapter 7 must apply to use these charts. For non-standard sections, the inlet capacity shall be calculated using the UDFCD spreadsheets. The maximum spread width is limited by the curb height based on no curb overtopping during a minor storm and flow being contained within the public right-of-way during the major storm. Calculations were done using UD-Inlet 3.00.xls, Mar., 2011 with the default clogging factors.

Runoff Reduction &
Detention Facility Calculations

RUNOFF REDUCTION SUMMARY			
Identifier	**Area (Acres)**	**Impervious %**	**Notes**
Self Treating Areas			
SPA1	0.33	0%	Non-receiving open area to rear of Lots 7-16
SPA2	0.24	0%	Upslope side of swale along east boundary
SPA3	0.98	0%	Non-receiving slope to rear of lots 32-42
Runoff Reduction Area			
UIA1	0.27	65%	Rear of lots 9-16
RPA1	0.34	0%	Receiving swale for UIA1
Swale 1	*0.61*	***0.18***	
UIA2	0.60	65%	Rear of lots 17-30
RPA2	0.88	0%	Receiving swale for UIA2
Swale 2	*1.48*	***0.39***	
Exclusion Areas			
EX1	0.60	94%	Exclusion Area - Rio Lane & Intersection with Tody Way
EX2	0.08	100%	Rio Lane - east of Tody Way
EX3	0.09	65%	Rear of Lots 30-31

Site Assessment

SCM Design, Version 4.02 (June 2025)

Designer:
Company:
Date: April 8, 2026
Project: Falcon Field Filing 2
Location: Swales 1 & 2

1. Physical Site Characteristics

A) Total Site Area

Area = 2.09 acres 91,040 ft^2

B) Describe any upstream offsite areas that drain onto site and downstream conveyance systems or overland flow paths.

Swale 1 = UIA1 & RPA1
Swale 2 = UIA2 & RPA2
(see drainage maps)

C) Describe any floodplain/floodway mapping, fluvial hazard zones, or geomorphic/geotechnical instabilites that may impact the site.

None

D) Is the watershed anticipated to be in a phased development state for a number of years moving forward or are highly erosive soils present? Explain.

NO

E) List any vegetation assessments that have been conducted including wetland and aquatic resources delineations.

Site assesments available under County File #SF2435

F) List any assessments of habitat for threatened or endangered species and other regulated species.

Site assesments available under County File #SF2435

G) Describe any existing and/or proposed utility mapping for subsurface and/or above-ground utilities that may impact SCMs.

Storm sewer will be present beneath swale 1.
No utilities proposed in the area of swale 2.

H) Are there receiving water quality concerns such as TMDLs, 303(d) listings, or other pollutant reduction targets? Explain.

NO

I) Describe how community values including context, scale, materials, and user experience will be incorporated on site. See Chapter 4 for additional gudance.

J) Will attenuation of the EURV and/or flood storage (e.g. FSD) be provided onsite?

YES

All flows not tributary to these swales, or excluded per ECM 1.7.1.C.1 are tributary to a proposed full-spectrum EDB

Site Assessment

SCM Design, Version 4.02 (June 2025)

Designer:
Company:
Date: April 8, 2026
Project: Falcon Field Filing 2
Location: Swales 1 & 2

2. Opportunities for Step 1: Runoff Reduction

A) Describe opportunities for runoff reduction measures that can be used on this site to potentially reduce WQCV requirements?

Conserve Existing Amenities: Identify portions of site that should be protected including mature trees, stream corridors, wetlands, and Type A/B soils with high infiltration potential.

Minimize Impacts: Creative site layout and constructing to minimum widths can reduce the extent of paved areas. Concentrate new impervious areas over Type C/D soils. Maintain natural drainage patterns and promote sheet flow.

Minimize Directly Connected Impervious Areas (MDCIA): Allow runoff from impervious areas to sheet flow through vegetation which slows runoff, promotes infiltration, reduces pollutant loads and helps mimic predevelopment hydrology.

WQCV requirements are provided. See Final Drainage Report text for further description and 4-step process compliance

3. Suitability for Infiltration-Based SCMs

A) What are the dominant Hydrologic Soil Groups (HSG) for the site?

Type A and B Soils — ***Soils suitable for full infiltration***

B) Provide a description of topsoil texture, agronomic properties, and geotechnical soil characterizations.

See soils report for site and import fill in FDR appendix.
Seasonally high groundwater is present, but site specific mitigation efforts are in progress, i.e. installation of underdrain and import fill to raise site

C) Identify Site Constraints
i) Is subgrade depth to bedrock < 3 feet? NO
ii) Is subgrade depth to seasonal high groundwater table < 3 feet? NO

D) Identify Site Risks
i) Are expansive/collapsible soils present? NO
ii) Are highly concentrated pollutant sources present (hotspot)? NO
iii) Is site located above contaminated soils or groundwater? NO
iv) Are steep slopes present in proposed SCM locations? (> 3H:1V) NO
v) Are there other concerns that indicate high risk for infiltration? NO

E) Describe Exploratory Borings/Pits and Laboratory Tests (Sec. 4.2)
i) How many borings/pits were drilled/excavated? $N_{Borings/Pits}$ =
ii) Depth of borings/pits below SCM (or proposed grade) surface? $D_{Borings/Pits}$ = ft

iii) Describe laboratory tests performed on soil samples:

Soils report available under County File #SF2435

F) Preliminary Infiltration System Recommendation

Full Infiltration — **Suitable Soils and Low Risk, must verify adequate subgrade infiltration rates.**

This is a preliminary recommendation. Consult with a qualified geotechnical engineer when planning an infiltration-based SCM.

Site Layout

SCM Design, Version 4.02 (June 2025)

Designer:
Company:
Date: **April 8, 2026**
Project: **Falcon Field Filing 2**
Location: **Swale 2 (E boundary)**

SITE LAYOUT INFO (User Input in Blue Cells)

Water Quality Event (WQE): 0.60 inches

Outfall ID	S1	S2										
Total Tributary Area (ft^2)	26,572	64,469										
Total Tributary Area (ac)	0.61	1.48										
Imperviousness (%)	18.0%	39.0%										
MS4 Design Standard	Runoff	Runoff										
SCM Type	RPA	RPA										

Notes:

OUTFALL RESULTS

SCM Worksheet Name	RPA_S1	RPA_S2										
Untreated Area (ft^3)	0	0										
Default WQCV (ft^3)	237	952										
Optional Override WQCV (ft^3)												
WQCV Reduction (ft^3)	237	952										
Remaining WQCV (ft^3)	0	0										
WQCV Reduction (%)	100%	100%										
Design WQCV of SCM (ft^3)	0	0										
Pollutant Removal (ft^3)	0	0										
Untreated WQCV (ft^3)	0	0										

TOTAL SITE RESULTS (Sums results from all Outfalls)

Total Site Area	91,041	ft^2	2.09	acres
Treated Area	91,041	ft^2	2.09	acres
Untreated Area	0	ft^2	0.00	acres
Total Site Imperviousness	32.9%	%		
Default (or Override) WQCV	1,189	ft^3	0.027	acre-feet
Remaining WQCV	0	ft^3	0.000	acre-feet
WQCV Reduction	100%	%		
Design WQCV	0	ft^3	0.000	acre-feet
Untreated WQCV	0	ft^3	0.000	acre-feet

Confirm with local jurisdiction whether design meets Runoff Reduction Standard

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer:
Company:
Date: April 8, 2026
Project: Falcon Field Filing 2
Location: Swale 2 (E boundary)
Outfall ID: S1

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	S1	UIA1	RPA1								
Area Type	RPA	UIA	RPA_Swale								
Downstream Design Point ID	--	S1	S1								
DCIA (ft^2)	--	--	--								
UIA (ft^2)	--	11,761	--								
RPA (ft^2)	--	--	14,810								
SPA (ft^2)	--	--	--								

2. Protect the RPA from Traffic

RPA Protection Type	--	--	None								

3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	100.0%								
HSG B (%)	--	--	0.0%								
HSG C/D (%)	--	--	0.0%								

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	Seed								
Irrigation Type	--	--	Temporary								

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	--								
Is Concrete Edger used?	--	--	--								
Spacing between slots (ft)	--	--	--								
Slot Opening Length (in)	--	--	--								
Blind Swale Type	--	--	--								
Spreader Energy Dissipation	--	--	--								
Total Area of UIA:RPA (ft^2)	--	--	--								
UIA:RPA Ratio	--	--	--								
UIA:RPA Interface Width (ft)	--	--	--								
L / W Ratio of UIA:RPA	--	--	--								

2. Buffer Length

Average Buffer Length (ft)	--	--	--								

3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	--								
Effective Distance (ft)	--	--	--								
Number of Level Spreaders	--	--	--								

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	--								
Mowing Strip Provided?	--	--	--								

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	--								
UIA:RPA Runoff (in)	--	--	--								
UIA:RPA Runoff (ft^3)	--	--	--								

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft^3)	--	--	--								
Runoff Reduction (ft^3)	--	--	--								
Runoff Reduction (%)	--	--	--								

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale

Total Tributary Area (ft^2)	--	--	14,810
Imperviousness (%)	--	--	0.0%

2. Swale Inflows

Concentrated Flow Type	--	--	Other
Blind Swale Type	--	--	--
Spreader Energy Dissipation	--	--	--
Vertical Drop (in)	--	--	--
Gutter Depression (in)	--	--	--
Curb Opening Length (ft)	--	--	--
Concrete Sediment Pad	--	--	--
Min. Forebay Volume (ft^3)	--	--	--
Design Forebay Volume (ft^3)	--	--	--
Max. Forebay Depth (in)	--	--	--
Design Forebay Depth (in)	--	--	--
Calculated Notch Width (in)	--	--	--
Design Notch Width (in)	--	--	--
Drain Time (minutes)	--	--	--
Energy Dissipation Type	--	--	None

3. Swale Cross Section

Length of Swale (ft)	--	--	400.00
Bottom Width (ft)	--	--	0.00
Bottom Area (ft^2)	--	--	0
Side Slopes (horiz/vert)	--	--	4.00

4. Longitudinal Slope

Available Slope (ft/ft)	--	--	0.010
Design Slope (ft/ft)	--	--	0.010
Total Drop Height (ft)	--	--	0.00
Underdrains Provided?	--	--	NO

5. Calculate Runoff from Tributary Area

Tributary Runoff (ft^3)	--	--	741
Reduced Trib. Runoff (ft^3)	--	--	741

6. Calculate Runoff Reduction through Swale Bottom

Volume Infiltrated (ft^3)	--	--	741
Swale Discharge (ft^3)	--	--	0
Runoff Reduction (%)	--	--	100.0%

7. Design Discharge

2-year Discharge, Q2 (cfs)	--	--	

8. Design Velocity

Vegetal Retardance Curve	--	--	
Velocity, V2 (fps)	--	--	

9. Design Flow Depth

Flow Depth, D2 (ft)	--	--	
Flow Area, A (ft^2)	--	--	
Wetted Perimeter, P (ft)	--	--	
Top Width, T (ft)	--	--	
Hydraulic Radius, Rh (ft)	--	--	
VR Product (ft^2/sec)	--	--	
Manning's n value	--	--	
Hydraulic Depth, Dh (ft)	--	--	
Froude Number	--	--	

10. Swale Outflows

Outflows Considered?	--	--	

Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	S1	UIA1	RPA1
Area Type	RPA	UIA	RPA_Swale
Total Area (ft^2)	26,572	11,761	14,810
Imperviousness (%)		100.0%	0.0%
Tributary Runoff (ft^3)		490	741
Runoff Reduction (ft^3)	741	0	741
Runoff Remaining (ft^3)	490	490	0

Total Tributary Area entered on Site Layout Worksheet is: 26,572 square feet

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer:
Company:
Date: April 8, 2026
Project: Falcon Field Filing 2
Location: Swale 2 (E boundary)
Outfall ID: S2

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	S2	UIA2	RPA2								
Area Type	RPA	UIA	RPA_Swale								
Downstream Design Point ID	--	S2	S2								
DCIA (ft^2)	--	--	--								
UIA (ft^2)	--	26,136	--								
RPA (ft^2)	--	--	38,333								
SPA (ft^2)	--	--	--								

2. Protect the RPA from Traffic

RPA Protection Type	--	--	None								

3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	100.0%								
HSG B (%)	--	--	0.0%								
HSG C/D (%)	--	--	0.0%								

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	Seed								
Irrigation Type	--	--	Temporary								

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	--								
Is Concrete Edger used?	--	--	--								
Spacing between slots (ft)	--	--	--								
Slot Opening Length (in)	--	--	--								
Blind Swale Type	--	--	--								
Spreader Energy Dissipation	--	--	--								
Total Area of UIA:RPA (ft^2)	--	--	--								
UIA:RPA Ratio	--	--	--								
UIA:RPA Interface Width (ft)	--	--	--								
L / W Ratio of UIA:RPA	--	--	--								

2. Buffer Length

Average Buffer Length (ft)	--	--	--								

3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	--								
Effective Distance (ft)	--	--	--								
Number of Level Spreaders	--	--	--								

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	--								
Mowing Strip Provided?	--	--	--								

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	--								
UIA:RPA Runoff (in)	--	--	--								
UIA:RPA Runoff (ft^3)	--	--	--								

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft^3)	--	--	--								
Runoff Reduction (ft^3)	--	--	--								
Runoff Reduction (%)	--	--	--								

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale

Total Tributary Area (ft^2)	--	--	38,333
Imperviousness (%)	--	--	0.0%

2. Swale Inflows

Concentrated Flow Type	--	--	Other
Blind Swale Type	--	--	--
Spreader Energy Dissipation	--	--	--
Vertical Drop (in)	--	--	--
Gutter Depression (in)	--	--	--
Curb Opening Length (ft)	--	--	--
Concrete Sediment Pad	--	--	--
Min. Forebay Volume (ft^3)	--	--	--
Design Forebay Volume (ft^3)	--	--	--
Max. Forebay Depth (in)	--	--	--
Design Forebay Depth (in)	--	--	--
Calculated Notch Width (in)	--	--	--
Design Notch Width (in)	--	--	--
Drain Time (minutes)	--	--	--
Energy Dissipation Type	--	--	None

3. Swale Cross Section

Length of Swale (ft)	--	--	920.00
Bottom Width (ft)	--	--	0.00
Bottom Area (ft^2)	--	--	0
Side Slopes (horiz/vert)	--	--	4.00

4. Longitudinal Slope

Available Slope (ft/ft)	--	--	0.010
Design Slope (ft/ft)	--	--	0.010
Total Drop Height (ft)	--	--	0.00
Underdrains Provided?	--	--	NO

5. Calculate Runoff from Tributary Area

Tributary Runoff (ft^3)	--	--	1,917
Reduced Trib. Runoff (ft^3)	--	--	1,917

6. Calculate Runoff Reduction through Swale Bottom

Volume Infiltrated (ft^3)	--	--	1,917
Swale Discharge (ft^3)	--	--	0
Runoff Reduction (%)	--	--	100.0%

7. Design Discharge

2-year Discharge, Q2 (cfs)	--	--	

8. Design Velocity

Vegetal Retardance Curve	--	--	
Velocity, V2 (fps)	--	--	

9. Design Flow Depth

Flow Depth, D2 (ft)	--	--	
Flow Area, A (ft^2)	--	--	
Wetted Perimeter, P (ft)	--	--	
Top Width, T (ft)	--	--	
Hydraulic Radius, Rh (ft)	--	--	
VR Product (ft^2/sec)	--	--	
Manning's n value	--	--	
Hydraulic Depth, Dh (ft)	--	--	
Froude Number	--	--	

10. Swale Outflows

Outflows Considered?	--	--	YES

Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	S2	UIA2	RPA2
Area Type	RPA	UIA	RPA_Swale
Total Area (ft^2)	64,469	26,136	38,333
Imperviousness (%)		100.0%	0.0%
Tributary Runoff (ft^3)		1,089	1,917
Runoff Reduction (ft^3)	1,917	0	1,917
Runoff Remaining (ft^3)	1,089	1,089	0

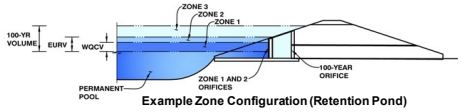
Total Tributary Area entered on Site Layout Worksheet is: 64,469 square feet

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: Falcon Field Filing 2

Basin ID: Pond A (with overdetention)



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	19.64	acres
Watershed Length =	1,100	ft
Watershed Length to Centroid =	380	ft
Watershed Slope =	0.025	ft/ft
Watershed Imperviousness =	53.60%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides
Water Quality Capture Volume (WQCV) =	0.354	acre-feet	acre-feet
Excess Urban Runoff Volume (EURV) =	1.238	acre-feet	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.890	acre-feet	1.19 inches
5-yr Runoff Volume (P1 = 1.5 in.) =	1.179	acre-feet	1.50 inches
10-yr Runoff Volume (P1 = 1.75 in.) =	1.410	acre-feet	1.75 inches
25-yr Runoff Volume (P1 = 2 in.) =	1.757	acre-feet	2.00 inches
50-yr Runoff Volume (P1 = 2.25 in.) =	2.096	acre-feet	2.25 inches
100-yr Runoff Volume (P1 = 2.52 in.) =	2.523	acre-feet	2.52 inches
500-yr Runoff Volume (P1 = 3.49 in.) =	4.000	acre-feet	3.49 inches
Approximate 2-yr Detention Volume =	0.798	acre-feet	
Approximate 5-yr Detention Volume =	1.049	acre-feet	
Approximate 10-yr Detention Volume =	1.276	acre-feet	
Approximate 25-yr Detention Volume =	1.554	acre-feet	
Approximate 50-yr Detention Volume =	1.728	acre-feet	
Approximate 100-yr Detention Volume =	1.932	acre-feet	

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.354	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.884	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.694	acre-feet
Total Detention Basin Volume =	1.932	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

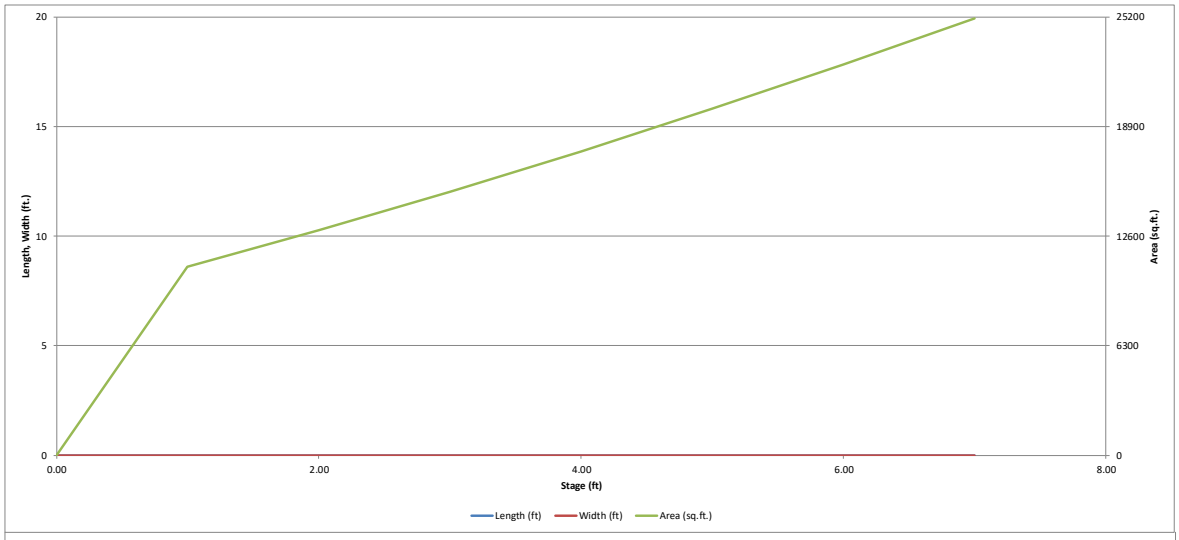
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

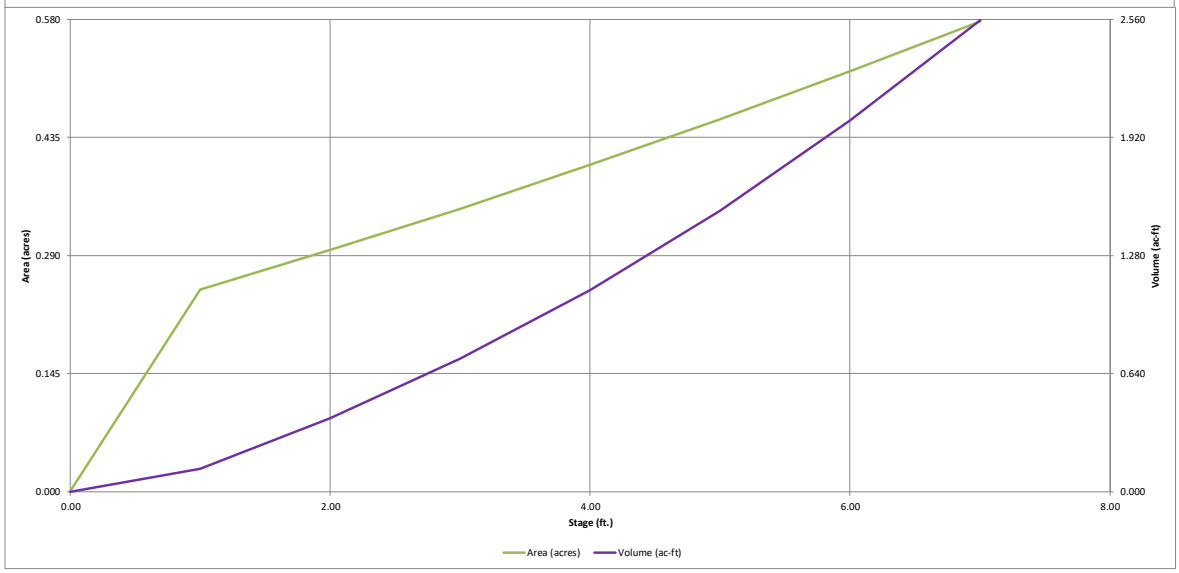
Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	40	0.001		
6826	--	1.00	--	--	--	10,828	0.249	5,434	0.125
6827	--	2.00	--	--	--	12,923	0.297	17,309	0.397
6828	--	3.00	--	--	--	15,137	0.347	31,339	0.719
6829	--	4.00	--	--	--	17,471	0.401	47,643	1.094
6830	--	5.00	--	--	--	19,925	0.457	66,341	1.523
6831	--	6.00	--	--	--	22,478	0.516	87,543	2.010
6832	--	7.00	--	--	--	25,157	0.578	111,360	2.556

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



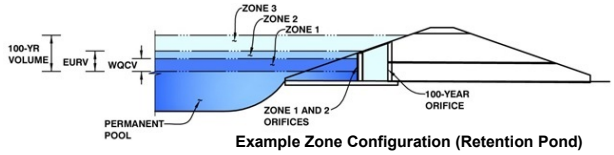


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: Falcon Field Filing 2

Basin ID: Pond A (with overdetention)



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.86	0.354	Orifice Plate
Zone 2 (EURV)	4.36	0.884	Orifice Plate
Zone 3 (100-year)	5.85	0.694	Weir&Pipe (Restrict)
Total (all zones)		1.932	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	4.36	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.42	2.84					
Orifice Area (sq. inches)	2.95	2.95	2.00					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Not Selected	Not Selected
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A
Vertical Orifice Diameter =	N/A	N/A	inches			

Calculated Parameters for Vertical Orifi

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected
Overflow Weir Front Edge Height, Ho =	4.56	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	4.56	N/A
Overflow Weir Front Edge Length =	4.30	N/A	feet	Overflow Weir Slope Length =	4.30	N/A
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	9.42	N/A
Horiz. Length of Weir Sides =	4.30	N/A	feet	Overflow Grate Open Area w/o Debris =	12.87	N/A
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	6.43	N/A
Debris Clogging % =	50%	N/A	%			

Calculated Parameters for Overflow We

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected
Depth to Invert of Outlet Pipe =	0.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	1.37	N/A
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.60	N/A
Restrictor Plate Height Above Pipe Invert =	13.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	2.03	N/A

Calculated Parameters for Outlet Pipe w/ Flow Restriction Pla

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	5.44	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.56	feet
Spillway Crest Length =	40.00	feet	Stage at Top of Freeboard =	7.00	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.58	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	2.56	acre-ft

Calculated Parameters for Spillway

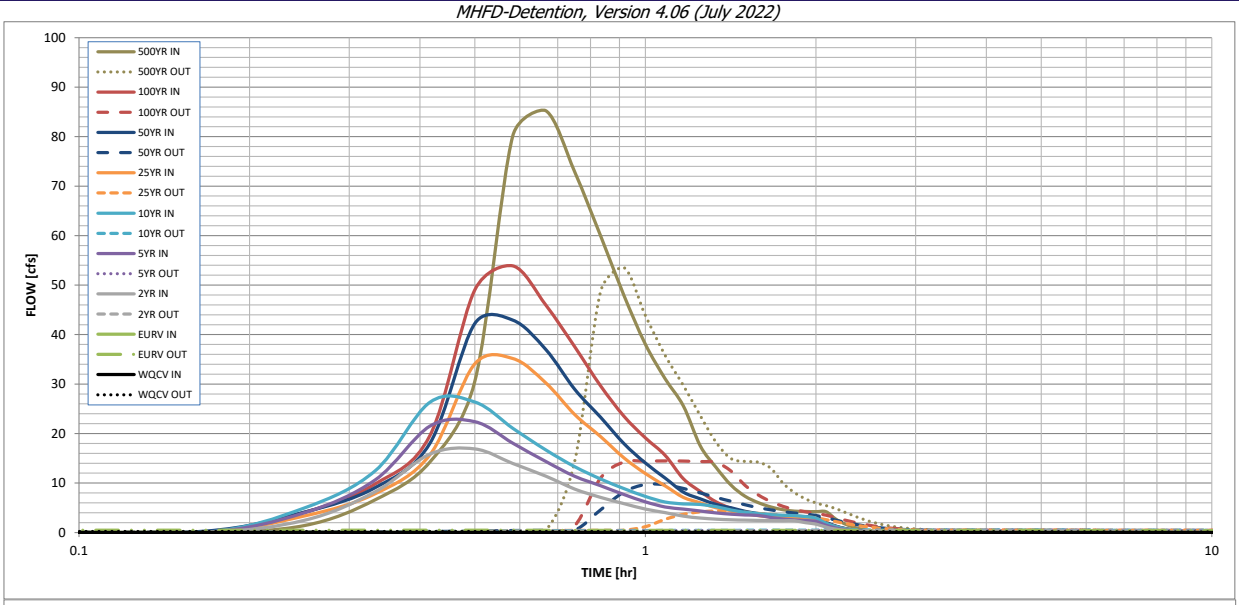
Routed Hydrograph Results

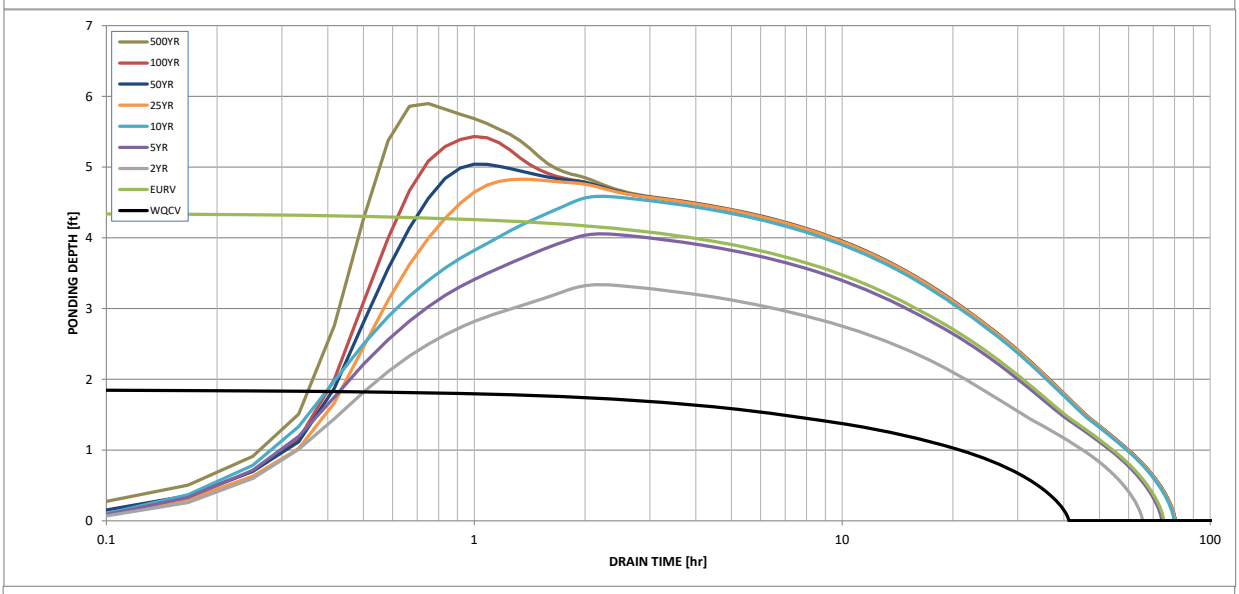
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

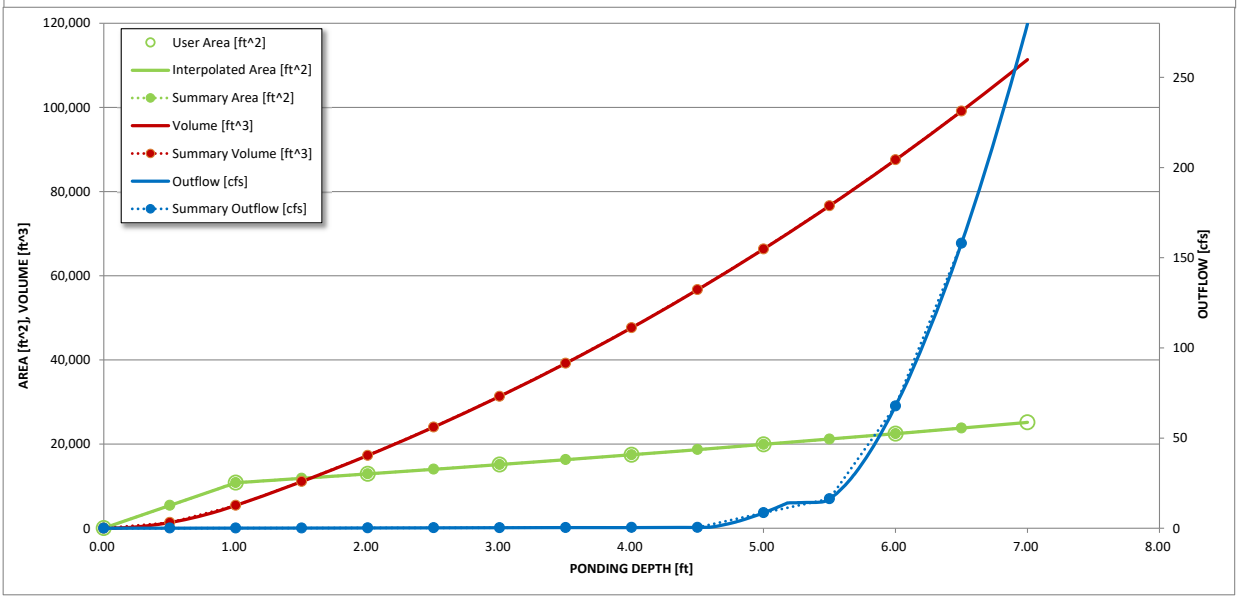
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52
CUHP Runoff Volume (acre-ft) =	0.354	1.238	0.890	1.179	1.410	1.757	2.096	2.523
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.890	1.179	1.410	1.757	2.096	2.523
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.2	0.4	0.6	5.0	9.8	16.1
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A						
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.03	0.26	0.50	0.82
Peak Inflow Q (cfs) =	N/A	N/A	16.9	22.4	26.4	35.2	42.9	53.9
Peak Outflow Q (cfs) =	0.2	0.5	0.4	0.4	0.6	4.3	9.7	14.5
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.0	1.0	0.9	1.0	0.9
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.0	0.3	0.7	1.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	38	67	59	66	71	70	68	66
Time to Drain 99% of Inflow Volume (hours) =	**40**	71	63	70	76	76	75	74
Maximum Ponding Depth (ft) =	1.86	4.36	3.34	4.05	4.59	4.83	5.04	5.43
Area at Maximum Ponding Depth (acres) =	0.29	0.42	0.37	0.40	0.43	0.45	0.46	0.48
Maximum Volume Stored (acre-ft) =	0.356	1.242	0.837	1.114	1.336	1.442	1.537	1.725

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.03	1.40
	0:15:00	0.00	0.00	2.46	4.00	4.97	3.35	4.12	4.09	6.61
	0:20:00	0.00	0.00	8.24	10.64	12.47	7.84	9.07	9.82	14.28
	0:25:00	0.00	0.00	15.85	21.52	26.34	15.74	18.06	19.65	30.57
	0:30:00	0.00	0.00	16.89	22.38	26.37	34.11	42.25	49.03	80.15
	0:35:00	0.00	0.00	13.95	18.04	21.07	35.15	42.93	53.88	85.25
	0:40:00	0.00	0.00	11.38	14.37	16.70	30.26	37.00	45.98	72.90
	0:45:00	0.00	0.00	8.79	11.37	13.31	23.86	28.94	37.55	59.95
	0:50:00	0.00	0.00	7.10	9.46	10.82	19.40	23.29	29.64	47.89
	0:55:00	0.00	0.00	5.82	7.66	8.88	15.07	17.95	23.48	38.04
	1:00:00	0.00	0.00	4.75	6.19	7.28	11.91	14.03	19.11	31.08
	1:05:00	0.00	0.00	4.02	5.16	6.17	9.44	11.01	15.61	25.60
	1:10:00	0.00	0.00	3.30	4.74	5.79	7.11	8.16	10.87	17.51
	1:15:00	0.00	0.00	2.93	4.36	5.68	5.99	6.82	8.29	13.13
	1:20:00	0.00	0.00	2.70	3.96	5.21	5.01	5.66	6.18	9.54
	1:25:00	0.00	0.00	2.58	3.71	4.54	4.42	4.99	4.88	7.32
	1:30:00	0.00	0.00	2.50	3.55	4.10	3.79	4.27	4.12	6.03
	1:35:00	0.00	0.00	2.44	3.45	3.81	3.40	3.83	3.61	5.16
	1:40:00	0.00	0.00	2.40	3.02	3.61	3.15	3.54	3.29	4.61
	1:45:00	0.00	0.00	2.39	2.73	3.49	2.99	3.36	3.12	4.33
	1:50:00	0.00	0.00	2.39	2.54	3.40	2.90	3.26	3.06	4.24
	1:55:00	0.00	0.00	1.98	2.42	3.23	2.84	3.20	3.04	4.21
	2:00:00	0.00	0.00	1.70	2.25	2.89	2.82	3.17	3.04	4.21
	2:05:00	0.00	0.00	1.10	1.46	1.88	1.83	2.06	1.97	2.73
	2:10:00	0.00	0.00	0.69	0.92	1.20	1.18	1.32	1.26	1.74
	2:15:00	0.00	0.00	0.43	0.57	0.74	0.73	0.82	0.78	1.08
	2:20:00	0.00	0.00	0.24	0.34	0.44	0.44	0.49	0.47	0.64
	2:25:00	0.00	0.00	0.13	0.20	0.25	0.26	0.28	0.27	0.37
	2:30:00	0.00	0.00	0.05	0.09	0.11	0.12	0.13	0.13	0.17
	2:35:00	0.00	0.00	0.02	0.03	0.03	0.04	0.04	0.04	0.05
	2:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]
	0.00	40	0.001	0	0.000	0.00
	0.50	5,434	0.125	1,368	0.031	0.07
	1.00	10,828	0.249	5,434	0.125	0.10
	1.50	11,876	0.273	11,110	0.255	0.15
	2.00	12,923	0.297	17,309	0.397	0.21
	2.50	14,030	0.322	24,047	0.552	0.26
	3.00	15,137	0.347	31,339	0.719	0.32
	3.50	16,304	0.374	39,199	0.900	0.38
	4.00	17,471	0.401	47,643	1.094	0.43
	4.50	18,698	0.429	56,685	1.301	0.47
	5.00	19,925	0.457	66,341	1.523	8.59
	5.50	21,201	0.487	76,623	1.759	16.33
	6.00	22,478	0.516	87,543	2.010	67.83
	6.50	23,817	0.547	99,117	2.275	158.05

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

Pond A

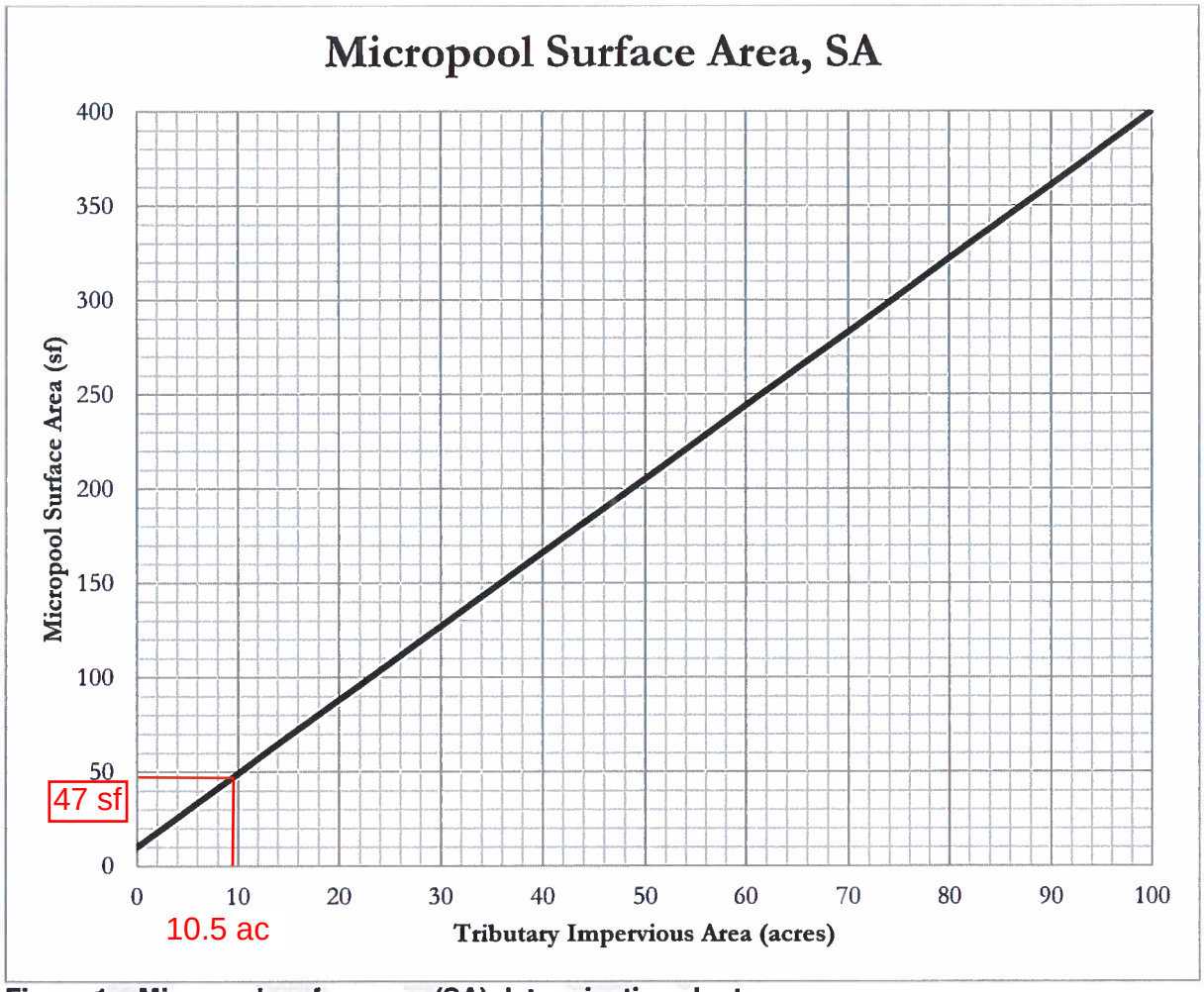


Figure 1 – Micropool surface area (SA) determination chart

The tributary impervious area is the effective number of impervious acres that will be treated by the extended detention basin (EDB). It is calculated by multiplying the tributary area to be treated by the impervious fraction of that area.

$$TIA = I \times A$$ = (53.6/100) x 19.64 ac = 10.5 ac

TIA = Tributary impervious area (acres)
I = Imperviousness (fraction)
A = Tributary catchment area upstream (acres)

For EDBs with tributary impervious areas greater than 100 acres, the micropool surface area is 400 sf. The initial surcharge depth (ISD) is defined as the depth of the initial surcharge volume (ISV). The surface area determined using Figure 1 assumes an ISD of 4 inches. The initial surcharge volume is thus calculated by multiplying the micropool surface area by 4 inches.

$$ISV = SA \times 4\ inches$$

ISV = Initial surcharge volume (cf)
SA = Surface area (from Figure 1, sf)

EAST FOREBAY VOLUME

Req'd V=3% x WQCV

Ratio of Tributary Area	100.0%	
WQCV=	0.354	ac-ft
Req'd V=	0.011	ac-ft
Actual V	0.011	ac-ft

EAST FOREBAY RELEASE NOTCH WIDTH

$Q=CLH^{3/2}$

Peak Inflow Q_{100}=	56.4	cfs
2% of Q=	1.13	cfs
C=	2.6	
H (height of forebay wall)=	1	ft
L=	5	in
	3	in min.

TRICKLE CHANNEL CAPACITY

Channel Slope	0.005	ft/ft
Bottom Width	6	feet
Min. curb height	6	inches
Full flow capacity, Q	11.2	cfs
1% of Q100	5.64	cfs

Pond A

Figure 13-12c. Emergency Spillway Protection

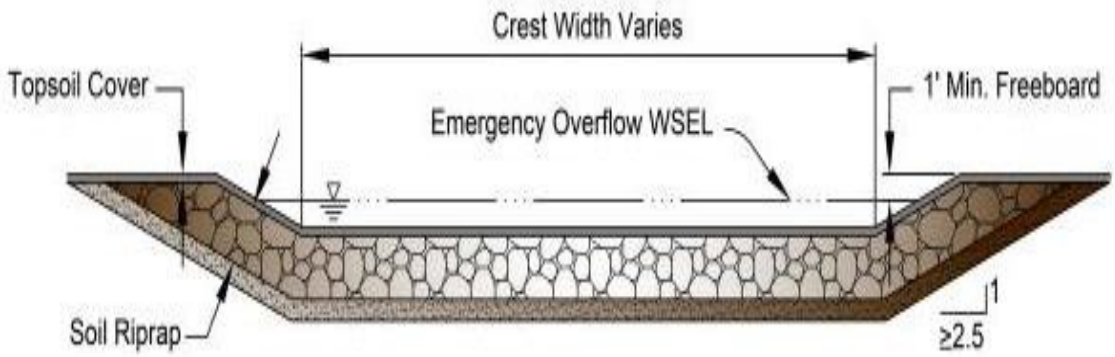
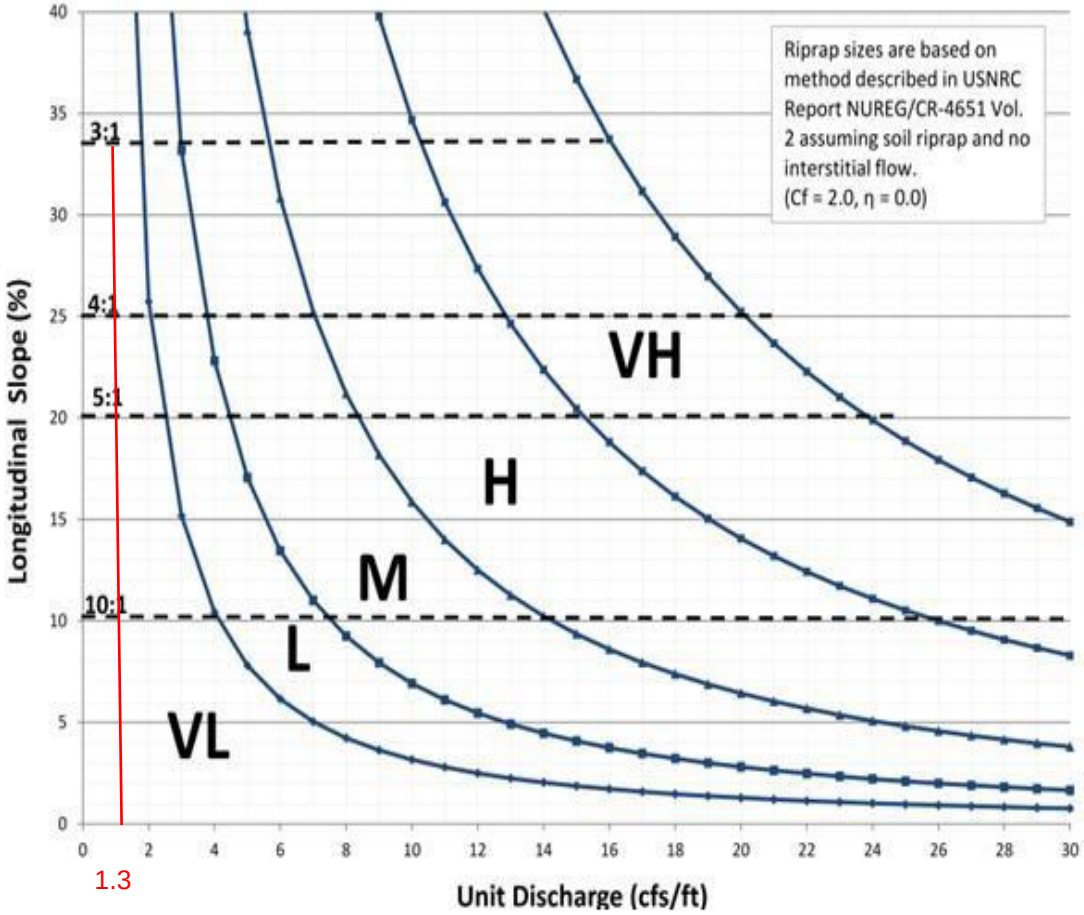


Figure 13-12d. Riprap Types for Emergency Spillway Protection



Q100=56.4 cfs
Spillway length=40 ft
56.4 cfs/40 ft = 1.4 cfs/ft

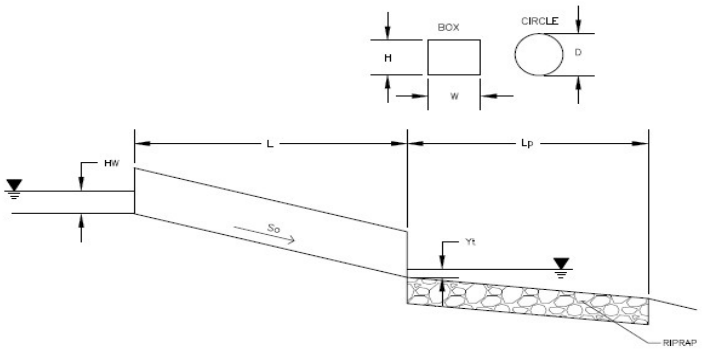
Swale Calculations

DETERMINATION OF CULVERT HEADWATER AND OUTLET PROTECTION

MHFD-Culvert, Version 4.00 (May 2020)

Project: **Falcon Field Filing 2**

ID: **Rio Lane**



Soil Type:

Choose One:
- (●) Sandy
- ( ) Non-Sandy

Design Information:			
Design Discharge	Q =	16.6	cfs
Circular Culvert:			
Barrel Diameter in Inches	D =	24	inches
Inlet Edge Type (Choose from pull-down list)		Grooved Edge Projecting	
OR:			
Box Culvert:		**OR**	
Barrel Height (Rise) in Feet	H (Rise) =		ft
Barrel Width (Span) in Feet	W (Span) =		ft
Inlet Edge Type (Choose from pull-down list)			
Number of Barrels	# Barrels =	1	
Inlet Elevation	Elev IN =	6835.35	ft
Outlet Elevation **OR** Slope	Elev OUT =	6835.08	ft
Culvert Length	L =	54	ft
Manning's Roughness	n =	0.013	
Bend Loss Coefficient	k_b =	0	
Exit Loss Coefficient	k_x =	1	
Tailwater Surface Elevation	$Y_{t,\ Elevation}$ =		ft
Max Allowable Channel Velocity	V =	5	ft/s

Calculated Results:			
Culvert Cross Sectional Area Available	A =	3.14	ft^2
Culvert Normal Depth	Y_n =	1.71	ft
Culvert Critical Depth	Y_c =	1.47	ft
Froude Number	Fr =	0.72	
Entrance Loss Coefficient	k_e =	0.20	
Friction Loss Coefficient	k_f =	0.67	
Sum of All Loss Coefficients	k_s =	1.87	ft
Headwater:			
Inlet Control Headwater	HW_I =	2.26	ft
Outlet Control Headwater	HW_O =	2.27	ft
Design Headwater Elevation	**HW =**	**6837.62**	**ft**
Headwater/Diameter OR Headwater/Rise Ratio	**HW/D =**	**1.14**	
Outlet Protection:			
Flow/(Diameter^2.5)	Q/D^2.5 =	2.93	$ft^{0.5}/s$
Tailwater Surface Height	Y_t =	0.80	ft
Tailwater/Diameter	Yt/D =	0.40	
Expansion Factor	1/(2*tan(Θ)) =	4.47	
Flow Area at Max Channel Velocity	A_t =	3.32	ft^2
Width of Equivalent Conduit for Multiple Barrels	W_{eq} =	-	ft
Length of Riprap Protection	**L_p =**	**10**	**ft**
Width of Riprap Protection at Downstream End	**T =**	**5**	**ft**
Adjusted Diameter for Supercritical Flow	Da =	-	ft
Minimum Theoretical Riprap Size	d_{50} min=	5	in
Nominal Riprap Size	d_{50} nominal=	6	in
MHFD Riprap Type	**Type =**	**VL**	

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Nov 13 2025

Falcon Field Filing 2 - DP4 Swale

Triangular

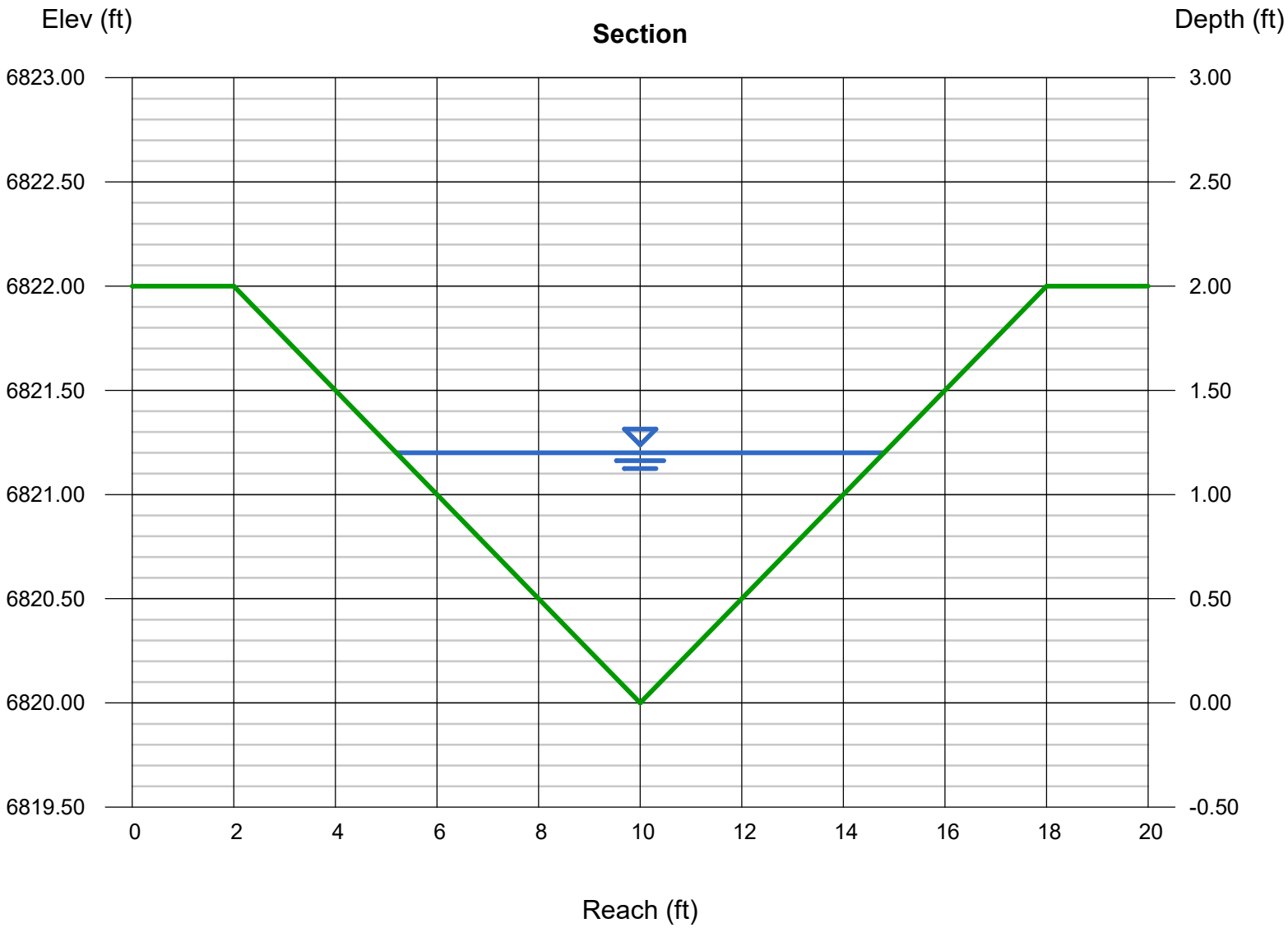
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 6820.00
Slope (%)	= 1.50
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cfs)	= 20.70

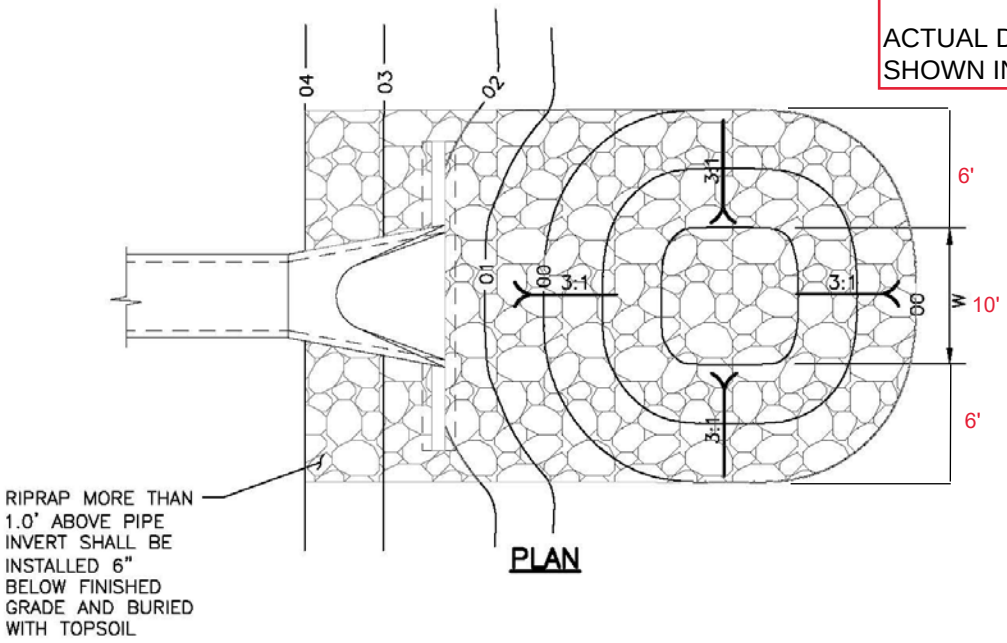
Highlighted

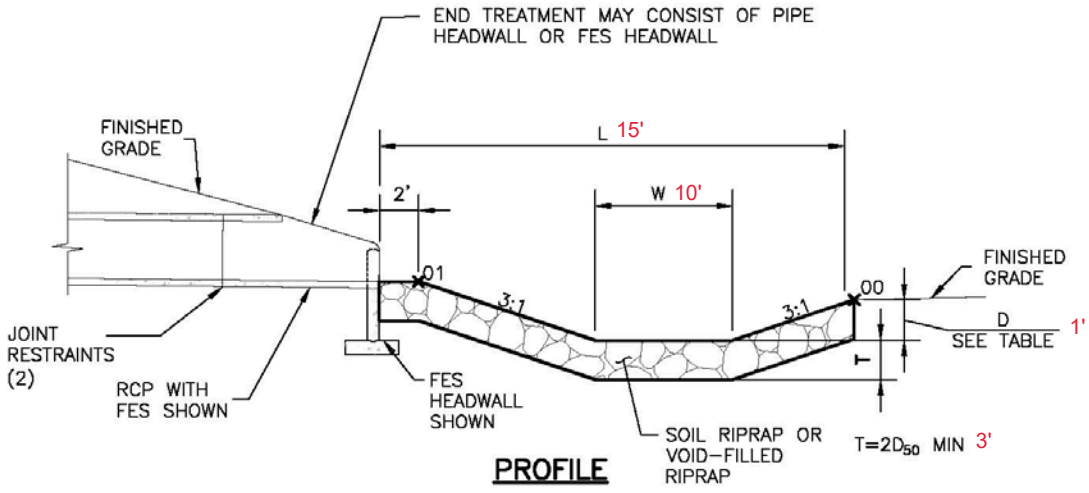
Depth (ft)	= 1.20
Q (cfs)	= 20.70
Area (sqft)	= 5.76
Velocity (ft/s)	= 3.59
Wetted Perim (ft)	= 9.90
Crit Depth, Yc (ft)	= 1.11
Top Width (ft)	= 9.60
EGL (ft)	= 1.40



DP 4 DITCH OUTFALL
AT SE CORNER

ACTUAL DIMENSIONS
SHOWN IN RED





PIPE SIZE OR BOX HEIGHT	D	W*	L
18" – 24"	1'–0"	4'	15'
30" – 36"	1'–6"	6'	20'
42" – 48"	2'–0"	7'	24'
54" – 60"	2'–6"	8'	28'
66" – 72"	3'–0"	9'	32'

* IF OUTLET PIPE IS A BOX CULVERT WITH A WIDTH GREATER THAN W, THEN W = CULVERT WIDTH

FLOW DEPTH 1.2' AT 9.6' WIDE. EQUIVALENT TO 2'X10' BOX CULVERT

Figure 9-37. Low tailwater riprap basin

DP4 DITCH OUTFALL

ACTUAL DIMENSIONS SHOWN IN RED

$$H_a = \frac{(H + Y_n)}{2}$$

Where the maximum value of H_a shall not exceed H, and:

D_a = parameter to use in place of D in Figure 9-38 when flow is supercritical (ft)

D_c = diameter of circular culvert (ft)

H_a = parameter to use in place of H in Figure 9-39 when flow is supercritical (ft)

H = height of rectangular culvert (ft)

Y_n = normal depth of supercritical flow in the culvert (ft)

RIPRAP SIZING

Q= 20.7 cfs
D= 2 ft
Q/D^1.5=7.32
Yt= unknown = 0.4

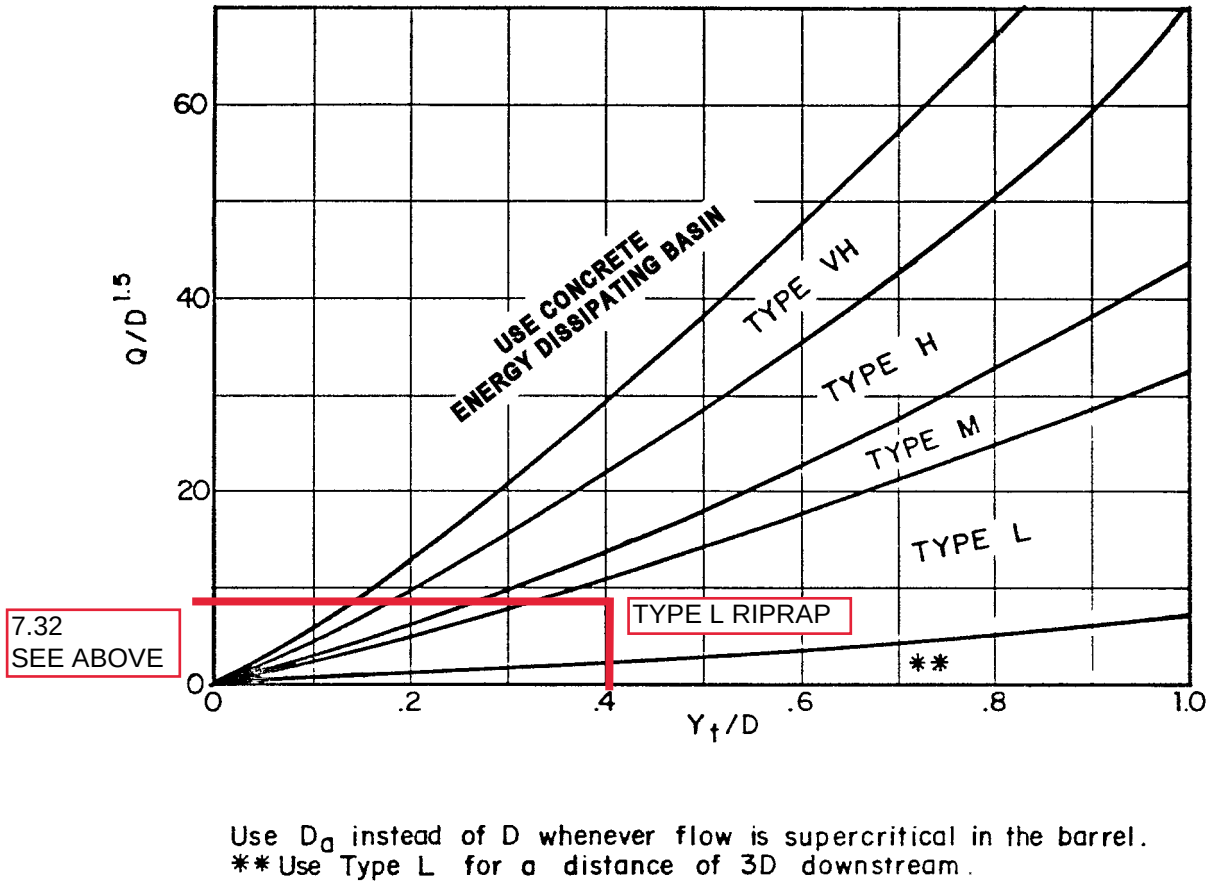
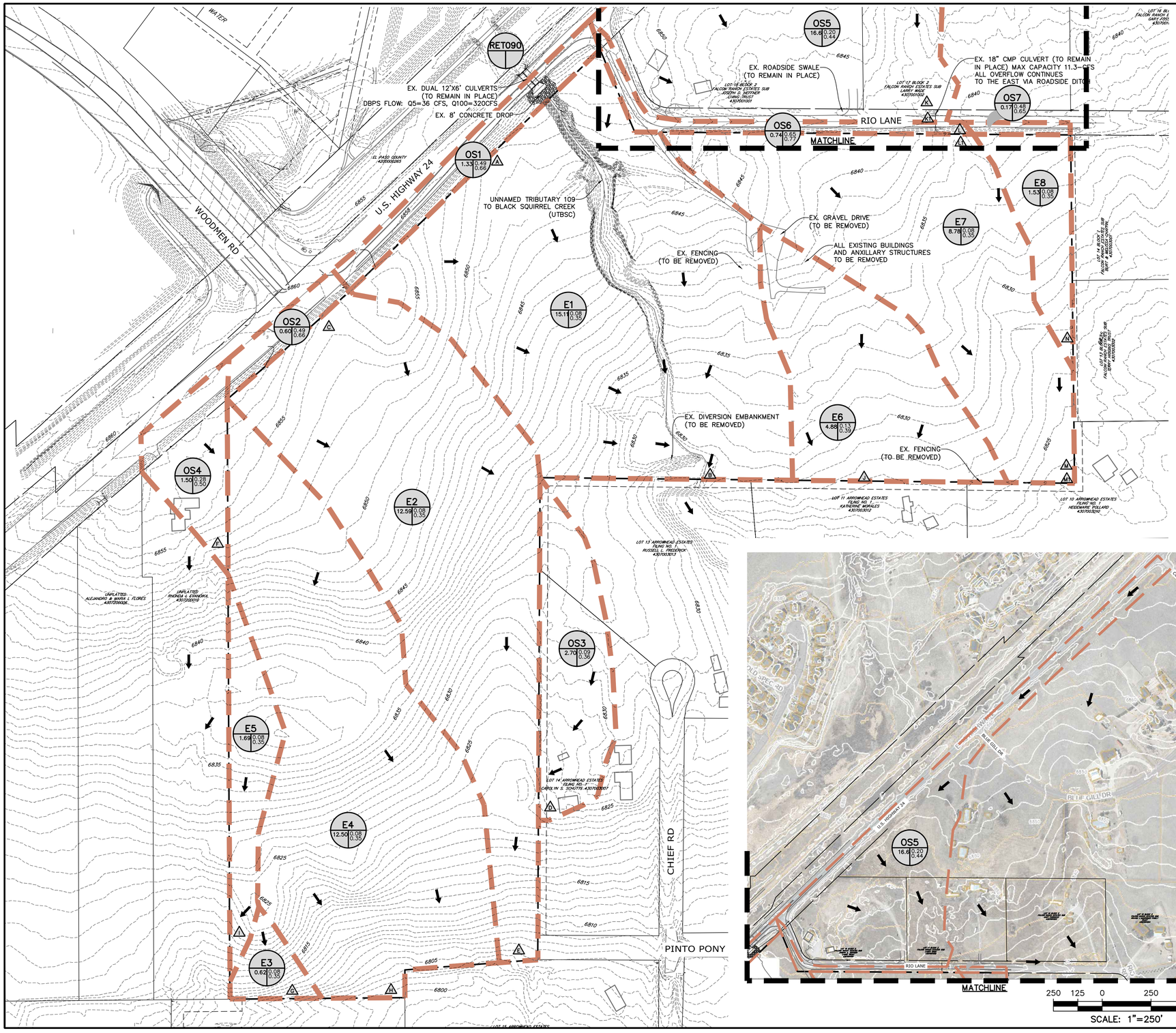


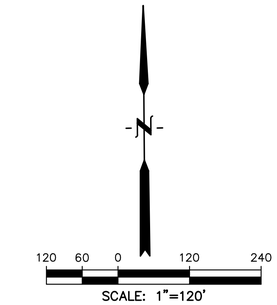
Figure 9-38. Riprap erosion protection at circular conduit outlet (valid for $Q/D_{2.5} \leq 6.0$)

Drainage Maps



BASIN & DESIGN POINT SUMMARY				
BASIN	DP	AREA (AC)	Q5 (cfs)	Q100 (cfs)
OS1	A	1.33	3.4	7.5
E1		15.11	3.4	24.0
RET090 (DBPS)		0.00	36.0	320.0
DPA+E1+RET090	B	16.44	41.1	347.9
OS2	C	0.60	1.4	3.2
OS3	D	2.70	0.7	4.7
E2		12.59	2.4	17.3
DPC+DPD+E2	E	15.88	3.6	22.6
OS4	F	1.50	1.5	4.5
E3	G	0.62	0.2	1.4
E4		12.50	2.4	17.9
DPF+E4	H	14.00	3.5	20.9
E5	I	1.69	0.4	2.7
E6	J	4.88	2.0	10.1
OS5	K	16.62	7.8	28.2
OS5 @ 18" culvert (max capacity)	K1	0.00	7.8	11.3
OS6	L	0.74	2.5	5.0
DPK1+DPL	L1	0.00	10.2	16.3
E7		8.78	1.5	10.9
DPL+E7	M	9.51	2.5	12.9
DPM+DPK1	M1	0.00	10.3	24.2
OS7		0.17	0.4	0.9
E8		1.53	0.4	3.1
OS7+E8	N	1.70	0.7	3.8

EXCERPT FROM FILING 1 FINAL DRAINAGE REPORT:
FILING 1 EXISTING CONDITIONS, FOR REFERENCE AND TO SHOW LIMITS OF OFFSITE BASED OS5



LEGEND

- EX. MINOR CONTOUR
- 6800 EX. MAJOR CONTOUR
- EX. FENCE LINE
- ST EX. STORM DRAIN
- BASIN BOUNDARY
- FLOW DIRECTION
- DESIGN POINT
- E5 5.91 0.12 0.38 — BASIN, C5, C100 (AREA (ACRE))

PREPARED BY:
DREXEL, BARRELL & CO.
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PROTERRA PROPERTIES
1864 WOODMOOR DR
MONUMENT, CO 80132
(719) 476-0800
CONTACT: STEVE ROSSOLL

DRAINAGE PLANS FOR
THE COMMONS AT FALCON FIELD
FILING NO. 1
12445 RIO LANE, AND VACANT LAND
PEYTON, EL PASO COUNTY, COLORADO

ISSUE	DATE
INITIAL ISSUE	10/1/24
RESUBMITTAL	4/2/26

DESIGNED BY:	TDM
DRAWN BY:	CGH
CHECKED BY:	KGV
FILE NAME:	21604-00F1-EXDR

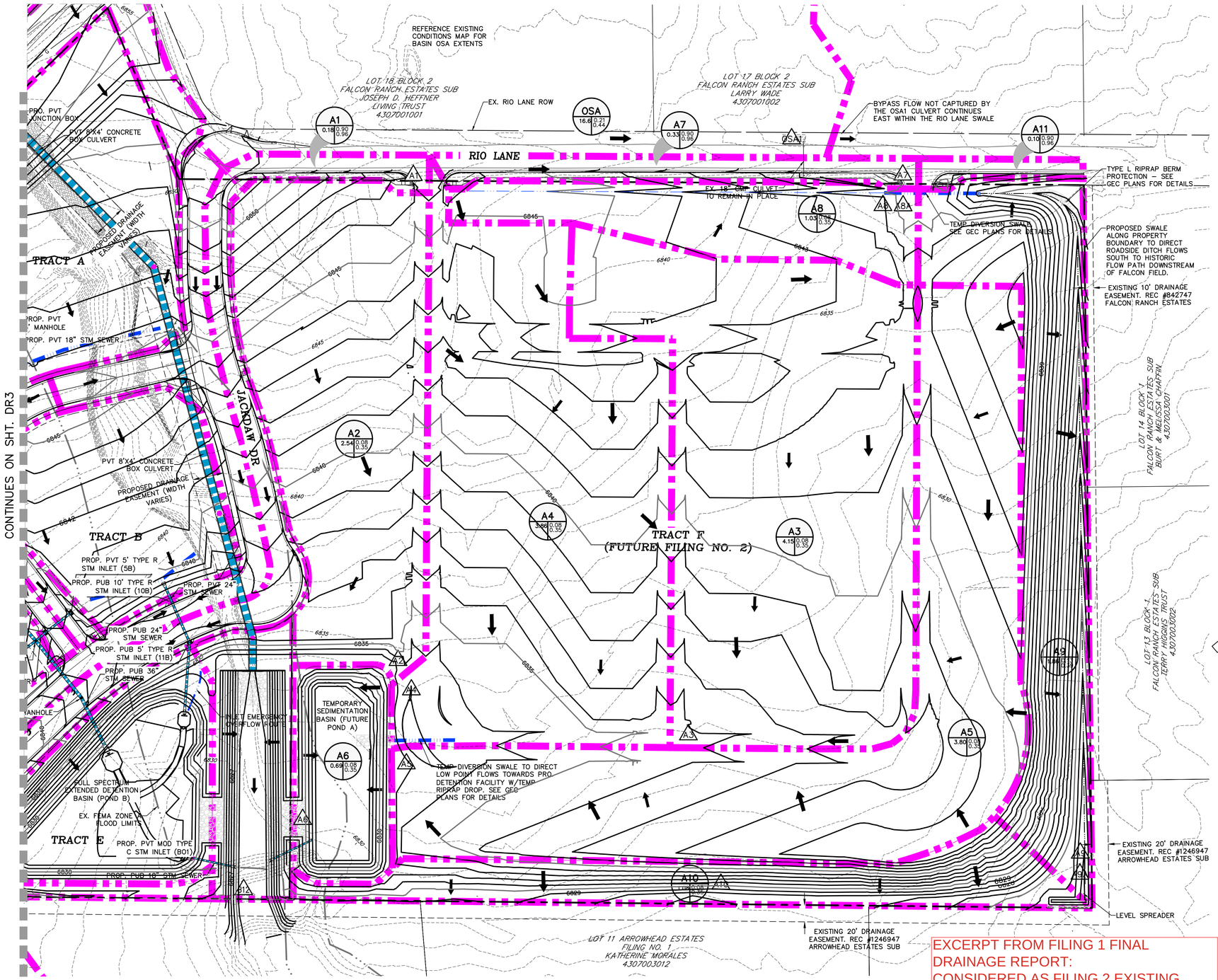
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

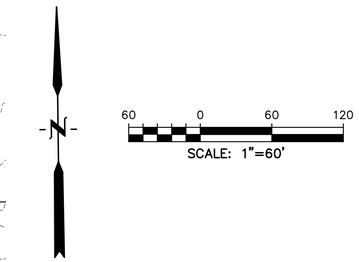
DRAWING SCALE:
HORIZONTAL: 1" = 120'
VERTICAL: N/A

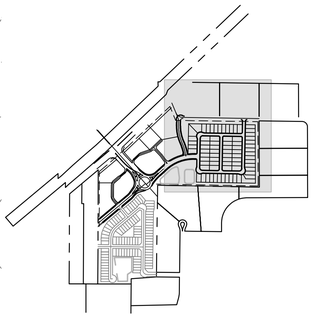
OVERALL EXISTING DRAINAGE MAP

PROJECT NO. 21604-00CSCV
DRAWING NO.
EDR1

SHEET: 1 OF 5







BASIN & DESIGN POINT SUMMARY				
BASIN	DP	AREA (AC)	Q5	Q100
A-BASINS				
OSA		16.62	7.8	28.3
OSA @ 18" culvert	OSA1		7.8	11.3
A1	A1	0.18	0.8	1.5
A2		2.56	0.7	4.8
DPA1+A2	A2	2.74	1.1	5.4
A3	A3	4.15	0.9	6.6
A4		3.86	1.1	7.6
DPA3+A4	A4	8.02	1.7	12.0
A5		3.80	0.8	5.9
DPA2+DPA4+A5	A5	14.55	3.4	22.1
A6		0.69	0.2	1.5
DPA5+A6	A6	15.24	3.5	23.1
A7	A7	0.33	1.5	2.6
A8		1.03	0.3	2.1
DPA7+A8	A8	1.36	1.3	4.0
OSA1+A8	A8A	0.00	9.2	15.3
A9		1.86	1.0	4.9
DPA8+A9	A9	3.22	1.8	6.9
OSA1+A9	A9A	0.00	9.7	18.2
A10	A10	1.08	0.4	2.9
A11		0.10	0.4	0.8

EXCERPT FROM FILING 1 FINAL DRAINAGE REPORT: CONSIDERED AS FILING 2 EXISTING CONDITIONS. REFERENCE PRIOR SHEET EDR1 FOR LIMITS OFF OFFSITE BASIN OSA (BASIN OS5)

PREPARED BY:

DREXEL, BARRELL & CO.
Engineers • Surveyors
101 SAHWATCH STREET, STE #100
COLORADO SPGS, COLORADO 80903
CONTACT: TIM D. McCONNELL, P.E.
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ISSUE	DATE
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RESUBMITTAL	4/2/26

DESIGNED BY:	TDM
DRAWN BY:	CGH
CHECKED BY:	KGV
FILE NAME:	21604–00F1–PRDR

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

DRAWING SCALE:
HORIZONTAL: 1" = 60'
VERTICAL: N/A

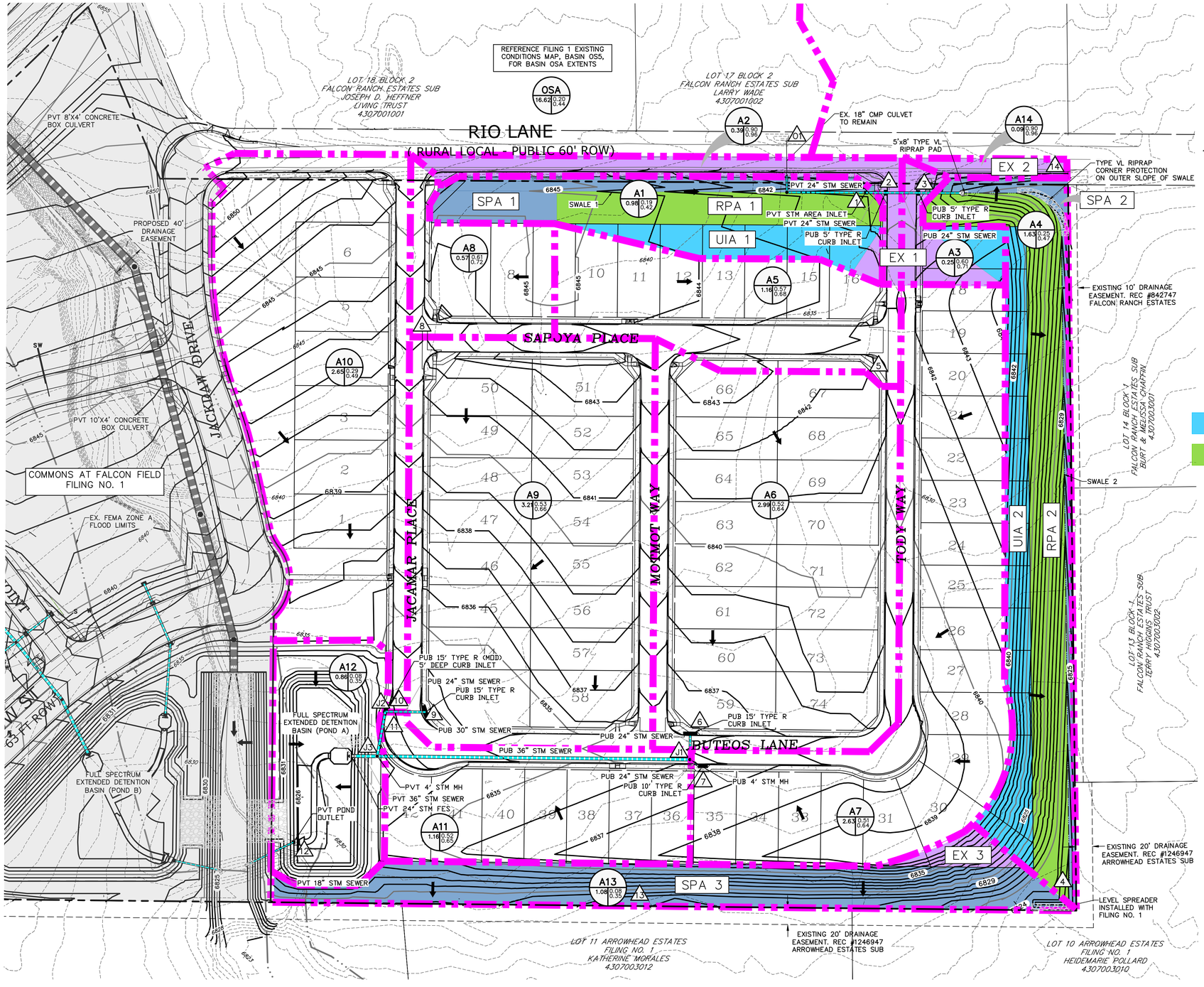
PROPOSED DRAINAGE MAP (A–BASINS ONLY)

PROJECT NO. 21604–00CSCV

DRAWING NO.

DR2

SHEET: 3 OF 5



RUNOFF REDUCTION SUMMARY		
Identifier	Area (Acres)	Notes
Self Treating Areas		
SPA1	0.33	Non-receiving open area to rear of Lots 7-16
SPA2	0.24	Upslope side of swale along east boundary
SPA3	0.98	Non-receiving slope to rear of lots 32-42
Runoff Reduction Area		
UIA1	0.27	Rear of lots 9-16
RPA1	0.34	Receiving swale for UIA1
UIA2	0.60	Rear of lots 17-30
RPA2	0.88	Receiving swale for UIA2
Exclusion Areas		
EX1	0.60	Exclusion Area - Rio Lane & Intersection with Tody Way
EX2	0.08	Rio Lane - east of Tody Way
EX3	0.09	Rear of Lots 30-31

BASIN & DESIGN POINT SUMMARY				
BASIN	DP	AREA (AC)	Q5	Q100
OSA		16.62	7.8	28.3
OSA @ 18" culvert (max	O1		7.8	11.3
A1		0.98	0.6	2.3
O1+A1	1	0.00	8.4	13.6
A2		0.39	1.6	2.8
DP1+A2	2	1.36	9.6	15.6
A3		0.25	0.7	1.4
DP2+A3	3	1.62	10.0	16.6
A4		1.63	1.7	5.2
DP3+A4	4	3.25	11.4	20.7
A5	5	1.16	2.4	4.9
A6		2.99	5.7	11.9
DP5+A6	6	4.15	7.1	14.8
A7	7	2.63	4.8	10.0
DP6+DP7	J1	6.78	10.6	22.1
A8	8	0.57	1.3	2.7
A9		3.21	6.5	13.4
DP8+A9	9	3.79	7.3	15.1
A10	10	2.65	2.9	8.4
A11		1.16	2.3	4.9
DP10+A11	11	4.38	5.2	18.4
DP9+DP11	J2	8.17	12.2	32.2
DPJ1+DPJ2	J3	14.94	23.8	56.4
A12		0.86	0.3	2.3
DPJ3+A12	12	15.81	24.0	57.9
Pond A Outfall			0.4	14.4
A13	13	1.08	0.4	2.9
A14	14	0.09	0.4	0.7

PREPARED BY:

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Engineers • Surveyors
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CLIENT:

FALCON FIELD, LLC

1864 WOODMOOR DR
MONUMENT, CO 80132
(719) 476–0800
CONTACT: STEVE ROSSOLL

DRAINAGE PLANS FOR
THE COMMONS AT FALCON FIELD
FILING NO. 2
12445 RIO LANE, AND VACANT LAND
PEYTON, EL PASO COUNTY, COLORADO

ISSUE	DATE
INITIAL ISSUE	1/31/25
RESUBMITTAL	11/11/25

DESIGNED BY:	TDM
DRAWN BY:	CGH
CHECKED BY:	KGV
FILE NAME:	21604–00F2–PRDR

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

DRAWING SCALE:
HORIZONTAL: 1" = 60"
VERTICAL: N/A

PROPOSED DRAINAGE MAP

PROJECT NO. 21604–02CSCV

DRAWING NO.

DR1

SHEET: 1 OF 1