Approved Final Drainage Report for Haven Valley, Drexel, Barrell & Co., August 2024 Excerpt: Cover Page, Sections 1.0, 9.0, and 10.0

FINAL DRAINAGE REPORT

for

HAVEN VALLEY

El Paso County, Colorado

August 2024

EL PASO COUNTY PCD FILE NO. SF2323

Prepared for:

Midco Investments, LLC
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Prepared by:

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Project #21085-03

FINAL DRAINAGE REPORT

for

HAVEN VALLEY

Security, 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.



8/13/24

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: Midco Investments, LLC

By:  8/13/24

Robert C. Irwin Date

Title: Manager
Address: P.O. Box 60069
Colorado Springs, CO 80960

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.

8/20/2024

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

7.0 FOUR-STEP PROCESS

This project conforms to the City of Colorado Springs/El Paso County Four Step Process. The process focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainage ways, and implementing long-term source controls.

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 BMP's that provide a Water Quality Capture Volume with slow release:*** Runoff from this project will be treated through capture and slow release of the WQCV in a permanent Extended Detention Basin facility designed per current City of Colorado Springs/El Paso County drainage criteria.

3. ***Stabilize Drainage Ways:*** Flows from Pond 1 are released into Widefield Dr. curb and gutter and no stabilization will be necessary.

4. ***Implement Site Specific and Other Source Control BMP's:*** The site is proposed as a residential development, and as such standard household source control will be utilized in order to minimize potential pollutants entering the storm system. Example source control measures consist of: garages for storage of household chemicals, trash receptacles for individual households and in common areas for pet waste. The need for Industrial and Commercial BMP's was considered, however per ECM I.7.2.A the need for industrial and commercial BMPs are not applicable for this project.

8.0 GEOTECHNICAL HAZARDS

In accordance with geotechnical recommendations, the project design is intended to direct runoff away from structures at a minimum slope of six inches over ten feet, and into the receiving water quality basin. This will be accomplished by a variety of means, i.e. curb and gutter and storm sewer.

9.0 DRAINAGE & BRIDGE FEES

2023 Drainage and Bridge Fees

The project lies within the Security Drainage Basin and is previously un-platted. The following fees are required at time of plat recordation:

Impervious area = 11.768 acres x 58.1% = 6.84 acres

Drainage Fees
$24,832 x 6.84 Impervious Acres = $169,850.88

Bridge Fees
None

Drainage fees are requested to be deferred. The total reimbursable costs (see Section 10.0 below) are $256,704. This exceeds the drainage fees by $86,853. Therefore the amount being requested to be deferred is $169,851.

Reimbursement for construction of some of the drainage facilities exceeding the drainage fees due for Haven Valley and the storm sewer outfall in accordance with DCM Section 3.3, is anticipated as identified by the Little Johnson/Security Drainage Basin Planning Study. See Appendix for excerpts from DBPS showing the cost and location for the reimbursable facilities. Construction costs are listed below and the drainage fee is requested to be adjusted accordingly.

10.0 CONSTRUCTION COST ESTIMATE

Private (Non-Reimbursable)

Description	Quantity	Unit Cost	Cost
Type C Area Inlet	2 EA	$4,800/EA	$9,600
Double Type D Area Inlet	1 EA	$11,800/EA	$11,800
5' Type R Inlet	2 EA	$5,700/EA	$11,400
15' Type R Inlet	2 EA	$11,995/EA	$23,990
Type I Manhole	1 EA	$7,000/EA	$7,000
Type II Manhole	5 EA	$5,000/EA	$25,000
18" RCP storm	930 LF	$67/LF	$62,310
24" RCP storm	49 LF	$91/LF	$4,459
30" RCP storm	152 LF	$114/LF	$17,328
36" RCP storm	391 LF	$140/LF	$54,740
Extended Detention Basin	0.5 EA	$250,000/EA	$125,000
		Subtotal	$352,627
		Engineering & Contingency (10%)	$35,263
		TOTAL	$387,890

Public (Reimbursable) – Facilities identified in the DBPS

Description	Quantity	Unit Cost	Cost
15' Type R Inlet	3 EA	$12,907/EA	$38,721
Type I Manhole	2 EA	$15,130/EA	$30,260
24" RCP storm	40 LF	$98/LF	$3,920
30" RCP storm	15 LF	$123/LF	$1,845
36" RCP storm	335 LF	$151/LF	$50,585
Demo asphalt	670 SY	$16/SY	$10,720
Demo concrete sidewalk/ driveway	305 SY	$35/SY	$10,675
Demo curb & gutter	669 LF	$19/LF	$12,711
Aggregate Base Course (6")	112 CY	$66/CY	$7,392
Replace asphalt	140 TONS	$200/TON	$28,000
Replace concrete sidewalk/ driveway	305 SY	$103/SY	$31,415
Replace curb & gutter (hand set)	669 LF	$50/LF	$33,450
Sanitary service relocate/splice	7 EA	$1500/EA	$10,500
Water service relocate/replace	6 EA	$1500/EA	$9,000
Gas service relocate	7 EA	$1000/EA	$7,000
Landscape restoration	1 LS	$50,000	$50,000
		Subtotal	$336,194
		Engineering & Contingency (10%)	$33,619
		TOTAL	$340,261

Private (Reimbursable) – per ECM Appendix L (see below)

Description	Quantity	Unit Cost	Cost
*24" RCP storm	167 LF	$98/LF	$16,366
**Extended Detention Basin	0.5 EA	$250,000/EA	$125,000
		Subtotal	$141,366
		Engineering & Contingency (10%)	$14,137
		TOTAL	$155,503

*This pipe is identified in the DBPS as being reimbursable.

**Per ECM Appendix L 3.10.4a, the proposed detention facility qualifies for a 50% reimbursement. The following requirements for the reimbursement have been met:

1. Allowed only where regional system is not yet in place. (The DBPS infrastructure along Widefield Dr. is not in place)
2. The pond is less than 15 acre-feet in volume from the lowest outlet structure to the crest of the emergency spillway. (The proposed pond volume is 4.54 ac-ft)
3. The on-site pond is not part of the regional plan. (It's not)
4. The outlet of the pond must be designed to release at historical levels for all precipitation events from the 2-year storm to the 100-year storm. A smaller outlet may be required by the County if adequate downstream channel improvements are not in place to protect residents from the 2-year storm flows. (Even better, the

proposed pond is designed to release at LESS than historical levels for all storm events)

5. County approved design and construction. (Pond design plans have been submitted to the County for approval, no construction will take place without this approval)
6. Landowners assume responsibility for maintenance. (The detention facility is to be maintained by the Haven Valley Metropolitan District)

11.0 CONCLUSIONS

The Haven Valley project has been designed in accordance with El Paso County criteria. The detention pond and water quality basin (Pond 1) have been designed to limit the release of storm runoff to less than historic flows. This development will not negatively impact the downstream facilities. This development will improve the downstream conditions by lessening the flows where there are currently flooding issues.

12.0 REFERENCES

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

1. City of Colorado Springs/El Paso County Drainage Criteria Manual, May 2014.

2. Urban Storm Drainage Criteria Manuals, Urban Drainage and Flood Control District. June 2001, Revised April 2008.

3. Preliminary & Final Drainage Report for Patriot Village. Prepared by Core Engineering Group, LLC, December 2013.

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

5. Federal Emergency Management Agency, Flood Insurance Rate Map, El Paso County, Colorado and Unincorporated Areas, Map Number 08041C0763G, Effective Date December 7, 2018

6. 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.

7. Little Johnson/Security Drainage Basin Planning Study. Prepared by Simons Li & Associates, Inc., 1988.

8. Soil Investigation Report for Patriot Village. Prepared by Colorado Engineering & Geotechnical Group, Inc., November 15, 2004.