MVE, INC.
ENGINEERS SURVEYORS
1903 lelaray street, suite 200
colorado springs, co 80909
719.576.0311

Drainage Letter

See all of my orange Stormwater comments on SP215 and apply them to this report as well.

Viewpoint Estates

Filing No. 2

MVE Project No. 61099

November 9, 2021

Update PCD File # to SF-21-042

PCD Proj No.

Drainage Letter

for

Viewpoint Estates
Filing No. 2
El Paso County, Colorado

Project No. 61099

November 9, 2021

prepared for:

Viewpoint Estates LLC
P.O. Box 6797
Colorado Springs, CO 80909

prepared by:

MVE, Inc.
1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909
719.576.0311

Statements and Acknowledgments

Engineer's Statement

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

_____ _____

Charles C. Crum, P.E. Colorado No. 13348 Date
For and on Behalf of MVE, Inc.

Developer's Statement

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

_____ _____

Viewpoint Estates LLC, Owner Date
P.O. Box 6797
Colorado Springs, CO 80909

El Paso County

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

_____ _____

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

Conditions:

Drainage Letter

Introduction:

The purpose of this Drainage Letter for Viewpoint Estates Filing No. 2. is to update the approved drainage report for Viewpoint Estates Subdivision Filing No. 2 to allow the construction of the proposed subdivision improvements. The owner intends to vacate and re-plat lots 71 & 72, Viewpoint Estates. The approved drainage report for the original subdivision is titled "Viewpoint Estates Final Drainage Report" prepared by Pacific Summits Engineering LTD, dated January 6, 1998 and approved by the El Paso County Engineer on October 6, 1999.

Site Description:

The existing subdivision known as Viewpoint Estates is located in the South One-Half of the South One-Half of Section 10, Township 14 South, Range 63 West of the 6th P.M., El Paso County, Colorado. The current addresses for the properties are 21209 & 21307 Chesley Drive, both of which are currently vacant parcels. The subdivision is located on the north side of Highway 94, east of N. Ellicott Hwy., and west of Peyton Hwy. The site is located in both the Telephone Exchange Drainage Basin (CHWS0200), and the Ellicott Consolidated Drainage Basin (CHBS1200). Both of the drainage basins in which the site resides drain to Chico Creek. The subdivision is 24.33± acres in area, and is zoned RR-2.5 containing two (2) rural residential lots.

The site is bounded on the north by residential lots 62-70 of Viewpoint Estates. The east side of the site is adjacent to a large vacant lot, zoned RR-5, that is utilized as grazing land. Highway 94 borders the south side of the site. The parcel to the west of the site is a vacant lot zoned RR-5.

The site is vacant with Antelope Drive, a public paved road in a 60 ft right-of-way, running through the site between existing lots 71 & 72. Highway 94, a public paved road in a 100 ft right-of-way is adjacent to the south side of the site. Chesley Drive, a public paved road in a 60 ft right-of-way, is adjacent to the northern border of the site, providing access to the proposed subdivision from Antelope drive.

Floodplain Statement:

According to the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) Community Panel Number 08041C0810G, dated December 7, 2018, for El Paso County, Colorado the site is not located within any Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Areas (SFHA). A portion of the **FIRM** is included with this Drainage Letter for reference.

Soils:

According to the Natural Resources Conservation Service Web National Cooperative Soil Survey, the soil of the site is made up of Blakeland Loamy Sand (map unit 8), and Truckton Sandy Loam (map unit 96). Blakeland Loamy Sand, which makes up 78.6% of the soil on the site, is part of

hydrologic soil group A. The Blakeland Loamy Sand soil is typically deep and somewhat excessively drained. The permeability of the soil is moderate to rapid, surface runoff is medium and hazard of erosion is moderate. Truckton Sandy Loam, which makes up 21.4% of the soil on the site, is part of hydrologic soil group A. The Truckton Sandy Loam soil is typically deep and well drained. The permeability of the soil is moderate to rapid, surface runoff is medium and hazard of erosion is moderate. A portion of the **National Cooperative Soil Survey Map** is included with this Drainage Letter.

Existing Drainage Conditions:

The site can be delineated by five on-site sub-basins. Off-site flows will continue to enter the site as described in the approved Viewpoint Estates Final Drainage Report for the original subdivision. The rational method was used to calculate the runoff quantities. The existing drainage Map is included in the **Appendix**.

On-site sub-basin EX-A, which makes up the northern portion of Lot 71, is 10.27 acres in area. This sub-basin is made up of pasture/meadow areas that slope to the south. The flows from this sub-basin drain overland to an existing detention basin located in the central portion of lot 71. This sub-basin generates peak storm runoff discharges of Q_5 = 2.9 cfs and Q_{100} = 21.0 cfs (existing flows). The flows from sub-basin EX-A are combined with the of-site flows from the Viewpoint Estates Subdivision as described in the approved drainage report as noted above. The detention basin drains to the south through an existing 24" CSP pipe that drains into sub-basin EX-B at a rate of Q_{100} = 25.28 cfs according to the approved Viewpoint Estates Final Drainage Report for the original subdivision.

On-site sub-basin EX-B, which makes up the southern portion of Lot 71, is 1.99 acres in area. This sub-basin is made up of pasture/meadow areas that slope to the south. The stormwater flows from this sub-basin drain overland into an existing drainage ditch that runs along Highway 94. Sub-basin EX-B generates peak storm runoff discharges of Q_5 = 0.6 cfs and Q_{100} = 4.3 cfs (existing flows). The flows from this sub-basin combine with the flows from sub-basin EX-A at Existing Design Point 1 (EX-DP1) and exit the site through an existing box culvert with peak storm runoff discharges of Q_{100} = 50.4 cfs (existing flows).

On-site sub-basin EX-C, which makes up the northern portion of Lot 72, is 4.68 acres in area. This sub-basin is made up of pasture/meadow areas that slope to the south. The flows from this sub-basin drain overland and are collected in an existing detention basin located in the central portion of lot 72. This sub-basin generates peak storm runoff discharges of Q_5 = 1.4 cfs and Q_{100} = 10.3 cfs (existing flows). The flows from sub-basin EX-C are combined with the of-site flows from the Viewpoint Estates Subdivision in the detention basin. The detention basin drains to the south through an existing 36" CSP pipe that drains into sub-basin EX-D. These combined flows exit the Detention Basin with peak storm runoff discharges of Q_{100} = 42.85 cfs (existing flows) according to the approved Viewpoint Estates Final Drainage Report for the original subdivision.

On-site sub-basin EX-D, which makes up the western portion of Lot 72, is 5.48 acres in area. This sub-basin is made up of pasture/meadow areas that slope to the south. Stormwater runoff from this sub-basin drains overland and is collected in an existing roadside ditch that runs along Highway 94. Sub-basin EX-D generates peak storm runoff discharges of Q_5 = 1.6 cfs and Q_{100} = 11.6 cfs (existing flows). These flows, along with the flows from the existing detention basin, exit the site through an existing box culvert at Existing Design Point 2 (EX-DP2) with peak flow discharges of Q_{100} = 64.4 cfs (existing flows).

On-site sub-basin EX-E, which makes up the eastern portion of Lot 72, is 1.92 acres in area. This sub-basin is made up of pasture/meadow areas that drain overland to the southwest and exits the site into a roadside ditch that travels along Highway 94. Sub-basin EX-C generates peak storm runoff discharges of Q_5 = 0.5 cfs and Q_{100} = 3.7 cfs (existing flows).

Proposed Drainage Conditions:

The proposed development will not alter the existing basic drainage patterns of the site. The site will continue to drain off-site to the south as in existing conditions. The existing detention basins will remain in place and continue to regulate the flows from the site as in existing conditions. The proposed drainage map is included in the **Appendix**.

Proposed sub-basin A, which makes up the northern portion of lot 71, is 10.27 acres in area. This sub-basin contains pasture/meadow areas and four proposed single-family residences with their associated driveways. Stormwater from this sub-basin drains south and is collected in an existing detention basin located in the central portion of the sub-basin. To calculate the proposed runoff discharges it was assumed that each residence would have a footprint of 2,000 sf, and each driveway would be 8,000 sf in size. With these assumptions sub-basin A will generate peak storm runoff discharges of Q_5 = 4.6 cfs and Q_{100} = 23.0 cfs (proposed flows) an increase of Q_5 = 1.7 cfs and Q_{100} = 2.0 cfs from existing conditions. These flows drain overland and combine with the off-site flows from the Viewpoint Estates Subdivision as in existing conditions in the detention basin located in lot 71. The existing detention basin drains south into sub-basin B through an existing 24" CSP pipe at a rate of Q_{100} = 25.28 cfs according to the approved Viewpoint Estates Final Drainage Report for the original subdivision .

Proposed sub-basin B, which makes up the southern portion of lot 71, is 1.99 acres in area. This sub-basin contains pasture/meadow and drains overland to the existing clulvert that runs under Highway 94. Sub-basin B generates peak storm runoff discharges of Q_5 = 0.6 cfs and Q_{100} = 4.3 cfs (proposed flows) as in existing conditions. The flows from sub-basin B combine with the flows from the detention basin and exit the site at Design Point 1 (DP1) with peak flow discharges of Q_{100} = 52.4 cfs (proposed flows) an increase of Q_{100} = 2.0 cfs.

Proposed sub-basin C, which makes up the northern portion of Lot 72, is 4.68 acres in area. This sub-basin is made up of pasture/meadow areas that slope to the south. The flows from this sub-basin drain overland and are collected in an existing detention basin located in the central portion of lot 72. This sub-basin generates peak storm runoff discharges of Q_5 = 2.3 cfs and Q_{100} = 11.4 cfs (proposed flows) an increase of Q_5 = 0.9 cfs and Q_{100} = 1.1 cfs. The flows from sub-basin EX-C are combined with the off-site flows from the Viewpoint Estates Subdivision as described in the approved drainage report as noted above. The detention basin drains to the south through an existing 36" CSP pipe that drains into sub-basin EX-D. These combined flows exit the Detention Basin with peak storm runoff discharges of Q_{100} = 42.85 cfs (proposed flows) according to the approved Viewpoint Estates Final Drainage Report for the original subdivision.

Proposed sub-basin D, which makes up the western portion of lot 72, is 5.48 acres in area. This sub-basin contains pasture/meadow areas, and one proposed single-family residence with associated driveway. Sub-basin C drains south into the drainage ditch that runs along Highway 94. To calculate the proposed runoff discharges it was assumed that each residence would have a footprint of 2,000 sf, and each driveway would be 8,000 sf in size. With these assumptions sub-basin D will generate peak storm runoff discharges of Q_5 = 1.9 cfs and Q_{100} = 11.2 cfs (proposed flows) an increase of Q_5 = 0.3 cfs and Q_{100} = 0.4 cfs from existing conditions. These flows, along with the

flows from the existing detention basin, exit the site through an existing box culvert at Design Point 2 (DP2) with peak flow discharges of Q_{100} = 65.0 cfs (proposed flows) an increase of Q_{100} = 0.6 cfs from the existing conditions.

Proposed sub-basin E, which makes up the eastern portion of Lot 72, is 1.92 acres in area. This sub-basin is made up of pasture/meadow areas that drain overland to the southwest and exits the site into a roadside ditch that travels along Highway 94. Sub-basin EX-C generates peak storm runoff discharges of Q_5 = 0.5 cfs and Q_{100} = 3.7 cfs (proposed flows).

The increase in runoff quantities for 100 year storm events will be 2.0 cfs, and 1.6 cfs at design points 1 and 2 respectively. This minor increase in flows will have a minimal impact on the stormwater flows exiting the site. The existing detention basins will not be altered in any way and will continue to drain at the same rate as in existing conditions.

Downstream Culverts:

The Viewpoint Estates Final Drainage Report describes culverts located in Lots 71 & 72, Viewpoint Estates, that convey the flows from the site to the other side of Highway 94. The culverts outlined in the report included 3 30 inch CMP culverts on the south side of lot 71, and 2 30 inch CMP culverts on the south side of lot 72. These culverts have since been replaced with dual box culverts at each location, which are capable of conveying the proposed flows.

Four Step Process:

The El Paso County Engineering Criteria Manual (Appendix I, Section I.7.2) requires the consideration of a "Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainageways, and implementing long term source controls". The Four Step Process is incorporated in this project and the elements are discussed below.

The portion of the site that is contained within the 2.5-acre single family residential lots are excluded from Post Construction Stormwater Management requirements by ECM I.7.1.B.5 due to the low development density as 2.5-acre lots. There are no proposed improvements associated with the subdivision of the 2.5-acre lots. This site will meet the requirements based on the Runoff Reduction Standard indicated in ECM I.7.1.C.3. There are also no improvements planned for the right of way dedication to Highway 94. No post construction stormwater management will be necessary for the planned project.

1) Runoff Reduction Practices are employed in this project. Impervious surfaces have been reduced as much as practically possible with the low residential density. All impervious surfaces on the site will drain to the surrounding pervious areas allowing infiltration and water quality mitigation. Minimized Directly Connected Impervious Areas (MDCIA) is employed on the project because runoff from the impervious areas of the future home sites will pass over the adjacent natural grassed areas for a distance of 25 feet to 300 feet before entering a roadside ditch or natural drainage way.

2) All drainage paths on the site will remain stabilized with the natural native grass lining. No further stabilization is required.

3) The project contains no potentially hazardous uses. The site is exempted from the use of WQCV BMPs by ECM 1.7.1.B.5 by virtue of the large lot rural residential nature of the site having percent imperviousness of less than 10%. The site includes the use of permanent rip rap aprons at the culvert crossings to control potential sedimentation. The runoff in the roadside ditches of the public roadway will infiltrate into the ground, evaporate, or evapotranspire a quantity of water equal to at

least 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration. Runoff Reduction calculations are included in the appendix.

4) The site contains no storage of potentially harmful substances or use of potentially harmful substances. No Site Specific or Other Source Control BMP's are required.

No drainage improvements will be required for the project.

Drainage Fees:

The Ellicott Consoloidated Drainage Basin has not been studied and is not a Fee Basin at this time. The Telephone Exchange Drainage Basin has drainage fees of $11,093/Impervious Acre, and bridge fees of $260/Impervious Acre. The percent Imperiousness of the 2.5-acre Rural Residential site is 11% in accordance with El Paso County Engineering Criteria Manual Appendix L Table 3-1. Also, reductions in the per acre Drainage Fee are allowed pursuant to El Paso County Resolution 99-383. A fee reduction in the of amount 25% for lots 2.5 acres or larger is utilized for this project. The Viewpoint Estates Filing No. 2 site contains 12.25 acres of land located within the Telephone Exchange Drainage Basin. The Board of County Commissioners, County of El Paso, State of Colorado Resolution No. 20-424 allows the drainage basin fee to be based on impervious acreage

delete the "%" symbol so it's 0.11 or revise to 11%

FEE CALCULATION (2021 Fees)

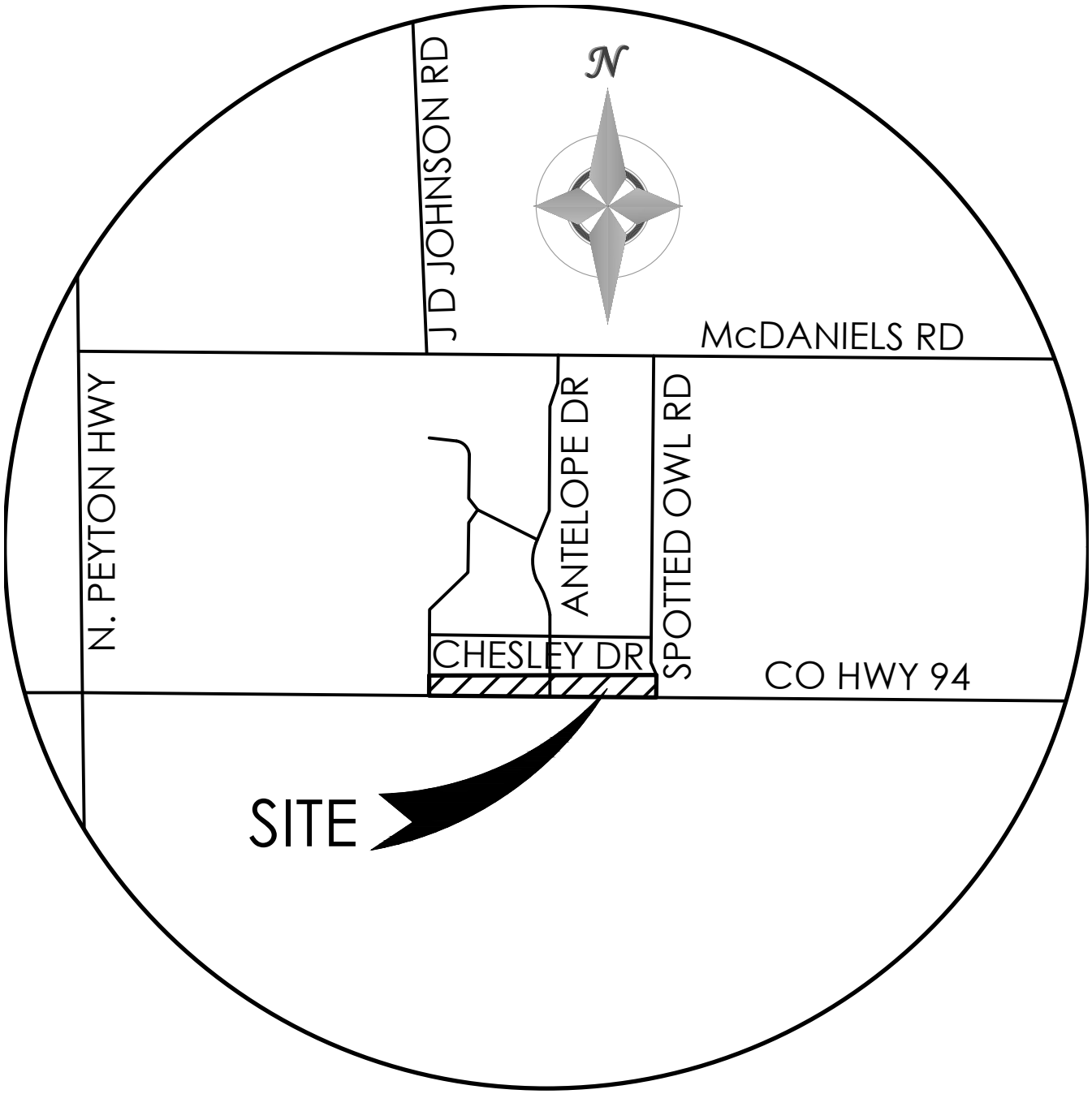
Telephone Exchange Drainage Basin

Drainage Fee $11,093 / Impervious Acre @ 12.25 Acres * 0.11%	= $	14,947.82
Bridge Fee $260 / Impervious Acre @ 12.25 Acres * 0.11%	= $	350.35
Subtotal	= $	15,298.17
25% Drainage Fee Reduction	= $	(3,736.96)
Grand Total Fees	= $	11,561.21

Conclusion:

In Conclusion, the drainage patterns generated by the Viewpoint Estates site under proposed developed conditions are essentially the same as those which existed for the existing Plan. During a 100 year storm event it is expected that the storm water runoff will increase by about 2.0% for the entire site. This slight increase represents an insignificant change in the overall drainage patterns of the. The site and drainage are substantially in accordance with the previously approved Drainage Report prepared in 1998. The proposed development as described in this Drainage Letter will have no adverse impacts to downstream and surrounding developments or downstream drainage ways or storm drain facilities.

Attachments



VICINITY MAP

NOT TO SCALE

Job No.: **61099** Date: **11/9/2021 14:18**

Project: **Viewpoint Estates Filing No. 2** Calcs By: **WCG**

Checked By:

Time of Concentration (Modified from Standard Form SF-1)

Sub-Basin	Sub-Basin Data				Overland			Shallow Channel				Channelized				t_c Check		t_c
	Area (Acres)	C_5	C_{100}/CN	% Imp.	L_0 (ft)	S_0 (%)	t_i (min)	L_{0t} (ft)	S_{0t} (ft/ft)	v_{0sc} (ft/s)	t_t (min)	L_{0c} (ft)	S_{0c} (ft/ft)	v_{0c} (ft/s)	t_c (min)	L (min)	$t_{c,alt}$ (min)	(min)
EX-A	10.27	0.08	0.35	0%	100	1%	18.4	680	0.015	0.8	13.4	0	0.000	0.0	0.0	780	14.3	14.3
EX-B	1.99	0.08	0.35	0%	100	1%	18.4	350	0.014	0.8	7.0	0	0.000	0.0	0.0	450	12.5	12.5
EX-C	4.68	0.08	0.35	0%	100	1%	18.4	290	0.021	1.0	4.8	0	0.000	0.0	0.0	390	12.2	12.2
EX-D	5.48	0.08	0.35	0%	100	3%	12.8	480	0.017	0.9	8.9	0	0.000	0.0	0.0	580	13.2	13.2
EX-E	1.92	0.08	0.35	0%	100	1%	18.4	1000	0.018	0.9	17.7	0	0.000	0.0	0.0	1100	16.1	16.1
A	10.27	0.13	0.38	7%	100	1%	17.5	680	0.015	0.8	13.4	0	0.000	0.0	0.0	780	14.3	14.3
B	1.99	0.08	0.35	0%	100	1%	18.4	350	0.014	0.8	7.0	0	0.000	0.0	0.0	450	12.5	12.5
C	4.68	0.13	0.39	8%	100	1%	17.5	290	0.021	1.0	4.8	0	0.000	0.0	0.0	390	12.2	12.2
D	5.02	0.10	0.37	4%	100	3%	12.5	480	0.017	0.9	8.9	0	0.000	0.0	0.0	580	13.2	13.2
E	1.92	0.08	0.35	0%	100	1%	18.4	1000	0.018	0.9	17.7	0	0.000	0.0	0.0	1100	16.1	16.1

Job No.: **61099**
Project: **Viewpoint Estates Filing No. 2**
Design Storm: **5-Year Storm** *(20% Probability)*
Jurisdiction: **UDFCD**

Date: **11/9/2021 14:18**
Calcs By: **WCG**
Checked By:

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

				Direct Runoff				Combined Runoff				Streetflow			Pipe Flow					Travel Time		
	Sub-	Area		t_c	CA	I5	Q5	t_c	CA	I5	Q5	Slope	Length	Q	Q	Slope	Mnngs	Length	D_{Pipe}	Length	v_{0sc}	t_t
DP	Basin	(Acres)	C5	(min)	(Acres)	(in/hr)	(cfs)	(min)	(Acres)	(in/hr)	(cfs)	(%)	(ft)	(cfs)	(cfs)	(%)	n	(ft)	(in)	(ft)	(ft/s)	(min)
	EX-A	10.27	0.08	14.3	0.82	3.48	2.86															
	EX-B	1.99	0.08	12.5	0.16	3.70	0.59															
EX-DP1		12.27	0.08					14.3	0.98	3.48	3.4											
	EX-C	4.68	0.08	12.2	0.37	3.74	1.40															
	EX-D	5.48	0.08	13.2	0.44	3.61	1.58															
EX-DP2		10.16	0.08					13.2	0.81	3.61	2.9											
	EX-E	1.92	0.08	16.1	0.15	3.29	0.51															
	A	10.27	0.13	14.3	1.32	3.48	4.58															
	B	1.99	0.08	12.5	0.16	3.70	0.59															
DP1		12.27	0.12					14.3	1.48	3.48	5.1											
	C	4.68	0.13	12.2	0.62	3.74	2.33															
	D	5.02	0.10	13.2	0.52	3.61	1.89															
DP2		9.70	0.12					13.2	1.15	3.61	4.1											
	E	1.92	0.08	16.1	0.15	3.29	0.51															

Rainfall Intensity: I = (28.5 * P1) / (10 + tc)^0.786
P1: 1.5

Job No.: **61099**
Project: **Viewpoint Estates Filing No. 2**
Design Storm: **100-Year Storm** *(1% Probability)*
Jurisdiction: **UDFCD**

Date: **11/9/2021 14:18**
Calcs By: **WCG**
Checked By:

Sub-Basin and Combined Flows (Modified from Standard Form SF-2)

				Direct Runoff				Combined Runoff				Streetflow			Pipe Flow					Travel Time		
	Sub-	Area		t_c	CA	I100	Q100	t_c	CA	I100	Q100	Slope	Length	Q	Q	Slope	Mnngs	Length	D_{Pipe}	Length	v_{0sc}	t_t
DP	Basin	(Acres)	C100	(min)	(Acres)	(in/hr)	(cfs)	(min)	(Acres)	(in/hr)	(cfs)	(%)	(ft)	(cfs)	(cfs)	(%)	n	(ft)	(in)	(ft)	(ft/s)	(min)
	EX-A	10.27	0.35	14.3	3.60	5.84	21.01															
	EX-B	1.99	0.35	12.5	0.70	6.21	4.34															
EX-DP1		12.27	0.35					14.3	4.29	5.84	25.1											
	EX-C	4.68	0.35	12.2	1.64	6.29	10.30															
	EX-D	5.48	0.35	13.2	1.92	6.06	11.62															
EX-DP2		10.16	0.35					13.2	3.56	6.06	21.6											
	EX-E	1.92	0.35	16.1	0.67	5.53	3.72															
	A	10.27	0.38	14.3	3.94	5.84	23.01															
	B	1.99	0.35	12.5	0.70	6.21	4.34															
DP1		12.27	0.38					14.3	4.64	5.84	27.1											
	C	4.68	0.39	12.2	1.81	6.29	11.38															
	D	5.02	0.37	13.2	1.84	6.06	11.16															
DP2		9.70	0.38					13.2	3.65	6.06	22.1											
	E	1.92	0.35	16.1	0.67	5.53	3.72															

Rainfall Intensity: $I = (28.5 * P1) / (10 + tc)^{0.786}$
P1: 2.52

Sub-Basin Ex-A Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	447,487	10.27	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**447,487**	**10.27**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

447487

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	780	11	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	14.3	UDFCD Formula RO-3
Shallow Channel	680	10	0.015	0.8	13.4	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**14.3**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.76	3.48	4.06	4.64	5.22	5.84
Runoff (cfs)	0.6	**2.9**	6.3	11.9	16.1	**21.0**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.6	**2.9**	6.3	11.9	16.1	**21.0**

Notes

Sub-Basin Ex-B Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	86,860	1.99	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**86,860**	**1.99**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

86860

-

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	450	6	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	12.5	UDFCD Formula RO-3
Shallow Channel	350	5	0.014	0.8	7.0	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**12.5**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.93	3.70	4.32	4.93	5.55	6.21
Runoff (cfs)	0.1	**0.6**	1.3	2.5	3.3	**4.3**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	**0.6**	1.3	2.5	3.3	**4.3**

Notes

Sub-Basin Ex-C Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	203,897	4.68	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**203,897**	**4.68**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

203897

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	390	7	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	12.2	UDFCD Formula RO-3
Shallow Channel	290	6	0.021	1.0	4.8	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**12.2**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.97	3.74	4.37	4.99	5.61	6.29
Runoff (cfs)	0.3	**1.4**	3.1	5.8	7.9	**10.3**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.3	**1.4**	3.1	5.8	7.9	**10.3**

Notes

Sub-Basin Ex-D Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	238,569	5.48	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**238,569**	**5.48**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

238569

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	580	11	-	-	-	-	
Initial Time	100	3	0.030	-	12.8	13.2	UDFCD Formula RO-3
Shallow Channel	480	8	0.017	0.9	8.9	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**13.2**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.86	3.61	4.21	4.81	5.41	6.06
Runoff (cfs)	0.3	**1.6**	3.5	6.6	8.9	**11.6**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.3	**1.6**	3.5	6.6	8.9	**11.6**

Notes

Sub-Basin Ex-E Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	83,715	1.92	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**83,715**	**1.92**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

83715

-

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	1,100	19	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	16.1	UDFCD Formula RO-3
Shallow Channel	1,000	18	0.018	0.9	17.7	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**16.1**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.61	3.29	3.84	4.39	4.94	5.53
Runoff (cfs)	0.1	**0.5**	1.1	2.1	2.8	**3.7**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	**0.5**	1.1	2.1	2.8	**3.7**

Notes

Combined Sub-Basin Runoff Calculations (EX-DP1)

Includes Basins EX-A EX-B

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	534,347	12.27	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**534,347**	**12.27**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	EX-A	-	780	11	-	-	-	-	14.3
Channelized-1									
Channelized-2									
Channelized-3									
Total			780	11					
								t_c (min)	**14.3**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas	Historic Off-site Flows	
Q_{Minor}		(cfs) - 5-year Storm
Q_{Major}	25.28	(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.76	3.48	4.06	4.64	5.22	5.84
Site Runoff (cfs)	0.68	**3.41**	7.47	14.22	19.20	**25.09**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**25.28**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**3.4**	-	-	-	**50.4**

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Combined Sub-Basin Runoff Calculations (EX-DP2)

Includes Basins EX-C EX-D

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	442,466	10.16	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**442,466**	**10.16**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	EX-D	-	580	11	-	-	-	-	13.2
Channelized-1									
Channelized-2									
Channelized-3									
Total			580	11					
								t_c (min)	**13.2**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas	Historic Off-site Flows	
Q_{Minor}		(cfs) - 5-year Storm
Q_{Major}	42.85	(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.86	3.61	4.21	4.81	5.41	6.06
Site Runoff (cfs)	0.58	**2.93**	6.41	12.22	16.49	**21.55**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**42.85**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**2.9**	-	-	-	**64.4**

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Sub-Basin A Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	407,487	9.35	0.02	0.08	0.15	0.25	0.3	0.35	0%
Roofs	8,000	0.18	0.71	0.73	0.75	0.78	0.8	0.81	90%
Gravel	32,000	0.73	0.57	0.59	0.63	0.66	0.68	0.7	80%
Combined	**447,487**	**10.27**	**0.07**	**0.13**	**0.20**	**0.29**	**0.34**	**0.38**	**7.3%**

447487

Basin Travel Time

-

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	780	11	-	-	-	-	
Initial Time	100	1	0.010	-	17.5	14.3	UDFCD Formula RO-3
Shallow Channel	680	10	0.015	0.8	13.4	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**14.3**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.76	3.48	4.06	4.64	5.22	5.84
Runoff (cfs)	2.0	**4.6**	8.1	13.8	18.0	**23.0**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	2.0	**4.6**	8.1	13.8	18.0	**23.0**

Notes

Sub-Basin B Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	86,860	1.99	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**86,860**	**1.99**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

86860

-

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$ 300 ft C_v 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	450	6	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	12.5	UDFCD Formula RO-3
Shallow Channel	350	5	0.014	0.8	7.0	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**12.5**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.93	3.70	4.32	4.93	5.55	6.21
Runoff (cfs)	0.1	**0.6**	1.3	2.5	3.3	**4.3**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	**0.6**	1.3	2.5	3.3	**4.3**

Notes

Sub-Basin C Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	183,897	4.22	0.02	0.08	0.15	0.25	0.3	0.35	0%
Gravel	16,000	0.37	0.57	0.59	0.63	0.66	0.68	0.7	80%
Roofs	4,000	0.09	0.71	0.73	0.75	0.78	0.8	0.81	90%
Combined	**203,897**	**4.68**	**0.08**	**0.13**	**0.20**	**0.29**	**0.34**	**0.39**	**8.0%**

203897

-

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	390	7	-	-	-	-	
Initial Time	100	1	0.010	-	17.5	12.2	UDFCD Formula RO-3
Shallow Channel	290	6	0.021	1.0	4.8	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**12.2**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.97	3.74	4.37	4.99	5.61	6.29
Runoff (cfs)	1.1	**2.3**	4.1	6.8	8.9	**11.4**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	1.1	**2.3**	4.1	6.8	8.9	**11.4**

Notes

Sub-Basin D Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	208,569	4.79	0.02	0.08	0.15	0.25	0.3	0.35	0%
Gravel	8,000	0.18	0.57	0.59	0.63	0.66	0.68	0.7	80%
Roofs	2,000	0.05	0.71	0.73	0.75	0.78	0.8	0.81	90%
Combined	**218,569**	**5.02**	**0.05**	**0.10**	**0.17**	**0.27**	**0.32**	**0.37**	**3.8%**

238569
(20,000)

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$: 300 ft C_v: 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	580	11	-	-	-	-	
Initial Time	100	3	0.030	-	12.5	13.2	UDFCD Formula RO-3
Shallow Channel	480	8	0.017	0.9	8.9	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**13.2**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.86	3.61	4.21	4.81	5.41	6.06
Runoff (cfs)	0.7	**1.9**	3.7	6.5	8.6	**11.2**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.7	**1.9**	3.7	6.5	8.6	**11.2**

Notes

Sub-Basin E Runoff Calculations

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**A**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

Surface	Area (SF)	Area (Acres)	Runoff Coefficient C2	C5	C10	C25	C50	C100	% Imperv.
Pasture/Meadow	83,715	1.92	0.02	0.08	0.15	0.25	0.3	0.35	0%
Combined	**83,715**	**1.92**	**0.02**	**0.08**	**0.15**	**0.25**	**0.30**	**0.35**	**0.0%**

83715

-

Basin Travel Time

Shallow Channel Ground Cover: Short Pasture/Lawns

$L_{max,Overland}$ = 300 ft C_v = 7

	L (ft)	ΔZ_0 (ft)	S_0 (ft/ft)	v (ft/s)	t (min)	t_{Alt} (min)	
Total	1,100	19	-	-	-	-	
Initial Time	100	1	0.010	-	18.4	16.1	UDFCD Formula RO-3
Shallow Channel	1,000	18	0.018	0.9	17.7	-	UDFCD Formula RO-4
Channelized			0.000	0.0	0.0	-	V-Ditch
				t_c	**16.1**	**min.**	

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.61	3.29	3.84	4.39	4.94	5.53
Runoff (cfs)	0.1	**0.5**	1.1	2.1	2.8	**3.7**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	0.1	**0.5**	1.1	2.1	2.8	**3.7**

Notes

Combined Sub-Basin Runoff Calculations (DP1)

Includes Basins A B

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	494,347	11.35	0.02	0.08	0.15	0.25	0.3	0.35	0%
Roofs	8,000	0.18	0.71	0.73	0.75	0.78	0.8	0.81	90%
Gravel	32,000	0.73	0.57	0.59	0.63	0.66	0.68	0.7	80%
Combined	**534,347**	**12.27**	**0.06**	**0.12**	**0.19**	**0.28**	**0.33**	**0.38**	**6.1%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	A	-	780	11	-	-	-	-	14.3
Channelized-1				6					
Channelized-2									
Channelized-3									
Total			780	17					
								t_c (min)	**14.3**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas	Historic Off-site Flows	
Q_{Minor}		(cfs) - 5-year Storm
Q_{Major}	25.28	(cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.76	3.48	4.06	4.64	5.22	5.84
Site Runoff (cfs)	2.14	**5.13**	9.35	16.07	21.14	**27.09**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**25.28**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**5.1**	-	-	-	**52.4**

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Combined Sub-Basin Runoff Calculations (DP2)

Includes Basins C D

Job No.:	**61099**	Date:	**11/9/2021 14:18**
Project:	**Viewpoint Estates Filing No. 2**	Calcs by:	**WCG**
		Checked by:	
Jurisdiction	**UDFCD**	Soil Type	**B**
Runoff Coefficient	**Surface Type**	Urbanization	**Urban**

Basin Land Use Characteristics

	Area		Runoff Coefficient						%
Surface	**(SF)**	**(Acres)**	**C2**	**C5**	**C10**	**C25**	**C50**	**C100**	**Imperv.**
Pasture/Meadow	392,466	9.01	0.02	0.08	0.15	0.25	0.3	0.35	0%
Roofs	6,000	0.14	0.71	0.73	0.75	0.78	0.8	0.81	90%
Gravel	24,000	0.55	0.57	0.59	0.63	0.66	0.68	0.7	80%
Combined	**422,466**	**9.70**	**0.06**	**0.12**	**0.19**	**0.28**	**0.33**	**0.38**	**5.8%**

Basin Travel Time

	Sub-basin or Channel Type	Material Type	L (ft)	Elev. ΔZ_0 (ft)	Q_i (cfs)	Base or Dia (ft)	Sides z:1 (ft/ft)	v (ft/s)	t (min)
Furthest Reach	D	-	580	11	-	-	-	-	13.2
Channelized-1									
Channelized-2									
Channelized-3									
Total			580	11					
								t_c (min)	**13.2**

Contributing Offsite Flows (Added to Runoff and Allowed Release, below.)

Contributing Basins/Areas: Historic Off-site Flows

Q_{Minor} (cfs) - 5-year Storm

Q_{Major} 42.85 (cfs) - 100-year Storm

Rainfall Intensity & Runoff

	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Intensity (in/hr)	2.86	3.61	4.21	4.81	5.41	6.06
Site Runoff (cfs)	1.69	**4.14**	7.59	13.10	17.26	**22.13**
OffSite Runoff (cfs)	-	**0.00**	-	-	-	**42.85**
Release Rates (cfs/ac)	-	-	-	-	-	-
Allowed Release (cfs)	-	**4.1**	-	-	-	**65.0**

Notes

Runoff from Offsite basins have been assumed constant, despite additional times of concentration.

Custom Soil Resource Report
Soil Map

Map Scale: 1:6,070 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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 17, Sep 13, 2019

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

Date(s) aerial images were photographed: Sep 8, 2018—May 26, 2019

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
8	Blakeland loamy sand, 1 to 9 percent slopes	25.6	78.6%
96	Truckton sandy loam, 0 to 3 percent slopes	6.9	21.4%
Totals for Area of Interest		**32.5**	**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

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: 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
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Minor Components

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

96—Truckton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 36bf
Elevation: 6,000 to 7,000 feet
Mean annual precipitation: 14 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Truckton and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 8 inches: sandy loam
Bt - 8 to 24 inches: sandy loam
C - 24 to 60 inches: coarse sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

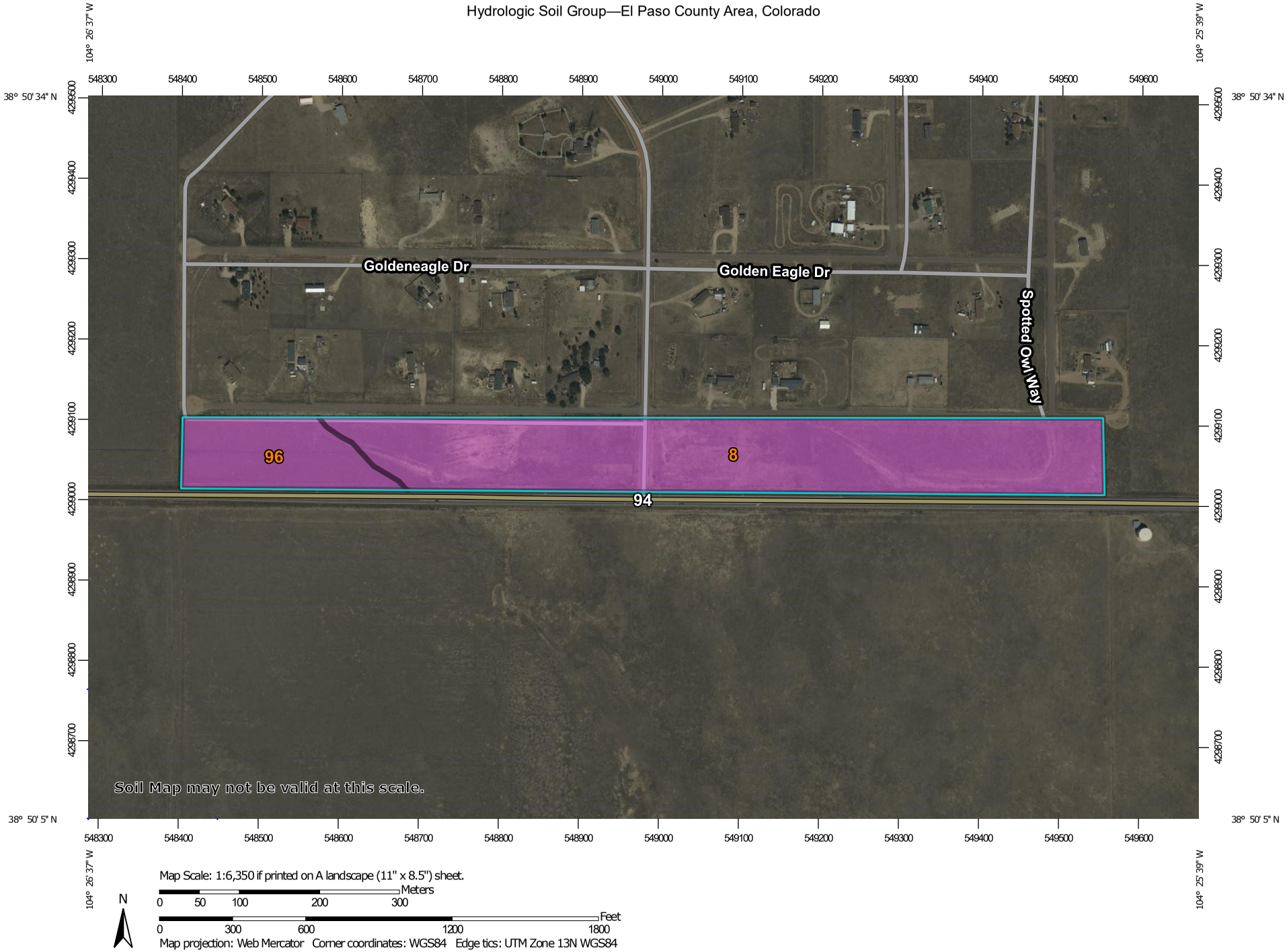
Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

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



Map Scale: 1:6,350 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	21.4	81.1%
96	Truckton sandy loam, 0 to 3 percent slopes	A	5.0	18.9%
Totals for Area of Interest			**26.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

FEMA

104°26'38"W 38°50'33"N

104°26'1"W 38°50'5"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 11/8/2021 at 12:57 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.

National Flood Hazard Layer FIRMette

FEMA

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 / 17.5 Cross Sections with 1% Annual Chance / 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.

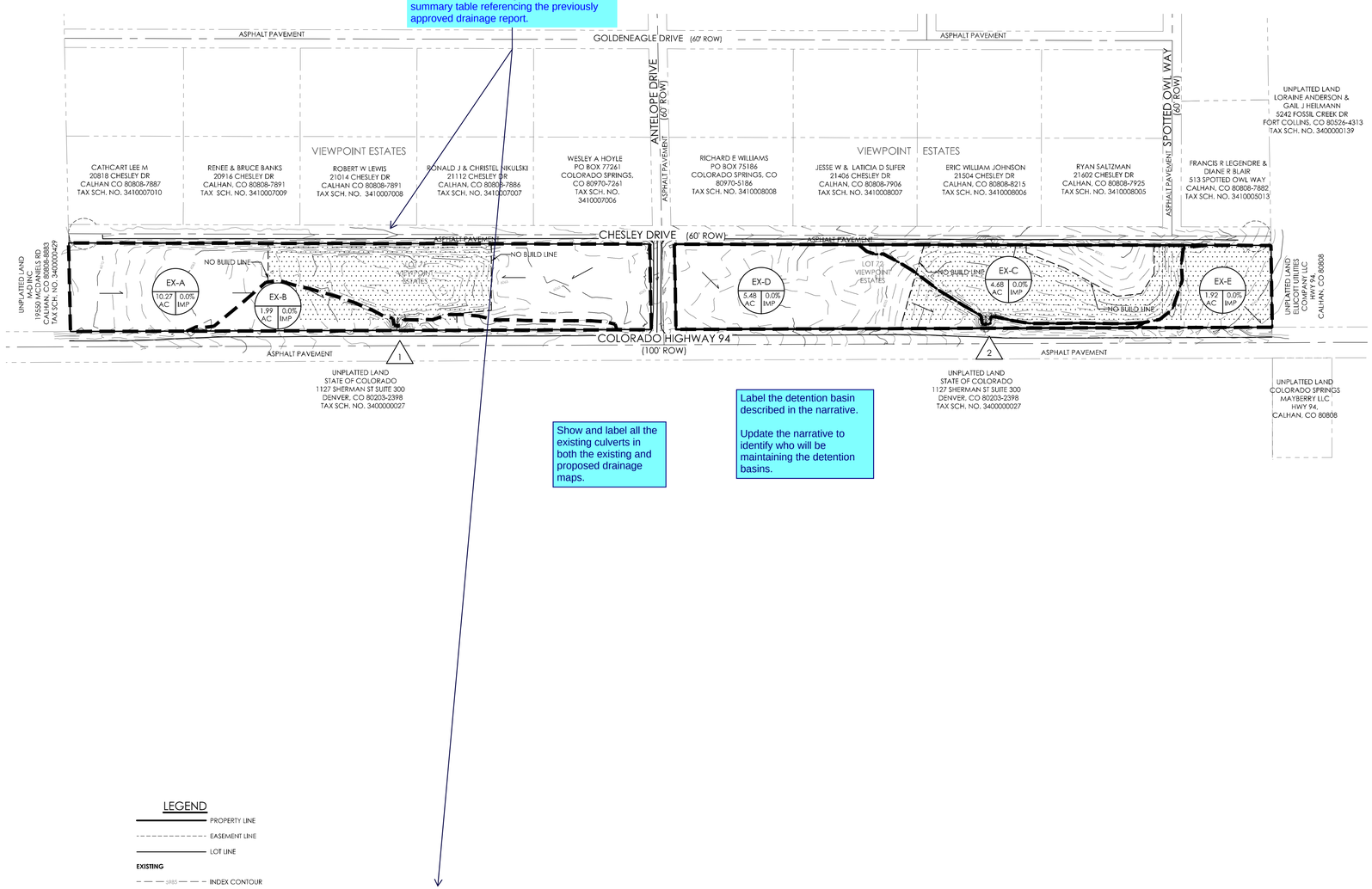
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/15/2020 at 11:18:58 AM 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.

Add a design point for the offsite flow entering the site.

Staff recommends adding an (*) to these offsite flows and adding a footnote in the summary table referencing the previously approved drainage report.



Show and label all the existing culverts in both the existing and proposed drainage maps.

Label the detention basin described in the narrative.

Update the narrative to identify who will be maintaining the detention basins.

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- LOT LINE

EXISTING

- 5985 INDEX CONTOUR
- 84 INTERMEDIATE CONTOUR

PROPOSED

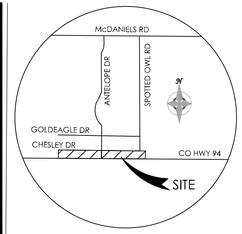
- 5985 INDEX CONTOUR
- 84 INTERMEDIATE CONTOUR
- BASIN BOUNDARY
- Q = 19.0 cfs, Q_{allow} = 60.0 cfs — GENERAL FLOW/DIRECTION
- 1.5% — SLOPE DIRECTION AND GRADE
- A1 — BASIN LABEL
  1.0 AC — AREA IN ACRES
  50% IMP — PERCENT IMPERVIOUS
- 1 — DESIGN POINT

FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR EL PASO COUNTY, COLORADO AND INCORPORATED AREAS – MAP NUMBERS 08041C0805 G AND 08041C0810 G, EFFECTIVE DECEMBER 7, 2018.

EXISTING DRAINAGE SUMMARY TABLE

DESIGN POINT	INCLUDED BASIN(S)	AREA (AC)	Tc (MIN.)	RUNOFF Q5 (CFS)	RUNOFF Q100 (CFS)
	EX-A	10.27	14.3	2.9	21.0
	EX-B	1.99	12.5	0.6	4.3
EX-DP1	EX-A, EX-B	12.27	14.3		50.4
	EX-C	4.68	12.2	1.4	10.3
	EX-D	5.48	13.2	1.6	11.6
EX-DP2	EX-C, EX-D	10.16	13.2		64.4
	EX-E	1.92	16.1	0.5	3.7



VICINITY MAP
NOT TO SCALE

BENCHMARK

1" = 200' 1:2,400

MVE, INC.
ENGINEERS / SURVEYORS
1903 lelaray street, suite 200 colorado springs co 80909 719.635.5736

REVISIONS

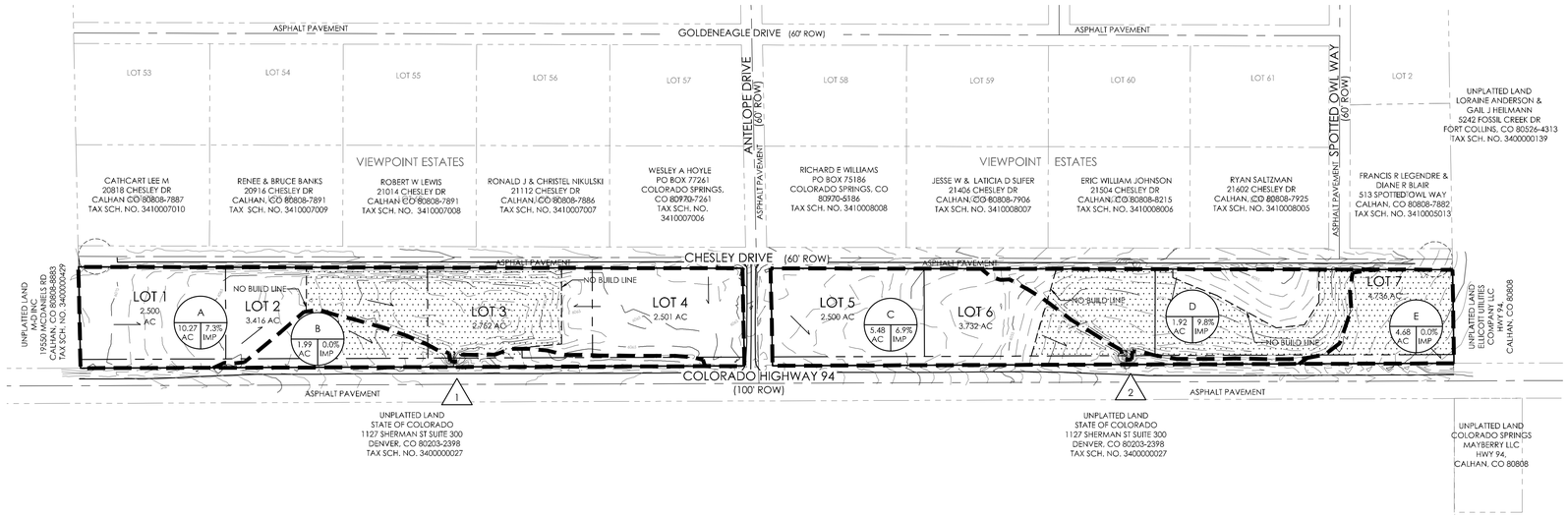
DESIGNED BY
DRAWN BY
CHECKED BY ____ _____
AS-BUILTS BY
CHECKED BY ____ _____

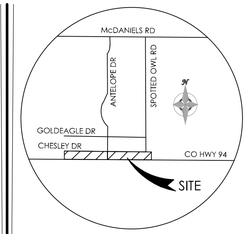
VIEWPOINT
ESTATES FILING NO. 2

EXISTING
DRAINAGE MAP

MVE PROJECT 61099
MVE DRAWING EX-DRN

NOVEMBER 9, 2021
SHEET 1 **OF** 1





VICINITY MAP

NOT TO SCALE

BENCHMARK

1" = 100' 1:1,200

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- LOT LINE

EXISTING

- 5985 INDEX CONTOUR
- 84 INTERMEDIATE CONTOUR

PROPOSED

- 5985 INDEX CONTOUR
- 84 INTERMEDIATE CONTOUR
- BASIN BOUNDARY
- Q_5 = 19.0 cfs, Q_{100} = 60.0 cfs; 1.5% GENERAL FLOW/DIRECTION AND SLOPE DIRECTION AND GRADE
- A1 / 1.0 AC / 50% IMP BASIN LABEL: AREA IN ACRES, PERCENT IMPERVIOUS
- 1 DESIGN POINT

FLOODPLAIN STATEMENT

NO PORTION OF THE SUBJECT PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA (SFHA) AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR EL PASO COUNTY, COLORADO AND INCORPORATED AREAS - MAP NUMBERS 08041C0805 G AND 08041C0810 G, EFFECTIVE DECEMBER 7, 2018.

PROPOSED DRAINAGE SUMMARY TABLE

DESIGN POINT	INCLUDED BASIN(S)	AREA (AC)	Tc (MIN.)	RUNOFF Q5 (CFS)	RUNOFF Q100 (CFS)
	A	10.27	14.3	4.6	23.0
	B	1.99	12.5	0.6	4.3
DP1	A, B	12.27	14.3	5.1	52.4
	C	4.68	12.2	2.3	11.4
	D	5.02	13.2	1.9	11.2
DP2	C, D	9.70	13.2	4.1	65.0
	E	1.92	16.1	0.5	3.7

MVE, INC. ENGINEERS / SURVEYORS
1903 lelaray street, suite 200 colorado springs co 80909 719.635.5736

REVISIONS

DESIGNED BY
DRAWN BY
CHECKED BY ____ _____
AS-BUILTS BY
CHECKED BY ____ _____

VIEWPOINT
ESTATES FILING NO. 2

PROPOSED
DRAINAGE MAP

MVE PROJECT 61099
MVE DRAWING PP-DRN

NOVEMBER 9, 2021
SHEET 1 **OF** 1