

PIKES PEAK REGIONAL FLOODPLAIN MANAGMENT OFFICE

Floodplain Development Permit Application

Date

This application is required for authorization of any construction or modification within a designated floodplain. If you need further information regarding this application and regulations, call 719-327-2898. Submit application and attachments to the Regional Floodplain Administration at Pikes Peak Regional Building Department.

OFFICE USE ONLY

F.P. Permit #

Building Permit #

Property Owner

Address

City

State

Zip Code

email

Phone

Contact

Phone

email

Project Address/Location

Community #

Zip Code

Creek

Parcel #

FIRM #

Base Flood Elevation

Contractor

Phone Number

email

Fax Number

Project Type: (Check all that apply to your project.)

☐ New Construction

☐ Addition/Remodel Repair

☐ Single Family

☐ Multi-Family

☐ Manufactured Unit

☐ Non-Residential Use

☐ Water course modification

☒ Fill/Excavation

☐ Bridge

☐ Culvert

☐ Other

Project Description:

Requirements of construction plans include:

- ☐ Label mean sea level elevations of proposed lowest floor. Flood proofing level must be noted on plans for new structures.
- ☐ All structural elements must be designed to withstand the effects of flooding by an engineer licensed by the state of Colorado.
- ☐ A state of Colorado licensed engineer must certify that construction in a *floodway* will not increase of flood elevations.
- ☐ Plans must be drawn to scale and include applicable items (listed in box).

- ☒ Drawn to Scale
- ☒ Dimensions
- ☒ Elevations
- ☒ Located correctly on site
- ☒ All structures on plan
- ☒ Fill areas indicated
- ☒ Drainage Plan

☐ Preliminary Elevation Certificate

☐ Finished Elevation Certificate

Created by

Office Use Only: FEMA Submittals

☐ CLOMR

☐ Approved Date

☐ CLOMR-F

☐ Approved Date

☐ LOMR

☐ Approved Date

☐ LOMR-F

☐ Approved Date

PRELIMINARY / FINAL DRAINAGE PLAN OVERLOT GRADING

MVEA ROLLING HILLS ELECTRIC SUBSTATION

JUNE, 2025

Prepared for:

Eagle Development
212 N. Wahsatch Ave, Suite 301
Colorado Springs, Colorado 80903
(719) 635-3200

Prepared by:

Core Engineering Group, LLC
15004 1ST Avenue South
Burnsville, MN 55306
(719) 570-1100

Project No. 100.302



CORE

ENGINEERING GROUP

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VICINITY MAP, SCS SOILS INFORMATION, FEMA FIRM MAP

APPENDIX B

HYDROLOGY CALCULATIONS

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APPENDIX D

FLOODPLAIN DEVELOPMENT PERMIT

BACK POCKET

EXISTING CONDITIONS DRAINAGE MAP

DEVELOPED CONDITIONS DRAINAGE MAPS

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 omissions on my part in preparing this report.

Richard L. Schindler, P.E. #33997

Date

For and on Behalf of Core Engineering Group, LLC

OWNER'S STATEMENT

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

Eagle Development

Date

By
Jeff Mark

Title
Manager

Address
212 N. Wahsatch Avenue, Suite 301, Colorado Springs, CO 80903

FLOODPLAIN STATEMENT

To the best of my knowledge and belief, this development is located within a designated floodplain as shown on Flood Insurance Rate Map Panel No. 08041C0790G dated December 7, 2018. (See Appendix A, FEMA FIRM Exhibit)

Richard L. Schindler, #33997

Date

EL PASO COUNTY

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volume 1 and 2, and Engineering Criteria Manual, As Amended.

County Engineer/ECM Administrator

Date

Conditions: _____

1.0 LOCATION and DESCRIPTION

MVEA Rolling Hills Electric Substation is located east of the East Tributary of Jimmy Camp Creek. The site is located on approximately 5 acres of vacant land. This project will overlog grading this site for an electric substation. The land for the project is currently owned by Eagle Development Company.

The site is located in Section 12, Township 15 South and Range 65 West of the 6th Principal Meridian. The site is bounded on the west by the East Tributary of JCC/vacant land in Bull Hill, on the north by Bradley Road, on the east by a 325' electric transmission line easement, and the south by vacant land in Bull Hill. For reference, a vicinity map is included in Appendix A of this report.

Conformance with applicable Drainage Basin Planning Studies

The site is located in the Jimmy Camp Creek Drainage Basin. El Paso County recently adopted a DBPS for Jimmy Camp Creek prepared by Stantec dated February 13, 2025 and is referenced in this report. The only major infrastructure construction recommended by the DBPS is the reconstruction of the East Tributary of Jimmy Camp Creek (Etrib) and a bridge crossing of Bradley Road. Matrix has been working on the Etrib construction plans for several years and has submitted a CLOMR for review by FEMA. First round FEMA comments have been received, and the plans are back in for a second review. Etrib construction within this site is in conformance with the adopted DBPS.

MVEA Rolling Hills Electric Substation is located within the Bull Hill Development and the ***“Jimmy Camp Creek Drainage Basin”***, which is a fee basin in El Paso County. The basin within Bull Hill was recently closed per project DR221 and the basin closure was adopted by the Drainage Board on March 11, 2025. Thus, no drainage fees apply to this project.

Conformance with Bull Hill / Rolling Meadows MDDP (SKP 233) by Core Engineering Group

Core Engineering Group has an approved MDDP for Bull Hill / Rolling Meadows, which covers this study area. This PDR/FDR conforms to the MDDP for Bull Hill and is referenced in this report. The major infrastructure to be constructed in conjunction with this site. A final drainage report specifically for this site will be submitted at the site plan portion of the substation project.

2.0 DRAINAGE CRITERIA

The supporting drainage design and calculations were performed in accordance with the City of Colorado Springs and El Paso County “Drainage Criteria Manual (DCM)”, dated November, 1991, the El Paso County “Engineering Criteria Manual”, Chapter 6 and Section 3.2.1 Chapter 13 of the City of Colorado Springs Drainage Criteria Manual dated May 2014, and the UDFCD “Urban Storm Drainage Criteria Manual” Volumes 1, 2 and 3 for inlet sizing and full spectrum ponds. No deviations from these published criteria are requested for this site.

The Rational Method as outlined in Section 6.3.0 of the May 2014 “Drainage Criteria Manual” and in Section 3.2.8.F of the El Paso County “Engineering Criteria Manual” was used for basins less than 130 acres to determine the rainfall and runoff conditions for the proposed development of the site. The runoff rates for the 5-year initial storm and 100-year major design storm were calculated.

Current updates to the Drainage Criteria manual for El Paso County states the if detention is necessary, Full Spectrum Detention will be included in the design, based on this criteria, Full Spectrum Detention will be required for this development.

3.0 EXISTING HYDROLOGICAL CONDITIONS

This site is currently undeveloped with native vegetation (grass with no shrubs) and moderate slopes in a westerly direction the East Tributary of Jimmy Camp Creek.

The Soil Conservation Service (SCS) classifies the soils within the Antelope Ridge at Bull Hill property as Sampson Loam [2]. The loams are considered hydrologic soil group B soils with slow permeability. These soils have low to medium susceptible to erosion by wind and water, have low to moderate shrink-swell potential. (see table 3.1 below).

The Soil Conservation Service (SCS) classifies the soils within the study area per Table 3.1.

Table 3.1: SCS Soils Survey for Entire Study Area

Soil No.	Soil	Hydro. Group	Shrink/Swell Potential	Permeability	Surface Runoff Potential	Erosion Hazard
78	Sampson Loam (12.7%)	B	Moderate	Slow	Low	Slight

Excerpts from the SCS “Soil Survey of El Paso County Area, Colorado” are provided in **Appendix A** for further reference.

For preparing hydrologic calculations for this report, the soil of each basin are assumed to be wholly comprised of the majority soil hydrologic group.

An existing electrical easement, with existing transmission towers, is located on the east side of this site and will be set aside as open space in the future.

This site is located within the delineated 100-year floodplain of the East Tributary of Jimmy Camp Creek per the Federal Emergency Management Agency (FEMA) Flood Rate Insurance Map (FIRM) number 08041C0790G dated December 7, 2018.

Basin EX1

This existing basin encompasses the entire proposed site and is located south of Bradley Road and west of the electric transmission line easement. The basin consists of Bradley Road and pasture land. This basin contains 13.70 acres; runoff is directed southwesterly to the East Tributary. The calculated historic flows are 4.9cfs and 29.8cfs for the 5-year and 100-year storm events respectively.

4.0 DEVELOPED HYDROLOGICAL CONDITIONS/ HYDRAULICS

Hydrology for **MVEA Electric Substation** drainage report was based on the City of Colorado Springs/El Paso County Drainage Criteria. Sub-basins that lie within this project were determined and the 5-year and 100-year peak discharges for the developed conditions have been presented in this report. Based on these flows, storm inlets will be added when the street capacity is exceeded.

Soil type B has been assumed for the developed hydrologic conditions. See Appendix A for SCS Soils Map.

The time of concentration for each basin and sub-basin was developed using an overland and ditch components. The maximum overland flow length for developed conditions was limited to 100 feet. Travel time velocities ranged from 2 to 6 feet per second. The travel time calculations are included in the back of this report.

Runoff coefficients for the various land uses were obtained from Table 6-6 dated May, 2014 from the updated City of Colorado Springs/El Paso County Drainage Criteria Manual. See Appendix B.

Drainage concepts for each of the basins are briefly discussed as follows:

Basin A

This basin consists of runoff from undeveloped land which will eventually be developed as the substation site. Runoff will be directed southeast overland where it drains to a future WQ/Detention Pond which will serve as a temporary sediment basin. The future developed flow from this basin is 7.1cfs and 15.8cfs for the 5/100-year storm event. Future development of the substation site will require an on-site WQ/Detention pond with discharge rates limited to the undeveloped runoff rates at the outfall. A trapezoid swale is necessary to relocate the existing natural swale around the substation site to accommodate proposed site grading. The swale was designed for existing flow from Design Point N4 (outfall from twin 66" RCP's) which was studied in the Bull Hill MDDP. The swale will also reduce floodplain elevation impacts and maintain a zero rise in the floodplain elevation. See the appendix for detailed calculations and appendix for the floodplain development permit application.

Basin B

This basin consists of runoff from undeveloped land which will eventually be developed as part of the substation site. Runoff will be directed south overland where it will be collected by a CDOT Type C inlet that discharges south onto vacant land as in existing conditions. The Type C inlet drains south in an 18" RCP at 0.8% which has a capacity of 9cfs. The future developed flow from this basin is 1.5cfs and 3.3cfs for the 5/100-year storm event. Runoff from this basin will be detained/treated as part of the Antelope Ridge at Bull Hill Filing 1 development (Pond C). See the appendix for detailed calculations.

Basin C

This basin consists of runoff from undeveloped land and Bradley Road which will eventually be developed as part of the substation site and future roadways. Runoff will be directed south overland where it will discharge south onto vacant land as in existing conditions. The developed flow from this basin is 4.7cfs and 21.8cfs for the 5/100-year storm event. The developed flow does not account for future development of Antelope Ridge at Bull Hill Filing 1 so this basin will need to be restudied as part of future development. See the appendix for detailed calculations.

See the Developed Conditions Hydrology Calculations in the back of this report and the Developed Conditions Drainage Map (Map Pocket) for the 5-year and 100-year storm event amounts.

5.0 HYDRAULIC SUMMARY

The sizing of the hydraulic structures and detentions ponds were prepared by using the *StormSewers* and *Hydrographs* computer software programs developed by Intellisolve, which conforms to the methods outlined in the "City of Colorado Springs/El Paso County Drainage Criteria Manual". Street capacities and Inlets were sized by Denver Urban Drainage's xcel spreadsheet UD-Inlet.

It is the intent of this drainage report to use the proposed curb/gutter and storm sewer in the streets of the future Antelope Ridge at Bull Hill Filing 1 to convey runoff to detention and water quality ponds then to the East Tributary of Jimmy Camp Creek. Inlet size and location are preliminary only as shown on the storm sewer layout in the appendix. Interim runoff from this site will flow overland southwest to the East Tributary as in existing conditions. See Appendix C for detailed hydraulic calculations.

Table 1: Street Capacities (100-year capacity is only ½ of street)

Street Slope	Residential Local		Residential Collector		Principal Arterial	
	5-year	100-year	5-year	100-year	5-year	100-year
0.5%	6.3	26.4	9.7	29.3	9.5	28.5
0.6%	6.9	28.9	10.6	32.1	10.4	31.2
0.7%	7.5	31.2	11.5	34.6	11.2	33.7
0.8%	8.0	33.4	12.3	37.0	12.0	36.0
0.9%	8.5	35.4	13.0	39.3	12.7	38.2
1.0%	9.0	37.3	13.7	41.4	13.4	40.2
1.4%	10.5	44.1	16.2	49.0	15.9	47.6
1.8%	12.0	45.4	18.4	50.4	18.0	50.4
2.2%	13.3	42.8	19.4	47.5	19.5	47.5
2.6%	14.4	40.7	18.5	45.1	18.5	45.1
3.0%	15.5	39.0	17.7	43.2	17.8	43.2
3.5%	16.7	37.2	16.9	41.3	17.0	41.3
4.0%	17.9	35.7	16.2	39.7	16.3	39.7
4.5%	19.0	34.5	15.7	38.3	15.7	38.3
5.0%	19.9	33.4	15.2	37.1	15.2	37.1

Note: All flows are in cfs (cubic feet per second)

6.0 DETENTION AND WATER QUALITY PONDS

Detention and Storm Water Quality for this site is required per El Paso County criteria. The majority of this site drains to a temporary sediment basin which will be converted into a WQ/Detention Pond to be designed/sized at the site plan stage of the substation design. The remaining areas (gravel road/landscaping) will flow south overland and will be treated for WQ/Detention as part of the Antelope Ridge at Bull Hill development (Pond C). Pond C will be constructed to treat/detain storm runoff for this site and to comply with the Bull Hill MDDP. The future pond will treat runoff from a portion of this site and include access roads, outlet pipes, overflow structures, and low flow channels.

7.0 DRAINAGE AND BRIDGE FEES

The MVEA Electric Substation is located in the future Bull Hill development and within the Jimmy Camp Creek drainage basin which is currently a fee basin in El Paso County. Current El Paso County regulations require drainage and bridge fees to be paid for platting of land as part of the plat recordation process. Eagle Development Company has completed the closure of Jimmy Camp Creek drainage basin for Bull Hill and it has approved by The Pikes Peak Drainage Board and El Paso County BOCC (Resolution 24-233). Therefore, no drainage fees or bridge fees are required to be paid at this time.

8.0 FOUR STEP PROCESS

The site has been developed to minimize wherever possible the rate of developed runoff that will leave the site and to provide water quality management for the runoff produced by the site as proposed on the development plan. The following four step process should be considered and incorporated into the storm water collection system and storage facilities where applicable.

Step 1: Employ Runoff Reduction Practices

This project has employed several methods of reducing runoff.

- There are large open space buffers under the 325' wide electric transmission easement and a "open space" area next to the East Tributary.
- Construct outlet structures for one Full Spectrum Detention Pond. The full spectrum detention mimics existing storm discharges and includes water quality.

Step 2: Stabilize Drainageways

East Tributary of Jimmy Camp Creek is a major drainageway located west of this site. The East Tributary of JCC will be reconstructed and stabilized per county criteria as part of the Bull Hill development. The design included a natural sand bottom and armored sides.

Step 3: Provide Water Quality Capture Volume

Treatment of the water quality capture volume (WQCV) is required for all new developments. This project will construct one full spectrum stormwater extended detention basin which includes Water Quality Volumes and WQ outlet structures.

Step 4: Consider Need for Industrial and Commercial BMP's

There are no commercial or industrial areas within this site.

9.0 CONCLUSIONS

This drainage report has been prepared in accordance with the City of Colorado Springs/El Paso County Drainage Criteria Manual. The proposed development and drainage infrastructure will not cause adverse impacts to adjacent properties or properties located downstream. Several key aspects of the development discussed above are summarized as follows:

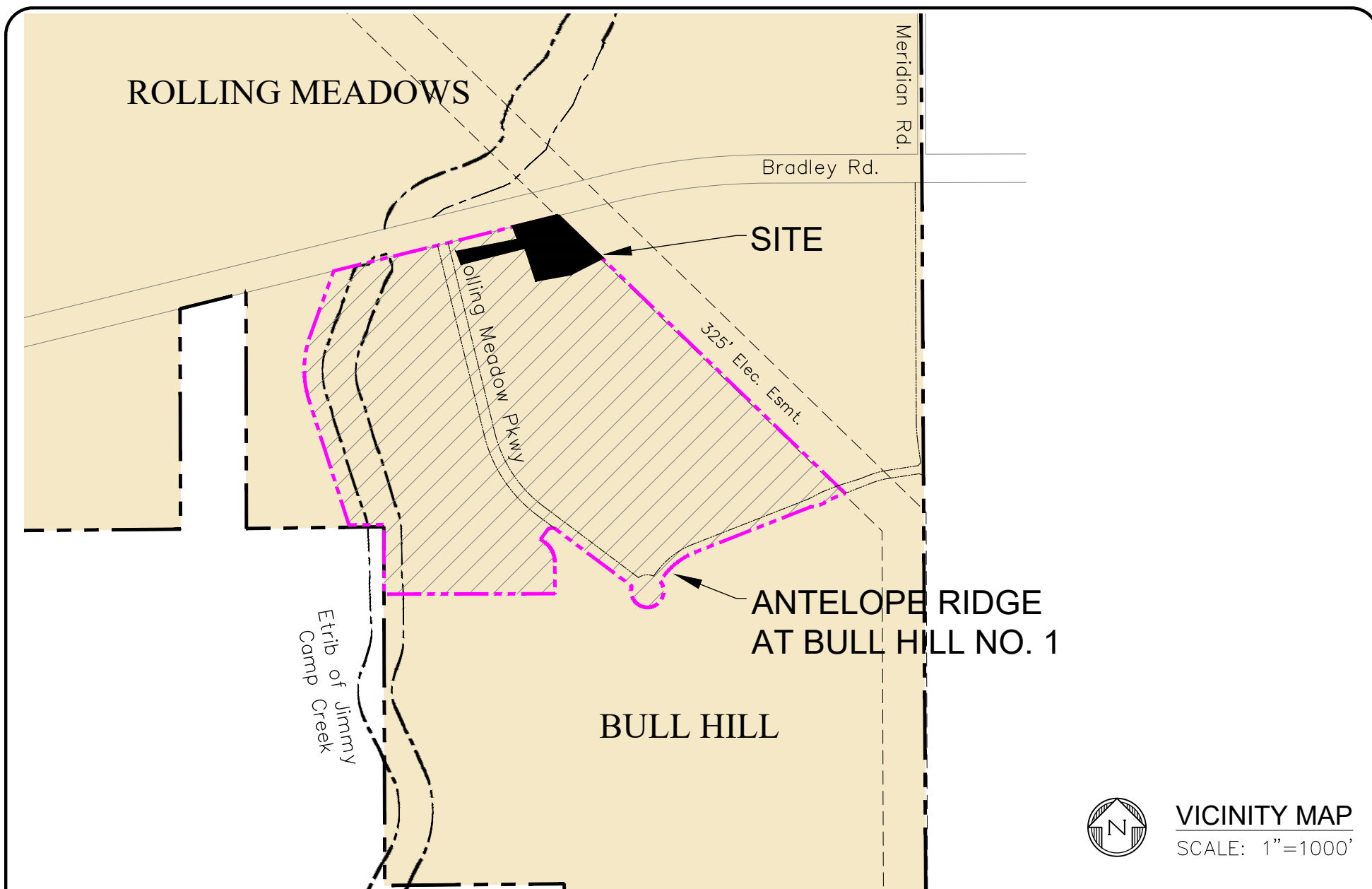
- Developed runoff will be conveyed via curb/gutter and storm sewer facilities
- The East Tributary of Jimmy Camp Creek will be reconstructed west of this study area
- Access to this site is from Bradley Road.
- Detention and water quality for this site area will be provided in permanent ponds
- Existing runoff rates into the Jimmy Camp Creek Drainage basin have been maintained

10.0 REFERENCES

1. City of Colorado Springs/El Paso County Drainage Criteria Manual DCM, dated November, 1991
2. Soil Survey of El Paso County Area, Colorado by USDA, SCS
3. Jimmy Camp Creek Drainage Basin Planning Study, dated February 13, 2025, by Stantec
4. City of Colorado Springs "Drainage Criteria Manual, Volume 2
5. El Paso County "Engineering Criteria Manual"
6. El Paso County Resolution #15-042, El Paso County adoption of Chapter 6 and Section 3.2.1 of the City of Colorado Springs Drainage Criteria Manual dated May, 2014.
7. Bull Hill / Rolling Meadows MDDP prepared by Core Engineering Group, dated May, 2024, approved on October 17, 2024.

APPENDIX D – FLOODPLAIN DEVELOPMENT PERMIT

MAP POCKET



VICINITY MAP
SCALE: 1"=1000'



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EMAIL: Rich@ceg1.com

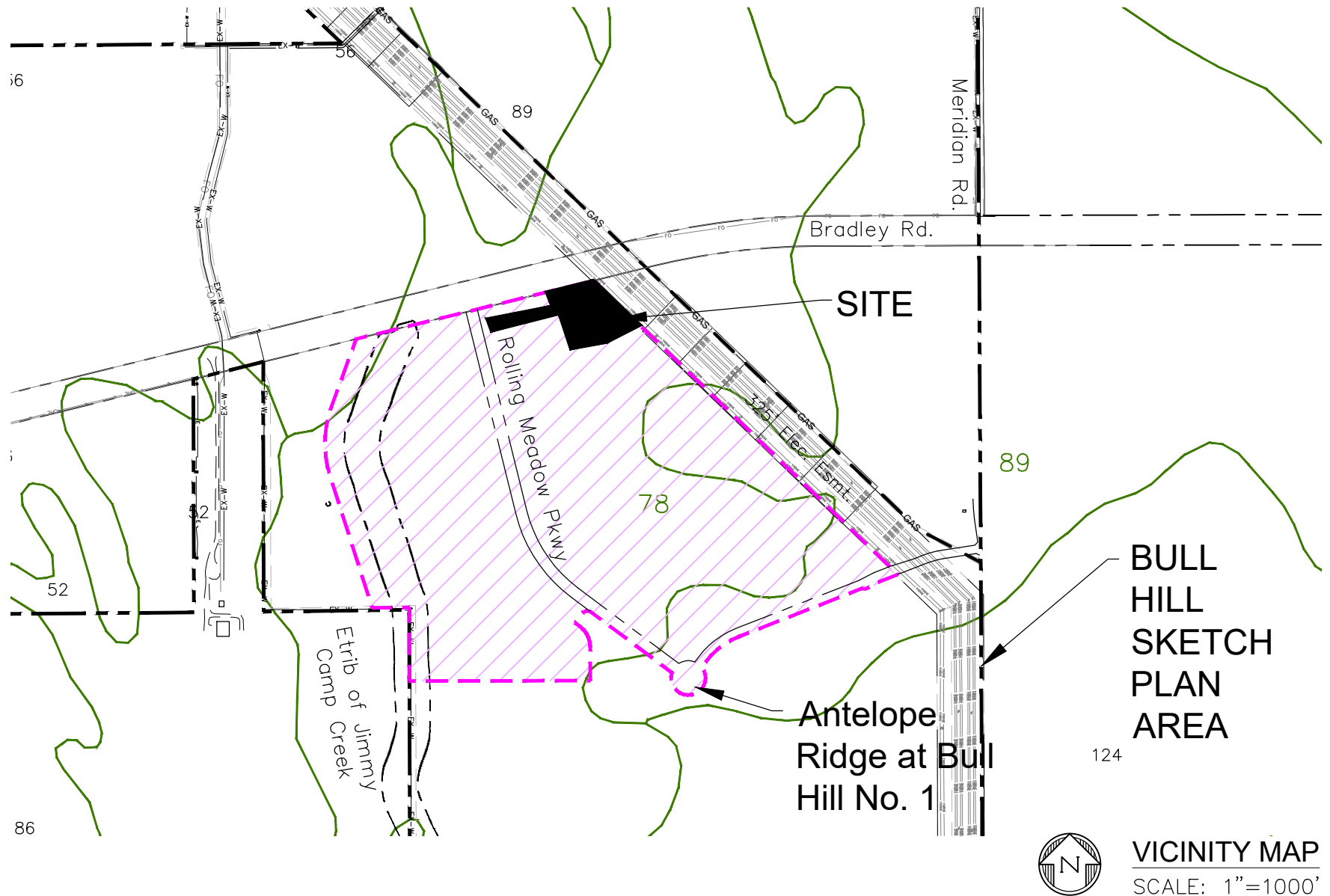
**MVEA ROLLING HILLS ELECTRIC SUBSTATION
VICINITY MAP**

SCALE:
NTS

DATE:
MAY, 2025

FIGURE NO.
--

T:\PROJECTS\100.302\Drainage\soils map.dwg Jun 16, 2025 — 1:17pm



CORE
ENGINEERING GROUP

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BURNSVILLE, MN 55306
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CONTACT: RICHARD L. SCHINDLER, P.E.
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**MVEA ROLLING HILLS ELECTRIC SUBSTATION
SOILS MAP**

SCALE:
NTS

DATE:
MAY, 2025

FIGURE NO.
--

El Paso County Area, Colorado

78—Sampson loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 369s

Elevation: 5,500 to 6,500 feet

Mean annual precipitation: 13 to 15 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 135 to 155 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Sampson and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sampson

Setting

Landform: Terraces, alluvial fans, depressions

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 15 inches: loam

Bt - 15 to 34 inches: clay loam

Bk - 34 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: B

Ecological site: R049XB202CO - Loamy Foothill

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

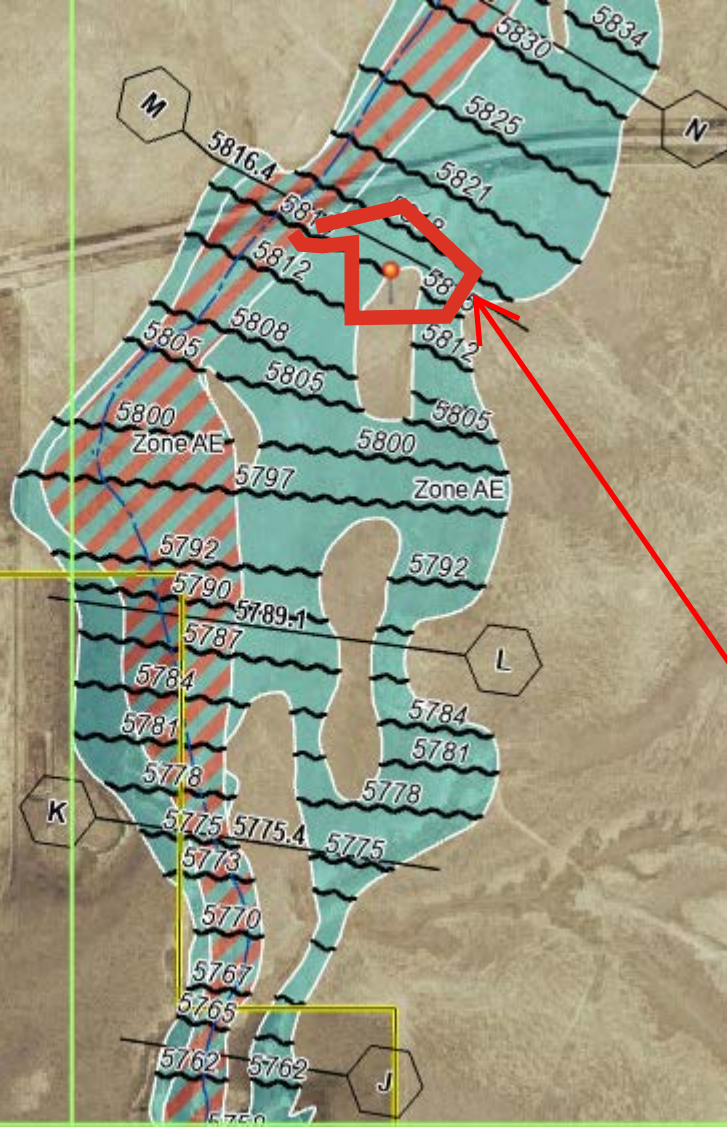
Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 20, Sep 2, 2022



08041C0790G
eff. 12/7/2018

SITE

APPENDIX B – HYDROLOGY CALCULATIONS



Standard Form SF-2. Storm Drainage System Design (Rational Method Procedure)

Calculated By: Leonard Beasley

Date: June, 2025

Checked By: Leonard Beasley

Job No: 100.302 Substation

Project: MVEA Electric Substation

Design Storm: **100-Year Event (Current)**[illegible]



CORE
ENGINEERING GROUP

15004 1st Avenue South
Burnsville, MN 55306

PROJECT NAME: MVEA Electric Substation
PROJECT NUMBER: 100.302 substation
ENGINEER: RLS
DATE: June, 2025

Preliminary/Final Drainage Plan
CURRENT CONDITIONS COEFFICIENT "C" CALCULATIONS

BASIN	Soil No.	Hydro Group	Area	Cover (%)	C5	Wtd. C5	C100	Wtd. C100	CN	Wtd. CN	Impervious	Type of Cover
EX1	78	B	13.40	97.81%	0.08	0.08	0.35	0.34			0%	Pasture/Range
	78	B	0.30	2.19%	0.90	0.02	0.96	0.02			0%	Pavement
			13.70	100.00%		0.10		0.36		0.00		



Calculated By: Leonard Beasley
Date: June, 2025
Checked By: Leonard Beasley

Job No: 100.302 Substation
Project: MVEA Electric Substation

[illegible]



Calculated By: Leonard Beasley
Date: June, 2025
Checked By: Leonard Beasley

Job No: 100.302
Project: MVEA Electric Substation
Design Storm: **5 - Year Event (Developed)**

https://ceg1-my.sharepoint.com/personal/rschindler_ceg1_com/Documents/PROJECTS/100.302/preliminary plan/Substation Grading/100.302substation Flows 6/20/2022



PROJECT NAME: MVEA Electric Substation
PROJECT NUMBER: 100.302
ENGINEER: RLS
DATE: June, 2025

PROPOSED CONDITIONS COEFFICIENT "C" CALCULATIONS

[https://ceg1-my.sharepoint.com/personal/rschindler_ceg1_com/Documents/PROJECTS/100.302/preliminary plan/Substation Grading/100.302substation](https://ceg1-my.sharepoint.com/personal/rschindler_ceg1_com/Documents/PROJECTS/100.302/preliminary%20plan/Substation%20Grading/100.302substation%20grading.dwg) Page 1 of 5



Standard Form SF-1. Time of Concentration-Proposed

Calculated By: Leonard Beasley

Date: June, 2025

Checked By: Leonard Beasley

Job No: 100.302

Project: MVEA Electric Substation

Sub-Basin Data				Initial Overland Time (ti)				Travel Time (tt)					tc Check (urbanized Basins)		Final tc
BASIN or DESIGN	C ₅	AREA (A) acres	NRCS Convey.	LENGTH (L) feet	SLOPE (S) %	VELOCITY (V) ft/sec	ti minutes	LENGTH (L) feet	SLOPE (S) %	VELOCITY (V) ft/sec	tt minutes	Computed tc Minutes	TOTAL LENGTH (L) feet	Regional tc tc=(L/180)+10 minutes	USDCM Recommended tc=ti+tt (min)
A	0.12	3.97	7.0	15.00	2.00%	0.05	5.45								
			15.0					675.00	0.80%	1.34	8.39	13.84	690.00	13.83	13.83
B	0.12	0.65	7.0	15.00	2.00%	0.05	5.45								
			15.0					150.00	1.00%	1.50	1.67	7.12	165.00	10.92	10.92
C	0.12	9.30	20.0	20.00	20.00%	0.11	2.94								
			15.0					1200.00	1.00%	1.50	13.33	16.28	1220.00	16.78	16.78

APPENDIX C – HYDRAULIC CALCULATIONS

Channel Report

BYPASS CHANNEL

Trapezoidal

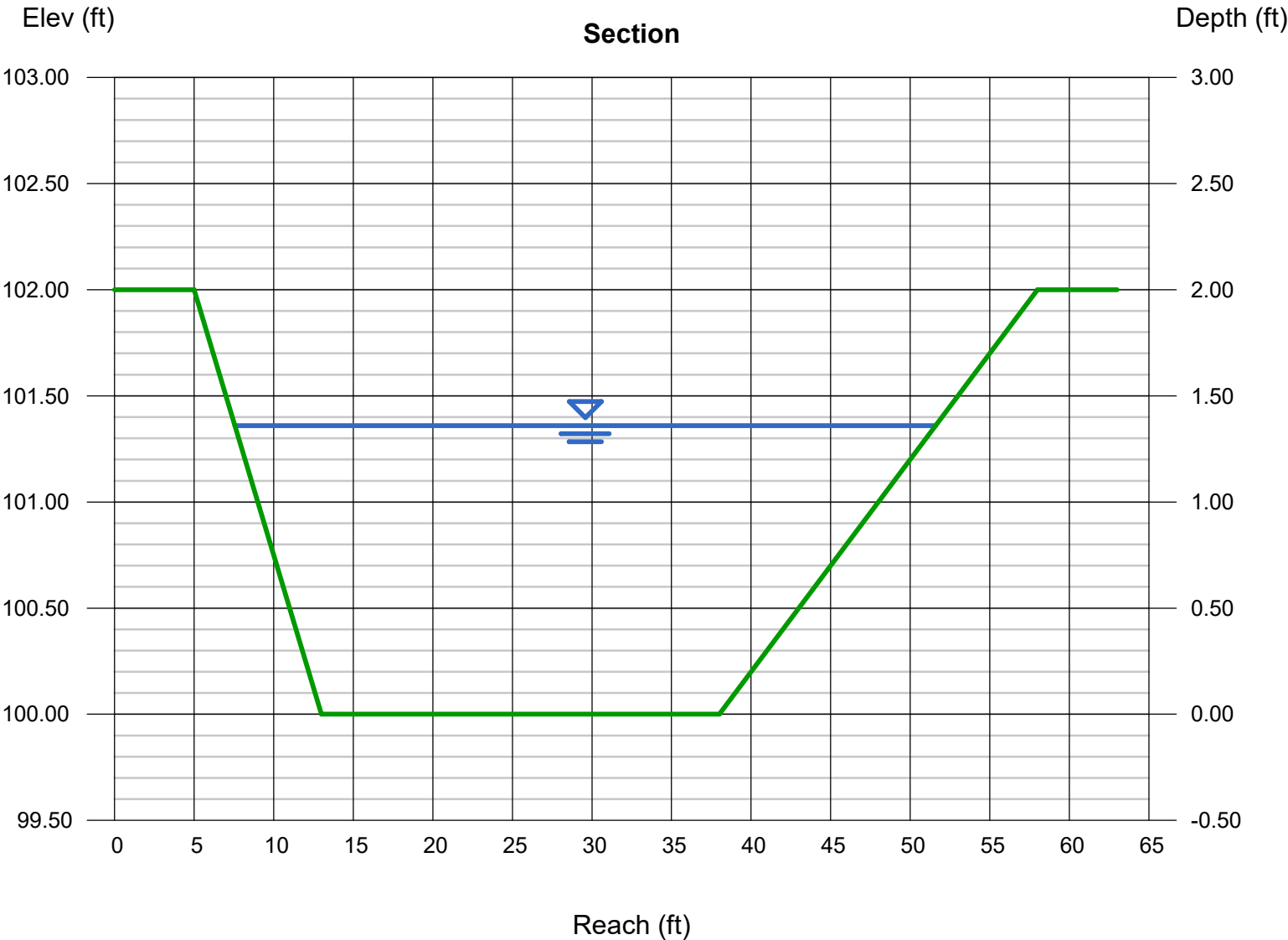
Bottom Width (ft)	= 25.00
Side Slopes (z:1)	= 4.00, 10.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.70
N-Value	= 0.020

Calculations

Compute by:	Known Q
Known Q (cfs)	= 301.50

Highlighted

Depth (ft)	= 1.36
Q (cfs)	= 301.50
Area (sqft)	= 46.95
Velocity (ft/s)	= 6.42
Wetted Perim (ft)	= 44.28
Crit Depth, Yc (ft)	= 1.44
Top Width (ft)	= 44.04
EGL (ft)	= 2.00



Channel Report

18-inch rcp

Circular

Diameter (ft) = 1.50

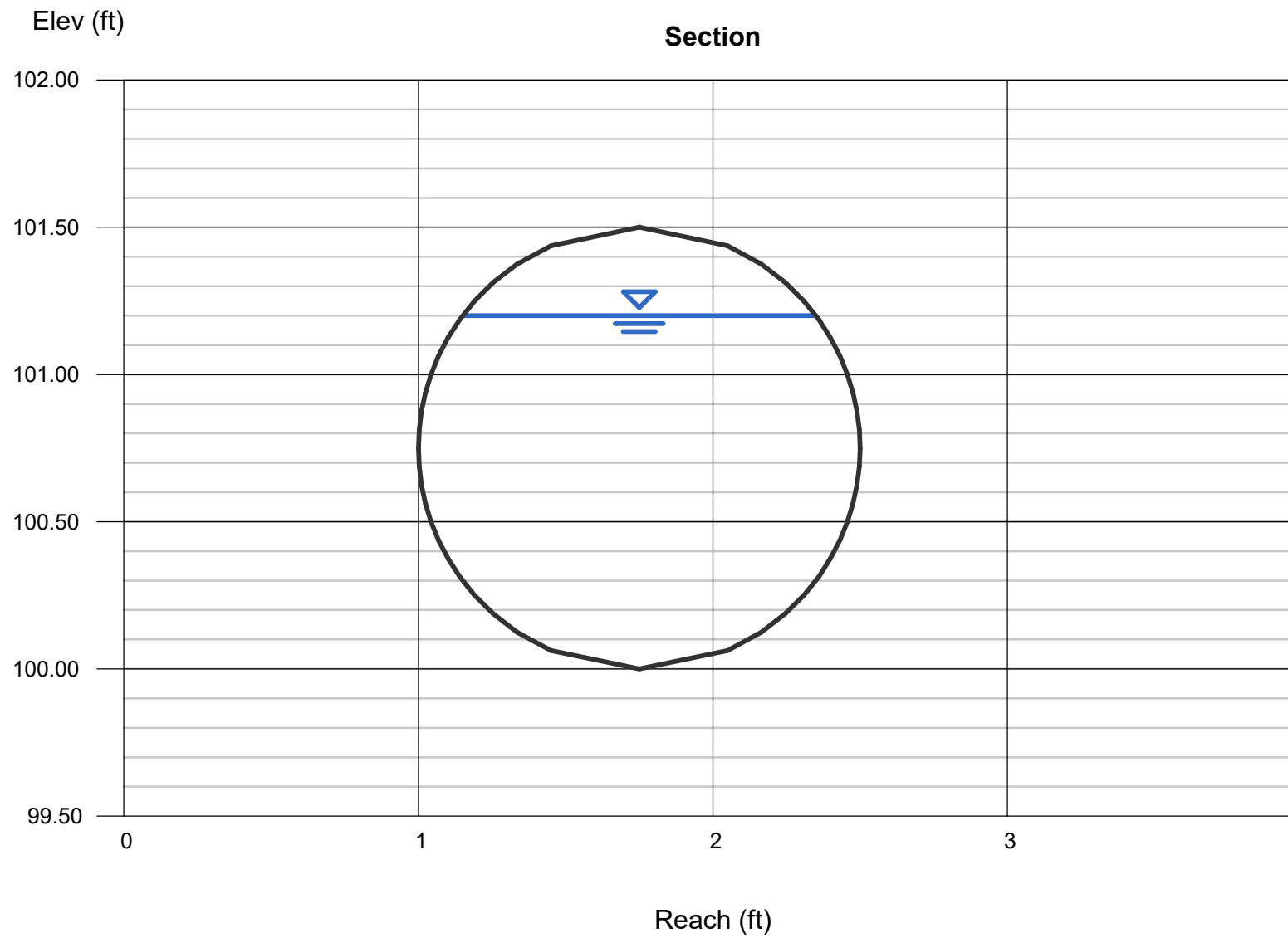
Invert Elev (ft) = 100.00
Slope (%) = 0.80
N-Value = 0.013

Calculations

Compute by: Q vs Depth
No. Increments = 5

Highlighted

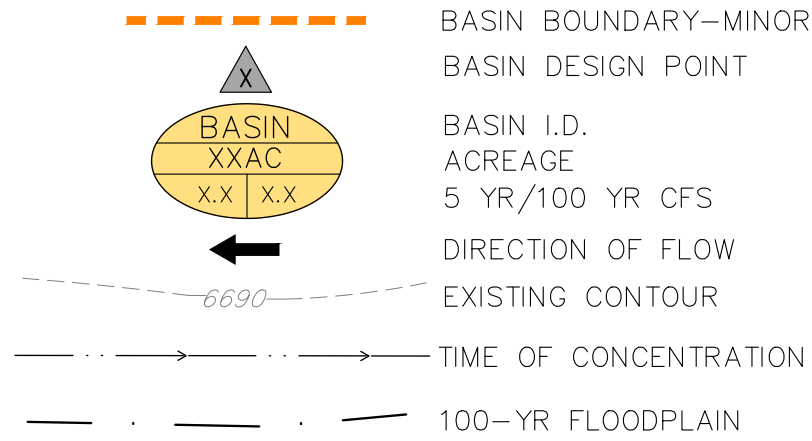
Depth (ft) = 1.20
Q (cfs) = 9.184
Area (sqft) = 1.52
Velocity (ft/s) = 6.06
Wetted Perim (ft) = 3.32
Crit Depth, Yc (ft) = 1.17
Top Width (ft) = 1.20
EGL (ft) = 1.77



APPENDIX D – FLOODPLAIN DEVELOPMENT PERMIT

MAP POCKET

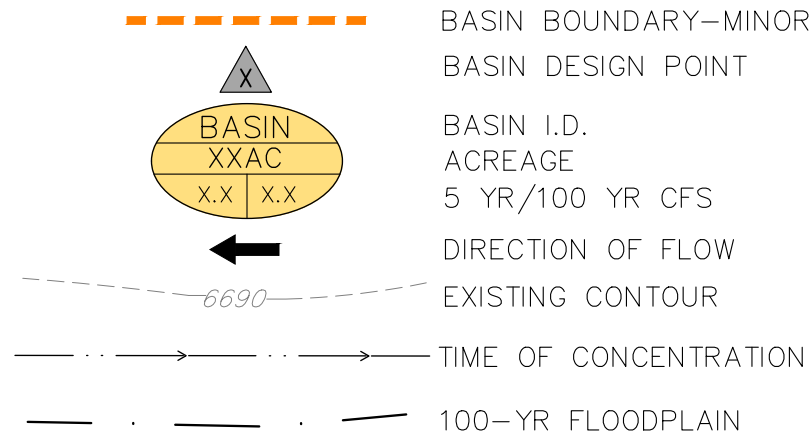
LEGEND



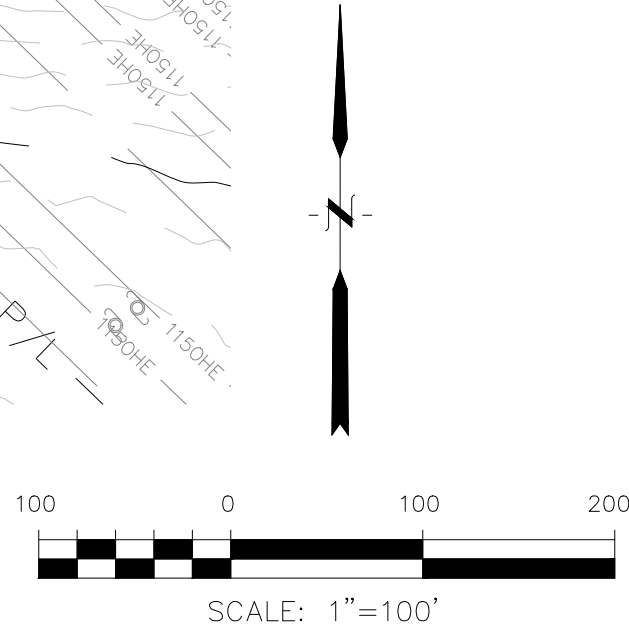
DESIGN POINT SUMMARY TABLE					
DESIGN POINT	TRIBUTARY BASINS	DRAINAGE AREA (AC)	RUNOFF 5 YR (CFS)	RUNOFF 100 YR (CFS)	COMMENT
N4	ET-32, EX-N5	193.56	130.1	301.5	FLWS FROM BULL HILL MDDP



LEGEND



DESIGN POINT SUMMARY TABLE					
DESIGN POINT	TRIBUTARY BASINS	DRAINAGE AREA (AC)	RUNOFF 5 YR (CFS)	RUNOFF 100 YR (CFS)	COMMENT
N4	ET-32, EX-N5	193.56	130.1	301.5	FLows FROM BULL HILL MDDP



CORE

ENGINEERING GROUP

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PHONE: 303.553.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

DATE:

DESCRIPTION:

NO.:

DRAWN: LAB

DESIGNED: LAB

CHECKED: RLS

PROJECT NO. 100.302

SHEET NUMBER 1

TOTAL SHEETS: 1

PREPARED FOR:
EAGLE DEVELOPMENT CO.
212 NORTH WAHSATCH AVE. SUITE 301
COLORADO SPRINGS, COLORADO 80903 (719)
635-3200
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PROJECT:
ANTELOPE RIDGE AT
BULL HILL FIL. 1
BRADLEY RD/MERIDIAN RD.
EL PASO COUNTY, COLORADO

POST GRADING CONDITIONS

MVEA ROLLING HILLS

ELECTRIC SUBSTATION

DATE:
MAY, 2025

PROJECT NO.
100.302

SHEET NUMBER
1

TOTAL SHEETS: 1