BARGHAUSEN

7/2/2024

Drainage Report

City/County File No. PPR2413

Dutch Bros Coffee (CO0907)

PREPARED BY

Barghausen Consulting Engineers, Inc.

PREPARED FOR	CLIENT ADDRESS
Dutch Bros Coffee	110 S.W. 4th Street, Grants Pass, OR 97526

SITE ADDRESS	PROJECT NO.	DATE	JURISDICTION
5810 Omaha Boulevard, Colorado Springs, Colorado 80915	23098	July 2, 2024	County of El Paso

DESIGN ENGINEER'S STATEMENT:

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

Anthony E. Merlino, PE#60820

July 2, 2024
Date

Seal

7/2/2024

OWNER/DEVELOPER'S STATEMENT:

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

9/8/24
Date

Tom Souza
Eastbound & Down, LLC
c/o Sansome Pacific
221 Pine Street, 4th Floor
San Francisco, CA 94104

EI PASO COUNTY:

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

Gilbert LaForce, P.E.

Digitally signed by Gilbert LaForce, P.E.
Reason: Authorized signatory as County Engineer designee
Date: 2024.09.17 15:02:03-06'00'

9/17/2024
Date

Joshua Palmer, PE
County Engineer/ECM Administrator

Conditions:

Table of Contents

Appendices

INTRODUCTION

PURPOSE OF STUDY

This document is the drainage report for 5810 Omaha Blvd, Colorado Springs, CO 80915. The proposed development includes a building footprint of 950 square feet and a 272 square-foot trash enclosure. The planned site improvements include approximately paved asphalt driving area, reinforced concrete driving area, on-site sidewalk area, and landscaping. This report is to summarize the drainage improvements for the Dutch Bros Coffee and is intended to demonstrate that the drainage improvements for the proposed project is in conformance with El Paso County and will not negatively impact downstream drainage facilities, surrounding development, and receiving water course.

LOCATION

This project is located on the northwest corner of Powers Blvd and Omaha Blvd, Colorado Springs, Colorado and is currently an existing gas station. The parcel is bounded by Powers Blvd to the west, existing commercial development on the east and north, and Omaha Blvd to the south. The site is within the El Paso County jurisdiction. Refer to Appendix A for a vicinity map.

DESCRIPTION OF SITE

The property is zoned as Commercial Regional. The parcel is approximately 0.62 ac. The disturbed area consists of approximately 0.62. The existing site is currently an existing gas station. The site has existing drainage system with existing drainage inlets near the south side of the site. There is an existing storm drain system located near the south end of the site. Overall, the site slopes from the northeast to the southwest.

SOILS

Per the Natural Resources Conservation Service web soils survey, soils for this project, delineated on the soils map within Appendix B of this report, are classified as Blendon Sandy Loam. Blendon Sandy Loam has been classified as Hydrologic Soil Type “B”. The study area consists of undeveloped land with sparse, grassy vegetation.

FLOODPLAIN STATEMENT

Subject property is located in Zone “X” (Area determined to be outside the 0.2% annual chance floodplain) per flood insurance rate map for County of El Paso, Colorado map number 08041C0751G, revised December 7, 2018.

PROJECT BACKGROUND

EXISTING DRAINAGE

In existing conditions, Basin A-1 is approximately 0.55 acres and approximately 89% impervious. The site generally sheet flows from the northeast to the southwest. The runoff currently sheet flows towards curb and gutter along the south side and is conveyed to and collected by dual inlets located near the parking area. The runoff is then conveyed via an existing 18-inch storm drain.

The composite runoff coefficient for the 10-year and 100-year is 0.83 and 0.88, respectively for Hydrologlic Soil Type B per Table 5-1 of the El Paso County Drainage Criteria Manual (EPCDM). A minimum time of concentration of 5 minutes was utilized to calculate the flow rate. The rainfall intensity is approximately 6 in/hr for the 10-year storm event and 9 in/hr for the 100-year storm event per Figure 5-1 of the EPCDM. The runoff is approximately 2.75 cfs for 10-year and 4.40 cfs for 100-year storm event. Refer to Appendix D for Table 5-1 and Figure 5-1.

Refer to Appendix B for Existing Conditions Drainage Map and Appendix C for Hydrology Calculations.

PROPOSED DRAINAGE

In proposed conditions, the Dutch Bros site proposes more landscaping than existing conditions, which reduces the amount of runoff than existing conditions. The site is approximately 70% impervious, which is less than existing conditions at 89% impervious. Therefore, it is anticipated that the discharge and impact to the existing storm infrastructure will be negligible and even less than the existing condition.

HYDROLOGIC AND HYDRAULIC DESIGN

BASINS

Basin A-1

Basin A-1 is approximately 0.47 acres and approximately 74% impervious. The runoff maintains similar drainage pattern as existing conditions and sheet flows northeast to the southwest. Runoff sheet flows towards curb and gutter and is conveyed towards curb cuts along the south curb and gutter. Runoff will then flow through the curb cuts and along graded swale and collected by a proposed drainage inlet that will convey the runoff via storm drain and connect to an existing 30-inch storm drain.

The composite runoff coefficient for the 10-year and 100-year is 0.73 and 0.79, respectively for Hydrologic Soil Type B per Table 5-1 of the EPCDM. A minimum time of concentration of 5 minutes was utilized to calculate the flow rate. The rain fall intensity is 6 in/hr for the 10-year storm event and 9 in/hr for the 100-yr storm event per Figure 5-1 of the EPCDM. The run off is approximately 2.06 cfs for the 10-yr and 3.36 cfs for the 100-yr event.

Basin A-2

Basin A-2 is approximately 0.10 acres and approximately 53% impervious. The runoff maintains similar drainage pattern as existing conditions and sheet flows towards the south. Runoff sheet flows towards curb and gutter and is conveyed towards a curb cut along near the east property line. Runoff will then flow through the curb cut and is conveyed along graded swale and collected by the existing dual drainage inlets. The runoff is then conveyed via an existing 18-inch storm drain.

The composite runoff coefficient for the 10-year and 100-year is 0.59 and 0.67, respectively for Hydrologic Soil Type B per Table 5-1 of the EPCDM. A minimum time of concentration of 5 minutes was utilized to calculate the flow rate. The rain fall intensity is 6 in/hr for the 10-year storm event and 9 in/hr for the 100-yr storm event per Figure 5-1 of the EPCDM. The runoff is approximately 0.34 cfs for the 10-yr and 0.57 cfs for the 100-yr event.

The total area between Basin A-1 and A-2 is 0.57 acres. The total flow between Basin A-1 and A-2 is about 2.4 cfs for the 10-year and 3.93 cfs for the 100-year storm events. Refer to Appendix B for Proposed Conditions Drainage Map and Appendix C for Hydrology Calculations.

WATER QUALITY EXEMPTION

The proposed site is disturbing approximately 0.62 acres. Storm water quality is not required for any project disturbing activity less than 1 acre per the El Paso County Drainage Criteria Manual.

HYDRAULIC DESIGN

The proposed drainage inlet and storm drain were sized based on the 100-yr design storm using the Hydraflow Express. A Manning's n of 0.011 was used for the PVC storm drain and a 0.035 for a graded swale. Refer to Appendix C for Hydraulic Calculations.

MAINTENANCE

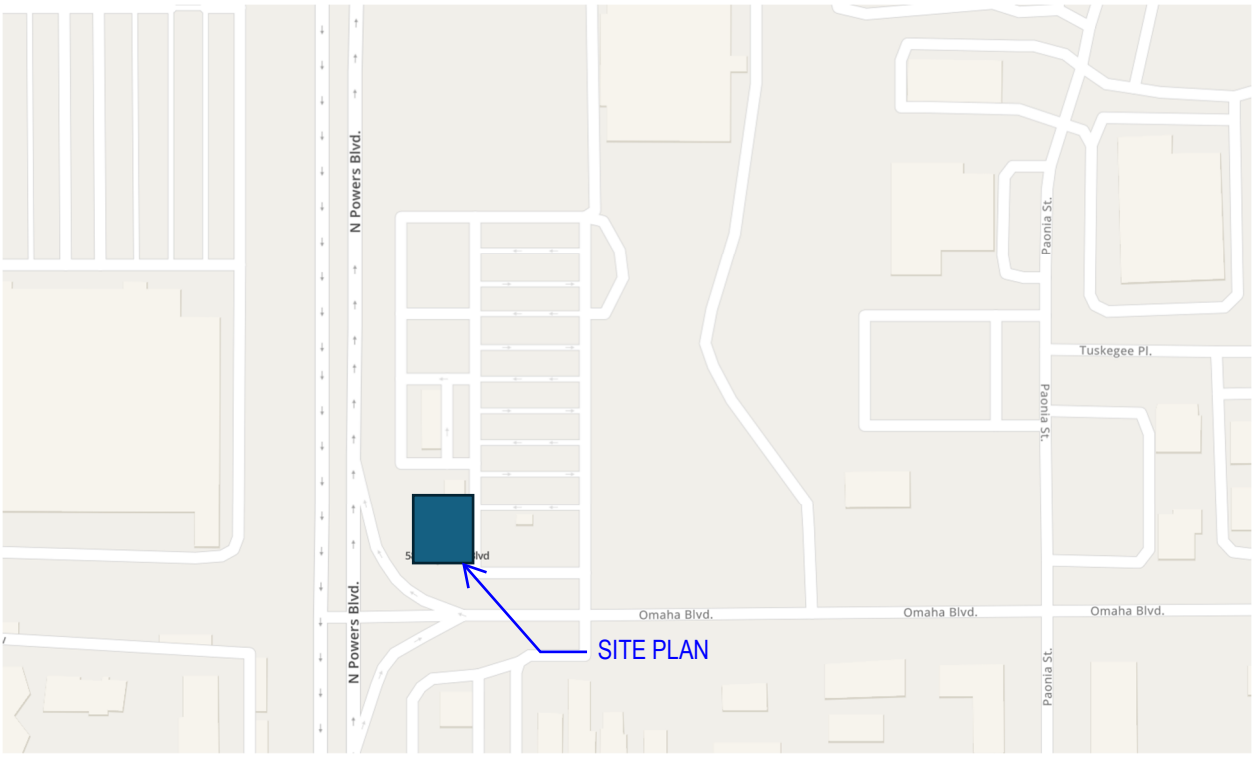
All drainage facilities within the public right-of-way shall be the responsibility of El Paso County.

SUMMARY

It has been concluded that the proposed project and the constructed improvements will maintain thresholds of existing conditions. The proposed project is less than an acre, therefore the site is exempt from water quality requirements. The site maintains existing drainage patterns to the maximum extent possible. The site also reduces the amount of existing impervious area from 89% impervious in existing conditions to 70% impervious in proposed conditions. The total runoff of 2.40 cfs for 10-year and 3.93 cfs for the 100-year storm event is less than existing flow rates of 2.75 cfs for 10-year and 4.40 cfs for 100-year storm event. Therefore, the proposed site is in conformance with El Paso County standards and requirements and does not negatively impact downstream facilities, surrounding areas, and receiving water courses.

APPENDIX A

VICINITY MAP


N Powers Blvd.
N Powers Blvd.
Paonia St.
Tuskegee Pl.
Paonia St.
Omaha Blvd.
Omaha Blvd.
Omaha Blvd.
Paonia St.
SITE PLAN

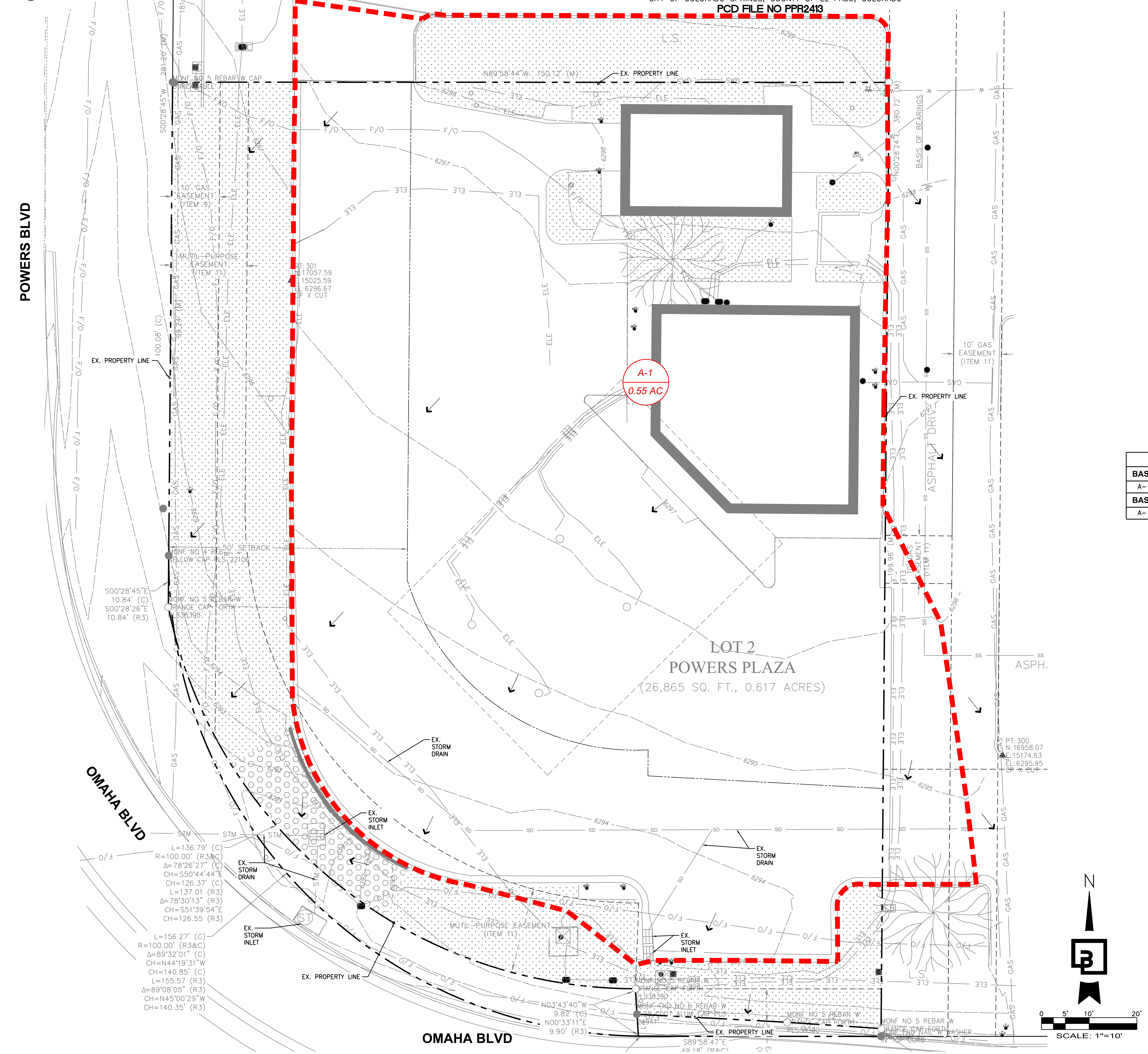
APPENDIX B

- **EXISTING CONDITIONS DRAINAGE MAP**
- **PROPOSED CONDITIONS DRAINAGE MAP**

DUTCH BROS. COFFEE - CO0907, COLORADO SPRINGS, CO

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 6 TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH PM
CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, COLORADO
PCD FILE NO PPR2413

Know what's below. Call before you dig. Dial 811



DRAINAGE SUMMARY TABLE

EXISTING CONDITIONS					
BASIN	AREA	RUNOFF (c)	TC (min)	i (10-YR) (in/hr)	PEAK Q_{10}(cfs)
A-1	24,160 SF (0.55 AC)	0.83	5	6.00	2.75
BASIN	AREA	RUNOFF (c)	TC (min)	i (100-YR) (in/hr)	PEAK Q_{100}(cfs)
A-1	24,160 SF (0.55 AC)	0.88	5	9.00	4.40

LEGEND

- EXISTING CURB
- EXISTING LANDSCAPING
- EXISTING GRAVEL
- DRAINAGE FLOW
- DRAINAGE AREA
- HYDROLOGY NODE (BASIN NAME: A-1; BASIN AREA (ac): 0.10 AC)

PPR2413

Title: **PROPOSED DRAINAGE PLAN**
5810 OMAHA BLVD
COLORADO SPRINGS, CO 80915

No. | Date | By | Ckd. | Appr. | Revision

For: DUTCH BROS Coffee

Not for Construction

Scale: Horizontal 1" = 10'; Vertical N/A

Designed EMM; Drawn EMM; Checked AEM; Approved AEM; Date 05/24/24

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 23098

Sheet 1 OF 1

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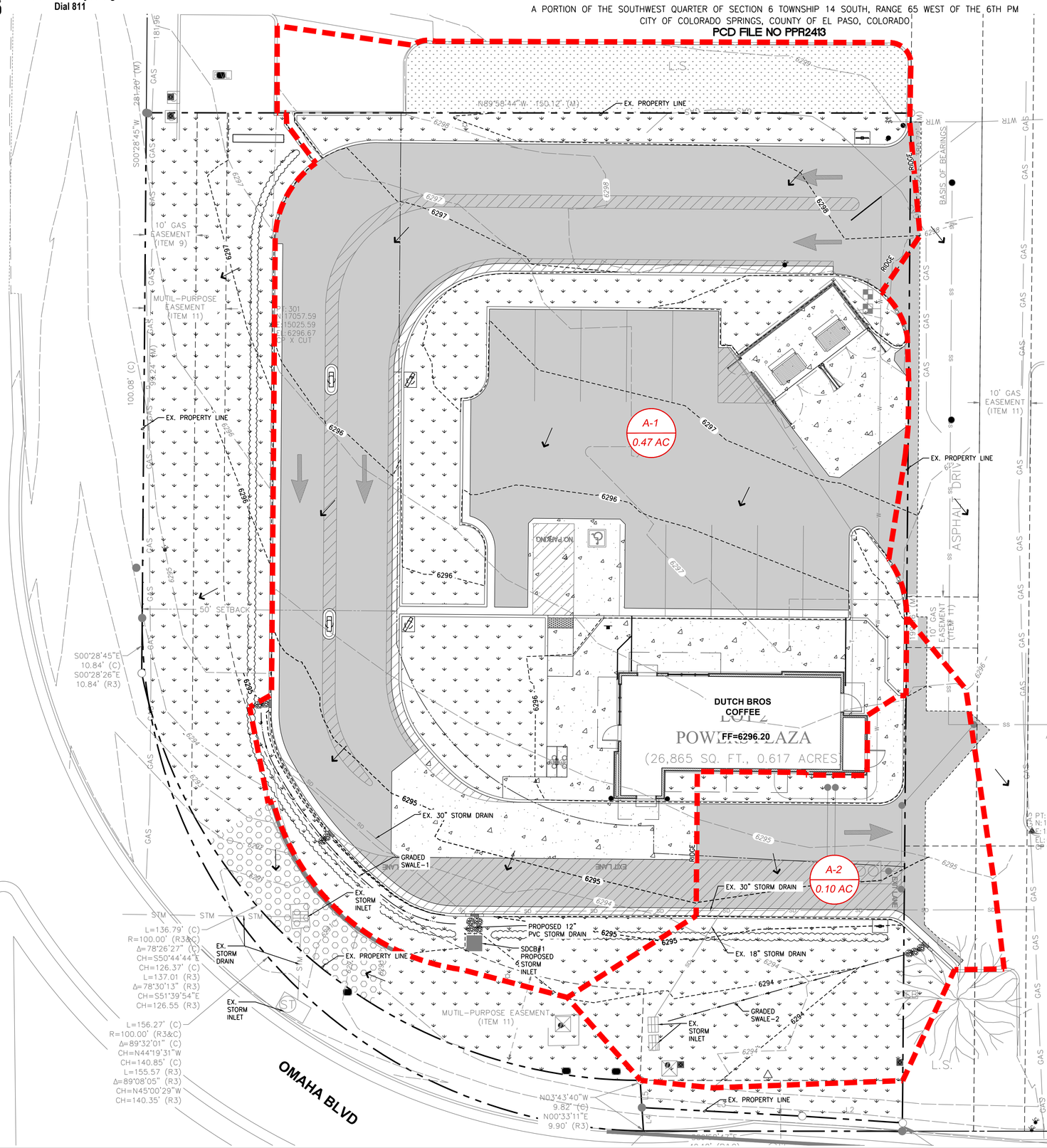
Know what's **below.**
Call before you dig.
Dial 811

DUTCH BROS. COFFEE - CO0907, COLORADO SPRINGS, CO

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 6 TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH PM
CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, COLORADO
PCD FILE NO PPR2413



DRAINAGE SUMMARY TABLE

PROPOSED CONDITIONS					
BASIN	**AREA**	**RUNOFF (c)**	**TC (min)**	**i (10-YR) (in/hr)**	**PEAK Q_{10}(cfs)**
A-1	20,555 SF (0.47 AC)	0.73	5	6.00	2.06
A-2	4,170 SF (0.10 AC)	0.59	5	6.00	0.34
TOTAL	24,725 SF (0.57 AC)				2.40
BASIN	**AREA**	**RUNOFF (c)**	**TC (min)**	**i (100-YR) (in/hr)**	**PEAK Q_{100}(cfs)**
A-1	20,555 SF (0.47 AC)	0.79	5	9.00	3.36
A-2	4,170 SF (0.10 AC)	0.67	5	9.00	0.57
TOTAL	24,725 SF (0.57 AC)				3.93

LEGEND

- EXISTING CURB TO REMAIN
- EXISTING LANDSCAPING
- EXISTING GRAVEL
- PROPOSED LANDSCAPING
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- DRAINAGE FLOW
- DRAINAGE AREA
- HYDROLOGY NODE
  - BASIN NAME
  - BASIN AREA (ac)

PPR2413

No.	Date	By	Ckd.	Appr.	Revision

Title: PROPOSED DRAINAGE PLAN
5810 OMAHA BLVD
COLORADO SPRINGS, CO 80915

For: DUTCH BROS

COLORADO LICENSED ANTHONY F. LEE 50820 PROFESSIONAL ENGINEER
Not for Construction

Scale: Horizontal 1" = 10' Vertical N/A

Designed EMM Drawn EMM Checked AEM Approved AEM Date 05/29/24

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 23098

Sheet 1 OF 1

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APPENDIX C

- **HYDROLOGY CALCULATIONS**
- **HYDRAULIC CALCULATIONS**

Project: Dutch Bros - CO0907
Location: 5810 Omaha Blvd, Colorado Springs, CO
BCE# 23098

Rational Method

EXISTING

Basin:	**A-1**
Total Area (sf)	**24,160**
Total Area (ac)	0.55
Roof (sf)	2,605
Impervious Area (sf)	18,780
Pervious Area (sf)	2,775
Total Area (sf)	**24,160**
%Impervious (i)	**0.89**

Runoff Coefficient, c (per Table 5-1 Runoff Coefficient - Commercial)

Soil Type **B** (per NRCS Web Soil Survey)

	10 YR	100 YR
Roof	0.9	0.95
Paved, Drive & Walk	0.9	0.95
Lawns	0.25	0.35

	A-1
C10 =	0.83
C100 =	0.88

Rainfall Intensity, i (in/hr) (per Figure 5-1 - Colorado Springs Rainfall Intensity Duration Frequency)

	5 (min)
i10 (in/hr) =	6.00
i100 (in/hr) =	9.00

Runoff, Q (cfs), assume min Tc = 5 min **Q = C * i * A**

	A-1
Q10 (cfs) =	2.75
Q100 (cfs) =	4.40

Project: Dutch Bros - CO0907
Location: 5810 Omaha Blvd, Colorado Springs, CO
BCE# 23098

Rational Method

PROPOSED

Basin:	A-1	A-2	SITE
Total Area (sf)	**20,555**	**4,170**	**24,725**
Total Area (ac)	0.47	0.10	0.57
Roof (sf)	980	0	980
Impervious Area (sf)	14,150	2,200	16350
Pervious Area (sf)	5,425	1,970	7395
Total Area (sf)	**20,555**	**4,170**	**24,725**
%Impervious (i)	**0.74**	**0.53**	**0.70**

Runoff Coefficient, c **(per Table 5-1 Runoff Coefficient - Commercial)**

Soil Type	**B**	
	10 YR	**100 YR**
Roof	0.9	0.95
Paved, Drive & Walk	0.9	0.95
Lawns	0.25	0.35

(per NRCS Web Soil Survey)

	A-1	A-2
C10 =	0.73	0.59
C100 =	0.79	0.67

Rainfall Intensity, i (in/hr) **(per Figure 5-1 - Colorado Springs Rainfall Intensity Duration Frequency)**

	5 (min)
i10 (in/hr) =	6.00
i100 (in/hr) =	9.00

Runoff, Q (cfs), assume min Tc = 5 min **Q = C * i * A**

	A-1	A-2
Q10 (cfs) =	2.06	0.34
Q100 (cfs) =	3.36	0.57

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, May 23 2024

Graded Swale - 1

Triangular

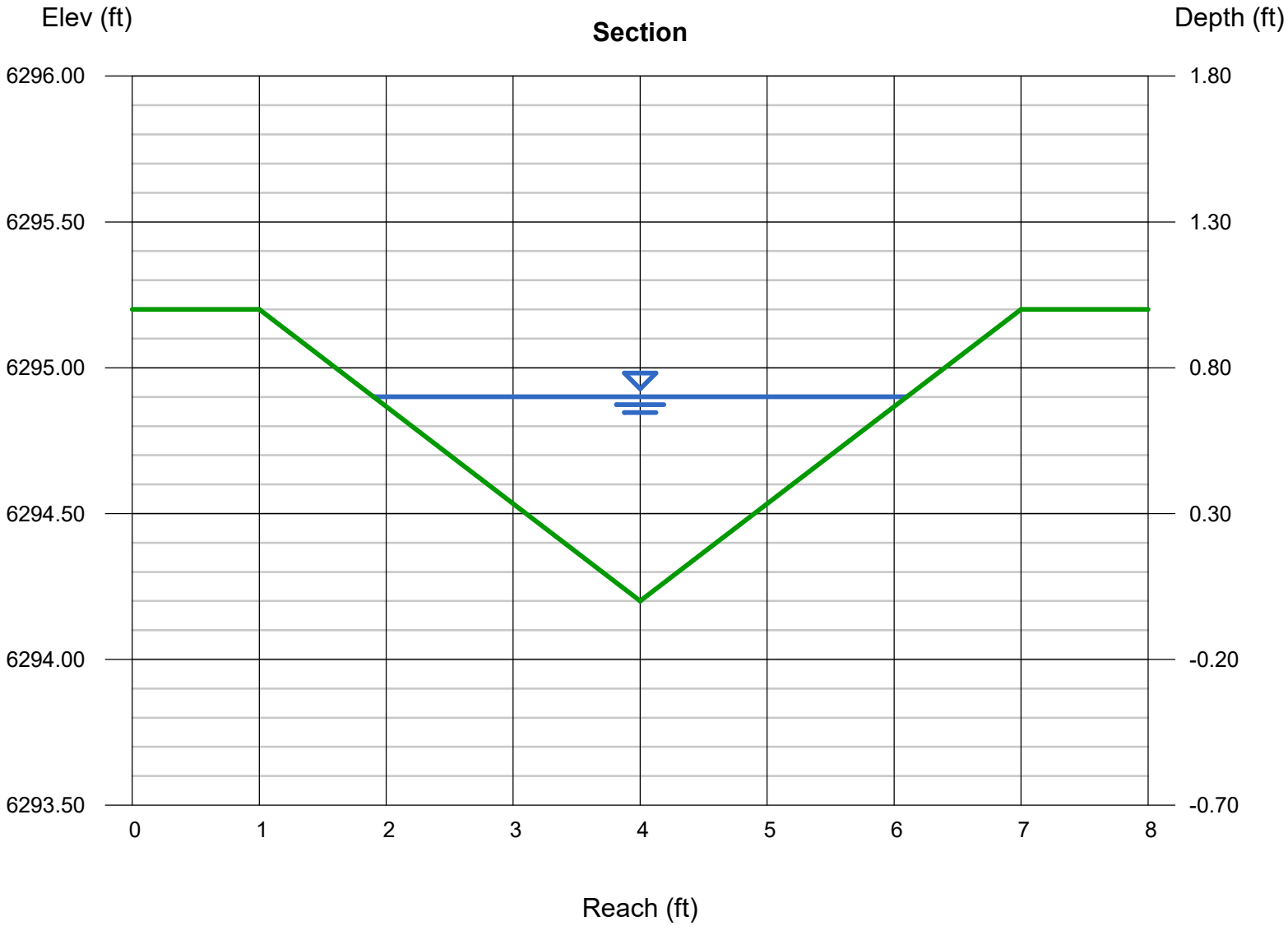
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 6294.20
Slope (%)	= 1.00
N-Value	= 0.030

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.36

Highlighted

Depth (ft)	= 0.70
Q (cfs)	= 3.360
Area (sqft)	= 1.47
Velocity (ft/s)	= 2.29
Wetted Perim (ft)	= 4.43
Crit Depth, Yc (ft)	= 0.61
Top Width (ft)	= 4.20
EGL (ft)	= 0.78



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, May 23 2024

Graded Swale - 2

Triangular

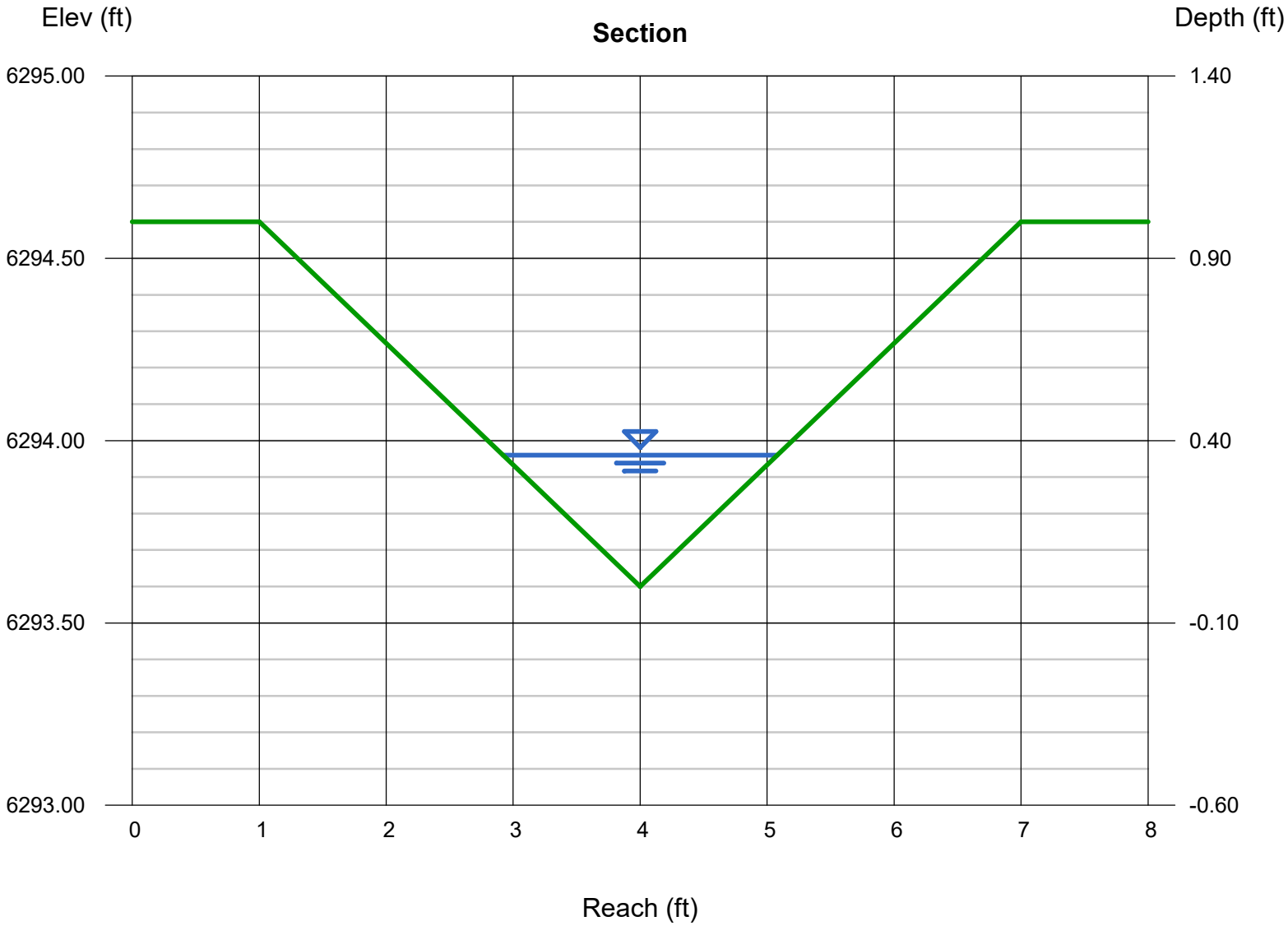
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 6293.60
Slope (%)	= 1.00
N-Value	= 0.030

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.57

Highlighted

Depth (ft)	= 0.36
Q (cfs)	= 0.570
Area (sqft)	= 0.39
Velocity (ft/s)	= 1.47
Wetted Perim (ft)	= 2.28
Crit Depth, Yc (ft)	= 0.30
Top Width (ft)	= 2.16
EGL (ft)	= 0.39



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, May 23 2024

12-in PVC SD

Circular

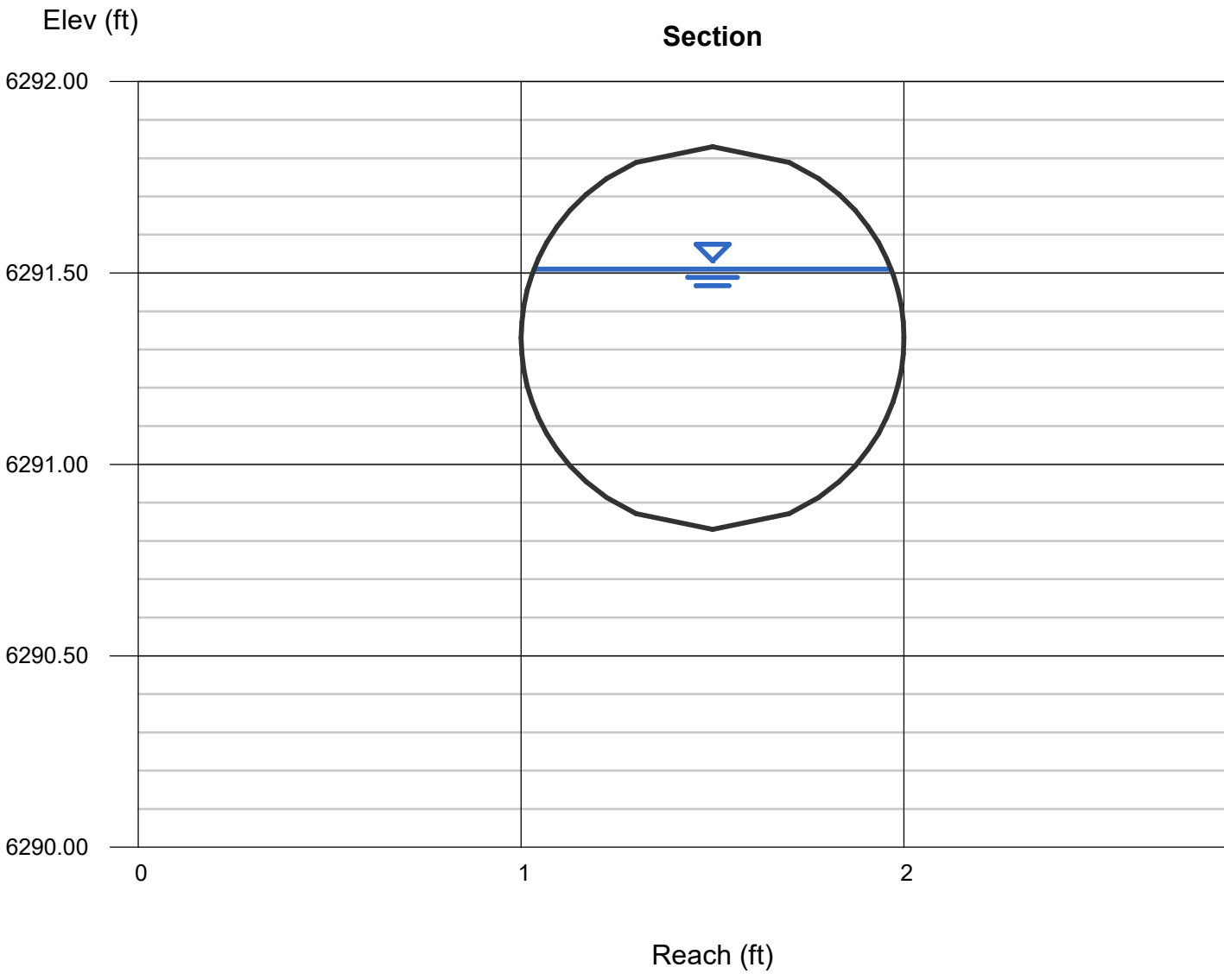
Diameter (ft)	= 1.00
Invert Elev (ft)	= 6290.83
Slope (%)	= 1.00
N-Value	= 0.011

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.36

Highlighted

Depth (ft)	= 0.68
Q (cfs)	= 3.360
Area (sqft)	= 0.57
Velocity (ft/s)	= 5.90
Wetted Perim (ft)	= 1.94
Crit Depth, Yc (ft)	= 0.79
Top Width (ft)	= 0.93
EGL (ft)	= 1.22



Inlet Report

SDCB#1

Drop Grate Inlet

Location	= Sag
Curb Length (ft)	= -0-
Throat Height (in)	= -0-
Grate Area (sqft)	= 4.00
Grate Width (ft)	= 2.00
Grate Length (ft)	= 2.00

Gutter

Slope, Sw (ft/ft)	= 0.083
Slope, Sx (ft/ft)	= 0.083
Local Depr (in)	= -0-
Gutter Width (ft)	= 1.50
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

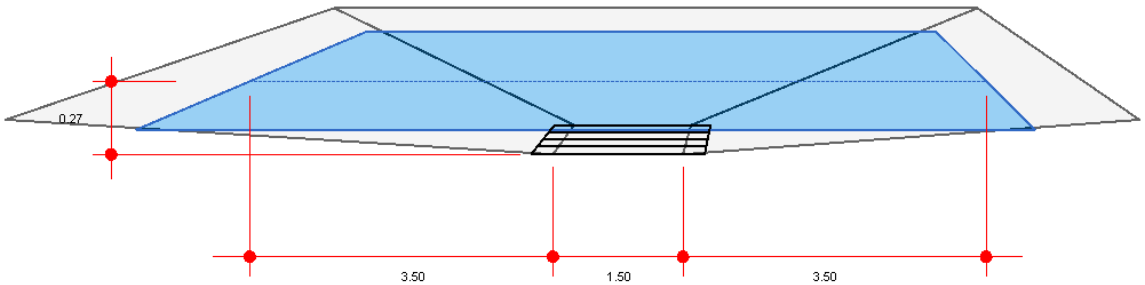
Calculations

Compute by:	Known Q
Q (cfs)	= 3.36

Highlighted

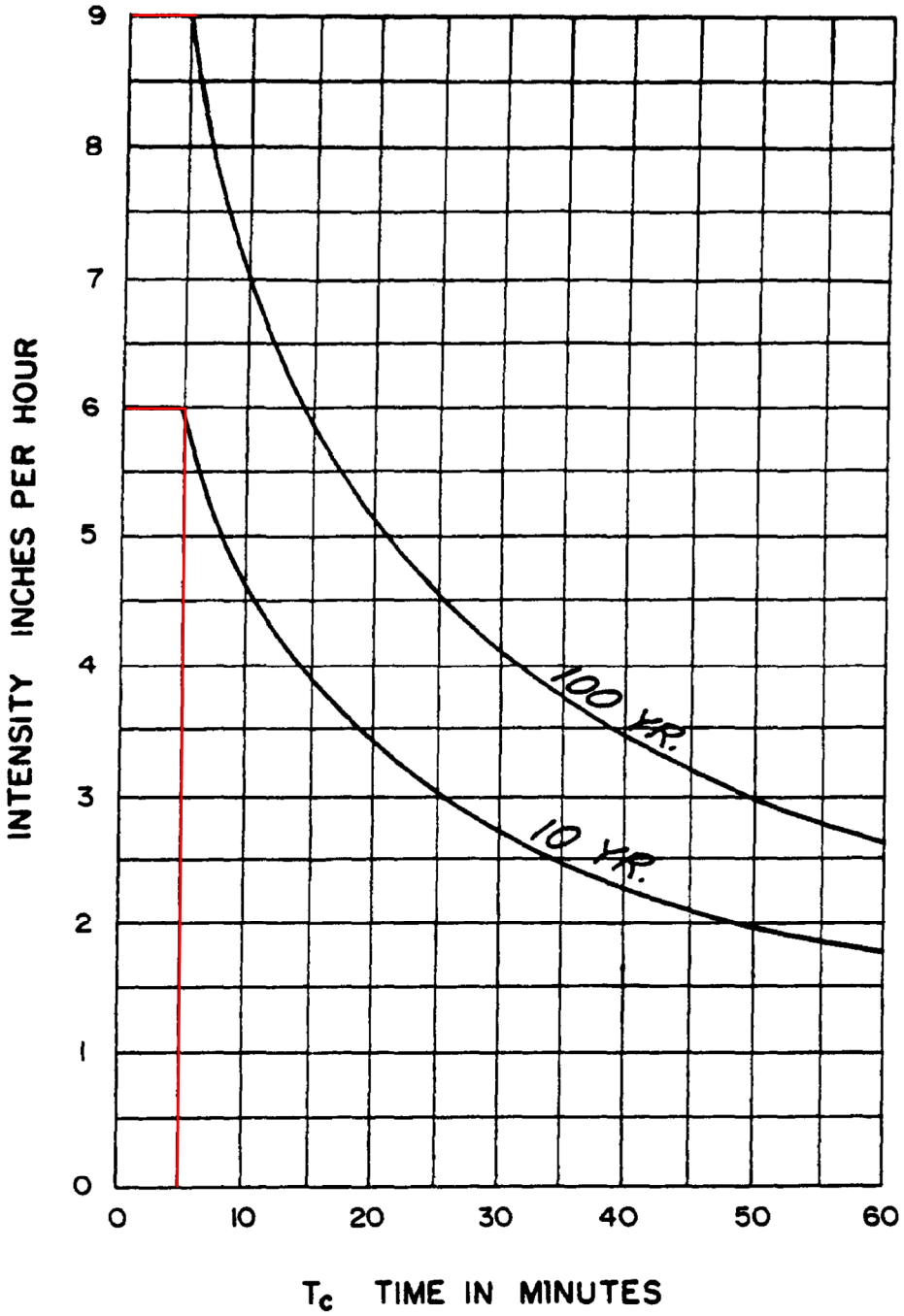
Q Total (cfs)	= 3.36
Q Capt (cfs)	= 3.36
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 3.23
Efficiency (%)	= 100
Gutter Spread (ft)	= 8.49
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-

All dimensions in feet



APPENDIX D

REFERENCES



RE: Based upon Pikes Peak area council of governments/ areawide urban runoff control manual.

HDR Infrastructure, Inc.
A Centerra Company

The City of Colorado Springs / El Paso County
Drainage Criteria Manual

Storm Rainfall
Time Intensity-Frequency Curves

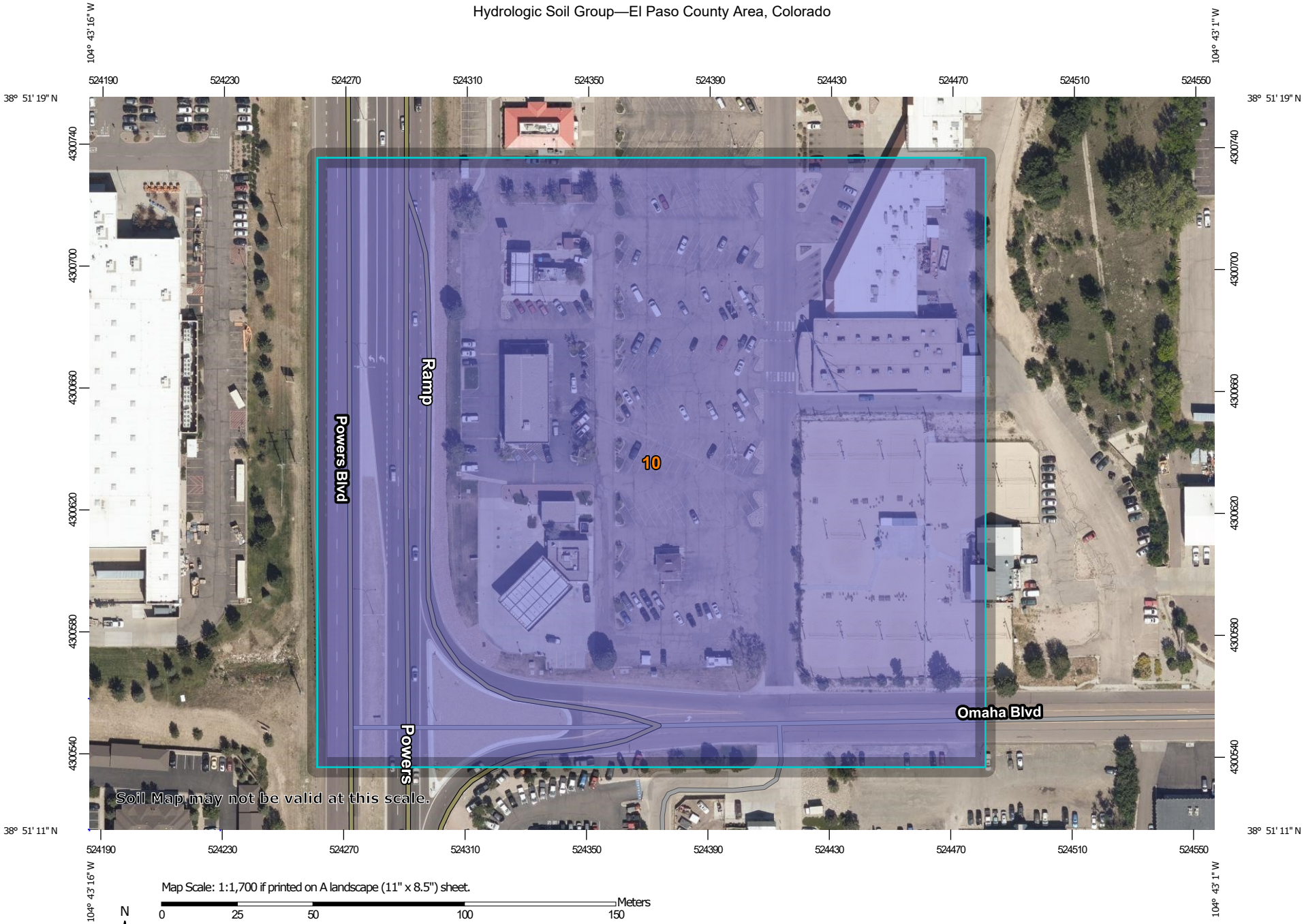
Date
OCT. 1987

Figure
5 - 1

TABLE 5-1 RECOMMENDED AVERAGE RUNOFF COEFFICIENTS AND PERCENT IMPERVIOUS

EXPAND

LAND USE OR SURFACE CHARACTERISTICS	PERCENT IMPERVIOUS	"C" FREQUENCY			
		10		100	
		A&B*	C&D*	A&B*	C&D*
Business					
Commercial Areas	95	0.90	0.90	0.90	0.90
Neighborhood Areas	70	0.75	0.75	0.80	0.80
Residential					
⅛ Acre or less	65	0.60	0.70	0.70	0.80
¼ Acre	40	0.50	0.60	0.60	0.70
⅓ Acre	30	0.40	0.50	0.55	0.60
½ Acre	25	0.35	0.45	0.45	0.55
1 Acre	20	0.30	0.40	0.40	0.50
Industrial					
Light Areas	80	0.70	0.70	0.80	0.80
Heavy Areas	90	0.80	0.80	0.90	0.90
Parks and Cemeteries	7	0.30	0.35	0.55	0.60
Playgrounds	13	0.30	0.35	0.60	0.65
Railroad Yard Areas	40	0.50	0.55	0.60	0.65
Undeveloped Areas					
Historic Flow Analysis-Greenbelts, Agricultural	2	0.15	0.25	0.20	0.30
Pasture/Meadow	0	0.25	0.30	0.35	0.45
Forest	0	0.10	0.15	0.15	0.20
Exposed Rock	100	0.90	0.90	0.95	0.95
Offsite Flow Analysis (when land use not defined)	45	0.55	0.60	0.65	0.70
Streets					
Paved	100	0.90	0.90	0.95	0.95
Gravel	80	0.80	0.80	0.85	0.85
Drive and Walks	100	0.90	0.90	0.95	0.95
Roofs	90	0.90	0.90	0.95	0.95
Lawns	0	0.25	0.30	0.35	0.45
*Hydrologic Soil Group					



Map Scale: 1:1,700 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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 21, Aug 24, 2023

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

Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 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
10	Blendon sandy loam, 0 to 3 percent slopes	B	10.9	100.0%
Totals for Area of Interest			**10.9**	**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.

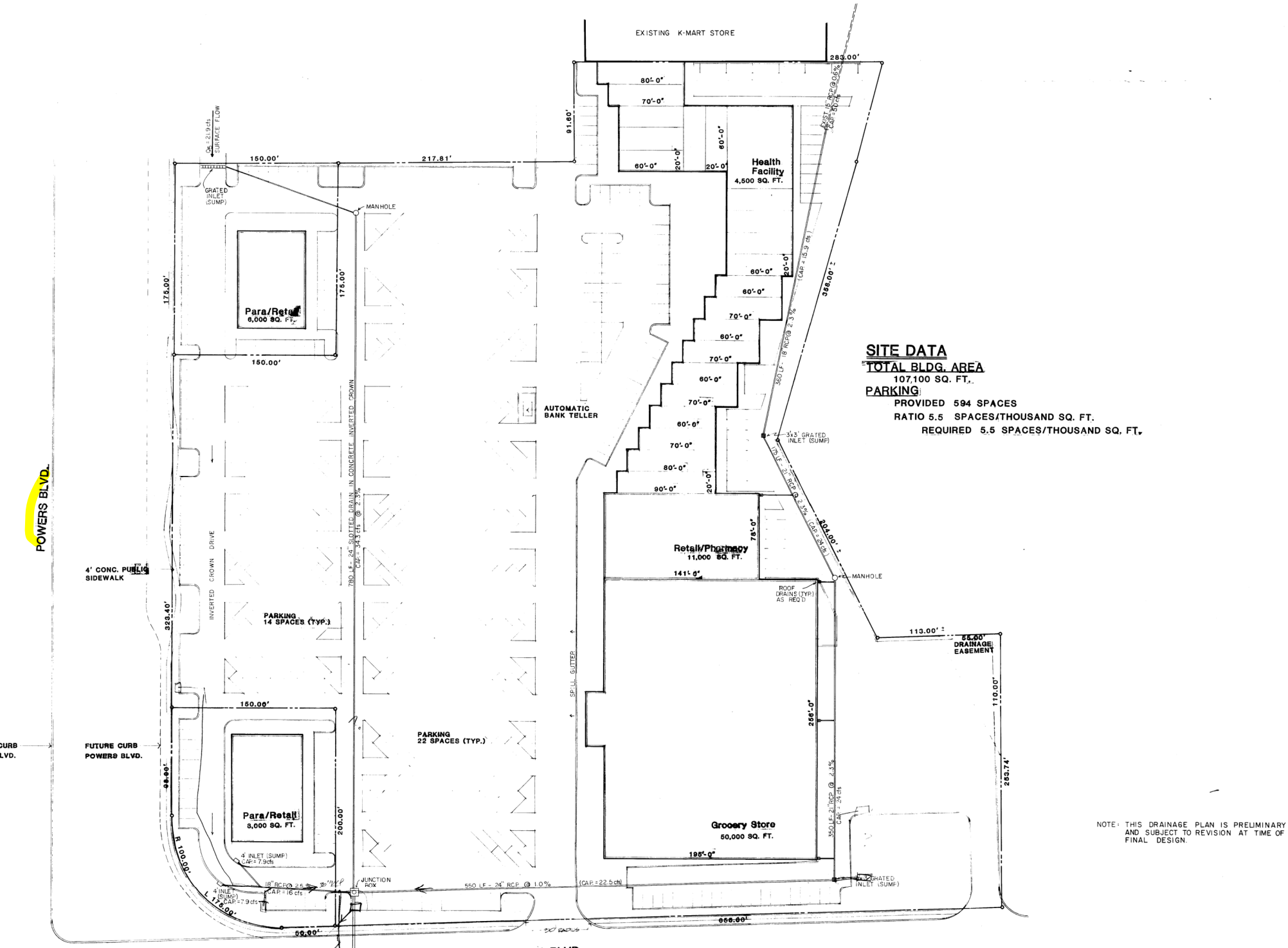
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over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



SITE DATA

TOTAL BLDG. AREA

107,100 SQ. FT.

PARKING

PROVIDED 594 SPACES

RATIO 5.5 SPACES/THOUSAND SQ. FT.

REQUIRED 5.5 SPACES/THOUSAND SQ. FT.

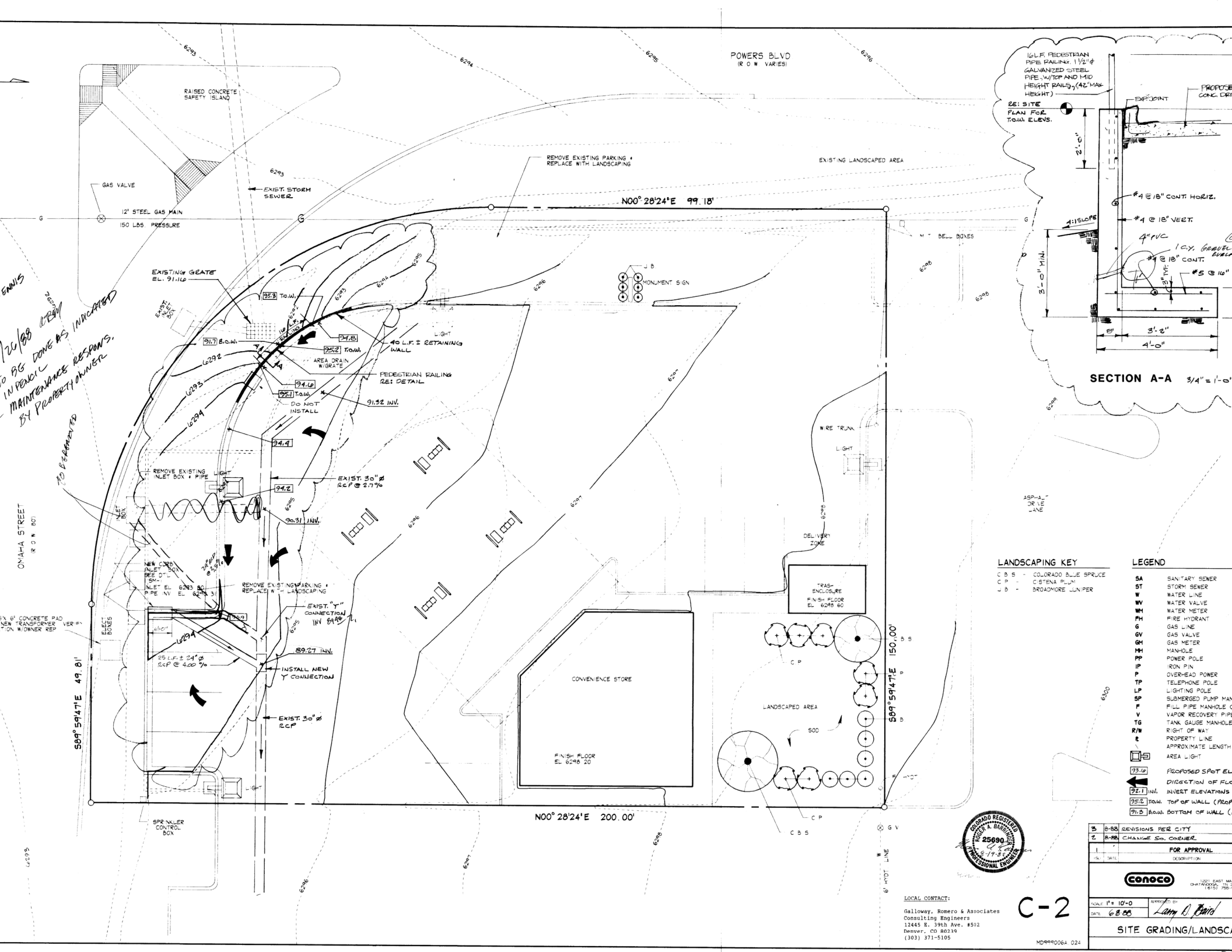
NOTE: THIS DRAINAGE PLAN IS PRELIMINARY AND SUBJECT TO REVISION AT TIME OF FINAL DESIGN.

PRELIMINARY SITE DRAINAGE PLAN

SCALE 1"=40'-0"

NORTH

DRAINAGE PLAN BY:
LEIGH WHITEHEAD & ASSOCIATES
Consulting Engineers & Surveyors
5 West Las Vegas
COLORADO SPRINGS, COLORADO 80903
Phone (303) 636-5179



LANDSCAPING KEY

C B S - COLORADO BLUE SPRUCE
C P - CISTENA PLUM
J B - BROADMORE JUNIPER

LEGEND

SA	SANITARY SEWER
ST	STORM SEWER
W	WATER LINE
WV	WATER VALVE
WM	WATER METER
FH	FIRE HYDRANT
G	GAS LINE
GV	GAS VALVE
GM	GAS METER
MH	MANHOLE
PP	POWER POLE
IP	IRON PIN
P	OVERHEAD POWER
TP	TELEPHONE POLE
LP	LIGHTING POLE
SP	SUBMERGED PUMP MAN
F	FILL PIPE MANHOLE C
V	VAPOR RECOVERY PIPE
TG	TANK GAUGE MANHOLE
R/W	RIGHT OF WAY
℄	PROPERTY LINE
	APPROXIMATE LENGTH
	AREA LIGHT
93.6	PROPOSED SPOT EL
	DIRECTION OF FLO
92.1 INV.	INVERT ELEVATIONS
95.2 T.O.W.	TOP OF WALL (PROP
91.3 B.O.W.	BOTTOM OF WALL (

7/26/88 CBM
TO BE DONE AS INDICATED IN PENCIL
- MAINTENANCE RESPONS. BY PROPERTY OWNER

TO BE GRADED TO

COLORADO REGISTERED ROGER A. BARRINGER 25690 PROFESSIONAL ENGINEER 9-19-88

3	8-88	REVISIONS PER CITY
2	8-88	CHANGE So. CORNER
1		FOR APPROVAL
NO.	DATE	DESCRIPTION

conoco

1221 EAST MA
CHATANOOGA, TN 3
(615) 756-

SCALE 1" = 10'-0
DATE 6.8.88
APPROVED BY Larry D. Baird

SITE GRADING/LANDSC

LOCAL CONTACT:

Galloway, Romero & Associates
Consulting Engineers
12445 E. 39th Ave. #502
Denver, CO 80239
(303) 371-5105

C-2

MD9990068 024