

PRELIMINARY UTILITY REPORT

FOR THE

HEROES HALL

AT

**LOT 1, BLOCK 1 PLUM CREEK COMMERCIAL FILING NO. 3
SPD25-0027**

**Fairgrounds Road
Castle Rock, CO 8010**

OWNER / DEVELOPER:

**DOUGLAS COUNTY BOARD OF COUNTY COMMISSIONERS
100 THIRD STREET
CASTLE ROCK, CO 80104**

PREPARED BY:

**COLLINS ENGINEERS, INC.
455 SHERMAN STREET, SUITE 160
DENVER, CO 80203
(303) 447-0090
ATTN.: BRYAN FRANTZ, P.E.
COLLINS JOB NO. 16346-25**

**November 21, 2025
Revised April 17, 2025**

Engineer's Statement:

The enclosed utility report, and exhibits, were prepared by me or under my direct supervision and is correct to the best of my knowledge and belief. Said utility report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master utility plans for the affected area. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.

Bryan Frantz
Registered Professional Engineer
State of Colorado No. 37362

Owner/Developer's Statement:

As Owner/Developer of Land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.

Name of Developer

Authorized Signature

I.	PROJECT LOCATION AND DESCRIPTION	4
II.	CALCULATED WATER DEMANDS	4
III.	EXISTING WATER SYSTEM.....	5
IV.	PROPOSED WATER SYSTEM	5
V.	PROPOSED WATER SYSTEM ANALYSIS AND MODELING.....	6
VI.	CALCULATED WASTEWATER FLOWS.....	7
VII.	EXISTING WASTEWATER SYSTEM	7
VIII.	PROPOSED WASTEWATER SYSTEM.....	7
IX.	PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING.....	8
X.	POTENTIAL PERMITTING REQUIREMENTS	8
XI.	REFERENCES	8
	APPENDIX A	9
	APPENDIX B	10
	APPENDIX D	12
	APPENDIX E	13

PRELIMINARY UTILITY REPORT
FOR
HEROES HALL
IN
TOWN OF CASTLE ROCK, COLORADO

I. PROJECT LOCATION AND DESCRIPTION

PURPOSE

The purpose of this report is to examine the water and wastewater demands for THE proposed Heroes Hall (14,000 sf – main level and 14,000 sf basement) building.

A. Project Location

The project site is located on Lot 1, Block 1 Plum Creek Commercial Filing No. 3 which is located at the northwest intersection of Fairgrounds Road and East Plum Creek Parkway in the Town of Castle Rock, Colorado. The proposed project will access off of Fairgrounds Road. Adjacent to the site to the east is a parking lot and to the north is the Douglas County Fairgrounds facilities. See Appendix F for a vicinity map for the project site.

B. Description

The project site is approximately 4.4 acres. The proposed building will have a 1 ½" water service line and a 6" fire line that will connect to the proposed 8" PVC water line within the project site.

The building will have a proposed 4" PVC sanitary sewer service line that will connect to the existing 6" PVC sanitary sewer service within the project site along Fairgrounds Road.

There are no existing water wells or On-Site Wastewater Treatment Systems (OWTSs).

Easements for the Town of Castle Rock necessary utilities will be provided at the time of platting (plat amendment) or at the time of final design/ construction documents.

II. CALCULATED WATER DEMANDS

The Single Family Equivalents (SFEs) for this site is 7.00 SFEs (see Appendix A for calculation). The final assigned project SFEs will be based on the final domestic and irrigation meter sizes to be determined at the time of building permitting.

A. Average Day Demand (ADD)

The Average Day Demand (ADD) for the project site is 2,800 gpd (1.94 gpm, 3.14 ac-ft/year) (see Appendix A for calculations).

B. Maximum Day Demand (MDD)

The Maximum Day Demand (MDD) for the project site is 7,000 gpd (4.86 gpm) (see Appendix A for calculations).

The storage volume for the site is 0.217 MG (see Appendix B for calculations).

C. Peak Hour Demand (PHD)

The Peak Hour Demand (PHD) for the project site is 15,400 gpd (10.69 gpm) (see Appendix A for calculations).

A fixture unit calculation of 44 gpm is the proposed building demand and is attached in Appendix A for reference. 44 gpm is used in the WaterCAD analysis since the gpm is higher than the PHD calculation above.

III. EXISTING WATER SYSTEM

A. Existing Distribution System

There is an existing 8" PVC water line within the project site that has been stubbed out from East Plum Creek Parkway and an existing 8" PVC water line within Fairgrounds Road. This project proposes to connect to both existing 8" water mains. A proposed 1 ½" water service line and a 4" fire line will connect to the proposed 8" water main. There is an existing fire hydrant located near the project entrance along Fairgrounds Road and a new fire hydrant is proposed within the project site. Both fire hydrants will be used to provide the required fire flow.

B. Existing Supply Facilities

This development is located within the Tank 4 Blue water pressure zone. This zone has a maximum 100% HGL of 6,508 feet and 20% HGL of 6,493 feet.

IV. PROPOSED WATER SYSTEM

A. Proposed Distribution System

This project proposes a new 8" water main through the project site. A water service line and fire line are proposed and will tie into the proposed 8" water line. Any future development of the existing water infrastructure needed to serve this site is the responsibility of the owner/developer.

B. Proposed Supply Facilities

This project does not propose to construct any pump stations, wells, storage reservoirs, etc.

C. Land Dedication Requirements

A 20' wide easement will be dedicated for the proposed 8" water line as part of this project.

V. **PROPOSED WATER SYSTEM ANALYSIS AND MODELING**

A. Hydraulic Models

The water model had a total fire flow demand at the proposed fire hydrant of 1,750 gpm and resulted in the lowest residual pressure within the model of 97 psi and therefore meeting the minimum residual pressure of 20 psi.

B. Hydraulic Modeling Scenarios

The following Water CAD scenarios were conducted:

1) No demands, low HGL of 6493'

A minimum pressure of 103 psi resulted from this hydraulic condition.

2) No demands, high HGL of 6508'

A maximum pressure of 109 psi resulted from this hydraulic condition.

3) Peak Hour Demand, low HGL of 6493'

A peak hour demand of 44 gpm was analyzed for the domestic water service. This is based on the fixture unit calculation. A minimum pressure of 98 resulted from this hydraulic condition.

4) Maximum Day Demand, low HGL of 6493'

A peak hour demand of 44 gpm was analyzed for the domestic water service. This is based on the fixture unit calculation. A minimum pressure of 98 resulted from this hydraulic condition.

5) Maximum Day Demand plus Fire Flow, low HGL 6493'

The entire fire flow demand of 1,750 gpm was applied to H-1. H-1 resulted in a pressure of 96 psi from this hydraulic condition. No flow to H-2 was allowed in this scenario.

C. Hydraulic Modeling Output and Required Schematics

The water model exhibits, calculations, and results can be found in Appendix C.

VI. CALCULATED WASTEWATER FLOWS

A. Average Day Wastewater Flow (ADF)

The Average Day Wastewater Flow (ADF) for this project is 1,400 gpd (see Appendix D for calculations).

B. Peaking Factor

The Peaking Factor (PF) used for this project is 5 (see Appendix D for calculations).

C. Peak Design Flow (PDF)

The Peak Design Flow (PDF) for this project is 7,140 gpd (0.011 cfs)(see Appendix D for calculations).

Based on the minimum allowable slope of 0.40%, the maximum capacity of the existing 8" sanitary sewer main in is 0.8236 cfs at 75% flow depth. Therefore the % capacity of the flow from the project is 1.33%.

VII. EXISTING WASTEWATER SYSTEM

A. Existing Collection System

This project proposes a 4" sanitary sewer service line to tie into an existing 6" sanitary sewer service line located within the project site. The existing service line connects to the existing 8" sanitary sewer just north of the project site.

VIII. PROPOSED WASTEWATER SYSTEM

A. Proposed Collection System

This project does not propose to construct a wastewater collection system. Any future development of the existing wastewater infrastructure needed to serve this site is the responsibility of the owner/developer.

B. Proposed Wastewater Facilities

A grease interceptor is proposed outside of the building and will be sized during the final design/construction documents. The 4" sanitary sewer service line will connect from the grease interceptor to the existing sanitary sewer main located Fairgrounds Road.

C. Land Dedication Requirements

There will be no land dedication as part of this project.

IX. PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING

A. Hydraulic Models

Because this project does not propose to construct any wastewater mains, no hydraulic modeling is necessary.

B. Hydraulic Modeling Scenarios

Because this project does not propose to construct any wastewater mains, no hydraulic modeling is necessary.

C. Hydraulic Modeling Output and Required Schematics

Because this project does not propose to construct any wastewater mains, no hydraulic modeling is necessary.

X. POTENTIAL PERMITTING REQUIREMENTS

The commercial kitchen will require permitting and a grease interceptor from PCWRA.

XI. REFERENCES

1. Water System Design Criteria Manual, Town of Castle Rock, Dated 2018.
2. Wastewater Collection Design Criteria Manual, Town of Castle Rock, Dated 2018.

APPENDIX A

Water Demands

COLLINS ENGINEERS^{INC}

PROJECT: Heroes Hall

CALC. BY: BF

DATE: 04/15/26

Project area = 14000 sf (1st Level)

Land Use	Typical ADD/Unit	Typical SFEs/Unit
Retail / Offices	0.2 gpd/sf	0.0005 /sf

Average Day Demand (ADD) = 0.2 gpd/sf x 14,000 sf = 2800 gpd
1.94 gpm
3.14 ac-ft/yr

Single Family Equivalents (SFE) = 0.0005/sf x 6078 sf = 7.00 SFEs

4.4.1.2 Demand Factors

Once the ADD has been computed in accordance with the Demand Rates tabulated above, Maximum Day Demands (MDD) and Peak Hour Demands (PHD) shall be computed by multiplying the ADD by the following factors:

Maximum Day Demand/Average Day Demand: 2.5 MDD/ADD
Peak Hour Demand/Average Day Demand: 5.5 PHD/ADD

Maximum Day Demand (MDD) = 2800 gpd x 2.5 = 7,000 gpd
4.86 gpm

Peak Hour Demand (PHD) = 2800 gpd x 5.5 = 15,400 gpd
10.69 gpm

Job Title: DCG Heroes' Hall
 Job #: 024-072
 Date: 11/18/2025

2021 IPC DOMESTIC WATER SIZING - All Pressure Assist Water Closets

PER APPENDIX E

WATER SUPPLY FIXTURE UNIT LOAD VALUES										WASTE	
FIXTURE TYPE	OCCUPANCY	TYPE OF SUPPLY CONTROL	QTY	CW		HW		COMBINED HW & CW		FIX. DFU	TOTAL DFU
				PER FIX.	TOTAL	PER FIX.	TOTAL	PER FIX.	TOTAL		
Dishwasher	Private	Automatic	1	0	0	1.4	1.4	1.4	1.4	2	2
Drinking Fountain	Public	Faucet	2	0.25	0.5	0	0	0.25	0.5	0.5	1
Kitchen Sink	Hotel/Restaurant	Faucet	4	3	12	3	12	4	16	2	8
Classroom Sink	Public	Faucet	2	2.25	4.5	2.25	4.5	3	6	2	4
Lavatory	Private	Faucet	3	0.5	1.5	0.5	1.5	0.7	2.1	1	3
Lavatory	Public	Faucet	4	1.5	6	1.5	6	2	8	1	4
Service Sink/Basin	Offices	Faucet	1	2.25	2.25	2.25	2.25	3	3	2	2
Urinal	Public	3/4" Flush Valve	2	5	10	0	0	5	10	2	4
Water Closet	Public/Private	Pressure Assist	9	2	18	0	0	2	18	4	36
Water Outlet Box (CW)	Public	Faucet	1	0.5	0.5	0	0	0.5	0.5	0	0
Hose Bib 3/4" Inlet	Public	Faucet	2	5	10	0	0	5	10	0	0
Wall Hydrant	Public	Faucet	4	5	20	0	0	5	20	0	0
Handsink	Public	Faucet	3	1.5	4.5	1.5	4.5	2	6	1	3
TOTAL FU					90		32		101.50		67.00
TOTAL GPM (From Hunter's Curve or Demand Estimate Table)					41		24		44		34

WATER SERVICE SIZE
WATER METER SIZE
DISTRIBUTION SIZE
SANITARY SEWER SIZE

1-1/2"
x
1-1/2"
4"

Per Figure E103.3(5), a 1-1/2" tap size has a velocity of 7 ft/s and pressure drop of 6.3 psi/100' at 44 GPM

Per Figure 103.3(3), a 1-1/2" distribution has a velocity of 8 ft/s and a pressure drop of 7 psi/100' at 44 GPM
 Per Table 710.1(1) at 1/8" per foot slope

The final meter size will be determined based on the required demand of the total building water supply fixture units and any additional water usage, as shown on the commercial fixture unit worksheet to be provided to the Town of Castle Rock at the time of building permitting.

APPENDIX B

Water Storage



PROJECT: Heroes Hall

CALC. BY: BF

DATE: 11/20/25

Storage Volume (MG) = Maximum Day Demand (MG) + Fire Flow (MG)

Maximum Day Demand = 7,000 gpd
 0.0070 MG

Fire Flow = 1,750 gpm (28,000 SF, Type II-B construction)
 0.210 MG (based on 2 hour fire)

Storage Volume = 0.217 MG

APPENDIX C

Wastewater Flows

PROJECT: Heroes Hall

CALC. BY: BF

DATE: 11/20/25

Project area = 14000 sf (1st level)

Land Use	Typical ADF/Unit	Typical SFEs/Unit
Retail / Offices	0.1 gpd/sf	0.0005 /sf

Average Day Flow (ADF) = 0.1 gpd/sf x 14,000 sf = 1400 gpd (.0014 MGD)

Single Family Equivalents (SFE) = 0.0005/sf x 14,000 sf = 7.00 SFEs

4.4.1.2 Peaking Factor

The portion of the Peak Design Flow calculation exclusive of I/I shall be determined by multiplying the ADF in the preceding section by a peaking factor (PF). The PF is a function of ADF, and shall be computed as follows:

$$PF = 3.65 \times [(ADF)^{-0.168}]$$

The maximum PF shall be 5.0, and ADF shall be expressed in units of million gallons per day (MGD).

$$\text{Peaking Factor (PF)} = 3.65 \times [(0.0014)^{-0.168}] = 5.00 \quad \text{Use PF} = 5$$

4.4.1.3 Peak Design Flow Rate

The Peak Design Flow (PDF) shall be computed at all pertinent design points throughout the system, and used to size the corresponding wastewater facilities. The PDF shall be determined by multiplying the ADF by the calculated peaking factor (PF), plus an I/I allowance equal to 10% of the ADF as expressed by the following formula:

$$PDF = \text{peak base flow} + \text{I/I allowance} = (ADF \times PF) + (0.1 \times ADF)$$

$$\text{Peak Design Flow (PDF)} = (1400 \times 5) + (0.1 \times 1400) = 7,140 \text{ gpd}$$

Manning Formula Uniform Pipe Flow at Given Slope and Depth

Printable Title

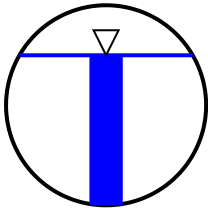
Printable Subtitle

Inputs

Pipe diameter, d_0	8	in
Manning roughness, n	0.011	
Pressure slope (possibly ? equal to pipe slope), S_0	0.4	% rise/run
Relative flow depth, y/d_0	75	%

Results

Flow depth, y	6.0000	in
Flow area, a	40.4386	sq. in.
Pipe area, a_0	50.2656	sq. in.
Relative area, a/a_0	0.8045	fraction
Wetted perimeter, P_w	16.7552	in
Hydraulic radius, R_h	2.4135	in
Top width, T	6.9282	in
Velocity, v	2.9327	ft/sec
Velocity head, h_v	1.6041	in H2O
Froude number, F	0.74	
Average shear stress (tractive force), τ	2.4045	N/m^2
Flow, Q (See notes)	0.8236	cfs
Full flow, Q_0	0.9031	cfs
Ratio to full flow, Q/Q_0	91.1878	%



Notes:

This is the flow and depth inside an *infinitely long* pipe.
Getting the flow into the pipe may require significantly higher headwater depth. Add at least 1.5 times the velocity head to get the headwater depth or [see my 2-minute tutorial](#) for standard culvert headwater calculations using HY-8.



Grease Interceptor to be completed as part of the Civil Construction Documents.

Commercial Business Building Permit

Grease Interceptor Requirement

All Commercial Business Building Permits for new business and construction of new buildings, remodels, or tenant improvement permits will be required to comply with Town Code 13.05, Grease Interceptors Required. Applicant will be required to submit an Industry Information Questionnaire through the Plum Creek Water Reclamation Authority (PCWRA) to verify if the business will require an oil/grease interceptor. Please go to PCWRA website at:

<https://www.pcwracolorado.org/commercial-businesses>

CONSTRUCTION DRAWINGS

Please note PCWRA requires all new commercial buildings to provide a stub-out for a separate waste line for future interceptor installation, if not proposed with the project. All drainage fixtures and grease waste lines that are tied to the oil/grease must be shown in the construction drawings as well as the location of the oil/grease interceptor.

ACKNOWLEDGEMENT

The applicant must sign and date this form to acknowledge that the applicant has read and understands the Town’s Code requirement regarding Grease Interceptors, PCWRA’s requirement to complete an Industry Information Questionnaire and Food Service Application, and the Town’s requirement that a letter from PCWRA must be provided with the Town of Castle Rock Building Permit. This signed form is required to be included in the Utility Report with the Predevelopment Plan (PDP), Site Development Plan (SDP) and Construction Document (CD) submittals.

Name of Project

Address of property, if known

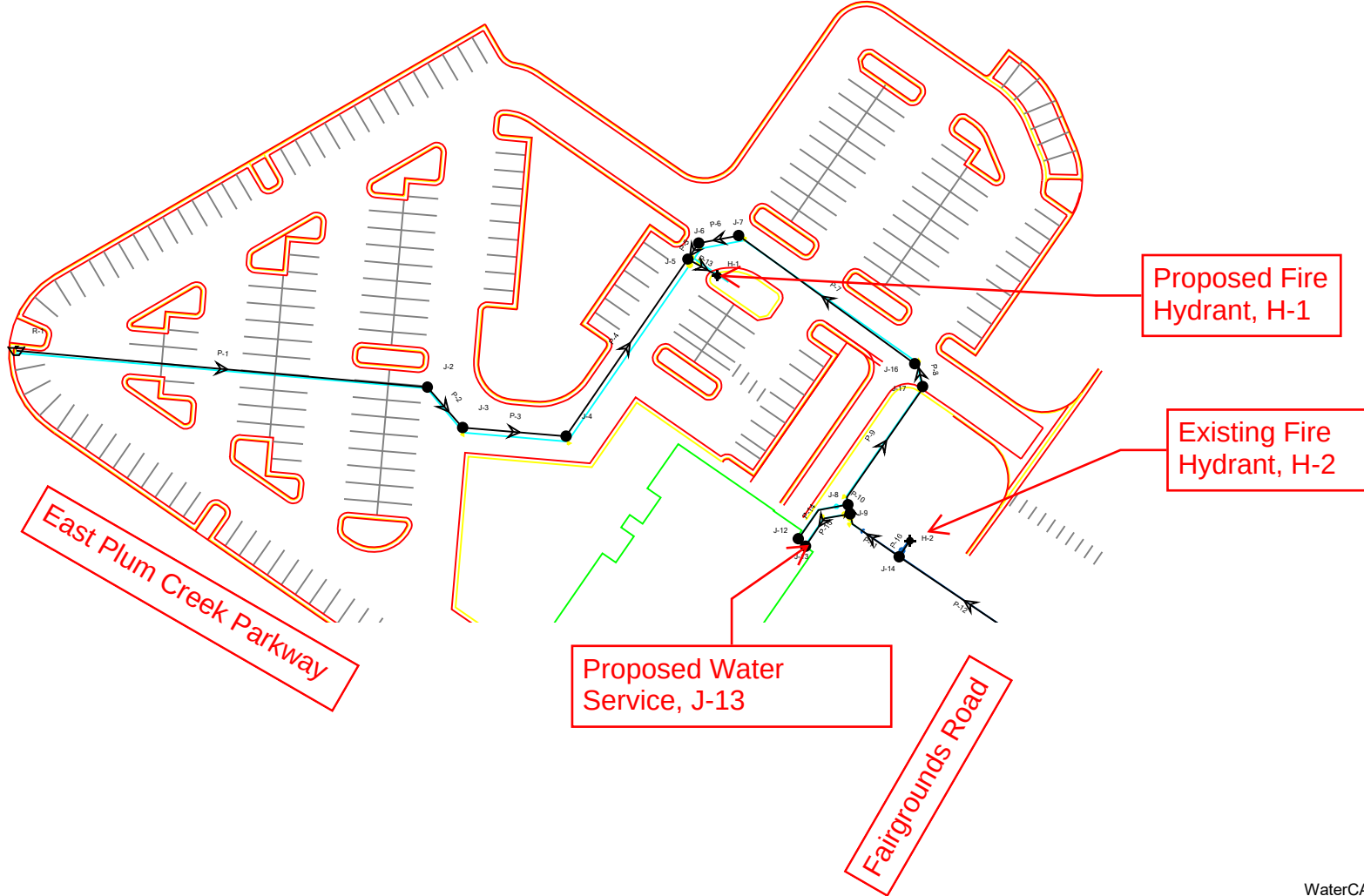
Signature

Date

APPENDIX D

Water Hydraulic Modeling

Scenario: Base



FlexTable: Hydrant Table

ID	Label	Hydrant Status	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
57	H-1	Closed	20	6,261.00	<None>	<Collection: 0 items>	0	6,493.00	100
63	H-2	Closed	20	6,267.00	<None>	<Collection: 0 items>	0	6,493.00	98

Scenario 1: No demands, low HGL of 6493'

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31	J-2	6,256.46	<None>	<Collection: 0 items>	0	6,493.00	102
33	J-3	6,257.52	<None>	<Collection: 0 items>	0	6,493.00	102
35	J-4	6,258.61	<None>	<Collection: 0 items>	0	6,493.00	101
37	J-5	6,255.81	<None>	<Collection: 0 items>	0	6,493.00	103
39	J-6	6,255.57	<None>	<Collection: 0 items>	0	6,493.00	103
41	J-7	6,255.35	<None>	<Collection: 0 items>	0	6,493.00	103
43	J-8	6,257.13	<None>	<Collection: 0 items>	0	6,493.00	102
45	J-9	6,257.17	<None>	<Collection: 0 items>	0	6,493.00	102
53	J-12	6,259.50	<None>	<Collection: 0 items>	0	6,493.00	101
55	J-13	6,258.35	<None>	<Collection: 1 items>	0	6,493.00	102
58	J-14	6,324.10	<None>	<Collection: 0 items>	0	6,493.00	73
64	J-16	6,256.35	<None>	<Collection: 0 items>	0	6,493.00	102
67	J-17	6,256.48	<None>	<Collection: 0 items>	0	6,493.00	102

Scenario 1: No demands, low HGL of 6493'

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Stop) (ft)	Pressure (Stop) (psi)
32	P-1	218	R-1	J-2	8.0	PVC	120.0	0	0.00	6,493.00	102
34	P-2	28	J-2	J-3	8.0	PVC	120.0	0	0.00	6,493.00	102
36	P-3	55	J-3	J-4	8.0	PVC	120.0	0	0.00	6,493.00	101
38	P-4	113	J-4	J-5	8.0	PVC	120.0	0	0.00	6,493.00	103
40	P-5	10	J-5	J-6	8.0	PVC	120.0	0	0.00	6,493.00	103
42	P-6	21	J-6	J-7	8.0	PVC	120.0	0	0.00	6,493.00	103
65	P-7	115	J-7	J-16	8.0	PVC	120.0	0	0.00	6,493.00	102
68	P-8	14	J-16	J-17	8.0	PVC	120.0	0	0.00	6,493.00	102
69	P-9	75	J-17	J-8	8.0	PVC	120.0	0	0.00	6,493.00	102
46	P-10	5	J-8	J-9	8.0	PVC	120.0	0	0.00	6,493.00	102
59	P-11	36	J-9	J-14	8.0	PVC	120.0	0	0.00	6,493.00	73
60	P-12	89	J-14	R-2	8.0	PVC	120.0	0	0.00	6,493.00	0
52	P-13	18	J-5	H-1	6.0	PVC	120.0	0	0.00	6,493.00	100
54	P-14	34	J-8	J-12	6.0	PVC	120.0	0	0.00	6,493.00	101
56	P-15	31	J-9	J-13	1.5	PVC	120.0	0	0.00	6,493.00	102
62	P-16	10	J-14	H-2	6.0	PVC	120.0	0	0.00	6,493.00	98

Scenario 1: No demands, low HGL of 6493'

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
49	R-1	6,493.00	<None>	0	6,493.00
50	R-2	6,493.00	<None>	0	6,493.00

FlexTable: Hydrant Table

ID	Label	Hydrant Status	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
57	H-1	Closed	20	6,261.00	<None>	<Collection: 0 items>	0	6,508.00	107
63	H-2	Closed	20	6,267.00	<None>	<Collection: 0 items>	0	6,508.00	104

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31	J-2	6,256.46	<None>	<Collection: 0 items>	0	6,508.00	109
33	J-3	6,257.52	<None>	<Collection: 0 items>	0	6,508.00	108
35	J-4	6,258.61	<None>	<Collection: 0 items>	0	6,508.00	108
37	J-5	6,255.81	<None>	<Collection: 0 items>	0	6,508.00	109
39	J-6	6,255.57	<None>	<Collection: 0 items>	0	6,508.00	109
41	J-7	6,255.35	<None>	<Collection: 0 items>	0	6,508.00	109
43	J-8	6,257.13	<None>	<Collection: 0 items>	0	6,508.00	109
45	J-9	6,257.17	<None>	<Collection: 0 items>	0	6,508.00	109
53	J-12	6,259.50	<None>	<Collection: 0 items>	0	6,508.00	108
55	J-13	6,258.35	<None>	<Collection: 1 items>	0	6,508.00	108
58	J-14	6,324.10	<None>	<Collection: 0 items>	0	6,508.00	80
64	J-16	6,256.35	<None>	<Collection: 0 items>	0	6,508.00	109
67	J-17	6,256.48	<None>	<Collection: 0 items>	0	6,508.00	109

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Stop) (ft)	Pressure (Stop) (psi)
32	P-1	218	R-1	J-2	8.0	PVC	120.0	0	0.00	6,508.00	109
34	P-2	28	J-2	J-3	8.0	PVC	120.0	0	0.00	6,508.00	108
36	P-3	55	J-3	J-4	8.0	PVC	120.0	0	0.00	6,508.00	108
38	P-4	113	J-4	J-5	8.0	PVC	120.0	0	0.00	6,508.00	109
40	P-5	10	J-5	J-6	8.0	PVC	120.0	0	0.00	6,508.00	109
42	P-6	21	J-6	J-7	8.0	PVC	120.0	0	0.00	6,508.00	109
65	P-7	115	J-7	J-16	8.0	PVC	120.0	0	0.00	6,508.00	109
68	P-8	14	J-16	J-17	8.0	PVC	120.0	0	0.00	6,508.00	109
69	P-9	75	J-17	J-8	8.0	PVC	120.0	0	0.00	6,508.00	109
46	P-10	5	J-8	J-9	8.0	PVC	120.0	0	0.00	6,508.00	109
59	P-11	36	J-9	J-14	8.0	PVC	120.0	0	0.00	6,508.00	80
60	P-12	89	J-14	R-2	8.0	PVC	120.0	0	0.00	6,508.00	0
52	P-13	18	J-5	H-1	6.0	PVC	120.0	0	0.00	6,508.00	107
54	P-14	34	J-8	J-12	6.0	PVC	120.0	0	0.00	6,508.00	108
56	P-15	31	J-9	J-13	1.5	PVC	120.0	0	0.00	6,508.00	108
62	P-16	10	J-14	H-2	6.0	PVC	120.0	0	0.00	6,508.00	104

Scenario 2: No demands, high HGL of 6508'

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
49	R-1	6,508.00	<None>	0	6,508.00
50	R-2	6,508.00	<None>	0	6,508.00

Scenario 3: Peak Hour Demand, low HGL of 6493'

FlexTable: Hydrant Table

ID	Label	Hydrant Status	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
57	H-1	Closed	20	6,261.00	<None>	<Collection: 0 items>	0	6,493.00	100
63	H-2	Closed	20	6,267.00	<None>	<Collection: 0 items>	0	6,493.00	98

Scenario 3: Peak Hour Demand, low HGL of 6493'

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31	J-2	6,256.46	<None>	<Collection: 0 items>	0	6,493.00	102
33	J-3	6,257.52	<None>	<Collection: 0 items>	0	6,493.00	102
35	J-4	6,258.61	<None>	<Collection: 0 items>	0	6,493.00	101
37	J-5	6,255.81	<None>	<Collection: 0 items>	0	6,493.00	103
39	J-6	6,255.57	<None>	<Collection: 0 items>	0	6,493.00	103
41	J-7	6,255.35	<None>	<Collection: 0 items>	0	6,493.00	103
43	J-8	6,257.13	<None>	<Collection: 0 items>	0	6,493.00	102
45	J-9	6,257.17	<None>	<Collection: 0 items>	0	6,493.00	102
53	J-12	6,259.50	<None>	<Collection: 0 items>	0	6,493.00	101
55	J-13	6,258.35	<None>	<Collection: 1 items>	44	6,485.88	98
58	J-14	6,324.10	<None>	<Collection: 0 items>	0	6,493.00	73
64	J-16	6,256.35	<None>	<Collection: 0 items>	0	6,493.00	102
67	J-17	6,256.48	<None>	<Collection: 0 items>	0	6,493.00	102

Scenario 3: Peak Hour Demand, low HGL of 6493'

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Stop) (ft)	Pressure (Stop) (psi)
32	P-1	218	R-1	J-2	8.0	PVC	120.0	13	0.08	6,493.00	102
34	P-2	28	J-2	J-3	8.0	PVC	120.0	13	0.08	6,493.00	102
36	P-3	55	J-3	J-4	8.0	PVC	120.0	13	0.08	6,493.00	101
38	P-4	113	J-4	J-5	8.0	PVC	120.0	13	0.08	6,493.00	103
40	P-5	10	J-5	J-6	8.0	PVC	120.0	13	0.08	6,493.00	103
42	P-6	21	J-6	J-7	8.0	PVC	120.0	13	0.08	6,493.00	103
65	P-7	115	J-7	J-16	8.0	PVC	120.0	13	0.08	6,493.00	102
68	P-8	14	J-16	J-17	8.0	PVC	120.0	13	0.08	6,493.00	102
69	P-9	75	J-17	J-8	8.0	PVC	120.0	13	0.08	6,493.00	102
46	P-10	5	J-8	J-9	8.0	PVC	120.0	13	0.08	6,493.00	102
59	P-11	36	J-9	J-14	8.0	PVC	120.0	-31	0.20	6,493.00	73
60	P-12	89	J-14	R-2	8.0	PVC	120.0	-31	0.20	6,493.00	0
52	P-13	18	J-5	H-1	6.0	PVC	120.0	0	0.00	6,493.00	100
54	P-14	34	J-8	J-12	6.0	PVC	120.0	0	0.00	6,493.00	101
56	P-15	31	J-9	J-13	1.5	PVC	120.0	44	7.99	6,485.88	98
62	P-16	10	J-14	H-2	6.0	PVC	120.0	0	0.00	6,493.00	98

Scenario 3: Peak Hour Demand, low HGL of 6493'

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
49	R-1	6,493.00	<None>	13	6,493.00
50	R-2	6,493.00	<None>	31	6,493.00

Scenario 4: Maximum Day Demand, low HGL of 6493'

FlexTable: Hydrant Table

ID	Label	Hydrant Status	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
57	H-1	Closed	20	6,261.00	<None>	<Collection: 0 items>	0	6,493.00	100
63	H-2	Closed	20	6,267.00	<None>	<Collection: 0 items>	0	6,493.00	98

Scenario 4: Maximum Day Demand, low HGL of 6493'

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31	J-2	6,256.46	<None>	<Collection: 0 items>	0	6,493.00	102
33	J-3	6,257.52	<None>	<Collection: 0 items>	0	6,493.00	102
35	J-4	6,258.61	<None>	<Collection: 0 items>	0	6,493.00	101
37	J-5	6,255.81	<None>	<Collection: 0 items>	0	6,493.00	103
39	J-6	6,255.57	<None>	<Collection: 0 items>	0	6,493.00	103
41	J-7	6,255.35	<None>	<Collection: 0 items>	0	6,493.00	103
43	J-8	6,257.13	<None>	<Collection: 0 items>	0	6,493.00	102
45	J-9	6,257.17	<None>	<Collection: 0 items>	0	6,493.00	102
53	J-12	6,259.50	<None>	<Collection: 0 items>	0	6,493.00	101
55	J-13	6,258.35	<None>	<Collection: 1 items>	44	6,485.88	98
58	J-14	6,324.10	<None>	<Collection: 0 items>	0	6,493.00	73
64	J-16	6,256.35	<None>	<Collection: 0 items>	0	6,493.00	102
67	J-17	6,256.48	<None>	<Collection: 0 items>	0	6,493.00	102

Scenario 4: Maximum Day Demand, low HGL of 6493'

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Stop) (ft)	Pressure (Stop) (psi)
32	P-1	218	R-1	J-2	8.0	PVC	120.0	13	0.08	6,493.00	102
34	P-2	28	J-2	J-3	8.0	PVC	120.0	13	0.08	6,493.00	102
36	P-3	55	J-3	J-4	8.0	PVC	120.0	13	0.08	6,493.00	101
38	P-4	113	J-4	J-5	8.0	PVC	120.0	13	0.08	6,493.00	103
40	P-5	10	J-5	J-6	8.0	PVC	120.0	13	0.08	6,493.00	103
42	P-6	21	J-6	J-7	8.0	PVC	120.0	13	0.08	6,493.00	103
65	P-7	115	J-7	J-16	8.0	PVC	120.0	13	0.08	6,493.00	102
68	P-8	14	J-16	J-17	8.0	PVC	120.0	13	0.08	6,493.00	102
69	P-9	75	J-17	J-8	8.0	PVC	120.0	13	0.08	6,493.00	102
46	P-10	5	J-8	J-9	8.0	PVC	120.0	13	0.08	6,493.00	102
59	P-11	36	J-9	J-14	8.0	PVC	120.0	-31	0.20	6,493.00	73
60	P-12	89	J-14	R-2	8.0	PVC	120.0	-31	0.20	6,493.00	0
52	P-13	18	J-5	H-1	6.0	PVC	120.0	0	0.00	6,493.00	100
54	P-14	34	J-8	J-12	6.0	PVC	120.0	0	0.00	6,493.00	101
56	P-15	31	J-9	J-13	1.5	PVC	120.0	44	7.99	6,485.88	98
62	P-16	10	J-14	H-2	6.0	PVC	120.0	0	0.00	6,493.00	98

Scenario 4: Maximum Day Demand, low HGL of 6493'

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
49	R-1	6,493.00	<None>	13	6,493.00
50	R-2	6,493.00	<None>	31	6,493.00

Scenario 5: Maximum Day Demand plus Fire Flow, low HGL 6493'

FlexTable: Hydrant Table

ID	Label	Hydrant Status	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
57	H-1	Open	20	6,261.00	<None>	<Collection: 1 items>	1,750	6,482.08	96
63	H-2	Closed	20	6,267.00	<None>	<Collection: 0 items>	0	6,491.31	97

Fire Flow Demand = 1,750 gpm for H-1 only.

H-2 closed, no demand.

Scenario 5: Maximum Day Demand plus Fire Flow, low HGL 6493'

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31	J-2	6,256.46	<None>	<Collection: 0 items>	0	6,489.56	101
33	J-3	6,257.52	<None>	<Collection: 0 items>	0	6,489.12	100
35	J-4	6,258.61	<None>	<Collection: 0 items>	0	6,488.25	99
37	J-5	6,255.81	<None>	<Collection: 0 items>	0	6,486.46	100
39	J-6	6,255.57	<None>	<Collection: 0 items>	0	6,486.64	100
41	J-7	6,255.35	<None>	<Collection: 0 items>	0	6,487.01	100
43	J-8	6,257.13	<None>	<Collection: 0 items>	0	6,490.55	101
45	J-9	6,257.17	<None>	<Collection: 0 items>	0	6,490.64	101
53	J-12	6,259.50	<None>	<Collection: 0 items>	0	6,490.55	100
55	J-13	6,258.35	<None>	<Collection: 1 items>	44	6,483.52	97
58	J-14	6,324.10	<None>	<Collection: 0 items>	0	6,491.31	72
64	J-16	6,256.35	<None>	<Collection: 0 items>	0	6,489.00	101
67	J-17	6,256.48	<None>	<Collection: 0 items>	0	6,489.25	101

Scenario 5: Maximum Day Demand plus Fire Flow, low HGL 6493'

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Stop) (ft)	Pressure (Stop) (psi)
32	P-1	218	R-1	J-2	8.0	PVC	120.0	853	5.44	6,489.56	101
34	P-2	28	J-2	J-3	8.0	PVC	120.0	853	5.44	6,489.12	100
36	P-3	55	J-3	J-4	8.0	PVC	120.0	853	5.44	6,488.25	99
38	P-4	113	J-4	J-5	8.0	PVC	120.0	853	5.44	6,486.46	100
40	P-5	10	J-5	J-6	8.0	PVC	120.0	-897	5.73	6,486.64	100
42	P-6	21	J-6	J-7	8.0	PVC	120.0	-897	5.73	6,487.01	100
65	P-7	115	J-7	J-16	8.0	PVC	120.0	-897	5.73	6,489.00	101
68	P-8	14	J-16	J-17	8.0	PVC	120.0	-897	5.73	6,489.25	101
69	P-9	75	J-17	J-8	8.0	PVC	120.0	-897	5.73	6,490.55	101
46	P-10	5	J-8	J-9	8.0	PVC	120.0	-897	5.73	6,490.64	101
59	P-11	36	J-9	J-14	8.0	PVC	120.0	-941	6.01	6,491.31	72
60	P-12	89	J-14	R-2	8.0	PVC	120.0	-941	6.01	6,493.00	0
52	P-13	18	J-5	H-1	6.0	PVC	120.0	1,750	19.86	6,482.08	96
54	P-14	34	J-8	J-12	6.0	PVC	120.0	0	0.00	6,490.55	100
56	P-15	31	J-9	J-13	1.5	PVC	120.0	44	7.99	6,483.52	97
62	P-16	10	J-14	H-2	6.0	PVC	120.0	0	0.00	6,491.31	97

Fire Flow Demand = 1,750 gpm for H-1 only.

H-2 closed, no demand.

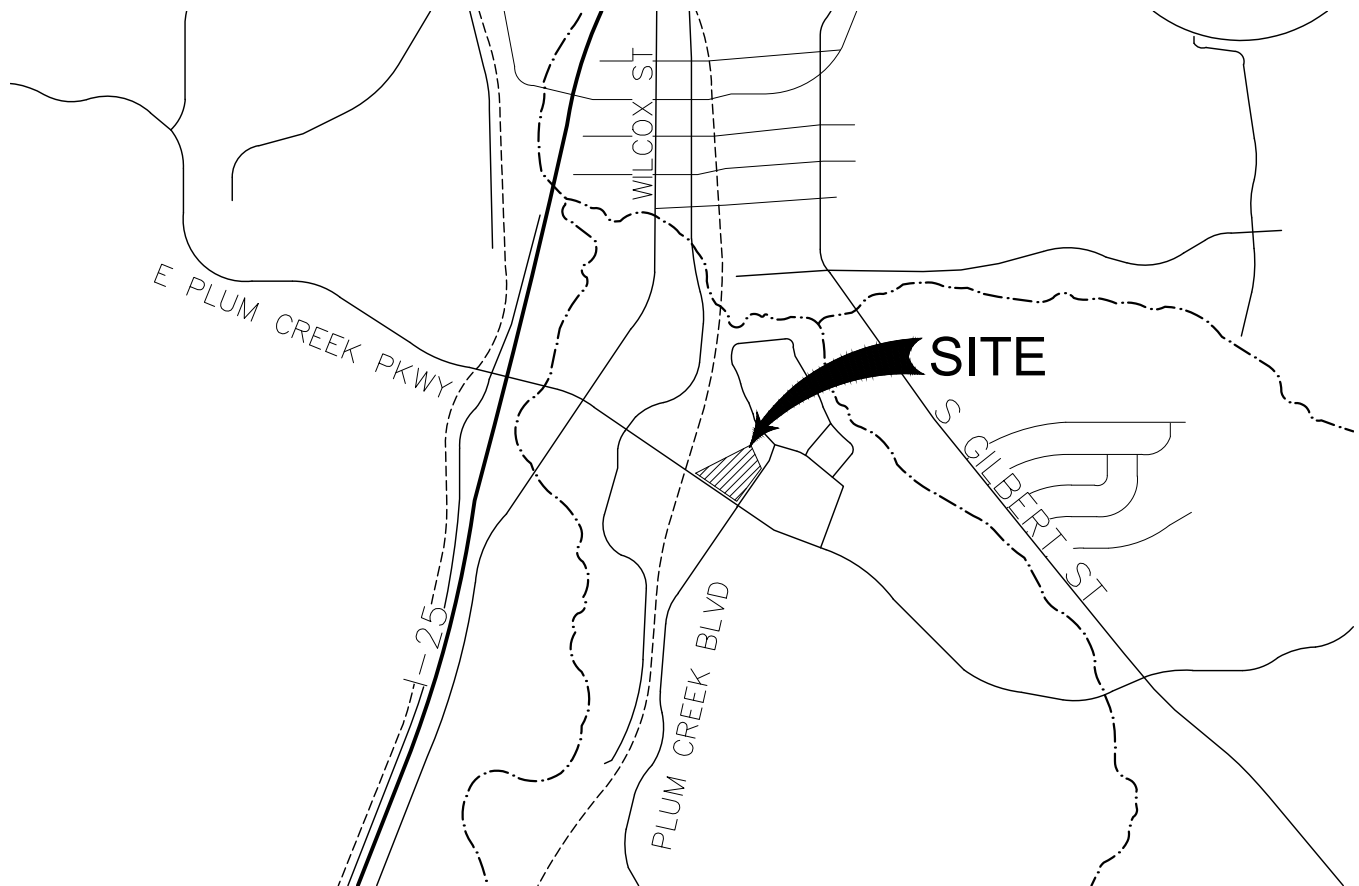
Scenario 5: Maximum Day Demand plus Fire Flow, low HGL 6493'

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
49	R-1	6,493.00	<None>	853	6,493.00
50	R-2	6,493.00	<None>	941	6,493.00

APPENDIX E

Maps and Plans



LOCATION MAP

SCALE: 1" = 2000'



**COLLINS
ENGINEERS^{PC}**

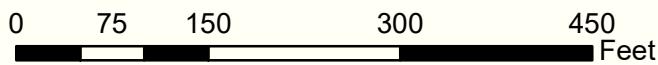
455 Sherman Street, Suite 160
Denver, Colorado 80203
voice: (303) 447-0090
fax: (303) 447-9141
web: collinsengr.com

HEROES HALL
CASTLE ROCK, COLORADO
VICINITY MAP



Legend

- Sanitary Sewer
- Stormwater Conduit
- Fiber
- Raw Water Distribution Main
- Water Distribution Main



1 inch = 150 feet



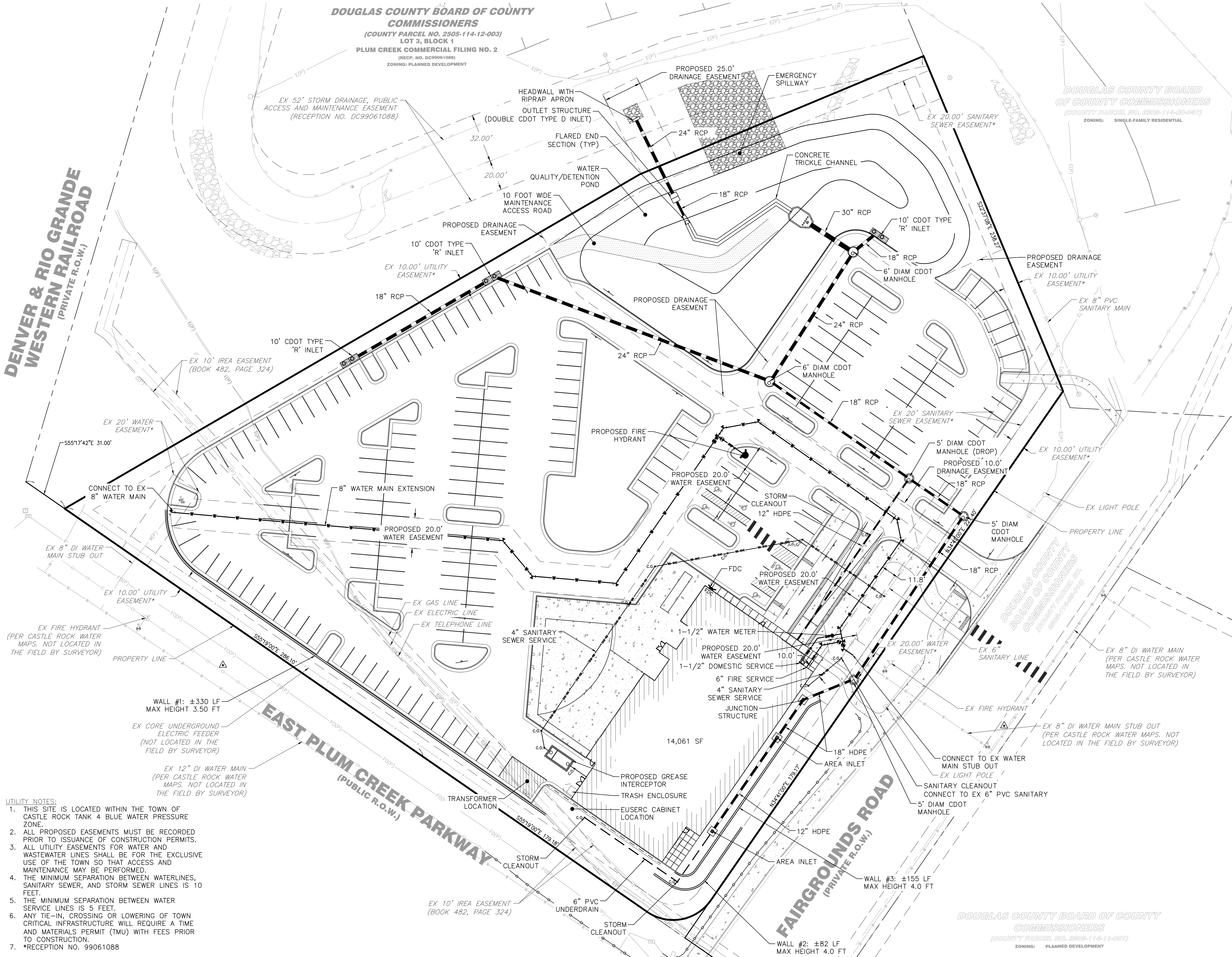
Disclaimer: The data presented has been compiled from various sources, each of which introduces varying degrees of inaccuracies or inconsistencies. Such discrepancies in data are inherent in supplying this product to the Town of Castle Rock and the user assumes no liability for its use or accuracy. Questions or comments regarding the cartographic composition of this map including, but not limited to, errors, omissions, corrections, and/or updates, should be directed to the Utilities Department, Town of Castle Rock, (720) 733-6000. Copyright 2024, Town of Castle Rock Utilities Mapping.

**CASTLE ROCK
UTILITIES MAP
(INTERNAL USE ONLY)**

Date: 7/25/2025

Document Path: J:\GIS\Standard Maps\10.6\11x17 LndScp.mxd

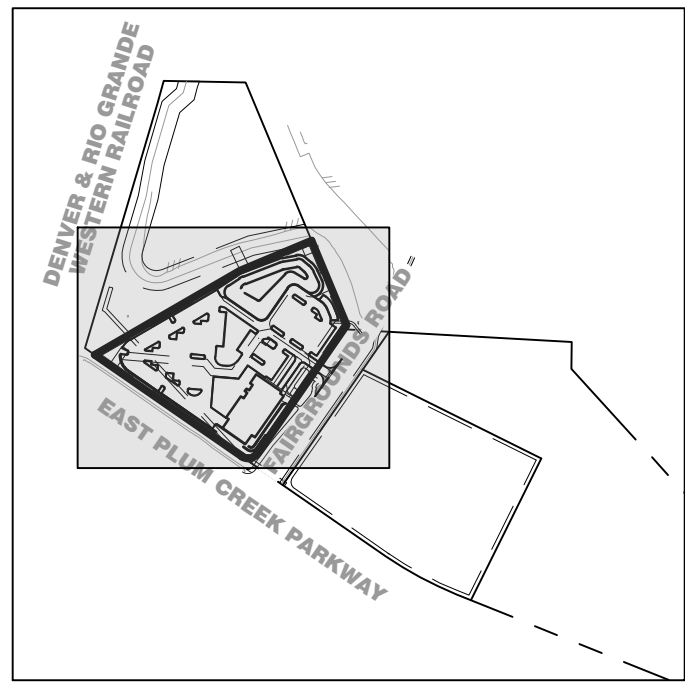
DENVER & RIO GRANDE
WESTERN RAILROAD
(PRIVATE R.O.W.)



- UTILITY NOTES:
- THIS SITE IS LOCATED WITHIN THE TOWN OF CASTLE ROCK TANK 4 BLUE WATER PRESSURE ZONE.
 - ALL PROPOSED EASEMENTS MUST BE RECORDED PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS.
 - ALL UTILITY EASEMENTS FOR WATER AND WASTEWATER LINES SHALL BE FOR THE EXCLUSIVE USE OF THE TOWN SO THAT ACCESS AND MAINTENANCE MAY BE PERFORMED.
 - THE MINIMUM SEPARATION BETWEEN WATERLINES, SANITARY SEWER, AND STORM SEWER LINES IS 10 FEET.
 - THE MINIMUM SEPARATION BETWEEN WATER SERVICE LINES IS 5 FEET.
 - ANY TIE-IN, CROSSING OR LOWERING OF TOWN CRITICAL INFRASTRUCTURE WILL REQUIRE A TIME AND MATERIALS PERMIT (TMU) WITH FEES PRIOR TO CONSTRUCTION.
 - *RECEPTION NO. 99061088

SITE DEVELOPMENT PLAN

LOT 1A, BLOCK 1, PLUM CREEK COMMERCIAL FILING NO. 2 AMENDMENT NO. 2
LOCATED IN THE QUARTER: SE; SECTION: 11; TOWNSHIP: 8; RANGE: 67
TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO



KEYMAP
SCALE: 1"=500'

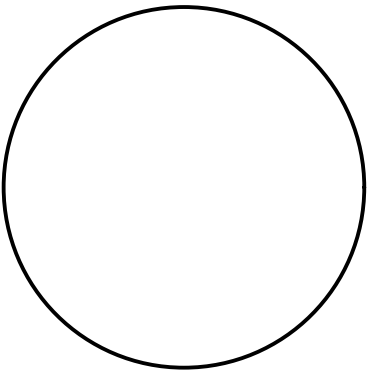
EXISTING	LEGEND	PROPOSED
---	PROPERTY LINE	---
---	RIGHT-OF-WAY LINE	---
---	EASEMENT LINES	---
---	CATCH CURB & GUTTER	---
---	SPILL CURB & GUTTER	---
---	CONTOURS	---
---	CONCRETE PAVEMENT	---
---	ASPHALT PAVEMENT	---
---	BUILDINGS	---
---	RETAINING WALL	---
---	STORM SEWER	---
---	SANITARY SEWER	---
---	ELECTRIC LINE	---
---	TELEPHONE LINE	---
---	WATER LINE	---
---	DOMESTIC SERVICE	---
---	FIRE SERVICE	---
---	GAS LINE	---
---	STREET INLET	---
---	LANDSCAPE INLET	---
---	CLEANOUT	---
---	FIRE HYDRANT	---

BENCHMARK:
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD88 - DOUGLAS COUNTY CONTROL NETWORK) FROM GPS OBSERVATIONS. PROJECT BENCHMARK IS DOUGLAS COUNTY BENCHMARK, ELEVATION US FEET: 6260.41, DESCRIPTION: 3 1/4" DIAMETER ALUMINUM DISK (DOUGLAS COUNTY CONTROL POINT 3.020010) NORTH OF PLUM CREEK PARKWAY, 1000 FEET WEST OF GILBERT STREET +/-, ON NORTH SIDE OF DIRT ROAD AND 40 FEET EAST OF SOUTHEASTERLY CORNER OF BASEBALL FIELD +/-.

BASIS OF BEARINGS:
BEARINGS ARE BASED ON THE SOUTH LINE OF THE SOUTHEAST ONE-QUARTER OF THE SOUTHEAST ONE QUARTER OF SECTION 11, TOWNSHIP 8 SOUTH, RANGE 67 WEST, 6TH PRINCIPAL MERIDIAN, SAID TO BEAR S88°28'34"E, A DISTANCE OF 1287.59 FEET, FROM THE SOUTHEAST ONE-SIXTEENTH CORNER OF SECTION 11 AS MONUMENTED BY A FOUND #6 REBAR AND REFERENCE TIES AS SHOWN TO THE SOUTHEAST CORNER OF SECTION 11 FOUND 3.25" ALUMINUM CAP STAMPED "AZTEC CONSULTANTS INC, T8S R67W, S11 S12, +, S14 S13, 2005, LS 36580" FLUSH WITH GROUND SURFACE.

EXISTING UTILITY LOCATIONS:
COLLINS ENGINEERS INC. ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL OR VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS HOWEVER THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

DLFH Architecture
Planning, Architecture, Consulting and Construction
2030 Front Street, Castle Rock, CO 80104
Phone (303) 988-6273
DLFH Architecture is a Limited Liability Corporation Established in 1992



Rev. #	Description	Date
1		
2		
3		
4		
5		
6		

HEROES HALL
595 Fairgrounds Road
Castle Rock, CO 80104

Project #: 2421
Date:
Drawn By:
Checked By:
Scale: as noted

Sheet 6 of 10

Utility Plan
C3.0

Lot 1A Block 1 Plum Creek
Commercial Filing No. 2 Am. No. 2