CANYONS FAR SOUTH PDP

CONCEPTUAL UTILITY REPORT

PDP25-0002

MAY 2025

For:
Canyons Far South Owner LP
1144 15th Street, Suite 2600
Denver, CO 80202

Prepared By:
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UTILITY REPORT APPROVAL BLOCKS

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 for water systems and sanitary systems 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.

Signature: _____

Brian K. Moss, Registered Professional Engineer

State Of Colorado No. 37702

(Affix Seal)

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.

Chad Murphy,

Canyons Far South Owner LP

_____

Name of Developer

See Attached.

Authorized Signature

CANYONS FAR SOUTH OWNER LP

By: Canyons Far South Owner LP, its general partner

By: HT Canyons South LP, its sole member

By: Hines Canyons South LLC, its general partner

By: Hines Canyons South Associates LP, its sole member

By: Hines Investment Management Holdings Limited Partnership,

its general partner

By: _____

Name: Chad Murphy

Title: Managing Director

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SCOPE

The Conceptual Utility Report analyzes the existing and proposed utility infrastructure associated with the Preliminary Development Plan for the Canyons Far South project. The Canyons Far South PDP consists of single-family homes, duplex homes, future commercial development, and community parks on approximately 361± acres in Town of Castle Rock, Douglas County, CO. The Canyons Far South PDP includes five planning areas. The purpose of this study is to determine and analyze the water demands and sanitary sewer generations associated with the development of the Canyons Far South property.

I. GENERAL LOCATION AND DESCRIPTION

A. Site Location

- See the Vicinity Map in Appendix F.
- The Canyons Far South PDP project site is in the following areas:
  - NW Section 31, Township 7 South, Range 66 West of the 6th Principal Meridian
  - The site is located south of Crowfoot Valley Road, north and west of Castle Oaks Drive, and east of Founders Parkway.
- The Castle Oaks Terrain development is south and southeast of the site and the Macanta (also known as Canyons South) development in Douglas County is north of the site.



Site Location

B. Description of Property

- Canyons Far South is currently 361± acres of undeveloped land and will contain five (5) proposed Planning Areas.
- The Planning Areas will be composed of 439 single-family detached lots, 76 single-family attached lots, future commercial, parks, and preserved natural open space.
- At overall buildout, the Single Family Equivalent (SFE) total for Canyons Far South (including parks and open space) is 970. A breakdown of SFEs per land use can be found in appendix A.
- The Canyons Far South development is anticipated to construct Filing 1 (Basins PA-1, PA-2, PA-3, OSP-1, OSP-2, & T-PARK) first, then followed by either the commercial area (PA-5) or the Filing 2 residential area (PA-4 & OSP-3). The exact phasing will be determined in subsequent reports.
- Town of Castle Rock (TOCR) guidelines have been used for water and sewage demands.
- Canyons Far South has no significant geologic or topographic features.
- There are no irrigation canals or irrigation ditches on the property.
- There are no On-Site Wastewater Treatment Systems (OWTS).
- Easements or tracts necessary for the Town of Castle Rock utilities will be provided at time of either platting or at time of final design/construction documents.

II. DOMESTIC WATER

A. Calculated Demands

- Average Day Demands
    - The domestic demand for single-family residences is based on the TOCR value of 400 gpd per unit which includes irrigation demand. The Average Day Demand for Canyons Far South is 279 gpm.
    - The water demand for the commercial area is 1,200 gpd/ac per Section 4.4.1 of the TOCR Water System Design Criteria Manual. Irrigation demand was calculated using 10% of the total area at an irrigation demand rate of 3,750 gpd/irr. ac.
- Max Day Demands
    - The Max Day Demand is computed from the Average Day Demand and the Max Day factor of 2.5 plus irrigation demand. The Max Day Demand for Canyons Far South is 537 gpm.
    - For the commercial area, it was assumed that the building is Type V-B construction (to be conservative), approximately 37,500 sf, and sprinklered. Per the 2021 edition of the IFC, Table B105.1(2), this would require a fire flow of 5,250 gpm for 4 hours. The sprinkler system would reduce the fire flow requirement by up to 75-percent but not less than 1,500 gpm for 4 hours.

  - Per Castle Rock Fire Department, the residential fire flow used for this report is 1,750 gpm for all residences. It was assumed all single-family residential homes are between 3,601 and 4,800 sf to be conservative.
  - Irrigation flows are limited to the commercial area, parks, and open space. The values used are taken from Section 4.4.1 of the TOCR Water System Design Criteria Manual. The commercial area irrigation demand was calculated using 10% of the total area at an irrigation demand rate of 3,750 gpd/irr.ac. Irrigation flows for residential units are included in the 400 gpd/dwelling unit Average Day Demand rate.
  - The required storage volume for Canyons Far South is 1.19 MG.

- Peak Hour Demands
  - The Peak Hour Demand for Canyons Far South is 1,055 gpm.
  - Irrigation demands are estimated at 106 gpm for the commercial area, parks and open space.
- Water Efficiency Plan
  - A Water Efficiency Plan (WEP) was prepared by Dig Studio in November 2022, this can be found in Appendix G.

B. Existing Water System

- The Town's Water Master Plan shows an existing 1.0 MG Purple Zone Tank 11 (Future 11B – 2.3 MG) just to the north of the site to service the unincorporated areas to the south. See number 23 on Figure 5.2 in Appendix G. The Master Plan also shows a proposed Red Zone water main through the site connecting Crowfoot Valley Road (north of the site) to Crimson Sky Road (South of the Site). See numbers 19 and 25 on Figures 5.1 and 5.3, respectively, in Appendix G.
- A 36" Water, Infrastructure and Supply Efficiency (WISE) water transmission line, within a 40-foot easement, bisects the site from north to south. A future 30" WISE water transmission line will eventually run parallel to the 36" WISE. No taps to these transmission lines are proposed with this project.
- The Canyons Far South Site does not currently have an operational domestic water system. However, the Town has adequate water infrastructure adjacent to the Site to provide the required connections and redundancy to serve the Site. The Site will tie into the Town's existing infrastructure at three (3) proposed connection points and the Macanta (Canyons South) Planned Development in Douglas County at one (1) proposed connection point. The proposed connection locations are described in more detail under the Proposed Water System section. The are no known restrictions on water for the proposed Canyons Far South PDP.

C. Proposed Water System

- Description of water distribution system
- The Canyons Far South site is located within three (3) of the Town's water pressure zones: Blue, Red, and Purple. The proposed water system includes four (4) connections

to the Town's system to provide looping of the main lines and adequate redundancy. Internal looping within each PA and Phase will also be provided with final design to meet Town requirements. Each proposed connection is made within its respective zone. The fourth connection is made to the Macanta (Canyons South) Planned Development in Douglas County. See Appendix G for the TOCR Pressure Zone map. The proposed connections are as follows:

- Macanta (Canyons South) Planned Development – A connection to the existing 16" water main in the Red Zone constructed as a part of the Macanta (Canyons South) Planned Development in Douglas County. Hydraulic Grade Lines (HGL's) near tie-in location from the *Canyons South – Filings 2 and 3 Final Utility Report* (by Calibre Engineering Inc. approved March 2022) were utilized for the reservoir elevations for R-8 (Red) in the water model for Canyons Far South. The reservoir elevations used for the high tank and low tank are 6,661 and 6,680, respectively.
- Purple Zone Tank – A connection to the existing 20" Purple Zone water transmission main located within the old Tower Road. Coordination with the adjacent property owners will be done for this connection. The R-1 (Purple) reservoir elevations used for the high tank and low tank are 6,594 and 6,575, respectively. Note: Although this connection is at the highest elevation on the Canyons Far South property, the HGL elevations for the Purple Zone are less than the Red Zone.
- Founders Parkway – A connection to the existing 20" Red Zone water main located within Founders Parkway. The R-3 (Red) reservoir elevations used for the high tank and low tank are 6,680 and 6,661, respectively.
- McMurdo Gulch Water Main - A connection to the existing 16" Blue Zone water main located on the eastern side of McMurdo Gulch, adjacent to Castle Oaks Drive. The R-4 (Blue) reservoir elevations used for the high tank and low tank are 6,508 and 6,488, respectively.

- Efforts were made to minimize the number of Pressure Reducing Valves (PRV) between water pressure zones. Through further analysis and modeling, discussed in Section D of this report, it was determined that two (2) PRVs were necessary within the system.
- Red Zone
  - The northwestern portion of the site is predominately in the Red Zone. The Red Zone area, adjacent to Founders Parkway, will be serviced by an existing 20" Red Zone transmission main located within Founders Parkway. The main ties into the existing Red Zone Tank 14, which has a capacity of 2.0 (MG). One 16" connection will be made to the Red Zone main in Founders Parkway to provide the required water looping. This line will connect to the 16" line in the Red Zone at the Macanta (Canyons South) Planned Development. A PRV (PRV-B) on the water main from the Red Zone to Purple Zone is proposed on the southeast side of the northwest roundabout in Edgerock Boulevard.
  - The 100% and 20% tank stages of the Founders Parkway connection were determined using the Max HGL Elev. provided in section 4.4.3.1 of the TOCR Water Criteria Manual and tank dimension found in Table 3-2 of Appendix G.

  - The 100% and 20% tank stages of the Macanta (Canyons South) Planned Development connection are the HGLs near the tie-in location from the *Canyons South – Filings 2 and 3 Final Utility Report* (by Calibre Engineering Inc. approved March 2022).
  - This Red Zone will service the future commercial off of Founders Parkway.

- Purple Zone
  - A majority of the site, including all of the residential area, is located within the Purple Zone. A connection to the Town's existing 20" Purple Zone transmission main, adjacent to Tank 11, is proposed in the northwest portion of the site. Tank 11 has a capacity of 1.0 (MG). A 12" line is proposed from the tank to Edgerock Boulevard to Castle Oaks Drive. This line parallels the Red Zone 16" line in Edgerock Boulevard, with one connection between Purple Zone and Red Zone at the northwest roundabout at PRV-B. It was determined that the site cannot be sufficiently served solely by the Purple Zone and will need to be served by Blue Zone as well. A PRV (PRV-C) is proposed from the Purple Zone to the Blue Zone in Edgerock Boulevard toward the southeast corner of the site.
  - The 100% and 20% tank stages of the 20" Purple Zone Water Transmission main connection were determined using the Max HGL Elev. provided in section 4.4.3.1 of the TOCR Water Criteria Manual and tank dimension found in Table 3-2 of Appendix G.
- Blue Zone
  - The eastern portion of the site is located within the Blue Zone. A connection is proposed to the 16" Blue Zone water main on the eastern side of the McMurdo Gulch, adjacent to Castle Oaks Drive.
  - The 100% and 20% tank stages of the McMurdo Gulch connection were determined using the Max HGL Elev. provided in section 4.4.3.1 of the TOCR Water Criteria Manual and tank dimension found in Table 3-2 of Appendix G.
- Required Fire Flow – For modeling purposes, the full un-sprinklered fire flow rates were used for the residential area only. Sprinklered fire flow rates were applied to the commercial area. The fire flow rates used for Canyons Far South SDP are the following:
  - Single-Family Residential – For conservative modeling purposes, homes between 3,601 sf and 4,800 sf were assumed. The minimum fire flow for the housing area is 1,750 gpm per Castle Rock Fire Department. A fire flow of 1,750 gpm was used for a duration of 2 hours.
  - Commercial Area –The commercial area is assumed to be approximately 37,500 sf, Type V-B construction, sprinklered with an automatic fire sprinkler system. Per Table B105.1(2) of the 2021 IFC, the required fire flow without sprinkler reduction is 5,250 gpm for 4 hours. The IFC does allow a reduction of the required fire flow of up to 75-percent with a sprinkler system. The minimum fire flow per Town of Castle Rock standards is 1,500 gpm.
  - In order to provide a conservative analysis, all nodes in the system were subjected to the 1,750 gpm fire flow.

D. Proposed Water System Analysis and Modeling

- WaterCAD 2022 has been used to model the water system for Canyons Far South PDP. The HGL's discussed in previous sections were utilized for the four (4) connections. The initial hydraulic analysis includes spine roads and major planning areas to approximate infrastructure size and location for master planning purposes. Future filings will expand the network with ultimate street layouts. See Appendix C for more details and Appendix F for the water schematic.
- Hydraulic Modeling Scenarios
    - The static pressures for the different HGLs are as follows:
        - For the full (high tank), pressures range between 55 to 108 psi.
        - For the tank 20% full (low tank), pressures range between 47 to 100 psi.
    - All hydraulic modeling has been performed with the Tank at 20% of capacity.
    - For the MDD + Fire Flow and PHD scenarios, pipe P-25 was closed. It was found that with this critical loop disconnected, upsizing the water main from 8" to 12" leading into the development was necessary to meet fire flow requirements. Other portions of the water main in Edgerock Boulevard have been given 12" parallel lines to provide adequate looping to meet fire flow requirements. Junction-168 was subject to a fire flow of 1,750 gpm. The fire flow requirement for the commercial area is 5,250 gpm. The sprinkler reduction rate of 1,500 gpm was calculated in the demand table, but 1,750 gpm was used in the model to provide a conservative analysis.
    - There is sufficient fire flow capacity for hydrants to be placed anywhere in the system. Further fire flow analysis will be necessary during detailed engineering of future filings to ensure flow and pressure requirements meet TOCR and IFC standards.
    - Two (2) PRVs were utilized in the model, one (1) PRV from Red Zone to Purple Zone and one (1) PRV from Purple Zone to Blue Zone. The PRV HGL settings were determined through multiple iterations to balance the system. PRV-B was set to a hydraulic grade setting of 6565.09 and PRV-C was set at 6,406.53. Further PRV analysis will be necessary during detailed engineering of future filings to ensure flow, pressure, and velocity requirements meet TOCR standards.
    - Hydraulic Modeling Results
        - The Junction reports for the two static scenarios, MDD (20% tank) scenario, PHD (20% tank) scenario, Open and Closed Critical Loop MDD + Fire Flow (20% tank), and Closed Critical Loop PHD (20% tank) scenarios are in Appendix C.
        - The total domestic demand for the MDD scenario is 537 gpm. The maximum fire flow (total needed) is 1,909 gpm. For the PHD, the total demand is 1,055 gpm.
        - The pipe reports for the hydraulic scenarios are in Appendix C.

- The initial hydraulic analysis includes spine roads and major planning areas to approximate infrastructure size and location for master planning purposes. It is anticipated that current demands will be spread out and additional loops with detailed engineering of future filings will produce similar results in accordance with TOCR standards. Further analysis during detailed engineering of future filings is necessary to ensure pressures and velocities meet TOCR standards.

III. SANITARY SEWER

A. Site Location

- See section 1-A for Site Location Information.
- See section 1-B for Description of Property and Land Use.

B. Calculated Flows

- Canyons Far South PDP will tie-in to existing infrastructure along McMurdo Gulch. Sewer generation calculations have been computed using the TOCR Wastewater Collection Design Criteria Manuel. Construction specifications shall follow the Town of Castle Rock Wastewater Collection Design Criteria Manual. See Appendix D for sewer generation calculations.
- Canyons Far South PDP includes 439 single-family detached lots, 76 single-family attached lots, and a 35.3 ac commercial area within the site on approximately 361± acres.
- The ADF for the commercial and residential areas was determined from Table 4.4.1.1 of the TOCR Wastewater Design Criteria Manual.
- The Peaking Factor and Peak Design Flow Rate was calculated based on sections 4.4.1.2 and 4.4.1.3 of the TOCR Wastewater Design Criteria Manual.
- The ADF and Peak Flow were analyzed at each design point to ensure adequate pipe capacity throughout the site.
- The Proposed Peak Flow for the site was determined to be 1.08 CFS.
- The calculated Combined Peak Flow (CFS) for each design point was used to model pipe capacities in Studio Express by Hydrology Studio.

C. Existing Wastewater System

- Canyons Far South does not currently have an active or operational wastewater collection system. The site will propose a system that connects to the existing McMurdo Gulch Sanitary Sewer Interceptor which has been approved with the “Final Wastewater utility Report for Terrain – McMurdo Sanitary Sewer Interceptor.” Existing sanitary flows within this system are conveyed to the north via gravity main to the existing Castle Oaks Lift Station at the northeast corner of the “Terrain Development.” Flows from the lift station are then pumped south in an existing 12” force main to the Town’s Wastewater Treatment Facility.

- An analysis of the existing Castle Oaks Lift Station was performed by Mott Macdonald on February 3, 2023. This report detailed the current capacity of the lift station and anticipated flows from future developments. Per Mott Macdonald's report, the Castle Oaks Lift Station currently has a 2022 peak wastewater flow of 1.018 MGD with a capacity of 1.18 MGD. A copy of Mott Macdonald's report can be found in Appendix G.
- Using the calculated average daily flow of 191 GPD/SFE per Mott Macdonald's report and the SFE for the Canyons Far South Development of 591, the projected flow for the Canyons Far South Development is 0.11 MGD. Therefore, the addition of this development's flow will bring the flow to the Castle Oaks Lift Station up to 1.13 MGD, below its capacity of 1.18 MGD. See Appendix D for capacity calculations.

D. Proposed Wastewater System

- The Canyons Far South site will be served by two (2) gravity sanitary sewer mains that will convey the wastewater flows from west to east. All sanitary flow will be conveyed to Plum Creek Water Reclamation Authority. See Appendix F for the proposed sanitary exhibit.
- The southern portion of the site will gravity flow east to the existing 15" McMurdo Gulch Sanitary Sewer Interceptor. Flows will then be conveyed to the north to the Castle Oaks Lift Station.
- The northern and western portions of the site will gravity flow to the northeast. Flows will then be conveyed through the Terrain North Basin Phase 2 project and ultimately tie into the McMurdo Gulch sanitary sewer interceptor. Flows will then be conveyed to the north to the Castle Oaks Lift Station.
- The sanitary demands for Canyons Far South PDP can be met with the use of 8-inch pipe at minimum slope. See Appendix E for pipe analysis and Appendix F for the Overall Sanitary Exhibit.
- Land Dedication Requirements
    - Sanitary sewer lines that are not in the public ROW will have utility easements dedicated for access and maintenance purposes. Easements for Town of Castle Rock will be dedicated by separate document or with the Final Plat.
    - Areas where the main infrastructure is located outside of the public right-of-way are provided with a maintenance access path per Town of Castle Rock standards.

E. Proposed Wastewater System Analysis and Modeling

- Pipes for the Canyons Far South PDP wastewater system have been modeled using Studio Express by Hydrology Studio.
- Seven wastewater hydraulic scenarios were run using the respective Combined Peak Flow values and the minimum sanitary pipe slope per pipe size per section 4.4.3 of the TOCR Wastewater Design Criteria Manuel. There was sufficient capacity using these conservative assumptions.
- Pipe analysis is included in Appendix E.

- Generated flows will be per the TOCR Wastewater Design Criteria Manual.
- Pipe velocities for the PDF are within 2 fps and 10 fps. Pipes are considered full at a d/D of 75%. Further analysis during detailed engineering of future filings will confirm this requirement.

IV. CONCLUSIONS

A. Proposed Water Improvements

- The proposed water improvements will provide service to the Canyons Far South development in general accordance with Town's standards and specifications.

B. Proposed Sanitary Sewer Improvements

- The proposed sanitary sewer improvements will provide service to the Canyons Far South development in general accordance with the Town's standards and specifications.
- Any future development of the existing water and wastewater infrastructure needed to serve this site is the responsibility of the developer.

V. LIST OF REFERENCES

1. *Town of Castle Rock Water System Design Criteria Manual*, Town of Castle Rock, December 2018.
2. *Town of Castle Rock Wastewater Collection Design Criteria Manual*, Town of Castle Rock, December 2018.
3. *Town of Castle Rock, 2017 Wastewater Master Plan,* Town of Castle Rock, 2016.
4. *Town of Castle Rock, 2017 Water Master Plan Update,* Town of Castle Rock, March 2011.
5. *Castle Oaks Filing No. 1 Final Water and Sanitary Sewer System Analysis Report,* Nolte Associates, Inc. April 2003
6. *McMurdo Sanitary Sewer Interceptor Final Wastewater Utility Report,* CORE Consultants, Inc., May 2014, Revised July 2014
7. *International Fire Code*, International Code Council, 2021.
8. *Canyons South – Filings 2 and 3 Final Utility Report* prepared by Calibre Engineering, Inc., Approved March 11, 2022
9. *Castle Oaks Lift Station Pump Selection* prepared by Mott Macdonald, February 3, 2023

APPENDIX A
WATER DEMANDS

CANYONS FAR SOUTH PROJECTED WATER DEMAND GENERATION

COVER ENGINEERING

RESIDENTIAL	400	GPUD
MAX. DAY / AVG. DAY	2.50	
PEAK HOUR / FLOW RATIO	5.50	
FIRE DEMAND		
RESIDENTIAL UNITS[3]	1,750	GPM
COMMERCIAL[1]	5,250	GPM
COMMERCIAL (SPRINKLERED)[1]	1,750	GPM

COMMERICAL			PARK	
BASE DEMAND	1,200	GPD/AC	IRRIGATION DEMAND[5]	3,750 GPD/IRR.AC
IRRIGATION DEMAND[2]	3,750	GPD/AC		
IRRIGATED AREA (10% OF TOTAL AC)[2]	3.53	AC		

BASIN	LAND USE	ACRES	DESIGN POINT	SFEs	NO. OF LOTS	AVG. DAY DEMAND (GPM)	AVG. DAY DEMAND (GPD)	AVG. DAY DEMAND (AC-FT/YR)	MAX. DAY DEMAND (GPD)	MAX. DAY DEMAND (GPM)	PEAK HOUR DEMAND (GPM)	PEAK HOUR DEMAND (GPD)	IRRIGATION DEMAND (GPM)[4]	IRRIGATION DEMAND (GPD)[4]	MAX. DAY + FIRE FLOW + IRR(GPM)
PA 1	RESIDENTIAL	-	DP-1	59	59	16.4	23,600	26.4	59,000	41.0	90.1	129,800	0.0	0	1,791
PA 2	RESIDENTIAL	-	DP-2	229	229	63.6	91,600	102.6	229,000	159.0	349.9	503,800	0.0	0	1,909
PA 3	RESIDENTIAL	-	DP-3	38	38	10.6	15,200	17.0	38,000	26.4	58.1	83,600	0.0	0	1,776
PA 4	RESIDENTIAL	-	DP-4	189	189	52.5	75,600	84.7	189,000	131.3	288.8	415,800	0.0	0	1,881
PA 5	COMMERCIAL	35.3	DP-5	106	-	38.6	55,598	62.3	119,138	82.7	171.0	246,218	9.2	13,238	1,833
OSP-1	PARK	2.2	DP-6	21	-	5.8	8,363	9.4	8,363	5.8	5.8	8,363	5.8	8,363	1,756
OSP-2	PARK	9.1	DP-7	85	-	23.6	33,975	38.1	33,975	23.6	23.6	33,975	23.6	33,975	1,774
OSP-3	PARK	5.0	DP-8	47	-	12.9	18,600	20.8	18,600	12.9	12.9	18,600	12.9	18,600	1,763
TOWN PARK	PARK	21.0	DP-9	197	-	54.6	78,638	88.1	78,638	54.6	54.6	78,638	54.6	78,638	1,805
TOTALS				**970**	**515**	**279**	**401,173**	**449**	**773,713**	**537**	**1055**	**1,518,793**	**106**	**152,813**	**16,287**

[1] The fire flow for the commerical area is based on Type V-B construction with a maximum floor size of 37,500 sq ft. per Table B105.1(2) AND B105.2 of the 2021 IFC.

[2] The irrigation demand for the commercial area is based on 3,750 GPD/AC with 10% of total acreage assumed to be landscaped and irrigated.

[3] The fire flow demand for the residential units is based on square footages between 3,601 to 4,800 sf, per Castle Rock FD

[4] Residential irrigation demand is included in the 400 gpd/dwelling unit Average Day Demand rate and is shown as zero demand in the residential irrigation demand column.

[5] Park irrigation demand is based on 3,750 GPD/IRR. AC, per TOCR Water System Design Criteria Manual.

APPENDIX B
WATER STORAGE

CANYONS FAR SOUTH STORAGE REQUIREMENTS

STORAGE REQUIRED:					Storage (gal)	Storage (MG)
Max Day Demand	537	gpm			773,713	0.77
Fire Flow Demand	1,750	gpm for 4 hrs			420,000	0.42
		Total			1,193,713	1.19

APPENDIX C
WATER HYDRAULIC ANALYSIS AND MODELING

Active Scenario: STATIC - LOW

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
31	R-1 (Purple)	6,575.00	0	6,575.00
33	R-3 (Red)	6,661.00	0	6,661.00
35	R-4 (Blue)	6,488.00	0	6,488.00
650	R-8 (Red)	6,661.00	0	6,661.00

Active Scenario: STATIC - HIGH

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
31	R-1 (Purple)	6,594.00	0	6,594.00
33	R-3 (Red)	6,680.00	0	6,680.00
35	R-4 (Blue)	6,508.00	0	6,508.00
650	R-8 (Red)	6,680.00	0	6,680.00

Active Scenario: STATIC - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	0	6,446.50	6,575.00	56
DP-AA	0	6,424.18	6,575.00	65
DP-B	0	6,430.02	6,575.00	63
DP-BB	0	6,440.37	6,575.00	58
DP-C	0	6,447.61	6,575.00	55
DP-CC	0	6,426.14	6,575.00	64
DP-D	0	6,423.85	6,575.00	65
DP-DD	0	6,436.55	6,575.00	60
DP-E	0	6,460.94	6,575.00	49
DP-EE	0	6,432.91	6,575.00	61
DP-F	0	6,460.29	6,575.00	50
DP-FF	0	6,406.33	6,575.00	73
DP-G	0	6,436.49	6,575.00	60
DP-GG	0	6,403.10	6,575.00	74
DP-H	0	6,419.05	6,575.00	67
DP-HH	0	6,396.20	6,575.00	77
DP-I	0	6,394.32	6,575.00	78
DP-II	0	6,385.27	6,575.00	82
DP-J	0	6,453.78	6,575.00	52
DP-JJ	0	6,383.59	6,575.00	83
DP-K	0	6,453.78	6,575.00	52
DP-KK	0	6,381.37	6,575.00	84
DP-L	0	6,429.33	6,575.00	63
DP-LL	0	6,363.00	6,575.00	92
DP-M	0	6,428.23	6,575.00	63
DP-MM	0	6,365.85	6,575.00	90
DP-N	0	6,413.88	6,575.00	70
DP-NN	0	6,396.46	6,575.00	77
DP-O	0	6,439.78	6,575.00	59
DP-OO	0	6,398.22	6,575.00	76
DP-P	0	6,456.62	6,575.00	51
DP-Q	0	6,435.87	6,575.00	60
DP-R	0	6,381.58	6,575.00	84
DP-S	0	6,353.11	6,575.00	96
DP-T	0	6,494.58	6,661.00	72
DP-V	0	6,458.04	6,575.00	51
DP-W	0	6,415.72	6,575.00	69
DP-X	0	6,437.68	6,575.00	59
DP-Z	0	6,382.42	6,575.00	83
J-2	0	6,449.54	6,575.00	54
J-4	0	6,466.26	6,575.00	47
J-5	0	6,458.63	6,575.00	50
J-6	0	6,412.51	6,575.00	70
J-7	0	6,402.51	6,575.00	75
J-9	0	6,372.86	6,575.00	87
J-10	0	6,364.61	6,575.00	91
J-11	0	6,345.43	6,575.00	99

Active Scenario: STATIC - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-12	0	6,507.66	6,661.00	66
J-17	0	6,459.75	6,575.00	50
J-18	0	6,448.09	6,575.00	55
J-19	0	6,448.65	6,661.00	92
J-20	0	6,454.58	6,661.00	89
J-21	0	6,439.35	6,575.00	59
J-22	0	6,415.24	6,575.00	69
J-23	0	6,456.50	6,575.00	51
J-24	0	6,445.15	6,575.00	56
J-25	0	6,455.69	6,575.00	52
J-26	0	6,344.39	6,575.00	100
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,575.00	50
J-29	0	6,462.44	6,575.00	49
J-30	0	6,462.59	6,575.00	49
J-31	0	6,459.53	6,575.00	50
J-32	0	6,459.08	6,575.00	50
J-33	0	6,447.58	6,575.00	55
J-34	0	6,426.87	6,575.00	64
J-35	0	6,441.28	6,575.00	58
J-36	0	6,455.07	6,575.00	52
J-37	0	6,444.97	6,575.00	56
J-38	0	6,440.34	6,575.00	58
J-39	0	6,438.00	6,575.00	59
J-41	0	6,427.83	6,575.00	64
J-42	0	6,428.06	6,575.00	64
J-43	0	6,414.56	6,575.00	69
J-44	0	6,400.08	6,575.00	76
J-45	0	6,376.55	6,575.00	86
J-46	0	6,357.09	6,575.00	94
J-47	0	6,351.50	6,575.00	97
J-48	0	6,344.79	6,575.00	100
J-49	0	6,351.58	6,575.00	97
J-50	0	6,355.10	6,575.00	95
J-51	0	6,452.87	6,575.00	53
J-52	0	6,456.05	6,575.00	51
J-53	0	6,446.31	6,575.00	56
J-54	0	6,426.97	6,575.00	64
J-56	0	6,415.02	6,575.00	69
J-57	0	6,382.99	6,575.00	83
J-60	0	6,427.89	6,575.00	64
J-61	0	6,411.88	6,575.00	71
J-62	0	6,416.88	6,575.00	68
J-63	0	6,417.21	6,575.00	68
J-64	0	6,400.83	6,575.00	75
J-65	0	6,390.92	6,575.00	80
J-66	0	6,410.21	6,575.00	71

Active Scenario: STATIC - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-67	0	6,416.80	6,575.00	68
J-68	0	6,430.72	6,575.00	62
J-69	0	6,431.21	6,575.00	62
J-70	0	6,443.00	6,575.00	57
J-71	0	6,442.49	6,575.00	57
J-72	0	6,431.59	6,575.00	62
J-73	0	6,450.30	6,575.00	54
J-74	0	6,450.34	6,575.00	54
J-75	0	6,455.64	6,575.00	52
J-76	0	6,456.93	6,575.00	51
J-77	0	6,457.08	6,575.00	51
J-78	0	6,449.47	6,575.00	54
J-79	0	6,449.61	6,575.00	54
J-80	0	6,439.67	6,575.00	59
J-81	0	6,420.57	6,575.00	67
J-82	0	6,430.91	6,575.00	62
J-83	0	6,449.86	6,575.00	54
J-84	0	6,465.47	6,575.00	47
J-85	0	6,428.81	6,575.00	63
J-86	0	6,427.10	6,575.00	64
J-95	0	6,447.81	6,575.00	55
J-108	0	6,510.75	6,661.00	65
J-162	0	6,464.64	6,661.00	85
J-163	0	6,448.14	6,661.00	92
J-166	0	6,450.31	6,575.00	54
J-167	0	6,450.09	6,575.00	54
J-168	0	6,447.34	6,575.00	55
J-169	0	6,401.38	6,575.00	75
J-170	0	6,409.52	6,575.00	72
J-172	0	6,428.96	6,575.00	63
J-174	0	6,437.01	6,575.00	60
J-177	0	6,424.49	6,575.00	65
J-178	0	6,409.04	6,575.00	72
J-179	0	6,408.42	6,575.00	72
J-181	0	6,403.74	6,575.00	74
J-183	0	6,406.84	6,575.00	73
J-184	0	6,407.13	6,575.00	73
J-187	0	6,389.67	6,575.00	80
J-188	0	6,389.13	6,575.00	80
J-190	0	6,381.27	6,575.00	84
J-192	0	6,387.20	6,575.00	81
J-193	0	6,387.78	6,575.00	81
J-195	0	6,417.96	6,575.00	68
J-196	0	6,415.19	6,575.00	69
J-197	0	6,412.63	6,575.00	70
J-199	0	6,390.45	6,575.00	80
J-200	0	6,375.15	6,575.00	86

Active Scenario: STATIC - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-201	0	6,374.05	6,575.00	87
J-204	0	6,357.72	6,575.00	94
J-206	0	6,369.62	6,575.00	89
J-207	0	6,371.02	6,575.00	88
J-208	0	6,363.95	6,575.00	91

Active Scenario: STATIC - HIGH

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	0	6,446.50	6,594.00	64
DP-AA	0	6,424.18	6,594.00	73
DP-B	0	6,430.02	6,594.00	71
DP-BB	0	6,440.37	6,594.00	66
DP-C	0	6,447.61	6,594.00	63
DP-CC	0	6,426.14	6,594.00	73
DP-D	0	6,423.85	6,594.00	74
DP-DD	0	6,436.55	6,594.00	68
DP-E	0	6,460.94	6,594.00	58
DP-EE	0	6,432.91	6,594.00	70
DP-F	0	6,460.29	6,594.00	58
DP-FF	0	6,406.33	6,594.00	81
DP-G	0	6,436.49	6,594.00	68
DP-GG	0	6,403.10	6,594.00	83
DP-H	0	6,419.05	6,594.00	76
DP-HH	0	6,396.20	6,594.00	86
DP-I	0	6,394.32	6,594.00	86
DP-II	0	6,385.27	6,594.00	90
DP-J	0	6,453.78	6,594.00	61
DP-JJ	0	6,383.59	6,594.00	91
DP-K	0	6,453.78	6,594.00	61
DP-KK	0	6,381.37	6,594.00	92
DP-L	0	6,429.33	6,594.00	71
DP-LL	0	6,363.00	6,594.00	100
DP-M	0	6,428.23	6,594.00	72
DP-MM	0	6,365.85	6,594.00	99
DP-N	0	6,413.88	6,594.00	78
DP-NN	0	6,396.46	6,594.00	85
DP-O	0	6,439.78	6,594.00	67
DP-OO	0	6,398.22	6,594.00	85
DP-P	0	6,456.62	6,594.00	59
DP-Q	0	6,435.87	6,594.00	68
DP-R	0	6,381.58	6,594.00	92
DP-S	0	6,353.11	6,594.00	104
DP-T	0	6,494.58	6,680.00	80
DP-V	0	6,458.04	6,594.00	59
DP-W	0	6,415.72	6,594.00	77
DP-X	0	6,437.68	6,594.00	68
DP-Z	0	6,382.42	6,594.00	92
J-2	0	6,449.54	6,594.00	62
J-4	0	6,466.26	6,594.00	55
J-5	0	6,458.63	6,594.00	59
J-6	0	6,412.51	6,594.00	79
J-7	0	6,402.51	6,594.00	83
J-9	0	6,372.86	6,594.00	96
J-10	0	6,364.61	6,594.00	99
J-11	0	6,345.43	6,594.00	108

Active Scenario: STATIC - HIGH

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-12	0	6,507.66	6,680.00	75
J-17	0	6,459.75	6,594.00	58
J-18	0	6,448.09	6,594.00	63
J-19	0	6,448.65	6,680.00	100
J-20	0	6,454.58	6,680.00	98
J-21	0	6,439.35	6,594.00	67
J-22	0	6,415.24	6,594.00	77
J-23	0	6,456.50	6,594.00	59
J-24	0	6,445.15	6,594.00	64
J-25	0	6,455.69	6,594.00	60
J-26	0	6,344.39	6,594.00	108
J-27	0	6,319.25	6,508.00	82
J-28	0	6,460.44	6,594.00	58
J-29	0	6,462.44	6,594.00	57
J-30	0	6,462.59	6,594.00	57
J-31	0	6,459.53	6,594.00	58
J-32	0	6,459.08	6,594.00	58
J-33	0	6,447.58	6,594.00	63
J-34	0	6,426.87	6,594.00	72
J-35	0	6,441.28	6,594.00	66
J-36	0	6,455.07	6,594.00	60
J-37	0	6,444.97	6,594.00	64
J-38	0	6,440.34	6,594.00	66
J-39	0	6,438.00	6,594.00	67
J-41	0	6,427.83	6,594.00	72
J-42	0	6,428.06	6,594.00	72
J-43	0	6,414.56	6,594.00	78
J-44	0	6,400.08	6,594.00	84
J-45	0	6,376.55	6,594.00	94
J-46	0	6,357.09	6,594.00	103
J-47	0	6,351.50	6,594.00	105
J-48	0	6,344.79	6,594.00	108
J-49	0	6,351.58	6,594.00	105
J-50	0	6,355.10	6,594.00	103
J-51	0	6,452.87	6,594.00	61
J-52	0	6,456.05	6,594.00	60
J-53	0	6,446.31	6,594.00	64
J-54	0	6,426.97	6,594.00	72
J-56	0	6,415.02	6,594.00	77
J-57	0	6,382.99	6,594.00	91
J-60	0	6,427.89	6,594.00	72
J-61	0	6,411.88	6,594.00	79
J-62	0	6,416.88	6,594.00	77
J-63	0	6,417.21	6,594.00	76
J-64	0	6,400.83	6,594.00	84
J-65	0	6,390.92	6,594.00	88
J-66	0	6,410.21	6,594.00	80

Active Scenario: STATIC - HIGH

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-67	0	6,416.80	6,594.00	77
J-68	0	6,430.72	6,594.00	71
J-69	0	6,431.21	6,594.00	70
J-70	0	6,443.00	6,594.00	65
J-71	0	6,442.49	6,594.00	66
J-72	0	6,431.59	6,594.00	70
J-73	0	6,450.30	6,594.00	62
J-74	0	6,450.34	6,594.00	62
J-75	0	6,455.64	6,594.00	60
J-76	0	6,456.93	6,594.00	59
J-77	0	6,457.08	6,594.00	59
J-78	0	6,449.47	6,594.00	63
J-79	0	6,449.61	6,594.00	62
J-80	0	6,439.67	6,594.00	67
J-81	0	6,420.57	6,594.00	75
J-82	0	6,430.91	6,594.00	71
J-83	0	6,449.86	6,594.00	62
J-84	0	6,465.47	6,594.00	56
J-85	0	6,428.81	6,594.00	71
J-86	0	6,427.10	6,594.00	72
J-95	0	6,447.81	6,594.00	63
J-108	0	6,510.75	6,680.00	73
J-162	0	6,464.64	6,680.00	93
J-163	0	6,448.14	6,680.00	100
J-166	0	6,450.31	6,594.00	62
J-167	0	6,450.09	6,594.00	62
J-168	0	6,447.34	6,594.00	63
J-169	0	6,401.38	6,594.00	83
J-170	0	6,409.52	6,594.00	80
J-172	0	6,428.96	6,594.00	71
J-174	0	6,437.01	6,594.00	68
J-177	0	6,424.49	6,594.00	73
J-178	0	6,409.04	6,594.00	80
J-179	0	6,408.42	6,594.00	80
J-181	0	6,403.74	6,594.00	82
J-183	0	6,406.84	6,594.00	81
J-184	0	6,407.13	6,594.00	81
J-187	0	6,389.67	6,594.00	88
J-188	0	6,389.13	6,594.00	89
J-190	0	6,381.27	6,594.00	92
J-192	0	6,387.20	6,594.00	89
J-193	0	6,387.78	6,594.00	89
J-195	0	6,417.96	6,594.00	76
J-196	0	6,415.19	6,594.00	77
J-197	0	6,412.63	6,594.00	78
J-199	0	6,390.45	6,594.00	88
J-200	0	6,375.15	6,594.00	95

Active Scenario: STATIC - HIGH

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-201	0	6,374.05	6,594.00	95
J-204	0	6,357.72	6,594.00	102
J-206	0	6,369.62	6,594.00	97
J-207	0	6,371.02	6,594.00	96
J-208	0	6,363.95	6,594.00	100

Active Scenario: MAX DAY - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	8	6,446.50	6,573.32	55
DP-AA	20	6,424.18	6,572.75	64
DP-B	8	6,430.02	6,573.28	62
DP-BB	9	6,440.37	6,572.72	57
DP-C	8	6,447.61	6,573.26	54
DP-CC	5	6,426.14	6,572.71	63
DP-D	13	6,423.85	6,573.25	65
DP-DD	7	6,436.55	6,572.71	59
DP-E	4	6,460.94	6,573.22	49
DP-EE	8	6,432.91	6,572.71	60
DP-F	21	6,460.29	6,573.01	49
DP-FF	11	6,406.33	6,572.71	72
DP-G	7	6,436.49	6,572.88	59
DP-GG	5	6,403.10	6,572.71	73
DP-H	9	6,419.05	6,572.84	67
DP-HH	9	6,396.20	6,572.71	76
DP-I	12	6,394.32	6,572.83	77
DP-II	11	6,385.27	6,572.71	81
DP-J	24	6,453.78	6,572.94	52
DP-JJ	9	6,383.59	6,572.71	82
DP-K	8	6,453.78	6,572.92	52
DP-KK	7	6,381.37	6,572.71	83
DP-L	8	6,429.33	6,572.84	62
DP-LL	8	6,363.00	6,572.73	91
DP-M	6	6,428.23	6,572.84	63
DP-MM	13	6,365.85	6,572.71	90
DP-N	6	6,413.88	6,572.82	69
DP-NN	12	6,396.46	6,572.71	76
DP-O	30	6,439.78	6,572.80	58
DP-OO	10	6,398.22	6,572.71	75
DP-P	11	6,456.62	6,573.01	50
DP-Q	18	6,435.87	6,572.92	59
DP-R	19	6,381.58	6,572.81	83
DP-S	8	6,353.11	6,572.81	95
DP-T	74	6,494.58	6,660.98	72
DP-V	6	6,458.04	6,573.28	50
DP-W	24	6,415.72	6,572.81	68
DP-X	11	6,437.68	6,572.87	58
DP-Z	55	6,382.42	6,572.83	82
J-2	0	6,449.54	6,573.35	54
J-4	0	6,466.26	6,573.21	46
J-5	0	6,458.63	6,573.09	50
J-6	0	6,412.51	6,572.93	69
J-7	0	6,402.51	6,572.87	74
J-9	0	6,372.86	6,572.82	87
J-10	0	6,364.61	6,572.81	90
J-11	0	6,345.43	6,572.81	98

Active Scenario: MAX DAY - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-12	0	6,507.66	6,661.00	66
J-17	0	6,459.75	6,574.14	49
J-18	0	6,448.09	6,573.70	54
J-19	0	6,448.65	6,661.00	92
J-20	0	6,454.58	6,661.00	89
J-21	0	6,439.35	6,573.29	58
J-22	0	6,415.24	6,573.26	68
J-23	0	6,456.50	6,573.08	50
J-24	0	6,445.15	6,573.03	55
J-25	0	6,455.69	6,572.92	51
J-26	0	6,344.39	6,572.81	99
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,574.15	49
J-29	0	6,462.44	6,573.07	48
J-30	0	6,462.59	6,573.06	48
J-31	0	6,459.53	6,573.01	49
J-32	0	6,459.08	6,573.01	49
J-33	0	6,447.58	6,573.02	54
J-34	0	6,426.87	6,572.93	63
J-35	0	6,441.28	6,572.92	57
J-36	0	6,455.07	6,572.92	51
J-37	0	6,444.97	6,572.90	55
J-38	0	6,440.34	6,572.88	57
J-39	0	6,438.00	6,572.87	58
J-41	0	6,427.83	6,572.84	63
J-42	0	6,428.06	6,572.84	63
J-43	0	6,414.56	6,572.82	68
J-44	0	6,400.08	6,572.81	75
J-45	0	6,376.55	6,572.81	85
J-46	0	6,357.09	6,572.81	93
J-47	0	6,351.50	6,572.81	96
J-48	0	6,344.79	6,572.81	99
J-49	0	6,351.58	6,572.81	96
J-50	0	6,355.10	6,572.81	94
J-51	0	6,452.87	6,572.80	52
J-52	0	6,456.05	6,572.80	51
J-53	0	6,446.31	6,572.80	55
J-54	0	6,426.97	6,572.81	63
J-56	0	6,415.02	6,572.81	68
J-57	0	6,382.99	6,572.83	82
J-60	0	6,427.89	6,572.84	63
J-61	0	6,411.88	6,572.82	70
J-62	0	6,416.88	6,572.83	67
J-63	0	6,417.21	6,572.83	67
J-64	0	6,400.83	6,572.83	74
J-65	0	6,390.92	6,572.83	79
J-66	0	6,410.21	6,572.84	70

Active Scenario: MAX DAY - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-67	0	6,416.80	6,572.84	68
J-68	0	6,430.72	6,572.84	61
J-69	0	6,431.21	6,572.84	61
J-70	0	6,443.00	6,572.88	56
J-71	0	6,442.49	6,572.88	56
J-72	0	6,431.59	6,572.88	61
J-73	0	6,450.30	6,572.92	53
J-74	0	6,450.34	6,572.92	53
J-75	0	6,455.64	6,572.97	51
J-76	0	6,456.93	6,572.99	50
J-77	0	6,457.08	6,572.99	50
J-78	0	6,449.47	6,573.25	54
J-79	0	6,449.61	6,573.25	53
J-80	0	6,439.67	6,573.29	58
J-81	0	6,420.57	6,573.27	66
J-82	0	6,430.91	6,573.25	62
J-83	0	6,449.86	6,573.34	53
J-84	0	6,465.47	6,573.21	47
J-85	0	6,428.81	6,572.84	62
J-86	0	6,427.10	6,572.84	63
J-95	0	6,447.81	6,572.90	54
J-108	0	6,510.75	6,661.00	65
J-162	0	6,464.64	6,661.00	85
J-163	0	6,448.14	6,661.00	92
J-166	0	6,450.31	6,572.80	53
J-167	0	6,450.09	6,572.80	53
J-168	0	6,447.34	6,572.80	54
J-169	0	6,401.38	6,572.86	74
J-170	0	6,409.52	6,572.80	71
J-172	0	6,428.96	6,572.74	62
J-174	0	6,437.01	6,572.71	59
J-177	0	6,424.49	6,572.71	64
J-178	0	6,409.04	6,572.71	71
J-179	0	6,408.42	6,572.71	71
J-181	0	6,403.74	6,572.71	73
J-183	0	6,406.84	6,572.71	72
J-184	0	6,407.13	6,572.71	72
J-187	0	6,389.67	6,572.71	79
J-188	0	6,389.13	6,572.71	79
J-190	0	6,381.27	6,572.71	83
J-192	0	6,387.20	6,572.71	80
J-193	0	6,387.78	6,572.71	80
J-195	0	6,417.96	6,572.71	67
J-196	0	6,415.19	6,572.71	68
J-197	0	6,412.63	6,572.71	69
J-199	0	6,390.45	6,572.71	79
J-200	0	6,375.15	6,572.71	85

Active Scenario: MAX DAY - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-201	0	6,374.05	6,572.71	86
J-204	0	6,357.72	6,572.72	93
J-206	0	6,369.62	6,572.73	88
J-207	0	6,371.02	6,572.73	87
J-208	0	6,363.95	6,572.80	90

Active Scenario: MAX DAY - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-1	33	R-3 (Red)	J-108	16.0	120.0	58	0.09	0.00	True
P-2	107	J-108	J-12	16.0	120.0	58	0.09	0.00	True
P-8	1,194	R-1 (Purple)	J-28	12.0	120.0	466	1.32	0.85	True
P-12	12	J-28	J-17	12.0	120.0	466	1.32	0.01	True
P-13 (Lat)	25	J-17	H-1	6.0	120.0	0	0.00	0.00	True
P-14	616	J-17	J-18	12.0	120.0	466	1.32	0.44	True
P-15	137	J-19	J-163	16.0	120.0	-16	0.02	0.00	True
P-16	292	J-20	J-19	16.0	120.0	-16	0.02	0.00	True
P-17 (Lat)	58	H-3	J-20	6.0	120.0	0	0.00	0.00	True
P-18	176	J-162	J-20	16.0	120.0	-16	0.02	0.00	True
P-19	834	J-12	J-162	16.0	120.0	13	0.02	0.00	True
P-20	494	J-18	J-2	12.0	120.0	466	1.32	0.35	True
P-21	270	J-2	DP-V	12.0	120.0	269	0.76	0.07	True
P-22	274	DP-V	J-4	12.0	120.0	263	0.75	0.07	True
P-25	53	J-5	J-23	12.0	120.0	254	0.72	0.01	True
P-26 (Lat)	26	J-23	H-2	6.0	120.0	0	0.00	0.00	True
P-27	198	J-23	J-24	12.0	120.0	254	0.72	0.05	True
P-28	539	J-24	J-6	12.0	120.0	225	0.64	0.10	True
P-29	391	J-6	J-7	12.0	120.0	209	0.59	0.06	True
P-30	465	J-7	J-57	12.0	120.0	146	0.42	0.04	True
P-31	12	J-57	DP-Z	12.0	120.0	146	0.42	0.00	True
P-32	206	DP-Z	J-9	12.0	120.0	91	0.26	0.01	True
P-33	312	J-9	J-10	12.0	120.0	91	0.26	0.01	True
P-34	732	J-10	J-11	12.0	120.0	10	0.03	0.00	True
P-35	101	J-11	J-26	12.0	120.0	0	0.00	0.00	True
P-36(1)	881	J-26	PRV-C	12.0	120.0	0	0.00	0.00	True
P-36(2)	274	PRV-C	J-27	12.0	120.0	0	0.00	0.00	True
P-37	384	J-27	R-4 (Blue)	12.0	120.0	0	0.00	0.00	True
P-38(1)	350	J-19	PRV-B	8.0	120.0	0	0.00	0.00	True
P-38(2)	119	PRV-B	J-2	8.0	120.0	0	0.00	0.00	True
P-39	36	J-2	J-83	12.0	120.0	197	0.56	0.01	True
P-40	153	J-83	DP-A	12.0	120.0	197	0.56	0.02	True
P-41	206	DP-A	J-21	12.0	120.0	188	0.53	0.03	True
P-42	182	J-21	DP-B	8.0	120.0	40	0.26	0.01	True
P-43	157	DP-B	J-81	8.0	120.0	33	0.21	0.01	True
P-44	390	J-81	J-22	8.0	120.0	33	0.21	0.01	True
P-45	173	J-22	DP-D	8.0	120.0	33	0.21	0.01	True
P-46	117	DP-D	J-82	8.0	120.0	20	0.13	0.00	True
P-47	315	J-82	J-78	8.0	120.0	20	0.13	0.00	True
P-48	232	J-78	DP-E	12.0	120.0	160	0.45	0.02	True
P-49	136	DP-E	J-84	12.0	120.0	156	0.44	0.01	True
P-50	36	J-84	J-4	12.0	120.0	156	0.44	0.00	True
P-53	206	J-5	J-29	12.0	120.0	165	0.47	0.02	True
P-54	28	J-29	J-30	8.0	120.0	73	0.47	0.00	True
P-55	290	J-30	J-31	8.0	120.0	73	0.47	0.05	True
P-56	351	J-31	J-25	8.0	120.0	91	0.58	0.09	True
P-57	188	J-6	J-34	8.0	120.0	16	0.10	0.00	True

Active Scenario: MAX DAY - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-58	239	J-34	DP-Q	8.0	120.0	16	0.10	0.00	True
P-59	126	DP-Q	J-35	8.0	120.0	-2	0.01	0.00	True
P-60	291	J-35	J-36	8.0	120.0	-2	0.01	0.00	True
P-61	44	J-36	J-25	8.0	120.0	-2	0.01	0.00	True
P-62	215	J-25	J-37	8.0	120.0	64	0.41	0.03	True
P-63	151	J-37	J-38	8.0	120.0	64	0.41	0.02	True
P-64	77	J-38	J-39	8.0	120.0	64	0.41	0.01	True
P-65	11	J-39	DP-X	8.0	120.0	64	0.41	0.00	True
P-66	262	DP-X	J-41	8.0	120.0	53	0.34	0.02	True
P-67	273	J-41	J-43	8.0	120.0	49	0.31	0.02	True
P-68	295	J-43	J-44	8.0	120.0	23	0.15	0.01	True
P-69	312	J-44	DP-R	8.0	120.0	23	0.15	0.01	True
P-70	83	DP-R	J-45	8.0	120.0	5	0.03	0.00	True
P-71	342	J-45	J-46	8.0	120.0	5	0.03	0.00	True
P-72	117	J-46	J-47	8.0	120.0	-3	0.02	0.00	True
P-73	245	J-47	J-48	8.0	120.0	-10	0.06	0.00	True
P-74	35	J-48	J-11	8.0	120.0	-10	0.06	0.00	True
P-79 (Lat)	15	J-83	H-4	6.0	120.0	0	0.00	0.00	True
P-80	44	J-21	J-80	12.0	120.0	148	0.42	0.00	True
P-81 (Lat)	17	J-80	H-5	6.0	120.0	0	0.00	0.00	True
P-82	294	J-80	DP-C	12.0	120.0	148	0.42	0.02	True
P-83	167	DP-C	J-79	12.0	120.0	140	0.40	0.01	True
P-84	29	J-79	J-78	12.0	120.0	140	0.40	0.00	True
P-85 (Lat)	17	J-79	H-9	6.0	120.0	0	0.00	0.00	True
P-86 (Lat)	41	J-81	H-6	6.0	120.0	0	0.00	0.00	True
P-87 (Lat)	55	J-22	H-7	6.0	120.0	0	0.00	0.00	True
P-88 (Lat)	16	J-82	H-8	6.0	120.0	0	0.00	0.00	True
P-89 (Lat)	15	H-10	J-84	6.0	120.0	0	0.00	0.00	True
P-90	211	J-29	DP-F	8.0	120.0	91	0.58	0.05	True
P-91	147	DP-F	J-77	8.0	120.0	71	0.45	0.02	True
P-92	11	J-77	J-76	8.0	120.0	71	0.45	0.00	True
P-93	130	J-76	J-75	8.0	120.0	71	0.45	0.02	True
P-94	178	J-75	DP-J	8.0	120.0	71	0.45	0.03	True
P-95	324	DP-J	J-73	8.0	120.0	47	0.30	0.02	True
P-96	144	J-73	J-95	8.0	120.0	64	0.41	0.02	True
P-97	175	J-95	J-70	8.0	120.0	64	0.41	0.02	True
P-98	29	J-70	J-71	8.0	120.0	7	0.04	0.00	True
P-99	169	J-71	DP-G	8.0	120.0	7	0.04	0.00	True
P-100	129	DP-G	J-72	8.0	120.0	0	0.00	0.00	True
P-101 (Lat)	26	J-72	H-14	6.0	120.0	0	0.00	0.00	True
P-102	323	J-70	J-69	8.0	120.0	57	0.36	0.03	True
P-103	28	J-69	J-68	8.0	120.0	9	0.06	0.00	True
P-104	97	J-68	J-85	8.0	120.0	9	0.06	0.00	True
P-105	42	J-85	J-86	8.0	120.0	9	0.06	0.00	True
P-106	170	J-86	DP-H	8.0	120.0	9	0.06	0.00	True
P-107	46	DP-H	J-67	8.0	120.0	0	0.00	0.00	True
P-108	163	J-67	J-66	8.0	120.0	0	0.00	0.00	True

Active Scenario: MAX DAY - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-110	55	J-65	DP-I	8.0	120.0	0	0.00	0.00	True
P-111	109	DP-I	J-64	8.0	120.0	-12	0.08	0.00	True
P-112	284	J-64	J-63	8.0	120.0	-12	0.08	0.00	True
P-113	292	J-63	J-69	8.0	120.0	-38	0.24	0.01	True
P-114	41	J-63	J-62	8.0	120.0	26	0.17	0.00	True
P-115	197	J-62	DP-N	8.0	120.0	26	0.17	0.00	True
P-116	120	DP-N	J-61	8.0	120.0	21	0.13	0.00	True
P-117	275	J-61	J-56	8.0	120.0	21	0.13	0.00	True
P-118	28	J-56	DP-W	8.0	120.0	21	0.13	0.00	True
P-119	307	DP-W	J-54	8.0	120.0	23	0.15	0.01	True
P-120	265	J-54	DP-O	8.0	120.0	23	0.15	0.00	True
P-121	117	DP-O	J-53	8.0	120.0	-7	0.05	0.00	True
P-122(1)	103	J-53	J-166	8.0	120.0	-7	0.05	0.00	True
P-122(2)	228	J-166	J-51	8.0	120.0	-7	0.05	0.00	True
P-123	147	J-51	J-52	8.0	120.0	0	0.00	0.00	True
P-124 (Lat)	18	J-52	H-31	6.0	120.0	0	0.00	0.00	True
P-125	717	J-51	J-46	8.0	120.0	-7	0.05	0.00	True
P-126	26	J-47	J-49	8.0	120.0	8	0.05	0.00	True
P-127	165	J-49	DP-S	8.0	120.0	8	0.05	0.00	True
P-128	87	DP-S	J-50	8.0	120.0	0	0.00	0.00	True
P-129 (Lat)	18	J-50	H-32	6.0	120.0	0	0.00	0.00	True
P-130	180	J-43	DP-W	8.0	120.0	26	0.17	0.00	True
P-131	28	J-41	J-42	8.0	120.0	4	0.03	0.00	True
P-132	105	J-42	DP-M	8.0	120.0	4	0.03	0.00	True
P-133	187	DP-M	J-60	8.0	120.0	-1	0.01	0.00	True
P-134	147	J-60	DP-L	8.0	120.0	-1	0.01	0.00	True
P-135	219	DP-L	J-69	8.0	120.0	-10	0.06	0.00	True
P-136	243	J-25	DP-K	8.0	120.0	25	0.16	0.01	True
P-137	210	DP-K	J-74	8.0	120.0	17	0.11	0.00	True
P-138	44	J-74	J-73	8.0	120.0	17	0.11	0.00	True
P-139	226	J-24	J-33	8.0	120.0	29	0.18	0.01	True
P-140	265	J-33	DP-P	8.0	120.0	29	0.18	0.01	True
P-141	116	DP-P	J-32	8.0	120.0	18	0.11	0.00	True
P-142	47	J-32	J-31	8.0	120.0	18	0.11	0.00	True
P-143 (Lat)	21	J-108	H-42	6.0	120.0	0	0.00	0.00	True
P-144 (Lat)	15	J-30	H-11	6.0	120.0	0	0.00	0.00	True
P-145 (Lat)	18	J-75	H-12	6.0	120.0	0	0.00	0.00	True
P-146 (Lat)	18	J-74	H-13	6.0	120.0	0	0.00	0.00	True
P-147 (Lat)	16	J-71	H-15	6.0	120.0	0	0.00	0.00	True
P-148 (Lat)	15	J-68	H-16	6.0	120.0	0	0.00	0.00	True
P-149 (Lat)	17	J-67	H-21	6.0	120.0	0	0.00	0.00	True
P-150 (Lat)	57	J-66	H-20	6.0	120.0	0	0.00	0.00	True
P-151 (Lat)	73	J-65	H-19	6.0	120.0	0	0.00	0.00	True
P-152 (Lat)	17	J-64	H-18	6.0	120.0	0	0.00	0.00	True
P-153 (Lat)	17	J-62	H-17	6.0	120.0	0	0.00	0.00	True
P-154 (Lat)	16	J-61	H-27	6.0	120.0	0	0.00	0.00	True
P-155 (Lat)	16	J-60	H-26	6.0	120.0	0	0.00	0.00	True

Active Scenario: MAX DAY - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-156 (Lat)	112	J-38	H-24	6.0	120.0	0	0.00	0.00	True
P-157 (Lat)	15	J-42	H-25	6.0	120.0	0	0.00	0.00	True
P-158 (Lat)	16	J-56	H-28	6.0	120.0	0	0.00	0.00	True
P-159 (Lat)	16	J-54	H-29	6.0	120.0	0	0.00	0.00	True
P-160 (Lat)	16	J-53	H-30	6.0	120.0	0	0.00	0.00	True
P-161 (Lat)	16	J-49	H-33	6.0	120.0	0	0.00	0.00	True
P-162 (Lat)	16	J-48	H-34	6.0	120.0	0	0.00	0.00	True
P-165 (Lat)	49	H-37	J-34	6.0	120.0	0	0.00	0.00	True
P-166 (Lat)	16	J-35	H-38	6.0	120.0	0	0.00	0.00	True
P-167 (Lat)	16	J-36	H-23	6.0	120.0	0	0.00	0.00	True
P-168 (Lat)	16	J-32	H-22	6.0	120.0	0	0.00	0.00	True
P-169 (Lat)	57	H-39	J-33	6.0	120.0	0	0.00	0.00	True
P-170	1,631	J-163	R-8 (Red)	16.0	120.0	-16	0.02	0.00	True
P-170 (Lat)	17	J-45	H-41	6.0	120.0	0	0.00	0.00	True
P-171 (Lat)	16	J-44	H-40	6.0	120.0	0	0.00	0.00	True
P-174	635	DP-T	J-162	8.0	120.0	-29	0.18	0.02	True
P-175	288	J-12	DP-T	8.0	120.0	45	0.28	0.02	True
P-176	756	J-4	J-5	12.0	120.0	207	0.59	0.12	True
P-177	728	J-4	J-5	12.0	120.0	211	0.60	0.12	True
P-178	26	J-166	J-167	8.0	120.0	0	0.00	0.00	True
P-179	331	J-167	J-168	8.0	120.0	0	0.00	0.00	True
P-180	61	J-168	H-43	8.0	120.0	0	0.00	0.00	True
P-181	61	J-7	J-169	8.0	120.0	63	0.40	0.01	True
P-182	443	J-169	J-170	8.0	120.0	63	0.40	0.06	True
P-183	391	J-170	DP-AA	8.0	120.0	63	0.40	0.05	True
P-184	170	DP-AA	J-172	8.0	120.0	43	0.27	0.01	True
P-185	441	J-172	DP-BB	8.0	120.0	43	0.27	0.03	True
P-186	114	DP-BB	J-174	8.0	120.0	34	0.21	0.00	True
P-187	31	J-174	DP-DD	8.0	120.0	34	0.21	0.00	True
P-188	275	DP-DD	DP-EE	8.0	120.0	15	0.10	0.00	True
P-189	147	DP-EE	J-177	8.0	120.0	8	0.05	0.00	True
P-190	271	J-177	J-178	8.0	120.0	8	0.05	0.00	True
P-191	42	J-178	J-179	8.0	120.0	-2	0.01	0.00	True
P-192	171	J-179	DP-GG	8.0	120.0	-2	0.01	0.00	True
P-193	189	DP-GG	J-181	8.0	120.0	-6	0.04	0.00	True
P-194	232	J-181	DP-FF	8.0	120.0	-6	0.04	0.00	True
P-195	64	DP-FF	J-183	8.0	120.0	-18	0.11	0.00	True
P-196	44	J-183	J-184	8.0	120.0	-18	0.11	0.00	True
P-197	335	J-184	DP-CC	8.0	120.0	-6	0.04	0.00	True
P-198	201	DP-CC	DP-DD	8.0	120.0	-11	0.07	0.00	True
P-199	222	J-178	DP-NN	8.0	120.0	9	0.06	0.00	True
P-200	124	DP-NN	J-187	8.0	120.0	-5	0.03	0.00	True
P-201	44	J-187	J-188	8.0	120.0	-3	0.02	0.00	True
P-202	195	J-188	DP-JJ	8.0	120.0	-3	0.02	0.00	True
P-203	292	DP-JJ	J-190	8.0	120.0	-12	0.08	0.00	True
P-204	203	J-190	DP-II	8.0	120.0	-12	0.08	0.00	True
P-205	108	DP-II	J-192	8.0	120.0	-23	0.15	0.00	True

Active Scenario: MAX DAY - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-206	45	J-192	J-193	8.0	120.0	-23	0.15	0.00	True
P-207	153	J-193	DP-HH	8.0	120.0	20	0.13	0.00	True
P-208	193	DP-HH	J-184	8.0	120.0	11	0.07	0.00	True
P-209	389	DP-NN	J-195	8.0	120.0	3	0.02	0.00	True
P-210	69	J-195	J-196	8.0	120.0	3	0.02	0.00	True
P-211	58	J-196	J-197	8.0	120.0	3	0.02	0.00	True
P-212	240	J-197	DP-OO	8.0	120.0	3	0.02	0.00	True
P-213	134	DP-OO	J-199	8.0	120.0	-7	0.04	0.00	True
P-214	469	J-199	J-200	8.0	120.0	-7	0.04	0.00	True
P-215	42	J-200	J-201	8.0	120.0	9	0.06	0.00	True
P-216	195	J-201	DP-KK	8.0	120.0	9	0.06	0.00	True
P-217	165	DP-KK	J-187	8.0	120.0	2	0.01	0.00	True
P-218	196	J-200	DP-MM	8.0	120.0	-16	0.10	0.00	True
P-219	340	DP-MM	J-204	8.0	120.0	-29	0.18	0.01	True
P-220	200	J-204	DP-LL	8.0	120.0	-29	0.18	0.01	True
P-221	135	DP-LL	J-206	8.0	120.0	-37	0.24	0.01	True
P-222	27	J-206	J-207	8.0	120.0	-37	0.24	0.00	True
P-223	320	J-207	J-193	8.0	120.0	44	0.28	0.02	True
P-224	59	J-10	J-208	8.0	120.0	81	0.52	0.01	True
P-225	314	J-208	J-207	8.0	120.0	81	0.52	0.06	True

Active Scenario: PEAK HR - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	18	6,446.50	6,569.33	53
DP-AA	44	6,424.18	6,567.42	62
DP-B	17	6,430.02	6,569.20	60
DP-BB	20	6,440.37	6,567.28	55
DP-C	18	6,447.61	6,569.14	53
DP-CC	11	6,426.14	6,567.26	61
DP-D	28	6,423.85	6,569.11	63
DP-DD	15	6,436.55	6,567.27	57
DP-E	9	6,460.94	6,569.02	47
DP-EE	17	6,432.91	6,567.26	58
DP-F	46	6,460.29	6,568.30	47
DP-FF	24	6,406.33	6,567.26	70
DP-G	15	6,436.49	6,567.86	57
DP-GG	11	6,403.10	6,567.25	71
DP-H	20	6,419.05	6,567.76	64
DP-HH	20	6,396.20	6,567.26	74
DP-I	26	6,394.32	6,567.71	75
DP-II	24	6,385.27	6,567.26	79
DP-J	52	6,453.78	6,568.06	49
DP-JJ	20	6,383.59	6,567.25	79
DP-K	18	6,453.78	6,568.00	49
DP-KK	15	6,381.37	6,567.25	80
DP-L	18	6,429.33	6,567.76	60
DP-LL	18	6,363.00	6,567.33	88
DP-M	12	6,428.23	6,567.76	60
DP-MM	29	6,365.85	6,567.26	87
DP-N	12	6,413.88	6,567.70	67
DP-NN	12	6,396.46	6,567.25	74
DP-O	66	6,439.78	6,567.64	55
DP-OO	21	6,398.22	6,567.25	73
DP-P	24	6,456.62	6,568.32	48
DP-Q	40	6,435.87	6,568.03	57
DP-R	41	6,381.58	6,567.65	81
DP-S	17	6,353.11	6,567.65	93
DP-T	162	6,494.58	6,660.92	72
DP-V	6	6,458.04	6,569.19	48
DP-W	24	6,415.72	6,567.69	66
DP-X	11	6,437.68	6,567.85	56
DP-Z	56	6,382.42	6,567.74	80
J-2	0	6,449.54	6,569.43	52
J-4	0	6,466.26	6,568.96	44
J-5	0	6,458.63	6,568.56	48
J-6	0	6,412.51	6,568.05	67
J-7	0	6,402.51	6,567.85	72
J-9	0	6,372.86	6,567.71	84
J-10	0	6,364.61	6,567.66	88
J-11	0	6,345.43	6,567.66	96

Active Scenario: PEAK HR - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-12	0	6,507.66	6,661.00	66
J-17	0	6,459.75	6,572.10	49
J-18	0	6,448.09	6,570.61	53
J-19	0	6,448.65	6,661.00	92
J-20	0	6,454.58	6,661.00	89
J-21	0	6,439.35	6,569.24	56
J-22	0	6,415.24	6,569.13	67
J-23	0	6,456.50	6,568.52	48
J-24	0	6,445.15	6,568.37	53
J-25	0	6,455.69	6,568.03	49
J-26	0	6,344.39	6,567.66	97
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,572.13	48
J-29	0	6,462.44	6,568.49	46
J-30	0	6,462.59	6,568.47	46
J-31	0	6,459.53	6,568.31	47
J-32	0	6,459.08	6,568.32	47
J-33	0	6,447.58	6,568.35	52
J-34	0	6,426.87	6,568.04	61
J-35	0	6,441.28	6,568.03	55
J-36	0	6,455.07	6,568.03	49
J-37	0	6,444.97	6,567.94	53
J-38	0	6,440.34	6,567.88	55
J-39	0	6,438.00	6,567.85	56
J-41	0	6,427.83	6,567.76	61
J-42	0	6,428.06	6,567.76	60
J-43	0	6,414.56	6,567.70	66
J-44	0	6,400.08	6,567.67	73
J-45	0	6,376.55	6,567.65	83
J-46	0	6,357.09	6,567.65	91
J-47	0	6,351.50	6,567.65	94
J-48	0	6,344.79	6,567.66	96
J-49	0	6,351.58	6,567.65	93
J-50	0	6,355.10	6,567.65	92
J-51	0	6,452.87	6,567.64	50
J-52	0	6,456.05	6,567.64	48
J-53	0	6,446.31	6,567.64	52
J-54	0	6,426.97	6,567.66	61
J-56	0	6,415.02	6,567.69	66
J-57	0	6,382.99	6,567.74	80
J-60	0	6,427.89	6,567.76	61
J-61	0	6,411.88	6,567.70	67
J-62	0	6,416.88	6,567.71	65
J-63	0	6,417.21	6,567.72	65
J-64	0	6,400.83	6,567.71	72
J-65	0	6,390.92	6,567.71	76
J-66	0	6,410.21	6,567.76	68

Active Scenario: PEAK HR - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-67	0	6,416.80	6,567.76	65
J-68	0	6,430.72	6,567.76	59
J-69	0	6,431.21	6,567.76	59
J-70	0	6,443.00	6,567.86	54
J-71	0	6,442.49	6,567.86	54
J-72	0	6,431.59	6,567.86	59
J-73	0	6,450.30	6,567.99	51
J-74	0	6,450.34	6,568.00	51
J-75	0	6,455.64	6,568.15	49
J-76	0	6,456.93	6,568.22	48
J-77	0	6,457.08	6,568.23	48
J-78	0	6,449.47	6,569.09	52
J-79	0	6,449.61	6,569.10	52
J-80	0	6,439.67	6,569.22	56
J-81	0	6,420.57	6,569.18	64
J-82	0	6,430.91	6,569.10	60
J-83	0	6,449.86	6,569.41	52
J-84	0	6,465.47	6,568.97	45
J-85	0	6,428.81	6,567.76	60
J-86	0	6,427.10	6,567.76	61
J-95	0	6,447.81	6,567.93	52
J-108	0	6,510.75	6,661.00	65
J-162	0	6,464.64	6,661.00	85
J-163	0	6,448.14	6,661.00	92
J-166	0	6,450.31	6,567.64	51
J-167	0	6,450.09	6,567.64	51
J-168	0	6,447.34	6,567.64	52
J-169	0	6,401.38	6,567.82	72
J-170	0	6,409.52	6,567.61	68
J-172	0	6,428.96	6,567.38	60
J-174	0	6,437.01	6,567.27	56
J-177	0	6,424.49	6,567.26	62
J-178	0	6,409.04	6,567.25	68
J-179	0	6,408.42	6,567.25	69
J-181	0	6,403.74	6,567.25	71
J-183	0	6,406.84	6,567.26	69
J-184	0	6,407.13	6,567.26	69
J-187	0	6,389.67	6,567.25	77
J-188	0	6,389.13	6,567.25	77
J-190	0	6,381.27	6,567.26	80
J-192	0	6,387.20	6,567.27	78
J-193	0	6,387.78	6,567.28	78
J-195	0	6,417.96	6,567.25	65
J-196	0	6,415.19	6,567.25	66
J-197	0	6,412.63	6,567.25	67
J-199	0	6,390.45	6,567.25	76
J-200	0	6,375.15	6,567.26	83

Active Scenario: PEAK HR - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-201	0	6,374.05	6,567.26	84
J-204	0	6,357.72	6,567.30	91
J-206	0	6,369.62	6,567.35	86
J-207	0	6,371.02	6,567.36	85
J-208	0	6,363.95	6,567.61	88

Active Scenario: PEAK HR - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-1	33	R-3 (Red)	J-108	16.0	120.0	128	0.20	0.00	True
P-2	107	J-108	J-12	16.0	120.0	128	0.20	0.00	True
P-8	1,194	R-1 (Purple)	J-28	12.0	120.0	898	2.55	2.87	True
P-12	12	J-28	J-17	12.0	120.0	898	2.55	0.03	True
P-13 (Lat)	25	J-17	H-1	6.0	120.0	0	0.00	0.00	True
P-14	616	J-17	J-18	12.0	120.0	898	2.55	1.48	True
P-15	137	J-19	J-163	16.0	120.0	-34	0.05	0.00	True
P-16	292	J-20	J-19	16.0	120.0	-34	0.05	0.00	True
P-17 (Lat)	58	H-3	J-20	6.0	120.0	0	0.00	0.00	True
P-18	176	J-162	J-20	16.0	120.0	-34	0.05	0.00	True
P-19	834	J-12	J-162	16.0	120.0	29	0.05	0.00	True
P-20	494	J-18	J-2	12.0	120.0	898	2.55	1.19	True
P-21	270	J-2	DP-V	12.0	120.0	514	1.46	0.23	True
P-22	274	DP-V	J-4	12.0	120.0	508	1.44	0.23	True
P-25	53	J-5	J-23	12.0	120.0	481	1.36	0.04	True
P-26 (Lat)	26	J-23	H-2	6.0	120.0	0	0.00	0.00	True
P-27	198	J-23	J-24	12.0	120.0	481	1.36	0.15	True
P-28	539	J-24	J-6	12.0	120.0	424	1.20	0.32	True
P-29	391	J-6	J-7	12.0	120.0	386	1.09	0.20	True
P-30	465	J-7	J-57	12.0	120.0	256	0.73	0.11	True
P-31	12	J-57	DP-Z	12.0	120.0	256	0.73	0.00	True
P-32	206	DP-Z	J-9	12.0	120.0	200	0.57	0.03	True
P-33	312	J-9	J-10	12.0	120.0	200	0.57	0.05	True
P-34	732	J-10	J-11	12.0	120.0	28	0.08	0.00	True
P-35	101	J-11	J-26	12.0	120.0	0	0.00	0.00	True
P-36(1)	881	J-26	PRV-C	12.0	120.0	0	0.00	0.00	True
P-36(2)	274	PRV-C	J-27	12.0	120.0	0	0.00	0.00	True
P-37	384	J-27	R-4 (Blue)	12.0	120.0	0	0.00	0.00	True
P-38(1)	350	J-19	PRV-B	8.0	120.0	0	0.00	0.00	True
P-38(2)	119	PRV-B	J-2	8.0	120.0	0	0.00	0.00	True
P-39	36	J-2	J-83	12.0	120.0	383	1.09	0.02	True
P-40	153	J-83	DP-A	12.0	120.0	383	1.09	0.08	True
P-41	206	DP-A	J-21	12.0	120.0	365	1.04	0.09	True
P-42	182	J-21	DP-B	8.0	120.0	80	0.51	0.04	True
P-43	157	DP-B	J-81	8.0	120.0	63	0.40	0.02	True
P-44	390	J-81	J-22	8.0	120.0	63	0.40	0.05	True
P-45	173	J-22	DP-D	8.0	120.0	63	0.40	0.02	True
P-46	117	DP-D	J-82	8.0	120.0	36	0.23	0.01	True
P-47	315	J-82	J-78	8.0	120.0	36	0.23	0.01	True
P-48	232	J-78	DP-E	12.0	120.0	302	0.86	0.07	True
P-49	136	DP-E	J-84	12.0	120.0	293	0.83	0.04	True
P-50	36	J-84	J-4	12.0	120.0	293	0.83	0.01	True
P-53	206	J-5	J-29	12.0	120.0	320	0.91	0.07	True
P-54	28	J-29	J-30	8.0	120.0	140	0.89	0.02	True
P-55	290	J-30	J-31	8.0	120.0	140	0.89	0.16	True
P-56	351	J-31	J-25	8.0	120.0	172	1.10	0.29	True
P-57	188	J-6	J-34	8.0	120.0	38	0.24	0.01	True

Active Scenario: PEAK HR - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-58	239	J-34	DP-Q	8.0	120.0	38	0.24	0.01	True
P-59	126	DP-Q	J-35	8.0	120.0	-1	0.01	0.00	True
P-60	291	J-35	J-36	8.0	120.0	-1	0.01	0.00	True
P-61	44	J-36	J-25	8.0	120.0	-1	0.01	0.00	True
P-62	215	J-25	J-37	8.0	120.0	117	0.75	0.09	True
P-63	151	J-37	J-38	8.0	120.0	117	0.75	0.06	True
P-64	77	J-38	J-39	8.0	120.0	117	0.75	0.03	True
P-65	11	J-39	DP-X	8.0	120.0	117	0.75	0.00	True
P-66	262	DP-X	J-41	8.0	120.0	105	0.67	0.09	True
P-67	273	J-41	J-43	8.0	120.0	88	0.56	0.06	True
P-68	295	J-43	J-44	8.0	120.0	47	0.30	0.02	True
P-69	312	J-44	DP-R	8.0	120.0	47	0.30	0.02	True
P-70	83	DP-R	J-45	8.0	120.0	5	0.04	0.00	True
P-71	342	J-45	J-46	8.0	120.0	5	0.04	0.00	True
P-72	117	J-46	J-47	8.0	120.0	-11	0.07	0.00	True
P-73	245	J-47	J-48	8.0	120.0	-28	0.18	0.01	True
P-74	35	J-48	J-11	8.0	120.0	-28	0.18	0.00	True
P-79 (Lat)	15	J-83	H-4	6.0	120.0	0	0.00	0.00	True
P-80	44	J-21	J-80	12.0	120.0	285	0.81	0.01	True
P-81 (Lat)	17	J-80	H-5	6.0	120.0	0	0.00	0.00	True
P-82	294	J-80	DP-C	12.0	120.0	285	0.81	0.08	True
P-83	167	DP-C	J-79	12.0	120.0	267	0.76	0.04	True
P-84	29	J-79	J-78	12.0	120.0	267	0.76	0.01	True
P-85 (Lat)	17	J-79	H-9	6.0	120.0	0	0.00	0.00	True
P-86 (Lat)	41	J-81	H-6	6.0	120.0	0	0.00	0.00	True
P-87 (Lat)	55	J-22	H-7	6.0	120.0	0	0.00	0.00	True
P-88 (Lat)	16	J-82	H-8	6.0	120.0	0	0.00	0.00	True
P-89 (Lat)	15	H-10	J-84	6.0	120.0	0	0.00	0.00	True
P-90	211	J-29	DP-F	8.0	120.0	180	1.15	0.19	True
P-91	147	DP-F	J-77	8.0	120.0	135	0.86	0.08	True
P-92	11	J-77	J-76	8.0	120.0	135	0.86	0.01	True
P-93	130	J-76	J-75	8.0	120.0	135	0.86	0.07	True
P-94	178	J-75	DP-J	8.0	120.0	135	0.86	0.09	True
P-95	324	DP-J	J-73	8.0	120.0	83	0.53	0.07	True
P-96	144	J-73	J-95	8.0	120.0	119	0.76	0.06	True
P-97	175	J-95	J-70	8.0	120.0	119	0.76	0.07	True
P-98	29	J-70	J-71	8.0	120.0	15	0.10	0.00	True
P-99	169	J-71	DP-G	8.0	120.0	15	0.10	0.00	True
P-100	129	DP-G	J-72	8.0	120.0	0	0.00	0.00	True
P-101 (Lat)	26	J-72	H-14	6.0	120.0	0	0.00	0.00	True
P-102	323	J-70	J-69	8.0	120.0	103	0.66	0.10	True
P-103	28	J-69	J-68	8.0	120.0	20	0.13	0.00	True
P-104	97	J-68	J-85	8.0	120.0	20	0.13	0.00	True
P-105	42	J-85	J-86	8.0	120.0	20	0.13	0.00	True
P-106	170	J-86	DP-H	8.0	120.0	20	0.13	0.00	True
P-107	46	DP-H	J-67	8.0	120.0	0	0.00	0.00	True
P-108	163	J-67	J-66	8.0	120.0	0	0.00	0.00	True

Active Scenario: PEAK HR - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-110	55	J-65	DP-I	8.0	120.0	0	0.00	0.00	True
P-111	109	DP-I	J-64	8.0	120.0	-26	0.17	0.00	True
P-112	284	J-64	J-63	8.0	120.0	-26	0.17	0.01	True
P-113	292	J-63	J-69	8.0	120.0	-70	0.45	0.04	True
P-114	41	J-63	J-62	8.0	120.0	44	0.28	0.00	True
P-115	197	J-62	DP-N	8.0	120.0	44	0.28	0.01	True
P-116	120	DP-N	J-61	8.0	120.0	32	0.20	0.00	True
P-117	275	J-61	J-56	8.0	120.0	32	0.20	0.01	True
P-118	28	J-56	DP-W	8.0	120.0	32	0.20	0.00	True
P-119	307	DP-W	J-54	8.0	120.0	50	0.32	0.02	True
P-120	265	J-54	DP-O	8.0	120.0	50	0.32	0.02	True
P-121	117	DP-O	J-53	8.0	120.0	-16	0.10	0.00	True
P-122(1)	103	J-53	J-166	8.0	120.0	-16	0.10	0.00	True
P-122(2)	228	J-166	J-51	8.0	120.0	-16	0.10	0.00	True
P-123	147	J-51	J-52	8.0	120.0	0	0.00	0.00	True
P-124 (Lat)	18	J-52	H-31	6.0	120.0	0	0.00	0.00	True
P-125	717	J-51	J-46	8.0	120.0	-16	0.10	0.01	True
P-126	26	J-47	J-49	8.0	120.0	17	0.11	0.00	True
P-127	165	J-49	DP-S	8.0	120.0	17	0.11	0.00	True
P-128	87	DP-S	J-50	8.0	120.0	0	0.00	0.00	True
P-129 (Lat)	18	J-50	H-32	6.0	120.0	0	0.00	0.00	True
P-130	180	J-43	DP-W	8.0	120.0	42	0.27	0.01	True
P-131	28	J-41	J-42	8.0	120.0	17	0.11	0.00	True
P-132	105	J-42	DP-M	8.0	120.0	17	0.11	0.00	True
P-133	187	DP-M	J-60	8.0	120.0	5	0.03	0.00	True
P-134	147	J-60	DP-L	8.0	120.0	5	0.03	0.00	True
P-135	219	DP-L	J-69	8.0	120.0	-14	0.09	0.00	True
P-136	243	J-25	DP-K	8.0	120.0	54	0.35	0.02	True
P-137	210	DP-K	J-74	8.0	120.0	36	0.23	0.01	True
P-138	44	J-74	J-73	8.0	120.0	36	0.23	0.00	True
P-139	226	J-24	J-33	8.0	120.0	57	0.37	0.02	True
P-140	265	J-33	DP-P	8.0	120.0	57	0.37	0.03	True
P-141	116	DP-P	J-32	8.0	120.0	33	0.21	0.00	True
P-142	47	J-32	J-31	8.0	120.0	33	0.21	0.00	True
P-143 (Lat)	21	J-108	H-42	6.0	120.0	0	0.00	0.00	True
P-144 (Lat)	15	J-30	H-11	6.0	120.0	0	0.00	0.00	True
P-145 (Lat)	18	J-75	H-12	6.0	120.0	0	0.00	0.00	True
P-146 (Lat)	18	J-74	H-13	6.0	120.0	0	0.00	0.00	True
P-147 (Lat)	16	J-71	H-15	6.0	120.0	0	0.00	0.00	True
P-148 (Lat)	15	J-68	H-16	6.0	120.0	0	0.00	0.00	True
P-149 (Lat)	17	J-67	H-21	6.0	120.0	0	0.00	0.00	True
P-150 (Lat)	57	J-66	H-20	6.0	120.0	0	0.00	0.00	True
P-151 (Lat)	73	J-65	H-19	6.0	120.0	0	0.00	0.00	True
P-152 (Lat)	17	J-64	H-18	6.0	120.0	0	0.00	0.00	True
P-153 (Lat)	17	J-62	H-17	6.0	120.0	0	0.00	0.00	True
P-154 (Lat)	16	J-61	H-27	6.0	120.0	0	0.00	0.00	True
P-155 (Lat)	16	J-60	H-26	6.0	120.0	0	0.00	0.00	True

Active Scenario: PEAK HR - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-156 (Lat)	112	J-38	H-24	6.0	120.0	0	0.00	0.00	True
P-157 (Lat)	15	J-42	H-25	6.0	120.0	0	0.00	0.00	True
P-158 (Lat)	16	J-56	H-28	6.0	120.0	0	0.00	0.00	True
P-159 (Lat)	16	J-54	H-29	6.0	120.0	0	0.00	0.00	True
P-160 (Lat)	16	J-53	H-30	6.0	120.0	0	0.00	0.00	True
P-161 (Lat)	16	J-49	H-33	6.0	120.0	0	0.00	0.00	True
P-162 (Lat)	16	J-48	H-34	6.0	120.0	0	0.00	0.00	True
P-165 (Lat)	49	H-37	J-34	6.0	120.0	0	0.00	0.00	True
P-166 (Lat)	16	J-35	H-38	6.0	120.0	0	0.00	0.00	True
P-167 (Lat)	16	J-36	H-23	6.0	120.0	0	0.00	0.00	True
P-168 (Lat)	16	J-32	H-22	6.0	120.0	0	0.00	0.00	True
P-169 (Lat)	57	H-39	J-33	6.0	120.0	0	0.00	0.00	True
P-170	1,631	J-163	R-8 (Red)	16.0	120.0	-34	0.05	0.00	True
P-170 (Lat)	17	J-45	H-41	6.0	120.0	0	0.00	0.00	True
P-171 (Lat)	16	J-44	H-40	6.0	120.0	0	0.00	0.00	True
P-174	635	DP-T	J-162	8.0	120.0	-64	0.41	0.08	True
P-175	288	J-12	DP-T	8.0	120.0	98	0.63	0.08	True
P-176	756	J-4	J-5	12.0	120.0	397	1.12	0.40	True
P-177	728	J-4	J-5	12.0	120.0	405	1.15	0.40	True
P-178	26	J-166	J-167	8.0	120.0	0	0.00	0.00	True
P-179	331	J-167	J-168	8.0	120.0	0	0.00	0.00	True
P-180	61	J-168	H-43	8.0	120.0	0	0.00	0.00	True
P-181	61	J-7	J-169	8.0	120.0	130	0.83	0.03	True
P-182	443	J-169	J-170	8.0	120.0	130	0.83	0.21	True
P-183	391	J-170	DP-AA	8.0	120.0	130	0.83	0.19	True
P-184	170	DP-AA	J-172	8.0	120.0	85	0.55	0.04	True
P-185	441	J-172	DP-BB	8.0	120.0	85	0.55	0.10	True
P-186	114	DP-BB	J-174	8.0	120.0	66	0.42	0.02	True
P-187	31	J-174	DP-DD	8.0	120.0	66	0.42	0.00	True
P-188	275	DP-DD	DP-EE	8.0	120.0	29	0.19	0.01	True
P-189	147	DP-EE	J-177	8.0	120.0	13	0.08	0.00	True
P-190	271	J-177	J-178	8.0	120.0	13	0.08	0.00	True
P-191	42	J-178	J-179	8.0	120.0	0	0.00	0.00	True
P-192	171	J-179	DP-GG	8.0	120.0	0	0.00	0.00	True
P-193	189	DP-GG	J-181	8.0	120.0	-11	0.07	0.00	True
P-194	232	J-181	DP-FF	8.0	120.0	-11	0.07	0.00	True
P-195	64	DP-FF	J-183	8.0	120.0	-35	0.22	0.00	True
P-196	44	J-183	J-184	8.0	120.0	-35	0.22	0.00	True
P-197	335	J-184	DP-CC	8.0	120.0	-10	0.06	0.00	True
P-198	201	DP-CC	DP-DD	8.0	120.0	-21	0.13	0.00	True
P-199	222	J-178	DP-NN	8.0	120.0	12	0.08	0.00	True
P-200	124	DP-NN	J-187	8.0	120.0	-6	0.04	0.00	True
P-201	44	J-187	J-188	8.0	120.0	-4	0.03	0.00	True
P-202	195	J-188	DP-JJ	8.0	120.0	-4	0.03	0.00	True
P-203	292	DP-JJ	J-190	8.0	120.0	-24	0.15	0.01	True
P-204	203	J-190	DP-II	8.0	120.0	-24	0.15	0.00	True
P-205	108	DP-II	J-192	8.0	120.0	-48	0.31	0.01	True

Active Scenario: PEAK HR - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-206	45	J-192	J-193	8.0	120.0	-48	0.31	0.00	True
P-207	153	J-193	DP-HH	8.0	120.0	45	0.29	0.01	True
P-208	193	DP-HH	J-184	8.0	120.0	25	0.16	0.00	True
P-209	389	DP-NN	J-195	8.0	120.0	7	0.05	0.00	True
P-210	69	J-195	J-196	8.0	120.0	7	0.05	0.00	True
P-211	58	J-196	J-197	8.0	120.0	7	0.05	0.00	True
P-212	240	J-197	DP-OO	8.0	120.0	7	0.05	0.00	True
P-213	134	DP-OO	J-199	8.0	120.0	-14	0.09	0.00	True
P-214	469	J-199	J-200	8.0	120.0	-14	0.09	0.00	True
P-215	42	J-200	J-201	8.0	120.0	18	0.11	0.00	True
P-216	195	J-201	DP-KK	8.0	120.0	18	0.11	0.00	True
P-217	165	DP-KK	J-187	8.0	120.0	2	0.02	0.00	True
P-218	196	J-200	DP-MM	8.0	120.0	-32	0.20	0.01	True
P-219	340	DP-MM	J-204	8.0	120.0	-61	0.39	0.04	True
P-220	200	J-204	DP-LL	8.0	120.0	-61	0.39	0.02	True
P-221	135	DP-LL	J-206	8.0	120.0	-79	0.51	0.03	True
P-222	27	J-206	J-207	8.0	120.0	-79	0.51	0.01	True
P-223	320	J-207	J-193	8.0	120.0	93	0.59	0.08	True
P-224	59	J-10	J-208	8.0	120.0	172	1.10	0.05	True
P-225	314	J-208	J-207	8.0	120.0	172	1.10	0.26	True

Active Scenario: PEAK HR - LOW

PIPE P-25 CLOSED

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	18	6,446.50	6,569.33	53
DP-AA	44	6,424.18	6,565.07	61
DP-B	17	6,430.02	6,569.20	60
DP-BB	20	6,440.37	6,564.95	54
DP-C	18	6,447.61	6,569.14	53
DP-CC	11	6,426.14	6,564.93	60
DP-D	28	6,423.85	6,569.11	63
DP-DD	15	6,436.55	6,564.93	56
DP-E	9	6,460.94	6,569.02	47
DP-EE	17	6,432.91	6,564.92	57
DP-F	46	6,460.29	6,567.57	46
DP-FF	24	6,406.33	6,564.92	69
DP-G	15	6,436.49	6,565.87	56
DP-GG	11	6,403.10	6,564.92	70
DP-H	20	6,419.05	6,565.67	63
DP-HH	20	6,396.20	6,564.93	73
DP-I	26	6,394.32	6,565.59	74
DP-II	24	6,385.27	6,564.93	78
DP-J	52	6,453.78	6,566.58	49
DP-JJ	20	6,383.59	6,564.92	78
DP-K	18	6,453.78	6,566.06	49
DP-KK	15	6,381.37	6,564.92	79
DP-L	18	6,429.33	6,565.67	59
DP-LL	18	6,363.00	6,565.00	87
DP-M	12	6,428.23	6,565.66	59
DP-MM	29	6,365.85	6,564.93	86
DP-N	12	6,413.88	6,565.56	66
DP-NN	12	6,396.46	6,564.92	73
DP-O	66	6,439.78	6,565.40	54
DP-OO	21	6,398.22	6,564.92	72
DP-P	24	6,456.62	6,566.28	47
DP-Q	40	6,435.87	6,565.75	56
DP-R	41	6,381.58	6,565.41	80
DP-S	17	6,353.11	6,565.38	92
DP-T	162	6,494.58	6,660.92	72
DP-V	6	6,458.04	6,569.19	48
DP-W	24	6,415.72	6,565.52	65
DP-X	11	6,437.68	6,565.79	55
DP-Z	56	6,382.42	6,565.40	79
J-2	0	6,449.54	6,569.43	52
J-4	0	6,466.26	6,568.96	44
J-5	0	6,458.63	6,568.56	48
J-6	0	6,412.51	6,565.60	66
J-7	0	6,402.51	6,565.47	71
J-9	0	6,372.86	6,565.38	83
J-10	0	6,364.61	6,565.36	87
J-11	0	6,345.43	6,565.36	95

Active Scenario: PEAK HR - LOW

PIPE P-25 CLOSED

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-12	0	6,507.66	6,661.00	66
J-17	0	6,459.75	6,572.10	49
J-18	0	6,448.09	6,570.61	53
J-19	0	6,448.65	6,661.00	92
J-20	0	6,454.58	6,661.00	89
J-21	0	6,439.35	6,569.24	56
J-22	0	6,415.24	6,569.13	67
J-23	0	6,456.50	6,565.69	47
J-24	0	6,445.15	6,565.69	52
J-25	0	6,455.69	6,566.03	48
J-26	0	6,344.39	6,565.36	96
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,572.13	48
J-29	0	6,462.44	6,568.16	46
J-30	0	6,462.59	6,568.02	46
J-31	0	6,459.53	6,566.52	46
J-32	0	6,459.08	6,566.45	46
J-33	0	6,447.58	6,565.97	51
J-34	0	6,426.87	6,565.67	60
J-35	0	6,441.28	6,565.83	54
J-36	0	6,455.07	6,566.01	48
J-37	0	6,444.97	6,565.92	52
J-38	0	6,440.34	6,565.83	54
J-39	0	6,438.00	6,565.79	55
J-41	0	6,427.83	6,565.66	60
J-42	0	6,428.06	6,565.66	60
J-43	0	6,414.56	6,565.53	65
J-44	0	6,400.08	6,565.47	72
J-45	0	6,376.55	6,565.41	82
J-46	0	6,357.09	6,565.39	90
J-47	0	6,351.50	6,565.38	93
J-48	0	6,344.79	6,565.36	95
J-49	0	6,351.58	6,565.38	92
J-50	0	6,355.10	6,565.38	91
J-51	0	6,452.87	6,565.40	49
J-52	0	6,456.05	6,565.40	47
J-53	0	6,446.31	6,565.40	52
J-54	0	6,426.97	6,565.45	60
J-56	0	6,415.02	6,565.52	65
J-57	0	6,382.99	6,565.40	79
J-60	0	6,427.89	6,565.66	60
J-61	0	6,411.88	6,565.55	66
J-62	0	6,416.88	6,565.59	64
J-63	0	6,417.21	6,565.60	64
J-64	0	6,400.83	6,565.59	71
J-65	0	6,390.92	6,565.59	76
J-66	0	6,410.21	6,565.67	67

Active Scenario: PEAK HR - LOW

PIPE P-25 CLOSED

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-67	0	6,416.80	6,565.67	64
J-68	0	6,430.72	6,565.67	58
J-69	0	6,431.21	6,565.67	58
J-70	0	6,443.00	6,565.87	53
J-71	0	6,442.49	6,565.87	53
J-72	0	6,431.59	6,565.87	58
J-73	0	6,450.30	6,566.10	50
J-74	0	6,450.34	6,566.10	50
J-75	0	6,455.64	6,566.96	48
J-76	0	6,456.93	6,567.24	48
J-77	0	6,457.08	6,567.26	48
J-78	0	6,449.47	6,569.09	52
J-79	0	6,449.61	6,569.10	52
J-80	0	6,439.67	6,569.22	56
J-81	0	6,420.57	6,569.18	64
J-82	0	6,430.91	6,569.10	60
J-83	0	6,449.86	6,569.41	52
J-84	0	6,465.47	6,568.97	45
J-85	0	6,428.81	6,565.67	59
J-86	0	6,427.10	6,565.67	60
J-95	0	6,447.81	6,566.00	51
J-108	0	6,510.75	6,661.00	65
J-162	0	6,464.64	6,661.00	85
J-163	0	6,448.14	6,661.00	92
J-166	0	6,450.31	6,565.40	50
J-167	0	6,450.09	6,565.40	50
J-168	0	6,447.34	6,565.40	51
J-169	0	6,401.38	6,565.44	71
J-170	0	6,409.52	6,565.24	67
J-172	0	6,428.96	6,565.04	59
J-174	0	6,437.01	6,564.94	55
J-177	0	6,424.49	6,564.92	61
J-178	0	6,409.04	6,564.92	67
J-179	0	6,408.42	6,564.92	68
J-181	0	6,403.74	6,564.92	70
J-183	0	6,406.84	6,564.93	68
J-184	0	6,407.13	6,564.93	68
J-187	0	6,389.67	6,564.92	76
J-188	0	6,389.13	6,564.92	76
J-190	0	6,381.27	6,564.93	79
J-192	0	6,387.20	6,564.94	77
J-193	0	6,387.78	6,564.95	77
J-195	0	6,417.96	6,564.92	64
J-196	0	6,415.19	6,564.92	65
J-197	0	6,412.63	6,564.92	66
J-199	0	6,390.45	6,564.92	75
J-200	0	6,375.15	6,564.93	82

Active Scenario: PEAK HR - LOW

PIPE P-25 CLOSED

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-201	0	6,374.05	6,564.93	83
J-204	0	6,357.72	6,564.98	90
J-206	0	6,369.62	6,565.03	85
J-207	0	6,371.02	6,565.04	84
J-208	0	6,363.95	6,565.31	87

Active Scenario: PEAK HR - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-1	33	R-3 (Red)	J-108	16.0	120.0	128	0.20	0.00	True
P-2	107	J-108	J-12	16.0	120.0	128	0.20	0.00	True
P-8	1,194	R-1 (Purple)	J-28	12.0	120.0	898	2.55	2.87	True
P-12	12	J-28	J-17	12.0	120.0	898	2.55	0.03	True
P-13 (Lat)	25	J-17	H-1	6.0	120.0	0	0.00	0.00	True
P-14	616	J-17	J-18	12.0	120.0	898	2.55	1.48	True
P-15	137	J-19	J-163	16.0	120.0	-34	0.05	0.00	True
P-16	292	J-20	J-19	16.0	120.0	-34	0.05	0.00	True
P-17 (Lat)	58	H-3	J-20	6.0	120.0	0	0.00	0.00	True
P-18	176	J-162	J-20	16.0	120.0	-34	0.05	0.00	True
P-19	834	J-12	J-162	16.0	120.0	29	0.05	0.00	True
P-20	494	J-18	J-2	12.0	120.0	898	2.55	1.19	True
P-21	270	J-2	DP-V	12.0	120.0	514	1.46	0.23	True
P-22	274	DP-V	J-4	12.0	120.0	508	1.44	0.23	True
P-25	53	J-5	J-23	12.0	120.0	0	0.00	0.00	False
P-26 (Lat)	26	J-23	H-2	6.0	120.0	0	0.00	0.00	True
P-27	198	J-23	J-24	12.0	120.0	0	0.00	0.00	True
P-28	539	J-24	J-6	12.0	120.0	212	0.60	0.09	True
P-29	391	J-6	J-7	12.0	120.0	320	0.91	0.14	True
P-30	465	J-7	J-57	12.0	120.0	196	0.56	0.07	True
P-31	12	J-57	DP-Z	12.0	120.0	196	0.56	0.00	True
P-32	206	DP-Z	J-9	12.0	120.0	140	0.40	0.02	True
P-33	312	J-9	J-10	12.0	120.0	140	0.40	0.02	True
P-34	732	J-10	J-11	12.0	120.0	-38	0.11	0.01	True
P-35	101	J-11	J-26	12.0	120.0	0	0.00	0.00	True
P-36(1)	881	J-26	PRV-C	12.0	120.0	0	0.00	0.00	True
P-36(2)	274	PRV-C	J-27	12.0	120.0	0	0.00	0.00	True
P-37	384	J-27	R-4 (Blue)	12.0	120.0	0	0.00	0.00	True
P-38(1)	350	J-19	PRV-B	8.0	120.0	0	0.00	0.00	True
P-38(2)	119	PRV-B	J-2	8.0	120.0	0	0.00	0.00	True
P-39	36	J-2	J-83	12.0	120.0	383	1.09	0.02	True
P-40	153	J-83	DP-A	12.0	120.0	383	1.09	0.08	True
P-41	206	DP-A	J-21	12.0	120.0	365	1.04	0.09	True
P-42	182	J-21	DP-B	8.0	120.0	80	0.51	0.04	True
P-43	157	DP-B	J-81	8.0	120.0	63	0.40	0.02	True
P-44	390	J-81	J-22	8.0	120.0	63	0.40	0.05	True
P-45	173	J-22	DP-D	8.0	120.0	63	0.40	0.02	True
P-46	117	DP-D	J-82	8.0	120.0	36	0.23	0.01	True
P-47	315	J-82	J-78	8.0	120.0	36	0.23	0.01	True
P-48	232	J-78	DP-E	12.0	120.0	302	0.86	0.07	True
P-49	136	DP-E	J-84	12.0	120.0	293	0.83	0.04	True
P-50	36	J-84	J-4	12.0	120.0	293	0.83	0.01	True
P-53	206	J-5	J-29	12.0	120.0	801	2.27	0.40	True
P-54	28	J-29	J-30	8.0	120.0	466	2.98	0.15	True
P-55	290	J-30	J-31	8.0	120.0	466	2.98	1.49	True
P-56	351	J-31	J-25	8.0	120.0	230	1.47	0.49	True
P-57	188	J-6	J-34	8.0	120.0	-108	0.69	0.06	True

Active Scenario: PEAK HR - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-58	239	J-34	DP-Q	8.0	120.0	-108	0.69	0.08	True
P-59	126	DP-Q	J-35	8.0	120.0	-148	0.94	0.08	True
P-60	291	J-35	J-36	8.0	120.0	-148	0.94	0.18	True
P-61	44	J-36	J-25	8.0	120.0	-148	0.94	0.03	True
P-62	215	J-25	J-37	8.0	120.0	139	0.89	0.12	True
P-63	151	J-37	J-38	8.0	120.0	139	0.89	0.08	True
P-64	77	J-38	J-39	8.0	120.0	139	0.89	0.04	True
P-65	11	J-39	DP-X	8.0	120.0	139	0.89	0.01	True
P-66	262	DP-X	J-41	8.0	120.0	127	0.81	0.12	True
P-67	273	J-41	J-43	8.0	120.0	130	0.83	0.13	True
P-68	295	J-43	J-44	8.0	120.0	80	0.51	0.06	True
P-69	312	J-44	DP-R	8.0	120.0	80	0.51	0.06	True
P-70	83	DP-R	J-45	8.0	120.0	39	0.25	0.00	True
P-71	342	J-45	J-46	8.0	120.0	39	0.25	0.02	True
P-72	117	J-46	J-47	8.0	120.0	55	0.35	0.01	True
P-73	245	J-47	J-48	8.0	120.0	38	0.24	0.01	True
P-74	35	J-48	J-11	8.0	120.0	38	0.24	0.00	True
P-79 (Lat)	15	J-83	H-4	6.0	120.0	0	0.00	0.00	True
P-80	44	J-21	J-80	12.0	120.0	285	0.81	0.01	True
P-81 (Lat)	17	J-80	H-5	6.0	120.0	0	0.00	0.00	True
P-82	294	J-80	DP-C	12.0	120.0	285	0.81	0.08	True
P-83	167	DP-C	J-79	12.0	120.0	267	0.76	0.04	True
P-84	29	J-79	J-78	12.0	120.0	267	0.76	0.01	True
P-85 (Lat)	17	J-79	H-9	6.0	120.0	0	0.00	0.00	True
P-86 (Lat)	41	J-81	H-6	6.0	120.0	0	0.00	0.00	True
P-87 (Lat)	55	J-22	H-7	6.0	120.0	0	0.00	0.00	True
P-88 (Lat)	16	J-82	H-8	6.0	120.0	0	0.00	0.00	True
P-89 (Lat)	15	H-10	J-84	6.0	120.0	0	0.00	0.00	True
P-90	211	J-29	DP-F	8.0	120.0	335	2.14	0.59	True
P-91	147	DP-F	J-77	8.0	120.0	289	1.84	0.31	True
P-92	11	J-77	J-76	8.0	120.0	289	1.84	0.02	True
P-93	130	J-76	J-75	8.0	120.0	289	1.84	0.28	True
P-94	178	J-75	DP-J	8.0	120.0	289	1.84	0.38	True
P-95	324	DP-J	J-73	8.0	120.0	237	1.51	0.48	True
P-96	144	J-73	J-95	8.0	120.0	162	1.04	0.11	True
P-97	175	J-95	J-70	8.0	120.0	162	1.04	0.13	True
P-98	29	J-70	J-71	8.0	120.0	15	0.10	0.00	True
P-99	169	J-71	DP-G	8.0	120.0	15	0.10	0.00	True
P-100	129	DP-G	J-72	8.0	120.0	0	0.00	0.00	True
P-101 (Lat)	26	J-72	H-14	6.0	120.0	0	0.00	0.00	True
P-102	323	J-70	J-69	8.0	120.0	147	0.94	0.20	True
P-103	28	J-69	J-68	8.0	120.0	20	0.13	0.00	True
P-104	97	J-68	J-85	8.0	120.0	20	0.13	0.00	True
P-105	42	J-85	J-86	8.0	120.0	20	0.13	0.00	True
P-106	170	J-86	DP-H	8.0	120.0	20	0.13	0.00	True
P-107	46	DP-H	J-67	8.0	120.0	0	0.00	0.00	True
P-108	163	J-67	J-66	8.0	120.0	0	0.00	0.00	True

Active Scenario: PEAK HR - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-110	55	J-65	DP-I	8.0	120.0	0	0.00	0.00	True
P-111	109	DP-I	J-64	8.0	120.0	-26	0.17	0.00	True
P-112	284	J-64	J-63	8.0	120.0	-26	0.17	0.01	True
P-113	292	J-63	J-69	8.0	120.0	-94	0.60	0.08	True
P-114	41	J-63	J-62	8.0	120.0	68	0.44	0.01	True
P-115	197	J-62	DP-N	8.0	120.0	68	0.44	0.03	True
P-116	120	DP-N	J-61	8.0	120.0	56	0.36	0.01	True
P-117	275	J-61	J-56	8.0	120.0	56	0.36	0.03	True
P-118	28	J-56	DP-W	8.0	120.0	56	0.36	0.00	True
P-119	307	DP-W	J-54	8.0	120.0	82	0.52	0.06	True
P-120	265	J-54	DP-O	8.0	120.0	82	0.52	0.05	True
P-121	117	DP-O	J-53	8.0	120.0	16	0.10	0.00	True
P-122(1)	103	J-53	J-166	8.0	120.0	16	0.10	0.00	True
P-122(2)	228	J-166	J-51	8.0	120.0	16	0.10	0.00	True
P-123	147	J-51	J-52	8.0	120.0	0	0.00	0.00	True
P-124 (Lat)	18	J-52	H-31	6.0	120.0	0	0.00	0.00	True
P-125	717	J-51	J-46	8.0	120.0	16	0.10	0.01	True
P-126	26	J-47	J-49	8.0	120.0	17	0.11	0.00	True
P-127	165	J-49	DP-S	8.0	120.0	17	0.11	0.00	True
P-128	87	DP-S	J-50	8.0	120.0	0	0.00	0.00	True
P-129 (Lat)	18	J-50	H-32	6.0	120.0	0	0.00	0.00	True
P-130	180	J-43	DP-W	8.0	120.0	49	0.31	0.01	True
P-131	28	J-41	J-42	8.0	120.0	-2	0.01	0.00	True
P-132	105	J-42	DP-M	8.0	120.0	-2	0.01	0.00	True
P-133	187	DP-M	J-60	8.0	120.0	-14	0.09	0.00	True
P-134	147	J-60	DP-L	8.0	120.0	-14	0.09	0.00	True
P-135	219	DP-L	J-69	8.0	120.0	-33	0.21	0.01	True
P-136	243	J-25	DP-K	8.0	120.0	-56	0.36	0.02	True
P-137	210	DP-K	J-74	8.0	120.0	-75	0.48	0.04	True
P-138	44	J-74	J-73	8.0	120.0	-75	0.48	0.01	True
P-139	226	J-24	J-33	8.0	120.0	-212	1.35	0.27	True
P-140	265	J-33	DP-P	8.0	120.0	-212	1.35	0.32	True
P-141	116	DP-P	J-32	8.0	120.0	-236	1.51	0.17	True
P-142	47	J-32	J-31	8.0	120.0	-236	1.51	0.07	True
P-143 (Lat)	21	J-108	H-42	6.0	120.0	0	0.00	0.00	True
P-144 (Lat)	15	J-30	H-11	6.0	120.0	0	0.00	0.00	True
P-145 (Lat)	18	J-75	H-12	6.0	120.0	0	0.00	0.00	True
P-146 (Lat)	18	J-74	H-13	6.0	120.0	0	0.00	0.00	True
P-147 (Lat)	16	J-71	H-15	6.0	120.0	0	0.00	0.00	True
P-148 (Lat)	15	J-68	H-16	6.0	120.0	0	0.00	0.00	True
P-149 (Lat)	17	J-67	H-21	6.0	120.0	0	0.00	0.00	True
P-150 (Lat)	57	J-66	H-20	6.0	120.0	0	0.00	0.00	True
P-151 (Lat)	73	J-65	H-19	6.0	120.0	0	0.00	0.00	True
P-152 (Lat)	17	J-64	H-18	6.0	120.0	0	0.00	0.00	True
P-153 (Lat)	17	J-62	H-17	6.0	120.0	0	0.00	0.00	True
P-154 (Lat)	16	J-61	H-27	6.0	120.0	0	0.00	0.00	True
P-155 (Lat)	16	J-60	H-26	6.0	120.0	0	0.00	0.00	True

Active Scenario: PEAK HR - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-156 (Lat)	112	J-38	H-24	6.0	120.0	0	0.00	0.00	True
P-157 (Lat)	15	J-42	H-25	6.0	120.0	0	0.00	0.00	True
P-158 (Lat)	16	J-56	H-28	6.0	120.0	0	0.00	0.00	True
P-159 (Lat)	16	J-54	H-29	6.0	120.0	0	0.00	0.00	True
P-160 (Lat)	16	J-53	H-30	6.0	120.0	0	0.00	0.00	True
P-161 (Lat)	16	J-49	H-33	6.0	120.0	0	0.00	0.00	True
P-162 (Lat)	16	J-48	H-34	6.0	120.0	0	0.00	0.00	True
P-165 (Lat)	49	H-37	J-34	6.0	120.0	0	0.00	0.00	True
P-166 (Lat)	16	J-35	H-38	6.0	120.0	0	0.00	0.00	True
P-167 (Lat)	16	J-36	H-23	6.0	120.0	0	0.00	0.00	True
P-168 (Lat)	16	J-32	H-22	6.0	120.0	0	0.00	0.00	True
P-169 (Lat)	57	H-39	J-33	6.0	120.0	0	0.00	0.00	True
P-170	1,631	J-163	R-8 (Red)	16.0	120.0	-34	0.05	0.00	True
P-170 (Lat)	17	J-45	H-41	6.0	120.0	0	0.00	0.00	True
P-171 (Lat)	16	J-44	H-40	6.0	120.0	0	0.00	0.00	True
P-174	635	DP-T	J-162	8.0	120.0	-64	0.41	0.08	True
P-175	288	J-12	DP-T	8.0	120.0	98	0.63	0.08	True
P-176	756	J-4	J-5	12.0	120.0	397	1.12	0.40	True
P-177	728	J-4	J-5	12.0	120.0	405	1.15	0.40	True
P-178	26	J-166	J-167	8.0	120.0	0	0.00	0.00	True
P-179	331	J-167	J-168	8.0	120.0	0	0.00	0.00	True
P-180	61	J-168	H-43	8.0	120.0	0	0.00	0.00	True
P-181	61	J-7	J-169	8.0	120.0	124	0.79	0.03	True
P-182	443	J-169	J-170	8.0	120.0	124	0.79	0.20	True
P-183	391	J-170	DP-AA	8.0	120.0	124	0.79	0.17	True
P-184	170	DP-AA	J-172	8.0	120.0	80	0.51	0.03	True
P-185	441	J-172	DP-BB	8.0	120.0	80	0.51	0.09	True
P-186	114	DP-BB	J-174	8.0	120.0	60	0.38	0.01	True
P-187	31	J-174	DP-DD	8.0	120.0	60	0.38	0.00	True
P-188	275	DP-DD	DP-EE	8.0	120.0	27	0.17	0.01	True
P-189	147	DP-EE	J-177	8.0	120.0	10	0.07	0.00	True
P-190	271	J-177	J-178	8.0	120.0	10	0.07	0.00	True
P-191	42	J-178	J-179	8.0	120.0	1	0.00	0.00	True
P-192	171	J-179	DP-GG	8.0	120.0	1	0.00	0.00	True
P-193	189	DP-GG	J-181	8.0	120.0	-10	0.06	0.00	True
P-194	232	J-181	DP-FF	8.0	120.0	-10	0.06	0.00	True
P-195	64	DP-FF	J-183	8.0	120.0	-34	0.22	0.00	True
P-196	44	J-183	J-184	8.0	120.0	-34	0.22	0.00	True
P-197	335	J-184	DP-CC	8.0	120.0	-7	0.04	0.00	True
P-198	201	DP-CC	DP-DD	8.0	120.0	-17	0.11	0.00	True
P-199	222	J-178	DP-NN	8.0	120.0	10	0.06	0.00	True
P-200	124	DP-NN	J-187	8.0	120.0	-9	0.05	0.00	True
P-201	44	J-187	J-188	8.0	120.0	-5	0.03	0.00	True
P-202	195	J-188	DP-JJ	8.0	120.0	-5	0.03	0.00	True
P-203	292	DP-JJ	J-190	8.0	120.0	-25	0.16	0.01	True
P-204	203	J-190	DP-II	8.0	120.0	-25	0.16	0.00	True
P-205	108	DP-II	J-192	8.0	120.0	-49	0.31	0.01	True

Active Scenario: PEAK HR - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-206	45	J-192	J-193	8.0	120.0	-49	0.31	0.00	True
P-207	153	J-193	DP-HH	8.0	120.0	48	0.30	0.01	True
P-208	193	DP-HH	J-184	8.0	120.0	28	0.18	0.01	True
P-209	389	DP-NN	J-195	8.0	120.0	7	0.04	0.00	True
P-210	69	J-195	J-196	8.0	120.0	7	0.04	0.00	True
P-211	58	J-196	J-197	8.0	120.0	7	0.04	0.00	True
P-212	240	J-197	DP-OO	8.0	120.0	7	0.04	0.00	True
P-213	134	DP-OO	J-199	8.0	120.0	-15	0.09	0.00	True
P-214	469	J-199	J-200	8.0	120.0	-15	0.09	0.00	True
P-215	42	J-200	J-201	8.0	120.0	19	0.12	0.00	True
P-216	195	J-201	DP-KK	8.0	120.0	19	0.12	0.00	True
P-217	165	DP-KK	J-187	8.0	120.0	4	0.02	0.00	True
P-218	196	J-200	DP-MM	8.0	120.0	-34	0.22	0.01	True
P-219	340	DP-MM	J-204	8.0	120.0	-63	0.40	0.04	True
P-220	200	J-204	DP-LL	8.0	120.0	-63	0.40	0.03	True
P-221	135	DP-LL	J-206	8.0	120.0	-81	0.52	0.03	True
P-222	27	J-206	J-207	8.0	120.0	-81	0.52	0.01	True
P-223	320	J-207	J-193	8.0	120.0	97	0.62	0.09	True
P-224	59	J-10	J-208	8.0	120.0	178	1.14	0.05	True
P-225	314	J-208	J-207	8.0	120.0	178	1.14	0.27	True

Active Scenario: MAX DAY - FIRE - LOW

FIRE FLOW APPLIED TO J-168

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	8	6,446.50	6,562.70	50
DP-AA	20	6,424.18	6,552.65	56
DP-B	8	6,430.02	6,562.09	57
DP-BB	9	6,440.37	6,552.15	48
DP-C	8	6,447.61	6,561.67	49
DP-CC	5	6,426.14	6,552.01	54
DP-D	13	6,423.85	6,561.61	60
DP-DD	7	6,436.55	6,552.05	50
DP-E	4	6,460.94	6,560.85	43
DP-EE	8	6,432.91	6,552.00	52
DP-F	21	6,460.29	6,556.53	42
DP-FF	11	6,406.33	6,551.94	63
DP-G	7	6,436.49	6,551.02	50
DP-GG	5	6,403.10	6,551.94	64
DP-H	9	6,419.05	6,548.74	56
DP-HH	9	6,396.20	6,551.92	67
DP-I	12	6,394.32	6,547.44	66
DP-II	11	6,385.27	6,551.91	72
DP-J	24	6,453.78	6,554.56	44
DP-JJ	9	6,383.59	6,551.91	73
DP-K	8	6,453.78	6,553.53	43
DP-KK	7	6,381.37	6,551.90	74
DP-L	8	6,429.33	6,548.66	52
DP-LL	8	6,363.00	6,551.89	82
DP-M	6	6,428.23	6,548.55	52
DP-MM	13	6,365.85	6,551.89	80
DP-N	6	6,413.88	6,546.43	57
DP-NN	12	6,396.46	6,551.91	67
DP-O	30	6,439.78	6,534.24	41
DP-OO	10	6,398.22	6,551.90	66
DP-P	11	6,456.62	6,556.34	43
DP-Q	18	6,435.87	6,554.15	51
DP-R	19	6,381.58	6,545.62	71
DP-S	8	6,353.11	6,546.97	84
DP-T	74	6,494.58	6,660.87	72
DP-V	6	6,458.04	6,561.82	45
DP-W	24	6,415.72	6,544.69	56
DP-X	11	6,437.68	6,550.37	49
DP-Z	55	6,382.42	6,552.68	74
J-2	0	6,449.54	6,563.15	49
J-4	0	6,466.26	6,560.48	41
J-5	0	6,458.63	6,557.94	43
J-6	0	6,412.51	6,554.61	61
J-7	0	6,402.51	6,553.54	65
J-9	0	6,372.86	6,552.35	78
J-10	0	6,364.61	6,551.86	81
J-11	0	6,345.43	6,550.56	89
J-12	0	6,507.66	6,660.97	66
J-17	0	6,459.75	6,568.83	47
J-18	0	6,448.09	6,565.68	51
J-19	0	6,448.65	6,660.76	92
J-20	0	6,454.58	6,660.81	89
J-21	0	6,439.35	6,562.22	53
J-22	0	6,415.24	6,561.72	63

Active Scenario: MAX DAY - FIRE - LOW

FIRE FLOW APPLIED TO J-168

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-23	0	6,456.50	6,557.68	44
J-24	0	6,445.15	6,556.70	48
J-25	0	6,455.69	6,553.73	42
J-26	0	6,344.39	6,550.56	89
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,568.89	47
J-29	0	6,462.44	6,557.50	41
J-30	0	6,462.59	6,557.39	41
J-31	0	6,459.53	6,556.24	42
J-32	0	6,459.08	6,556.27	42
J-33	0	6,447.58	6,556.54	47
J-34	0	6,426.87	6,554.40	55
J-35	0	6,441.28	6,554.03	49
J-36	0	6,455.07	6,553.77	43
J-37	0	6,444.97	6,552.14	46
J-38	0	6,440.34	6,551.03	48
J-39	0	6,438.00	6,550.46	49
J-41	0	6,427.83	6,548.51	52
J-42	0	6,428.06	6,548.52	52
J-43	0	6,414.56	6,545.88	57
J-44	0	6,400.08	6,545.75	63
J-45	0	6,376.55	6,545.60	73
J-46	0	6,357.09	6,545.49	82
J-47	0	6,351.50	6,546.97	85
J-48	0	6,344.79	6,550.11	89
J-49	0	6,351.58	6,546.97	85
J-50	0	6,355.10	6,546.97	83
J-51	0	6,452.87	6,534.08	35
J-52	0	6,456.05	6,534.08	34
J-53	0	6,446.31	6,532.23	37
J-54	0	6,426.97	6,539.08	49
J-56	0	6,415.02	6,544.81	56
J-57	0	6,382.99	6,552.70	73
J-60	0	6,427.89	6,548.61	52
J-61	0	6,411.88	6,545.94	58
J-62	0	6,416.88	6,547.27	56
J-63	0	6,417.21	6,547.44	56
J-64	0	6,400.83	6,547.44	63
J-65	0	6,390.92	6,547.44	68
J-66	0	6,410.21	6,548.74	60
J-67	0	6,416.80	6,548.74	57
J-68	0	6,430.72	6,548.74	51
J-69	0	6,431.21	6,548.74	51
J-70	0	6,443.00	6,551.02	47
J-71	0	6,442.49	6,551.02	47
J-72	0	6,431.59	6,551.02	52
J-73	0	6,450.30	6,553.33	45
J-74	0	6,450.34	6,553.37	45
J-75	0	6,455.64	6,555.31	43
J-76	0	6,456.93	6,555.86	43
J-77	0	6,457.08	6,555.91	43
J-78	0	6,449.47	6,561.36	48
J-79	0	6,449.61	6,561.41	48
J-80	0	6,439.67	6,562.15	53

Active Scenario: MAX DAY - FIRE - LOW

FIRE FLOW APPLIED TO J-168

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-81	0	6,420.57	6,561.98	61
J-82	0	6,430.91	6,561.54	57
J-83	0	6,449.86	6,563.07	49
J-84	0	6,465.47	6,560.56	41
J-85	0	6,428.81	6,548.74	52
J-86	0	6,427.10	6,548.74	53
J-95	0	6,447.81	6,552.29	45
J-108	0	6,510.75	6,660.99	65
J-162	0	6,464.64	6,660.84	85
J-163	0	6,448.14	6,660.78	92
J-166	0	6,450.31	6,530.45	35
J-167	0	6,450.09	6,528.91	34
J-168	1,750	6,447.34	6,509.17	27
J-169	0	6,401.38	6,553.48	66
J-170	0	6,409.52	6,553.04	62
J-172	0	6,428.96	6,552.51	53
J-174	0	6,437.01	6,552.07	50
J-177	0	6,424.49	6,551.98	55
J-178	0	6,409.04	6,551.94	62
J-179	0	6,408.42	6,551.94	62
J-181	0	6,403.74	6,551.94	64
J-183	0	6,406.84	6,551.94	63
J-184	0	6,407.13	6,551.94	63
J-187	0	6,389.67	6,551.91	70
J-188	0	6,389.13	6,551.91	70
J-190	0	6,381.27	6,551.91	74
J-192	0	6,387.20	6,551.91	71
J-193	0	6,387.78	6,551.91	71
J-195	0	6,417.96	6,551.91	58
J-196	0	6,415.19	6,551.91	59
J-197	0	6,412.63	6,551.90	60
J-199	0	6,390.45	6,551.90	70
J-200	0	6,375.15	6,551.90	76
J-201	0	6,374.05	6,551.90	77
J-204	0	6,357.72	6,551.89	84
J-206	0	6,369.62	6,551.89	79
J-207	0	6,371.02	6,551.89	78
J-208	0	6,363.95	6,551.86	81

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-1	33	R-3 (Red)	J-108	16.0	120.0	537	0.86	0.01	True
P-2	107	J-108	J-12	16.0	120.0	537	0.86	0.02	True
P-8	1,194	R-1 (Purple)	J-28	12.0	120.0	1,348	3.83	6.11	True
P-12	12	J-28	J-17	12.0	120.0	1,348	3.83	0.06	True
P-13 (Lat)	25	J-17	H-1	6.0	120.0	0	0.00	0.00	True
P-14	616	J-17	J-18	12.0	120.0	1,348	3.83	3.15	True
P-15	137	J-19	J-163	16.0	120.0	404	0.64	0.02	True
P-16	292	J-20	J-19	16.0	120.0	463	0.74	0.05	True
P-17 (Lat)	58	H-3	J-20	6.0	120.0	0	0.00	0.00	True
P-18	176	J-162	J-20	16.0	120.0	463	0.74	0.03	True
P-19	834	J-12	J-162	16.0	120.0	428	0.68	0.13	True
P-20	494	J-18	J-2	12.0	120.0	1,348	3.83	2.53	True
P-21	270	J-2	DP-V	12.0	120.0	1,323	3.75	1.33	True
P-22	274	DP-V	J-4	12.0	120.0	1,317	3.74	1.34	True
P-25	53	J-5	J-23	12.0	120.0	1,324	3.76	0.26	True
P-26 (Lat)	26	J-23	H-2	6.0	120.0	0	0.00	0.00	True
P-27	198	J-23	J-24	12.0	120.0	1,324	3.76	0.98	True
P-28	539	J-24	J-6	12.0	120.0	1,162	3.30	2.09	True
P-29	391	J-6	J-7	12.0	120.0	961	2.73	1.07	True
P-30	465	J-7	J-57	12.0	120.0	769	2.18	0.84	True
P-31	12	J-57	DP-Z	12.0	120.0	769	2.18	0.02	True
P-32	206	DP-Z	J-9	12.0	120.0	714	2.03	0.33	True
P-33	312	J-9	J-10	12.0	120.0	714	2.03	0.49	True
P-34	732	J-10	J-11	12.0	120.0	763	2.16	1.30	True
P-35	101	J-11	J-26	12.0	120.0	0	0.00	0.00	True
P-36(1)	881	J-26	PRV-C	12.0	120.0	0	0.00	0.00	True
P-36(2)	274	PRV-C	J-27	12.0	120.0	0	0.00	0.00	True
P-37	384	J-27	R-4 (Blue)	12.0	120.0	0	0.00	0.00	True
P-38(1)	350	J-19	PRV-B	8.0	120.0	867	5.54	5.69	True
P-38(2)	119	PRV-B	J-2	8.0	120.0	867	5.54	1.93	True
P-39	36	J-2	J-83	12.0	120.0	893	2.53	0.09	True
P-40	153	J-83	DP-A	12.0	120.0	893	2.53	0.36	True
P-41	206	DP-A	J-21	12.0	120.0	884	2.51	0.48	True
P-42	182	J-21	DP-B	8.0	120.0	162	1.03	0.13	True
P-43	157	DP-B	J-81	8.0	120.0	154	0.98	0.10	True
P-44	390	J-81	J-22	8.0	120.0	154	0.98	0.26	True
P-45	173	J-22	DP-D	8.0	120.0	154	0.98	0.11	True
P-46	117	DP-D	J-82	8.0	120.0	141	0.90	0.07	True
P-47	315	J-82	J-78	8.0	120.0	141	0.90	0.18	True
P-48	232	J-78	DP-E	12.0	120.0	856	2.43	0.51	True
P-49	136	DP-E	J-84	12.0	120.0	852	2.42	0.30	True
P-50	36	J-84	J-4	12.0	120.0	852	2.42	0.08	True
P-53	206	J-5	J-29	12.0	120.0	844	2.40	0.44	True
P-54	28	J-29	J-30	8.0	120.0	405	2.59	0.11	True
P-55	290	J-30	J-31	8.0	120.0	405	2.59	1.15	True
P-56	351	J-31	J-25	8.0	120.0	556	3.55	2.51	True
P-57	188	J-6	J-34	8.0	120.0	201	1.28	0.20	True
P-58	239	J-34	DP-Q	8.0	120.0	201	1.28	0.26	True
P-59	126	DP-Q	J-35	8.0	120.0	183	1.17	0.11	True
P-60	291	J-35	J-36	8.0	120.0	183	1.17	0.26	True
P-61	44	J-36	J-25	8.0	120.0	183	1.17	0.04	True
P-62	215	J-25	J-37	8.0	120.0	565	3.61	1.59	True
P-63	151	J-37	J-38	8.0	120.0	565	3.61	1.11	True

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-64	77	J-38	J-39	8.0	120.0	565	3.61	0.57	True
P-65	11	J-39	DP-X	8.0	120.0	565	3.61	0.08	True
P-66	262	DP-X	J-41	8.0	120.0	555	3.54	1.86	True
P-67	273	J-41	J-43	8.0	120.0	654	4.18	2.63	True
P-68	295	J-43	J-44	8.0	120.0	121	0.77	0.13	True
P-69	312	J-44	DP-R	8.0	120.0	121	0.77	0.13	True
P-70	83	DP-R	J-45	8.0	120.0	102	0.65	0.03	True
P-71	342	J-45	J-46	8.0	120.0	102	0.65	0.11	True
P-72	117	J-46	J-47	8.0	120.0	755	4.82	1.48	True
P-73	245	J-47	J-48	8.0	120.0	763	4.87	3.14	True
P-74	35	J-48	J-11	8.0	120.0	763	4.87	0.44	True
P-79 (Lat)	15	J-83	H-4	6.0	120.0	0	0.00	0.00	True
P-80	44	J-21	J-80	12.0	120.0	723	2.05	0.07	True
P-81 (Lat)	17	J-80	H-5	6.0	120.0	0	0.00	0.00	True
P-82	294	J-80	DP-C	12.0	120.0	723	2.05	0.47	True
P-83	167	DP-C	J-79	12.0	120.0	715	2.03	0.26	True
P-84	29	J-79	J-78	12.0	120.0	715	2.03	0.04	True
P-85 (Lat)	17	J-79	H-9	6.0	120.0	0	0.00	0.00	True
P-86 (Lat)	41	J-81	H-6	6.0	120.0	0	0.00	0.00	True
P-87 (Lat)	55	J-22	H-7	6.0	120.0	0	0.00	0.00	True
P-88 (Lat)	16	J-82	H-8	6.0	120.0	0	0.00	0.00	True
P-89 (Lat)	15	H-10	J-84	6.0	120.0	0	0.00	0.00	True
P-90	211	J-29	DP-F	8.0	120.0	439	2.80	0.97	True
P-91	147	DP-F	J-77	8.0	120.0	418	2.67	0.62	True
P-92	11	J-77	J-76	8.0	120.0	418	2.67	0.05	True
P-93	130	J-76	J-75	8.0	120.0	418	2.67	0.55	True
P-94	178	J-75	DP-J	8.0	120.0	418	2.67	0.75	True
P-95	324	DP-J	J-73	8.0	120.0	395	2.52	1.23	True
P-96	144	J-73	J-95	8.0	120.0	560	3.57	1.04	True
P-97	175	J-95	J-70	8.0	120.0	560	3.57	1.27	True
P-98	29	J-70	J-71	8.0	120.0	7	0.04	0.00	True
P-99	169	J-71	DP-G	8.0	120.0	7	0.04	0.00	True
P-100	129	DP-G	J-72	8.0	120.0	0	0.00	0.00	True
P-101 (Lat)	26	J-72	H-14	6.0	120.0	0	0.00	0.00	True
P-102	323	J-70	J-69	8.0	120.0	553	3.53	2.28	True
P-103	28	J-69	J-68	8.0	120.0	9	0.06	0.00	True
P-104	97	J-68	J-85	8.0	120.0	9	0.06	0.00	True
P-105	42	J-85	J-86	8.0	120.0	9	0.06	0.00	True
P-106	170	J-86	DP-H	8.0	120.0	9	0.06	0.00	True
P-107	46	DP-H	J-67	8.0	120.0	0	0.00	0.00	True
P-108	163	J-67	J-66	8.0	120.0	0	0.00	0.00	True
P-110	55	J-65	DP-I	8.0	120.0	0	0.00	0.00	True
P-111	109	DP-I	J-64	8.0	120.0	12	0.08	0.00	True
P-112	284	J-64	J-63	8.0	120.0	12	0.08	0.00	True
P-113	292	J-63	J-69	8.0	120.0	431	2.75	1.30	True
P-114	41	J-63	J-62	8.0	120.0	419	2.67	0.18	True
P-115	197	J-62	DP-N	8.0	120.0	419	2.67	0.83	True
P-116	120	DP-N	J-61	8.0	120.0	413	2.64	0.50	True
P-117	275	J-61	J-56	8.0	120.0	413	2.64	1.13	True
P-118	28	J-56	DP-W	8.0	120.0	413	2.64	0.12	True
P-119	307	DP-W	J-54	8.0	120.0	923	5.89	5.61	True
P-120	265	J-54	DP-O	8.0	120.0	923	5.89	4.84	True
P-121	117	DP-O	J-53	8.0	120.0	893	5.70	2.02	True

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-122(1)	103	J-53	J-166	8.0	120.0	893	5.70	1.78	True
P-122(2)	228	J-166	J-51	8.0	120.0	857	5.47	3.64	True
P-123	147	J-51	J-52	8.0	120.0	0	0.00	0.00	True
P-124 (Lat)	18	J-52	H-31	6.0	120.0	0	0.00	0.00	True
P-125	717	J-51	J-46	8.0	120.0	857	5.47	11.41	True
P-126	26	J-47	J-49	8.0	120.0	8	0.05	0.00	True
P-127	165	J-49	DP-S	8.0	120.0	8	0.05	0.00	True
P-128	87	DP-S	J-50	8.0	120.0	0	0.00	0.00	True
P-129 (Lat)	18	J-50	H-32	6.0	120.0	0	0.00	0.00	True
P-130	180	J-43	DP-W	8.0	120.0	533	3.40	1.19	True
P-131	28	J-41	J-42	8.0	120.0	99	0.63	0.01	True
P-132	105	J-42	DP-M	8.0	120.0	99	0.63	0.03	True
P-133	187	DP-M	J-60	8.0	120.0	105	0.67	0.06	True
P-134	147	J-60	DP-L	8.0	120.0	105	0.67	0.05	True
P-135	219	DP-L	J-69	8.0	120.0	113	0.72	0.08	True
P-136	243	J-25	DP-K	8.0	120.0	174	1.11	0.20	True
P-137	210	DP-K	J-74	8.0	120.0	165	1.05	0.16	True
P-138	44	J-74	J-73	8.0	120.0	165	1.05	0.03	True
P-139	226	J-24	J-33	8.0	120.0	162	1.04	0.17	True
P-140	265	J-33	DP-P	8.0	120.0	162	1.04	0.19	True
P-141	116	DP-P	J-32	8.0	120.0	151	0.96	0.07	True
P-142	47	J-32	J-31	8.0	120.0	151	0.96	0.03	True
P-143 (Lat)	21	J-108	H-42	6.0	120.0	0	0.00	0.00	True
P-144 (Lat)	15	J-30	H-11	6.0	120.0	0	0.00	0.00	True
P-145 (Lat)	18	J-75	H-12	6.0	120.0	0	0.00	0.00	True
P-146 (Lat)	18	J-74	H-13	6.0	120.0	0	0.00	0.00	True
P-147 (Lat)	16	J-71	H-15	6.0	120.0	0	0.00	0.00	True
P-148 (Lat)	15	J-68	H-16	6.0	120.0	0	0.00	0.00	True
P-149 (Lat)	17	J-67	H-21	6.0	120.0	0	0.00	0.00	True
P-150 (Lat)	57	J-66	H-20	6.0	120.0	0	0.00	0.00	True
P-151 (Lat)	73	J-65	H-19	6.0	120.0	0	0.00	0.00	True
P-152 (Lat)	17	J-64	H-18	6.0	120.0	0	0.00	0.00	True
P-153 (Lat)	17	J-62	H-17	6.0	120.0	0	0.00	0.00	True
P-154 (Lat)	16	J-61	H-27	6.0	120.0	0	0.00	0.00	True
P-155 (Lat)	16	J-60	H-26	6.0	120.0	0	0.00	0.00	True
P-156 (Lat)	112	J-38	H-24	6.0	120.0	0	0.00	0.00	True
P-157 (Lat)	15	J-42	H-25	6.0	120.0	0	0.00	0.00	True
P-158 (Lat)	16	J-56	H-28	6.0	120.0	0	0.00	0.00	True
P-159 (Lat)	16	J-54	H-29	6.0	120.0	0	0.00	0.00	True
P-160 (Lat)	16	J-53	H-30	6.0	120.0	0	0.00	0.00	True
P-161 (Lat)	16	J-49	H-33	6.0	120.0	0	0.00	0.00	True
P-162 (Lat)	16	J-48	H-34	6.0	120.0	0	0.00	0.00	True
P-165 (Lat)	49	H-37	J-34	6.0	120.0	0	0.00	0.00	True
P-166 (Lat)	16	J-35	H-38	6.0	120.0	0	0.00	0.00	True
P-167 (Lat)	16	J-36	H-23	6.0	120.0	0	0.00	0.00	True
P-168 (Lat)	16	J-32	H-22	6.0	120.0	0	0.00	0.00	True
P-169 (Lat)	57	H-39	J-33	6.0	120.0	0	0.00	0.00	True
P-170	1,631	J-163	R-8 (Red)	16.0	120.0	404	0.64	0.22	True
P-170 (Lat)	17	J-45	H-41	6.0	120.0	0	0.00	0.00	True
P-171 (Lat)	16	J-44	H-40	6.0	120.0	0	0.00	0.00	True
P-174	635	DP-T	J-162	8.0	120.0	35	0.22	0.03	True
P-175	288	J-12	DP-T	8.0	120.0	108	0.69	0.10	True
P-176	756	J-4	J-5	12.0	120.0	1,073	3.04	2.53	True

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Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-177	728	J-4	J-5	12.0	120.0	1,095	3.11	2.53	True
P-178	26	J-166	J-167	8.0	120.0	1,750	11.17	1.54	True
P-179	331	J-167	J-168	8.0	120.0	1,750	11.17	19.74	True
P-180 (Lat)	61	J-168	H-43	6.0	120.0	0	0.00	0.00	True
P-181	61	J-7	J-169	8.0	120.0	192	1.22	0.06	True
P-182	443	J-169	J-170	8.0	120.0	192	1.22	0.44	True
P-183	391	J-170	DP-AA	8.0	120.0	192	1.22	0.39	True
P-184	170	DP-AA	J-172	8.0	120.0	172	1.10	0.14	True
P-185	441	J-172	DP-BB	8.0	120.0	172	1.10	0.36	True
P-186	114	DP-BB	J-174	8.0	120.0	163	1.04	0.08	True
P-187	31	J-174	DP-DD	8.0	120.0	163	1.04	0.02	True
P-188	275	DP-DD	DP-EE	8.0	120.0	74	0.47	0.05	True
P-189	147	DP-EE	J-177	8.0	120.0	66	0.42	0.02	True
P-190	271	J-177	J-178	8.0	120.0	66	0.42	0.04	True
P-191	42	J-178	J-179	8.0	120.0	0	0.00	0.00	True
P-192	171	J-179	DP-GG	8.0	120.0	0	0.00	0.00	True
P-193	189	DP-GG	J-181	8.0	120.0	5	0.03	0.00	True
P-194	232	J-181	DP-FF	8.0	120.0	5	0.03	0.00	True
P-195	64	DP-FF	J-183	8.0	120.0	16	0.10	0.00	True
P-196	44	J-183	J-184	8.0	120.0	16	0.10	0.00	True
P-197	335	J-184	DP-CC	8.0	120.0	77	0.49	0.06	True
P-198	201	DP-CC	DP-DD	8.0	120.0	82	0.52	0.04	True
P-199	222	J-178	DP-NN	8.0	120.0	66	0.42	0.03	True
P-200	124	DP-NN	J-187	8.0	120.0	35	0.22	0.01	True
P-201	44	J-187	J-188	8.0	120.0	9	0.06	0.00	True
P-202	195	J-188	DP-JJ	8.0	120.0	9	0.06	0.00	True
P-203	292	DP-JJ	J-190	8.0	120.0	0	0.00	0.00	True
P-204	203	J-190	DP-II	8.0	120.0	0	0.00	0.00	True
P-205	108	DP-II	J-192	8.0	120.0	11	0.07	0.00	True
P-206	45	J-192	J-193	8.0	120.0	11	0.07	0.00	True
P-207	153	J-193	DP-HH	8.0	120.0	53	0.34	0.01	True
P-208	193	DP-HH	J-184	8.0	120.0	62	0.39	0.02	True
P-209	389	DP-NN	J-195	8.0	120.0	19	0.12	0.01	True
P-210	69	J-195	J-196	8.0	120.0	19	0.12	0.00	True
P-211	58	J-196	J-197	8.0	120.0	19	0.12	0.00	True
P-212	240	J-197	DP-OO	8.0	120.0	19	0.12	0.00	True
P-213	134	DP-OO	J-199	8.0	120.0	9	0.06	0.00	True
P-214	469	J-199	J-200	8.0	120.0	9	0.06	0.00	True
P-215	42	J-200	J-201	8.0	120.0	19	0.12	0.00	True
P-216	195	J-201	DP-KK	8.0	120.0	19	0.12	0.00	True
P-217	165	DP-KK	J-187	8.0	120.0	26	0.17	0.00	True
P-218	196	J-200	DP-MM	8.0	120.0	29	0.18	0.01	True
P-219	340	DP-MM	J-204	8.0	120.0	15	0.10	0.00	True
P-220	200	J-204	DP-LL	8.0	120.0	15	0.10	0.00	True
P-221	135	DP-LL	J-206	8.0	120.0	7	0.05	0.00	True
P-222	27	J-206	J-207	8.0	120.0	7	0.05	0.00	True
P-223	320	J-207	J-193	8.0	120.0	41	0.26	0.02	True
P-224	59	J-10	J-208	8.0	120.0	49	0.31	0.00	True
P-225	314	J-208	J-207	8.0	120.0	49	0.31	0.02	True

PIPE P-25 CLOSED

FIRE FLOW APPLIED TO J-168

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
DP-A	8	6,446.50	6,562.70	50
DP-AA	20	6,424.18	6,536.49	49
DP-B	8	6,430.02	6,562.09	57
DP-BB	9	6,440.37	6,536.07	41
DP-C	8	6,447.61	6,561.67	49
DP-CC	5	6,426.14	6,535.95	48
DP-D	13	6,423.85	6,561.61	60
DP-DD	7	6,436.55	6,535.98	43
DP-E	4	6,460.94	6,560.85	43
DP-EE	8	6,432.91	6,535.94	45
DP-F	21	6,460.29	6,552.11	40
DP-FF	11	6,406.33	6,535.90	56
DP-G	7	6,436.49	6,537.78	44
DP-GG	5	6,403.10	6,535.90	57
DP-H	9	6,419.05	6,535.01	50
DP-HH	9	6,396.20	6,535.88	60
DP-I	12	6,394.32	6,533.55	60
DP-II	11	6,385.27	6,535.87	65
DP-J	24	6,453.78	6,545.16	40
DP-JJ	9	6,383.59	6,535.87	66
DP-K	8	6,453.78	6,540.35	37
DP-KK	7	6,381.37	6,535.86	67
DP-L	8	6,429.33	6,534.87	46
DP-LL	8	6,363.00	6,535.86	75
DP-M	6	6,428.23	6,534.69	46
DP-MM	13	6,365.85	6,535.86	74
DP-N	6	6,413.88	6,532.42	51
DP-NN	12	6,396.46	6,535.87	60
DP-O	30	6,439.78	6,519.80	35
DP-OO	10	6,398.22	6,535.86	60
DP-P	11	6,456.62	6,542.76	37
DP-Q	18	6,435.87	6,539.07	45
DP-R	19	6,381.58	6,530.99	65
DP-S	8	6,353.11	6,531.85	77
DP-T	74	6,494.58	6,660.87	72
DP-V	6	6,458.04	6,561.82	45
DP-W	24	6,415.72	6,530.46	50
DP-X	11	6,437.68	6,536.60	43
DP-Z	55	6,382.42	6,536.53	67
J-2	0	6,449.54	6,563.15	49
J-4	0	6,466.26	6,560.48	41
J-5	0	6,458.63	6,557.94	43
J-6	0	6,412.51	6,538.17	54
J-7	0	6,402.51	6,537.26	58
J-9	0	6,372.86	6,536.25	71
J-10	0	6,364.61	6,535.84	74
J-11	0	6,345.43	6,534.78	82
J-12	0	6,507.66	6,660.97	66
J-17	0	6,459.75	6,568.83	47
J-18	0	6,448.09	6,565.68	51
J-19	0	6,448.65	6,660.76	92
J-20	0	6,454.58	6,660.81	89
J-21	0	6,439.35	6,562.22	53
J-22	0	6,415.24	6,561.72	63

PIPE P-25 CLOSED

FIRE FLOW APPLIED TO J-168

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-23	0	6,456.50	6,538.78	36
J-24	0	6,445.15	6,538.78	41
J-25	0	6,455.69	6,540.15	37
J-26	0	6,344.39	6,534.78	82
J-27	0	6,319.25	6,488.00	73
J-28	0	6,460.44	6,568.89	47
J-29	0	6,462.44	6,555.40	40
J-30	0	6,462.59	6,554.40	40
J-31	0	6,459.53	6,544.14	37
J-32	0	6,459.08	6,543.74	37
J-33	0	6,447.58	6,540.61	40
J-34	0	6,426.87	6,538.57	48
J-35	0	6,441.28	6,539.36	42
J-36	0	6,455.07	6,540.05	37
J-37	0	6,444.97	6,538.47	40
J-38	0	6,440.34	6,537.29	42
J-39	0	6,438.00	6,536.68	43
J-41	0	6,427.83	6,534.62	46
J-42	0	6,428.06	6,534.63	46
J-43	0	6,414.56	6,531.58	51
J-44	0	6,400.08	6,531.30	57
J-45	0	6,376.55	6,530.92	67
J-46	0	6,357.09	6,530.65	75
J-47	0	6,351.50	6,531.85	78
J-48	0	6,344.79	6,534.42	82
J-49	0	6,351.58	6,531.85	78
J-50	0	6,355.10	6,531.85	76
J-51	0	6,452.87	6,519.49	29
J-52	0	6,456.05	6,519.49	27
J-53	0	6,446.31	6,517.75	31
J-54	0	6,426.97	6,524.74	42
J-56	0	6,415.02	6,530.59	50
J-57	0	6,382.99	6,536.54	66
J-60	0	6,427.89	6,534.79	46
J-61	0	6,411.88	6,531.87	52
J-62	0	6,416.88	6,533.36	50
J-63	0	6,417.21	6,533.55	50
J-64	0	6,400.83	6,533.55	57
J-65	0	6,390.92	6,533.55	62
J-66	0	6,410.21	6,535.01	54
J-67	0	6,416.80	6,535.01	51
J-68	0	6,430.72	6,535.01	45
J-69	0	6,431.21	6,535.01	45
J-70	0	6,443.00	6,537.78	41
J-71	0	6,442.49	6,537.78	41
J-72	0	6,431.59	6,537.78	46
J-73	0	6,450.30	6,540.58	39
J-74	0	6,450.34	6,540.54	39
J-75	0	6,455.64	6,547.82	40
J-76	0	6,456.93	6,549.75	40
J-77	0	6,457.08	6,549.92	40
J-78	0	6,449.47	6,561.36	48
J-79	0	6,449.61	6,561.41	48
J-80	0	6,439.67	6,562.15	53

PIPE P-25 CLOSED

FIRE FLOW APPLIED TO J-168

Active Scenario: MAX DAY - FIRE - LOW

FlexTable: Junction Table

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
J-81	0	6,420.57	6,561.98	61
J-82	0	6,430.91	6,561.54	57
J-83	0	6,449.86	6,563.07	49
J-84	0	6,465.47	6,560.55	41
J-85	0	6,428.81	6,535.01	46
J-86	0	6,427.10	6,535.01	47
J-95	0	6,447.81	6,539.31	40
J-108	0	6,510.75	6,660.99	65
J-162	0	6,464.64	6,660.84	85
J-163	0	6,448.14	6,660.78	92
J-166	0	6,450.31	6,515.93	28
J-167	0	6,450.09	6,514.39	28
J-168	1,750	6,447.34	6,494.65	20
J-169	0	6,401.38	6,537.21	59
J-170	0	6,409.52	6,536.83	55
J-172	0	6,428.96	6,536.37	46
J-174	0	6,437.01	6,536.00	43
J-177	0	6,424.49	6,535.93	48
J-178	0	6,409.04	6,535.90	55
J-179	0	6,408.42	6,535.90	55
J-181	0	6,403.74	6,535.90	57
J-183	0	6,406.84	6,535.90	56
J-184	0	6,407.13	6,535.90	56
J-187	0	6,389.67	6,535.87	63
J-188	0	6,389.13	6,535.87	63
J-190	0	6,381.27	6,535.87	67
J-192	0	6,387.20	6,535.87	64
J-193	0	6,387.78	6,535.87	64
J-195	0	6,417.96	6,535.87	51
J-196	0	6,415.19	6,535.87	52
J-197	0	6,412.63	6,535.87	53
J-199	0	6,390.45	6,535.86	63
J-200	0	6,375.15	6,535.86	70
J-201	0	6,374.05	6,535.86	70
J-204	0	6,357.72	6,535.86	77
J-206	0	6,369.62	6,535.86	72
J-207	0	6,371.02	6,535.86	71
J-208	0	6,363.95	6,535.84	74

Active Scenario: MAX DAY - FIRE - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-1	33	R-3 (Red)	J-108	16.0	120.0	537	0.86	0.01	True
P-2	107	J-108	J-12	16.0	120.0	537	0.86	0.02	True
P-8	1,194	R-1 (Purple)	J-28	12.0	120.0	1,348	3.83	6.11	True
P-12	12	J-28	J-17	12.0	120.0	1,348	3.83	0.06	True
P-13 (Lat)	25	J-17	H-1	6.0	120.0	0	0.00	0.00	True
P-14	616	J-17	J-18	12.0	120.0	1,348	3.83	3.15	True
P-15	137	J-19	J-163	16.0	120.0	404	0.64	0.02	True
P-16	292	J-20	J-19	16.0	120.0	463	0.74	0.05	True
P-17 (Lat)	58	H-3	J-20	6.0	120.0	0	0.00	0.00	True
P-18	176	J-162	J-20	16.0	120.0	463	0.74	0.03	True
P-19	834	J-12	J-162	16.0	120.0	428	0.68	0.13	True
P-20	494	J-18	J-2	12.0	120.0	1,348	3.83	2.53	True
P-21	270	J-2	DP-V	12.0	120.0	1,323	3.75	1.33	True
P-22	274	DP-V	J-4	12.0	120.0	1,317	3.74	1.34	True
P-25	53	J-5	J-23	12.0	120.0	0	0.00	0.00	False
P-26 (Lat)	26	J-23	H-2	6.0	120.0	0	0.00	0.00	True
P-27	198	J-23	J-24	12.0	120.0	0	0.00	0.00	True
P-28	539	J-24	J-6	12.0	120.0	595	1.69	0.61	True
P-29	391	J-6	J-7	12.0	120.0	882	2.50	0.91	True
P-30	465	J-7	J-57	12.0	120.0	705	2.00	0.71	True
P-31	12	J-57	DP-Z	12.0	120.0	705	2.00	0.02	True
P-32	206	DP-Z	J-9	12.0	120.0	649	1.84	0.27	True
P-33	312	J-9	J-10	12.0	120.0	649	1.84	0.41	True
P-34	732	J-10	J-11	12.0	120.0	683	1.94	1.06	True
P-35	101	J-11	J-26	12.0	120.0	0	0.00	0.00	True
P-36(1)	881	J-26	PRV-C	12.0	120.0	0	0.00	0.00	True
P-36(2)	274	PRV-C	J-27	12.0	120.0	0	0.00	0.00	True
P-37	384	J-27	R-4 (Blue)	12.0	120.0	0	0.00	0.00	True
P-38(1)	350	J-19	PRV-B	8.0	120.0	867	5.54	5.69	True
P-38(2)	119	PRV-B	J-2	8.0	120.0	867	5.54	1.94	True
P-39	36	J-2	J-83	12.0	120.0	893	2.53	0.09	True
P-40	153	J-83	DP-A	12.0	120.0	893	2.53	0.36	True
P-41	206	DP-A	J-21	12.0	120.0	884	2.51	0.48	True
P-42	182	J-21	DP-B	8.0	120.0	162	1.03	0.13	True
P-43	157	DP-B	J-81	8.0	120.0	154	0.98	0.10	True
P-44	390	J-81	J-22	8.0	120.0	154	0.98	0.26	True
P-45	173	J-22	DP-D	8.0	120.0	154	0.98	0.11	True
P-46	117	DP-D	J-82	8.0	120.0	142	0.90	0.07	True
P-47	315	J-82	J-78	8.0	120.0	141	0.90	0.18	True
P-48	232	J-78	DP-E	12.0	120.0	856	2.43	0.51	True
P-49	136	DP-E	J-84	12.0	120.0	852	2.42	0.30	True
P-50	36	J-84	J-4	12.0	120.0	852	2.42	0.08	True
P-53	206	J-5	J-29	12.0	120.0	2,169	6.15	2.54	True
P-54	28	J-29	J-30	8.0	120.0	1,321	8.43	1.00	True
P-55	290	J-30	J-31	8.0	120.0	1,321	8.43	10.27	True
P-56	351	J-31	J-25	8.0	120.0	714	4.56	3.99	True
P-57	188	J-6	J-34	8.0	120.0	287	1.83	0.39	True
P-58	239	J-34	DP-Q	8.0	120.0	287	1.83	0.50	True
P-59	126	DP-Q	J-35	8.0	120.0	305	1.95	0.30	True
P-60	291	J-35	J-36	8.0	120.0	305	1.95	0.68	True
P-61	44	J-36	J-25	8.0	120.0	305	1.95	0.10	True
P-62	215	J-25	J-37	8.0	120.0	583	3.72	1.68	True
P-63	151	J-37	J-38	8.0	120.0	583	3.72	1.18	True

Active Scenario: MAX DAY - FIRE - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-64	77	J-38	J-39	8.0	120.0	583	3.72	0.60	True
P-65	11	J-39	DP-X	8.0	120.0	583	3.72	0.09	True
P-66	262	DP-X	J-41	8.0	120.0	573	3.66	1.98	True
P-67	273	J-41	J-43	8.0	120.0	707	4.51	3.04	True
P-68	295	J-43	J-44	8.0	120.0	190	1.21	0.29	True
P-69	312	J-44	DP-R	8.0	120.0	190	1.21	0.31	True
P-70	83	DP-R	J-45	8.0	120.0	171	1.09	0.07	True
P-71	342	J-45	J-46	8.0	120.0	171	1.09	0.27	True
P-72	117	J-46	J-47	8.0	120.0	676	4.31	1.20	True
P-73	245	J-47	J-48	8.0	120.0	683	4.36	2.56	True
P-74	35	J-48	J-11	8.0	120.0	683	4.36	0.36	True
P-79 (Lat)	15	J-83	H-4	6.0	120.0	0	0.00	0.00	True
P-80	44	J-21	J-80	12.0	120.0	723	2.05	0.07	True
P-81 (Lat)	17	J-80	H-5	6.0	120.0	0	0.00	0.00	True
P-82	294	J-80	DP-C	12.0	120.0	723	2.05	0.47	True
P-83	167	DP-C	J-79	12.0	120.0	715	2.03	0.26	True
P-84	29	J-79	J-78	12.0	120.0	715	2.03	0.04	True
P-85 (Lat)	17	J-79	H-9	6.0	120.0	0	0.00	0.00	True
P-86 (Lat)	41	J-81	H-6	6.0	120.0	0	0.00	0.00	True
P-87 (Lat)	55	J-22	H-7	6.0	120.0	0	0.00	0.00	True
P-88 (Lat)	16	J-82	H-8	6.0	120.0	0	0.00	0.00	True
P-89 (Lat)	15	H-10	J-84	6.0	120.0	0	0.00	0.00	True
P-90	211	J-29	DP-F	8.0	120.0	848	5.41	3.30	True
P-91	147	DP-F	J-77	8.0	120.0	827	5.28	2.19	True
P-92	11	J-77	J-76	8.0	120.0	827	5.28	0.16	True
P-93	130	J-76	J-75	8.0	120.0	827	5.28	1.93	True
P-94	178	J-75	DP-J	8.0	120.0	827	5.28	2.66	True
P-95	324	DP-J	J-73	8.0	120.0	804	5.13	4.58	True
P-96	144	J-73	J-95	8.0	120.0	621	3.97	1.27	True
P-97	175	J-95	J-70	8.0	120.0	621	3.97	1.53	True
P-98	29	J-70	J-71	8.0	120.0	7	0.04	0.00	True
P-99	169	J-71	DP-G	8.0	120.0	7	0.04	0.00	True
P-100	129	DP-G	J-72	8.0	120.0	0	0.00	0.00	True
P-101 (Lat)	26	J-72	H-14	6.0	120.0	0	0.00	0.00	True
P-102	323	J-70	J-69	8.0	120.0	614	3.92	2.77	True
P-103	28	J-69	J-68	8.0	120.0	9	0.06	0.00	True
P-104	97	J-68	J-85	8.0	120.0	9	0.06	0.00	True
P-105	42	J-85	J-86	8.0	120.0	9	0.06	0.00	True
P-106	170	J-86	DP-H	8.0	120.0	9	0.06	0.00	True
P-107	46	DP-H	J-67	8.0	120.0	0	0.00	0.00	True
P-108	163	J-67	J-66	8.0	120.0	0	0.00	0.00	True
P-110	55	J-65	DP-I	8.0	120.0	0	0.00	0.00	True
P-111	109	DP-I	J-64	8.0	120.0	12	0.08	0.00	True
P-112	284	J-64	J-63	8.0	120.0	12	0.08	0.00	True
P-113	292	J-63	J-69	8.0	120.0	458	2.92	1.45	True
P-114	41	J-63	J-62	8.0	120.0	446	2.85	0.20	True
P-115	197	J-62	DP-N	8.0	120.0	446	2.85	0.93	True
P-116	120	DP-N	J-61	8.0	120.0	440	2.81	0.56	True
P-117	275	J-61	J-56	8.0	120.0	440	2.81	1.27	True
P-118	28	J-56	DP-W	8.0	120.0	440	2.81	0.13	True
P-119	307	DP-W	J-54	8.0	120.0	933	5.96	5.72	True
P-120	265	J-54	DP-O	8.0	120.0	933	5.96	4.94	True
P-121	117	DP-O	J-53	8.0	120.0	903	5.77	2.06	True

Active Scenario: MAX DAY - FIRE - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-122(1)	103	J-53	J-166	8.0	120.0	903	5.77	1.81	True
P-122(2)	228	J-166	J-51	8.0	120.0	847	5.40	3.56	True
P-123	147	J-51	J-52	8.0	120.0	0	0.00	0.00	True
P-124 (Lat)	18	J-52	H-31	6.0	120.0	0	0.00	0.00	True
P-125	717	J-51	J-46	8.0	120.0	847	5.40	11.16	True
P-126	26	J-47	J-49	8.0	120.0	8	0.05	0.00	True
P-127	165	J-49	DP-S	8.0	120.0	8	0.05	0.00	True
P-128	87	DP-S	J-50	8.0	120.0	0	0.00	0.00	True
P-129 (Lat)	18	J-50	H-32	6.0	120.0	0	0.00	0.00	True
P-130	180	J-43	DP-W	8.0	120.0	517	3.30	1.12	True
P-131	28	J-41	J-42	8.0	120.0	134	0.85	0.01	True
P-132	105	J-42	DP-M	8.0	120.0	134	0.85	0.05	True
P-133	187	DP-M	J-60	8.0	120.0	139	0.89	0.10	True
P-134	147	J-60	DP-L	8.0	120.0	139	0.89	0.08	True
P-135	219	DP-L	J-69	8.0	120.0	148	0.94	0.13	True
P-136	243	J-25	DP-K	8.0	120.0	174	1.11	0.20	True
P-137	210	DP-K	J-74	8.0	120.0	182	1.16	0.19	True
P-138	44	J-74	J-73	8.0	120.0	182	1.16	0.04	True
P-139	226	J-24	J-33	8.0	120.0	595	3.80	1.84	True
P-140	265	J-33	DP-P	8.0	120.0	595	3.80	2.15	True
P-141	116	DP-P	J-32	8.0	120.0	606	3.87	0.98	True
P-142	47	J-32	J-31	8.0	120.0	606	3.87	0.39	True
P-143 (Lat)	21	J-108	H-42	6.0	120.0	0	0.00	0.00	True
P-144 (Lat)	15	J-30	H-11	6.0	120.0	0	0.00	0.00	True
P-145 (Lat)	18	J-75	H-12	6.0	120.0	0	0.00	0.00	True
P-146 (Lat)	18	J-74	H-13	6.0	120.0	0	0.00	0.00	True
P-147 (Lat)	16	J-71	H-15	6.0	120.0	0	0.00	0.00	True
P-148 (Lat)	15	J-68	H-16	6.0	120.0	0	0.00	0.00	True
P-149 (Lat)	17	J-67	H-21	6.0	120.0	0	0.00	0.00	True
P-150 (Lat)	57	J-66	H-20	6.0	120.0	0	0.00	0.00	True
P-151 (Lat)	73	J-65	H-19	6.0	120.0	0	0.00	0.00	True
P-152 (Lat)	17	J-64	H-18	6.0	120.0	0	0.00	0.00	True
P-153 (Lat)	17	J-62	H-17	6.0	120.0	0	0.00	0.00	True
P-154 (Lat)	16	J-61	H-27	6.0	120.0	0	0.00	0.00	True
P-155 (Lat)	16	J-60	H-26	6.0	120.0	0	0.00	0.00	True
P-156 (Lat)	112	J-38	H-24	6.0	120.0	0	0.00	0.00	True
P-157 (Lat)	15	J-42	H-25	6.0	120.0	0	0.00	0.00	True
P-158 (Lat)	16	J-56	H-28	6.0	120.0	0	0.00	0.00	True
P-159 (Lat)	16	J-54	H-29	6.0	120.0	0	0.00	0.00	True
P-160 (Lat)	16	J-53	H-30	6.0	120.0	0	0.00	0.00	True
P-161 (Lat)	16	J-49	H-33	6.0	120.0	0	0.00	0.00	True
P-162 (Lat)	16	J-48	H-34	6.0	120.0	0	0.00	0.00	True
P-165 (Lat)	49	H-37	J-34	6.0	120.0	0	0.00	0.00	True
P-166 (Lat)	16	J-35	H-38	6.0	120.0	0	0.00	0.00	True
P-167 (Lat)	16	J-36	H-23	6.0	120.0	0	0.00	0.00	True
P-168 (Lat)	16	J-32	H-22	6.0	120.0	0	0.00	0.00	True
P-169 (Lat)	57	H-39	J-33	6.0	120.0	0	0.00	0.00	True
P-170	1,631	J-163	R-8 (Red)	16.0	120.0	404	0.64	0.22	True
P-170 (Lat)	17	J-45	H-41	6.0	120.0	0	0.00	0.00	True
P-171 (Lat)	16	J-44	H-40	6.0	120.0	0	0.00	0.00	True
P-174	635	DP-T	J-162	8.0	120.0	35	0.22	0.03	True
P-175	288	J-12	DP-T	8.0	120.0	108	0.69	0.10	True
P-176	756	J-4	J-5	12.0	120.0	1,073	3.05	2.53	True

Active Scenario: MAX DAY - FIRE - LOW

INDICATES CLOSED PIPE

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)	Headloss (ft)	Is Open?
P-177	728	J-4	J-5	12.0	120.0	1,095	3.11	2.53	True
P-178	26	J-166	J-167	8.0	120.0	1,750	11.17	1.54	True
P-179	331	J-167	J-168	8.0	120.0	1,750	11.17	19.74	True
P-180 (Lat)	61	J-168	H-43	6.0	120.0	0	0.00	0.00	True
P-181	61	J-7	J-169	8.0	120.0	177	1.13	0.05	True
P-182	443	J-169	J-170	8.0	120.0	177	1.13	0.38	True
P-183	391	J-170	DP-AA	8.0	120.0	177	1.13	0.34	True
P-184	170	DP-AA	J-172	8.0	120.0	157	1.00	0.12	True
P-185	441	J-172	DP-BB	8.0	120.0	157	1.00	0.30	True
P-186	114	DP-BB	J-174	8.0	120.0	148	0.95	0.07	True
P-187	31	J-174	DP-DD	8.0	120.0	148	0.95	0.02	True
P-188	275	DP-DD	DP-EE	8.0	120.0	67	0.43	0.04	True
P-189	147	DP-EE	J-177	8.0	120.0	59	0.38	0.02	True
P-190	271	J-177	J-178	8.0	120.0	59	0.38	0.03	True
P-191	42	J-178	J-179	8.0	120.0	1	0.01	0.00	True
P-192	171	J-179	DP-GG	8.0	120.0	1	0.01	0.00	True
P-193	189	DP-GG	J-181	8.0	120.0	4	0.03	0.00	True
P-194	232	J-181	DP-FF	8.0	120.0	4	0.03	0.00	True
P-195	64	DP-FF	J-183	8.0	120.0	15	0.10	0.00	True
P-196	44	J-183	J-184	8.0	120.0	15	0.10	0.00	True
P-197	335	J-184	DP-CC	8.0	120.0	69	0.44	0.05	True
P-198	201	DP-CC	DP-DD	8.0	120.0	74	0.47	0.03	True
P-199	222	J-178	DP-NN	8.0	120.0	58	0.37	0.02	True
P-200	124	DP-NN	J-187	8.0	120.0	30	0.19	0.00	True
P-201	44	J-187	J-188	8.0	120.0	7	0.05	0.00	True
P-202	195	J-188	DP-JJ	8.0	120.0	7	0.05	0.00	True
P-203	292	DP-JJ	J-190	8.0	120.0	2	0.01	0.00	True
P-204	203	J-190	DP-II	8.0	120.0	2	0.01	0.00	True
P-205	108	DP-II	J-192	8.0	120.0	13	0.08	0.00	True
P-206	45	J-192	J-193	8.0	120.0	13	0.08	0.00	True
P-207	153	J-193	DP-HH	8.0	120.0	45	0.29	0.01	True
P-208	193	DP-HH	J-184	8.0	120.0	54	0.35	0.02	True
P-209	389	DP-NN	J-195	8.0	120.0	17	0.11	0.00	True
P-210	69	J-195	J-196	8.0	120.0	17	0.11	0.00	True
P-211	58	J-196	J-197	8.0	120.0	17	0.11	0.00	True
P-212	240	J-197	DP-OO	8.0	120.0	17	0.11	0.00	True
P-213	134	DP-OO	J-199	8.0	120.0	7	0.04	0.00	True
P-214	469	J-199	J-200	8.0	120.0	7	0.04	0.00	True
P-215	42	J-200	J-201	8.0	120.0	16	0.10	0.00	True
P-216	195	J-201	DP-KK	8.0	120.0	16	0.10	0.00	True
P-217	165	DP-KK	J-187	8.0	120.0	23	0.14	0.00	True
P-218	196	J-200	DP-MM	8.0	120.0	23	0.15	0.00	True
P-219	340	DP-MM	J-204	8.0	120.0	10	0.06	0.00	True
P-220	200	J-204	DP-LL	8.0	120.0	10	0.06	0.00	True
P-221	135	DP-LL	J-206	8.0	120.0	1	0.01	0.00	True
P-222	27	J-206	J-207	8.0	120.0	1	0.01	0.00	True
P-223	320	J-207	J-193	8.0	120.0	33	0.21	0.01	True
P-224	59	J-10	J-208	8.0	120.0	34	0.22	0.00	True
P-225	314	J-208	J-207	8.0	120.0	34	0.22	0.01	True

APPENDIX D
WASTEWATER FLOWS

SANITARY FLOWS									
SANITARY PLANNING BASIN	USE	SIZE (AC.)	DWELLING UNITS	ADF (PER***)	ADF (GPD)	PF CALC	PEAKING FACTOR USED	PROPOSED PEAK FLOW (GPD)	PROPOSED PEAK FLOW (CFS)
C1	Commercial	35.30	---	600	21180.0	6.97	5.00	108018	0.17
R1	Residential	---	162	200	32400.0	6.49	5.00	165240	0.26
R2	Residential	---	73	200	14600.0	7.42	5.00	74460	0.12
R3**	Residential	---	76	200	15200.0	7.37	5.00	77520	0.12
R4	Residential	---	281	200	56200.0	5.92	5.00	286620	0.44
Total		35.3	592		139580.0	5.08	5.00	697900	1.08

**From Terrain North Basin Phase 2
***Industrial and Commercial ADF based on Area (600gpd/acre)
***Residential (SFD) ADF based on Units (200gpd/dwelling unit)

SANITARY ROUTING												
DESIGN POINT	CONTRIBUTING SANITARY PLANNING BASINS	PROPOSED ADF (GPD)	EXISTING ADF (GPD)	COMBINED PR. AND EX. ADF (GPD)	PF CALC	PEAKING FACTOR USED	COMBINED PEAK FLOW (GPD)	COMBINED PEAK FLOW (CFS)	FLOW DEPTH (FT)	PIPE SIZE (FT)	PERCENT FULL	SANITARY MAIN NOTES
X1	C1	21180.0	0.0	21180	6.97	5.00	108018	0.17	0.20	0.67	30.0%	8" PVC @ 0.4%
X2	C1, R1	53580.0	0.0	53580	5.97	5.00	273258	0.42	0.32	0.67	47.5%	8" PVC @ 0.4%
X3	C1, R1, R3	68780.0	0.0	68780	5.72	5.00	350778	0.54	0.38	0.67	57.5%	8" PVC @ 0.4%
Y1	R2	14600.0	0.0	14600	7.42	5.00	74460	0.12	0.17	0.67	24.9%	8" PVC @ 0.4%
Y2	R2, R4	70800.0	0.0	70800	5.69	5.00	361080	0.56	0.39	0.67	58.8%	8" PVC @ 0.4%
Z1*	C1, R1-R4	139580.0	303100.2	442680.16	4.19	2.5	1106700	1.71	0.53	1.25	42.7%	15" PVC @ 0.4%

*Design point to outfall to existing Castle Oaks Lift Station

SANITARY ROUTING			
DESIGN POINT	CONTRIBUTING SANITARY PLANNING BASINS	COMBINED PR. AND EX. ADF (GPD)	COMBINED PEAK FLOW (GPD)
X1	C1	21,180	108,018
X2	C1, R1	53,580	273,258
X3	C1, R1, R3	68,780	350,778
Y1	R2	14,600	74,460
Y2	R2, R4	70,800	361,080
Z1*	C1, R1-R4	442,680	1,106,700

CASTLE OAKS LIFT STATION CAPACITY[1]

	SFE[3]	Flow Factor (GPD/SFE)[3]	Projected Peak Flow (MGD)[5]
Canyons Far South Residential Development	464.4	191	0.09

Castle Oaks Lift Station 2022 Peak Flow (MGD)[4]	1.018	MGD
Castle Oaks Lift Station Capacity[2]	1.180	MGD

Canyons Far South Projected Peak Flow[5]	0.089	MGD

Castle Oaks Lift Station 2022 Peak Flow + Canyons Far South Peak Flow	1.107	MGD
Is there capacity for Canyons Far South in the Castle Oaks Lift Station?	Yes	

[1] Data originates from Castle Oaks Lift Station Pump Selection Report prepared by Mott Macdonald on February 3, 2023.

[2] From page 1 of Castle Oaks Lift Station Pump Selection Report prepared by Mott Macdonald on February 3, 2023.

[3] SFE/Unit of 0.9 from page 4 of Castle Oaks Lift Station Pump Selection Report prepared by Mott Macdonald on February 3, 2023 ; Updated unit count from Canyons Far South SDP

[4] From page 5 of Castle Oaks Lift Station Pump Selection Report prepared by Mott Macdonald on February 3, 2023.

[5] Calculated for Canyons Far South Filing 1 Development.

APPENDIX E
WASTEWATER HYDRAULIC MODELING

Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

X1

Channel 1

CIRCULAR PIPE

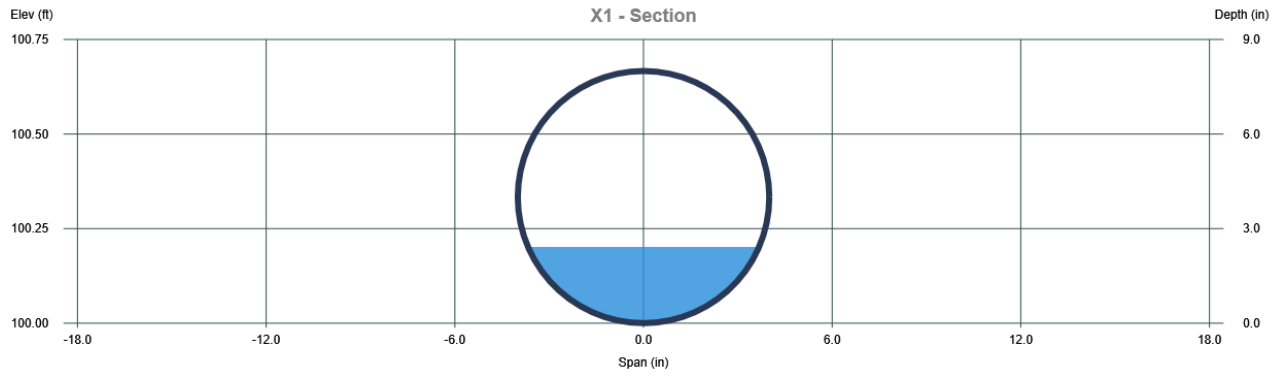
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 0.17 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
0.17	2.4	0.09	1.93	0.77	0.011	2.3	100.2	100.26	0.05	0.61



Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

X2

Channel 2

CIRCULAR PIPE

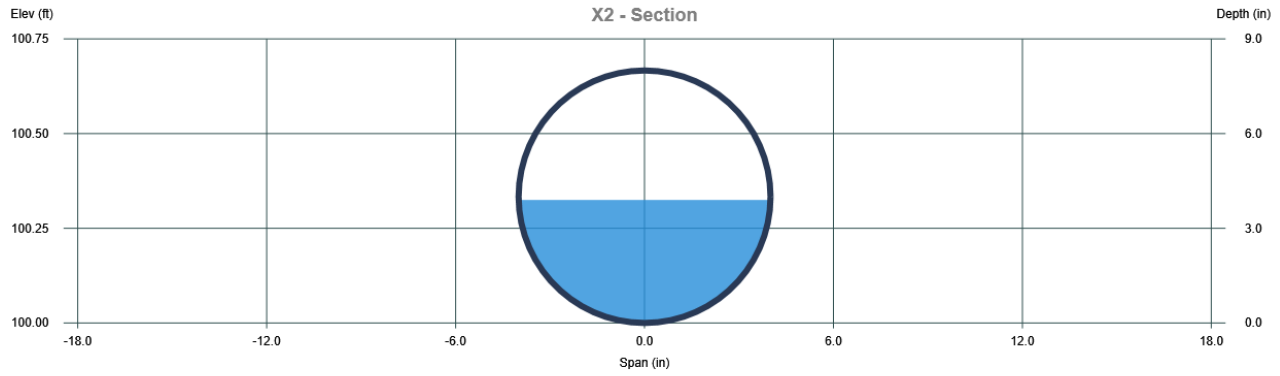
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 0.42 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
0.42	3.8	0.17	2.54	1.02	0.011	3.7	100.3	100.42	0.08	0.67



Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

X3

Channel 3

CIRCULAR PIPE

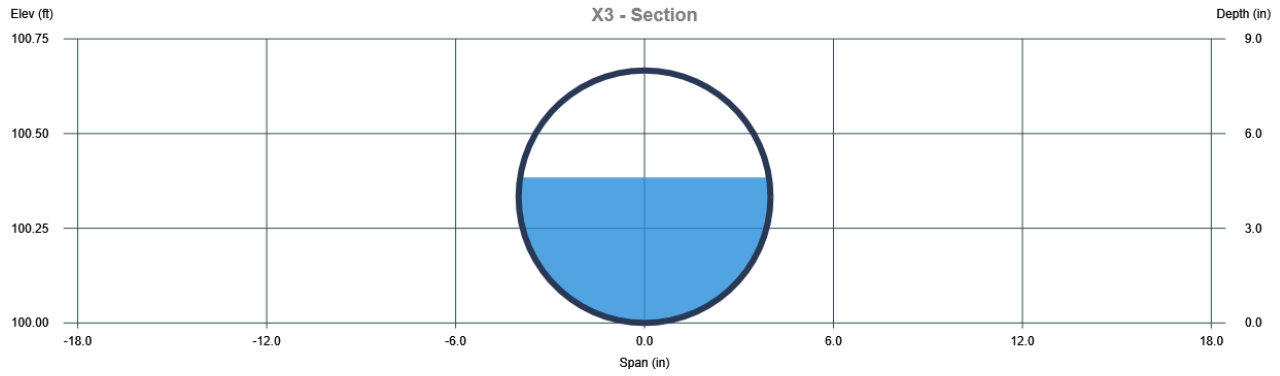
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 0.54 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
0.54	4.6	0.21	2.63	1.14	0.011	4.2	100.4	100.49	0.09	0.66



Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

Y1

Channel 4

CIRCULAR PIPE

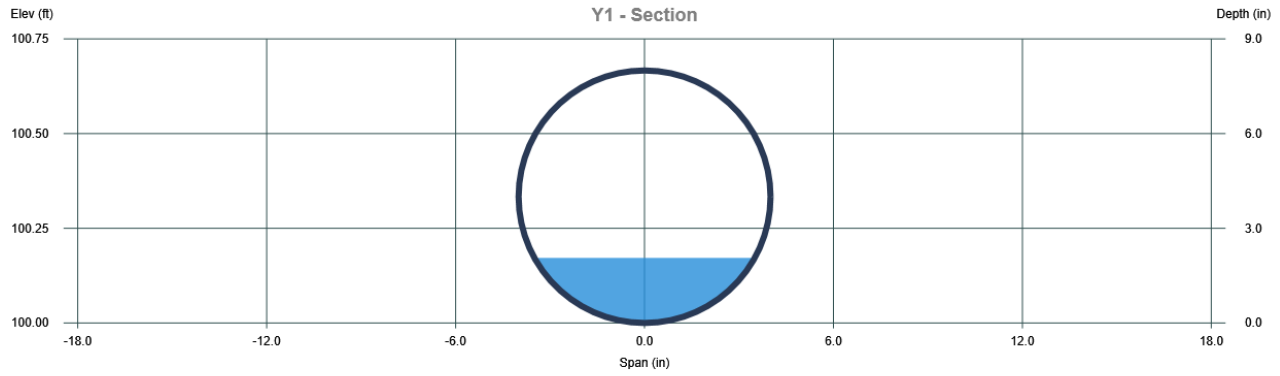
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 0.12 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
0.12	2.0	0.07	1.71	0.71	0.011	1.9	100.2	100.22	0.04	0.58



Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

Y2

Channel 5

CIRCULAR PIPE

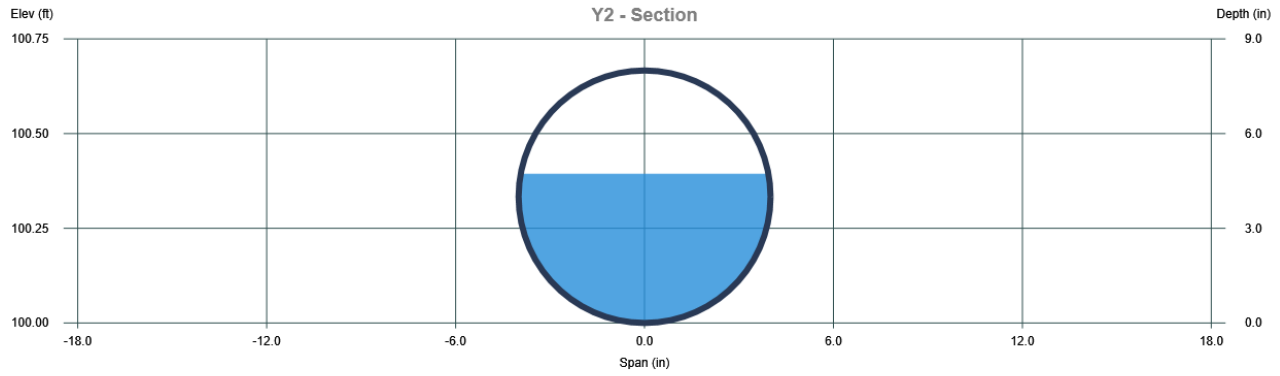
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 0.56 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
0.56	4.7	0.21	2.64	1.16	0.011	4.3	100.4	100.50	0.10	0.66



Channel Report

Project filename: Canyons Far South Sanitary Calcs.stx

Studio Express by Hydrology Studio v 1.0.0.17

04-07-2025

Z1

Channel 6

CIRCULAR PIPE

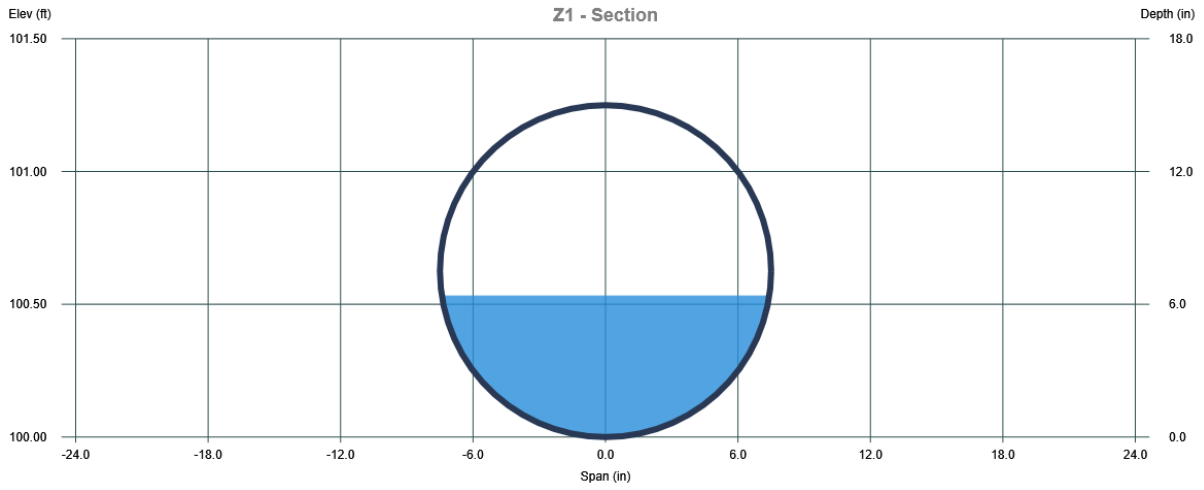
Diameter	= 15.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.400 %
Manning's n	= 0.011

DISCHARGE

Method	= Known Q
Known Q	= 1.75 cfs

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
1.75	6.4	0.50	3.53	1.77	0.011	6.4	100.5	100.72	0.13	1.24



APPENDIX F
MAPS AND PLANS



COVER ENGINEERING

CANYONS FAR SOUTH
VICINITY MAP

SHEET
VM
SCALE: NTS
DATE: OCT 2023

E:_Projects\230200 - Canyons Far South - Castle Rock, CO\05 - Design\Utilities\Water\CAD\ X - Vicinity Map.dwg

LEGEND

PROPOSED BASIN LINE

PROPOSED BASIN LABEL — PA# (BASIN DEIGNATION) / 12 (NUMBER OF UNITS)

PROPOSED WATER LINE

PROPOSED PARK

CONNECT TO EX. 16" RED ZONE WATER MAIN IN EDGEROCK (CANYONS SOUTH) PLANNED DEVELOPMENT

CONNECT TO EX. 20" PURPLE ZONE WATER MAIN

TANK 11, PURPLE ZONE

PR. 12" WATER MAIN

PARALLEL WATER MAINS IN EDGEROCK BLVD (12" IN PURPLE ZONE AND 16" IN RED ZONE)

PROPOSED PRV FROM RED ZONE TO PURPLE ZONE

PR. 16" WATER MAIN

PA-1
59

OSP-1
2.2 AC

PA-5
35.3 AC

FUTURE COMMERCIAL BY OTHERS

EDGEROCK BLVD

OSP-2
9.1 AC

PA-2
229

CONNECT TO EX. 20" RED ZONE WATER MAIN IN FOUNDERS PARKWAY

PARALLEL WATER MAINS IN EDGEROCK BLVD (12" AND 12") FOR FIRE FLOW AND CLOSED LINE REDUNDANCY

T PARK
21.0 AC

PA-3
38

PR. 12" WATER MAIN

PROPOSED PRV FROM PURPLE ZONE TO BLUE ZONE

CASTLE OAKS DR

CONNECT TO EX. 16" BLUE ZONE WATER MAIN

FOUNDERS PKWY

PR. 12" WATER MAIN

PA-4
189

OSP-3
5.0 AC

MCMURDO GULCH

0 150 300 600

1 inch = 300 ft.

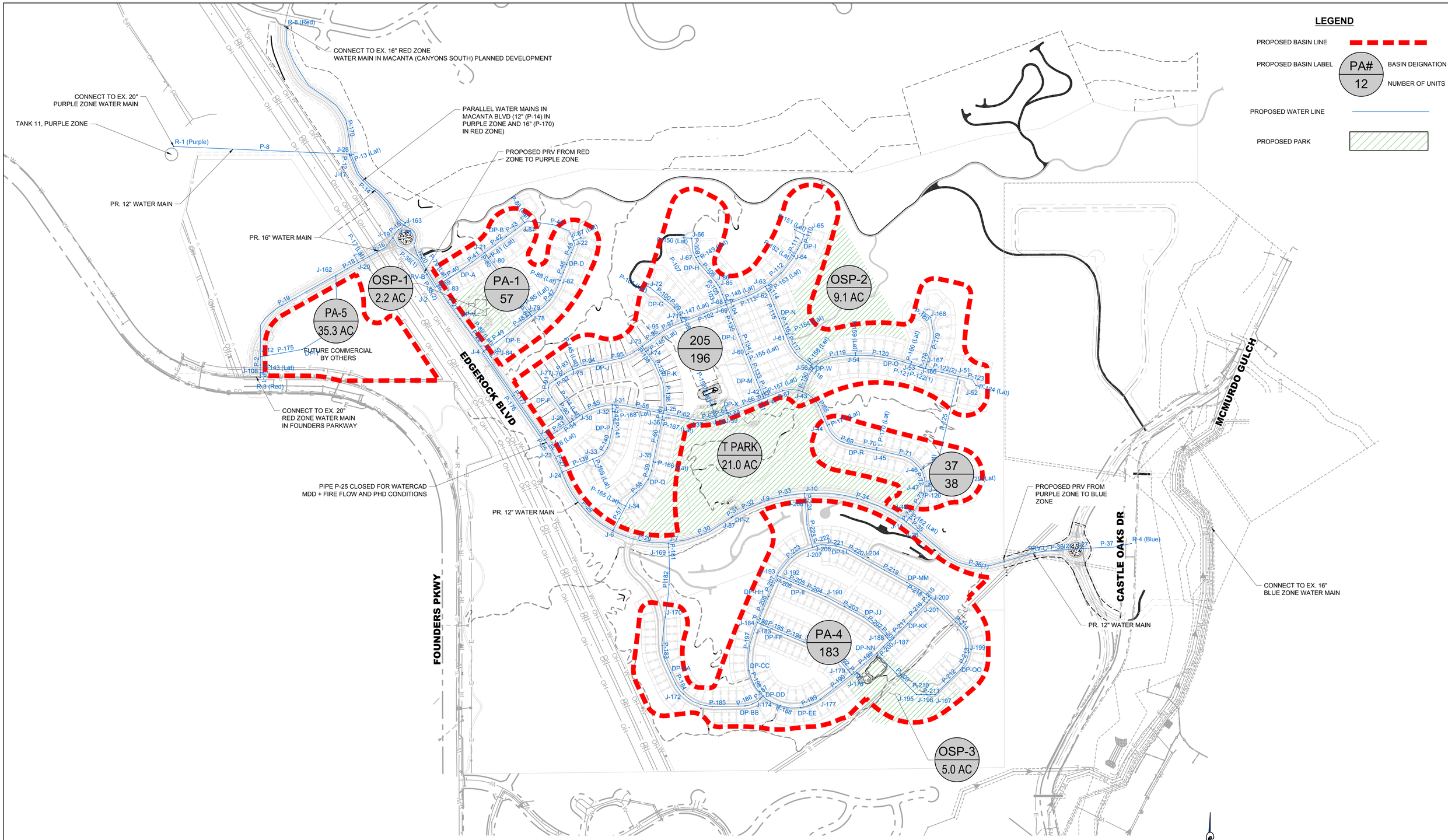
COVER ENGINEERING

CANYONS FAR SOUTH

WATER EXHIBIT - OVERALL

MAY 2025

SHEET 1 OF 3



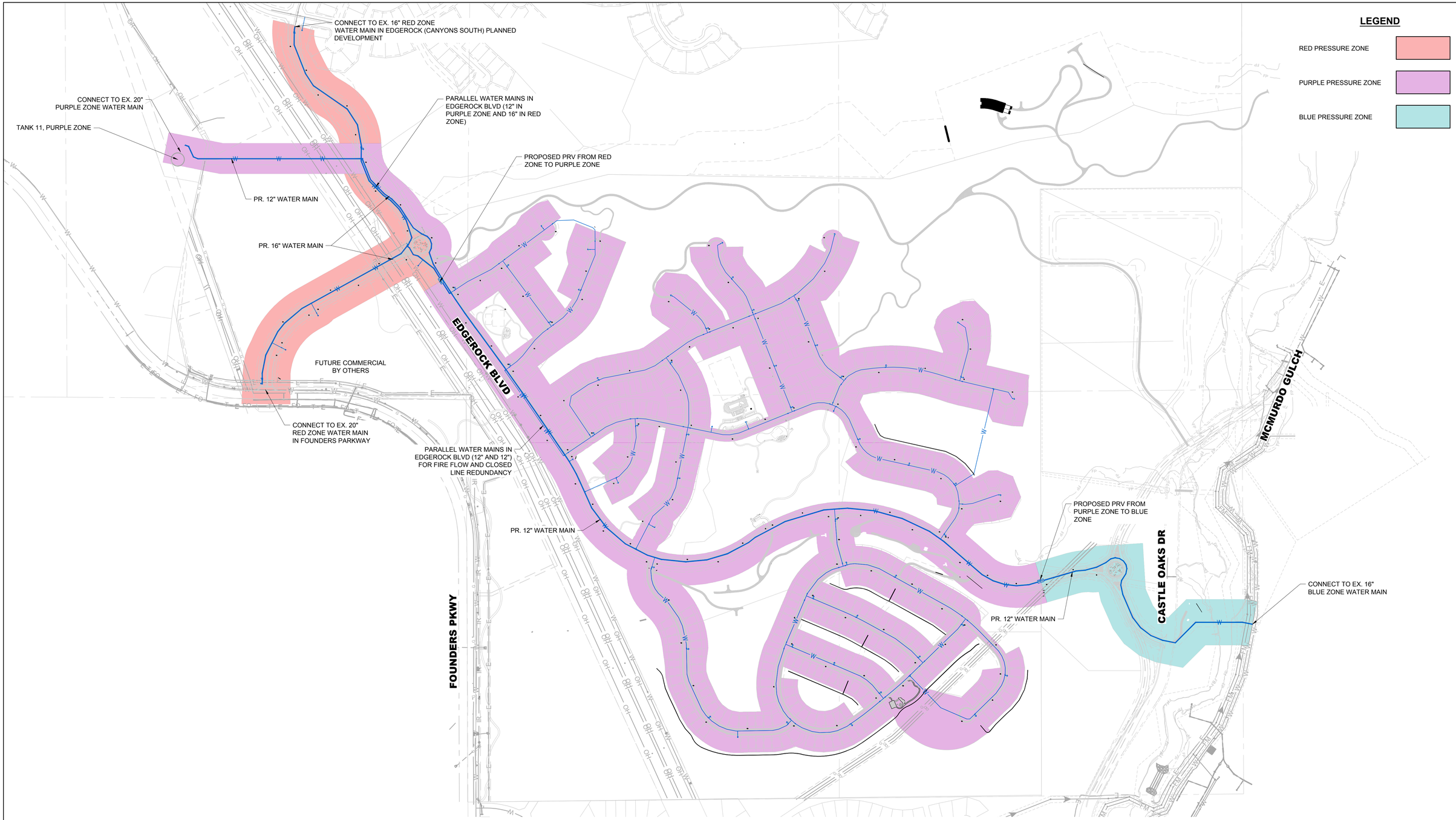
COVER ENGINEERING

CANYONS FAR SOUTH

WATER EXHIBIT - WATERCAD

MAY 2025

SHEET 2 OF 3



COVER ENGINEERING

0 150 300 600

1 inch = 300 ft.

CANYONS FAR SOUTH

WATER EXHIBIT - PRESSURE ZONES

MAY 2025

SHEET 3 OF 3

LEGEND

PROPOSED BASIN LINE

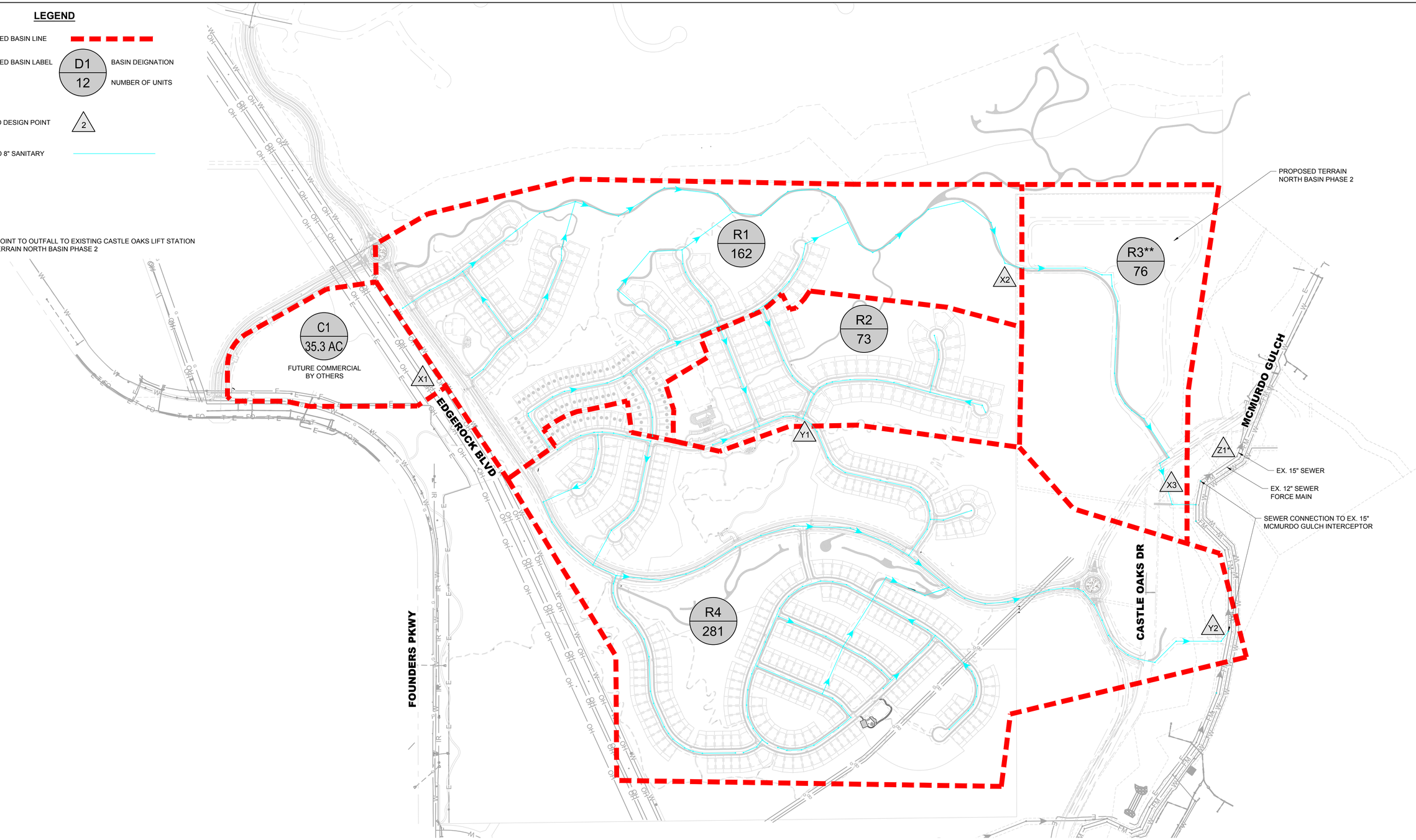
PROPOSED BASIN LABEL — D1 (BASIN DEIGNATION) / 12 (NUMBER OF UNITS)

PROPOSED DESIGN POINT — 2

PROPOSED 8" SANITARY

NOTE:

*DESIGN POINT TO OUTFALL TO EXISTING CASTLE OAKS LIFT STATION
**FROM TERRAIN NORTH BASIN PHASE 2



0 150 300 600

1 inch = 300 ft.

COVER ENGINEERING

CANYONS FAR SOUTH

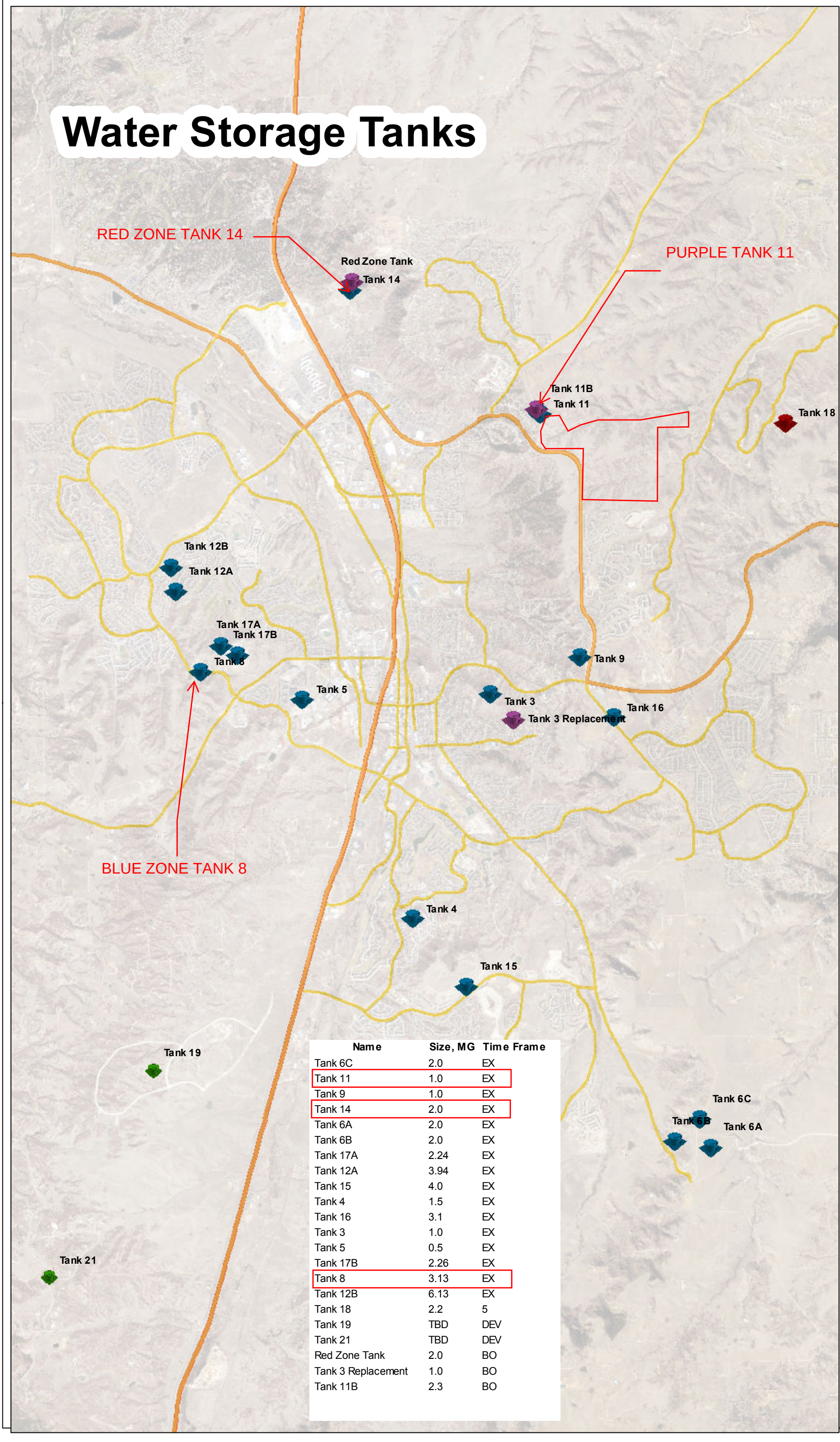
SANITARY EXHIBIT - OVERALL

MAY 2025

SHEET 1 OF 1

APPENDIX G
REFERENCED DOCUMENTS

Water Storage Tanks



Name	Size, MG	Time Frame
Tank 6C	2.0	EX
Tank 11	1.0	EX
Tank 9	1.0	EX
Tank 14	2.0	EX
Tank 6A	2.0	EX
Tank 6B	2.0	EX
Tank 17A	2.24	EX
Tank 12A	3.94	EX
Tank 15	4.0	EX
Tank 4	1.5	EX
Tank 16	3.1	EX
Tank 3	1.0	EX
Tank 5	0.5	EX
Tank 17B	2.26	EX
Tank 8	3.13	EX
Tank 12B	6.13	EX
Tank 18	2.2	5
Tank 19	TBD	DEV
Tank 21	TBD	DEV
Red Zone Tank	2.0	BO
Tank 3 Replacement	1.0	BO
Tank 11B	2.3	BO

Figure 3.1

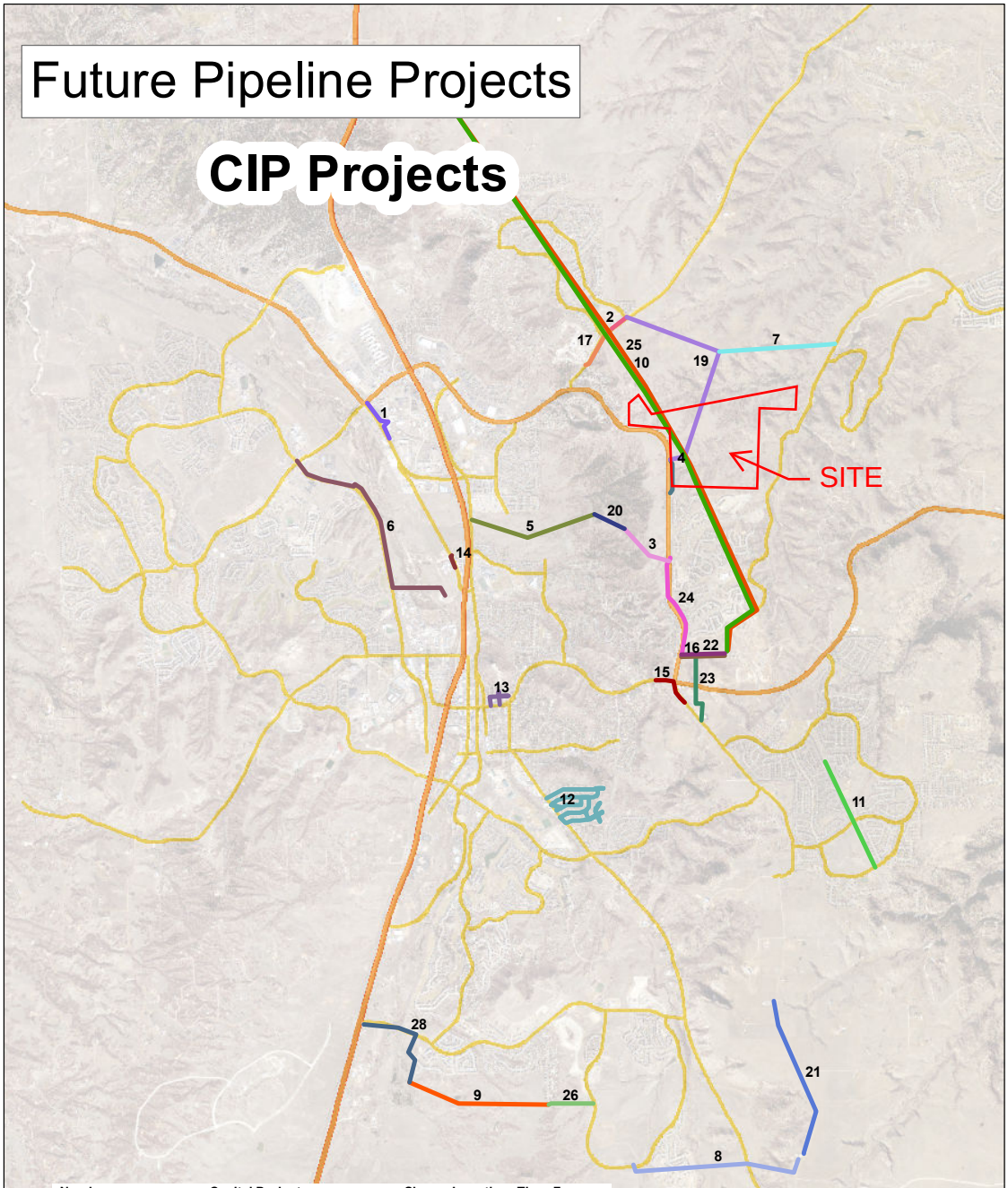
Table 3-2 Finished Water Storage Tank Inventory

Tank ID	Year Built	Capacity (MG)	Diameter (ft)	Height (ft)	Pressure Zone	Status
Tank 1						Demolished
Tank 3	1969	1.04	92.6	19.1	Purple	Active
Tank 4	1984	1.51	118.0	18.6	Blue	Active
Tank 5[1]	1984	(0.5)	66.0	19.4	Yellow	Not in Service
Tank 6A	1986	2.0	120.0	23.5	Green	Active
Tank 6B[2]	1997	(2.0)	120.0	23.5	Green	Not in Service
Tank 6C	2010	2.22	120.0	23.5	Green	Active
Tank 7[3]	1986	(2.0)	122.0	22.7	Red	Not in Service
Tank 8	1987	3.13	147.0	24.8	Blue	Active
Tank 9	1989	1.0	96.0	19.3	Purple	Active
Tank 11	1998	1.0	92.5	24.0	Purple	Active
Tank 12A	1999	3.94	172.0	22.8	Yellow	Active
Tank 12B	2007	6.13	172.0	22.8	Yellow	Active
Tank 14	2001	2.0	121.0	23.3	Red	Active
Tank 15	2002	4.03	174.0	22.7	Red	Active
Tank 16	2004	3.11	140.0	27.0	Red	Active
Tank 17A	2005	2.24	136.0	20.6	Red	Active
Tank 17B	2009	2.26	136.0	20.6	Red	Active
Total Active Storage Capacity		35.6				

1 Tank 5 is located in Citadel Station and currently is not in service. It has been physically disconnected from the distribution system and its future use will be evaluated.

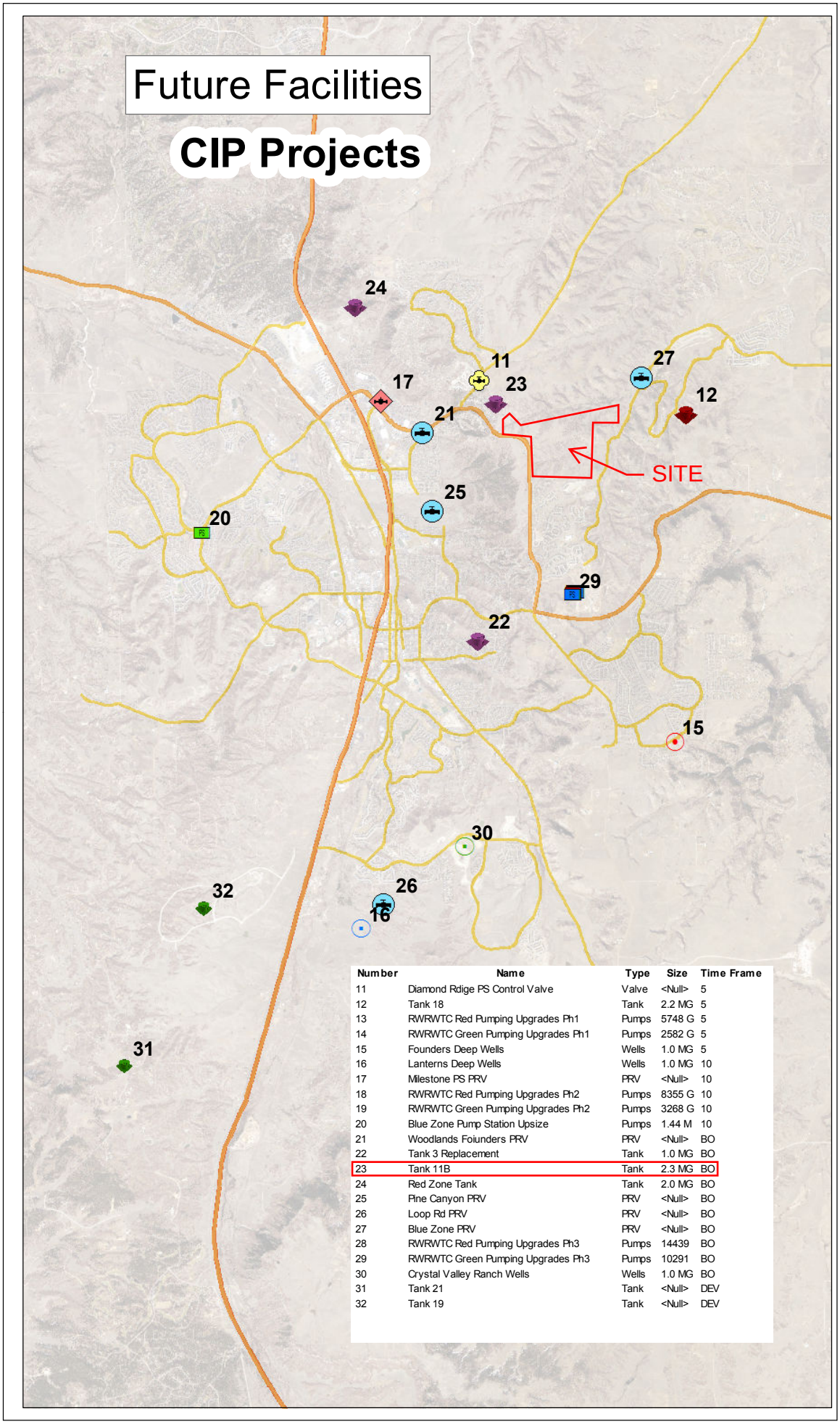
2 Tank 6B has been removed from service due to a structural failure. This tank is scheduled for demolition in the 5-year CIP.

3 Tank 7 is located in Dawson Ridge and currently is not in service. This tank will need to be evaluated to determine if it can be used for future use.



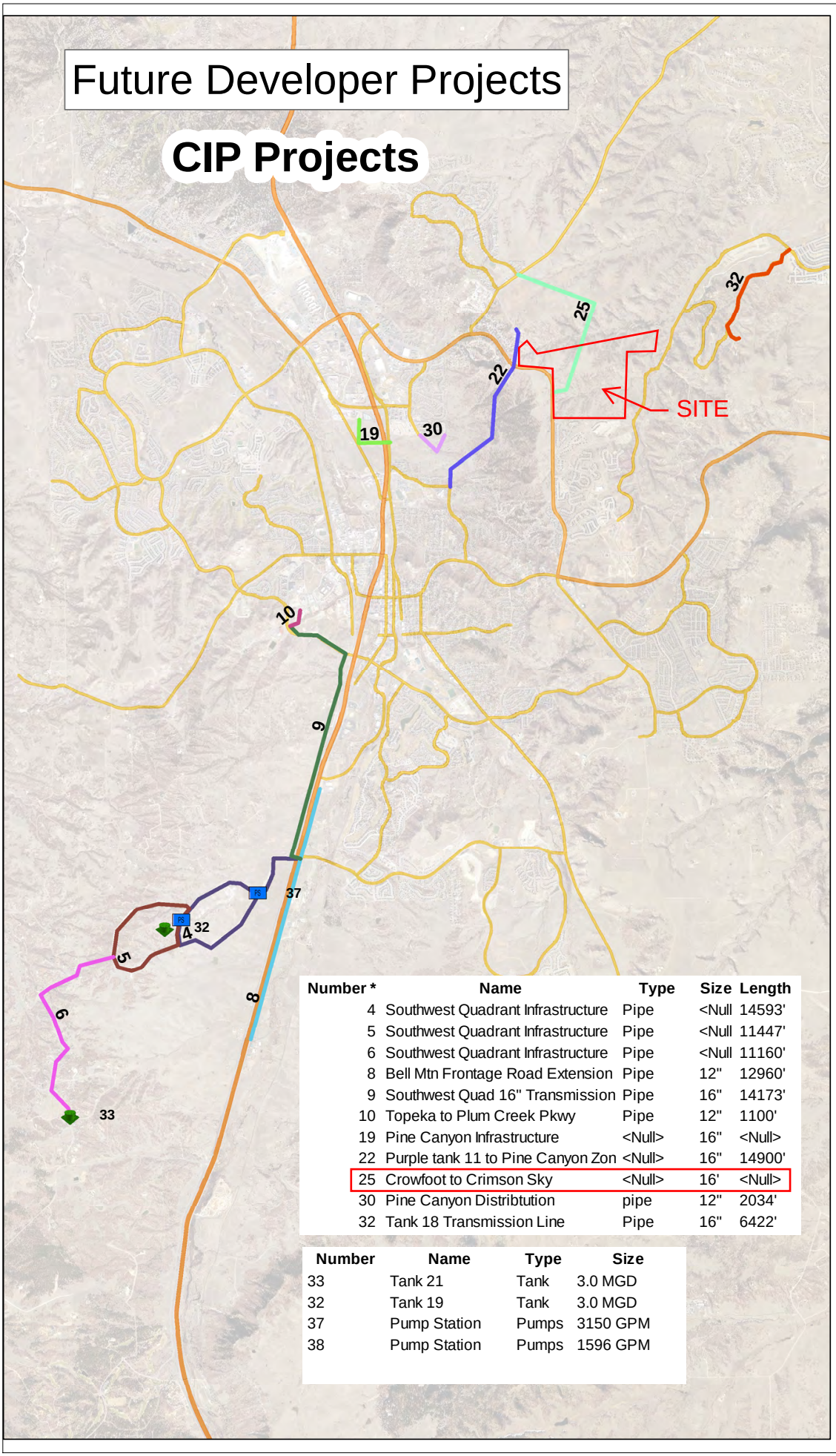
Number	Capital Project	Size	Length	Time Frame
1	SH85 Transmission	20"	2045'	5
10	WISE Pipeline Ph 1	36"	27000'	5
11	Founders Wells Raw Waterline	8"	4820'	5
12	Glovers Waterlines	8	10550	5
13	Craig and Gould North Improvements	8"	1800	5
14	Liggett Road Upsize	12"	600'	10
15	Fifth St. Red Zone Connection	12"	300'	10
16	Red Zone RWRWTC Transmission	20"	1885'	10
17	Crow foot Red Zone Upsize	16"	1965'	10
19	Crow foot to Crimson Sky	16'	9230'	20
2	Crow foot Purple Line Upsize	20"	725'	20
20	Pine Canyon Red Zone Transmission w /PRV	20"	1350'	BO
21	South Ridge Road Transmission	24"	6820'	BO
22	Green Zone RWRWTC Transmission	20"	1885'	BO
23	RWTP to Tank 16 Transmission	24"	3325'	BO
24	Crimson Sky to Oaks	20"	6840'	BO
25	WISE Pipeline Ph 2	30"	27000"	BO
26	Crystal Valley Ranch Loop Road Ph1	24"	1861'	BO
28	Blue Zone Plum Creek to Frontage Rd	24"	5000'	BO
3	Pine Canyon Red Zone Transmission	20"	2400'	BO
4	Part of Crimson Sky to Oaks	16"	1463'	BO
5	Pine Canyon Transmission w /PRV	16"	5510'	BO
6	PCWPF to Tank 12	12"	9700'	BO
7	Tank 18 Blue Zone Transmission	12"	3900'	BO
8	Tank 6 to Crystal Valley Ranch Transmission	24"	4053'	BO
9	Crystal Valley Ranch Loop Rd Ph2 w /PRV	20"	6000'	BO

Figure 5.1



Number	Name	Type	Size	Time Frame
11	Diamond Rdige PS Control Valve	Valve	<Null>	5
12	Tank 18	Tank	2.2 MG	5
13	RWRWTC Red Pumping Upgrades Ph1	Pumps	5748 G	5
14	RWRWTC Green Pumping Upgrades Ph1	Pumps	2582 G	5
15	Founders Deep Wells	Wells	1.0 MG	5
16	Lanterns Deep Wells	Wells	1.0 MG	10
17	Milestone PS PRV	PRV	<Null>	10
18	RWRWTC Red Pumping Upgrades Ph2	Pumps	8355 G	10
19	RWRWTC Green Pumping Upgrades Ph2	Pumps	3268 G	10
20	Blue Zone Pump Station Upsize	Pumps	1.44 M	10
21	Woodlands Foiunders PRV	PRV	<Null>	BO
22	Tank 3 Replacement	Tank	1.0 MG	BO
23	Tank 11B	Tank	2.3 MG	BO
24	Red Zone Tank	Tank	2.0 MG	BO
25	Pine Canyon PRV	PRV	<Null>	BO
26	Loop Rd PRV	PRV	<Null>	BO
27	Blue Zone PRV	PRV	<Null>	BO
28	RWRWTC Red Pumping Upgrades Ph3	Pumps	14439	BO
29	RWRWTC Green Pumping Upgrades Ph3	Pumps	10291	BO
30	Crystal Valley Ranch Wells	Wells	1.0 MG	BO
31	Tank 21	Tank	<Null>	DEV
32	Tank 19	Tank	<Null>	DEV

Figure 5.2

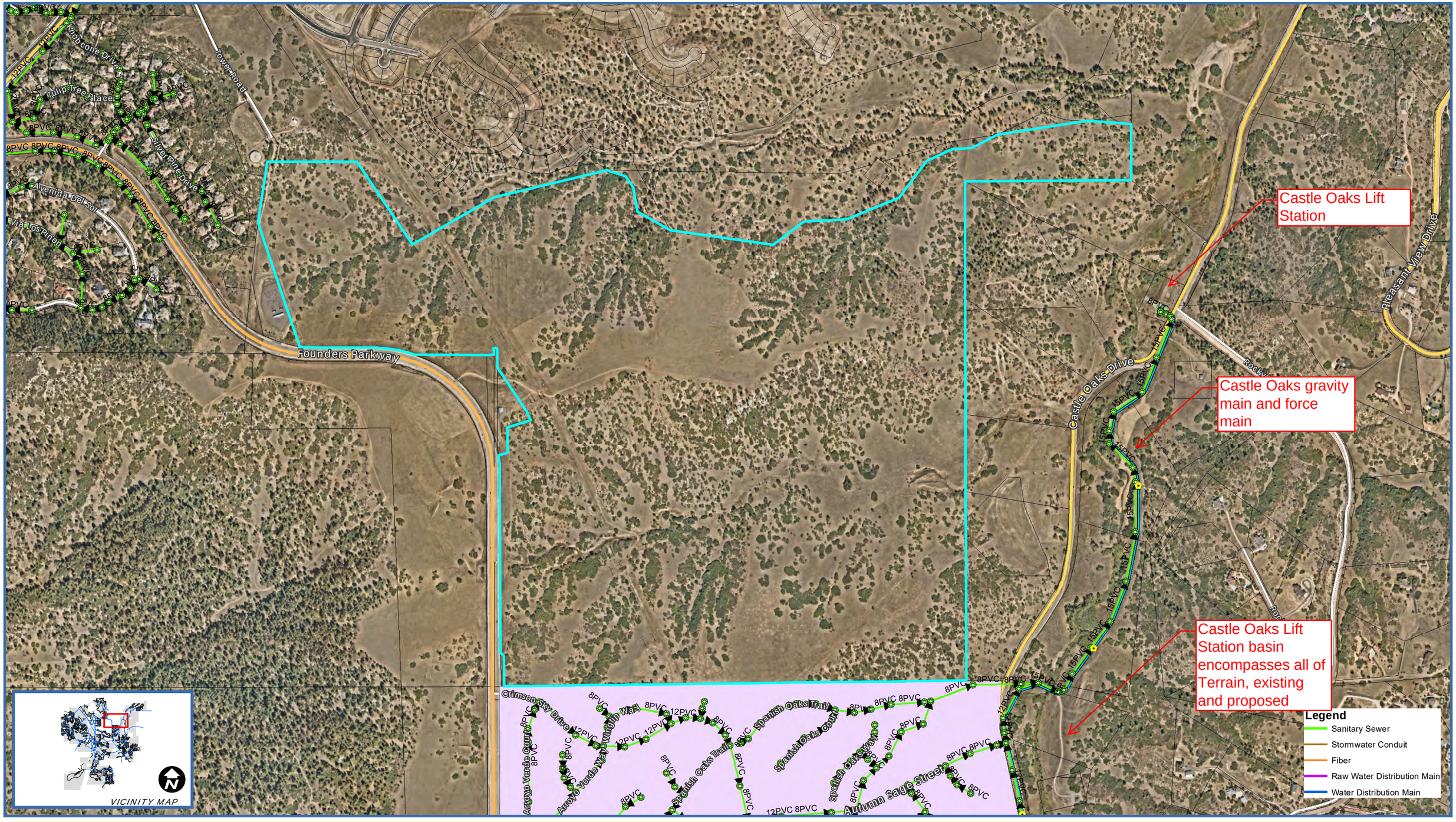


Number *	Name	Type	Size	Length
4	Southwest Quadrant Infrastructure	Pipe	<Null	14593'
5	Southwest Quadrant Infrastructure	Pipe	<Null	11447'
6	Southwest Quadrant Infrastructure	Pipe	<Null	11160'
8	Bell Mtn Frontage Road Extension	Pipe	12"	12960'
9	Southwest Quad 16" Transmission	Pipe	16"	14173'
10	Topeka to Plum Creek Pkwy	Pipe	12"	1100'
19	Pine Canyon Infrastructure	<Null>	16"	<Null>
22	Purple tank 11 to Pine Canyon Zon	<Null>	16"	14900'
25	Crowfoot to Crimson Sky	<Null>	16'	<Null>
30	Pine Canyon Distribtution	pipe	12"	2034'
32	Tank 18 Transmission Line	Pipe	16"	6422'

Number	Name	Type	Size
33	Tank 21	Tank	3.0 MGD
32	Tank 19	Tank	3.0 MGD
37	Pump Station	Pumps	3150 GPM
38	Pump Station	Pumps	1596 GPM

Figu .3

Attachment L



CASTLE ROCK Qwater
Securing our future drop by drop

0 360 720 1,440 2,160 Feet

1 inch = 710 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 and in supplying this product the Town of Castle Rock assumes no liability for it's 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) 733-6056. Copyright 2020, Town of Castle Rock Utilities Mapping.

CASTLE ROCK UTILITIES MAP (INTERNAL USE ONLY)

Date: 3/10/2021

Document Path: J:\GIS\Standard Maps\10.6\11x17 LndScp_10.6.mxd

Purple Zone Transmission Main

Tank 11, Purple Zone Tank

site is predominantly in Purple and Blue pressure zones; Purple is about 45 psi higher than Blue, and 45 - 50 psi lower than Red

Red Zone Founders Pkwy Transmission Main

future planned control vault

Red zone to Blue zone PRV

T-11

CANYONS SOUTH WH #1

PRV56

Knobcone Drive

Tulip Tree Place

Silver Pines Drive

Avenida Del Sol

Via Los Pinon

Tower Road

Founders Parkway

Crimson Sky Drive

Windrup Way

Spanish Oaks Trail

Spanish Oaks Court

Spanish Oaks Way

Castle Oaks Drive

Rocky View Road

Rocky View Place

8PVC

12PVC

15PVC

VICINITY MAP

Legend

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

CASTLE ROCK Qwater
Securing our future drop by drop

0 335 670 1,340 2,010 Feet

1 inch = 667 feet

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CASTLE ROCK UTILITIES MAP (INTERNAL USE ONLY)

Date: 3/10/2021

Document Path: J:\GIS\Standard Maps\10.6\11x17 LndScp_10.6.mxd

Project Site

FEMA flood hazard area

McMurdo Gulch Trib 3 and McMurdo Gulch

Hemisphere Cir
Furthermore Ln
Pankuhe Ln
Furthermore Pt
Longstory Ave
Wingspan Pt
Yamoose Ct
Hotpepper Way
Macanta Blvd
Fellswoop Dr
Fellswoop Ct
Tower Road
Knobcone Drive
Silver Pine Drive
Aventina Dalton
Founders Parkway
Castle Oaks Drive
Pleasant View Drive
Rocky View Road
Rocky View Place
Arroyo Verde Court
Wingtip Way
Crimson Sky Drive
Spanish Oaks Trail
Spanish Oaks Court
Spanish Oaks Way
Autumn Sage Street

VICINITY MAP

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

CASTLE ROCK Qwater
Securing our future drop by drop

0 350 700 1,400 2,100 Feet

1 inch = 689 feet

Date: 6/21/2023

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CASTLE ROCK UTILITIES MAP (INTERNAL USE ONLY)

Document Path: \\crsan1\UTShare\GIS\Standard Maps\10.6\11x17 LndScp.mxd

MOTT MACDONALD

Castle Oaks Lift Station Pump Selection

Town of Castle Rock

Project:	Castle Oaks Lift Station Improvements Planning, Engineering & Design Services		
Our reference:	507106873	**Your reference:**	N/A
Prepared by:	Amber Schrum, Danielle Jacobs	**Date:**	February 3, 2023
Approved by:	Mike Altland	**Checked by:**	Rodney Fredericks
Subject:	Pump Selection		

1 Introduction

The Castle Oaks Lift Station was constructed in 2005 and has a permitted hydraulic capacity of 1.18 MGD (820 gpm). The lift station currently consists of two trains, each with two pumps in series, pumping to a 12-inch diameter force main of approximately 11,800 linear feet. Each pump has a nominal capacity of 850 gpm, so that one train operating alone provides the permitted capacity of 820 gpm. The influent passes through a Palmer-Bowlus influent flume in Waste Metering Manhole No. A.3 and then passes through a grinder before entering the lift station wet well. The lift station discharge is measured with an Endress+Hauser Electromagnetic flow meter.

At this time, the Town of Castle Rock desires to upgrade the Castle Oaks Lift Station through the in-kind replacement of the existing pumps. In addition, the Town of Castle Rock has planned for the 20-year buildout flows. Both of these activities will lead to more reliable and efficient pumping operations at the lift station. This memorandum summarizes the flow projection for the currently planned in-kind pump replacement and the 20-year buildout future pumping operations.

The Town of Castle Rock (Town) provided historical data from the Castle Oaks Lift Station SCADA system for January 1, 2016, at 00:00AM to June 27, 2022, at 11:15AM. Data cleaning of this historical data is described in the Statistical Analysis Memo issued in August 2022 by Mott MacDonald. Additional data cleaning of this historical data is described in the Wastewater Flow Projections Memo issued in September 2022 by Mott MacDonald.

This memo accompanies the Section 22.12 Replace in Kind Site Application for the Castle Oaks Lift Station as the proposed pumps will continue to operate at the current permitted flow capacity.

2 Wastewater flow projections

2.1 Criteria for single-family equivalents (SFEs)

2.1.1 Planning horizon

Colorado Department of Public Health and Environment (CDPHE) Design Criteria for Domestic Wastewater Treatment Works (WPC-DR-1 2022, herein referred to CDPHE Design Criteria) Section 3.2.1 defines the design service period based on the status of development and level of detail in land use planning in the service area (e.g., 20-50 years). The Town has provided anticipated development in the basin in the 1 to 5-year timeframe, the 5 to 10-year timeframe, and then full buildout that is anticipated to occur in the timeframe beyond 10 years.

2.1.2 Single family residential

The Town Wastewater Collection Design 2018 Criteria Manual (herein referred to as “the Town’s Criteria Manual”) defines single family residential and duplexes as 200 gpd/unit. For the purposes of this design, 180 gpd/unit is used per the CDPHE Design Criteria requirements (Section 3.2.2.a.1.A) for the maximum month average daily flow of greater than 180 gpd/unit.

2.1.3 Multi-family residential

The Town’s Criteria Manual definition for multi-family residential, including townhomes and condos, of 130 gpd/unit is lower than the CDPHE Design Criteria (Section 3.2.2.a.1.B) minimum flow rate of 165 gpd/unit for multi-family residential. Additionally, CDPHE includes townhomes in the definition of single family, detached or attached, residential. Therefore, condos and other multi-family residential units, such as apartments, use 165 gpd/unit for this design and townhomes use 180 gpd/unit.

2.1.4 Commercial

Sewer tap information and anticipated development information was provided by the Town in units that coincided with the conversion factors defined in the Town’s Criteria Manual (for example, in square footage and acreage). CDPHE Regulation 43 uses more detailed information to develop their conversion factors, such as the number of seats a restaurant has and how many meals served per day. With limited knowledge of individual properties in this development, the Town’s criteria were used as conversion factors to align with the information provided.

2.2 Calculation of existing single-family equivalents (SFEs)

From sewer tap information provided by the Town and conversion factors defined in the Town’s Criteria Manual, Table 2.1 shows the calculation of single-family equivalents (SFEs) for each type of unit and how many years it was tied into the system.

Table 2.1: SFEs for 2016-2022

Years in Effect	Type of Unit	Land	TOCR SFE/Unit	SFE Equivalent
2016-2022	Grocery Store	7.516 acres	3/acre for Industrial/Other Commercial	22.55
2016-2022	Strip Mall	6,500 SF	0.0005/SF for Retail/Offices	3.25
2016-2022	Elementary School	1 school	16.88/School for Elementary School in Douglas County	16.88
2018-2022	Convenience Store	3,045 SF	0.0005/SF for Retail/Offices	1.52

Years in Effect	Type of Unit	Land	TOCR SFE/Unit	SFE Equivalent
2019-2022	Bank	3,753 SF	0.0005/SF for Retail/Offices	1.88
2016-2022	Pool & Club	1,956 SF	0.00125/SF for Gym/Fitness Center	2.45
2022	Car Wash	1.41 acres	25/acre for Car Wash	35.25

Note: TOCR – Town of Castle Rock Wastewater Collection Design 2018 Criteria Manual; SFE – Single Family Equivalent

This data is then added to the residential tapped units for 2016-2022 to develop the total number of SFEs tied into the system for each year as shown in Table 2.2.

Table 2.2: Total SFEs for 2016-2022

Year	Residential Tapped Units	Other Unit SFEs	Total SFEs
2016	846	45.12	891
2017	997	45.12	1,042
2018	1280	46.65	1,327
2019	1477	48.52	1,526
2020	1580	48.52	1,629
2021	1619	48.52	1,668
2022 (up to July 5)	1968	83.77	2,052

Note: Sewer tap info provided by TOCR; Other Unit SFEs column calculated from sum of data in Table 2.1

2.3 Cumulative effluent day flow per SFE (gpd)

While there is measurement of both influent to the lift station and effluent from the lift station, the instrumentation has varying levels of accuracy. In the industry, an effluent electromagnetic flow meter is typically more accurate than an influent Palmer-Bowlus flume. However, the average effluent flow per day of approximately 122 gpd/SFE is below CDPHE and Town flow definitions. This flow is also much lower than previous averages developed by the Town, such as the 196 gpd/SFE average noted in the 2016 Wastewater Master Plan. Therefore, the Town has decided to design around the influent flow meter historical data.

2.4 Cumulative influent day flow per SFE (gpd)

The cumulative influent day flow in MGD was converted to gallons per day (gpd) and then divided by the number of SFEs for the relevant year. For each year, this data was compiled to then find the minimum, mean, mode and maximum influent flow per SFE. The standard deviation was also calculated. These values are shown in Table 2.3. The last column in Table 2.3, or Total, is the sum of all cumulative influent day flow for the year, which is then divided by the number of SFEs for that year, resulting in the total effluent flow for the year per SFE in gallons.

Table 2.3: Cumulative day influent flow per SFE (gpd)

Year	# of SFEs	Min (gpd)	Mean (gpd)	Mode (gpd)	Max (gpd)	StDev (gpd)	Ratio of Max/Mean	Total (gal)
2016	891	11.22	199.54	190.77	437.65	65.28	2.193	72,234
2017	1,042	9.60	180.04	191.92	249.49	48.89	1.386	64,455
2018	1,327	82.92	172.63	158.29	354.28	21.84	2.052	63,008
2019	1,526	78.66	182.16	176.99	235.99	17.01	1.295	66,489
2020	1,629	167.64	205.17	202.64	491.24	30.49	2.394	75,092

Year	# of SFEs	Min (gpd)	Mean (gpd)	Mode (gpd)	Max (gpd)	StDev (gpd)	Ratio of Max/Mean	Total (gal)
2021	1,668	35.98	217.15	203.90	299.85	18.37	1.381	77,522
2022	2,052	63.36	179.07	180.33	229.07	16.59	1.279	31,875
Average	-	64.20	190.82	186.41	328.22	31.21	1.712	64,382

Note: Total column is total gallons per SFE in each year

The average flow of approximately 191 gpd/SFE shown in Table 2.3 complies with CDPHE Design Criteria (>180 gpd/SFE) and is closer to the Town's previous data analysis (196 gpd/SFE) and planning values (200 gpd/SFE).

2.5 Calculation of future SFEs

2.5.1 SFEs for anticipated development

From anticipated development information provided by the Town and conversion factors defined by the CDPHE Design Criteria and in the Town's Criteria Manual, Table 2.4 shows the calculation of SFEs per unit and when the units are anticipated to tie into the system.

Table 2.4: SFEs for anticipated future development (CDPHE)

Time frame	Name	Unit Type	Qty	CDPHE factors	SFE/Unit (*Adjusted)	SFE Equiv.
1-5 years	Echelon/Caliber	Apartments	238	165 gpd/unit	0.825/dwelling*	196.35
1-5 years	Terrain North Basin Phase 1	Single Family Residences	95	180 gpd/unit	0.9/dwelling*	85.50
1-5 years	Terrain North Basin Phase 2	Single Family Residences	105	180 gpd/unit	0.9/dwelling*	94.50
1-5 years	Medical Offices at Founders Marketplace	Retail/Offices	13,000 SF	Using TOCR	0.0005/SF for Retail/Offices	6.50
1-5 years	Dunkin Donuts	Restaurant	1,850 SF	Using TOCR	0.0075/SF for Restaurants	13.88
5-10 years	Canyons Far South	Single Family Residences	474	180 gpd/unit	0.9/dwelling*	426.60
5-10 years	Canyons Far South Commercial	Retail/Offices	60,000	Using TOCR	0.0005/SF for Retail/Offices	30.00
5-10 years	Fast Food (NE Corner of Founders/5th St)	Restaurant	4,597 SF	Using TOCR	0.0075/SF for Restaurants	34.48
5-10 years	Townhomes West Side of Ridge Rd	Townhomes	53	180 gpd/unit	0.9/dwelling*	47.70
5-10 years	Retail West Side of Ridge Rd	Retail/Offices	9,000 SF	Using TOCR	0.0005/SF for Retail/Offices	4.50
5-10 years	Restaurant West Side of Ridge Rd	Restaurant	3,000 SF	Using TOCR	0.0075/SF for Restaurants	22.50
10+ years	Mall, Office Center or Residential	Unknown	12 SFEs		-	12.00
10+ years	Projected Remaining SFEs	Unknown	259 SFEs		-	259.00

Note: * - Ratio calculated from CDPHE flow compared to TOCR flow of 200 gpd/dwelling
Unknown development timeframe assumed to be 10+ years in the future

2.5.2 Total SFEs in the future

This data is then added to the total SFEs for 2022 to develop the total number of SFEs anticipated to be tied into the system in the future as shown in Table 2.5. Separate columns are included for when exclusively Town criteria are used versus when select CDPHE criteria are substituted.

Table 2.5: Future SFEs

Time frame	Additional SFEs	Total SFEs
2022	0	2,052
1-5 years	397	2,449
5-10 years	600	2,720
10+ years	271	2,991
20 years (rounded)	-	3,000

Note: Additional SFEs column calculated from sum of data in Table 2.4 for that timeframe; Total SFEs is a rolling sum of 2022 data and each proceeding timeframe

It should be noted that the total number of SFEs at buildout are greater than the 2,760 originally anticipated in the 2002 Lift Station Design Report.

2.6 Projected average wastewater flow (MGD)

For the purposes of this analysis, the overall average flow per SFE is multiplied by the future SFEs for each time frame to develop the projected average wastewater flow, as shown in Table 2.6.

Table 2.6: Projected average wastewater flow (MGD)

Time frame	Flow (MGD)
2022 SFEs, overall average flow	0.392
1-5 years	0.467
5-10 years	0.519
10+ years	0.571
20 years (rounded)	0.572

2.7 Projected peak wastewater flow (MGD)

The Town's Criteria Manual defines the peaking factor as $Peaking\ Factor = 3.65(ADF)^{-0.168}$, wherein ADF is the projected average daily flow. The Town's Criteria Manual also requires that the peaking factor is less than 5.0. The peaking factors calculated using the Town's formula for each time period are all greater than 4.0. However, the greatest ratio between average and max flows measured by the influent meter historically is 2.394. Therefore, the Town chose to proceed with the CDPHE Design Criteria minimum peaking factor of 2.5. The Town's Criteria Manual defines the peak design flow as: $Peak\ Design\ Flow = (ADF)(PF) + 0.1(ADF)$, wherein PF is the peaking factor. Projected peak wastewater flow is shown in Table 2.7.

Table 2.7: Projected peak wastewater flow (MGD)

Time frame	Flow (MGD)
2022 SFEs, projected peak flow	1.018
1-5 years	1.215
5-10 years	1.349

Time frame	Flow (MGD)
10+ years	1.484
20 years (rounded)	1.488

The Castle Oaks Lift Station projected peak wastewater flows have not yet exceeded the current permitted capacity of 1.18 MGD. This reflects decreasing wastewater flows per capita as water conservation goals are met, with respect to indoor water saving fixtures and consumption patterns per the 2016 Town Wastewater Master Plan. It should be noted that the buildout peak flow was originally anticipated to be 2.28 MGD in the 2002 Lift Station Design Report.

3 Preliminary Pump Selection

3.1 Design point selection

Based on the projected peak wastewater flows discussed in Section 2.7, the flow conditions are reproduced below in Table 3.1 with their respective total dynamic head (TDH) requirements for the Castle Oaks Lift Station force main alignment. As the projected peak wastewater flow for 2022 was lower than the current permitted flow of 1.18 MGD, the near-term design point shall meet the requirements of the current permitted flow.

Table 3.1: Design Criteria

Time Frame	Flow (MGD)	Flow (gpm)	TDH (ft)
Current permit	1.18	820	331
1-5 years	1.215	843	333
5-10 years	1.349	936	340
20 years (full buildout)	1.488	1,033	348

3.2 Pump selection

Due to recent failures of the staged pump configuration wherein two pumps are in series, the Town expressed a strong preference for pursuing a design with one pump to meet the flow requirements. The Town also expressed their preference for a v-belt driven pump as used at their other facilities instead of direct drive. V-belt driven pumps can be reconfigured to allow flow rate flexibility within the pulley ratios. When the flows increase, the Town will submit a Site Application per Section 22.9 for increasing the design capacity of an existing lift station. Then the Town can adjust the drive sheave (aka drive pulley) to provide a higher flow rate instead of requiring complete pump replacement. The drive sheave can be adjusted such that the belt rides lower, or closer to the shaft, or higher, further from the shaft. In the case that more than minor adjustments are required to meet the higher flow rate requirements, replacement of a drive sheave would still be less expensive than complete pump replacement.

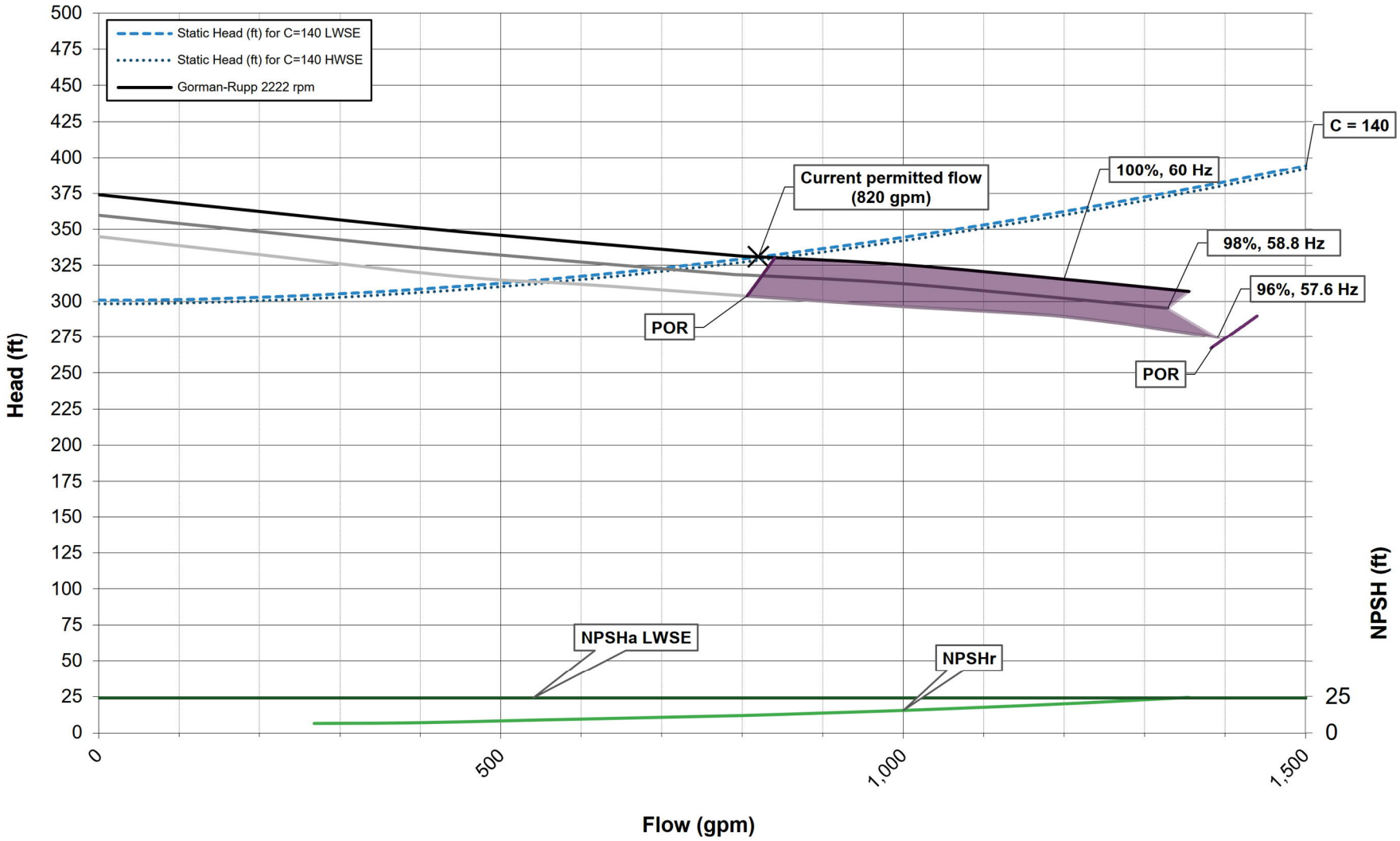
As such, the Gorman Rupp Model 6504E60-B pump has been selected to operate within the manufacturer's recommendations at the current permitted flow of 1.18 MGD (820 gpm), and future buildout conditions of 1.488 MGD (1,033 gpm). See Figure 3.1 and Figure 3.2 respectively for the pump and system curves at these flow rates. Cut sheets for the Gorman Rupp pump selection are included in Appendix A. Two pumps will be provided for N+1 redundancy.

Mott MacDonald advised that the existing and proposed motors are not submersible-rated. As the existing system has a spare pump and motor on the main level, we recommend that a standby motor should be maintained on the main level in case of a flood in the dry well.

3.3 VFDs – Turndown

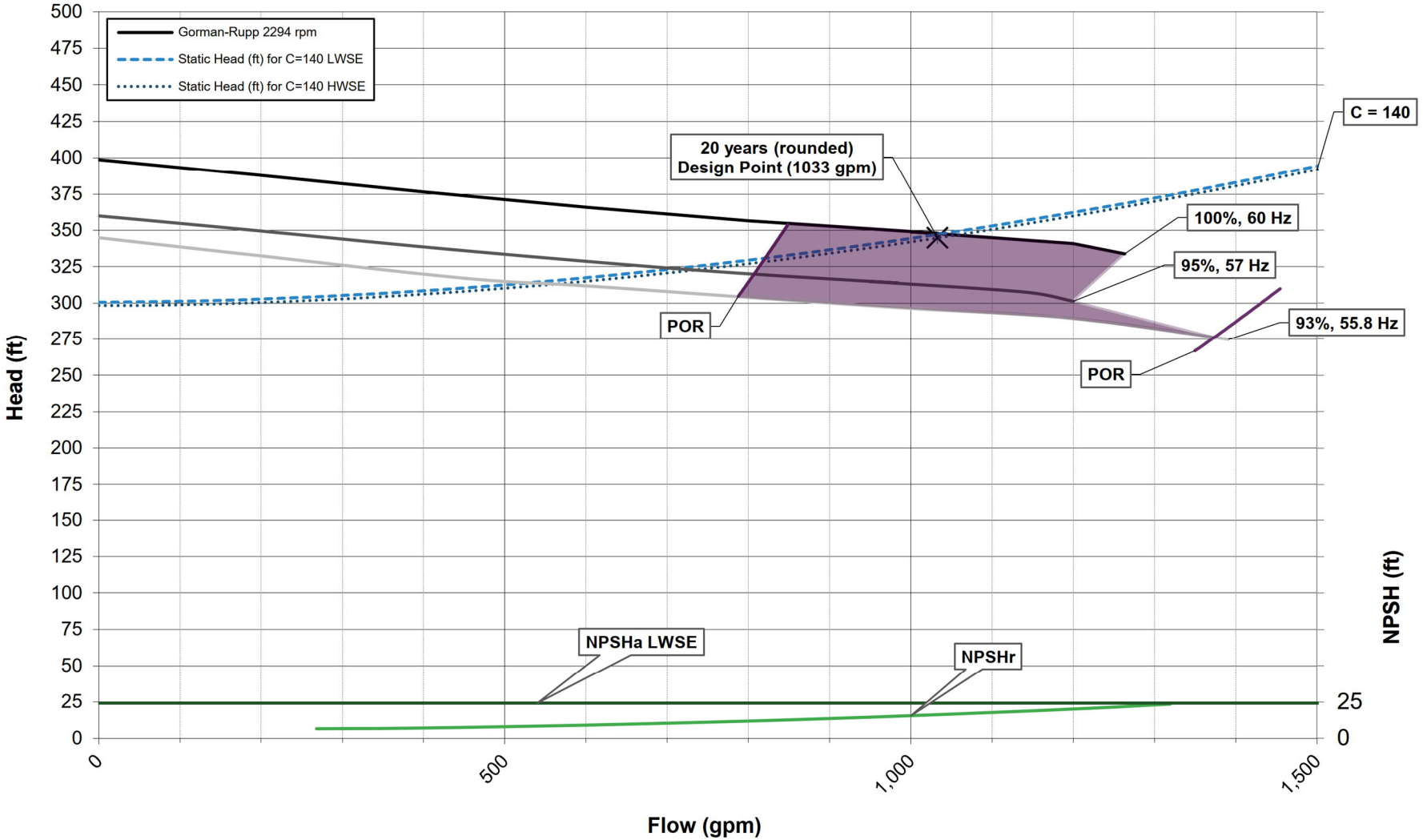
VFDs are typically used to allow the system to operate at varying delivery rates. However, the use of VFDs is limited at this lift station due to the high static lift requirements, and the shape of the system head curve. For example, at the low water surface elevation in the wet well there is a static lift condition of approximately 301 ft. At the Castle Oaks Lift Station, VFDs will not allow the pump station effluent flows to match influent flows, although minor reductions in power will allow great reductions in flow. Figure 3.1 and Figure 3.2 both include example turndown curves where approximately 500 gpm is the lowest flow anticipated for each configuration. Canyon Systems, the manufacturer's representative for the Gorman Rupp pump, has advised that this is a conservative turndown assumption and during startup lower flows may be able to be achieved.

Figure 3.1: Pump Sheaved for Permitted Flow (Current Conditions) – Gorman Rupp 6504E60-B 2222 rpm (1 Pump)



Note: 1. Town agreed that C value of 140 would be acceptable at the Wastewater Flow Projections Review Meeting on October 10, 2022
2. POR – Preferred Operating Range; shaded purple region
3. NPSH – Net Positive Suction Head; available and required
4. LWSE – Low Water Surface Elevation; HWSE – High Water Surface Elevation

Figure 3.2: Pump Selection for 20-year Buildout (Future Conditions) – Gorman Rupp 6504E60-B 2294 rpm (1 Pump)



Note:
1. Town agreed that C value of 140 would be acceptable at the Wastewater Flow Projections Review Meeting on October 10, 2022
2. POR – Preferred Operating Range; shaded purple region
3. NPSH – Net Positive Suction Head; available and required
4. LWSE – Low Water Surface Elevation; HWSE – High Water Surface Elevation

A. Pump Cut Sheets

Basic Pedestal

Standard Centrifugal Pump

Model 6504E60-B

Size 6” x 4”

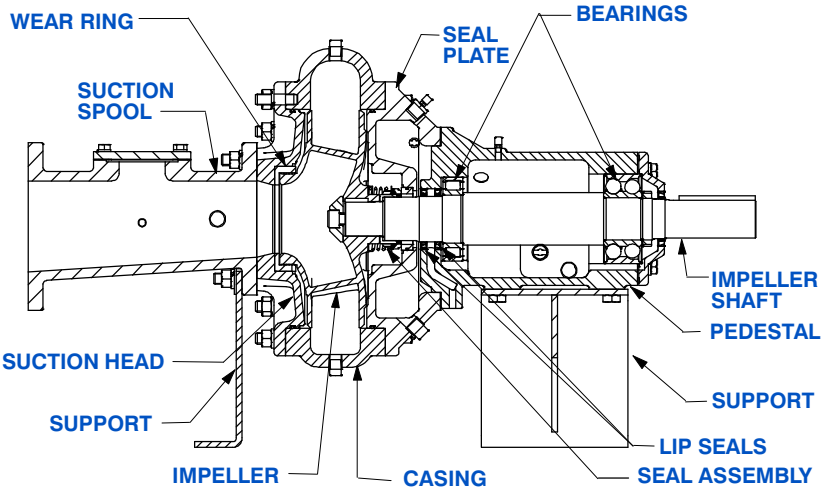
PUMP SPECIFICATIONS

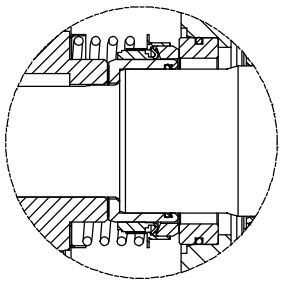
Size: 6” x 4” (152 mm x 102 mm) Flanged.
Casing: Ductile Iron 65-45-12.
Maximum Casing Pressure 285 psi (1965 kPa).*
Maximum Operating Pressure 250 psi (1723 kPa) at Temperatures up to 100°F (37°C) Based on System Component Limitations.*
Enclosed Type, Two Vane Impeller: Ductile Iron 65-45-12.
Handles 3” (76,2 mm) Diameter Spherical Solids.
Suction Head: Gray Iron 30.
Suction Spool: Gray Iron 30.
Impeller Shaft: Alloy Steel 4150.
Replaceable Wear Ring: Ductile Iron 65-45-12.
Pedestal: Gray Iron 30.
Seal Plate: Gray Iron 30.
Shaft Sleeve: Stainless Steel 303/304.
Radial Bearing: Open Roller.
Thrust Bearing: Open Double Ball.
Bearing and Seal Cavity Lubrication: SAE 30 Non-Detergent Oil.
Gaskets: Vegetable Fiber, Red Rubber and Buna-N.
O-Rings: Buna-N.
Hardware: Standard Plated Steel.
Bearing and Seal Cavity Oil Level Sight Gauges.

Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.



WARNING!
Do not use in explosive atmosphere or for pumping volatile flammable liquids.





SEAL DETAIL

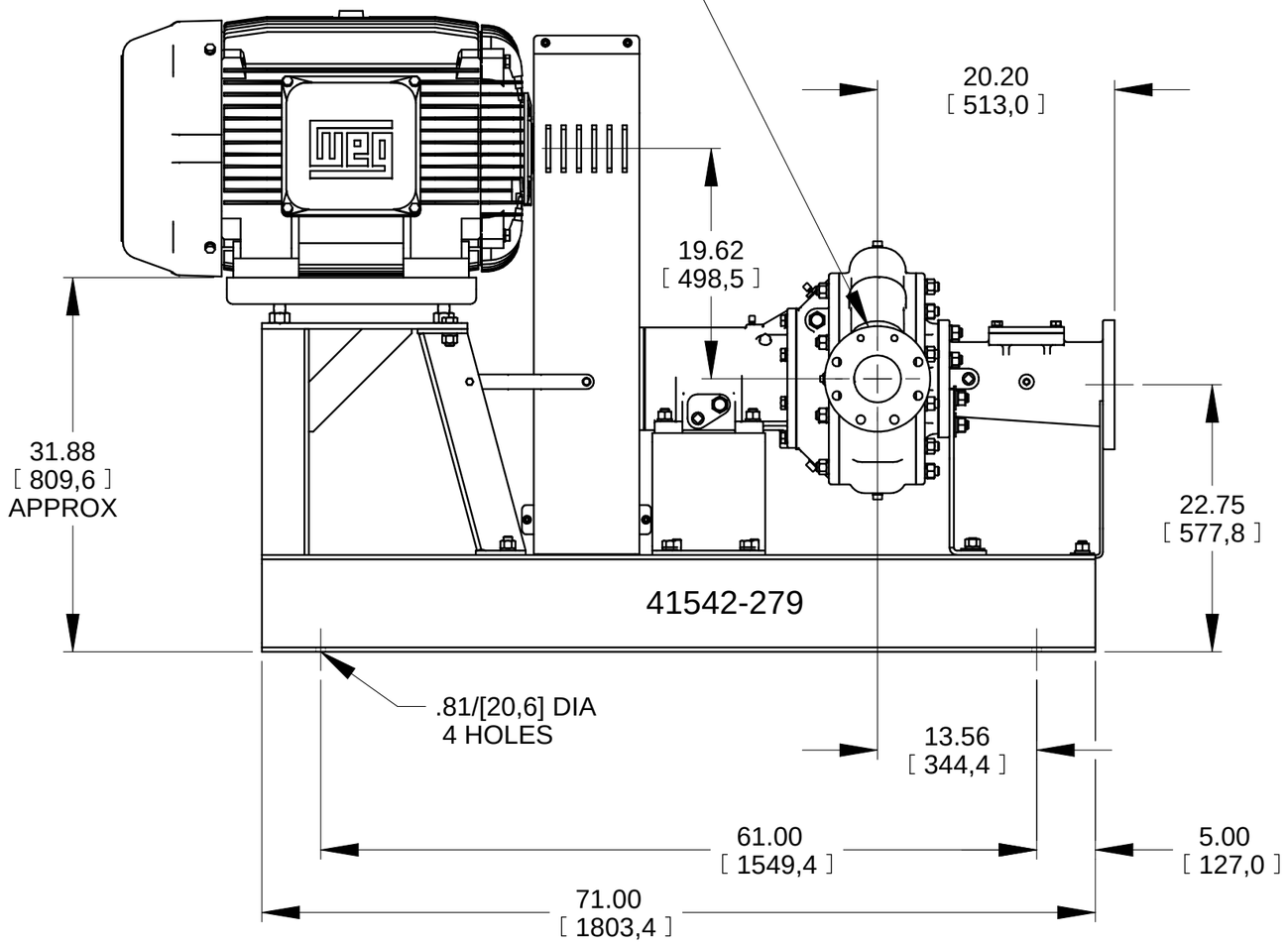
Mechanical, Oil-Lubricated. Silicon Carbide Rotating Face and Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel 316 Cage and Stainless Steel 18-8 Spring. Maximum Temperature of Liquid Pumped 160°F (71°C).*

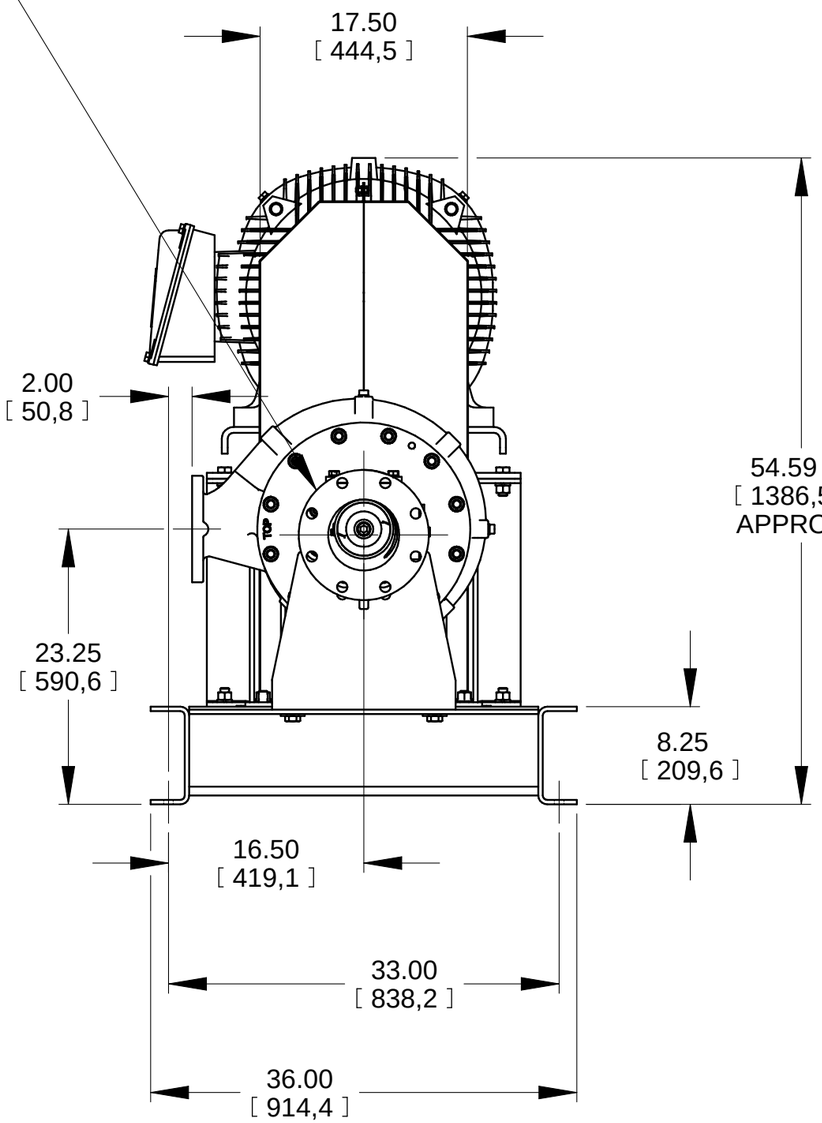
© Copyright Gorman-Rupp Pumps 2015

B | EDR11839-1 | SHEET 1 OF 1

DISCHARGE:
4.00 NOMINAL WITH 8 HOLES EQUALLY SPACED ON A 7.50/[190,5] DIA B.C. WITH 6 HOLES .75/[19,0] DIA THRU, TOP 2 HOLES TAPPED .625-11 UNC-2B THRU

SUCTION:
6.00 NOMINAL WITH 8 HOLES .88/[22,4] DIA EQUALLY SPACED ON A 9.50/[241,3] DIA B.C.





PRELIMINARY

MOTOR FRAME 445T/447T

DIMENSIONS:
INCHES
[MILLIMETERS]

THE GORMAN-RUPP CO.	DRAWN BY	SCALE	MODEL
MANSFIELD, OHIO ST. THOMAS, ONTARIO	KMW	5/64	6504E60-B
	DATE 04-26-22	REVISED	OUTLINE NUMBER EDR11839-1

EXHIBIT 3

WATER EFFICIENCY PLAN FOR CANYONS FAR SOUTH

Castle Rock, Colorado
WEP21-0004

Prepared For:
Canyons South LLC
5299 DTC Blvd., Suite 1260
Greenwood Village, CO

Prepared by:
Dig Studio
1521 15th Street
Denver, CO 80202

November 2022

LANDSCAPE ARCHITECT'S STATEMENT:

The enclosed Water Efficiency Plan, and Exhibits were prepared by me, or under my direct supervision, and are correct to the best of my knowledge and belief. Said Water Efficiency Plan has been prepared in accordance with applicable Town of Castle Rock criteria and latest Minimum Standards for Water Efficiency document.

_____

William P Vitek, Registered Landscape Architect, CO License #737

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.

_____

Canyons South LLC

TOWN OF CASTLE ROCK APPROVALS:

_____

Accepted By:

TABLE OF CONTENTS

I. Introduction
II. Water System Characteristics
III. Water Usage Performance Standards
IV. Conclusion
V. References

Appendices

- Site Location Plan
- Typical Lot Landscaping Plan
- Low Water Use Plant List
- Town of Castle Rock Water Efficiency Verification Checklist Indoor Standards
- Town of Castle Rock Water Efficiency Verification Checklist Outdoor Standards
- Irrigation System Design Records and Certification

Standard
Terminology and Values

One cubic foot = 7.48 gallons of water
One acre-foot = 325,851 gallons of water
One cubic foot per second (cfs) = 448 gallons per minute (gpm)
One acre of low water use turf grass, as approved by Town of Castle Rock Water, requires approximately 19.0" (407,314 gallons) of water per year.

I. INTRODUCTION

This Water Efficiency Plan (WEP) has been prepared as a supplement to the Canyons Far South Planned Development Plan. The WEP will also be supported by project specific Design Guidelines for the Canyons Far South project. This WEP and associated Design Guidelines conforms with the Town of Castle Rock latest standards and requirements as of the date of the adoption of this WEP.

A. Location

Canyons Far South (the "Property") is a master planned residential community located on a total of approximately 409 acres. The site is located in the northeast corner of the Town of Castle Rock as depicted on the Site Location Map in the Appendix. The site is located just north of the Terrain community, east of Founders Parkway, west of Castle Oaks Drive and just south of the Macanta residential community

B. Description of Property

The site is entitled for 474 residential units and 60,000 SF of commercial, and is anticipated to include a mix of lot and housing options in a site planning configuration that respects the natural vegetation, existing topography and drainage corridors. Existing vegetation, which is not currently irrigated, consists mainly of native grasses, scrub oak and some sporadic groupings of ponderosa pine along the drainage corridors. Infrastructure improvements for this project are expected to occur in phases as shown on the PD Plan.

II. WATER SYSTEM CHARACTERISTICS

A. Existing Supply

The Property is served by the Town of Castle Rock for potable water service delivered through the Town's water infrastructure. It is anticipated the project will utilize the Town's existing Red Zone water lines for the Commercial Planning Area and the Purple Zone system for the Residential Planning Areas. Connection points for the water infrastructure are located along Founders Parkway, Castle Oaks Drive and within the Macanta community to the north. Canyons South LLC will dedicate all owned ground water rights to the Town.

B. Proposed Facilities

All water and wastewater infrastructure design will be in accordance with the current Town of Castle Rock Water and Wastewater Design Criteria Manuals that can be located at: www.crgov.com/codecentral

C. Irrigation Demand

Canyons Far South is envisioned to be a model of water efficiency for the Town of Castle Rock utilizing both exterior and interior efficiency programs while still providing an attractive landscaped environment.

Residential lots will include water-wise landscaping with a mix of vegetation and landscaping materials. It is anticipated the Property will contain a variety of lot sizes each of which will provide specific limits to the amount of irrigated turf, planting materials and general landscape design. Landscape requirements will, at a minimum, meet the Town of Castle Rock standards, while the community design guideline will further define the landscape requirements for homebuilders and homeowners. Specific detail for landscape requirements and limitations shall be included with each respective site development plan (SDP) but shall not be subject to additional restriction so long as they are consistent with the Town's then landscape requirements and this WEP.

Common areas, open space, and streetscapes will utilize a drought tolerant plant palette that is consistent with Town of Castle Rock standards and plant list. The overall streetscape will be designed to have a multi-seasonal aesthetic appearance while accommodating plants that tolerate increased pollution and salts. No turf grass will be used within the streetscape and trees will meet the minimum diversity standard. The streetscape will be designed to blend in with the naturalized landscape concept for the Property with trees grouped rather than formal tree lawn plantings. All trees will be planted with regard to adequate growth potential and pedestrian safety zones.

Native seed planting will be utilized in the common space, and open space areas in and around the Planning Areas and for revegetation of disturbed areas. Native drought tolerant grasses will be included in most common space areas. Trees, shrubs and ornamental plants will be selected from the Town's low to very low hydrozone plant list and utilize a drip irrigation system. Grow-in of the disturbed areas may utilize additional water demand to reestablish vegetation to a sustainable coverage. Common area parks may utilize Town of Castle Roack approved irrigated turf, Kentucky bluegrass not allowed, but only in those areas identified as high-demand high-traffic areas planned for recreational purposes and group activities. Enhanced Native drought tolerant grasses, species approved by the Town of Castle Rock are required for these areas.

The Appendix includes an example landscaping plan for a typical sized lot along with a suggested planting list for the community. Additional plant materials may be proposed by the homebuilder and/ or installed by the homeowner so long as they are consistent with the intent of this WEP and the community design guidelines. Plant material to be utilized will be on the Town of Castle Rock approved Plant List and will be in Hydrozone 1 and 2.

III. WATER USAGE PERFORMANCE STANDARDS

A. Water Efficiency Plan (WEP) Minimum Criteria

All single-family homes in Canyons Far South will be constructed according to the following minimum criteria. Homes constructed under this WEP will demonstrate a higher efficiency and additional water savings above and beyond similar homes built without a WEP. Water efficiency criteria must meet or exceed current Town of Castle Rock standards. These standards may be

adjusted as phases develop to reflect new technologies and updates to the Town's Criteria and the Colorado's WaterSense programs.

1. The homes at Canyons Far South will meet the following required fixture criteria:

1.1. Service Pressure

i. Limited to 60 pounds per square inch (psi) at the point of service.

1.2. Toilets

i. Dual Flush: Watersense labeled, not to exceed a solid flush of 0.8 gallons per flush gpf or less and a liquid flush of 0.5gpf or less.

ii. Single Flush: Watersense labeled, not to exceed 0.8 gallons per flush gpf or less.

1.3. Kitchen Faucets

i. Not to exceed 1.5 gallons per minute (gpm).

1 .4. Bathroom Faucets

i. WaterSense labeled, not to exceed 1.2 gpm.

1.5. Showerheads (one allotted per bath/shower)

i. WaterSense labeled, not to exceed 1.5 gpm per showerhead.

1.6 Irrigation Controller

i. WI-FI enabled smart irrigation controller with multiple sensor inputs for rain and flow sensors.

1.7 Irrigation Components

i. Rotors, rotary nozzles, and point source or sub-surface drip irrigation, high efficiency spray irrigation is only allowed in turf areas and must have an application rate not to exceed one and one quarter (1.25) inches / hour.

ii. Irrigation flow sensor

ii. Irrigation master valve

1.8. Water Features

i. Outdoor decorative water features are not allowed.

Optional fixture selection and design criteria to achieve a minimum of seven (7) Points will also be required from the list of options as follows. Calculation of such points shall be determined with each respective Site Development Plan (SDP) application, allowing for flexibility in achieving the points to vary between product and homebuilder preference.

1.9 Pools

i. In-ground pools are not allowed.

1.10 Colorado Scape Design

i. A natural landscape which uses low to very low water, less than ten (10") inches of water per year incorporating plant material that blends with the native Castle Rock area landscapes. Plant material must be maintained in its natural form, utilizing a combination of hardscape and landscape materials which provide a variety of colors, textures, sizes, shapes and seasonal interest. No turf is allowed in front yards.

* Back Yard, 5 Points

1.11 Internal House Greywater System

i. A system contained within each home that allows for the collection and re-use of greywater generated within the home for the purpose of toilet flushing. 5 Points.

1.12 Hot Water Demand

i. A continuous whole-home hot water recirculation, with a traditional water heater system. 3 Points.

1.13 Tankless Water Heater

i. Point of use tankless electric water heater. 1 Point per location, maximum of 4 Points.

1.14 Leak Detection

i. Wi-Fi enabled flow detection and monitoring device with automatic shut off such as a Flo by Moen or similar system, 2 Points.

1.15 Kitchen Faucets

i. Kitchen faucets with less than 1.5 gpm, 1 Point per location, maximum of 2 Points.

1.16 Bathroom Faucets

i. Bathroom faucets with 1 gpm or less, 1 Point per location. Maximum of 3 Points.

2. Outdoor Water Efficiency

Landscape and Irrigation plans submitted as part of a WEP must meet or exceed the most current landscape and irrigation regulations at the time of each respective Site Development Plan (SDP) submittal. All single-family homes in Canyons Far South will be constructed according to the following outdoor criteria.

The outdoor water efficiency at Canyons Far South will be required to meet at least 3 points from the Town of Castle Rock's WEP criteria, an additional 4 points will come from indoor water efficiency.

2.1 Landscape and Irrigation Typical Treatment

All landscape and irrigation plans, as part of this Water Efficiency Plan, must be approved by Castle Rock Water, Conservation Plan Review at time of SDP.

i. Collector Spine Road Landscape:
   a. A regularly spaced, 40' o.c. tree lined road is not the intent of this landscape character area. Rather groupings of trees will be used to focus and buffer views along the entire length of the spine road. The total quantity of trees in the Spine Road groupings will equal the quantity of trees that would be anticipated for a 40' o.c. spacing. The Landscape Character along the main collector spine road will consist of groupings of trees and shrubs to match the existing native landscape character. The ground plane will be treated with a native grass seed mix to blend back with the existing undisturbed areas of the site. Drip irrigation to trees and shrubs shall be permanently installed to provide long term supplemental watering. Irrigation for native seeding is to be temporarily installed for establishment purposes only then removed.

ii. Planning Area Internal Local Neighborhood Streets (Not adjacent to Lots)
   a. Entry roads into the Planning Areas will consist of a mixture of 50% native reseeded grass areas and 50% enhanced native shrub areas within the Right of Way (ROW). Areas disturbed by grading operations will be reseeded with native grass. Similar to the Spine Road aesthetic, trees will be planted in groupings to mimic the native surroundings and open up views across the landscape. Temporary irrigation will be utilized for the native seed grass areas and will be removed, see Temporary Irrigation Criteria on CRgov.com, once these native areas are established. A point source drip irrigation system utilizing no more than 10" of water per year for the trees and shrubs shall be permanently installed to provide long term supplemental watering. This system will be maintained by the HOA. Irrigation for native seeding is to be temporarily installed for establishment purposes only then removed.

iii. Local Streets Adjacent to Lots
   a. The landscape areas located between the street facing lot lines and the back of the adjacent attached sidewalk will be planted with enhanced native plants and trees, as shown as a conceptual example in the Appendix of this WEP. These areas will utilize a point source drip irrigation system that will be installed by builder and maintained by homeowner. Plantings will not utilize more than 10" inches of irrigation per year and turf grass will not be allowed in this area. The plantings and irrigation system in this area will be the responsibility of the individual lot owner, as per section 9.3.2 of the Town of Castle Rock Landscape and Irrigation Criteria Manual, for upkeep and maintenance.

iv. Open Space Private (OSP)/developed parks
   a. Planning Areas may contain developed park areas for open recreational activities such as informal field games, catch, frisbee, and dog walking.

b. It is anticipated that turf areas or high water areas may be incorporated into park designs as consistent with Town of Castle Rock Municipal code Chapter 13.20. Low water turf grass will utilize no more than 19" inches of water per year. The remaining area will include enhanced native shrubs and trees on a drip irrigation system utilizing no more than 10" inches of water per year. These areas will contain shrubs and low water plantings with limited turf.

v. Commercial
   a. Open space within the commercial area will mainly consist of paved plaza spaces and gathering areas that are accented with shrub beds for color and trees for shade. Water usage in planted areas will not exceed more than 10" of water per year.
   b. Design will adhere to Town of Castle Rock Landscape and Irrigation Criteria Manual.
   c. Parking lots will be landscaped with trees and hearty shrubs.
   d. Any screening necessary for the Commercial Area will be shrubs and trees with the surrounding area will be a revegetated native seed to be established with temporary irrigation and blend with the existing character of Canyons Far South.
   e. All landscape areas will be irrigated with drip irrigation.
   f. No outdoor water features are allowed.
   g. No areas of irrigated turf are allowed.

2.2. Landscape Design
   i. ALL landscape design and implementation shall adhere to the Town of Castle Rock Landscape and Irrigation Criteria Manual.
   ii. All front and rear yards will be designed and installed by the homebuilder consistent with this WEP and community design guidelines.
   iii. All front yards will be designed to utilize a low to very low less than ten (10") inches of water per year) plant palette and will provide a variety of colors, textures, sizes, and shapes through hardscape and landscape materials.
   iv. Backyard turf area size in no case shall exceed 500 square feet.
   v. Turf types shall not include Kentucky Bluegrass varieties but may include other drought tolerant varieties. Allowable turf shall include turf species as listed on CRgov.com. All turf species shall be approved by the Castle Rock Water prior to installation.
   vi. All other landscaping must be Low to Very-Low Hydrozone (10" or less per year). All turf species shall be approved by Castle Rock Water prior to installation. Approved plant and turf species are available on-line at www.CRgov.com
   vii. Landscape must provide a minimum coverage of plant materials of 75% at *5* year maturity in front yards, excluding driveways and walks, and side yards when adjacent to streets.
   viii. Rear yards shall have a minimum of 50% plant coverage at *5-year* maturity. The remainder of yard coverage, excluding patios, may be composed of rock mulches, aggregate surfacing, artificial turf or hardscape. Rear yard design and

implementation shall adhere to the Town of Castle Rock Landscape and Irrigation Criteria Manual.

ix. An irrigation exemption may be issued for establishment of irrigated planted native seed in any month of the Mandatory Watering Schedules except July.

2.3. Irrigation Design

Residential Irrigation designs shall follow the Town of Castle Rock Landscape and Irrigation Criteria Manual at a minimum. Refer to Sections 4 and 6 for specific requirements. Additional requirements shall include:

i. Irrigation Flow Sensor
ii. Irrigation Master Valve
iii. Controllers:
   a. A wi-fi enabled weather sensing automatic irrigation system controller shall be installed. Controllers must be Town- approved and sensing shall be either weather-based (ET) or soil-moisture based. Controller shall automatically adjust irrigation in response to changes in plants' needs as weather conditions change. Controller must be capable of reading flow.
   b. Automatic irrigation system controllers shall be WaterSense labeled or approved by the Town.
   c. Weather-based (ET) controllers shall have a separate wired or wireless rain sensor. Rain sensor must not be bypassed, and must remain fully operational.
   d. Controllers shall have a minimum of 3 programs or schedules and a minimum of 3 start times per each schedule or program.
   e. Controllers must be capable of watering every third day.
iv. Sprinkler Heads:
   a. Pop-up or rotor heads that utilize high efficiency nozzles designed with head-to-head coverage. This may include conventional rotors, stream rotators or high efficiency pop-up spray nozzles. The DU must be verified by third-party audit, see the TOCR Landscape and Irrigation Criteria Manual.
   b. Pop-up height must be 6" for turf areas and 12" for native areas.
   c. Pop-up spray sprinkler bodies must be equipped with internal pressure regulation matching the required pressure of the nozzle. All sprinkler heads (spray and rotor) must be equipped with internal check valve.
   d. Sprinkler heads must be installed at head-to-head spacing at a minimum.
   e. The turf may use spray nozzles at a radius of 15 feet or less, a combination of rotary nozzles and stream rotators from 15 to 35 feet, and short to medium range rotors at 25 feet or greater. Sprinkler heads within the same zone must have matched precipitation rates.
   f. Traditional fixed and traditional variable arc spray nozzles are not allowed.

g. Pop-up spray nozzles cannot be zoned together with multi-trajectory rotating stream nozzles or traditional rotor heads.
h. Nozzles must be adjustable for arc and distance and must be calibrated at the time of installation to cover only the irrigated area.
i. Nozzle application rate shall not exceed 1.25" per hour.

v. Drip Irrigation: the use of a drip system will be used in all shrub bed areas; no spray type irrigation will be allowed. Minimum requirements are:
a. Pressure compensating emitters
b. Pressure regulation at the control valve assembly (min. 20 PSI, max. 40 PSI)
c. Filtration at the control valve assembly (min. 200 mesh)
d. All drip zones must contain a flush valve and operational indicator at all drip lateral line dead ends.

B. Education

1. Resident Education

1.1. The developer/builder shall create educational materials to be provided to residents. Educational programs will be approved by the Town and will contain information pertinent to the WEP, water budget rate structure, and specific water conservation measures including, but not limited to, soil preparation appropriate for existing conditions and selected plant materials, smart irrigation controllers, and high efficiency sprinkler heads and nozzles. Materials may include brochures, how-to guides, a Homeowners Education Packet, instruction manuals, web content for the Town website, educational videos, or in-person training. The educational program will be submitted to Castle Rock Water Conservation staff for their review and approval. Sample educational materials may be found on the Colorado Water Conservation Board (CWCB) website at:

https://cwcb.colorado.gov/public-information

1.2. Residents shall be educated regarding installed indoor and outdoor water efficiency measures, including relationships with water budgets and billing rates. Education will be accomplished through 'how-to' education packets to residents and on-site training by an outside qualified person, coordinated by the Metropolitan District or HOA for Canyons Far South.

1.3. Training for each Homeowner will be coordinated after landscape installation is complete, by an outside qualified person, hired by the Metropolitan District or HOA for Canyons Far South. Training shall include one session on the care and operation of the irrigation system and plant material to each resident at the time of installation. This training shall include controller operations and programming, locations of shut off valves, winterization need, watering days as determined by address, and expected plant material watering needs.

1.4. Residents shall be provided an online link to training material from the outside qualified person for spring, summer, fall, and winter maintenance, care and WaterWise conservation.

1.5. All financial costs and responsibility for implementation of the educational components shall be borne by the Metropolitan District or HOA for Canyons Far South.

1.6. Metropolitan Districts and HOA will be required to send 'how-to' education packets to residents and schedule on-site training by an outside qualified person.

1.7. The Builder shall install a permanent placard at the meter. Placard will follow Castle Rock Water guidelines and will be similar to other WEP development placard examples, as found on the Castle Rock Water Website.

C. Verification

Each completed home will have an Indoor 3rd party inspection at the expense of the builder. Outdoor 3rd party inspection by Castle Rock Water - Water Conservation staff. The third-party inspector shall certify that all homes, landscapes and irrigation systems are being constructed in compliance with the standards outlined in this WEP prior to certificate of occupancy (CO).

D. Indoor Water Efficiency Standards

As part of the building permit application, builders will be required to submit a WEP Homeowners Education Packet, with detailed information regarding the specific high-efficiency fixtures and appliances being installed in each unit and to verify they meet or exceed the indoor Design Guidelines. A sample verification checklist is provided in the Appendix of this plan. Any deficiencies must be corrected within 30 days following inspection. A 3rd party inspection for indoor fixtures is required. A Certificate of Occupancy (CO) will be issued once indoor and outdoor requirements are met.

E. Outdoor Water Efficiency Standards

In accordance with the Town's existing Landscape and Irrigation Criteria Manual, a landscape and irrigation plan for front and back yard, must be completed for each residential unit. Each submittal will be reviewed to ensure compliance with water efficiency standards per current Town landscape regulations and as outlined in this WEP. Soil and landscape outdoor inspections are required prior to Certificate of Occupancy (CO). Each submittal will be compared to the irrigated turf and outdoor water budget restrictions to ensure compliance with the minimum stated standards. The submittal shall include the name of the Town-registered landscape and irrigation contractors. A sample verification checklist is provided in the Appendix of this plan. Outdoor inspections are weather dependent and will be completed April through October. For

homes requesting a certificate of occupancy between November 1 - April 1, the outdoor inspection is required within 180 days from the CO date. Any deficiencies must be corrected within 30 days following inspection.

F. Water Usage Calculations.

A Water Budgeting Analysis is presented in the Appendix. This table presents the anticipated average water use, based on a conceptual Site Plan, in ac-ft/yr for a variety of usage approaches, styles, and modeling assumptions. This table demonstrates the variety of statistical assumptions that have been made regarding average residential, open space, right-of-way, park and commercial water use. Average residential use shall be recalculated each March by the Town. All new customers will be set to the customer class average for Tier 1 until individual indoor use is established. Consumers who use an amount greater than that which has been budgeted for that specific user shall be subject to higher rate tiers. However, the Owner/ Developer shall not be penalized via their water bank or otherwise for such users increased usage/demand beyond the budgeted amount per user.

Target water usage for this project has been estimated assuming self-imposed water budgeting restrictions for both indoor and outdoor use, based on a conceptual Site Plan.

IV. CONCLUSION

This WEP proposed for Canyons Far South is in accordance and compliance with the Town's Minimum Standards for WEPs and meets or exceeds the Town's existing standards in the Landscape and Irrigation Criteria Manual. The WEP sets the parameters for low water use landscapes, including native grasses and low water plantings.

The water conservation practices make the Canyons Far South WEP exceptional. The homebuilders are required to install both front and back yard landscaping and turf grass limitations of this WEP exceed or meet those listed in the Town's Water Efficiency Master Plan and the Landscape and Irrigation Criteria Manual.

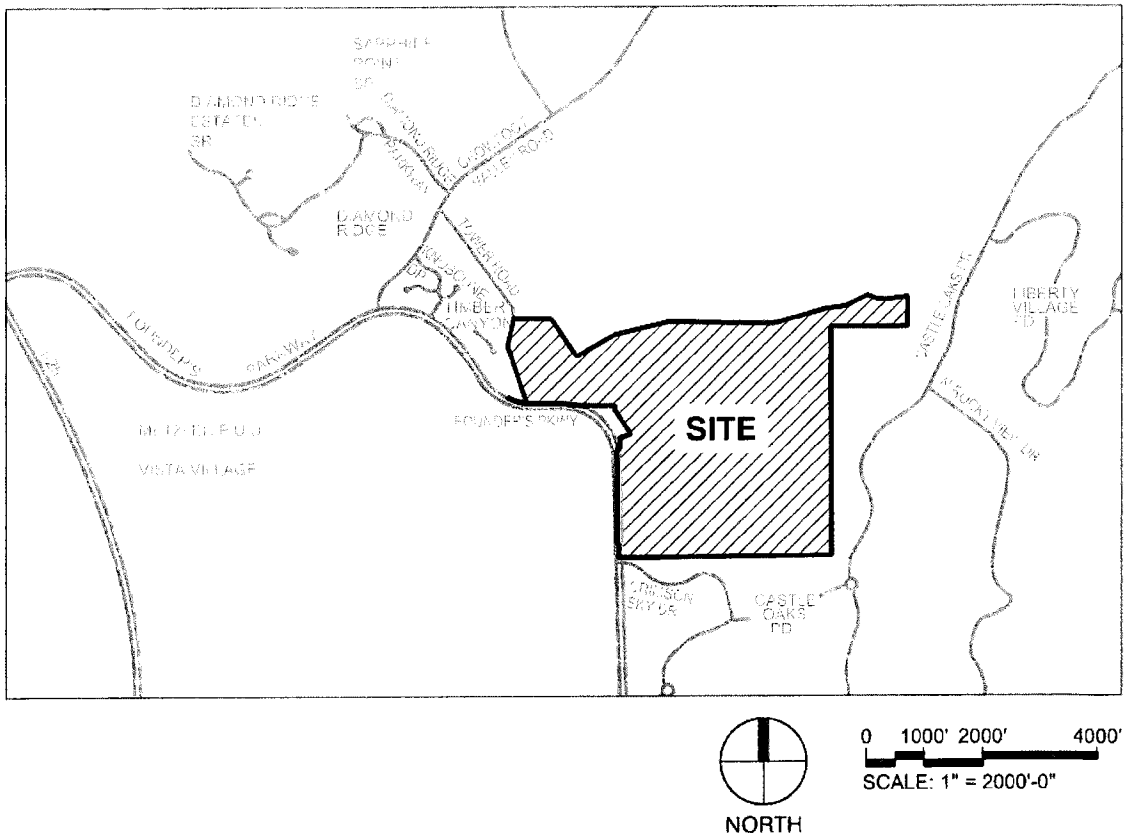
Performance standards within this WEP should result in significantly less water usage than typical, and as compared with standards within Town code. These standards and guidelines support the intended goal of this WEP and Canyons Far South to be a model for future community development within the Town Castle Rock and the State of Colorado.

V. REFERENCES

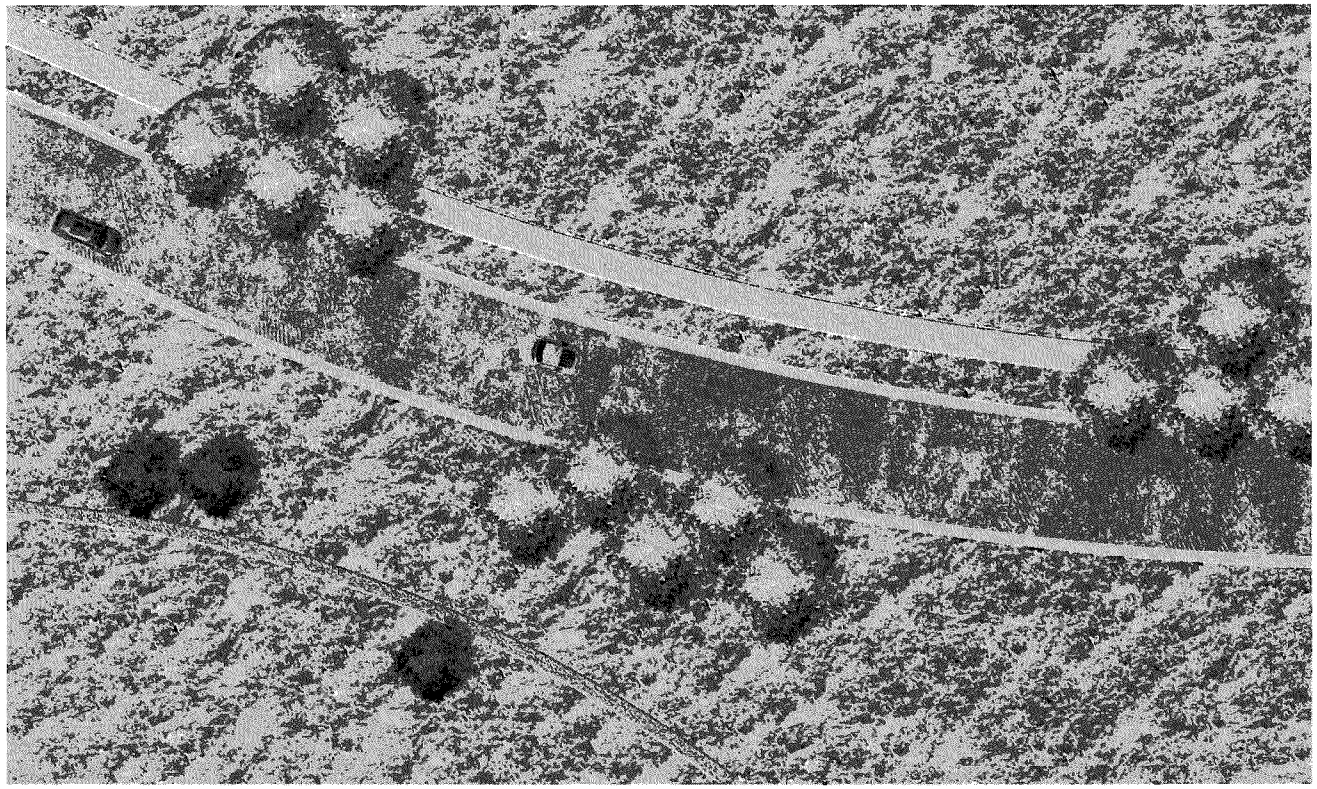
1. Town of Castle Rock Water Efficiency Master Plan. Castle Rock, Colorado, 2015.
2. Town of Castle Rock Landscape and Irrigation Criteria Manual. Castle Rock, Colorado, April 1, 2021.
3. AWWA Residential End Uses of Water, Version 2: Executive Report, Published April 2016 https://www.waterrf.org/research/projects/residential-end-uses-water-version-2

APPENDIX

Site Location Map



CANYONS FAR SOUTH- TYPICAL SPINE ROAD LANDSCAPING

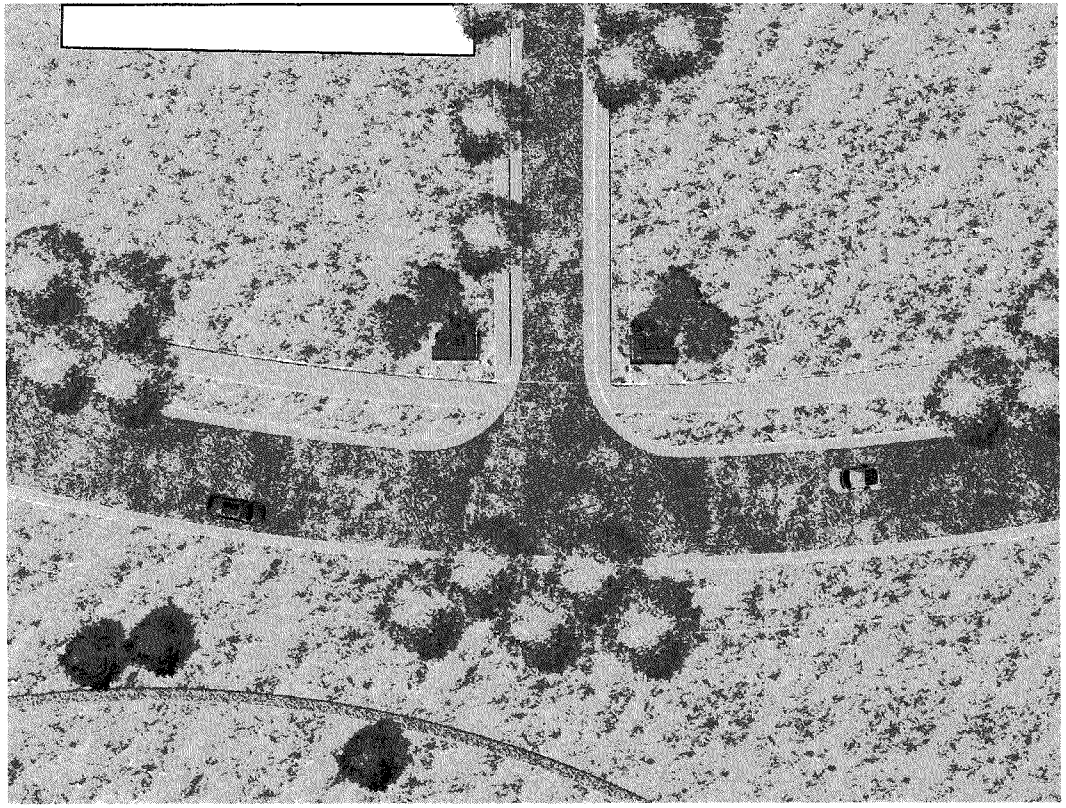


SPINE ROAD TYPICAL NOTES:

1. TURF AREAS SHALL NOT BE ALLOWED WITHIN THE RIGHT-OF-WAY. VERY LOW AND LOW WATER USE HYDROZONE PLANTS WITH SEASONAL INTEREST ARE REQUIRED.
2. LANDSCAPE TO BLEND WITH SURROUNDING NATIVE LANDSCAPE.
3. TREES TO BE GROUPED TO ALLOW FOR VIEWS AND TO COMPLIMENT THE EXISTING NATIVE LANDSCAPE.

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CANYONS FAR SOUTH- TYPICAL PA ENTRY LANDSCAPING

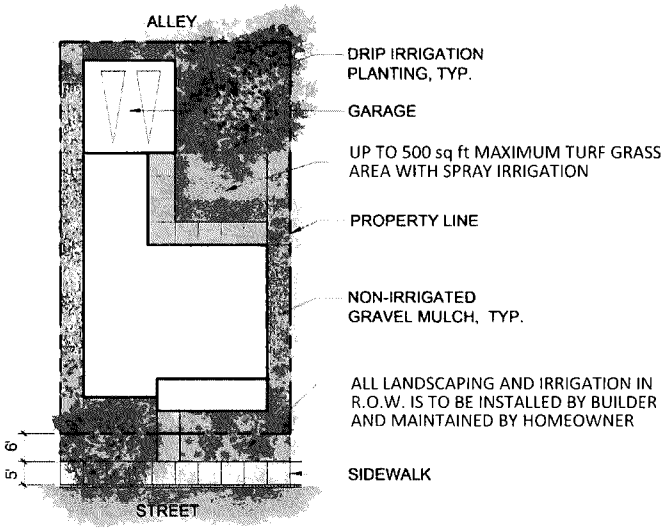


ENTRY TYPICAL NOTES:

1. ENTRY LANDSCAPING SHALL NOT ALLOW TURF. VERY LOW AND LOW WATER USE HYDROZONE PLANTS WITH SEASONAL INTEREST ARE REQUIRED.
2. LANDSCAPE TO BLEND WITH SURROUNDING NATIVE LANDSCAPE.

Ref # 2023029148, Pages: 54 of 69

CANYONS FAR SOUTH- TYPICAL LOT LANDSCAPING PLANS

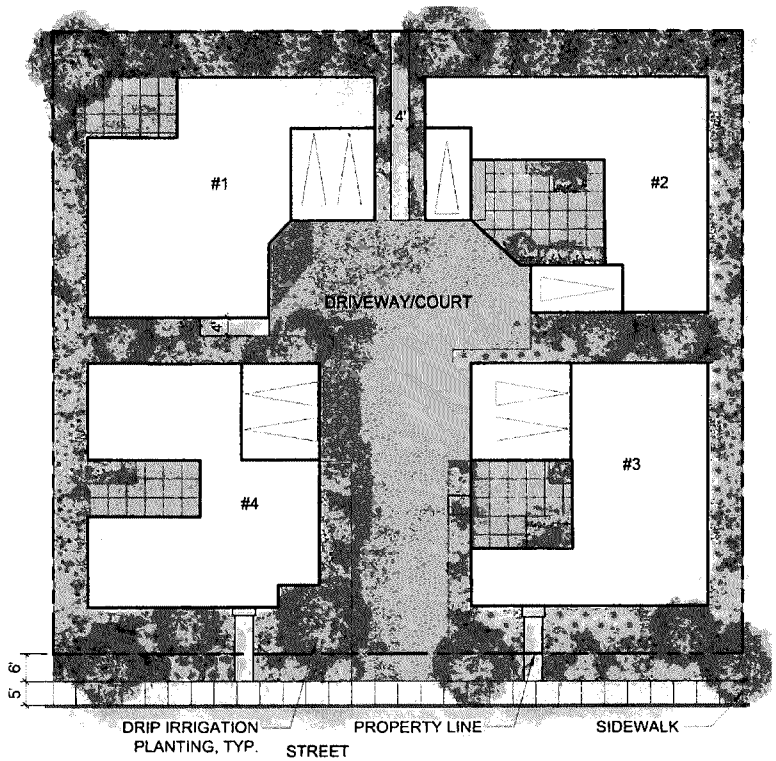


DRIP IRRIGATION PLANTING: 1,575sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 2,000sf

TYPICAL COTTAGE HOME



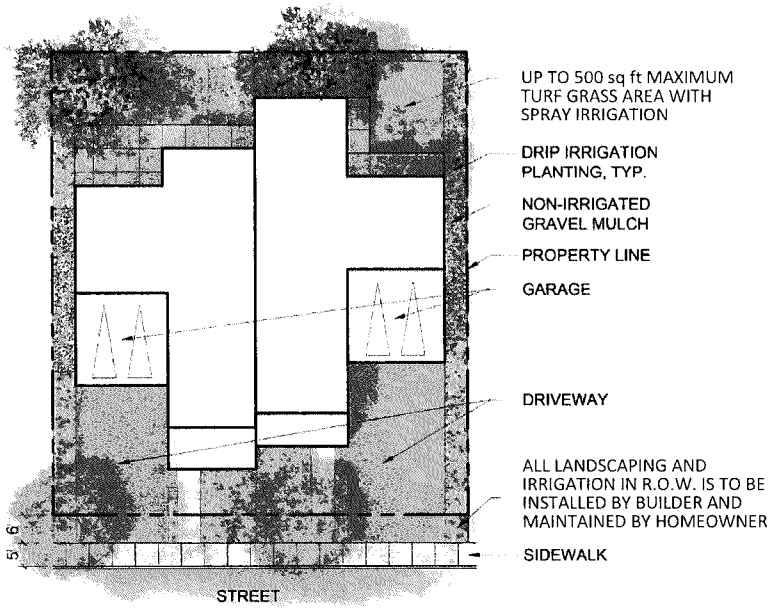
DRIP IRRIGATION PLANTING: 1,500sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 2,025sf, PER UNIT

TYPICAL CLUSTER HOME

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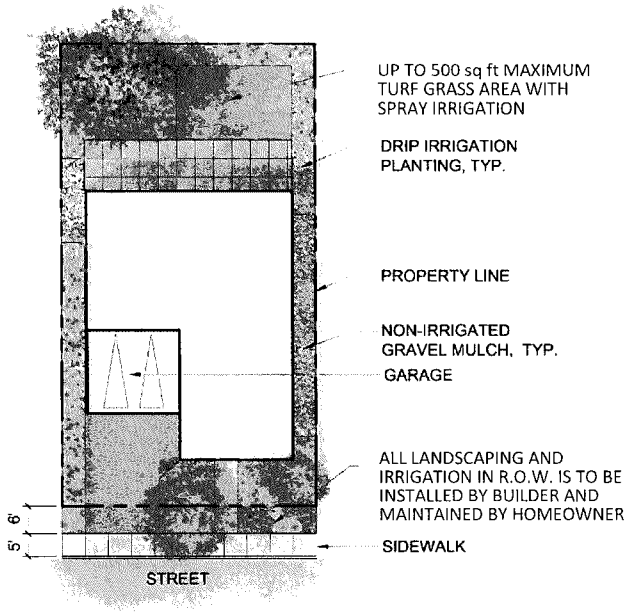


DRIP IRRIGATION PLANTING: 1,260sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 1,710sf, PER UNIT

TYPICAL PAIRED HOME



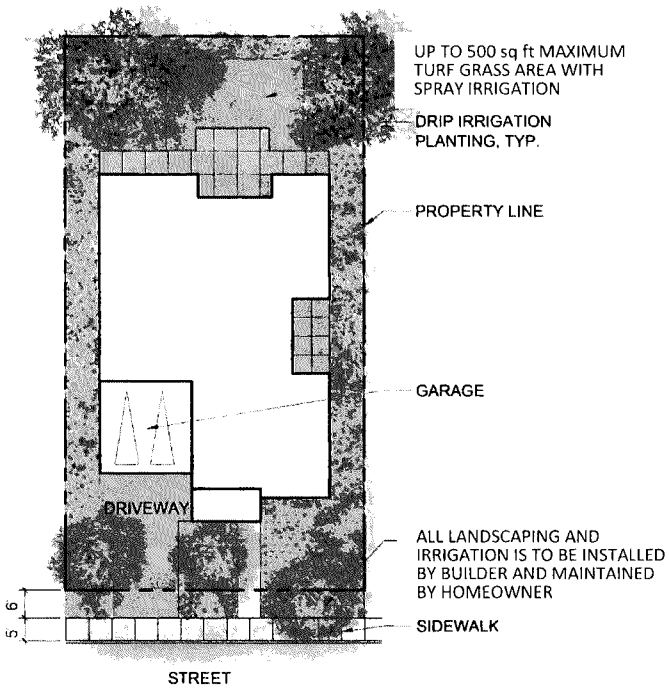
DRIP IRRIGATION PLANTING: 1,860sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 2,460sf

TYPICAL SMALL LOT

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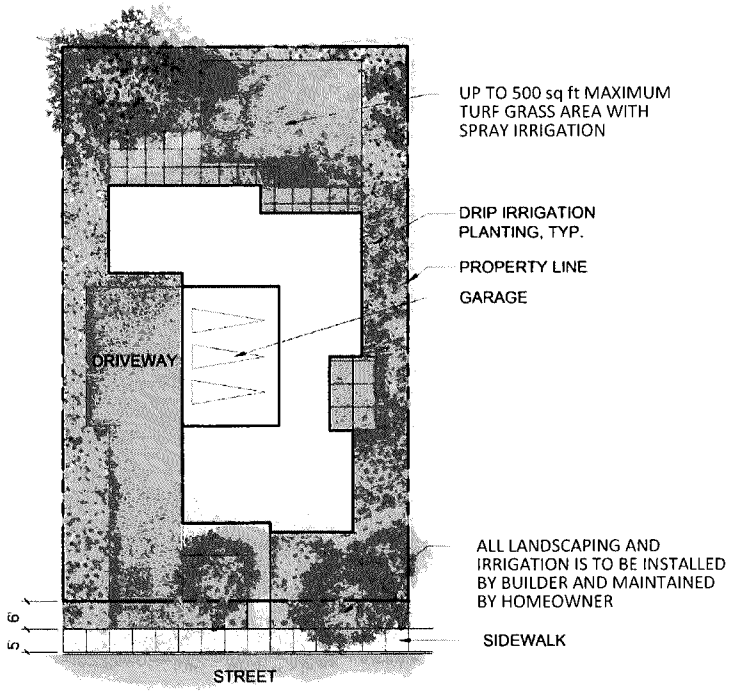


DRIP IRRIGATION PLANTING: 3,640sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 4,140sf

TYPICAL MEDIUM LOT



DRIP IRRIGATION PLANTING: 4,100sf, PER UNIT

SPRAY IRRIGATION: UP TO 500 sq ft

TOTAL IRRIGATION AREA: 4,600sf

TYPICAL LARGE LOT

LOT TYPICAL NOTES:

1. FRONT YARD LANDSCAPING SHALL NOT ALLOW TURF. VERY-LOW AND LOW WATER USE HYDROZONE PLANTS ARE REQUIRED.
2. BACK YARD IRRIGATED TURF AREAS SHALL FOLLOW THE CRITERIA AS OUTLINED IN THE WEP. TURF IS NOT TO EXCEED 500sf PER LOT. TURF/SOD MIXES APPROVED BY THE Town of Castle Rock Water ARE REQUIRED. ALLOWABLE TURF AND PLANT SPECIES LISTS ARE AVAILABLE ON-LINE AT CRgov.com.
3. ALL LANDSCAPING AND IRRIGATION IS TO BE INSTALLED BY BUILDER AND MAINTAINED BY HOMEOWNER.
4. A MINIMUM OF ONE (1) 2 1/2" CALIPER LARGE CANOPY SHADE TREE SHALL BE PROVIDED IN THE FRONT YARD SETBACK.
5. ROCK MULCH SHALL BE USED IN PLANTING BEDS AND IN THE SIDE YARDS. ALL AREAS IN THE FRONT YARD CONTAINING ROCK MULCH ARE TO HAVE PLANT COVERAGE WITH LOW TO VERY LOW WATER REQUIRING PLANT MATERIAL.
6. IT IS REQUIRED TO PLANT TREES 10' MIN. FROM WATER AND SEWER LINES

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CANYONS FAR SOUTH WATER EFFICENCY PLAN PROJECTED WATER USE

Forcasted bedroom counts are estimated from concept plan to get to forcasted demand. Water audit will calculate actual fixture count and forcasted water use.

Indoor and Outdoor Residential Water Use

	Indoor Water Use							Irrigation - Lots: High Water Use Area				Irrigation - Lots: Low Water Use Area				Indoor and Outdoor Water Use Per Lot Totals		Canyons South Total Estimated Water Usage Compared with Water Dedication			
	No. of Units***	persons per unit	Indoor Gal/pp/Day	gal/d-unit	gal/d-unit with 23% WEP credit	gal/year	Ac-ft/yr, indoor use	irrigable area, SF	irrigable area, Ac	in/year irrigation	ft/yr, irr	irrigable area, SF	irrigable area, Ac	in/year irrigation	ft/yr, irr	High and Low Irrigation Totals ac-ft/yr	total water use, ac-ft/yr	Required 2:1 dedication, ac-ft	Total Water Use including permanent irrigation all lots, ac-ft	Water Dedication ac-ft avail	shortage, ac-ft	shortage, SFE (1.1 acft/sfe)
2 bedroom	38	2.34	70	164	127	46,355	***0.143***	500	0.011	19	1.583	750	0.017	10	0.833	***0.033***	0.176	0.352	13.38			
3 bedroom	56	3.5	70	245	189	68,985	***0.212***	500	0.011	19	1.583	763	0.018	10	0.833	***0.033***	0.245	0.490	27.44			
3 bedroom	56	3.5	70	245	189	68,985	***0.212***	500	0.011	19	1.583	620	0.014	10	0.833	***0.031***	0.243	0.486	27.22			
3 bedroom	77	3.5	70	245	189	68,985	***0.212***	500	0.011	19	1.583	980	0.022	10	0.833	***0.037***	0.249	0.498	38.35			
4 bedroom	121	3.75	70	263	203	74,095	***0.227***	500	0.011	19	1.583	1,945	0.045	10	0.833	***0.056***	0.284	0.568	68.73			
4 bedroom	76	3.75	70	263	203	74,095	***0.227***	500	0.011	19	1.583	2,175	0.050	10	0.833	***0.060***	0.288	0.576	43.78			
5 bedroom	50	4.25	70	298	230	83,950	***0.258***	500	0.011	19	1.583	2,175	0.050	10	0.833	***0.060***	0.318	0.636	31.80			

Indoor Water Reduction Calculation

	Standard Use* gal/min or gal/flush	Canyons Far South WEP Use gal/min or gal/flush	% of household Use **	% of Savings with WEP
Bathroom Faucet	2.2	1.2 (two per bathroom)	9.5%	5.2%
Toilets	1.6	0.8	24%	12.0%
Kitchen Faucet	2.2	1.5	9.5%	6.5%
Showerheads	2.1	1.5	19%	13.6%
			62.0%	37.2%
		Total Percentage Savings for WEP Standards		23.1%

* Standard Use calculated from EPA Water Sense

** Washing machine, leaks and other make up 38%, and assume no savings

*** Exhibit is based on conceptual plan for Canyons Far South. If development is short on water, CFS has ability to aquire additional renewable sources

Irrigation - Common Areas

	irrigable area, SF	irrigable area, Ac	in/year irrigation	ft/yr irrigation	Total Water Use ac-ft/yr	Required 2:1 dedication, ac-ft
Spine Road	141,900	3.258	10	0.833	***2.715***	5.429
Commercial Area	72,005	1.653	10	0.833	***1.378***	2.755
Parks	242,797	5.574	17	1.417	***7.896***	15.793
Entries	73,827	1.695	10	0.833	***1.412***	2.825
	49,000	1.125	10	0.833	***0.937***	1.875
					14.338	28.68

Residential Water Use and Common Area Irrigation	279.38	465	-185.6	-168.75
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Ref # 20230291148, Pages: 58 of 69

Water Efficiency Verification Checklist
Indoor Standards

Lot Number/Address: _____ **Permit Number:**_____

All indoor fixtures and appliances must comply with standards listed in the current approved version of the WEP.

Summary of Proposed Fixtures and Appliances.

Complete the information on water demand and the make/model for each fixture and appliance that will be installed.

Room	Fixture/Appliance	Water Demand	Make/Model
Kitchen	Sink Faucet Dishwasher	gal/minute gal/cycle	
Bathroom 1	Toilet Sink Faucet(s) (up to 2 per) Showerhead (1 per)	gal/flush gal/minute gal/minute	
Bathroom 2	Toilet Sink Faucet(s) (up to 2 per) Showerhead (1 per)	gal/flush gal/minute gal/minute	
Bathroom 3	Toilet Sink Faucet(s) (up to 2 per) Showerhead (1 per)	gal/flush gal/minute gal/minute	
Bathroom 4	Toilet Sink Faucet(s) (up to 2 per) Showerhead (1 per)	gal/flush gal/minute gal/minute	
Laundry	Sink Faucet Clothes Washer	gal/minute gal/cycle/cubic foot	
Other			

- Is a 5/8-inch tap being requested? (Yes/No):
- Confirm fixtures and appliances are consistent with approved verification submittal. (Yes/No)
- Confirm results of leak detection pressure loss test (Yes/No)
- WEP Placard (yes/no)

CERTIFICATION

I hereby certify that the above information is true and accurate. I understand that the falsification of any information on this submittal may disqualify me from completing or performing future work related to The Lanterns development in Castle Rock, CO.

Builder Signature: _____ Date: _____
Printed Name/Company: _____

Water Efficiency Verification Checklist
Outdoor Standards

Lot Number/Address: _____ **Permit Number:**_____

Lot Size: _____

Landscape Design

The design guidelines for outdoor uses were developed to limit the use of irrigated turf and reduce overall outdoor water demands. The maximum turf area for lot sizes is outlined in Section 2.1 of this WEP. In no case shall maximum turf areas exceed the limits of this WEP. Kentucky bluegrass turf is not permitted. Turf grass shall use no more than 19" of irrigation per season and shall be listed in the Town of Castle Rock Landscape and Irrigation Criteria Manual Appendix B.

Proposed landscape plans must be summarized as specified in Table 1 below. The Town of Castle Rock approved plant list shall be used to classify selected plants into the appropriate Irrigated Water Use Zone.

Table 1. Landscape Irrigation Demands.

Irrigated Water Use Zone		Size of Zone
High	(more than 15")	___sf
Moderate	(10.1" - 15")	___ sf
Low	(5.1" - 10")	___ sf
Very Low	(0"-5")	___sf
Total		___ sf

- Does landscape plan comply with turf limitation? (Yes/No): _____
- Does plant material comply with approved landscape plan? (Yes/No): _____
- Turf type: _____
- Number of plants: _____
- Does installed landscaping match typical landscape design in the approved WEP? (Yes/No)
- Verify that pressure within the home and irrigation system does not exceed 60 psi
- Confirm correct heads and nozzles
- Correct clock with appropriate weather or soil moisture sensor. Ensure all sensors are connected and operational.
- Rain sensor installed and operational.
- Check sprinkler head spacing to ensure head to head coverage by running the system
- Check sprinkler adjustments to ensure no overspray onto impervious surfaces

Irrigation System Design

Automatic irrigation system controllers shall be approved by the Town, and be weather based (ET) or soil-moisture based, that automatically adjust irrigation in response to changes in the plants' needs as weather conditions change and are capable of reading flow. All equipment must comply with the standards listed in the current version of approved WEP. Design requirements are subject to change as reflected in updated EPA WaterSense Program details and Town of Castle Rock Landscape and Irrigation Performance Standards and Criteria.

Table 3. Proposed Irrigation System Equipment.

Device	Make/Model
Smart Controller	
Fixed Spray Heads	
Rotor Heads	
Drip Emitters	
Rain Sensors	

CERTIFICATION

I hereby certify that the above information is true and accurate. I understand that the falsification of any information on this submittal may disqualify me from completing or performing future work in Castle Rock, CO.

Builder Signature: _____ Date: _____
Printed Name/Company: _____

Landscape Designer Signature: _____ Date: _____
Printed Name/Company: _____

Irrigation Designer Signature: _____ Date: _____
Printed Name/Company: _____

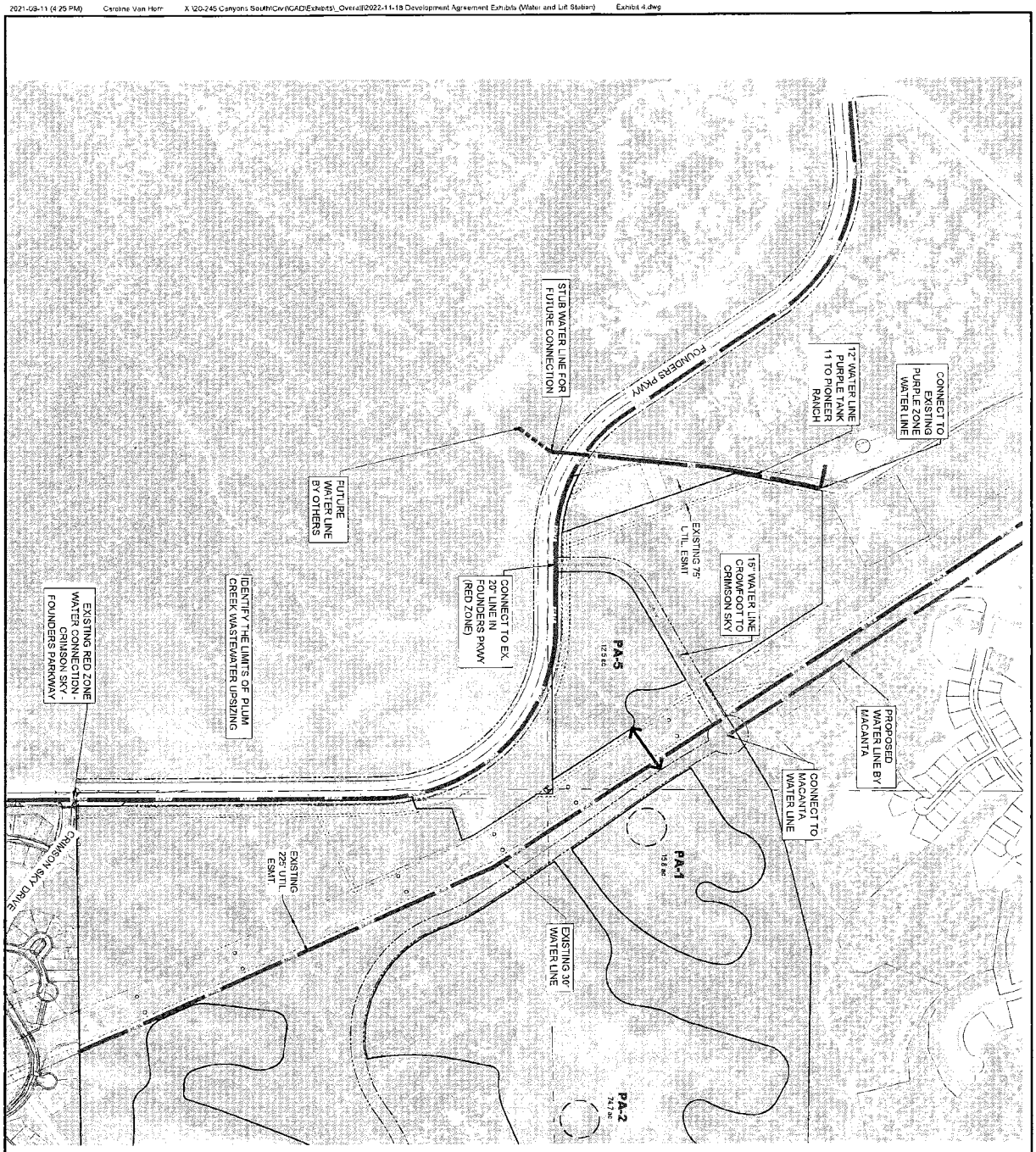


EXHIBIT 4

SHEET 1 OF 2	CANYONS SOUTH	DEVELOPMENT AGREEMENT - EXHIBIT 4	CORE CONSULTANTS INC 3473 S. BROADWAY ENGLEWOOD, CO 80113 303.703.4444	LAND DEVELOPMENT ENERGY PUBLIC INFRASTRUCTURE
JOB NO. 20-245	DESIGNED BY: CVH	DATE: 11/14/22		