

# UTILITY CONFORMANCE LETTER



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**To:** Iman Ghazali, Aurora Water, City of Aurora

**From:** Kurtis Williams

**Date:** August 28, 2024

**Subject:** Overland Ranch Filing 2 – Utility Conformance Letter

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This utility conformance letter is intended to summarize the findings of an evaluation JR Engineering performed on the sanitary sewer collection system and water system to service the Overland Ranch Filing 2 development. JR Engineering used the Master Utility Report for Trails at Overland Ranch to evaluate the planned sanitary sewer and water service loading in Filing 2. The Overland Ranch Filing 2 development consists of a total of 569 proposed units, including 459 single-family units and 110 paired units. A proposed sanitary lift station will serve 429 single-family units and 36 single-family, while 30 single-family units and 74 paired units will be a part of the gravity only system. Water and sanitary demands were calculated using the City of Aurora design criteria. The approved Master Utility Report for Trails at Overland Ranch has been attached with this memo for reference. The future Filing 2 sanitary loading and water demands have been calculated within this report. The Filing 2 development will connect to the water and sanitary infrastructure constructed with Filing 1.

## Summary of Findings:

**Water:** The Overland Ranch Filing 2 development is proposing future single-family and paired residential units. This use complies with the water loading for the given project site. The single-family and paired residential lots within Filing 1 and 2, generate a domestic average day demand of 195.28 GPM, a max day demand of 546.78 GPM, and a peak hour demand of 878.76 GPM. Tables below show the calculated proposed water demand and compare them to the previously calculated demands in the master report. Filing 1 is included for comparison between water demands in this letter for Filing 2 and the Master Utility Report the entire Overland Ranch development. The proposed water loading is below the expected domestic average day demand of 223.36 GPM, a max day demand of 625.41 GPM, and a peak hour demand of 1005.13 GPM calculated in the Master Utility Report. Filing 2 will connect to the 12" and 8" water infrastructure in Overland Ranch Filing 1 and ultimately the existing 12" infrastructure in S. Monaghan Rd. and E. County Line Rd.

**Filing 2 -**

UNIT TYPE	UNIT	ACREAGE	POPULATION	AVG DEMAND (GPM)	MAX HOUR DEMAND (GPM)	MAX DAY DEMAND (GPM)
SINGLE FAMILY UNITS	459	---	1271	89.18	401.30	249.69
PAIRED UNITS	110	---	305	21.37	96.17	59.84
TOTAL UNITS	569	0.00	1576	110.55	497.47	309.53

**Filing 1 -**

UNIT TYPE	UNIT	ACREAGE	POPULATION	AVG DEMAND (GPM)	MAX HOUR DEMAND (GPM)	MAX DAY DEMAND (GPM)
SINGLE FAMILY UNITS	425	---	1177	82.57	371.57	231.20
COMMERCIAL (COMMUNITY CENTER)	---	2.07	---	2.16	9.72	6.05
TOTAL UNITS	425	2.07	1177	84.73	381.29	237.25

**Total -**

GRAND TOTAL (FILING 1 + 2 COMBINED)	994	371.42	2753	195.28	878.76	546.78
MASTER UTILITY REPORT (PHASE 1, 2, 3 COMBINED)	1037	373.00	2897	223.36	1005.13	625.41

**Sewer:** The Overland Ranch Filing 2 development is proposing future single-family and paired residential units. This use complies with the sanitary loading for the given project site. The single-family and paired units in Filing 2 being conveyed to the lift station, generate a peak and infiltration demand of 0.359 MGD. The single-family and paired units in both Filing 1 & 2 being conveyed by gravity to S. Monaghan Rd., generate a peak and infiltration demand of 0.780 MGD. Tables below show the calculated proposed sanitary demand and compare them to the previously calculated demands in the master report. Filing 1 is included for comparison between sanitary demands in this letter for Filing 2 and the Master Utility Report for the entire Overland Ranch development. The proposed sanitary loading of 0.780 MGD for Filing 1 and 2 is below the expected loading of 0.804 MGD calculated in the Master Utility Report. Filing 2 will connect to the 12" and 8" sanitary infrastructure in Overland Ranch Filing 1 and ultimately the existing 15" infrastructure in S. Monaghan Rd.

**Filing 2 -**

UNIT TYPE	UNIT	POPULATION	DEMAND (MGD)	PEAK FLOW (MGD)	INFILTRATION (MGD)	PEAK + INFIL (MGD)
LIFT STATION BASIN	SINGLE FAMILY UNITS	429	1188	0.081	0.323	0.331
	PAIRED UNITS	36	100	0.007	0.027	0.028
	TOTAL	465	1288	0.088	0.350	0.359
GRAVITY BASIN	SINGLE FAMILY UNITS	30	83	0.006	0.023	0.023
	PAIRED UNITS	74	205	0.014	0.056	0.057
	TOTAL	104	288	0.020	0.078	0.080
TOTAL UNITS		569	1576	0.107	0.429	0.439

**Filing 1 -**

UNIT TYPE	UNIT	POPULATION	DEMAND (MGD)	PEAK FLOW (MGD)	INFILTRATION (MGD)	PEAK + INFIL (MGD)
GRAVITY BASIN	SINGLE FAMILY UNITS	425	1177	0.080	0.320	0.328
	COMMERCIAL (COMMUNITY CENTER)	---	46	0.003	0.012	0.013
	TOTAL UNITS	425	1223	0.083	0.333	0.341

**Total -**

GRAND TOTAL	LIFT STATION BASIN (DP10)	465	1288	0.088	0.350	0.009	0.359
	LIFT STATION + GRAVITY (DP01)	994	2799	0.190	0.761	0.019	0.780
MASTER UTILITY REPORT	LIFT STATION BASIN (DP10)	467	1294	0.088	0.352	0.009	0.361
	LIFT STATION + GRAVITY (DP01)	1037	2873	0.196	0.784	0.020	0.804

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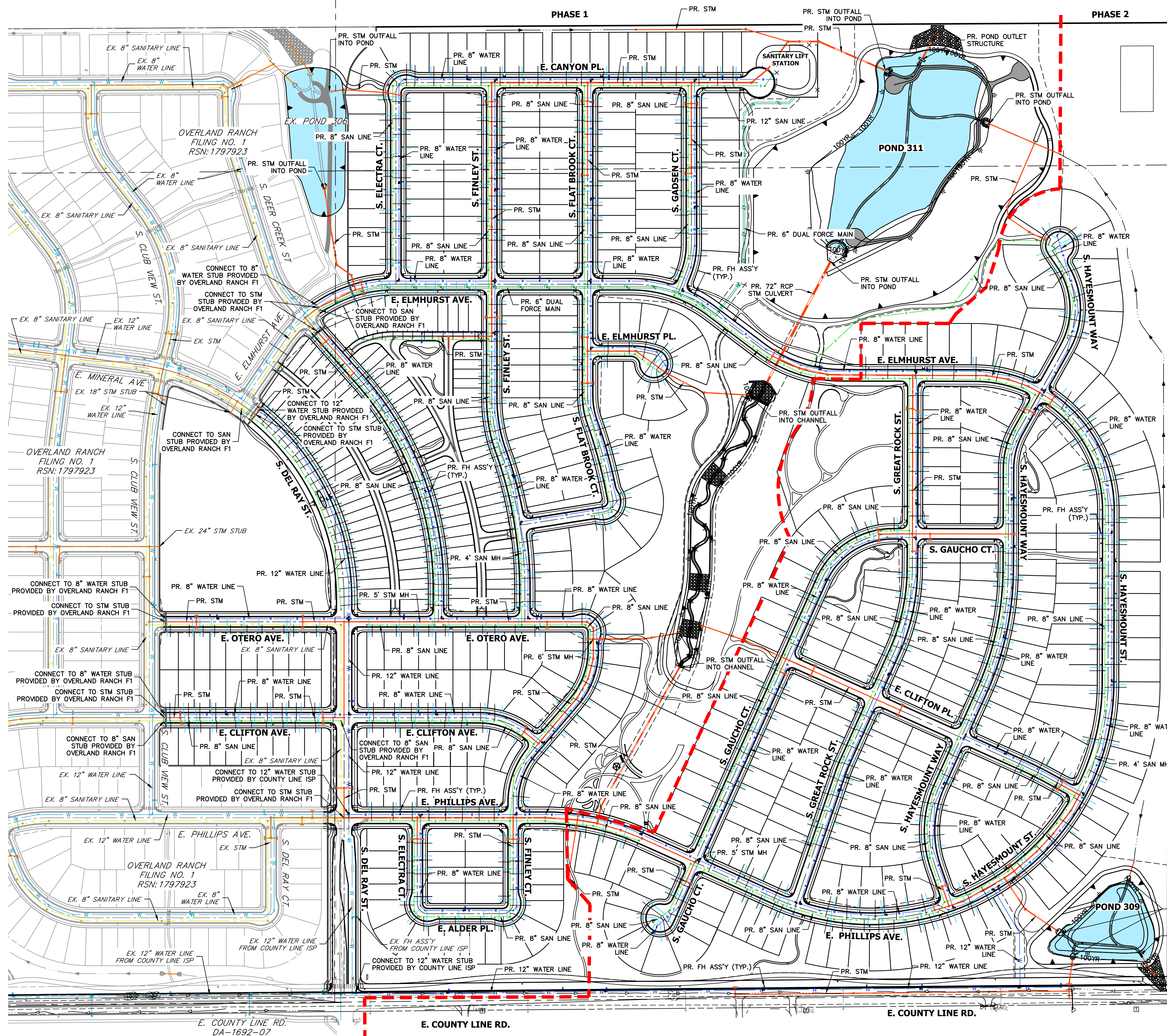
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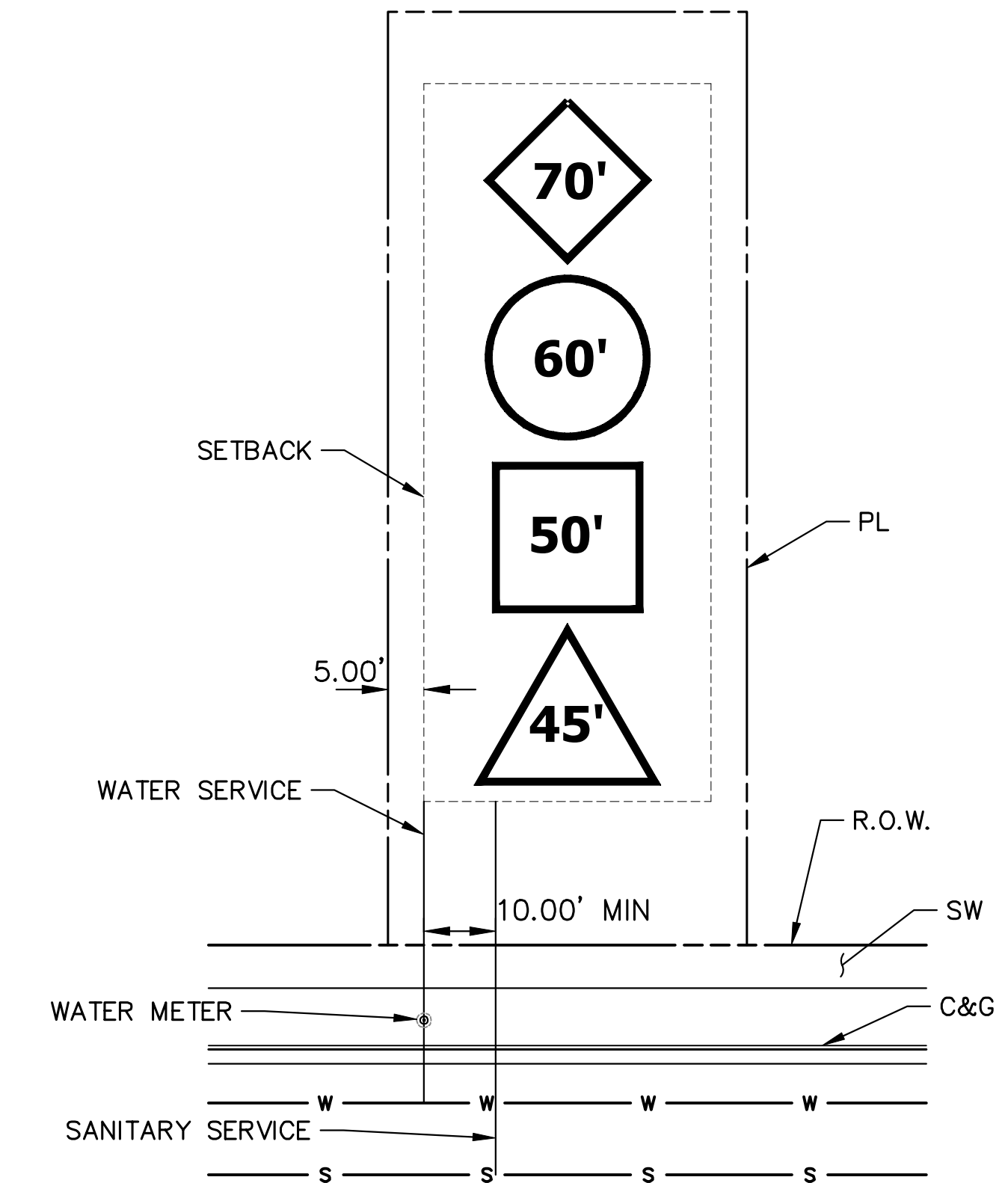


CHECKED BY:  
DRAWN BY:



### LEGEND

6-8" WATER LINE	
12" WATER LINE	
8" SANITARY LINE	
12" SANITARY LINE	
15" SANITARY LINE	
STORM PIPE	
EXISTING WTR	
EXISTING SAN	
EXISTING STORM PIPE	



### SINGLE FAMILY LOT SERVICES



Know what's below.  
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**Master Utility Report**  
**for**  
**Trails at Overland Ranch**  
**City of Aurora**  
**Arapahoe County, Colorado**

Prepared for:

Richmond American Homes  
4350 S. Monaco Street  
Denver, CO 80237  
(720) 977-3827

FACSIMILE

This electronic plan is a  
Facsimile of the signed  
and sealed pdf set



Date: 10/11/2022

Xylina Warren-Laird, PE

By:



Submittal:

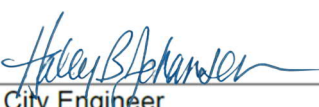


1<sup>st</sup>: September 10, 2021

2<sup>nd</sup>: December 17, 2021

3<sup>rd</sup>: April 15, 2022

4<sup>th</sup>: June 3, 2022

5<sup>th</sup>: October 7, 2022

APPROVED ON THIS DATE	
<u>10/19/2022</u>	
	10/18/2022
City Engineer	Date
	10/18/2022
Water Department	Date
Fire Department	Date
	10.18.22



**Engineer's Statement:**

This "Master Utility Report for the Trails at Overland Ranch Development" was prepared under my direct supervision in accordance with the provisions of the City of Aurora Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure. I understand that the City of Aurora does not and will not assume liability for facilities designed by others.

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Xylina Warren-Laird, PE  
Registered Professional Engineer  
State of Colorado No. 58938

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Date

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Timothy Russell Pyle  
Civil Designer



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## I. General Location & Description

### A. Site Location

The Trails at Overland Ranch project site is located northeast of the intersection of S. Monaghan Road and Delbert Road with County Line Road. The site is located in the southern portion of Section 34, Township 5 South, Range 65 West of the 6<sup>th</sup> Principal Meridian, City of Aurora, Unincorporated County of Arapahoe, State of Colorado. See the Vicinity Map below for reference.

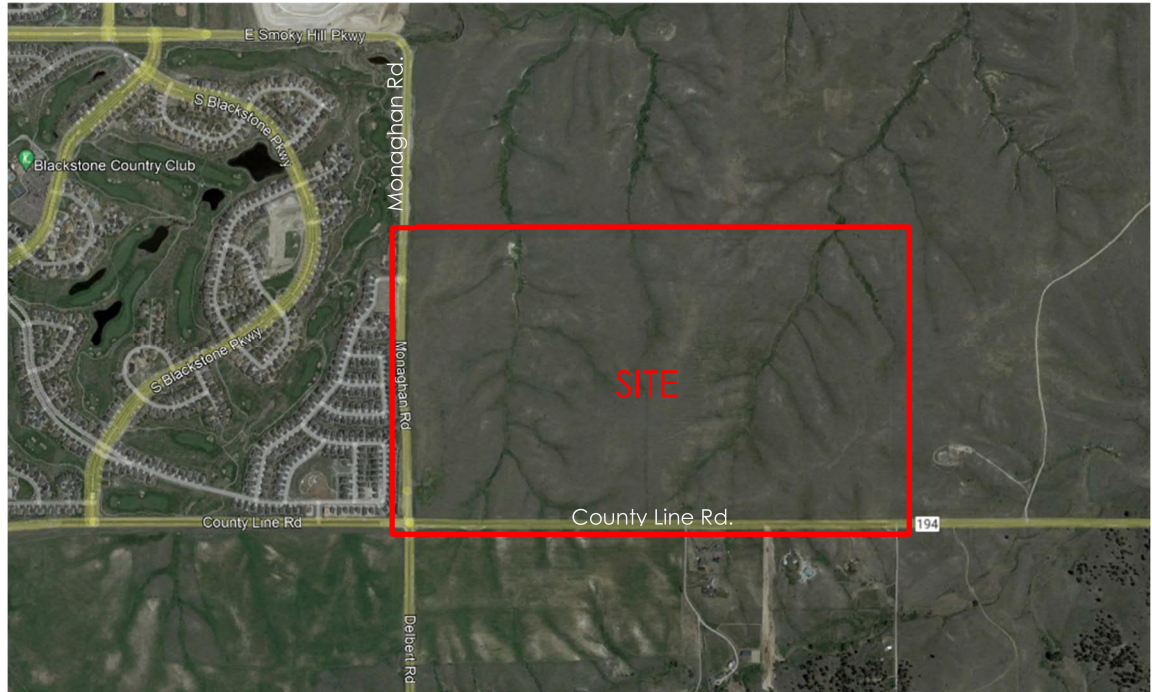


Figure 1 – Vicinity Map

### B. Description of Property

The Trails at Overland Ranch project site is approximately 373 acres of undeveloped land that is currently zoned as a Low-Density Single-Family Residential District. Typical existing slopes throughout the site range from 2% to 15% with some localized slopes being close to vertical near multiple creeks and ditches located within the site. The site is bounded by the Black Stone Country Club development to the west, undeveloped land to the north, primarily undeveloped land to the east and south, with small oil operations to the east, and a few private residences to the south. There are two roadways that provide access to the site, S. Monaghan Road bordering the western site boundary and County Line Road bordering the southern boundary of the site. Currently, S. Monaghan Road and County Line Road are both two-lane roadway and they are both classified as arterial roadways.

The construction of the Trails at Overland Ranch project is being separated into three project improvements phases that combined will consist of 1,036 single



family units, one neighborhood activity center, two neighborhood parks, pocket parks, grading activities, regional trails, open space, and supporting infrastructure. The site has been divided into 31 planning areas, which include 17 residential planning areas, 5 public park planning areas, and 9 open space planning areas. Residential areas are being planned with a dwelling unit density equal to 4.25 dwelling units per acre, based on a conceptual single family residential site layout, allowing for additional lots.

Note that the planning areas have been partitioned into phases within this Master Utility Report while the Public Improvements Plan refers to them as groups. The Public Improvements Plan states the necessary infrastructure needed to support each planning area independent of phase and it was specifically requested by Aurora that phasing not be included with the plan. However they were partitioned the into groups to allow the three major phases to be within the same sections of the report.

Proposed improvements per phase include the following:

1. Phase 1A
  - a. 11 Planning Areas
    - o 6 Residential – (PA-1, PA-14, PA-16, PA-17, PA-18, & PA-21)
    - o 3 Open Space – (PA-2, PA-15, & PA-20)
    - o 1 Neighborhood Activity Center/Pocket Park – (PA-3)
    - o 1 Open Space/Pocket Park – (PA-19)
2. Phase 1B
  - b. 3 Planning Areas
    - o 2 Residential – (PA-4 & PA-22)
    - o 1 Open Space – (PA-5)
3. Phase 2A
  - c. 5 Planning Areas
    - o 3 Residential – (PA-6, PA-25, & PA-26)
    - o 1 Sanitary Lift Station – (PA-7)
    - o 1 Neighborhood Park – (PA-23)
    - o 1 Open Space – (PA-7)
4. Phase 2B
  - d. 5 Planning Areas
    - o 3 Residential – (PA-13, PA-24, & PA-27)
    - o 1 Open Space – (PA-28)
    - o 1 Open Space/Pocket Park – (PA-29)
5. Phase 3
  - e. 7 Planning areas
    - o 3 Residential – (PA-9, PA-12, & PA-31)
    - o 2 Open Space – (PA-8 & PA-10)
    - o 1 Open Space/Pocket Park – (PA-11)
    - o 1 Neighborhood Park – (PA-30)

## **II. Water Distribution System**



## A. Existing System

According to survey provided by Aztec Consultants, Inc. and dated June 8, 2018, there is an existing 12" waterline under S. Monaghan Road. At the intersection of County Line Road with S. Monaghan Road and Delbert Road is a 12" waterline stub that is available for an eastwardly connection. The 12" waterline in S. Monaghan Road and the stub provided at the aforementioned intersection will provide the necessary connections to supply water throughout the proposed development. Refer to Appendix D for the survey provided by Aztec Consultants, Inc.

Per email communication with the City of Aurora dated July 21, 2021, water lines adjacent to the site are within Aurora Pressure Zone 8 which has a Hydraulic Grade Line (HGL) of 6,340 ft.

## B. Water Design Criteria

Design criteria for the water distribution system is based upon Section 5 of the Water, Sanitary Sewer & Storm Drainage Infrastructure Standards & Specifications from Aurora Water.

The applicable City of Aurora requirements for the water system are as follows:

- i. Residential Use
  - o An average of 2.77 people/unit
  - o Average Day Demand = 101 gpcd
- ii. Commercial Use
  - o Average Day Demand = 1,500 gpd/acre
- iii. Public Park Use
  - o Average Day Demand = 1,800 gpd/acre
- iv. Fire Flow
  - o Minimum residual pressure = 20 psi
  - o Fire Flow Demand:

Use Classification	Fire Flow Demand
Residential	1,500 gpm for 2 hrs
Commercial/Multifamily	2,500 gpm for 2 hrs
Industrial	3,500 gpm for 3 hrs

- v. Maximum Hour Demand
  - o For 8" to 12" pipes, the maximum flow velocity = 3 ft/s
- vi. General
  - o The entire site is within Aurora Pressure Zone 8 (HGL = 6,340 ft)
  - o Maximum Day Demand = 2.8 x Average Day Demand
  - o Maximum Hour Demand = 4.5 x Average Day Demand
  - o A Pressure Reducing Valve (PRV) is required at all buildings where the water pressures at the building is greater than 80 psi.

Using the Aurora Water criteria, the below tables show the Average Day Demand (ADD), Maximum Day Demand (MDD), and Maximum Hour Demand (MHD) for



each phase of the Trails at Overland Ranch project. Refer to Appendix A for a detailed report of the water demand calculations.

<b>Phase 1A - Water Demand Calculations</b>		
Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
73.63	206.15	331.31

<b>Phase 1B - Water Demand Calculations</b>		
Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
102.96	288.29	463.33

<b>Phase 2A - Water Demand Calculations</b>		
Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
144.10	403.49	648.46

<b>Phase 2B - Water Demand Calculations</b>		
Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
173.86	486.80	782.36

<b>Phase 3 - Water Demand Calculations</b>		
Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
222.99	624.36	1003.44

## C. Proposed Water System

The proposed system will be looped via three separate connections to the existing water infrastructure within S. Monaghan Rd. The first connection is to the existing 12" water line at the intersection of S. Monaghan Rd. and E. Mineral Pl. The second connection is to the existing 12" water line at the intersection of S. Monaghan Rd. and proposed E. Otero Place. The third connection is to the existing 12" water line at the intersection of S. Monaghan Rd. and County Line Rd. The development will be served via a combination of 8" and 12" waterline loops. Due to the project phasing, temporary access roadways may be necessary.

## D. Water Analysis

Analysis of the water distribution system for the Trails at Overland Ranch development was performed using Bentley OpenFlows WaterCAD Connect Edition Update 3. Per section 5.02.1 of the Water, Sanitary Sewer & Storm Drainage



Infrastructure Standards & Specifications from Aurora Water, analysis was performed on the network for three scenarios, the Average Day, Maximum Hour, and Maximum Day plus Fire Flow per currently adopted fire code.

In the WaterCAD model, the planning areas were separated into groups based upon their proximity to the nearest junction. Fire flow demand for the project is 1,500 gpm for 2 hours based upon the requirements specified in the Water, Sanitary Sewer & Storm Drainage Infrastructure Standards & Specifications from Aurora Water. The fire flow demands were modeled at the highest elevated junction; J-9. This location was chosen as it represents the point in the water distribution system where pressure requirements would be of highest concern. The maximum and minimum system pressures and the maximum pipe velocities for each of the scenarios modeled are presented below. Refer to Appendix B for a detailed report of the analyses done for each scenario.

During Phase 1A of construction, the lowest nodal pressure of 73 psi occurs in the system at node J-9 during the MDD plus Fire Flow scenario. During the MHD scenario, the maximum flow velocity of 0.57 fps occurs in pipe P-5. The maximum system pressure of 108 psi occurs at node J-2 during all scenarios. These values are within the specifications and standards set forth by Aurora Water.

<b>Phase 1A - System Conditions</b>			
	<b>Average Day</b>	<b>Max. Day + Fire Flow</b>	<b>Max. Hour</b>
<b>Minimum System Pressures (psi)</b>	J-9; 76	J-9; 73	J-9; 76
<b>Maximum System Pressures (psi)</b>	J-2; 108	J-2; 108	J-2; 108
<b>Maximum Pipe Velocities (ft/s)</b>	P-5 (12"); 0.13	P-6 (12"); 3.21	P-5 (12"); 0.57

During Phase 1B of construction, the lowest nodal pressure of 74 psi occurs in the system at node J-9 during the MDD plus Fire Flow scenario. During the MHD scenario, the maximum flow velocity of 0.72 fps occurs in pipe P-5. The maximum system pressure of 108 psi occurs at node J-2 during all scenarios. These values are within the specifications and standards set forth by Aurora Water.

<b>Phase 1B - System Conditions</b>			
	<b>Average Day</b>	<b>Max. Day + Fire Flow</b>	<b>Max. Hour</b>
<b>Minimum System Pressures (psi)</b>	J-9; 76	J-9; 74	J-9; 76
<b>Maximum System Pressures (psi)</b>	J-2; 108	J-2; 108	J-2; 108
<b>Maximum Pipe Velocities (ft/s)</b>	P-5 (12"); 0.16	P-5 (12"); 2.95	P-5 (12"); 0.72

During Phase 2A of construction, the lowest nodal pressure of 74 psi occurs in the system at node J-9 during the MDD plus Fire Flow scenario. During the MHD

scenario, the maximum flow velocity of 0.99 fps occurs in pipe P-5. The maximum system pressure of 110 psi occurs at node J-29 during the ADD and MHD scenarios. These values are within the specifications and standards set forth by Aurora Water.

Phase 2A - System Conditions			
	Average Day	Max. Day + Fire Flow	Max. Hour
Minimum System Pressures (psi)	J-9; 76	J-9; 74	J-9; 76
Maximum System Pressures (psi)	J-29; 110	J-29; 109	J-29; 110
Maximum Pipe Velocities (ft/s)	P-5 (12"); 0.22	P-5 (12"); 3.07	P-5 (12"); 0.99

During Phase 2B of construction, the lowest nodal pressure of 75 psi occurs in the system at nodes J-9 and J-37 during the MDD plus Fire Flow scenario. During the MHD scenario, the maximum flow velocity of 0.94 fps occurs in pipe P-5. The maximum system pressure of 110 psi occurs at node J-29 during the ADD and MHD scenarios. These values are within the specifications and standards set forth by Aurora Water.

Phase 2B - System Conditions			
	Average Day	Max. Day + Fire Flow	Max. Hour
Minimum System Pressures (psi)	J-9 & J-37; 76	J-9 & J-37; 75	J-9 & J-37; 76
Maximum System Pressures (psi)	J-29; 110	J-29; 109	J-29; 110
Maximum Pipe Velocities (ft/s)	P-5 (12"); 0.21	P-5 (12"); 2.29	P-5 (12"); 0.94

During Phase 3 of construction, the lowest nodal pressure of 75 psi occurs in the system at nodes J-9 and J-37 during the MDD plus Fire Flow scenario. During the MHD scenario, the maximum flow velocity of 1.18 fps occurs in pipe P-5. The maximum system pressure of 110 psi occurs at node J-29 during the ADD and MHD scenarios. These values are within the specifications and standards set forth by Aurora Water.

Phase 3 - System Conditions			
	Average Day	Max. Day + Fire Flow	Max. Hour
Minimum System Pressures (psi)	J-9 & J-37; 76	J-9 & J-37; 75	J-9 & J-37; 76
Maximum System Pressures (psi)	J-29; 110	J-29; 109	J-29; 110
Maximum Pipe Velocities (ft/s)	P-5 (12"); 0.26	P-5 (12"); 2.41	P-5 (12"); 1.16

### III. Sanitary Sewer System



## **A. Existing System**

According to the High Plains Country Club Subdivision – Filing No. 2 (COA# 205056) plans by Stantec Consulting, Inc. and dated January 12, 2005, there are existing 8" and 15" sanitary mains that are located under S. Monaghan Road near the northwest corner of the site. The sanitary manhole located directly north of the driveway entrance to the Golf Course Maintenance Facility on S. Monaghan Rd. has a 15" outfall pipe which will serve as the connection point for the proposed sanitary system to outfall.

Per the High Plains Country Club Master Utility Report (COA# 205056) by Stantec Consulting, Inc., revised February 2003, it is anticipated that wastewater from High Plains Country Club and wastewater from Trails at Overland Ranch will merge and outfall to a 15" sewer pipe in S. Monaghan Rd. The report accounted for 1,300 dwelling units from Trails at Overland Ranch that will generate 1.36 MGD of wastewater and 340 dwelling units that will generate 0.36 MGD of wastewater from High Plains Country Club. Refer to Appendix D for excerpts from the High Plains Country Club Master Utility Report which confirm these anticipated flow rates.

From the 15" sanitary main, sanitary flows are conveyed north to the lift station within Black Stone Country Club, which is located along S. Monaghan Rd. approximately 700' south of E. Smoky Hill Pkwy. Refer to Appendix D for the Master Sanitary Sewer Plan from LJA Engineering, Inc. (formally, Innovative Land Consultants, Inc.) which shows the proposed sanitary outfall location.

## **B. Sanitary Sewer Design Criteria**

Design criteria for the sanitary sewer system is based upon Section 5 of the Water, Sanitary Sewer & Storm Drainage Infrastructure Standards & Specifications from Aurora Water. Per section 5.03.6 of the standards and specifications from the City of Aurora, sanitary sewer mains that are 12" diameter and smaller are designed to carry the peak discharge with the pipe operating at no more than 75% of the full flow capacity; 80% full flow capacity for larger diameter pipes.

The City of Aurora requirements for the sanitary sewer system area as follows:

- i. Loading Rates
  - o Residential Population = 2.77 People/Unit
  - o Residential Demand = 68 gpcd
  - o Infiltration = 10% of the Average Loading
- ii. Peaking Factor
  - o Peaking Factor =  $5 \div p^{0.167}$  where p = population in thousands
  - o Maximum Peaking Factor = 4.0
  - o Minimum Peaking Factor = 1.7
- iii. Materials and Velocities
  - o Manning's n = 0.011 for PVC & n = 0.013 for RCP or VCP
  - o Minimum Pipe Slope = 0.4%

- Minimum Velocity = 2 ft/s at least once per day
- Maximum Velocity = 10 ft/s flowing full or ½ full

### **C. Proposed Sanitary Sewer System**

The proposed sanitary sewer system, including the lift station is to be owned and maintained by the City of Aurora.

There are no anticipated offsite sanitary flows for the project. The planning areas throughout Phase 1A and Phase 1B of the project will be served by gravity-fed sanitary sewers. However, due to the elevation at the outfall location and the location of the low points throughout the site, there is not enough elevation gained across the entire site for the sanitary sewer to reach all of the low points, maintain the minimum slope requirement, and utilize the proposed outfall location using sewers at reasonable depths. Therefore, sanitary sewer used within Phases 2A, 2B, and 3 of the project will be gravity-fed until they outfall to the proposed sanitary lift station in PA-7. From the proposed lift station, sanitary flows will be pumped to a portion of the sanitary sewer system within Phase 1B, where they can then be gravity-fed to the proposed outfall location. Prior to the discharge manhole for the force main, a vertical drop will be utilized to prevent issues within the system. The implementation of this lift station is to provide a sanitary sewer system able to maintain minimum slopes and acceptable depths for the proposed development and connect to the existing sanitary system in S. Monaghan Rd.

The lift station will be owned and maintained by the City of Aurora. It is anticipated that the pumping capacity will be approximately 300 gallons per minute for the lift station. A single pump will be sufficient, but redundant pumps and force mains will be provided for safety. A preliminary letter of the lift station sizing from MSK Consulting, LLC has been provided in Appendix D of this report.

The site requires a combination of 8" and 10" sanitary mains, as well as a 6" sanitary force main to convey flows to the designated outfall location. The site will utilize a single outfall near the northwest corner of the site. Sanitary flows from the Trails at Overland Ranch development will ultimately outfall to the sanitary stub and manhole that are just north of the entrance to the Golf Course Maintenance Facility on S. Monaghan Rd. Refer to Appendix D for the Sanitary Plan which shows the above referenced locations.

### **D. Sanitary Sewer Analysis**

Analysis of the sanitary sewer system was completed by calculating the flows generated at eleven design points throughout the site during the peak loading scenario and during each phase of construction. The eleven design points are located at the terminal outfall location for the project as well as each of the junctions where sanitary flows merge within the proposed system. The following tables show the phase of construction that has been completed, the design point of interest, the average loading, and the operating capacity during the peak flow plus infiltration scenario given as a percentage of the normal depth to the pipe diameter. Refer to Appendix A for a detailed report of the sanitary loading



calculations and refer to Appendix D for the Sanitary Plan which shows the locations of the design points.

Phase	1A	1A	1A	1A	1A	1A	1B	1B	1B	1B	1B	1B
Design Point	1	2	2.1	3	4	5	1	2	2.1	3	4	5
Average Loading (MGD)	0.130	0.058	0.022	0.022	0.010	0.003	0.143	0.087	0.050	0.035	0.010	0.016
Peak Flow + Infiltration (MGD)	0.531	0.239	0.090	0.090	0.041	0.013	0.586	0.356	0.206	0.144	0.041	0.067
Outfall Pipe (%) Full (Normal Depth/Diameter*100%)	28%	32%	20%	27%	18%	10%	29%	40%	30%	34%	18%	23%

Phase	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
Design Point	1	2	2.1	3	4	5	6	7	8	9	10
Average Loading (MGD)	0.193	0.122	0.085	0.035	0.010	0.016	0.031	0.004	0.013	0.017	0.022
Peak Flow + Infiltration (MGD)	0.792	0.500	0.350	0.144	0.041	0.067	0.128	0.016	0.053	0.071	0.090
Outfall Pipe (%) Full (Normal Depth/Diameter*100%)	34%	48%	40%	34%	18%	23%	32%	11%	20%	24%	27%

Phase	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B
Design Point	1	2	2.1	3	4	5	6	7	8	9	10
Average Loading (MGD)	0.215	0.145	0.108	0.035	0.010	0.016	0.054	0.020	0.020	0.040	0.044
Peak Flow + Infiltration (MGD)	0.884	0.592	0.442	0.144	0.041	0.067	0.220	0.084	0.121	0.163	0.181
Outfall Pipe (%) Full (Normal Depth/Diameter*100%)	36%	54%	45%	34%	18%	23%	43%	26%	31%	36%	38%

Phase	3	3	3	3	3	3	3	3	3	3	3	3
Design Point	1	2	2.1	3	4	5	6	7	8	9	10	11
Average Loading (MGD)	0.259	0.188	0.152	0.035	0.010	0.016	0.098	0.020	0.029	0.040	0.088	0.044
Peak Flow + Infiltration (MGD)	1.063	0.772	0.622	0.144	0.041	0.067	0.400	0.084	0.121	0.163	0.361	0.179
Outfall Pipe (%) Full (Normal Depth/Diameter*100%)	40%	63%	55%	34%	18%	23%	61%	26%	31%	36%	57%	38%

Hydraulic analysis of the sanitary system for the Trails at Overland Ranch development was performed using Flowmaster. Per the City of Aurora criteria, an analysis was performed on the proposed sanitary sewer system for the peak flow condition.

## IV. Conclusions

This Master Utility Report is in conformance with Section 5 of the Water, Sanitary Sewer & Storm Drainage Infrastructure Standards & Specifications by the City of Aurora. The water and sanitary sewer systems proposed in the Trails at Overland Ranch are designed to effectively serve the proposed development based on the standards set forth by the City of Aurora.

## V. References

1. ***Water, Sanitary Sewer & Storm Drainage Infrastructure Standards & Specifications***, Aurora Water, January 2022.
2. ***Traffic Impact Study***, Aldridge Transportation Consultants, LLC., September 3, 2021.
3. ***Topographic Exhibit Location Windsor/Weld***, Aztec Consultants, Inc., June 2018.
4. ***Construction Plans for High Plains Country Club Subdivision – Filing No. 2***, Stantec Consulting, Inc., January 12, 2005.



## APPENDIX A

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### Water Demand & Sanitary Loading Calculations

Trails at Overland Ranch - Phase 1A - Water Demand Calculations									
Single Family Residential Units							Average Day Demand (gpcd)	Maximum Day Demand Factor	Maximum Hour Demand Factor
							Occupancy per Unit:	2.77	
Commercial Planning Areas							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
							Equivalent Occupancy per Acre:	22	
Public Parks							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
							1,800	5,040	8,100
Planning Area	Demand Junctions	Acreage	Dwelling Density (du/acres)	Residential Units	Commercial Acreage	Park Acreage	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	37	0	0	7.19	20.13	32.35
3	J-2	5.2	0	0	3.2	2.0	5.83	16.33	26.25
14	J-7	12.0	4.25	51	0	0	9.91	27.74	44.59
16	J-5	12.3	4.25	52	0	0	10.10	28.29	45.46
17	J-3	14.4	4.25	61	0	0	11.85	33.18	53.33
18	J-4	19.1	4.25	81	0	0	15.74	44.06	70.82
19	J-4	0.3	0	0	0	0.3	0.38	1.05	1.69
21	J-12	15.3	4.25	65	0	0	12.63	35.36	56.83
Total =							73.63	206.15	331.31

Phase 1A
Phase 1B
Phase 2A
Phase 2B
Phase 3



Trails at Overland Ranch - Phase 1B - Water Demand Calculations									
Single Family Residential Units							Average Day Demand (gpcd)	Maximum Day Demand Factor	Maximum Hour Demand Factor
Occupancy per Unit:				2.77			101	2.8	4.5
Commercial Planning Areas							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
Equivalent Occupancy per Acre:				22			1,500	4,200	6,750
Public Parks							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
							1,800	5,040	8,100
Planning Area	Demand Junctions	Acreage	Dwelling Density (du/acres)	Residential Units	Commercial Acreage	Park Acreage	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	37	0	0	7.19	20.13	32.35
3	J-2	5.2	0	0	3.2	2	5.83	16.33	26.25
4	J-19	23.6	4.25	100	0	0	19.43	54.40	87.43
14	J-7	12.0	4.25	51	0	0	9.91	27.74	44.59
16	J-5	12.3	4.25	52	0	0	10.10	28.29	45.46
17	J-3	14.4	4.25	61	0	0	11.85	33.18	53.33
18	J-4	19.1	4.25	81	0	0	15.74	44.06	70.82
19	J-4	0.3	0	0	0	0.3	0.38	1.05	1.69
21	J-12	15.3	4.25	65	0	0	12.63	35.36	56.83
22	J-16	12.0	4.25	51	0	0	9.91	27.74	44.59
Total =							102.96	288.29	463.33

Phase 1A
Phase 1B
Phase 2A
Phase 2B
Phase 3

Trails at Overland Ranch - Phase 2A - Water Demand Calculations									
Single Family Residential Units							Average Day Demand (gpcd)	Maximum Day Demand Factor	Maximum Hour Demand Factor
Occupancy per Unit:				2.77			101	2.8	4.5
Commercial Planning Areas							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
Equivalent Occupancy per Acre:				22			1,500	4,200	6,750
Public Parks							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
							1,800	5,040	8,100
Planning Area	Demand Junctions	Acreage	Dwelling Density (du/acres)	Residential Units	Commercial Acreage	Park Acreage	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	37	0	0	7.19	20.13	32.35
3	J-2	5.2	0	0	3.2	2	5.83	16.33	26.25
4	J-19	23.6	4.25	100	0	0	19.43	54.40	87.43
6	J-28	22.5	4.25	95	0	0	18.46	51.68	83.06
14	J-7	12.0	4.25	51	0	0	9.91	27.74	44.59
16	J-5	12.3	4.25	52	0	0	10.10	28.29	45.46
17	J-3	14.4	4.25	61	0	0	11.85	33.18	53.33
18	J-4	19.1	4.25	81	0	0	15.74	44.06	70.82
19	J-4	0.3	0	0	0	0.3	0.38	1.05	1.69
21	J-12	15.3	4.25	65	0	0	12.63	35.36	56.83
22	J-16	12.0	4.25	51	0	0	9.91	27.74	44.59
23	J-13	6.8	0	0	0	6.8	8.50	23.80	38.25
25	J-23	6.7	4.25	28	0	0	5.44	15.23	24.48
26	J-25	10.7	4.25	45	0	0	8.74	24.48	39.34
Total =							144.10	403.49	648.46

Phase 1A
Phase 1B
Phase 2A
Phase 2B
Phase 3



Trails at Overland Ranch - Phase 2B - Water Demand Calculations									
Single Family Residential Units							Average Day Demand (gpcd)	Maximum Day Demand Factor	Maximum Hour Demand Factor
Occupancy per Unit:				2.77			101	2.8	4.5
Commercial Planning Areas							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
Equivalent Occupancy per Acre:				22			1,500	4,200	6,750
Public Parks							Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)
							1,800	5,040	8,100
Planning Area	Demand Junctions	Acreage	Dwelling Density (du/acres)	Residential Units	Commercial Acreage	Park Acreage	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	37	0	0	7.19	20.13	32.35
3	J-2	5.2	0	0	3.2	2	5.83	16.33	26.25
4	J-19	23.6	4.25	100	0	0	19.43	54.40	87.43
6	J-28	22.5	4.25	95	0	0	18.46	51.68	83.06
13	J-34	7.6	4.25	32	0	0	6.22	17.41	27.98
14	J-7	12.0	4.25	51	0	0	9.91	27.74	44.59
16	J-5	12.3	4.25	52	0	0	10.10	28.29	45.46
17	J-3	14.4	4.25	61	0	0	11.85	33.18	53.33
18	J-4	19.1	4.25	81	0	0	15.74	44.06	70.82
19	J-4	0.3	0	0	0	0.3	0.38	1.05	1.69
21	J-12	15.3	4.25	65	0	0	12.63	35.36	56.83
22	J-16	12.0	4.25	51	0	0	9.91	27.74	44.59
23	J-13	6.8	0	0	0	6.8	8.50	23.80	38.25
24	J-36	5.7	4.25	24	0	0	4.66	13.06	20.98
25	J-23	6.7	4.25	28	0	0	5.44	15.23	24.48
26	J-25	10.7	4.25	45	0	0	8.74	24.48	39.34
27	J-32/J-44	19.6	4.25	83	0	0	16.13	45.15	72.57
29	J-33	2.2	0	0	0	2.2	2.75	7.70	12.38
Total =							173.86	486.80	782.36

Phase 1A
Phase 1B
Phase 2A
Phase 2B
Phase 3

Trails at Overland Ranch - Phase 3 - Water Demand Calculations									
Single Family Residential Units						Average Day Demand (gpcd)	Maximum Day Demand Factor	Maximum Hour Demand Factor	
Occupancy per Unit:				2.77		101	2.8	4.5	
Commercial Planning Areas						Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)	
Equivalent Occupancy per Acre:				22		1,500	4,200	6,750	
Public Parks						Average Day Demand (gpd/acre)	Maximum Day Demand (gpd/acre)	Maximum Hour Demand (gpd/acre)	
						1,800	5,040	8,100	
Planning Area	Demand Junctions	Acreage	Dwelling Density (du/acres)	Residential Units	Commercial Acreage	Park Acreage	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	37	0	0	7.19	20.13	32.35
3	J-2	5.2	0	0	3.2	2.0	5.83	16.33	26.25
4	J-19	23.6	4.25	100	0	0	19.43	54.40	87.43
6	J-28	22.5	4.25	95	0	0	18.46	51.68	83.06
9	J-41/J-42	10.1	4.25	42	0	0	8.16	22.85	36.72
11	J-40	0.7	0	0	0	0.7	0.88	2.45	3.94
12	J-38	9.0	4.25	38	0	0	7.38	20.67	33.22
13	J-34	7.6	4.25	32	0	0	6.22	17.41	27.98
14	J-7	12.0	4.25	51	0	0	9.91	27.74	44.59
16	J-5	12.3	4.25	52	0	0	10.10	28.29	45.46
17	J-3	14.4	4.25	61	0	0	11.85	33.18	53.33
18	J-4	19.1	4.25	81	0	0	15.74	44.06	70.82
19	J-4	0.3	0	0	0	0.3	0.38	1.05	1.69
21	J-12	15.3	4.25	65	0	0	12.63	35.36	56.83
22	J-16	12.0	4.25	51	0	0	9.91	27.74	44.59
23	J-13	6.8	0	0	0	6.8	8.50	23.80	38.25
24	J-36	5.7	4.25	24	0	0	4.66	13.06	20.98
25	J-23	6.7	4.25	28	0	0	5.44	15.23	24.48
26	J-25	10.7	4.25	45	0	0	8.74	24.48	39.34
27	J-32/J-44	19.6	4.25	83	0	0	16.13	45.15	72.57
29	J-33	2.2	0	0	0	2.2	2.75	7.70	12.38
30	J-43	3.0	0	0	0	3.0	3.75	10.50	16.88
31	J-40/J-41/J-42	35.7	4.25	151	0	0	29.34	82.14	132.02
Total =							223.36	625.41	1,005.13

Phase 1A
Phase 1B
Phase 2A
Phase 2B
Phase 3

Trails at Overland Ranch - Sanitary Demand														
Phase	Design Point	Combined Area of Upstream Residential PAs (Ac.)	Dwelling Density (DU/AC.)	Dwelling Units	Population	Demand (gpd)	Average Loading (MGD)	Infiltration (MGD)	Peaking Factor Used	Peak Flow (MGD)	Peak Flow + Infiltration (MGD)	Outfall Pipe Diameter (in.)	Outfall Pipe Maximum Capacity (%) of Full Flow	Percent Full from FlowMaster Output (Normal Depth/Pipe Diameter *100%)
1A	1	81.9 + OS	4.25	688	1906	68	0.130	0.013	4.0	0.518	0.531	15	80	28%
1A	OS	High Plains Country Club	N/A	340	942	68	0.064	0.006	4.0	0.256	0.263	8	75	N/A
1A	2	73.10	4.25	310	859	68	0.058	0.006	4.0	0.234	0.239	10	75	32%
1A	2.1	27.30	4.25	116	322	68	0.022	0.002	4.0	0.088	0.090	10	75	20%
1A	3	27.30	4.25	116	322	68	0.022	0.002	4.0	0.088	0.090	8	75	27%
1A	4	12.66	4.25	53	147	68	0.010	0.001	4.0	0.040	0.041	8	75	18%
1A	5	3.93	4.25	16	45	68	0.003	0.000	4.0	0.012	0.013	8	75	10%
1B	1	117.5 + OS	4.25	759	2103	68	0.143	0.014	4.0	0.572	0.586	15	80	29%
1B	OS	High Plains Country Club	N/A	340	942	68	0.064	0.006	4.0	0.256	0.263	8	75	N/A
1B	2	108.70	4.25	461	1277	68	0.087	0.009	4.0	0.347	0.356	10	75	40%
1B	2.1	62.90	4.25	267	740	68	0.050	0.005	4.0	0.201	0.206	10	75	30%
1B	3	44.02	4.25	187	518	68	0.035	0.004	4.0	0.141	0.144	8	75	34%
1B	4	12.66	4.25	53	147	68	0.010	0.001	4.0	0.040	0.041	8	75	18%
1B	5	20.65	4.25	87	241	68	0.016	0.002	4.0	0.066	0.067	8	75	23%
2A	1	161.405 + OS	4.25	1025	2840	68	0.193	0.019	4.0	0.772	0.792	15	80	34%
2A	OS	High Plains Country Club	N/A	340	942	68	0.064	0.006	4.0	0.256	0.263	8	75	N/A
2A	2	152.61	4.25	648	1795	68	0.122	0.012	4.0	0.488	0.500	10	75	48%
2A	2.1	106.81	4.25	453	1255	68	0.085	0.009	4.0	0.341	0.350	10	75	40%
2A	3	44.02	4.25	187	518	68	0.035	0.004	4.0	0.141	0.144	8	75	34%
2A	4	12.66	4.25	53	147	68	0.010	0.001	4.0	0.040	0.041	8	75	18%
2A	5	20.65	4.25	87	241	68	0.016	0.002	4.0	0.066	0.067	8	75	23%
2A	6	39.19	4.25	166	460	68	0.031	0.003	4.0	0.125	0.128	8	75	32%
2A	7	4.87	4.25	20	56	68	0.004	0.000	4.0	0.015	0.016	8	75	11%
2A	8	16.17	4.25	68	189	68	0.013	0.001	4.0	0.051	0.053	8	75	20%
2A	9	21.79	4.25	92	255	68	0.017	0.002	4.0	0.069	0.071	8	75	24%
2A	10	27.42	4.25	116	322	68	0.022	0.002	4.0	0.088	0.090	8	75	27%
2B	1	189.32 + OS	4.25	1144	3169	68	0.215	0.022	4.0	0.862	0.884	15	80	36%
2B	OS	High Plains Country Club	N/A	340	942	68	0.064	0.006	4.0	0.256	0.263	8	75	N/A
2B	2	180.52	4.25	767	2125	68	0.145	0.014	4.0	0.578	0.592	10	75	54%
2B	2.1	134.72	4.25	572	1585	68	0.108	0.011	4.0	0.431	0.442	10	75	45%
2B	3	44.02	4.25	187	518	68	0.035	0.004	4.0	0.141	0.144	8	75	34%
2B	4	12.66	4.25	53	147	68	0.010	0.001	4.0	0.040	0.041	8	75	18%
2B	5	20.65	4.25	87	241	68	0.016	0.002	4.0	0.066	0.067	8	75	23%
2B	6	67.10	4.25	285	790	68	0.054	0.005	4.0	0.215	0.220	8	75	43%
2B	7	25.61	4.25	108	300	68	0.020	0.002	4.0	0.082	0.084	8	75	26%
2B	8	36.86	4.25	156	433	68	0.029	0.003	4.0	0.118	0.121	8	75	31%
2B	9	49.66	4.25	211	585	68	0.040	0.004	4.0	0.159	0.163	8	75	36%
2B	10	55.28	4.25	234	649	68	0.044	0.004	4.0	0.177	0.181	8	75	38%
3	1	244.12 + OS	4.25	1377	3815	68	0.259	0.026	4.0	1.037	1.063	15	80	40%
3	OS	High Plains Country Club	N/A	340	942	68	0.064	0.006	4.0	0.256	0.263	8	75	N/A
3	2	235.32	4.25	1000	2770	68	0.188	0.019	4.0	0.753	0.772	10	75	63%
3	2.1	189.52	4.25	805	2230	68	0.152	0.015	4.0	0.607	0.622	10	75	55%
3	3	44.02	4.25	187	518	68	0.035	0.004	4.0	0.141	0.144	8	75	34%
3	4	12.66	4.25	53	147	68	0.010	0.001	4.0	0.040	0.041	8	75	18%
3	5	20.65	4.25	87	241	68	0.016	0.002	4.0	0.066	0.067	8	75	23%
3	6	121.90	4.25	518	1435	68	0.098	0.010	4.0	0.390	0.400	8	75	61%
3	7	25.61	4.25	108	300	68	0.020	0.002	4.0	0.082	0.084	8	75	26%
3	8	36.86	4.25	156	433	68	0.029	0.003	4.0	0.118	0.121	8	75	31%
3	9	49.66	4.25	211	585	68	0.040	0.004	4.0	0.159	0.163	8	75	36%
3	10	110.08	4.25	467	1294	68	0.088	0.009	4.0	0.352	0.361	8	75	57%
3	11	54.80	4.25	232	643	68	0.044	0.004	4.0	0.175	0.179	8	75	38%



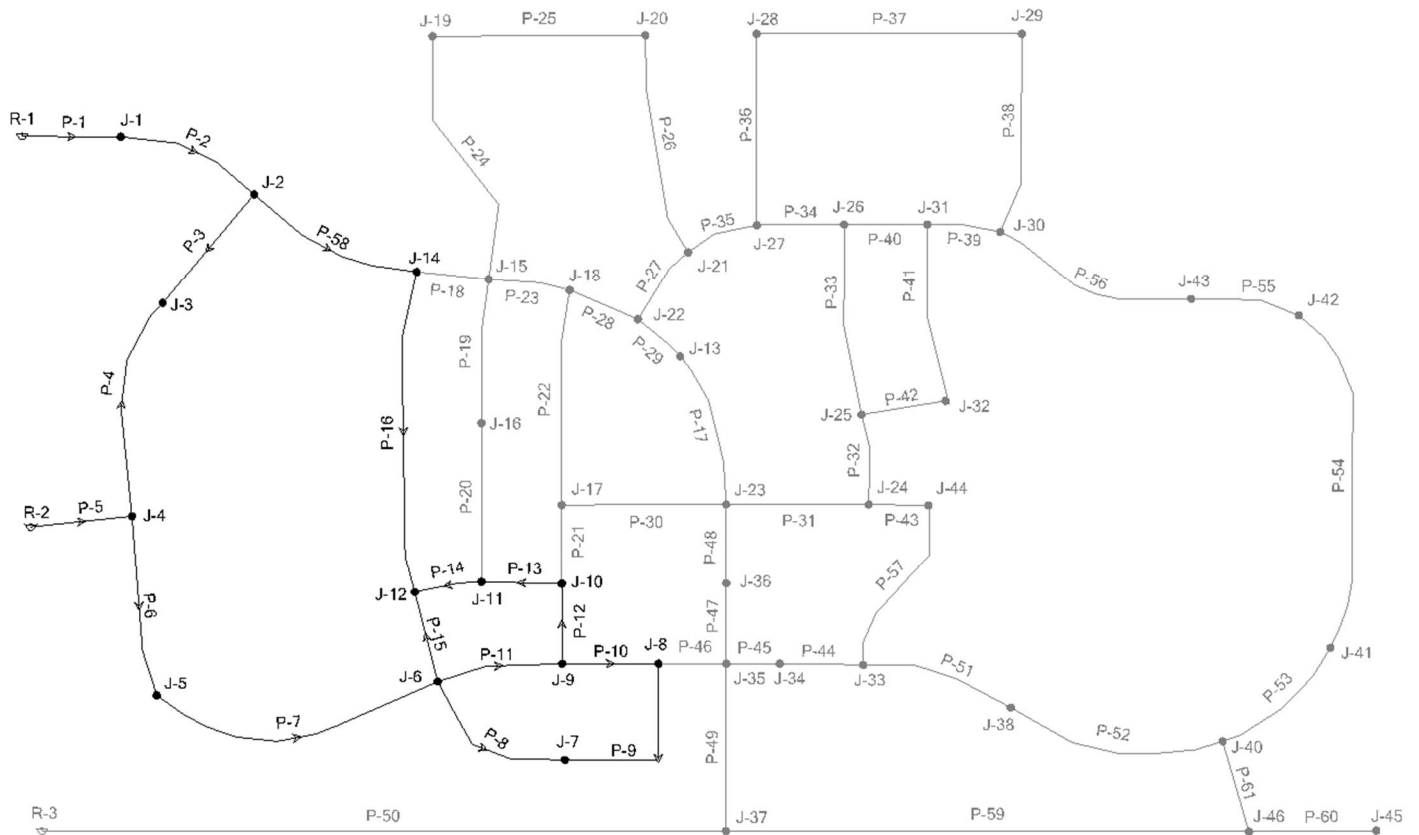
## APPENDIX B

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Nodal Diagram  
Water Hydraulic Computations

# Trails at Overland Ranch

## Phase 1A- Nodal Diagram



**Scenario: Phase 1A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	7	6,340.00	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	6	6,340.00	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	12	6,340.00	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	16	6,340.00	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	10	6,339.99	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.99	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	10	6,339.99	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.99	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.99	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.99	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.99	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	13	6,339.99	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,340.00	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
275	J-16	6,125.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
312	J-17	6,144.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
278	J-20	6,110.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
105	J-21	6,121.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
68	J-22	6,128.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	29	0.08	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	22	0.06	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	7	0.05	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	4	0.03	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	45	0.13	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	24	0.07	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	14	0.04	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	5	0.03	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-5	0.03	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	5	0.01	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	6	0.02	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-1	0.01	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-1	0.01	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-1	0.01	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-3	0.02	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-9	0.05	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	9	0.02	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	29	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	45	6,340.00

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**Scenario: Phase 1A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	20	6,339.62	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	16	6,339.06	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	33	6,338.91	101
50	J-4	6,133.50	<None>	<Collection: 2 items>	45	6,338.81	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	28	6,336.31	80
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,332.98	80
317	J-7	6,160.00	<None>	<Collection: 1 item>	28	6,332.25	75
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,331.66	76
152	J-9	6,164.00	<None>	<Collection: 1 item>	1,500	6,331.62	73
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,332.19	77
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,332.70	81
148	J-12	6,138.50	<None>	<Collection: 1 item>	35	6,333.18	84
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,338.64	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
275	J-16	6,125.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
312	J-17	6,144.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
278	J-20	6,110.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
105	J-21	6,121.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
68	J-22	6,128.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	599	1.70	0.001	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	579	1.64	0.001	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	101	0.65	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	-68	0.44	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	1,107	3.14	0.003	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	1,130	3.21	0.003	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	1,102	3.12	0.003	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	215	1.37	0.001	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	187	1.20	0.001	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	-187	0.53	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	1,040	2.95	0.003	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	273	1.74	0.002	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	273	1.74	0.002	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	273	1.74	0.002	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	153	0.98	0.001	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-462	2.95	0.004	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	462	1.31	0.001	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	599	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	1,107	6,340.00

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**Scenario: Phase 1A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	32	6,339.98	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	26	6,339.96	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	53	6,339.94	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	73	6,339.95	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	45	6,339.92	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.90	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	45	6,339.89	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.90	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.90	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.90	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.90	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	57	6,339.90	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.95	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
275	J-16	6,125.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
312	J-17	6,144.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
278	J-20	6,110.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
105	J-21	6,121.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
68	J-22	6,128.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	130	0.37	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	98	0.28	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	33	0.21	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	20	0.13	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	201	0.57	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	108	0.31	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	63	0.18	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	24	0.15	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-21	0.13	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	21	0.06	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	26	0.07	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-5	0.03	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-5	0.03	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-5	0.03	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-14	0.09	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-38	0.25	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	38	0.11	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

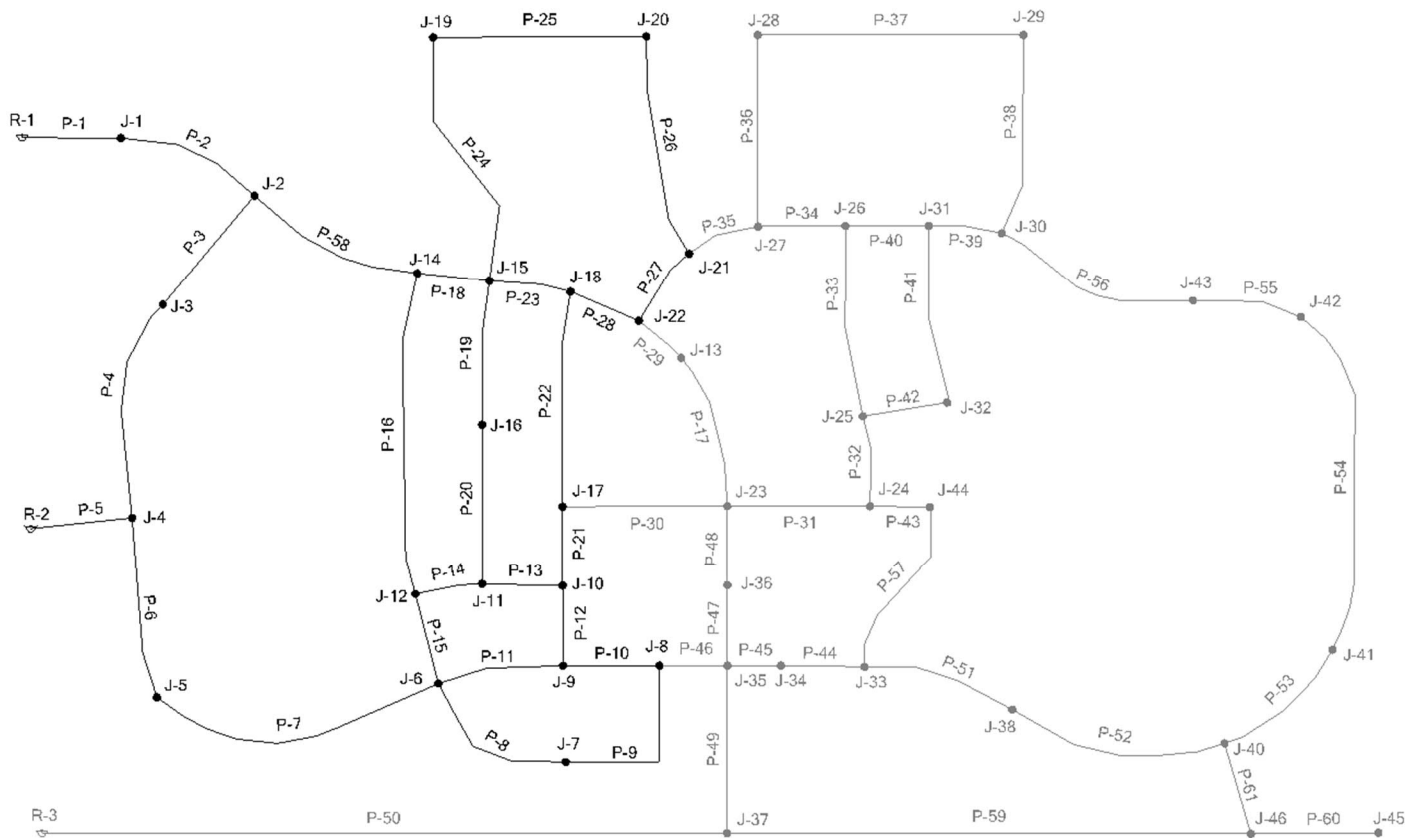
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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	130	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	201	6,340.00

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# Trails at Overland Ranch

## Phase 1B- Nodal Diagram



**Scenario: Phase 1B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	7	6,340.00	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	6	6,339.99	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	12	6,339.99	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	16	6,340.00	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	10	6,339.99	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.99	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	10	6,339.99	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.99	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.99	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.99	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.99	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	13	6,339.99	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.99	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.99	100
275	J-16	6,125.50	<None>	<Collection: 1 item>	10	6,339.99	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.99	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.99	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	19	6,339.98	100
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.99	100
105	J-21	6,121.50	<None>	<Collection: 1 item>	0	6,339.99	95
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.99	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	46	0.13	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	39	0.11	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	3	0.02	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	9	0.06	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	57	0.16	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	31	0.09	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	21	0.06	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	5	0.03	0.000	685
119	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-4	0.03	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	4	0.01	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	9	0.02	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-4	0.03	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-4	0.03	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-1	0.00	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-7	0.05	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-5	0.03	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	26	0.07	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-6	0.04	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	4	0.02	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	0	0.00	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	0	0.00	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	8	0.02	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-11	0.07	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	8	0.05	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	8	0.05	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-8	0.05	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	8	0.02	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	31	0.09	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	46	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	57	6,340.00

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**Scenario: Phase 1B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	20	6,339.43	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	16	6,338.57	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	33	6,338.66	101
50	J-4	6,133.50	<None>	<Collection: 2 items>	45	6,338.94	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	28	6,337.36	80
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,335.29	81
317	J-7	6,160.00	<None>	<Collection: 1 item>	28	6,334.71	76
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,334.26	77
152	J-9	6,164.00	<None>	<Collection: 1 item>	1,500	6,334.22	74
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,335.55	79
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,335.79	82
148	J-12	6,138.50	<None>	<Collection: 1 item>	35	6,335.78	85
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,337.42	103
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,337.20	98
275	J-16	6,125.50	<None>	<Collection: 1 item>	28	6,336.48	91
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,335.97	83
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,337.12	94
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	54	6,337.12	98
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,337.12	98
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,337.12	93
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,337.12	90
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	748	2.12	0.001	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	728	2.07	0.001	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-80	0.51	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	114	0.72	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	1,040	2.95	0.003	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	881	2.50	0.002	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	853	2.42	0.002	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	190	1.21	0.001	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	162	1.03	0.001	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	-162	0.46	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	909	2.58	0.002	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	429	2.74	0.004	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	180	1.15	0.001	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-40	0.26	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	246	1.57	0.001	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-241	1.54	0.001	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	551	1.56	0.001	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-248	1.58	0.001	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	-220	1.40	0.001	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	-249	1.59	0.001	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	-249	1.59	0.001	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	254	0.72	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-50	0.32	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	5	0.03	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	5	0.03	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-5	0.03	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	5	0.01	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	792	2.25	0.002	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	748	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	1,040	6,340.00

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**Scenario: Phase 1B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	32	6,339.95	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	26	6,339.88	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	53	6,339.88	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	73	6,339.92	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	45	6,339.87	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.83	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	45	6,339.82	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.83	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.83	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.82	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.82	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	57	6,339.82	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.84	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.83	100
275	J-16	6,125.50	<None>	<Collection: 1 item>	45	6,339.81	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.82	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.82	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	87	6,339.74	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.77	99
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,339.81	94
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.82	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
248	J-24	6,128.25	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
307	J-25	6,126.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
303	J-26	6,112.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
298	J-27	6,116.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
296	J-28	6,110.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
294	J-29	6,085.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
64	J-30	6,087.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
120	J-31	6,099.00	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 1B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	209	0.59	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	176	0.50	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	13	0.08	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	41	0.26	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	255	0.72	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	141	0.40	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	96	0.27	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	25	0.16	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-20	0.13	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	20	0.06	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	39	0.11	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-19	0.12	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-20	0.13	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-3	0.02	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-32	0.21	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-21	0.14	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	116	0.33	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-28	0.18	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	17	0.11	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	-1	0.01	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	-1	0.01	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	37	0.11	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-51	0.33	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	36	0.23	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	36	0.23	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-36	0.23	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	36	0.10	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	137	0.39	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 1B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

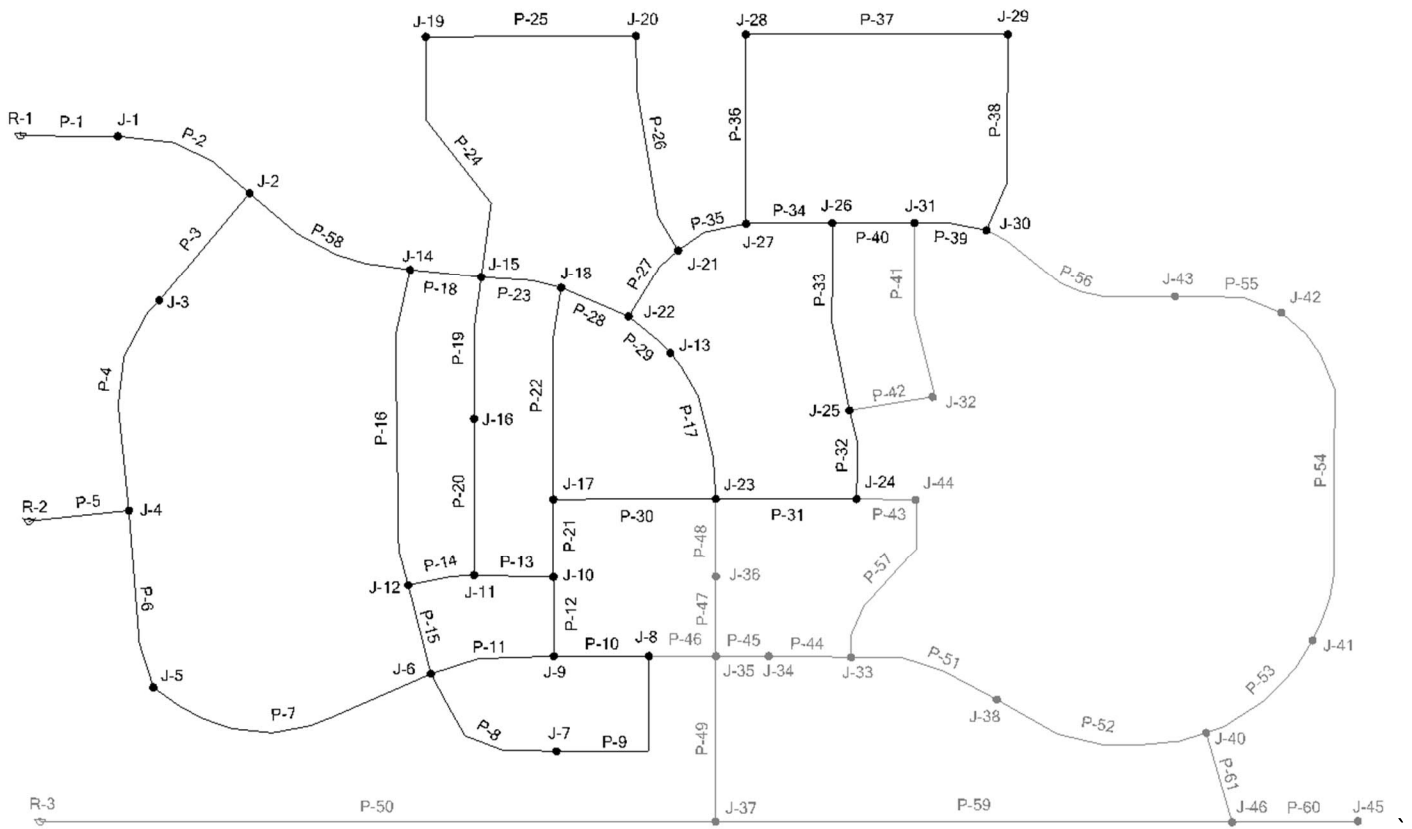
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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	209	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	255	6,340.00

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# Trails at Overland Ranch

## Phase 2A- Nodal Diagram



**Scenario: Phase 2A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	7	6,339.99	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	6	6,339.99	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	12	6,339.99	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	16	6,339.99	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	10	6,339.98	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.98	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	10	6,339.98	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.98	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.98	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.98	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.98	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	13	6,339.98	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	9	6,339.97	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.98	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.97	100
275	J-16	6,125.50	<None>	<Collection: 1 item>	10	6,339.97	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.97	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.97	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	19	6,339.97	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.97	99
105	J-21	6,121.50	<None>	<Collection: 1 item>	0	6,339.97	95
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.97	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	5	6,339.97	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.97	92
307	J-25	6,126.00	<None>	<Collection: 1 item>	9	6,339.97	93
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.96	99
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.96	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	18	6,339.96	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.96	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.96	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.96	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 2A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	66	0.19	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	59	0.17	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-2	0.01	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	14	0.09	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	78	0.22	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	47	0.13	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	37	0.11	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	6	0.04	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-4	0.02	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	4	0.01	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	17	0.05	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-14	0.09	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	0	0.00	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	7	0.04	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-14	0.09	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-5	0.03	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	8	0.02	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	50	0.14	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-4	0.02	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	6	0.04	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	14	0.09	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	4	0.02	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	32	0.09	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-15	0.10	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	4	0.03	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	4	0.03	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-19	0.12	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	35	0.10	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	17	0.05	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-10	0.06	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	13	0.08	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-13	0.08	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-4	0.03	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	2	0.01	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	14	0.09	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-12	0.08	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	6	0.04	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	6	0.04	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-6	0.04	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	6	0.04	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	56	0.16	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2A - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	66	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	78	6,340.00

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**Scenario: Phase 2A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	20	6,339.32	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	16	6,338.30	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	33	6,338.46	101
50	J-4	6,133.50	<None>	<Collection: 2 items>	45	6,338.86	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	28	6,337.23	80
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,335.08	81
317	J-7	6,160.00	<None>	<Collection: 1 item>	28	6,334.51	76
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,334.06	77
152	J-9	6,164.00	<None>	<Collection: 1 item>	1,500	6,334.02	74
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,335.37	79
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,335.52	82
148	J-12	6,138.50	<None>	<Collection: 1 item>	35	6,335.50	85
326	J-13	6,132.00	<None>	<Collection: 1 item>	24	6,336.31	88
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,336.86	103
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,336.55	98
275	J-16	6,125.50	<None>	<Collection: 1 item>	28	6,336.01	91
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,335.94	83
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,336.38	94
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	54	6,336.35	98
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,336.33	98
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,336.31	93
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,336.33	90
43	J-23	6,140.75	<None>	<Collection: 1 item>	15	6,336.25	85
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,336.25	90
307	J-25	6,126.00	<None>	<Collection: 1 item>	24	6,336.25	91
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,336.26	97
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,336.27	95
296	J-28	6,110.00	<None>	<Collection: 1 item>	52	6,336.24	98
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,336.25	109
64	J-30	6,087.75	<None>	<Collection: 1 item>	0	6,336.26	108
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,336.26	103
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 2A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	821	2.33	0.002	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	801	2.27	0.002	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-107	0.68	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	140	0.89	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	1,082	3.07	0.003	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	897	2.54	0.002	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	869	2.46	0.002	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	189	1.21	0.001	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	161	1.03	0.001	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	-161	0.46	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	907	2.57	0.002	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	432	2.76	0.004	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	139	0.89	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	-45	0.28	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	227	1.45	0.001	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-218	1.39	0.001	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	164	0.47	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	674	1.91	0.001	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-211	1.35	0.001	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	-183	1.17	0.001	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	-293	1.87	0.002	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	-148	0.95	0.001	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	382	1.08	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-80	0.51	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	-26	0.17	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	-26	0.17	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-46	0.29	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	234	0.66	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	188	0.53	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	144	0.92	0.001	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	5	0.03	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-5	0.03	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	20	0.13	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	35	0.22	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	72	0.46	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-37	0.24	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	15	0.09	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	15	0.09	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-15	0.09	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	15	0.09	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	892	2.53	0.002	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2A - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	821	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	1,082	6,340.00

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**Scenario: Phase 2A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	32	6,339.90	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	26	6,339.76	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	53	6,339.76	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	73	6,339.86	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	45	6,339.74	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.64	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	45	6,339.62	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.63	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.63	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.60	80
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.60	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	57	6,339.60	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	38	6,339.53	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.63	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.58	99
275	J-16	6,125.50	<None>	<Collection: 1 item>	45	6,339.58	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.56	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.56	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	87	6,339.44	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.45	99
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,339.47	94
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.53	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	24	6,339.53	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.47	91
307	J-25	6,126.00	<None>	<Collection: 1 item>	39	6,339.44	92
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.43	98
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.43	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	83	6,339.37	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.40	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.42	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.42	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
174	J-33	6,129.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
207	J-34	6,142.00	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
45	J-35	6,149.75	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
156	J-36	6,147.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
47	J-37	6,164.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)

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**Scenario: Phase 2A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	299	0.85	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	266	0.76	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-10	0.07	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	64	0.41	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	350	0.99	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	214	0.61	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	168	0.48	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	29	0.18	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-16	0.10	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	16	0.04	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	77	0.22	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-61	0.39	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	1	0.01	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	30	0.19	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-63	0.40	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-24	0.15	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	37	0.10	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	227	0.64	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-16	0.10	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	29	0.18	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	62	0.39	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	16	0.10	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	144	0.41	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-67	0.43	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	20	0.13	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	20	0.13	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-84	0.54	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	160	0.45	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	75	0.21	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-46	0.29	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	58	0.37	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-58	0.37	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-19	0.12	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	10	0.06	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	64	0.41	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-55	0.35	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	28	0.18	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	28	0.18	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-28	0.18	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	28	0.18	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	251	0.71	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2A - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

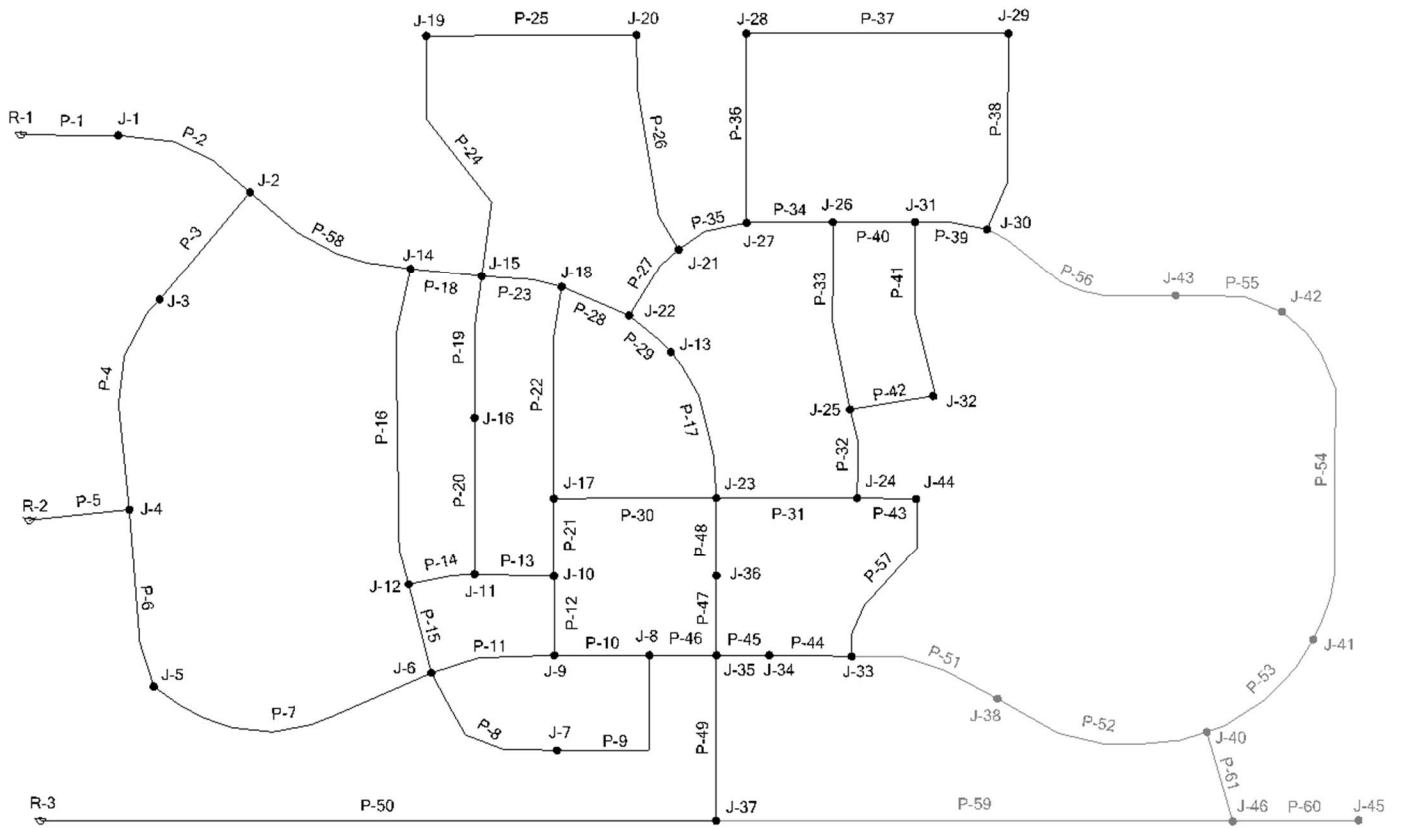
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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	299	6,340.00
31	R-3	6,340.00	<None>	(N/A)	(N/A)
32	R-2	6,340.00	<None>	350	6,340.00

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# Trails at Overland Ranch

## Phase 2B- Nodal Diagram



**Scenario: Phase 2B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	7	6,339.99	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	6	6,339.99	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	12	6,339.99	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	16	6,339.99	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	10	6,339.99	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.98	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	10	6,339.98	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.98	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.98	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.98	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.98	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	13	6,339.98	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	9	6,339.98	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.98	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.98	100
275	J-16	6,125.50	<None>	<Collection: 1 item>	10	6,339.98	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.98	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.98	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	19	6,339.97	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.97	99
105	J-21	6,121.50	<None>	<Collection: 1 item>	0	6,339.97	95
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.98	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	5	6,339.98	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.97	92
307	J-25	6,126.00	<None>	<Collection: 1 item>	9	6,339.97	93
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.97	99
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.97	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	18	6,339.96	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.97	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.97	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.97	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	8	6,339.97	98
174	J-33	6,129.00	<None>	<Collection: 1 item>	3	6,339.98	91
207	J-34	6,142.00	<None>	<Collection: 1 item>	6	6,339.98	86
45	J-35	6,149.75	<None>	<Collection: 0 items>	0	6,339.98	82
156	J-36	6,147.50	<None>	<Collection: 1 item>	5	6,339.98	83
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,339.98	76
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	8	6,339.97	93

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**Scenario: Phase 2B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	61	0.17	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	54	0.15	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-1	0.00	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	13	0.08	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	73	0.21	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	45	0.13	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	35	0.10	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	7	0.04	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-3	0.02	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	10	0.03	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	18	0.05	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-8	0.05	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-1	0.00	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	4	0.02	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-10	0.06	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-6	0.04	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	-6	0.02	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	43	0.12	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-6	0.04	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	4	0.03	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	7	0.05	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	2	0.01	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	22	0.06	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-15	0.09	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	5	0.03	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	5	0.03	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-22	0.14	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	24	0.07	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	2	0.01	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-5	0.03	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	16	0.10	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-18	0.11	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-2	0.01	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	5	0.03	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	17	0.11	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-12	0.08	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	6	0.04	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	6	0.04	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-6	0.04	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	7	0.04	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	-1	0.01	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	7	0.05	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	-2	0.01	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	12	0.08	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	19	0.12	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	7	0.02	0.000	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	-27	0.08	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	-23	0.06	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-39	0.11	0.000	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-39	0.11	0.000	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-10	0.06	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	49	0.14	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2B - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	61	6,340.00
31	R-3	6,340.00	<None>	39	6,340.00
32	R-2	6,340.00	<None>	73	6,340.00

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**Scenario: Phase 2B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	20	6,339.56	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	16	6,338.91	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	33	6,339.02	101
50	J-4	6,133.50	<None>	<Collection: 2 items>	45	6,339.33	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	28	6,338.46	80
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,337.33	82
317	J-7	6,160.00	<None>	<Collection: 1 item>	28	6,337.25	77
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,337.21	79
152	J-9	6,164.00	<None>	<Collection: 1 item>	1,500	6,336.80	75
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,337.30	79
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,337.40	83
148	J-12	6,138.50	<None>	<Collection: 1 item>	35	6,337.40	86
326	J-13	6,132.00	<None>	<Collection: 1 item>	24	6,337.53	89
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,337.99	103
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,337.76	99
275	J-16	6,125.50	<None>	<Collection: 1 item>	28	6,337.56	92
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,337.43	84
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,337.62	94
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	54	6,337.56	98
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,337.55	98
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,337.53	93
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,337.56	91
43	J-23	6,140.75	<None>	<Collection: 1 item>	15	6,337.47	85
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,337.45	91
307	J-25	6,126.00	<None>	<Collection: 1 item>	24	6,337.44	91
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,337.45	98
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,337.47	96
296	J-28	6,110.00	<None>	<Collection: 1 item>	52	6,337.44	98
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,337.44	109
64	J-30	6,087.75	<None>	<Collection: 1 item>	0	6,337.45	108
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,337.45	103
320	J-32	6,114.25	<None>	<Collection: 1 item>	23	6,337.44	97
174	J-33	6,129.00	<None>	<Collection: 1 item>	8	6,337.44	90
207	J-34	6,142.00	<None>	<Collection: 1 item>	17	6,337.45	85
45	J-35	6,149.75	<None>	<Collection: 1 item>	0	6,337.45	81
156	J-36	6,147.50	<None>	<Collection: 1 item>	13	6,337.46	82
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,337.91	75
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	23	6,337.44	92

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**Scenario: Phase 2B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	649	1.84	0.001	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	628	1.78	0.001	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-89	0.57	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	122	0.78	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	808	2.29	0.002	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	641	1.82	0.001	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	613	1.74	0.001	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	68	0.44	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	41	0.26	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	-618	1.75	0.001	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	630	1.79	0.001	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	252	1.61	0.001	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	116	0.74	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	18	0.11	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	85	0.54	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-138	0.88	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	180	0.51	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	563	1.60	0.001	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-126	0.81	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	-99	0.63	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	-136	0.87	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	-93	0.59	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	355	1.01	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-81	0.52	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	-26	0.17	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	-26	0.17	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-59	0.37	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	263	0.75	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	204	0.58	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	43	0.28	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	34	0.22	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-14	0.09	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	20	0.13	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	45	0.29	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	85	0.54	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-40	0.26	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	12	0.07	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	12	0.07	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-12	0.07	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	25	0.16	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	-14	0.09	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	9	0.06	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	20	0.13	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	10	0.06	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	28	0.18	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	-577	1.64	0.001	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	75	0.21	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	88	0.25	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-530	1.50	0.001	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-530	1.50	0.001	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-2	0.02	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	701	1.99	0.001	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2B - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	649	6,340.00
31	R-3	6,340.00	<None>	530	6,340.00
32	R-2	6,340.00	<None>	808	6,340.00

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**Scenario: Phase 2B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	32	6,339.91	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	26	6,339.80	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	53	6,339.80	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	73	6,339.87	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	45	6,339.77	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.68	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	45	6,339.66	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.67	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.67	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.66	80
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.66	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	57	6,339.66	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	38	6,339.63	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.69	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.66	99
275	J-16	6,125.50	<None>	<Collection: 1 item>	45	6,339.65	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.65	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.65	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	(N/A)	(N/A)	(N/A)
280	J-19	6,110.00	<None>	<Collection: 1 item>	87	6,339.52	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.53	99
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,339.54	94
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.64	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	24	6,339.64	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.56	91
307	J-25	6,126.00	<None>	<Collection: 1 item>	39	6,339.49	92
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.49	98
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.50	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	83	6,339.43	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.46	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.48	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.48	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	36	6,339.48	97
174	J-33	6,129.00	<None>	<Collection: 1 item>	12	6,339.60	91
207	J-34	6,142.00	<None>	<Collection: 1 item>	28	6,339.63	86
45	J-35	6,149.75	<None>	<Collection: 0 items>	0	6,339.67	82
156	J-36	6,147.50	<None>	<Collection: 1 item>	21	6,339.65	83
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,339.73	76
56	J-38	6,134.50	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
191	J-40	6,126.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
58	J-41	6,127.50	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
60	J-42	6,100.00	<None>	<Collection: 2 items>	(N/A)	(N/A)	(N/A)
62	J-43	6,088.25	<None>	<Collection: 1 item>	(N/A)	(N/A)	(N/A)
323	J-44	6,124.75	<None>	<Collection: 1 item>	36	6,339.56	93

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**Scenario: Phase 2B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	275	0.78	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	243	0.69	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-3	0.02	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	56	0.36	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	330	0.94	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	201	0.57	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	156	0.44	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	31	0.20	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	-14	0.09	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	44	0.13	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	79	0.23	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-35	0.22	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	-3	0.02	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	17	0.11	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-46	0.29	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-28	0.18	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	-28	0.08	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	192	0.54	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-25	0.16	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	20	0.13	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	32	0.21	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	9	0.05	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	100	0.28	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-67	0.43	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	21	0.13	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	21	0.13	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-98	0.63	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	109	0.31	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	10	0.03	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-24	0.15	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	74	0.47	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-81	0.52	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-9	0.06	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	22	0.14	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	78	0.50	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-56	0.35	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	27	0.18	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	27	0.18	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-27	0.18	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	31	0.20	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	-4	0.02	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	32	0.21	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	-7	0.05	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	56	0.36	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	84	0.54	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	30	0.09	0.000	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	-123	0.35	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	-102	0.29	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-177	0.50	0.000	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-177	0.50	0.000	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-44	0.28	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	220	0.62	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	(N/A)	(N/A)	(N/A)	295

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**Scenario: Phase 2B - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

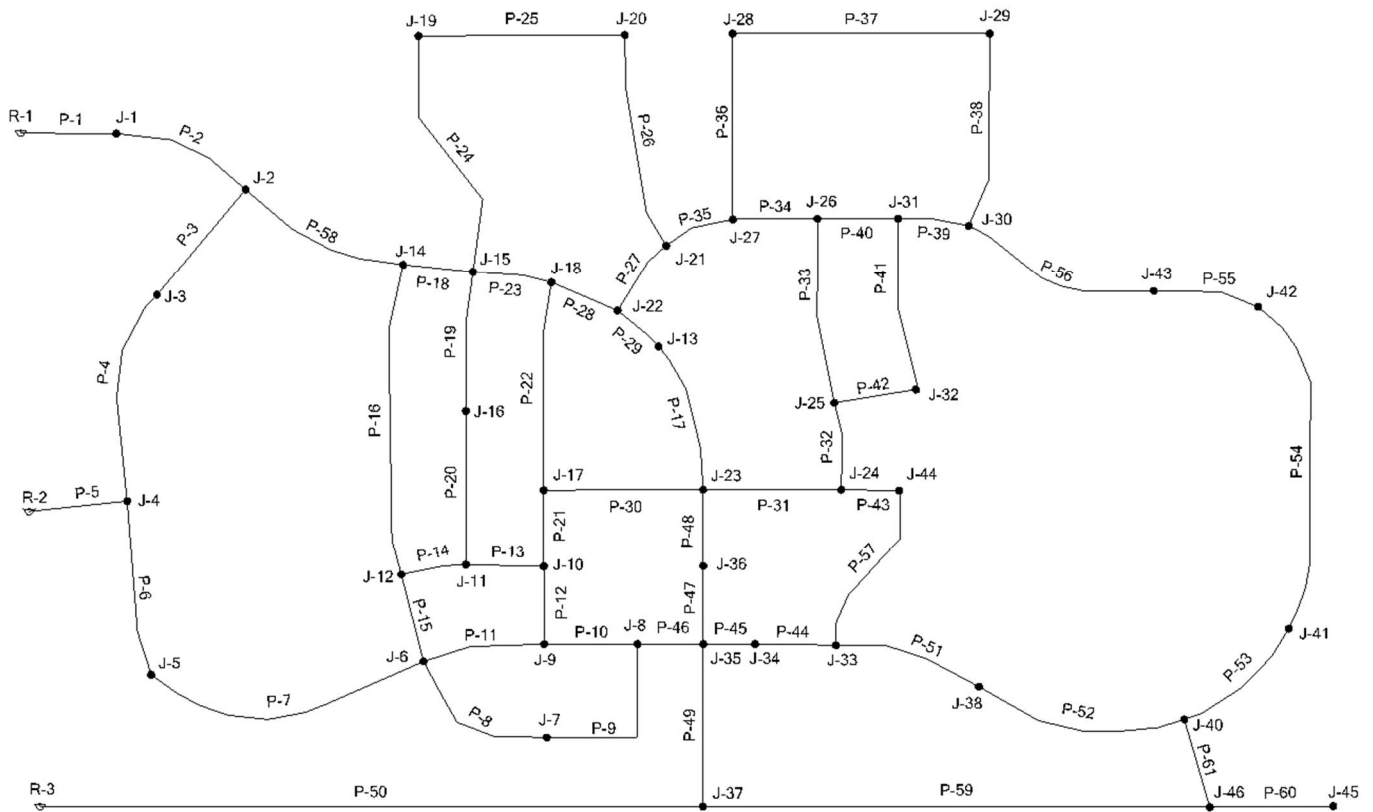
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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	275	6,340.00
31	R-3	6,340.00	<None>	177	6,340.00
32	R-2	6,340.00	<None>	330	6,340.00

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# Trails at Overland Ranch

## Phase 3- Nodal Diagram





**Scenario: Phase 3 - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	7	6,339.99	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	6	6,339.98	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	12	6,339.98	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	16	6,339.99	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	10	6,339.98	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.97	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	10	6,339.96	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.96	80
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.97	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.97	81
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.97	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	13	6,339.97	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	9	6,339.96	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.97	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.97	100
275	J-16	6,125.50	<None>	<Collection: 1 item>	10	6,339.97	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.96	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	0	6,339.96	100
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.96	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	0	6,339.96	108
280	J-19	6,110.00	<None>	<Collection: 1 item>	19	6,339.95	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.95	99
105	J-21	6,121.50	<None>	<Collection: 1 item>	0	6,339.96	95
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.96	92
43	J-23	6,140.75	<None>	<Collection: 1 item>	5	6,339.96	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.95	92
307	J-25	6,126.00	<None>	<Collection: 1 item>	9	6,339.95	93
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.95	99
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.95	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	18	6,339.94	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.94	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.95	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.95	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	8	6,339.95	98
174	J-33	6,129.00	<None>	<Collection: 1 item>	3	6,339.96	91
207	J-34	6,142.00	<None>	<Collection: 1 item>	6	6,339.96	86
45	J-35	6,149.75	<None>	<Collection: 0 items>	0	6,339.96	82
156	J-36	6,147.50	<None>	<Collection: 1 item>	5	6,339.96	83
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,339.97	76
56	J-38	6,134.50	<None>	<Collection: 1 item>	7	6,339.95	89
191	J-40	6,126.50	<None>	<Collection: 2 items>	11	6,339.95	92
58	J-41	6,127.50	<None>	<Collection: 2 items>	14	6,339.94	92
60	J-42	6,100.00	<None>	<Collection: 2 items>	14	6,339.94	104
62	J-43	6,088.25	<None>	<Collection: 1 item>	4	6,339.94	109
323	J-44	6,124.75	<None>	<Collection: 1 item>	8	6,339.95	93

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**Scenario: Phase 3 - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	76	0.21	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	68	0.19	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-4	0.02	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	16	0.10	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	91	0.26	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	59	0.17	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	49	0.14	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	10	0.07	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	0	0.00	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	22	0.06	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	28	0.08	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-6	0.04	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	4	0.02	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	7	0.04	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-11	0.07	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-9	0.06	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	0	0.00	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	58	0.16	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-7	0.04	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	3	0.02	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	9	0.06	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	1	0.01	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	34	0.10	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-17	0.11	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	2	0.01	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	2	0.01	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-26	0.17	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	35	0.10	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	9	0.02	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-8	0.05	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	22	0.14	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-21	0.13	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-2	0.01	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	9	0.06	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	24	0.15	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-15	0.09	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	4	0.02	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	4	0.02	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-14	0.09	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	11	0.07	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	2	0.01	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	10	0.07	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	1	0.01	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	20	0.13	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	27	0.17	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	23	0.06	0.000	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	-24	0.07	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	-20	0.06	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-28	0.08	0.000	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-57	0.16	0.000	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	11	0.07	0.000	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	4	0.02	0.000	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	22	0.14	0.000	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	8	0.05	0.000	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	-6	0.04	0.000	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	-10	0.06	0.000	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-7	0.04	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	66	0.19	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	29	0.08	0.000	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	0	0.00	0.000	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	-29	0.18	0.000	295

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**Scenario: Phase 3 - ADD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	76	6,340.00
31	R-3	6,340.00	<None>	57	6,340.00
32	R-2	6,340.00	<None>	91	6,340.00

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**Scenario: Phase 3 - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	20	6,339.51	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	16	6,338.79	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	33	6,338.92	101
50	J-4	6,133.50	<None>	<Collection: 2 items>	45	6,339.27	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	28	6,338.31	80
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,337.07	82
317	J-7	6,160.00	<None>	<Collection: 1 item>	28	6,336.95	77
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,336.90	78
152	J-9	6,164.00	<None>	<Collection: 1 item>	1,500	6,336.50	75
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,337.00	79
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,337.13	83
148	J-12	6,138.50	<None>	<Collection: 1 item>	35	6,337.13	86
326	J-13	6,132.00	<None>	<Collection: 1 item>	24	6,337.22	89
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,337.75	103
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,337.50	99
275	J-16	6,125.50	<None>	<Collection: 1 item>	28	6,337.29	92
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,337.12	84
331	J-45	6,109.50	<None>	<Collection: 0 items>	0	6,337.32	99
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,337.32	94
333	J-46	6,089.30	<None>	<Collection: 0 items>	0	6,337.32	107
280	J-19	6,110.00	<None>	<Collection: 1 item>	54	6,337.27	98
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,337.24	98
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,337.21	93
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,337.26	91
43	J-23	6,140.75	<None>	<Collection: 1 item>	15	6,337.14	85
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,337.11	90
307	J-25	6,126.00	<None>	<Collection: 1 item>	24	6,337.11	91
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,337.12	97
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,337.14	96
296	J-28	6,110.00	<None>	<Collection: 1 item>	52	6,337.10	98
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,337.10	109
64	J-30	6,087.75	<None>	<Collection: 1 item>	0	6,337.10	108
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,337.11	103
320	J-32	6,114.25	<None>	<Collection: 1 item>	23	6,337.11	96
174	J-33	6,129.00	<None>	<Collection: 1 item>	8	6,337.11	90
207	J-34	6,142.00	<None>	<Collection: 1 item>	17	6,337.11	84
45	J-35	6,149.75	<None>	<Collection: 1 item>	0	6,337.11	81
156	J-36	6,147.50	<None>	<Collection: 1 item>	13	6,337.13	82
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,337.45	75
56	J-38	6,134.50	<None>	<Collection: 1 item>	21	6,337.12	88
191	J-40	6,126.50	<None>	<Collection: 2 items>	30	6,337.18	91
58	J-41	6,127.50	<None>	<Collection: 2 items>	39	6,337.12	91
60	J-42	6,100.00	<None>	<Collection: 2 items>	39	6,337.09	103
62	J-43	6,088.25	<None>	<Collection: 1 item>	11	6,337.09	108
323	J-44	6,124.75	<None>	<Collection: 1 item>	23	6,337.11	92

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**Scenario: Phase 3 - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	686	1.95	0.001	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	666	1.89	0.001	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-97	0.62	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	130	0.83	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	849	2.41	0.002	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	674	1.91	0.001	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	646	1.83	0.001	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	80	0.51	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	52	0.33	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	-600	1.70	0.001	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	647	1.84	0.001	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	253	1.61	0.001	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	126	0.81	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	26	0.17	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	81	0.52	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-143	0.91	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	202	0.57	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	604	1.71	0.001	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-128	0.82	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	-100	0.64	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	-127	0.81	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	-97	0.62	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	389	1.10	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-87	0.56	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	-33	0.21	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	-33	0.21	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-66	0.42	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	292	0.83	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	226	0.64	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	30	0.19	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	39	0.25	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-21	0.14	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	19	0.12	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	53	0.34	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	99	0.63	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-46	0.29	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	6	0.04	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	6	0.04	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-27	0.17	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	34	0.22	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	-7	0.04	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	16	0.10	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	18	0.11	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	-11	0.07	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	7	0.04	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	-547	1.55	0.001	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	105	0.30	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	118	0.33	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-449	1.27	0.001	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-590	1.67	0.001	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	-23	0.15	0.000	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	-44	0.28	0.000	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	67	0.43	0.000	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	28	0.18	0.000	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	-11	0.07	0.000	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	-21	0.14	0.000	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-5	0.03	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	746	2.12	0.001	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	141	0.40	0.000	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	0	0.00	0.000	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	-141	0.90	0.000	295

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**Scenario: Phase 3 - MDD + FF**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	686	6,340.00
31	R-3	6,340.00	<None>	590	6,340.00
32	R-2	6,340.00	<None>	849	6,340.00

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**Scenario: Phase 3 - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Junction Table**

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
33	J-1	6,094.00	<None>	<Collection: 1 item>	32	6,339.87	106
35	J-2	6,089.50	<None>	<Collection: 1 item>	26	6,339.69	108
81	J-3	6,105.00	<None>	<Collection: 1 item>	53	6,339.70	102
50	J-4	6,133.50	<None>	<Collection: 2 items>	73	6,339.81	89
92	J-5	6,152.50	<None>	<Collection: 1 item>	45	6,339.64	81
53	J-6	6,147.25	<None>	<Collection: 0 items>	0	6,339.47	83
317	J-7	6,160.00	<None>	<Collection: 1 item>	45	6,339.43	78
211	J-8	6,155.75	<None>	<Collection: 0 items>	0	6,339.43	79
152	J-9	6,164.00	<None>	<Collection: 0 items>	0	6,339.44	76
143	J-10	6,153.75	<None>	<Collection: 0 items>	0	6,339.44	80
266	J-11	6,146.00	<None>	<Collection: 0 items>	0	6,339.44	84
148	J-12	6,138.50	<None>	<Collection: 1 item>	57	6,339.45	87
326	J-13	6,132.00	<None>	<Collection: 1 item>	38	6,339.40	90
37	J-14	6,099.00	<None>	<Collection: 0 items>	0	6,339.50	104
271	J-15	6,109.75	<None>	<Collection: 0 items>	0	6,339.45	99
275	J-16	6,125.50	<None>	<Collection: 1 item>	45	6,339.44	93
312	J-17	6,144.00	<None>	<Collection: 0 items>	0	6,339.42	85
331	J-45	6,109.50	<None>	<Collection: 0 items>	0	6,339.34	99
41	J-18	6,120.00	<None>	<Collection: 0 items>	0	6,339.42	95
333	J-46	6,089.30	<None>	<Collection: 0 items>	0	6,339.34	108
280	J-19	6,110.00	<None>	<Collection: 1 item>	87	6,339.26	99
278	J-20	6,110.00	<None>	<Collection: 0 items>	0	6,339.27	99
105	J-21	6,121.50	<None>	<Collection: 0 items>	0	6,339.27	94
68	J-22	6,128.00	<None>	<Collection: 0 items>	0	6,339.40	91
43	J-23	6,140.75	<None>	<Collection: 1 item>	24	6,339.40	86
248	J-24	6,128.25	<None>	<Collection: 0 items>	0	6,339.25	91
307	J-25	6,126.00	<None>	<Collection: 1 item>	39	6,339.17	92
303	J-26	6,112.00	<None>	<Collection: 0 items>	0	6,339.17	98
298	J-27	6,116.00	<None>	<Collection: 0 items>	0	6,339.19	97
296	J-28	6,110.00	<None>	<Collection: 1 item>	83	6,339.10	99
294	J-29	6,085.00	<None>	<Collection: 0 items>	0	6,339.11	110
64	J-30	6,087.75	<None>	<Collection: 0 items>	0	6,339.11	109
120	J-31	6,099.00	<None>	<Collection: 0 items>	0	6,339.15	104
320	J-32	6,114.25	<None>	<Collection: 1 item>	36	6,339.15	97
174	J-33	6,129.00	<None>	<Collection: 1 item>	12	6,339.27	91
207	J-34	6,142.00	<None>	<Collection: 1 item>	28	6,339.34	85
45	J-35	6,149.75	<None>	<Collection: 0 items>	0	6,339.42	82
156	J-36	6,147.50	<None>	<Collection: 1 item>	21	6,339.41	83
47	J-37	6,164.50	<None>	<Collection: 0 items>	0	6,339.45	76
56	J-38	6,134.50	<None>	<Collection: 1 item>	33	6,339.23	89
191	J-40	6,126.50	<None>	<Collection: 2 items>	48	6,339.22	92
58	J-41	6,127.50	<None>	<Collection: 2 items>	62	6,339.10	92
60	J-42	6,100.00	<None>	<Collection: 2 items>	62	6,339.06	103
62	J-43	6,088.25	<None>	<Collection: 1 item>	17	6,339.07	109
323	J-44	6,124.75	<None>	<Collection: 1 item>	36	6,339.25	93

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**Scenario: Phase 3 - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Pipe Table**

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Length (User Defined) (ft)
34	P-1	71	R-1	J-1	12.0	PVC	130.0	0.000	340	0.96	0.000	385
262	P-2	108	J-1	J-2	12.0	PVC	130.0	0.000	308	0.87	0.000	610
263	P-3	102	J-2	J-3	8.0	PVC	130.0	0.000	-17	0.11	0.000	550
82	P-4	162	J-4	J-3	8.0	PVC	130.0	0.000	70	0.45	0.000	840
51	P-5	73	R-2	J-4	12.0	PVC	130.0	0.000	408	1.16	0.000	390
93	P-6	131	J-4	J-5	12.0	PVC	130.0	0.000	266	0.75	0.000	785
94	P-7	219	J-5	J-6	12.0	PVC	130.0	0.000	220	0.62	0.000	1,100
318	P-8	120	J-6	J-7	8.0	PVC	130.0	0.000	46	0.29	0.000	685
319	P-9	136	J-7	J-8	8.0	PVC	130.0	0.000	1	0.01	0.000	720
212	P-10	69	J-9	J-8	12.0	PVC	130.0	0.000	100	0.28	0.000	400
153	P-11	91	J-6	J-9	12.0	PVC	130.0	0.000	126	0.36	0.000	500
155	P-12	58	J-10	J-9	8.0	PVC	130.0	0.000	-26	0.16	0.000	350
268	P-13	58	J-11	J-10	8.0	PVC	130.0	0.000	16	0.10	0.000	310
267	P-14	49	J-12	J-11	8.0	PVC	130.0	0.000	30	0.19	0.000	290
316	P-15	67	J-12	J-6	8.0	PVC	130.0	0.000	-48	0.31	0.000	360
329	P-16	233	J-12	J-14	8.0	PVC	130.0	0.000	-39	0.25	0.000	1,250
328	P-17	114	J-13	J-23	12.0	PVC	130.0	0.000	1	0.00	0.000	595
272	P-18	52	J-14	J-15	12.0	PVC	130.0	0.000	259	0.74	0.000	258
277	P-19	104	J-16	J-15	8.0	PVC	130.0	0.000	-30	0.19	0.000	525
276	P-20	115	J-11	J-16	8.0	PVC	130.0	0.000	14	0.09	0.000	620
313	P-21	57	J-10	J-17	8.0	PVC	130.0	0.000	42	0.27	0.000	300
314	P-22	155	J-17	J-18	8.0	PVC	130.0	0.000	6	0.04	0.000	830
273	P-23	59	J-15	J-18	12.0	PVC	130.0	0.000	151	0.43	0.000	392
282	P-24	192	J-19	J-15	8.0	PVC	130.0	0.000	-78	0.50	0.000	1,150
281	P-25	153	J-20	J-19	8.0	PVC	130.0	0.000	9	0.06	0.000	840
279	P-26	161	J-21	J-20	8.0	PVC	130.0	0.000	9	0.06	0.000	880
107	P-27	61	J-21	J-22	8.0	PVC	130.0	0.000	-118	0.75	0.000	370
69	P-28	54	J-18	J-22	12.0	PVC	130.0	0.000	157	0.45	0.000	260
327	P-29	41	J-22	J-13	12.0	PVC	130.0	0.000	39	0.11	0.000	245
315	P-30	118	J-23	J-17	8.0	PVC	130.0	0.000	-36	0.23	0.000	625
302	P-31	103	J-23	J-24	8.0	PVC	130.0	0.000	101	0.64	0.000	550
309	P-32	65	J-25	J-24	8.0	PVC	130.0	0.000	-94	0.60	0.000	360
308	P-33	138	J-26	J-25	8.0	PVC	130.0	0.000	-9	0.06	0.000	730
304	P-34	63	J-27	J-26	8.0	PVC	130.0	0.000	42	0.27	0.000	321
299	P-35	54	J-21	J-27	8.0	PVC	130.0	0.000	109	0.69	0.000	280
301	P-36	137	J-28	J-27	8.0	PVC	130.0	0.000	-66	0.42	0.000	740
297	P-37	191	J-29	J-28	8.0	PVC	130.0	0.000	17	0.11	0.000	1,030
295	P-38	145	J-30	J-29	8.0	PVC	130.0	0.000	17	0.11	0.000	790
121	P-39	53	J-30	J-31	8.0	PVC	130.0	0.000	-61	0.39	0.000	320
305	P-40	60	J-26	J-31	8.0	PVC	130.0	0.000	51	0.33	0.000	299
322	P-41	135	J-32	J-31	8.0	PVC	130.0	0.000	10	0.06	0.000	700
321	P-42	61	J-25	J-32	8.0	PVC	130.0	0.000	46	0.29	0.000	360
324	P-43	43	J-24	J-44	8.0	PVC	130.0	0.000	6	0.04	0.000	236
209	P-44	60	J-34	J-33	8.0	PVC	130.0	0.000	92	0.58	0.000	310
208	P-45	38	J-35	J-34	8.0	PVC	130.0	0.000	120	0.76	0.000	220
213	P-46	49	J-8	J-35	12.0	PVC	130.0	0.000	102	0.29	0.000	260
158	P-47	58	J-36	J-35	12.0	PVC	130.0	0.000	-110	0.31	0.000	350
157	P-48	57	J-23	J-36	12.0	PVC	130.0	0.000	-89	0.25	0.000	290
48	P-49	120	J-35	J-37	12.0	PVC	130.0	0.000	-128	0.36	0.000	585
49	P-50	493	J-37	R-3	12.0	PVC	130.0	0.000	-257	0.73	0.000	2,675
176	P-51	113	J-33	J-38	8.0	PVC	130.0	0.000	49	0.31	0.000	650
330	P-52	161	J-38	J-40	8.0	PVC	130.0	0.000	16	0.10	0.000	950
193	P-53	105	J-40	J-41	8.0	PVC	130.0	0.000	97	0.62	0.000	480
61	P-54	256	J-41	J-42	8.0	PVC	130.0	0.000	35	0.22	0.000	1,260
63	P-55	80	J-42	J-43	8.0	PVC	130.0	0.000	-28	0.18	0.000	440
65	P-56	152	J-43	J-30	8.0	PVC	130.0	0.000	-44	0.28	0.000	790
325	P-57	133	J-44	J-33	8.0	PVC	130.0	0.000	-30	0.19	0.000	734
38	P-58	133	J-2	J-14	12.0	PVC	130.0	0.000	298	0.85	0.000	700
334	P-59	377	J-37	J-46	12.0	PVC	130.0	0.000	129	0.37	0.000	1,939
335	P-60	92	J-46	J-45	12.0	PVC	130.0	0.000	0	0.00	0.000	640
336	P-61	68	J-40	J-46	8.0	PVC	130.0	0.000	-129	0.82	0.000	295

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**Scenario: Phase 3 - PHD**  
**Current Time Step: 0.000 h**  
**FlexTable: Reservoir Table**

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ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
30	R-1	6,340.00	<None>	340	6,340.00
31	R-3	6,340.00	<None>	257	6,340.00
32	R-2	6,340.00	<None>	408	6,340.00

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## APPENDIX C

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### Sanitary Hydraulic Computations

## Max. Capacity of 8" Pipe at Min. Slope with Pipe 75% Full

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	6.00 in
Diameter	8.0 in
Results	
Discharge	0.532 MGD
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.41 in
Top Width	0.58 ft
Critical Depth	5.16 in
Percent Full	75.0 %
Critical Slope	0.006 ft/ft
Velocity	2.93 ft/s
Velocity Head	0.13 ft
Specific Energy	0.63 ft
Froude Number	0.741
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.003 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	6.00 in
Critical Depth	5.16 in
Channel Slope	0.004 ft/ft
Critical Slope	0.006 ft/ft

## Max. Capacity of 10" Pipe at Min. Slope with Pipe 75% Full

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	7.50 in
Diameter	10.0 in
Results	
Discharge	0.965 MGD
Flow Area	0.4 ft <sup>2</sup>
Wetted Perimeter	1.7 ft
Hydraulic Radius	3.02 in
Top Width	0.72 ft
Critical Depth	6.57 in
Percent Full	75.0 %
Critical Slope	0.006 ft/ft
Velocity	3.40 ft/s
Velocity Head	0.18 ft
Specific Energy	0.80 ft
Froude Number	0.769
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.003 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.50 in
Critical Depth	6.57 in
Channel Slope	0.004 ft/ft
Critical Slope	0.006 ft/ft



## Max. Capacity of 15" Pipe at Min. Slope with Pipe 75% Full

Project Description	
Friction Method	Manning
Solve For	Formula Discharge
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Normal Depth	11.25 in
Diameter	15.0 in
Results	
Discharge	2.845 MGD
Flow Area	1.0 ft <sup>2</sup>
Wetted Perimeter	2.6 ft
Hydraulic Radius	4.53 in
Top Width	1.08 ft
Critical Depth	10.20 in
Percent Full	75.0 %
Critical Slope	0.005 ft/ft
Velocity	4.46 ft/s
Velocity Head	0.31 ft
Specific Energy	1.25 ft
Froude Number	0.823
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.003 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	11.25 in
Critical Depth	10.20 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 1 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	15.0 in
Discharge	0.531 MGD
Results	
Normal Depth	4.18 in
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.41 in
Top Width	1.12 ft
Critical Depth	4.26 in
Percent Full	27.9 %
Critical Slope	0.004 ft/ft
Velocity	2.94 ft/s
Velocity Head	0.13 ft
Specific Energy	0.48 ft
Froude Number	1.036
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	27.9 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.18 in
Critical Depth	4.26 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.239 MGD
Results	
Normal Depth	3.23 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.0 ft
Hydraulic Radius	1.81 in
Top Width	0.78 ft
Critical Depth	3.17 in
Percent Full	32.3 %
Critical Slope	0.004 ft/ft
Velocity	2.43 ft/s
Velocity Head	0.09 ft
Specific Energy	0.36 ft
Froude Number	0.969
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.23 in
Critical Depth	3.17 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2.1 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.090 MGD
Results	
Normal Depth	1.97 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.19 in
Top Width	0.66 ft
Critical Depth	1.92 in
Percent Full	19.7 %
Critical Slope	0.004 ft/ft
Velocity	1.83 ft/s
Velocity Head	0.05 ft
Specific Energy	0.22 ft
Froude Number	0.953
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	19.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.97 in
Critical Depth	1.92 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 3 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.090 MGD
Results	
Normal Depth	2.12 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.23 in
Top Width	0.59 ft
Critical Depth	2.05 in
Percent Full	26.5 %
Critical Slope	0.005 ft/ft
Velocity	1.88 ft/s
Velocity Head	0.05 ft
Specific Energy	0.23 ft
Froude Number	0.931
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.12 in
Critical Depth	2.05 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 4 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.041 MGD
Results	
Normal Depth	1.44 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.88 in
Top Width	0.51 ft
Critical Depth	1.37 in
Percent Full	17.9 %
Critical Slope	0.005 ft/ft
Velocity	1.49 ft/s
Velocity Head	0.03 ft
Specific Energy	0.15 ft
Froude Number	0.912
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.44 in
Critical Depth	1.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 5 after Phase 1A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.013 MGD
Results	
Normal Depth	0.83 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.4 ft
Hydraulic Radius	0.52 in
Top Width	0.41 ft
Critical Depth	0.77 in
Percent Full	10.3 %
Critical Slope	0.005 ft/ft
Velocity	1.06 ft/s
Velocity Head	0.02 ft
Specific Energy	0.09 ft
Froude Number	0.861
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.83 in
Critical Depth	0.77 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft



## Design Point 1 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	15.0 in
Discharge	0.586 MGD
Results	
Normal Depth	4.40 in
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.52 in
Top Width	1.14 ft
Critical Depth	4.48 in
Percent Full	29.4 %
Critical Slope	0.004 ft/ft
Velocity	3.02 ft/s
Velocity Head	0.14 ft
Specific Energy	0.51 ft
Froude Number	1.035
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	29.4 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.40 in
Critical Depth	4.48 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.356 MGD
Results	
Normal Depth	4.00 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.1 ft
Hydraulic Radius	2.14 in
Top Width	0.82 ft
Critical Depth	3.90 in
Percent Full	40.0 %
Critical Slope	0.004 ft/ft
Velocity	2.71 ft/s
Velocity Head	0.11 ft
Specific Energy	0.45 ft
Froude Number	0.955
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.00 in
Critical Depth	3.90 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2.1 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.206 MGD
Results	
Normal Depth	2.99 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	1.0 ft
Hydraulic Radius	1.70 in
Top Width	0.76 ft
Critical Depth	2.94 in
Percent Full	29.9 %
Critical Slope	0.004 ft/ft
Velocity	2.33 ft/s
Velocity Head	0.08 ft
Specific Energy	0.33 ft
Froude Number	0.968
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	23.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.99 in
Critical Depth	2.94 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 3 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.144 MGD
Results	
Normal Depth	2.70 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.51 in
Top Width	0.63 ft
Critical Depth	2.61 in
Percent Full	33.8 %
Critical Slope	0.005 ft/ft
Velocity	2.15 ft/s
Velocity Head	0.07 ft
Specific Energy	0.30 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.70 in
Critical Depth	2.61 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 4 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.041 MGD
Results	
Normal Depth	1.44 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.88 in
Top Width	0.51 ft
Critical Depth	1.37 in
Percent Full	17.9 %
Critical Slope	0.005 ft/ft
Velocity	1.49 ft/s
Velocity Head	0.03 ft
Specific Energy	0.15 ft
Froude Number	0.912
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.44 in
Critical Depth	1.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 5 after Phase 1B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.067 MGD
Results	
Normal Depth	1.83 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.09 in
Top Width	0.56 ft
Critical Depth	1.76 in
Percent Full	22.9 %
Critical Slope	0.005 ft/ft
Velocity	1.72 ft/s
Velocity Head	0.05 ft
Specific Energy	0.20 ft
Froude Number	0.924
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.83 in
Critical Depth	1.76 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 1 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	15.0 in
Discharge	0.792 MGD
Results	
Normal Depth	5.15 in
Flow Area	0.4 ft <sup>2</sup>
Wetted Perimeter	1.6 ft
Hydraulic Radius	2.86 in
Top Width	1.19 ft
Critical Depth	5.24 in
Percent Full	34.4 %
Critical Slope	0.004 ft/ft
Velocity	3.28 ft/s
Velocity Head	0.17 ft
Specific Energy	0.60 ft
Froude Number	1.033
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	34.4 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.15 in
Critical Depth	5.24 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft



## Design Point 2 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.500 MGD
Results	
Normal Depth	4.84 in
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.3 ft
Hydraulic Radius	2.45 in
Top Width	0.83 ft
Critical Depth	4.66 in
Percent Full	48.4 %
Critical Slope	0.005 ft/ft
Velocity	2.96 ft/s
Velocity Head	0.14 ft
Specific Energy	0.54 ft
Froude Number	0.932
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.84 in
Critical Depth	4.66 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 2.1 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.350 MGD
Results	
Normal Depth	3.96 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.1 ft
Hydraulic Radius	2.13 in
Top Width	0.82 ft
Critical Depth	3.87 in
Percent Full	39.6 %
Critical Slope	0.004 ft/ft
Velocity	2.69 ft/s
Velocity Head	0.11 ft
Specific Energy	0.44 ft
Froude Number	0.956
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.96 in
Critical Depth	3.87 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 3 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.144 MGD
Results	
Normal Depth	2.70 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.51 in
Top Width	0.63 ft
Critical Depth	2.61 in
Percent Full	33.8 %
Critical Slope	0.005 ft/ft
Velocity	2.15 ft/s
Velocity Head	0.07 ft
Specific Energy	0.30 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.70 in
Critical Depth	2.61 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 4 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.041 MGD
Results	
Normal Depth	1.44 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.88 in
Top Width	0.51 ft
Critical Depth	1.37 in
Percent Full	17.9 %
Critical Slope	0.005 ft/ft
Velocity	1.49 ft/s
Velocity Head	0.03 ft
Specific Energy	0.15 ft
Froude Number	0.912
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.44 in
Critical Depth	1.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 5 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.067 MGD
Results	
Normal Depth	1.83 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.09 in
Top Width	0.56 ft
Critical Depth	1.76 in
Percent Full	22.9 %
Critical Slope	0.005 ft/ft
Velocity	1.72 ft/s
Velocity Head	0.05 ft
Specific Energy	0.20 ft
Froude Number	0.924
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.83 in
Critical Depth	1.76 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 6 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.128 MGD
Results	
Normal Depth	2.55 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.44 in
Top Width	0.62 ft
Critical Depth	2.46 in
Percent Full	31.8 %
Critical Slope	0.005 ft/ft
Velocity	2.07 ft/s
Velocity Head	0.07 ft
Specific Energy	0.28 ft
Froude Number	0.930
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.55 in
Critical Depth	2.46 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 7 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.016 MGD
Results	
Normal Depth	0.91 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.57 in
Top Width	0.42 ft
Critical Depth	0.85 in
Percent Full	11.4 %
Critical Slope	0.005 ft/ft
Velocity	1.13 ft/s
Velocity Head	0.02 ft
Specific Energy	0.10 ft
Froude Number	0.871
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.91 in
Critical Depth	0.85 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 8 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.053 MGD
Results	
Normal Depth	1.63 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.98 in
Top Width	0.54 ft
Critical Depth	1.56 in
Percent Full	20.4 %
Critical Slope	0.005 ft/ft
Velocity	1.61 ft/s
Velocity Head	0.04 ft
Specific Energy	0.18 ft
Froude Number	0.920
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.63 in
Critical Depth	1.56 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft



## Design Point 9 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.071 MGD
Results	
Normal Depth	1.88 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.11 in
Top Width	0.57 ft
Critical Depth	1.81 in
Percent Full	23.5 %
Critical Slope	0.005 ft/ft
Velocity	1.75 ft/s
Velocity Head	0.05 ft
Specific Energy	0.20 ft
Froude Number	0.928
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.88 in
Critical Depth	1.81 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 10 after Phase 2A is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.090 MGD
Results	
Normal Depth	2.12 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.23 in
Top Width	0.59 ft
Critical Depth	2.05 in
Percent Full	26.5 %
Critical Slope	0.005 ft/ft
Velocity	1.88 ft/s
Velocity Head	0.05 ft
Specific Energy	0.23 ft
Froude Number	0.931
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.12 in
Critical Depth	2.05 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 1 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	15.0 in
Discharge	0.884 MGD
Results	
Normal Depth	5.46 in
Flow Area	0.4 ft <sup>2</sup>
Wetted Perimeter	1.6 ft
Hydraulic Radius	2.99 in
Top Width	1.20 ft
Critical Depth	5.54 in
Percent Full	36.4 %
Critical Slope	0.004 ft/ft
Velocity	3.39 ft/s
Velocity Head	0.18 ft
Specific Energy	0.63 ft
Froude Number	1.030
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	36.4 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.46 in
Critical Depth	5.54 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.592 MGD
Results	
Normal Depth	5.35 in
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.61 in
Top Width	0.83 ft
Critical Depth	5.09 in
Percent Full	53.5 %
Critical Slope	0.005 ft/ft
Velocity	3.09 ft/s
Velocity Head	0.15 ft
Specific Energy	0.59 ft
Froude Number	0.911
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.35 in
Critical Depth	5.09 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 2.1 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.442 MGD
Results	
Normal Depth	4.50 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.33 in
Top Width	0.83 ft
Critical Depth	4.37 in
Percent Full	45.0 %
Critical Slope	0.004 ft/ft
Velocity	2.87 ft/s
Velocity Head	0.13 ft
Specific Energy	0.50 ft
Froude Number	0.944
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.50 in
Critical Depth	4.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 3 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.144 MGD
Results	
Normal Depth	2.70 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.51 in
Top Width	0.63 ft
Critical Depth	2.61 in
Percent Full	33.8 %
Critical Slope	0.005 ft/ft
Velocity	2.15 ft/s
Velocity Head	0.07 ft
Specific Energy	0.30 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.70 in
Critical Depth	2.61 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 4 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.041 MGD
Results	
Normal Depth	1.44 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.88 in
Top Width	0.51 ft
Critical Depth	1.37 in
Percent Full	17.9 %
Critical Slope	0.005 ft/ft
Velocity	1.49 ft/s
Velocity Head	0.03 ft
Specific Energy	0.15 ft
Froude Number	0.912
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.44 in
Critical Depth	1.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 5 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.067 MGD
Results	
Normal Depth	1.83 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.09 in
Top Width	0.56 ft
Critical Depth	1.76 in
Percent Full	22.9 %
Critical Slope	0.005 ft/ft
Velocity	1.72 ft/s
Velocity Head	0.05 ft
Specific Energy	0.20 ft
Froude Number	0.924
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.83 in
Critical Depth	1.76 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft



## Design Point 6 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.220 MGD
Results	
Normal Depth	3.40 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.9 ft
Hydraulic Radius	1.79 in
Top Width	0.66 ft
Critical Depth	3.25 in
Percent Full	42.5 %
Critical Slope	0.005 ft/ft
Velocity	2.41 ft/s
Velocity Head	0.09 ft
Specific Energy	0.37 ft
Froude Number	0.915
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.40 in
Critical Depth	3.25 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 7 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.084 MGD
Results	
Normal Depth	2.05 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.20 in
Top Width	0.58 ft
Critical Depth	1.98 in
Percent Full	25.6 %
Critical Slope	0.005 ft/ft
Velocity	1.84 ft/s
Velocity Head	0.05 ft
Specific Energy	0.22 ft
Froude Number	0.930
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.05 in
Critical Depth	1.98 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 8 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.121 MGD
Results	
Normal Depth	2.47 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.40 in
Top Width	0.62 ft
Critical Depth	2.38 in
Percent Full	30.9 %
Critical Slope	0.005 ft/ft
Velocity	2.04 ft/s
Velocity Head	0.06 ft
Specific Energy	0.27 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.47 in
Critical Depth	2.38 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 9 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.163 MGD
Results	
Normal Depth	2.89 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.9 ft
Hydraulic Radius	1.59 in
Top Width	0.64 ft
Critical Depth	2.78 in
Percent Full	36.2 %
Critical Slope	0.005 ft/ft
Velocity	2.22 ft/s
Velocity Head	0.08 ft
Specific Energy	0.32 ft
Froude Number	0.926
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.89 in
Critical Depth	2.78 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 10 after Phase 2B is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.181 MGD
Results	
Normal Depth	3.06 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.9 ft
Hydraulic Radius	1.66 in
Top Width	0.65 ft
Critical Depth	2.93 in
Percent Full	38.2 %
Critical Slope	0.005 ft/ft
Velocity	2.28 ft/s
Velocity Head	0.08 ft
Specific Energy	0.34 ft
Froude Number	0.926
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.06 in
Critical Depth	2.93 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 1 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	15.0 in
Discharge	1.063 MGD
Results	
Normal Depth	6.04 in
Flow Area	0.5 ft <sup>2</sup>
Wetted Perimeter	1.7 ft
Hydraulic Radius	3.23 in
Top Width	1.23 ft
Critical Depth	6.11 in
Percent Full	40.2 %
Critical Slope	0.004 ft/ft
Velocity	3.56 ft/s
Velocity Head	0.20 ft
Specific Energy	0.70 ft
Froude Number	1.022
Maximum Discharge	3.357 MGD
Discharge Full	3.120 MGD
Slope Full	0.000 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	40.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	6.04 in
Critical Depth	6.11 in
Channel Slope	0.004 ft/ft
Critical Slope	0.004 ft/ft

## Design Point 2 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.772 MGD
Results	
Normal Depth	6.34 in
Flow Area	0.4 ft <sup>2</sup>
Wetted Perimeter	1.5 ft
Hydraulic Radius	2.85 in
Top Width	0.80 ft
Critical Depth	5.85 in
Percent Full	63.4 %
Critical Slope	0.005 ft/ft
Velocity	3.28 ft/s
Velocity Head	0.17 ft
Specific Energy	0.70 ft
Froude Number	0.857
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.002 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	6.34 in
Critical Depth	5.85 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 2.1 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	10.0 in
Discharge	0.622 MGD
Results	
Normal Depth	5.51 in
Flow Area	0.3 ft <sup>2</sup>
Wetted Perimeter	1.4 ft
Hydraulic Radius	2.65 in
Top Width	0.83 ft
Critical Depth	5.22 in
Percent Full	55.1 %
Critical Slope	0.005 ft/ft
Velocity	3.12 ft/s
Velocity Head	0.15 ft
Specific Energy	0.61 ft
Froude Number	0.903
Maximum Discharge	1.139 MGD
Discharge Full	1.058 MGD
Slope Full	0.001 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.51 in
Critical Depth	5.22 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft



## Design Point 3 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.144 MGD
Results	
Normal Depth	2.70 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.51 in
Top Width	0.63 ft
Critical Depth	2.61 in
Percent Full	33.8 %
Critical Slope	0.005 ft/ft
Velocity	2.15 ft/s
Velocity Head	0.07 ft
Specific Energy	0.30 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.70 in
Critical Depth	2.61 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 4 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.041 MGD
Results	
Normal Depth	1.44 in
Flow Area	0.0 ft <sup>2</sup>
Wetted Perimeter	0.6 ft
Hydraulic Radius	0.88 in
Top Width	0.51 ft
Critical Depth	1.37 in
Percent Full	17.9 %
Critical Slope	0.005 ft/ft
Velocity	1.49 ft/s
Velocity Head	0.03 ft
Specific Energy	0.15 ft
Froude Number	0.912
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.44 in
Critical Depth	1.37 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 5 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.067 MGD
Results	
Normal Depth	1.83 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.09 in
Top Width	0.56 ft
Critical Depth	1.76 in
Percent Full	22.9 %
Critical Slope	0.005 ft/ft
Velocity	1.72 ft/s
Velocity Head	0.05 ft
Specific Energy	0.20 ft
Froude Number	0.924
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.83 in
Critical Depth	1.76 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 6 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.400 MGD
Results	
Normal Depth	4.86 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.2 ft
Hydraulic Radius	2.24 in
Top Width	0.65 ft
Critical Depth	4.44 in
Percent Full	60.8 %
Critical Slope	0.005 ft/ft
Velocity	2.79 ft/s
Velocity Head	0.12 ft
Specific Energy	0.53 ft
Froude Number	0.841
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.002 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.86 in
Critical Depth	4.44 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 7 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.084 MGD
Results	
Normal Depth	2.05 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.7 ft
Hydraulic Radius	1.20 in
Top Width	0.58 ft
Critical Depth	1.98 in
Percent Full	25.6 %
Critical Slope	0.005 ft/ft
Velocity	1.84 ft/s
Velocity Head	0.05 ft
Specific Energy	0.22 ft
Froude Number	0.930
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.05 in
Critical Depth	1.98 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 8 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.121 MGD
Results	
Normal Depth	2.47 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.8 ft
Hydraulic Radius	1.40 in
Top Width	0.62 ft
Critical Depth	2.38 in
Percent Full	30.9 %
Critical Slope	0.005 ft/ft
Velocity	2.04 ft/s
Velocity Head	0.06 ft
Specific Energy	0.27 ft
Froude Number	0.932
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.47 in
Critical Depth	2.38 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 9 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.163 MGD
Results	
Normal Depth	2.89 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.9 ft
Hydraulic Radius	1.59 in
Top Width	0.64 ft
Critical Depth	2.78 in
Percent Full	36.2 %
Critical Slope	0.005 ft/ft
Velocity	2.22 ft/s
Velocity Head	0.08 ft
Specific Energy	0.32 ft
Froude Number	0.926
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.89 in
Critical Depth	2.78 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## Design Point 10 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.361 MGD
Results	
Normal Depth	4.55 in
Flow Area	0.2 ft <sup>2</sup>
Wetted Perimeter	1.1 ft
Hydraulic Radius	2.16 in
Top Width	0.66 ft
Critical Depth	4.21 in
Percent Full	56.9 %
Critical Slope	0.005 ft/ft
Velocity	2.72 ft/s
Velocity Head	0.12 ft
Specific Energy	0.49 ft
Froude Number	0.861
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.002 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.55 in
Critical Depth	4.21 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft



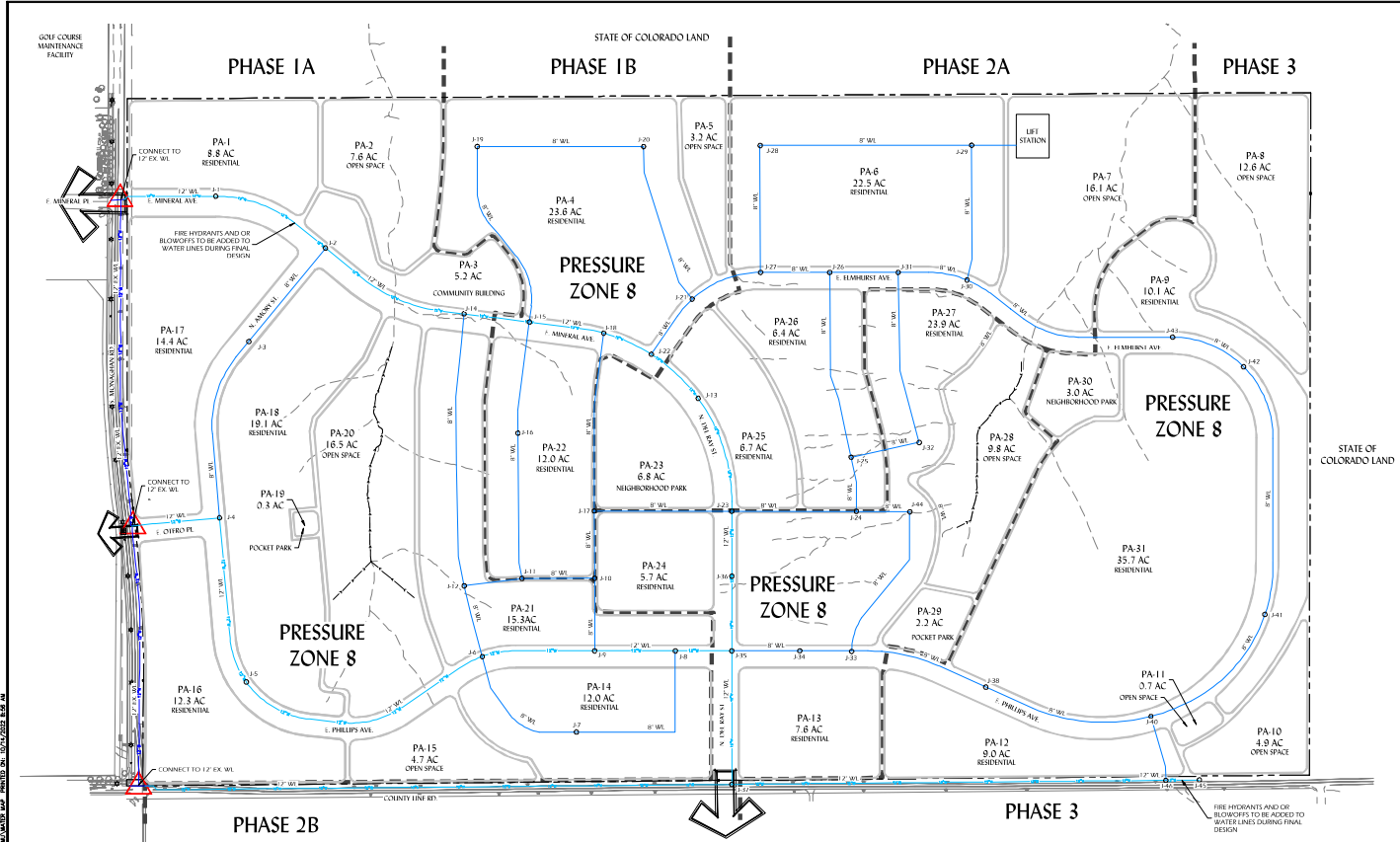
## Design Point 11 after Phase 3 is Completed

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Roughness Coefficient	0.011
Channel Slope	0.004 ft/ft
Diameter	8.0 in
Discharge	0.179 MGD
Results	
Normal Depth	3.04 in
Flow Area	0.1 ft <sup>2</sup>
Wetted Perimeter	0.9 ft
Hydraulic Radius	1.65 in
Top Width	0.65 ft
Critical Depth	2.92 in
Percent Full	38.0 %
Critical Slope	0.005 ft/ft
Velocity	2.28 ft/s
Velocity Head	0.08 ft
Specific Energy	0.33 ft
Froude Number	0.926
Maximum Discharge	0.628 MGD
Discharge Full	0.584 MGD
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.00 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 in
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	38.2 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.04 in
Critical Depth	2.92 in
Channel Slope	0.004 ft/ft
Critical Slope	0.005 ft/ft

## **APPENDIX D**

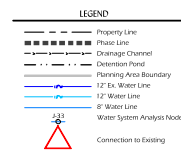
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### **Utility Maps & Reference Documents**



Trails at Oveland Ranch - Phase 3 - Water Demand Calculations									
Planning Area	Demand Junctions	Acres	Dwelling Density (Dwellings/Acre)	Commercial/Average	Park/Average	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)	Maximum Hour Demand (gpm)
1	J-1	8.8	4.25	0	0	7.19	20.13	25.35	
3	J-2	5.2	0	0	3.2	3.63	16.33	26.25	
4	J-19	23.4	4.25	100	0	19.43	54.40	87.49	
9	J-28	22.5	4.25	45	0	19.46	51.68	65.59	
9	J-41/J-42	10.1	4.25	40	0	8.16	22.85	36.72	
11	J-40	0.7	0	0	0.7	0.68	2.45	3.94	
12	J-36	9.0	4.25	58	0	7.38	20.67	35.22	
19	J-34	7.6	4.25	30	0	6.92	17.41	27.98	
18	J-7	12.0	4.25	0	0	9.91	27.74	44.39	
16	J-5	12.3	4.25	50	0	10.30	28.29	45.44	
17	J-3	14.4	4.25	61	0	11.85	33.19	53.33	
18	J-4	19.1	4.25	0	0	15.74	44.59	70.85	

Trails at Oveland Ranch - Phase 3 - Water Demand Calculations									
Planning Area	Demand Junctions	Acres	Dwelling Density (Dwellings/Acre)	Commercial/Average	Park/Average	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Maximum Hour Demand (gpm)	Maximum Hour Demand (gpm)
19	J-4	0.3	0	0	0	0.26	1.05	1.69	
21	J-12	15.0	4.25	45	0	10.43	35.54	56.83	
22	J-16	12.0	4.25	0	0	9.91	27.74	44.39	
23	J-13	6.8	0	0	0	6.8	8.90	35.85	
24	J-36	5.7	4.25	24	0	4.66	13.54	25.95	
25	J-25	6.7	4.25	28	0	5.44	14.23	24.49	
26	J-25	10.7	4.25	45	0	8.74	24.49	39.34	
27	J-32/J-44	19.6	4.25	85	0	14.13	45.13	72.57	
29	J-30	2.1	0	0	2.1	2.75	7.95	13.36	
30	J-49	3.0	0	0	3	3.75	10.50	16.88	
31	J-42/J-41/J-43	55.7	4.25	100	0	27.54	80.14	125.22	
Total						223.34	625.41	1,005.19	



**Approved for One Year From This Date**

CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

WATER DEPARTMENT \_\_\_\_\_ DATE \_\_\_\_\_

FIRE DEPARTMENT \_\_\_\_\_ DATE \_\_\_\_\_

**LJA ENGINEERING**

1745 W. 121st Avenue  
Suite 100  
Westminster, CO 80050  
303-421-4234 • www.lja.com

Project: Trails at Oveland Ranch  
Master Utility Report Exhibits  
Master Water Distribution Plan

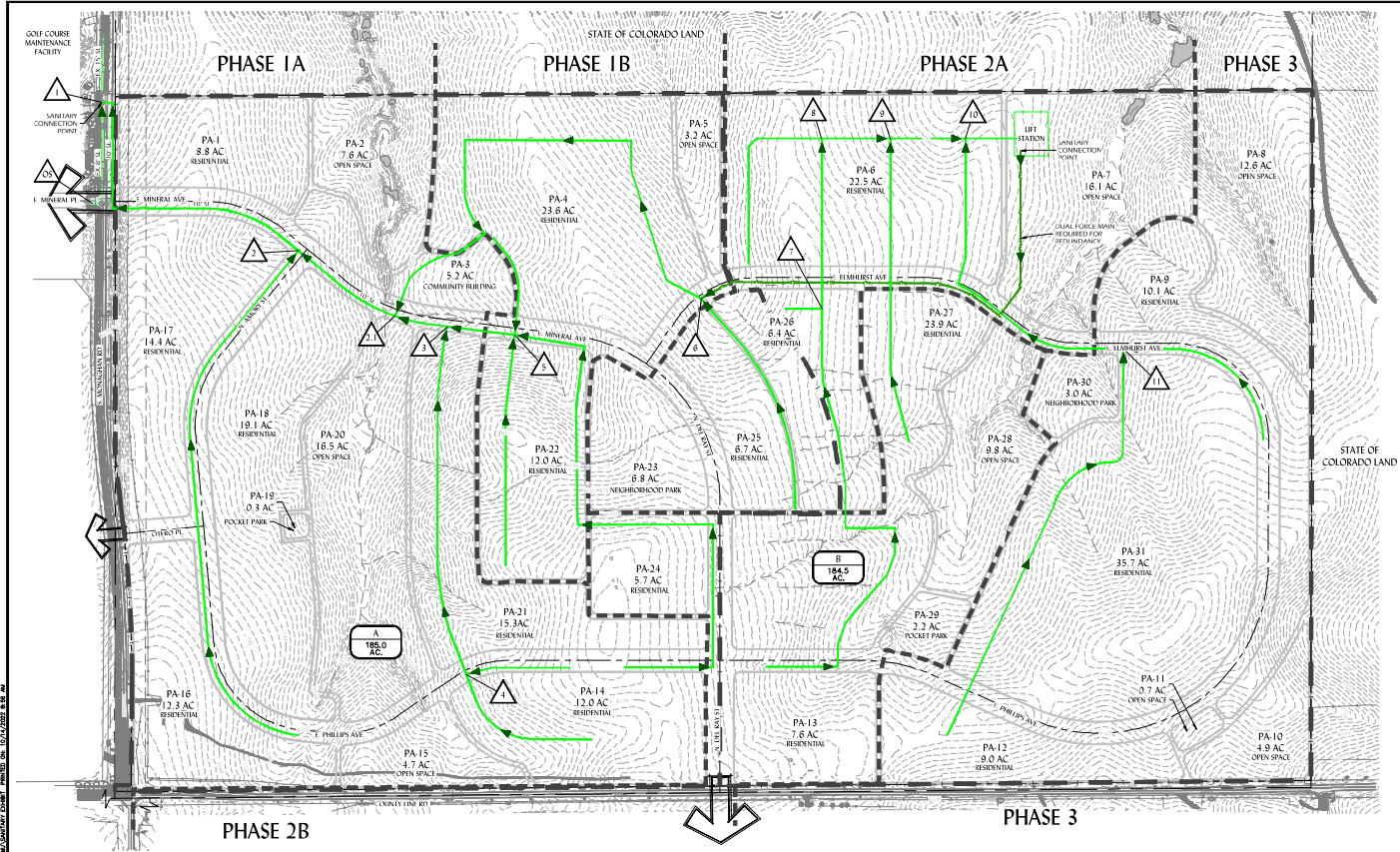
Revision: 01012020  
Scale: 1" = 200'

Drawn: J. Smith  
Checked: M. Jones  
Approved: LJA

**811**

Know what's below.  
Call before you dig.

No. 1



Phase	1A	1B	2A	2B	3
Design Point	1	2	3	4	5
Average Loading (MGD)	0.148	0.158	0.162	0.162	0.162
Peak Flow + Information (MGD)	0.151	0.161	0.165	0.165	0.165
Outfall Pipe (15" Full Internal Depth/Diameter) (100%)	20%	20%	20%	20%	20%

Phase	1A	1B	2A	2B	3
Design Point	1	2	3	4	5
Average Loading (MGD)	0.148	0.158	0.162	0.162	0.162
Peak Flow + Information (MGD)	0.151	0.161	0.165	0.165	0.165
Outfall Pipe (15" Full Internal Depth/Diameter) (100%)	20%	20%	20%	20%	20%

**LJA ENGINEERING**

1715 W. 121st Avenue  
Suite 100  
Westminster, CO 80050  
303-421-4254 • www.lja.com

Project Name: Trails at Overland Ranch

Location: Aurora, Colorado

Master Utility Report Exhibits

Master Sanitary Sewer Plan

Revised: 10/10/2022

Drawn: 10/10/2022

Checked: 10/10/2022

Approved: 10/10/2022

Scale: 1" = 200'

North Arrow

Approved for One Year From This Date

CITY ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_

WATER DEPARTMENT: \_\_\_\_\_ DATE: \_\_\_\_\_

811

Know what's below. Call before you dig.



February 22, 2022

Mr. Jerry Richmond  
Senior Vice President Land - West Region  
Richmond American Homes of Colorado  
4350 S. Monaco Street  
Denver, CO 80237

**RE: Trails at Overland Ranch Lift Station  
Summary of Preliminary Sizing**

Dear Mr. Richmond:

MSK Consulting, LLC ("MSK") has complete preliminary sizing calculations for the proposed lift station for the Trails at Overland Ranch development.

Based on information provided to MSK, the service area for the lift station includes all of Phases 3 and 4 of Trails at Overland Ranch. The current conceptual plan shows 528 residential units in these two phases. Using Aurora's *2022 Water, Sanitary Sewer and Storm Drainage Infrastructure Standards and Specifications*, the resulting average day flow for the service area is 99,454 gallons per day. The total peak flow, including inflow and infiltration, is 283 gallons per minute (see attached wastewater loading calculations). It is anticipated that the firm pumping capacity for the proposed lift station will be approximately 300 gallons per minute. The lift station will comply with the design criteria established by the Colorado Department of Public Health and Environment. Some of the required features include redundant pumps and a back-up power supply. The lift station will pump into a force main that discharges into a gravity sanitary sewer within the Trails at Overland Ranch development.

If the service area for the lift station changes, the average day and peak flows will need to be re-calculated to estimate the firm pumping capacity. If you have any questions, please contact me at 303-903-0918.

Thank you.

**MSK Consulting, LLC**

A handwritten signature in blue ink, appearing to read "David L. Takeda".

David L. Takeda, P.E.  
Owner

Attachments: Preliminary Wastewater Loading Calculations

cc: Xylina Warren-Laird, Innovative Land Consultants

**Trails at Overland Ranch Lift Station****Hydraulics and Calculations**

Wastewater Loading

Date: February 2022

MSK Project: 40-003-02

Calc'd by: DLT

**PRELIMINARY**

2/15/2022

**Notes:**

1. For Phase 3 (PA-7, PA-16, PA-17, PA-29, PA-32) and Phase 4 (PA-10, PA-12, PA-15, PA-35)
2. Development information provided by Norris Design and ILC dated September 2021.
3. Loading rates and peaking factors are based on Aurora's 2022 Water, Sanitary Sewer & Storm Drainage Infrastructure Standards and Specifications.

**Assumptions:**

Residential density: 2.77 people/DU  
 Residential loading: 68 gpcd  
 Peaking factor:  $5/p^{0.167}$  where p is population in thousands  
 Peaking factor range: 4.0 maximum  
 1.7 minimum  
 Inflow/Infiltration (I/I): 10% of ADF

**Table B1-1: Ultimate Wastewater Loading**

A	B	C	D	E	F	G	H	I	J
No.	Area	Total DU	Population	ADF (gpd)	Calculated Peaking Factor	Adjusted Peaking Factor	Peak Flow (gpm)	I/I Flow (gpm)	Total Peak Flow (gpm)
1	Phase 3	307	850.4	57,827	5.1	4.0	160.6	4.0	164.6
2	Phase 4	221	612.2	41,628	5.4	4.0	115.6	2.9	118.5
<b>Totals</b>		<b>528</b>	<b>1,462.6</b>	<b>99,454</b>			<b>276.3</b>	<b>6.9</b>	<b>283.2</b>

HIGH PLAINS COUNTRY CLUB  
SANITARY SEWER MASTER PLAN  
SEWER MAIN CAPACITY TABULATIONS

DESIGNED BY: BMM  
CHECKED BY: JDM

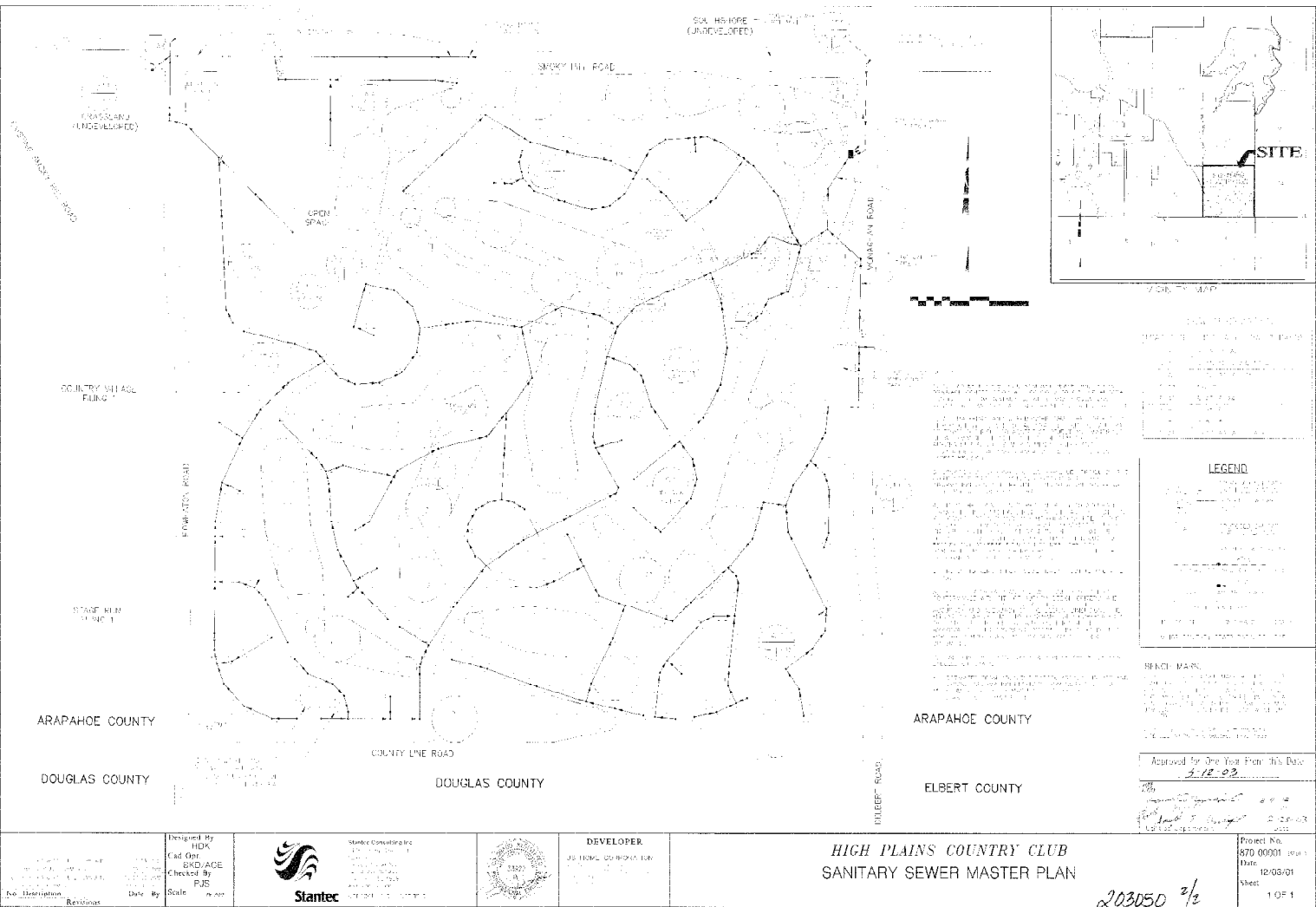
The analysis is based on the following assumptions:

Use of Manning's Equation for gravity pipes  
Manning's "n" for PVC sanitary sewer pipe = 0.011  
Minimum slope of sanitary sewer pipe = 0.45%  
Minimum sanitary sewer pipe size allowed = 8"

Pipe Size (in)	Min. Slope (%)	% Full	Velocity (fps) (at min. slope)	Max. Capacity (mgd) (at % Full)
8	0.45	75	3.11	0.56
10	0.45	75	3.61	1.02
12	0.45	75	4.08	1.66
15	0.45	90	4.69	3.53

SANITARY SEWER LOAD POINT	BASIN	PLANNING AREA	TYPE OF UNIT	NO. OF UNITS	EQUIV. PEOPLE	AVG. FLOW PER UNIT/ PERSON/AC (gpd)	DOMESTIC AVG. DAILY FLOW (gpd)	PEAK FACTOR	PEAK FLOW (gpd)	INFILTRATION @ 10% AVG. DAILY FLOW (gpd)	PEAK DESIGN FLOW (gpd)	PEAK DESIGN FLOW (mgd)
S-A4	A7	Phases 1, 5 & 6	S.F.D.	340	1,088	256	87,040	4	348,160	8,704	356,864	0.36
	O1*	Offsite	S.F.D.	1,300	4,160	256	332,800	4	1,331,200	33,280	1,364,480	1.36
LOAD						( requires a minimum of 15" pvc to accommodate total on-Site & off-Site sanitary flow)						1.72
S-A5	A1	Phases 1, 3 & 4	S.F.D.	399	1,277	256	102,144	4	408,576	10,214	418,790	0.42
	A1-a	Phase 1	S.F.A.	74	155	168	12,432	4	49,728	1,243	50,971	0.05
	A2	Phases 1, 3, 4 & 5	S.F.D.	185	592	256	47,360	4	189,440	4,736	194,176	0.19
	A2-a	Phase 3	S.F.D.	40	128	256	10,240	4	40,960	1,024	43,110	0.04
	A3	Phase 5	S.F.D.	84	269	256	21,504	4	86,016	2,150	87,016	0.09
	A3-a	Elementary School	School	1	1,000	10	10,000	4	40,000	1,000	41,000	0.04
	A4	Phases 1 & 5	S.F.D.	17	54	256	4,352	4	17,408	435	17,843	0.02
	A5	Phases 1 & 3	S.F.D.	27	86	256	6,912	4	27,648	691	28,339	0.03
	A6	Phases 1 & 2	S.F.D.	200	640	256	51,200	4	204,800	5,120	209,920	0.21
	A7	Phases 1, 5 & 6	S.F.D.	340	1,088	256	87,040	4	348,160	8,704	356,864	0.36
	O1*	Offsite	S.F.D.	1,300	4,160	256	332,800	4	1,331,200	33,280	1,364,480	1.36
LOAD						( requires a minimum of 15" pvc to accommodate total on-Site & off-Site sanitary flow)						2.81

203050 2/2



**LEGEND**

1. SANITARY SEWER LINE (12" DIA.)

2. SANITARY SEWER LINE (15" DIA.)

3. SANITARY SEWER LINE (18" DIA.)

4. SANITARY SEWER LINE (24" DIA.)

5. MANHOLE

6. MANHOLE (12" DIA.)

7. MANHOLE (15" DIA.)

8. MANHOLE (18" DIA.)

9. MANHOLE (24" DIA.)

10. OPEN SPACE

11. COUNTRY VILLAGE FILING #1

12. COUNTRY LINE ROAD

13. SMOKEY HILL ROAD

14. COLLEGE ROAD

15. ARAPAHOE COUNTY

16. DOUGLAS COUNTY

17. ELBERT COUNTY

**RECORD MAP**

1. SANITARY SEWER LINE (12" DIA.)

2. SANITARY SEWER LINE (15" DIA.)

3. SANITARY SEWER LINE (18" DIA.)

4. SANITARY SEWER LINE (24" DIA.)

5. MANHOLE

6. MANHOLE (12" DIA.)

7. MANHOLE (15" DIA.)

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10. OPEN SPACE

11. COUNTRY VILLAGE FILING #1

12. COUNTRY LINE ROAD

13. SMOKEY HILL ROAD

14. COLLEGE ROAD

15. ARAPAHOE COUNTY

16. DOUGLAS COUNTY

17. ELBERT COUNTY

Approved for One Year from this Date

5-12-03

Project No. 570 00001

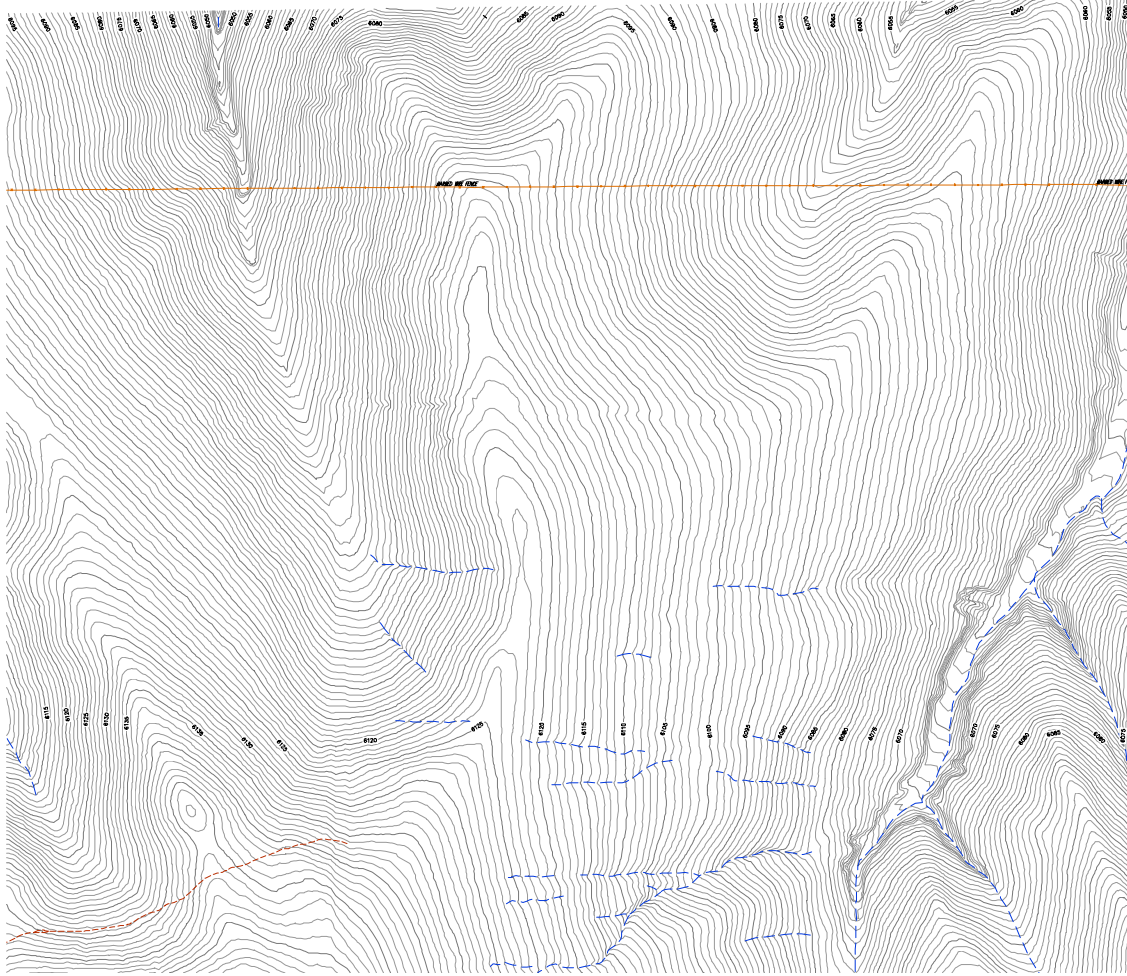
Date 12/03/01

Sheet 1 OF 1





SEE SHEET 1



SEE SHEET 5

SEE SHEET 3

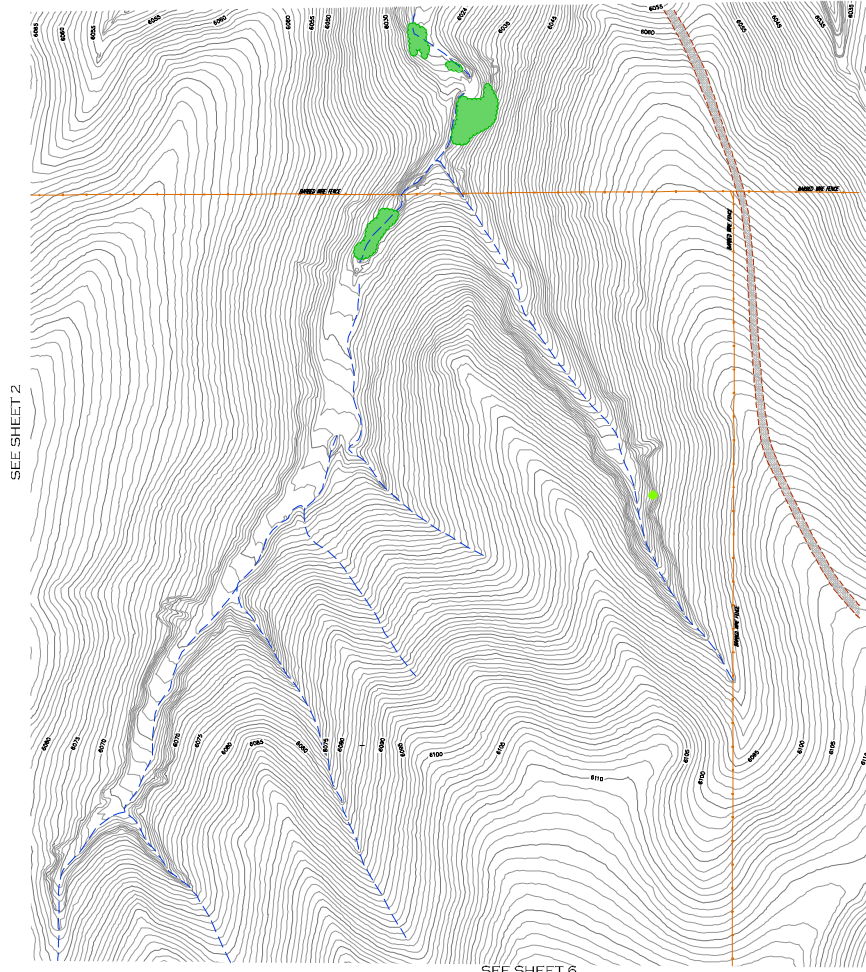
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**TOPOGRAPHIC EXHIBIT**  
**LOCATION / WELD**  
WINDSOR  
7000 E. UNION AVE. UNIT 400 DENVER CO 80207

**AZTEC**  
CONSULTANTS, INC.  
300 West Marshall Ave. Suite 1  
Littleton, Colorado 80122  
Phone: (303) 771-1000  
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www.aztecconsultants.com



DATE: 7-1-07  
BY: JLT  
CHECKED: JLT  
PROJECT: 10220-01

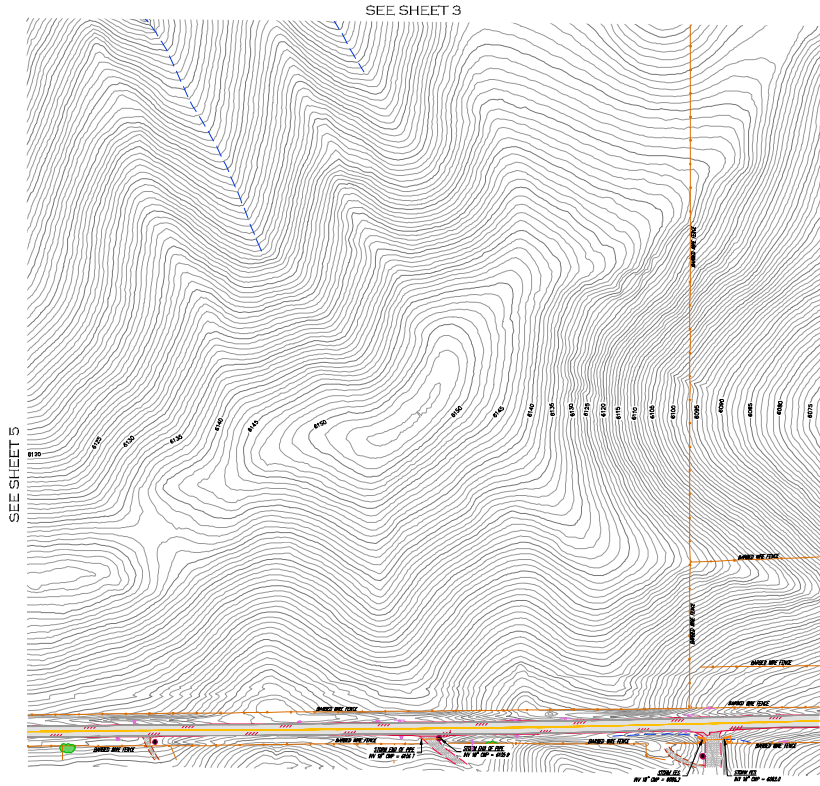


10000-01			TOPOGRAPHIC EXHIBIT LOCATION / WELD WINDSOR 7000 E. UNION AVE. SUITE 400 SHERBROOK QC J0B 0B7	300 Ave. Marshall Ave. Suite 1 Lethbridge, Canada S01 2L2 Phone: (403) 712-1000 Fax: (403) 712-1001 www.aztecconsultants.com	Scale 1" = 50'
					Scale 1" = 50'



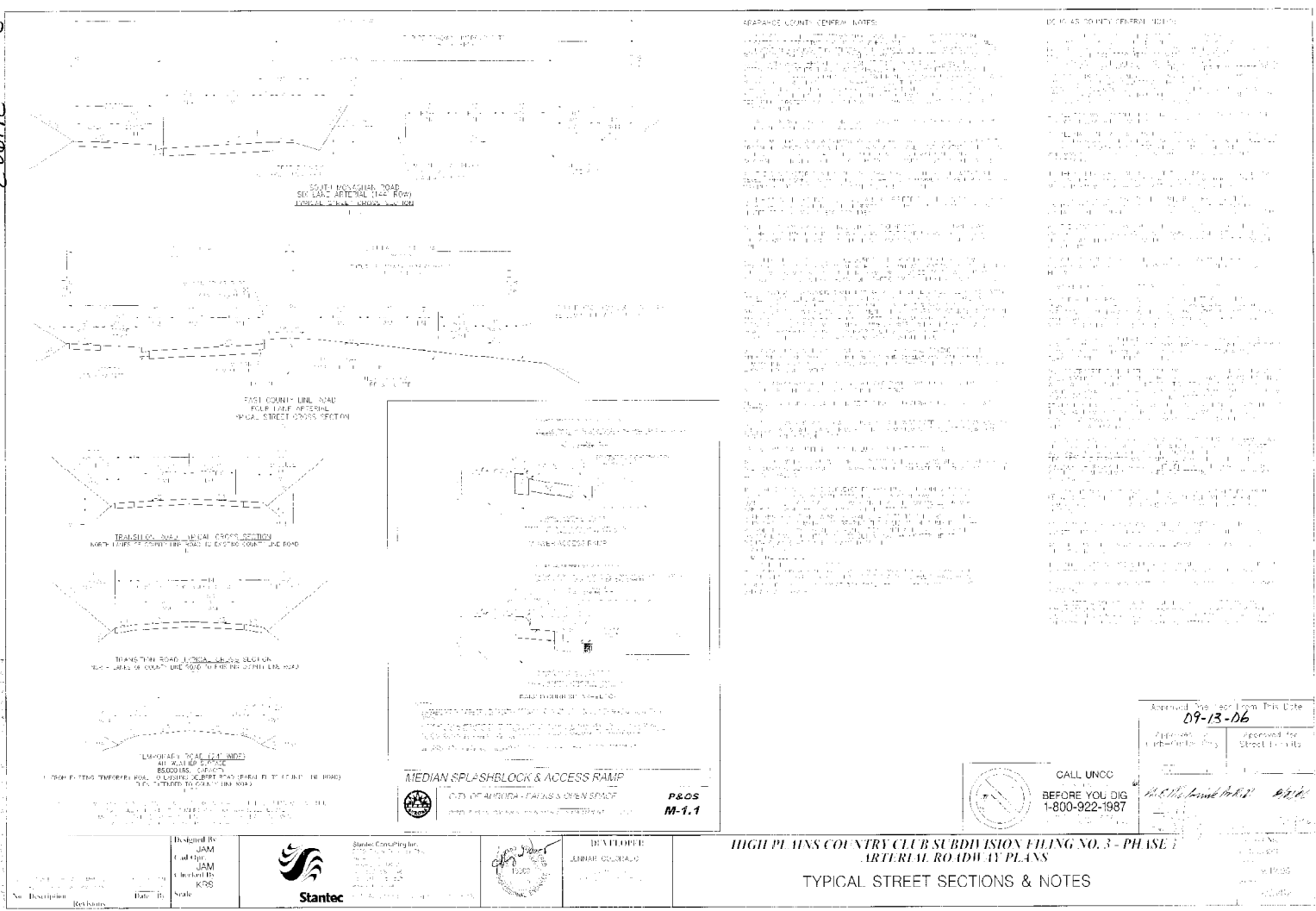






	<b>AZTEC</b> CONSULTANTS, INC. 300 Glen Mount Ave. Suite 1 Lithgow, Canada K0L 2H8 Phone: (613) 712-1000 Fax: (613) 712-1001 www.aztecconsultants.com	<b>TOPOGRAPHIC EXHIBIT</b> <b>LOCATION / WELD</b> WINDSOR / WELD 7900 E. UNION AVE. 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Designed By <b>JAM</b> Checked By <b>JAM</b> Drawn By <b>KCS</b>		Stantec Consulting Inc. 2700 University Ave. Suite 200 St. John's, NL A1B 4X6 Tel: (709) 576-1234 Fax: (709) 576-1235 Email: info@stantec.com		DEVELOPER <b>JAMAR GOURAUD</b> 1000 Highway 101 Aurora, ON L4G 1A1 Tel: (905) 709-1234 Fax: (905) 709-1235 Email: info@jamar.com	<b>HIGH PLAINS COUNTRY CLUB SUBDIVISION FILING NO. 3 - PHASE 1</b> <b>ARTERIAL ROADWAY PLANS</b> <b>TYPICAL STREET SECTIONS &amp; NOTES</b>	CALL UNCC <b>BEFORE YOU DIG</b> 1-800-922-1987	Approved By: <b>09-13-06</b> Approved for: <b>09-13-06</b> Approved by: <b>09-13-06</b> Approved by: <b>09-13-06</b>
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