Appendix J

Watermain Calculations and Reports

SCUBE Block 1 – Watermain Hydraulic Analysis

Fruitland-Winona Block Servicing Strategy
City of Hamilton
Project #TP115082

Prepared for:

Fruitland-Winona Block 1 Owners Group
154 Main Street East, Suite 100, Hamilton, Ontario L8N 1G9

2-May-22

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May 2, 2022

Angelo Cutaia P.Eng.
Land Development Consultant
AC III Group Inc.

Dear Mr. Cutaia:

RE: SCUBE Block 1
Watermain Hydraulic Analysis

We are pleased to present the results of watermain analysis for the SCUBE Block 1 development in the City of Hamilton.

The development was added to an existing model of Hamilton Pressure District 1. The analysis includes individual hydraulic examination of Average Day, Maximum day, Peak Hour and Maximum Day plus Fire Flow demands for the development under the 2021 and 2031 planning scenarios.

The modelling results show that the development can achieve the hydraulic requirements suggested by the Ministry of Environment and City of Hamilton Water and Wastewater Master Plan.

Yours truly,

Glenn Clements, P.Eng., LEED AP
Senior Associate Engineer, Civil

Wood Environment & Infrastructure Solutions,
a Division of Wood Canada Limited

SCUBE Block 1 – Watermain Hydraulic Analysis

Fruitland-Winona Block Servicing Strategy

Project Location

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1.0 Introduction

The Stoney Creek Urban Boundary Expansion (SCUBE) Block 1 area is located in the southeast quadrant of Barton Street and Fruitland Road. The subject lands cover approximately 84 hectare block of land and are bounded by Barton Street to the north, Fruitland Road to the west, Highway 8 to the south and the area extends to the east of Jones Road.

The purpose of the report is to examine the proposed water supply and distribution servicing requirements for the proposed development. A plan of the proposed development is shown on **Figure 1.1**

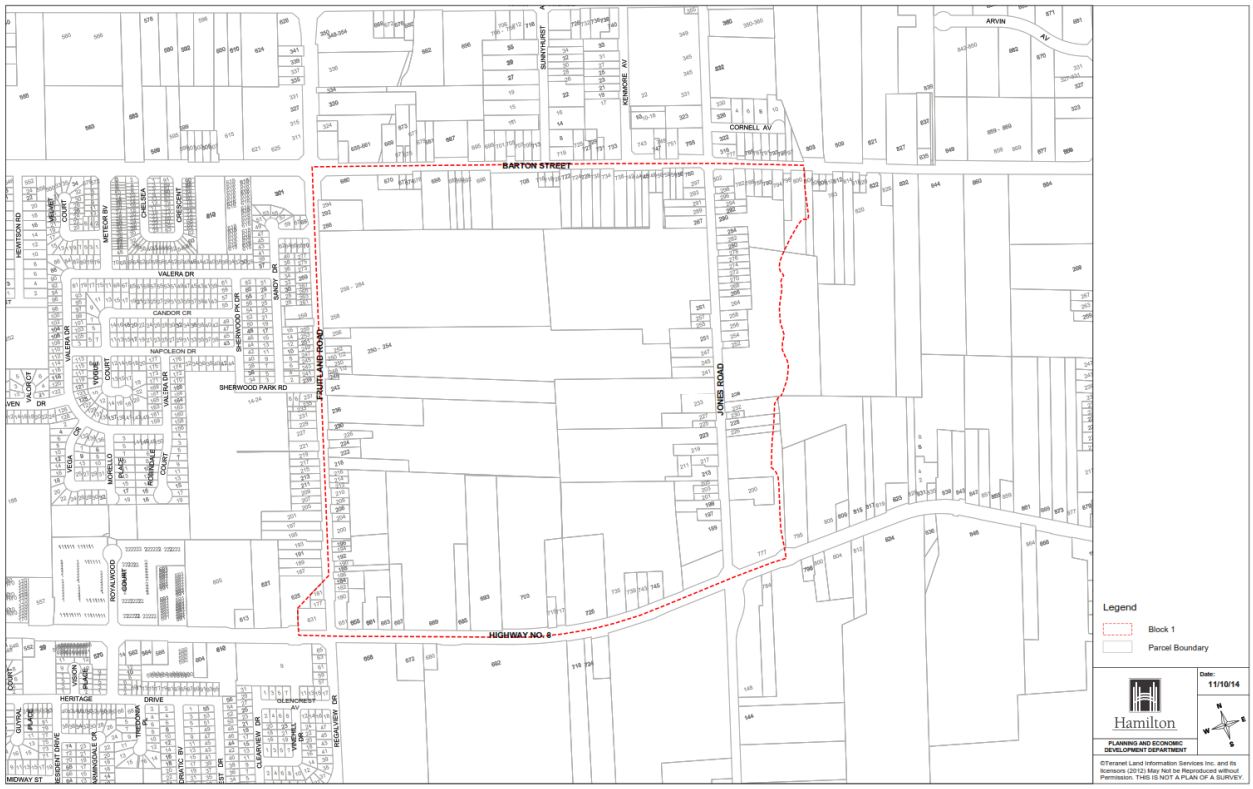

Figure 1.1. Location of SCUBE Block 1

2.0 Design Guideline

The following background information was reviewed for the preparation of the water servicing report:

- City of Hamilton Water and Wastewater Master Plan (WWWMP), 2006
- Ministry of the Environment (MOE) Design Guidelines for Drinking Water Systems, 2008

The system design pressure and water demand requirements for the proposed development are as follows:

Table 2.1. Water System Design Criteria

	Criteria	Source
Demand	• Average daily residential demand of 360 L/cap/day • Average daily employment demand of 260 L/cap/day	City of Hamilton WWWMP, 2006
Population	• Residential - 3 (ppu) • Employment - 125 (ppha). This number was used for Commercial and Institutional Uses.	Best Practice City of Hamilton WWWMP, 2006
Peaking Factor	• Maximum Day = 1.9 • Peak Hour = 3.0	City of Hamilton WWWMP, 2006
Fire Flow	• 250 L/s	MOE Guidelines, City of Hamilton WWWMP, 2006
Design Pressure	• Minimum pressure = 275 kPa (40 psi) and Maximum pressure = 690 kPa (100 psi) under normal demand conditions. • Minimum pressure = 140 kPa (20 psi) under maximum day plus fire flow conditions.	City of Hamilton WWWMP, 2006
C-Factor	• C = 120 for 300 mm watermain	MOE Guidelines

3.0 Existing Water System

The subject site is located within City's Pressure District 1 (PD1), supplied from six high lift pumps from Woodward Avenue Water Treatment Plant. Storage is maintained in PD1 through multiple integrated reservoirs, the normal (non-fire/non-emergency) hydraulic grade line is estimated to be 128 m to 133.3 m based on the water level elevations in the PD1 reservoirs.

The local watermains near the subject lands are as follows. The Existing Infrastructure Layout is presented in Figure 4.1:

- A 900 mm PD1 transmission main to the north of subject lands along Barton Street;
- An existing 400 mm watermain also runs along Barton Street parallel to 900mm watermain. This watermain is connected to the existing 900 mm transmission main near northwest and northeast end of the subject lands;
- A 200 mm watermain runs along Fruitland Road on west of the subject lands;
- A 300 mm watermain runs along Jones Road on east part of the subject lands;
- A 400 mm watermain runs along Hwy 8 on south of the subject lands.

4.0 Proposed Water System

The Proposed Watermain Layout is shown below. The subject lands are to be serviced by a proposed 300 mm water main connecting the existing 400 mm watermains on both north side and south side. Another proposed 300 mm will connect to the existing 200 mm watermain on the west side and a 300 mm on the east side of the proposed development. A 300 mm watermain will create loops within the site boundaries that will follow the proposed roadways.

Figure 4.1. Proposed Watermain Layout

The proposed development will consist of residential, institutional and commercial areas. The residential area is divided into 3 groups based on population density. The land uses are illustrated in the Land Use Plan figure in Appendix A. For the purpose of sizing the watermains and providing a conservative design, the upper limit of the density was used for population prediction. The estimated demands are summarized in Table 4.1 below. Detailed water demand calculations are provided in Appendix B.

The required fire flow for the proposed development is 250 L/s based on City of Hamilton WWWMP. Fire flow at node J-N18-FF and node J-N12-FF are identified as locations requiring the critical fire flow due to elevation and remoteness of those nodes. These nodes are shown in Figure 4.1.

Table 4.1. Estimated Water Demand

Development	Average Day Demand	Maximum Day Demand	Peak Hour Demand	Fire Flow
SCUBE Block 1	41 L/s	79 L/s	124 L/s	250 L/s

5.0 Analysis

The WaterCAD hydraulic model was updated to include the proposed watermains and demands of the development. Elevation information within the development was taken from a road grading plan prepared by Urbantech. Elevation of new junctions in the development range between 87 m to 98 m. Friction factors for all pipes added in the model were assigned according to MOE watermain design criteria. Please refer to **Table 2.1**.

The model as provided by City of Hamilton had established boundary conditions for Pressure District 1 (PD1) where the development was located. The boundary conditions contained two scenarios that represented different water levels within three reservoirs as show in Table 5.1 below.

Table 5.2. Model Boundary Conditions for Pressure District 1

Model Scenario	Boundary Condition
2021	All pumps at Woodward WTP (HWHLP) OFF. Two Alternatives: 1. **2021a**: 50% Reservoir only (HDR01, HDR1B and HDR1C @ 129.0m, 128.0m and 129.0m respectively) 2. **2021b:** 75% Reservoir only (HDR01, HDR1B and HDR1C @ 131.2m, 130.7m and 131.2m respectively) Note: for both alternatives sequentially add pumps as needed to meet pressure requirements *Please clearly identify which pumps have been set to ON to meet the demands of each scenario with a minimum pressure of 40 psi.
2031	Same as 2021 for **2031a and 2031b**.

The proposed watermain modelling was carried out for Average Day, Maximum Day, Peak Hour and Maximum Day plus Fire Flow scenario under 2021 and 2031 demand condition for the steady state scenarios. Prior to implementing the watermains and demands, the existing water model steady state scenarios for 2021 and 2031 were run and while the model produced warning messages most were associated with pressure district (PD) 18. While the model was still able to run, it is worth noting the warning messages for further investigation by the City and GM Blue Plan. The estimated water consumption rate for proposed development was included in the model to represent the updated system demand.

5.1 System Pressures and Available Fire Flow

With the proposed watermains and demands included in the model, the hydraulic analysis results indicate that the development can be adequately serviced with one of the Woodward WTP pumps in operation. Specifically, the model was run with HWHLP-PMP-2 in operation. The results for each scenario are shown in Appendix C. The model was first run with none of the Woodward WTP pumps in operation and sequentially added a single pump into operations until a minimum pressure of 40 psi was achieved on-site. The expected service pressure ranges for the development are provided in **Table 5.1** and **Table 5.2.**

Table 5.1. Resulting Service Pressures with No Woodward WTP Pumps

Scenario	Average Day (psi)	Maximum Day (psi)	Peak Hour (psi)
2021 a	43 – 57	39 – 52	31 – 45
2021 b	46 – 60	42 – 55	35 – 48
2031 a	43 – 57	38 – 51	38 – 51
2031 b	46 – 60	41 – 54	41 – 54

Table 5.2. Resulting Service Pressures with One Woodward WTP Pump

Scenario	Average Day (psi)	Maximum Day (psi)	Peak Hour (psi)
2021 a	44 – 58	43 – 57	41 – 55
2021 b	48 – 62	46 – 61	44 – 58
2031 a	44 – 58	43 – 57	40 – 54
2031 b	47 – 62	46 – 60	43 – 57

Within the PD, there were areas that had existing pressures lower than the required 40 psi. These areas are near HDR01 and HDR1C near the zone boundary. Under peak hour demands, the majority of PD 4 experiences low pressures less than 40 psi.

The modelling results indicate that the required fire flow of 250 L/s can be achieved under 2021 and 2031 scenario, without the system pressure dropping below 20 psi at any nodes of the proposed development. However, the variable speed controls at pump HD018-DLP03 needed to be adjusted to lower pressure target of 90 psi as opposed to the existing target of 97 psi for the model to run. The fire flow simulations were conducted at node **NW1** and node **SW3** individually under 2021 and 2031 scenario with Maximum Day plus Fire Flow Condition. See Appendix C for fire flow location.

Table 5.3 Resulting Minimum Service Pressure during Maximum Day Demand plus Fire Flow with No Woodward WTP Pumps

Scenario	MDD+FF @NW1 (psi)	MDD+FF@SW3 (psi)
2021 a	35	34
2021 b	38	38
2031 a	34	33
2031 b	37	37

Table 5.4. Resulting Minimum Service Pressure during Maximum Day Demand plus Fire Flow with One Woodward WTP Pump

Scenario	MDD+FF @NW1 (psi)	MDD+FF@SW3 (psi)
2021 a	40	40
2021 b	44	43
2031 a	40	39
2031 b	43	43

6.0 Conclusions

The proposed distribution system servicing the SCUBE Block 1 development can achieve hydraulic requirements suggested by the Ministry of Environment watermain design criteria as summarized below:

- The modelling results indicates that the water supply distribution system is capable of providing adequate flows and pressures to support the proposed development depending on the boundary conditions used in the hydraulic model. As shown in Table 5.2, higher tank elevations will increase service pressure with all the pumps at the Woodward WTP off. However under the boundary conditions where the Woodward WTP pumps are off, there are areas within PD 1 that are lower than the desired minimum service pressure of 40 psi. It is recommended that is the Woodward WTP booster pumps are not in service, the reservoirs should be more than 75% full or with at least one Woodward WTP booster pump on it is possible to achieve pressures that exceed the 40 psi minimum pressure.
- With one of the Woodward WTP pumps on, the estimated system pressures are between 40 – 62 psi under all normal operating conditions. Under fire flow conditions, the minimum pressure is well above the minimum of 20 psi.
- Required fire flows can be achieved throughout the development; however, the pressure controls for the PD 18 booster pump station need to be adjusted to a lower pressure. Pressures at all nodes within the development were above 20 psi under maximum day demand plus fire flow conditions.

Appendix A


BARTON STREET
BARTON STREET
SWM
SWM
SWM
STREET 'C'
STREET 'C'
STREET 'C'
STREET 'C'
STREET 'B'
STREET 'B'
GORDON DEAN AVENUE
GORDON DEAN AVENUE
JONES ROAD
JONES ROAD
JONES ROAD
FRUITLAND ROAD
FRUITLAND ROAD
SANDY DRIVE
WCB
WCB
WCB
HIGHWAY No. 8
HIGHWAY No. 8
LEGEND
BLOCK 1 AREA BOUNDARY
PROP. NATURAL CREEK CHANNELIZATION
LOW DENSITY RESIDENTIAL 2
LOW DENSITY RESIDENTIAL 3
MED DENSITY RESIDENTIAL 2
LOCAL COMMERCIAL
ARTERIAL COMMERCIAL
INSTITUTIONAL
COMMUNITY PARK
NEIGHBORHOOD PARK
GENERAL OPEN SPACE
GENERAL CONSTRAINTS
UTILITIES

Appendix B

Residental POPULATION SUMMARY-Block 1
Per Section E 1.4 Comprehensive Development Guidelines

Area ID	Area Classification	Area (ha)	City Max Density		Population	Total Population	Avg Day Demand per Capita (L/day/cap)	Total ADD (L/s)	Total MDD (L/s) (PF = 1.9)	Total PHD (L/s) (PF = 3)
			Units/ha	Total Units	(ppl/ha)					
Barton Street East										
B1	Arterial Commercial	2.08	n/a		125	260	260	0.78	1.49	2.35
B2	Medium Density Residential 2	1.01	**75**	**76**	250	253	360	1.05	2.00	3.16
B3	Medium Density Residential 2	4.46	**75**	**335**	250	1115	360	4.65	8.83	13.94
Subtotal		***7.55***		***411***		***1628***		***6.48***	***12.32***	***19.45***
Fruitland Road										
F1	Low Density Residential 3	0.65	**60**	**39**	110	72	360	0.30	0.57	0.90
F2	Low Density Residential 3	1.31	**60**	**79**	110	144	360	0.60	1.14	1.80
F3	Low Density Residential 3	1.75	**60**	**105**	110	193	360	0.80	1.53	2.41
F4	Institutional	0.21	n/a		125	26	260	0.08	0.15	0.23
Subtotal		***3.92***		***223***		***435***		***1.78***	***3.39***	***5.35***
Jones Road										
J1	Medium Density Residential 2	0.89	**75**	**67**	250	223	360	0.93	1.77	2.79
J2	Park	0.05	n/a							
J3	Medium Density Residential 2	1.43	**75**	**107**	250	358	360	1.49	2.83	4.48
J4	Medium Density Residential 2	1.59	**75**	**119**	250	398	360	1.66	3.15	4.98
J5	Commercial	2.19	n/a		125	274	260	0.82	1.57	2.47
Subtotal		***6.15***		***294***		***1253***		***4.90***	***9.32***	***14.71***
North West Quadrant										
NW1	Low Density Residential 2	4.91	**40**	**196**	75	368	360	1.53	2.91	4.60
NW2	Low Density Residential 3	0.69	**60**	**41**	110	76	360	0.32	0.60	0.95
NW3	Low Density Residential 3	1.70	**60**	**102**	110	187	360	0.78	1.48	2.34
NW4	Medium Density Residential 2	3.37	**75**	**253**	250	843	360	3.51	6.67	10.54
Subtotal		***10.67***		***593***		***1474***		***6.14***	***11.67***	***18.43***
North East Quadrant										
NE1	Park	7.18	n/a							
NE2	Medium Density Residential 2	2.04	**75**	**153**	250	510	360	2.13	4.04	6.38
NE3	Institutional	2.16	n/a		125	270	260	0.81	1.54	2.44
Subtotal		***11.38***		***153***		***780***		***2.94***	***5.58***	***8.81***
South West Quadrant										
SW1	Low Density Residential 3	0.98	**60**	**59**	110	108	360	0.45	0.86	1.35
SW2	Medium Density Residential 2	4.81	**40**	**192**	250	1203	360	5.01	9.52	15.04
SW3	Low Density Residential 2	2.32	**40**	**93**	75	174	360	0.73	1.38	2.18
SW4	Park	2.47	n/a							
SW5	Low Density Residential 3	3.84	**60**	**230**	110	422	360	1.76	3.34	5.28
SW6	Low Density Residential 2	2.44	**40**	**98**	75	183	360	0.76	1.45	2.29
SW7	Medium Density Residential 2	3.53	**75**	**265**	250	883	360	3.68	6.99	11.04
SW8	Commercial	0.76	n/a		125	95	260	0.29	0.54	0.86
SW9	Commercial	0.35	n/a		125	44	260	0.13	0.25	0.40
SW10	Low Density Residential 3	0.46	**60**	**28**	110	51	360	0.21	0.40	0.64
Subtotal		***21.96***		***965***		***3163***		***13.02***	***24.73***	***39.05***
South East Quadrant										
SE1	Medium Density Residential 2	2.50	**75**	**188**	250	625	360	2.60	4.95	7.81
SE2	Low Density Residential 3	2.08	**60**	**125**	110	229	360	0.95	1.81	2.86
SE3	Low Density Residential 2	2.89	**40**	**116**	75	217	360	0.90	1.72	2.71
SE4	Park (Cemetery)	5.09	n/a							
SE5	Commercial	2.14	n/a		125	268	260	0.81	1.53	2.42
SE6	Institutional	1.80	n/a		125	225	260	0.68	1.29	2.03
SE7	Low Density Residential 3	0.63	**60**	**38**	110	69	360	0.29	0.55	0.86
Subtotal		***17.13***		***466***		***1633***		***6.23***	***11.84***	***18.70***
Total		**78.76**		**3105**		**10366**		**41**	**79**	**124**

Notes:

1. Non-residential populations have been omitted from this population summary.
2. **60** Denotes City max density per Appendix B-Secondary Plan Residential Density Chart.
3. **3.0** Denotes Urbantech ppu assumed. This is a conservative figure and representative of all built forms.
4. In Comparison to 6-14-21 Population Summary this analysis adds 927 to the Resi population.
5. Latest Update 11-19-21

Sensitivity Analysis

Min Density-Planning	6481
Max Density Planning	9304
Engineering Density	10366

Appendix C

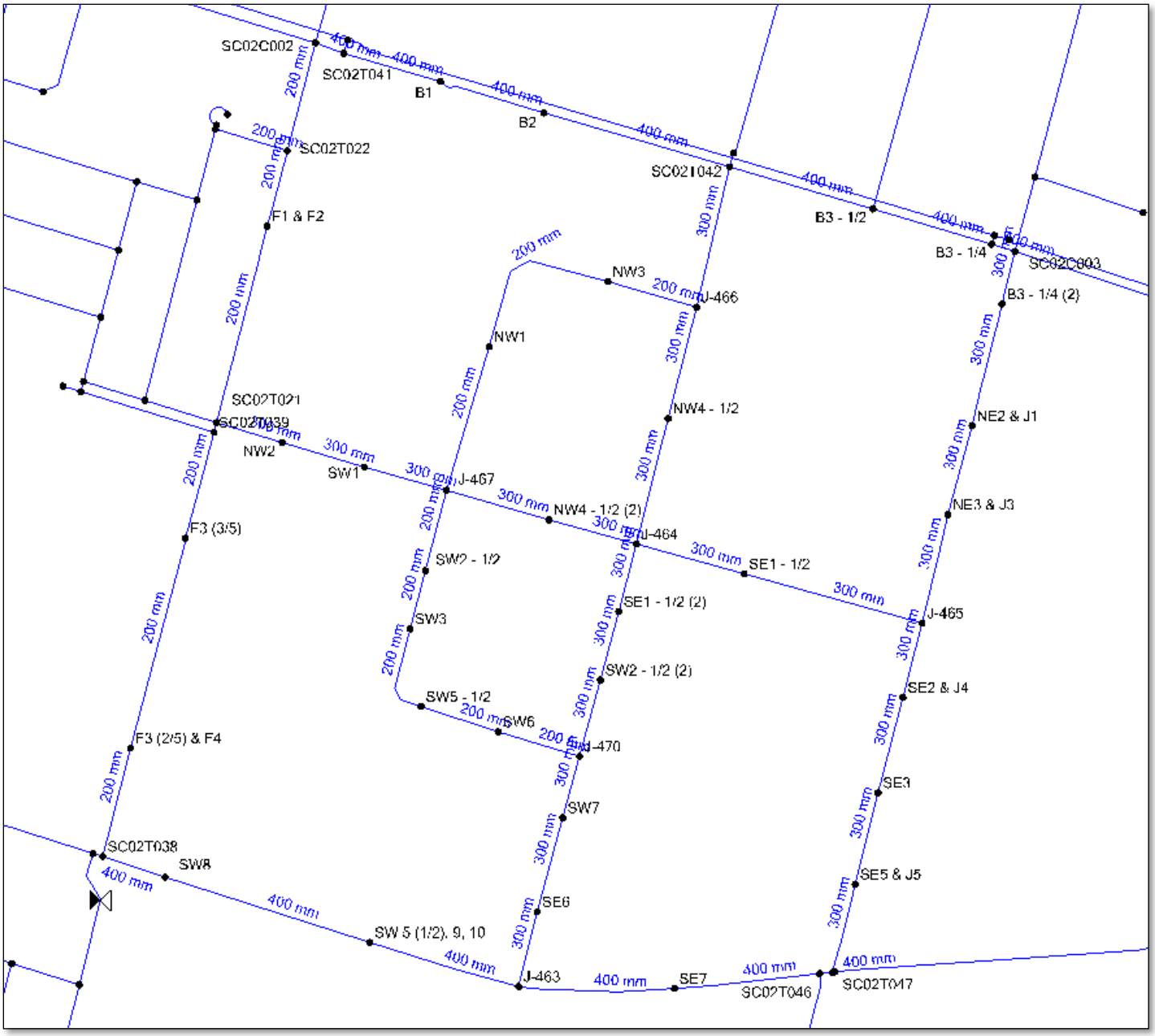

Figure 1: Proposed Watermain Layout

Table 1: Summary of Scenarios

Model Scenario	Boundary Condition
2021	All pumps at Woodward WTP (HWHLP) OFF. Two Alternatives: 1. **2021a**: 50% Reservoir only (HDR01, HDR1B and HDR1C @ 129.0m, 128.0m and 129.0m respectively) 2. **2021b**: 75% Reservoir only (HDR01, HDR1B and HDR1C @ 131.2m, 130.7m and 131.2m respectively) 3. Note: for both alternatives sequentially add pumps as needed to meet pressure requirements *Please clearly identify which pumps have been set to ON to meet the demands of each scenario with a minimum pressure of 40 psi.
2031	Same as 2021 for **2031a and 2031b**.

The hydraulic model was run for average day demand (ADD), max day demand (MDD), max day demand with fire flow (MDD +FF), and peak hour demand (PHD) for the 2021a, 2021b, 2031a, and 2031b scenarios. The model was first run with none of the Woodward WTP pumps in operation. After the preliminary results indicated that the minimum pressure of 40 psi was not met, the model was run with HWHLP-PMP-2 on. Results are summarized in the following tables.

Results for Model Runs with No Woodward WTP Pumps in Operation

2021a ADD Results – No Woodward WTP Pumps				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	127.75	57
B2	87.74	1.05	127.75	57
B3 - 1/2	88.1	2.825	127.74	56
B3 - 1/4	88.2	1.163	127.74	56
B3 - 1/4 (2)	88.39	1.163	127.73	56
F1 & F2	89.46	0.9	127.74	54
F3 (2/5) & F4	95.81	0.4	127.77	45
F3 (3/5)	92.55	0.48	127.74	50
NE2 & J1	89.99	3.06	127.72	54
NE3 & J3	90.7	2.3	127.71	53
NW1	90	1.53	127.72	54
NW2	90.98	0.32	127.72	52
NW3	90	0.78	127.72	54
NW4 - 1/2	90.27	1.755	127.72	53
NW4 - 1/2 (2)	91.29	1.755	127.72	52
SE1 - 1/2	91.44	1.3	127.71	51
SE1 - 1/2 (2)	92.13	1.3	127.72	51
SE2 & J4	92.66	2.61	127.71	50
SE3	93.56	0.9	127.71	48
SE5 & J5	94.42	1.63	127.71	47
SE6	95.49	0.68	127.72	46
SE7	95.9	0.29	127.72	45
SW 5 (1/2), 9, 10	96.74	1.22	127.75	44
SW1	91.07	0.45	127.72	52
SW2 - 1/2	91.25	2.505	127.72	52
SW2 - 1/2 (2)	92.89	2.505	127.72	49
SW3	91.6	0.73	127.72	51
SW5 - 1/2	92	0.88	127.72	51
SW6	93.2	0.76	127.72	49
SW7	94.44	3.68	127.72	47
SW8	97.32	0.29	127.78	43

2021b ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	129.95	60
B2	87.74	1.05	129.95	60
B3 - 1/2	88.1	2.825	129.94	59
B3 - 1/4	88.2	1.163	129.94	59
B3 - 1/4 (2)	88.39	1.163	129.93	59
F1 & F2	89.46	0.9	129.94	57
F3 (2/5) & F4	95.81	0.4	129.97	48
F3 (3/5)	92.55	0.48	129.94	53
NE2 & J1	89.99	3.06	129.92	57
NE3 & J3	90.7	2.3	129.91	56
NW1	90	1.53	129.92	57
NW2	90.98	0.32	129.92	55
NW3	90	0.78	129.92	57
NW4 - 1/2	90.27	1.755	129.92	56
NW4 - 1/2 (2)	91.29	1.755	129.92	55
SE1 - 1/2	91.44	1.3	129.91	55
SE1 - 1/2 (2)	92.13	1.3	129.92	54
SE2 & J4	92.66	2.61	129.91	53
SE3	93.56	0.9	129.91	52
SE5 & J5	94.42	1.63	129.91	50
SE6	95.49	0.68	129.92	49
SE7	95.9	0.29	129.92	48
SW 5 (1/2), 9, 10	96.74	1.22	129.95	47
SW1	91.07	0.45	129.92	55
SW2 - 1/2	91.25	2.505	129.92	55
SW2 - 1/2 (2)	92.89	2.505	129.92	53
SW3	91.6	0.73	129.92	54
SW5 - 1/2	92	0.88	129.92	54
SW6	93.2	0.76	129.92	52
SW7	94.44	3.68	129.92	50
SW8	97.32	0.29	129.98	46

2021a MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	124.46	52
B2	87.74	1.995	124.44	52
B3 - 1/2	88.1	5.367	124.41	52
B3 - 1/4	88.2	2.209	124.41	51
B3 - 1/4 (2)	88.39	2.209	124.37	51
F1 & F2	89.46	1.71	124.43	50
F3 (2/5) & F4	95.81	0.76	124.52	41
F3 (3/5)	92.55	0.912	124.42	45
NE2 & J1	89.99	5.814	124.34	49
NE3 & J3	90.7	4.37	124.33	48
NW1	90	2.907	124.35	49
NW2	90.98	0.608	124.37	47
NW3	90	1.482	124.36	49
NW4 - 1/2	90.27	3.334	124.35	48
NW4 - 1/2 (2)	91.29	3.334	124.34	47
SE1 - 1/2	91.44	2.47	124.34	47
SE1 - 1/2 (2)	92.13	2.47	124.34	46
SE2 & J4	92.66	4.959	124.33	45
SE3	93.56	1.71	124.33	44
SE5 & J5	94.42	3.097	124.34	42
SE6	95.49	1.292	124.37	41
SE7	95.9	0.551	124.37	40
SW 5 (1/2), 9, 10	96.74	2.318	124.45	39
SW1	91.07	0.855	124.36	47
SW2 - 1/2	91.25	4.759	124.34	47
SW2 - 1/2 (2)	92.89	4.759	124.34	45
SW3	91.6	1.387	124.34	46
SW5 - 1/2	92	1.672	124.34	46
SW6	93.2	1.444	124.34	44
SW7	94.44	6.992	124.35	42
SW8	97.32	0.551	124.55	39

2021b MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.66	55
B2	87.74	1.995	126.64	55
B3 - 1/2	88.1	5.367	126.61	55
B3 - 1/4	88.2	2.209	126.61	55
B3 - 1/4 (2)	88.39	2.209	126.57	54
F1 & F2	89.46	1.71	126.63	53
F3 (2/5) & F4	95.81	0.76	126.72	44
F3 (3/5)	92.55	0.912	126.62	48
NE2 & J1	89.99	5.814	126.54	52
NE3 & J3	90.7	4.37	126.53	51
NW1	90	2.907	126.55	52
NW2	90.98	0.608	126.57	51
NW3	90	1.482	126.56	52
NW4 - 1/2	90.27	3.334	126.55	51
NW4 - 1/2 (2)	91.29	3.334	126.54	50
SE1 - 1/2	91.44	2.47	126.54	50
SE1 - 1/2 (2)	92.13	2.47	126.54	49
SE2 & J4	92.66	4.959	126.53	48
SE3	93.56	1.71	126.53	47
SE5 & J5	94.42	3.097	126.54	46
SE6	95.49	1.292	126.57	44
SE7	95.9	0.551	126.57	44
SW 5 (1/2), 9, 10	96.74	2.318	126.65	42
SW1	91.07	0.855	126.56	50
SW2 - 1/2	91.25	4.759	126.54	50
SW2 - 1/2 (2)	92.89	4.759	126.54	48
SW3	91.6	1.387	126.54	50
SW5 - 1/2	92	1.672	126.54	49
SW6	93.2	1.444	126.54	47
SW7	94.44	6.992	126.55	46
SW8	97.32	0.551	126.75	42

2021a MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	122.81	50
B2	87.74	1.995	122.65	50
B3 - 1/2	88.1	5.367	122.56	49
B3 - 1/4	88.2	2.209	122.76	49
B3 - 1/4 (2)	88.39	2.209	122.37	48
F1 & F2	89.46	1.71	121.79	46
F3 (2/5) & F4	95.81	0.76	121.53	37
F3 (3/5)	92.55	0.912	120.79	40
NE2 & J1	89.99	5.814	121.7	45
NE3 & J3	90.7	4.37	121.31	43
NW1	90	252.907	117.55	39
NW2	90.98	0.608	120.21	41
NW3	90	1.482	119.37	42
NW4 - 1/2	90.27	3.334	120.3	43
NW4 - 1/2 (2)	91.29	3.334	120.01	41
SE1 - 1/2	91.44	2.47	120.51	41
SE1 - 1/2 (2)	92.13	2.47	120.29	40
SE2 & J4	92.66	4.959	120.93	40
SE3	93.56	1.71	120.98	39
SE5 & J5	94.42	3.097	121.03	38
SE6	95.49	1.292	120.83	36
SE7	95.9	0.551	121.11	36
SW 5 (1/2), 9, 10	96.74	2.318	121.41	35
SW1	91.07	0.855	119.96	41
SW2 - 1/2	91.25	4.759	119.81	41
SW2 - 1/2 (2)	92.89	4.759	120.29	39
SW3	91.6	1.387	119.89	40
SW5 - 1/2	92	1.672	120.03	40
SW6	93.2	1.444	120.16	38
SW7	94.44	6.992	120.48	37
SW8	97.32	0.551	121.83	35

2021a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	122.84	50
B2	87.74	1.995	122.7	50
B3 - 1/2	88.1	5.367	122.61	49
B3 - 1/4	88.2	2.209	122.77	49
B3 - 1/4 (2)	88.39	2.209	122.34	48
F1 & F2	89.46	1.71	121.75	46
F3 (2/5) & F4	95.81	0.76	121.35	36
F3 (3/5)	92.55	0.912	120.67	40
NE2 & J1	89.99	5.814	121.58	45
NE3 & J3	90.7	4.37	121.12	43
NW1	90	2.907	120	43
NW2	90.98	0.608	120.11	41
NW3	90	1.482	120.5	43
NW4 - 1/2	90.27	3.334	120.41	43
NW4 - 1/2 (2)	91.29	3.334	119.83	41
SE1 - 1/2	91.44	2.47	120.26	41
SE1 - 1/2 (2)	92.13	2.47	119.88	39
SE2 & J4	92.66	4.959	120.67	40
SE3	93.56	1.71	120.69	39
SE5 & J5	94.42	3.097	120.71	37
SE6	95.49	1.292	120.35	35
SE7	95.9	0.551	120.76	35
SW 5 (1/2), 9, 10	96.74	2.318	121.1	35
SW1	91.07	0.855	119.86	41
SW2 - 1/2	91.25	4.759	118.21	38
SW2 - 1/2 (2)	92.89	4.759	119.72	38
SW3	91.6	251.387	117.26	36
SW5 - 1/2	92	1.672	118.09	37
SW6	93.2	1.444	118.81	36
SW7	94.44	6.992	119.85	36
SW8	97.32	0.551	121.59	34

2021b MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	125.01	53
B2	87.74	1.995	124.85	53
B3 - 1/2	88.1	5.367	124.76	52
B3 - 1/4	88.2	2.209	124.96	52
B3 - 1/4 (2)	88.39	2.209	124.57	51
F1 & F2	89.46	1.71	123.99	49
F3 (2/5) & F4	95.81	0.76	123.73	40
F3 (3/5)	92.55	0.912	122.99	43
NE2 & J1	89.99	5.814	123.9	48
NE3 & J3	90.7	4.37	123.51	47
NW1	90	252.907	119.75	42
NW2	90.98	0.608	122.41	45
NW3	90	1.482	121.57	45
NW4 - 1/2	90.27	3.334	122.5	46
NW4 - 1/2 (2)	91.29	3.334	122.21	44
SE1 - 1/2	91.44	2.47	122.71	44
SE1 - 1/2 (2)	92.13	2.47	122.49	43
SE2 & J4	92.66	4.959	123.13	43
SE3	93.56	1.71	123.18	42
SE5 & J5	94.42	3.097	123.23	41
SE6	95.49	1.292	123.03	39
SE7	95.9	0.551	123.31	39
SW 5 (1/2), 9, 10	96.74	2.318	123.61	38
SW1	91.07	0.855	122.16	44
SW2 - 1/2	91.25	4.759	122.01	44
SW2 - 1/2 (2)	92.89	4.759	122.49	42
SW3	91.6	1.387	122.09	43
SW5 - 1/2	92	1.672	122.23	43
SW6	93.2	1.444	122.36	41
SW7	94.44	6.992	122.68	40
SW8	97.32	0.551	124.03	38

2021b MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	125.04	53
B2	87.74	1.995	124.9	53
B3 - 1/2	88.1	5.367	124.81	52
B3 - 1/4	88.2	2.209	124.97	52
B3 - 1/4 (2)	88.39	2.209	124.54	51
F1 & F2	89.46	1.71	123.95	49
F3 (2/5) & F4	95.81	0.76	123.55	39
F3 (3/5)	92.55	0.912	122.87	43
NE2 & J1	89.99	5.814	123.78	48
NE3 & J3	90.7	4.37	123.32	46
NW1	90	2.907	122.2	46
NW2	90.98	0.608	122.31	44
NW3	90	1.482	122.7	46
NW4 - 1/2	90.27	3.334	122.61	46
NW4 - 1/2 (2)	91.29	3.334	122.03	44
SE1 - 1/2	91.44	2.47	122.46	44
SE1 - 1/2 (2)	92.13	2.47	122.08	43
SE2 & J4	92.66	4.959	122.87	43
SE3	93.56	1.71	122.89	42
SE5 & J5	94.42	3.097	122.91	40
SE6	95.49	1.292	122.55	38
SE7	95.9	0.551	122.96	38
SW 5 (1/2), 9, 10	96.74	2.318	123.3	38
SW1	91.07	0.855	122.06	44
SW2 - 1/2	91.25	4.759	120.41	41
SW2 - 1/2 (2)	92.89	4.759	121.92	41
SW3	91.6	251.387	119.46	40
SW5 - 1/2	92	1.672	120.29	40
SW6	93.2	1.444	121.01	39
SW7	94.44	6.992	122.05	39
SW8	97.32	0.551	123.79	38

2021a PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	119.29	45
B2	87.74	3.15	119.24	45
B3 - 1/2	88.1	8.375	119.17	44
B3 - 1/4	88.2	3.487	119.18	44
B3 - 1/4 (2)	88.39	3.487	119.08	44
F1 & F2	89.46	2.7	119.2	42
F3 (2/5) & F4	95.81	1.2	119.38	33
F3 (3/5)	92.55	1.44	119.17	38
NE2 & J1	89.99	9.18	119	41
NE3 & J3	90.7	6.9	118.98	40
NW1	90	4.59	119.02	41
NW2	90.98	0.96	119.07	40
NW3	90	2.34	119.04	41
NW4 - 1/2	90.27	5.265	119.02	41
NW4 - 1/2 (2)	91.29	5.265	119	39
SE1 - 1/2	91.44	3.9	118.99	39
SE1 - 1/2 (2)	92.13	3.9	119	38
SE2 & J4	92.66	7.83	118.98	37
SE3	93.56	2.7	118.98	36
SE5 & J5	94.42	4.89	118.99	35
SE6	95.49	2.04	119.06	33
SE7	95.9	0.87	119.06	33
SW 5 (1/2), 9, 10	96.74	3.66	119.24	32
SW1	91.07	1.35	119.04	40
SW2 - 1/2	91.25	7.515	119	39
SW2 - 1/2 (2)	92.89	7.515	119	37
SW3	91.6	2.19	119	39
SW5 - 1/2	92	2.64	119	38
SW6	93.2	2.28	119	37
SW7	94.44	11.04	119.01	35
SW8	97.32	0.87	119.46	31

2021b PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	121.49	48
B2	87.74	3.15	121.44	48
B3 - 1/2	88.1	8.375	121.37	47
B3 - 1/4	88.2	3.487	121.38	47
B3 - 1/4 (2)	88.39	3.487	121.28	47
F1 & F2	89.46	2.7	121.4	45
F3 (2/5) & F4	95.81	1.2	121.58	37
F3 (3/5)	92.55	1.44	121.37	41
NE2 & J1	89.99	9.18	121.2	44
NE3 & J3	90.7	6.9	121.18	43
NW1	90	4.59	121.22	44
NW2	90.98	0.96	121.27	43
NW3	90	2.34	121.24	44
NW4 - 1/2	90.27	5.265	121.22	44
NW4 - 1/2 (2)	91.29	5.265	121.2	42
SE1 - 1/2	91.44	3.9	121.19	42
SE1 - 1/2 (2)	92.13	3.9	121.2	41
SE2 & J4	92.66	7.83	121.18	40
SE3	93.56	2.7	121.18	39
SE5 & J5	94.42	4.89	121.19	38
SE6	95.49	2.04	121.26	37
SE7	95.9	0.87	121.26	36
SW 5 (1/2), 9, 10	96.74	3.66	121.44	35
SW1	91.07	1.35	121.24	43
SW2 - 1/2	91.25	7.515	121.2	43
SW2 - 1/2 (2)	92.89	7.515	121.2	40
SW3	91.6	2.19	121.2	42
SW5 - 1/2	92	2.64	121.2	41
SW6	93.2	2.28	121.2	40
SW7	94.44	11.04	121.21	38
SW8	97.32	0.87	121.66	35

2031a ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	127.59	56
B2	87.74	1.05	127.59	57
B3 - 1/2	88.1	2.825	127.57	56
B3 - 1/4	88.2	1.163	127.57	56
B3 - 1/4 (2)	88.39	1.163	127.56	56
F1 & F2	89.46	0.9	127.58	54
F3 (2/5) & F4	95.81	0.4	127.61	45
F3 (3/5)	92.55	0.48	127.58	50
NE2 & J1	89.99	3.06	127.55	53
NE3 & J3	90.7	2.3	127.55	52
NW1	90	1.53	127.55	53
NW2	90.98	0.32	127.56	52
NW3	90	0.78	127.56	53
NW4 - 1/2	90.27	1.755	127.55	53
NW4 - 1/2 (2)	91.29	1.755	127.55	51
SE1 - 1/2	91.44	1.3	127.55	51
SE1 - 1/2 (2)	92.13	1.3	127.55	50
SE2 & J4	92.66	2.61	127.55	50
SE3	93.56	0.9	127.55	48
SE5 & J5	94.42	1.63	127.55	47
SE6	95.49	0.68	127.56	46
SE7	95.9	0.29	127.56	45
SW 5 (1/2), 9, 10	96.74	1.22	127.59	44
SW1	91.07	0.45	127.56	52
SW2 - 1/2	91.25	2.505	127.55	52
SW2 - 1/2 (2)	92.89	2.505	127.55	49
SW3	91.6	0.73	127.55	51
SW5 - 1/2	92	0.88	127.55	50
SW6	93.2	0.76	127.55	49
SW7	94.44	3.68	127.55	47
SW8	97.32	0.29	127.62	43

2031b ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	129.79	60
B2	87.74	1.05	129.79	60
B3 - 1/2	88.1	2.825	129.77	59
B3 - 1/4	88.2	1.163	129.77	59
B3 - 1/4 (2)	88.39	1.163	129.76	59
F1 & F2	89.46	0.9	129.78	57
F3 (2/5) & F4	95.81	0.4	129.81	48
F3 (3/5)	92.55	0.48	129.78	53
NE2 & J1	89.99	3.06	129.75	56
NE3 & J3	90.7	2.3	129.75	55
NW1	90	1.53	129.75	56
NW2	90.98	0.32	129.76	55
NW3	90	0.78	129.76	56
NW4 - 1/2	90.27	1.755	129.75	56
NW4 - 1/2 (2)	91.29	1.755	129.75	55
SE1 - 1/2	91.44	1.3	129.75	54
SE1 - 1/2 (2)	92.13	1.3	129.75	53
SE2 & J4	92.66	2.61	129.75	53
SE3	93.56	0.9	129.75	51
SE5 & J5	94.42	1.63	129.75	50
SE6	95.49	0.68	129.76	49
SE7	95.9	0.29	129.76	48
SW 5 (1/2), 9, 10	96.74	1.22	129.79	47
SW1	91.07	0.45	129.76	55
SW2 - 1/2	91.25	2.505	129.75	55
SW2 - 1/2 (2)	92.89	2.505	129.75	52
SW3	91.6	0.73	129.75	54
SW5 - 1/2	92	0.88	129.75	54
SW6	93.2	0.76	129.75	52
SW7	94.44	3.68	129.75	50
SW8	97.32	0.29	129.82	46

2031a MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	123.89	51
B2	87.74	1.995	123.86	51
B3 - 1/2	88.1	5.517	123.81	51
B3 - 1/4	88.2	2.209	123.81	51
B3 - 1/4 (2)	88.39	2.209	123.77	50
F1 & F2	89.46	1.71	123.86	49
F3 (2/5) & F4	95.81	0.76	123.96	40
F3 (3/5)	92.55	0.912	123.85	44
NE2 & J1	89.99	5.814	123.74	48
NE3 & J3	90.7	4.37	123.73	47
NW1	90	2.907	123.76	48
NW2	90.98	0.608	123.79	47
NW3	90	1.482	123.76	48
NW4 - 1/2	90.27	3.334	123.75	48
NW4 - 1/2 (2)	91.29	3.334	123.75	46
SE1 - 1/2	91.44	2.47	123.74	46
SE1 - 1/2 (2)	92.13	2.47	123.75	45
SE2 & J4	92.66	4.959	123.73	44
SE3	93.56	1.71	123.73	43
SE5 & J5	94.42	3.097	123.73	42
SE6	95.49	1.292	123.78	40
SE7	95.9	0.551	123.77	40
SW 5 (1/2), 9, 10	96.74	2.318	123.88	39
SW1	91.07	0.855	123.77	46
SW2 - 1/2	91.25	4.759	123.75	46
SW2 - 1/2 (2)	92.89	4.759	123.75	44
SW3	91.6	1.387	123.75	46
SW5 - 1/2	92	1.672	123.75	45
SW6	93.2	1.444	123.75	43
SW7	94.44	6.992	123.75	42
SW8	97.32	0.551	124	38

2031b MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.09	54
B2	87.74	1.995	126.06	54
B3 - 1/2	88.1	5.517	126.01	54
B3 - 1/4	88.2	2.209	126.01	54
B3 - 1/4 (2)	88.39	2.209	125.97	53
F1 & F2	89.46	1.71	126.06	52
F3 (2/5) & F4	95.81	0.76	126.16	43
F3 (3/5)	92.55	0.912	126.05	48
NE2 & J1	89.99	5.814	125.94	51
NE3 & J3	90.7	4.37	125.93	50
NW1	90	2.907	125.96	51
NW2	90.98	0.608	125.99	50
NW3	90	1.482	125.96	51
NW4 - 1/2	90.27	3.334	125.95	51
NW4 - 1/2 (2)	91.29	3.334	125.95	49
SE1 - 1/2	91.44	2.47	125.94	49
SE1 - 1/2 (2)	92.13	2.47	125.95	48
SE2 & J4	92.66	4.959	125.93	47
SE3	93.56	1.71	125.93	46
SE5 & J5	94.42	3.097	125.93	45
SE6	95.49	1.292	125.98	43
SE7	95.9	0.551	125.97	43
SW 5 (1/2), 9, 10	96.74	2.318	126.08	42
SW1	91.07	0.855	125.97	50
SW2 - 1/2	91.25	4.759	125.95	49
SW2 - 1/2 (2)	92.89	4.759	125.95	47
SW3	91.6	1.387	125.95	49
SW5 - 1/2	92	1.672	125.95	48
SW6	93.2	1.444	125.95	46
SW7	94.44	6.992	125.95	45
SW8	97.32	0.551	126.2	41

2031a MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	122.09	49
B2	87.74	1.995	121.92	49
B3 - 1/2	88.1	5.517	121.78	48
B3 - 1/4	88.2	2.209	121.98	48
B3 - 1/4 (2)	88.39	2.209	121.59	47
F1 & F2	89.46	1.71	121.09	45
F3 (2/5) & F4	95.81	0.76	120.85	36
F3 (3/5)	92.55	0.912	120.08	39
NE2 & J1	89.99	5.814	120.93	44
NE3 & J3	90.7	4.37	120.54	42
NW1	90	252.907	116.8	38
NW2	90.98	0.608	119.48	40
NW3	90	1.482	118.61	41
NW4 - 1/2	90.27	3.334	119.54	42
NW4 - 1/2 (2)	91.29	3.334	119.26	40
SE1 - 1/2	91.44	2.47	119.75	40
SE1 - 1/2 (2)	92.13	2.47	119.53	39
SE2 & J4	92.66	4.959	120.17	39
SE3	93.56	1.71	120.21	38
SE5 & J5	94.42	3.097	120.26	37
SE6	95.49	1.292	120.08	35
SE7	95.9	0.551	120.35	35
SW 5 (1/2), 9, 10	96.74	2.318	120.68	34
SW1	91.07	0.855	119.22	40
SW2 - 1/2	91.25	4.759	119.06	39
SW2 - 1/2 (2)	92.89	4.759	119.54	38
SW3	91.6	1.387	119.14	39
SW5 - 1/2	92	1.672	119.28	39
SW6	93.2	1.444	119.41	37
SW7	94.44	6.992	119.73	36
SW8	97.32	0.551	121.14	34

2031a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	122.13	49
B2	87.74	1.995	121.97	49
B3 - 1/2	88.1	5.517	121.84	48
B3 - 1/4	88.2	2.209	122	48
B3 - 1/4 (2)	88.39	2.209	121.55	47
F1 & F2	89.46	1.71	121.05	45
F3 (2/5) & F4	95.81	0.76	120.67	35
F3 (3/5)	92.55	0.912	119.96	39
NE2 & J1	89.99	5.814	120.8	44
NE3 & J3	90.7	4.37	120.35	42
NW1	90	2.907	119.25	42
NW2	90.98	0.608	119.38	40
NW3	90	1.482	119.74	42
NW4 - 1/2	90.27	3.334	119.65	42
NW4 - 1/2 (2)	91.29	3.334	119.08	39
SE1 - 1/2	91.44	2.47	119.5	40
SE1 - 1/2 (2)	92.13	2.47	119.12	38
SE2 & J4	92.66	4.959	119.9	39
SE3	93.56	1.71	119.92	37
SE5 & J5	94.42	3.097	119.95	36
SE6	95.49	1.292	119.59	34
SE7	95.9	0.551	120	34
SW 5 (1/2), 9, 10	96.74	2.318	120.37	34
SW1	91.07	0.855	119.12	40
SW2 - 1/2	91.25	4.759	117.46	37
SW2 - 1/2 (2)	92.89	4.759	118.96	37
SW3	91.6	251.387	116.51	35
SW5 - 1/2	92	1.672	117.33	36
SW6	93.2	1.444	118.05	35
SW7	94.44	6.992	119.09	35
SW8	97.32	0.551	120.9	33

2031b MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	124.29	52
B2	87.74	1.995	124.12	52
B3 - 1/2	88.1	5.517	123.98	51
B3 - 1/4	88.2	2.209	124.18	51
B3 - 1/4 (2)	88.39	2.209	123.79	50
F1 & F2	89.46	1.71	123.29	48
F3 (2/5) & F4	95.81	0.76	123.05	39
F3 (3/5)	92.55	0.912	122.28	42
NE2 & J1	89.99	5.814	123.13	47
NE3 & J3	90.7	4.37	122.74	45
NW1	90	252.907	119	41
NW2	90.98	0.608	121.68	44
NW3	90	1.482	120.81	44
NW4 - 1/2	90.27	3.334	121.74	45
NW4 - 1/2 (2)	91.29	3.334	121.46	43
SE1 - 1/2	91.44	2.47	121.95	43
SE1 - 1/2 (2)	92.13	2.47	121.73	42
SE2 & J4	92.66	4.959	122.37	42
SE3	93.56	1.71	122.41	41
SE5 & J5	94.42	3.097	122.46	40
SE6	95.49	1.292	122.28	38
SE7	95.9	0.551	122.55	38
SW 5 (1/2), 9, 10	96.74	2.318	122.88	37
SW1	91.07	0.855	121.42	43
SW2 - 1/2	91.25	4.759	121.26	43
SW2 - 1/2 (2)	92.89	4.759	121.74	41
SW3	91.6	1.387	121.34	42
SW5 - 1/2	92	1.672	121.48	42
SW6	93.2	1.444	121.61	40
SW7	94.44	6.992	121.93	39
SW8	97.32	0.551	123.34	37

2031a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	124.33	52
B2	87.74	1.995	124.17	52
B3 - 1/2	88.1	5.517	124.04	51
B3 - 1/4	88.2	2.209	124.2	51
B3 - 1/4 (2)	88.39	2.209	123.75	50
F1 & F2	89.46	1.71	123.25	48
F3 (2/5) & F4	95.81	0.76	122.87	38
F3 (3/5)	92.55	0.912	122.16	42
NE2 & J1	89.99	5.814	123	47
NE3 & J3	90.7	4.37	122.55	45
NW1	90	2.907	121.45	45
NW2	90.98	0.608	121.58	43
NW3	90	1.482	121.94	45
NW4 - 1/2	90.27	3.334	121.85	45
NW4 - 1/2 (2)	91.29	3.334	121.28	43
SE1 - 1/2	91.44	2.47	121.7	43
SE1 - 1/2 (2)	92.13	2.47	121.32	41
SE2 & J4	92.66	4.959	122.1	42
SE3	93.56	1.71	122.12	41
SE5 & J5	94.42	3.097	122.15	39
SE6	95.49	1.292	121.79	37
SE7	95.9	0.551	122.2	37
SW 5 (1/2), 9, 10	96.74	2.318	122.57	37
SW1	91.07	0.855	121.32	43
SW2 - 1/2	91.25	4.759	119.66	40
SW2 - 1/2 (2)	92.89	4.759	121.16	40
SW3	91.6	251.387	118.71	38
SW5 - 1/2	92	1.672	119.53	39
SW6	93.2	1.444	120.25	38
SW7	94.44	6.992	121.29	38
SW8	97.32	0.551	123.1	37

2031a PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	118.01	43
B2	87.74	3.15	117.95	43
B3 - 1/2	88.1	8.575	117.83	42
B3 - 1/4	88.2	3.487	117.83	42
B3 - 1/4 (2)	88.39	3.487	117.73	42
F1 & F2	89.46	2.7	117.94	40
F3 (2/5) & F4	95.81	1.2	118.14	32
F3 (3/5)	92.55	1.44	117.89	36
NE2 & J1	89.99	9.18	117.66	39
NE3 & J3	90.7	6.9	117.65	38
NW1	90	4.59	117.7	39
NW2	90.98	0.96	117.76	38
NW3	90	2.34	117.71	39
NW4 - 1/2	90.27	5.265	117.69	39
NW4 - 1/2 (2)	91.29	5.265	117.68	37
SE1 - 1/2	91.44	3.9	117.66	37
SE1 - 1/2 (2)	92.13	3.9	117.67	36
SE2 & J4	92.66	7.83	117.64	35
SE3	93.56	2.7	117.64	34
SE5 & J5	94.42	4.89	117.65	33
SE6	95.49	2.04	117.74	32
SE7	95.9	0.87	117.73	31
SW 5 (1/2), 9, 10	96.74	3.66	117.96	30
SW1	91.07	1.35	117.72	38
SW2 - 1/2	91.25	7.515	117.68	38
SW2 - 1/2 (2)	92.89	7.515	117.67	35
SW3	91.6	2.19	117.68	37
SW5 - 1/2	92	2.64	117.68	36
SW6	93.2	2.28	117.68	35
SW7	94.44	11.04	117.69	33
SW8	97.32	0.87	118.22	30

2031b PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	120.21	46
B2	87.74	3.15	120.15	46
B3 - 1/2	88.1	8.575	120.03	45
B3 - 1/4	88.2	3.487	120.03	45
B3 - 1/4 (2)	88.39	3.487	119.93	45
F1 & F2	89.46	2.7	120.14	44
F3 (2/5) & F4	95.81	1.2	120.34	35
F3 (3/5)	92.55	1.44	120.09	39
NE2 & J1	89.99	9.18	119.86	42
NE3 & J3	90.7	6.9	119.85	41
NW1	90	4.59	119.9	42
NW2	90.98	0.96	119.96	41
NW3	90	2.34	119.91	42
NW4 - 1/2	90.27	5.265	119.89	42
NW4 - 1/2 (2)	91.29	5.265	119.88	41
SE1 - 1/2	91.44	3.9	119.86	40
SE1 - 1/2 (2)	92.13	3.9	119.87	39
SE2 & J4	92.66	7.83	119.84	39
SE3	93.56	2.7	119.84	37
SE5 & J5	94.42	4.89	119.85	36
SE6	95.49	2.04	119.94	35
SE7	95.9	0.87	119.93	34
SW 5 (1/2), 9, 10	96.74	3.66	120.16	33
SW1	91.07	1.35	119.92	41
SW2 - 1/2	91.25	7.515	119.88	41
SW2 - 1/2 (2)	92.89	7.515	119.87	38
SW3	91.6	2.19	119.88	40
SW5 - 1/2	92	2.64	119.88	40
SW6	93.2	2.28	119.88	38
SW7	94.44	11.04	119.89	36
SW8	97.32	0.87	120.42	33

Results for Model Runs with Woodward WTP Pump No. 2 in Operation

2021a ADD Results – No Woodward WTP Pumps				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	128.68	58
B2	87.74	1.05	128.67	58
B3 - 1/2	88.1	2.825	128.66	58
B3 - 1/4	88.2	1.163	128.66	57
B3 - 1/4 (2)	88.39	1.163	128.65	57
F1 & F2	89.46	0.9	128.65	56
F3 (2/5) & F4	95.81	0.4	128.65	47
F3 (3/5)	92.55	0.48	128.64	51
NE2 & J1	89.99	3.06	128.63	55
NE3 & J3	90.7	2.3	128.62	54
NW1	90	1.53	128.63	55
NW2	90.98	0.32	128.63	53
NW3	90	0.78	128.63	55
NW4 - 1/2	90.27	1.755	128.63	54
NW4 - 1/2 (2)	91.29	1.755	128.62	53
SE1 - 1/2	91.44	1.3	128.62	53
SE1 - 1/2 (2)	92.13	1.3	128.62	52
SE2 & J4	92.66	2.61	128.62	51
SE3	93.56	0.9	128.62	50
SE5 & J5	94.42	1.63	128.62	49
SE6	95.49	0.68	128.62	47
SE7	95.9	0.29	128.62	46
SW 5 (1/2), 9, 10	96.74	1.22	128.63	45
SW1	91.07	0.45	128.63	53
SW2 - 1/2	91.25	2.505	128.62	53
SW2 - 1/2 (2)	92.89	2.505	128.62	51
SW3	91.6	0.73	128.62	53
SW5 - 1/2	92	0.88	128.62	52
SW6	93.2	0.76	128.62	50
SW7	94.44	3.68	128.62	49
SW8	97.32	0.29	128.65	44

2021b ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	131.04	61
B2	87.74	1.05	131.03	61
B3 - 1/2	88.1	2.825	131.02	61
B3 - 1/4	88.2	1.163	131.02	61
B3 - 1/4 (2)	88.39	1.163	131.01	60
F1 & F2	89.46	0.9	131.01	59
F3 (2/5) & F4	95.81	0.4	131	50
F3 (3/5)	92.55	0.48	130.99	55
NE2 & J1	89.99	3.06	130.98	58
NE3 & J3	90.7	2.3	130.98	57
NW1	90	1.53	130.98	58
NW2	90.98	0.32	130.99	57
NW3	90	0.78	130.99	58
NW4 - 1/2	90.27	1.755	130.98	58
NW4 - 1/2 (2)	91.29	1.755	130.98	56
SE1 - 1/2	91.44	1.3	130.98	56
SE1 - 1/2 (2)	92.13	1.3	130.98	55
SE2 & J4	92.66	2.61	130.97	54
SE3	93.56	0.9	130.97	53
SE5 & J5	94.42	1.63	130.97	52
SE6	95.49	0.68	130.98	50
SE7	95.9	0.29	130.98	50
SW 5 (1/2), 9, 10	96.74	1.22	130.99	49
SW1	91.07	0.45	130.98	57
SW2 - 1/2	91.25	2.505	130.98	56
SW2 - 1/2 (2)	92.89	2.505	130.98	54
SW3	91.6	0.73	130.98	56
SW5 - 1/2	92	0.88	130.98	55
SW6	93.2	0.76	130.98	54
SW7	94.44	3.68	130.98	52
SW8	97.32	0.29	131	48

2021a MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	127.85	57
B2	87.74	1.995	127.83	57
B3 - 1/2	88.1	5.367	127.79	56
B3 - 1/4	88.2	2.209	127.8	56
B3 - 1/4 (2)	88.39	2.209	127.74	56
F1 & F2	89.46	1.71	127.77	54
F3 (2/5) & F4	95.81	0.76	127.74	45
F3 (3/5)	92.55	0.912	127.71	50
NE2 & J1	89.99	5.814	127.68	53
NE3 & J3	90.7	4.37	127.66	52
NW1	90	2.907	127.68	53
NW2	90.98	0.608	127.69	52
NW3	90	1.482	127.69	54
NW4 - 1/2	90.27	3.334	127.68	53
NW4 - 1/2 (2)	91.29	3.334	127.67	52
SE1 - 1/2	91.44	2.47	127.66	51
SE1 - 1/2 (2)	92.13	2.47	127.66	50
SE2 & J4	92.66	4.959	127.65	50
SE3	93.56	1.71	127.65	48
SE5 & J5	94.42	3.097	127.65	47
SE6	95.49	1.292	127.67	46
SE7	95.9	0.551	127.66	45
SW 5 (1/2), 9, 10	96.74	2.318	127.7	44
SW1	91.07	0.855	127.68	52
SW2 - 1/2	91.25	4.759	127.66	52
SW2 - 1/2 (2)	92.89	4.759	127.66	49
SW3	91.6	1.387	127.66	51
SW5 - 1/2	92	1.672	127.66	51
SW6	93.2	1.444	127.66	49
SW7	94.44	6.992	127.66	47
SW8	97.32	0.551	127.75	43

2021b MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	130.34	60
B2	87.74	1.995	130.32	60
B3 - 1/2	88.1	5.367	130.28	60
B3 - 1/4	88.2	2.209	130.29	60
B3 - 1/4 (2)	88.39	2.209	130.23	59
F1 & F2	89.46	1.71	130.26	58
F3 (2/5) & F4	95.81	0.76	130.22	49
F3 (3/5)	92.55	0.912	130.19	53
NE2 & J1	89.99	5.814	130.16	57
NE3 & J3	90.7	4.37	130.15	56
NW1	90	2.907	130.16	57
NW2	90.98	0.608	130.17	56
NW3	90	1.482	130.18	57
NW4 - 1/2	90.27	3.334	130.16	57
NW4 - 1/2 (2)	91.29	3.334	130.15	55
SE1 - 1/2	91.44	2.47	130.14	55
SE1 - 1/2 (2)	92.13	2.47	130.14	54
SE2 & J4	92.66	4.959	130.13	53
SE3	93.56	1.71	130.13	52
SE5 & J5	94.42	3.097	130.13	51
SE6	95.49	1.292	130.15	49
SE7	95.9	0.551	130.14	49
SW 5 (1/2), 9, 10	96.74	2.318	130.18	47
SW1	91.07	0.855	130.16	55
SW2 - 1/2	91.25	4.759	130.14	55
SW2 - 1/2 (2)	92.89	4.759	130.14	53
SW3	91.6	1.387	130.14	55
SW5 - 1/2	92	1.672	130.14	54
SW6	93.2	1.444	130.14	52
SW7	94.44	6.992	130.14	51
SW8	97.32	0.551	130.23	47

2021a MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.84	55
B2	87.74	1.995	126.68	55
B3 - 1/2	88.1	5.367	126.59	55
B3 - 1/4	88.2	2.209	126.79	55
B3 - 1/4 (2)	88.39	2.209	126.39	54
F1 & F2	89.46	1.71	125.73	51
F3 (2/5) & F4	95.81	0.76	125.37	42
F3 (3/5)	92.55	0.912	124.69	46
NE2 & J1	89.99	5.814	125.68	51
NE3 & J3	90.7	4.37	125.27	49
NW1	90	252.907	121.49	45
NW2	90.98	0.608	124.14	47
NW3	90	1.482	123.31	47
NW4 - 1/2	90.27	3.334	124.24	48
NW4 - 1/2 (2)	91.29	3.334	123.95	46
SE1 - 1/2	91.44	2.47	124.45	47
SE1 - 1/2 (2)	92.13	2.47	124.22	46
SE2 & J4	92.66	4.959	124.86	46
SE3	93.56	1.71	124.9	44
SE5 & J5	94.42	3.097	124.94	43
SE6	95.49	1.292	124.74	42
SE7	95.9	0.551	125.01	41
SW 5 (1/2), 9, 10	96.74	2.318	125.27	40
SW1	91.07	0.855	123.89	47
SW2 - 1/2	91.25	4.759	123.74	46
SW2 - 1/2 (2)	92.89	4.759	124.23	44
SW3	91.6	1.387	123.82	46
SW5 - 1/2	92	1.672	123.96	45
SW6	93.2	1.444	124.09	44
SW7	94.44	6.992	124.41	43
SW8	97.32	0.551	125.65	40

2021a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.88	55
B2	87.74	1.995	126.73	55
B3 - 1/2	88.1	5.367	126.64	55
B3 - 1/4	88.2	2.209	126.81	55
B3 - 1/4 (2)	88.39	2.209	126.36	54
F1 & F2	89.46	1.71	125.69	51
F3 (2/5) & F4	95.81	0.76	125.19	42
F3 (3/5)	92.55	0.912	124.56	45
NE2 & J1	89.99	5.814	125.55	50
NE3 & J3	90.7	4.37	125.07	49
NW1	90	2.907	123.94	48
NW2	90.98	0.608	124.04	47
NW3	90	1.482	124.46	49
NW4 - 1/2	90.27	3.334	124.36	48
NW4 - 1/2 (2)	91.29	3.334	123.77	46
SE1 - 1/2	91.44	2.47	124.19	46
SE1 - 1/2 (2)	92.13	2.47	123.8	45
SE2 & J4	92.66	4.959	124.58	45
SE3	93.56	1.71	124.6	44
SE5 & J5	94.42	3.097	124.62	43
SE6	95.49	1.292	124.25	41
SE7	95.9	0.551	124.65	41
SW 5 (1/2), 9, 10	96.74	2.318	124.96	40
SW1	91.07	0.855	123.79	46
SW2 - 1/2	91.25	4.759	122.14	44
SW2 - 1/2 (2)	92.89	4.759	123.64	44
SW3	91.6	251.387	121.19	42
SW5 - 1/2	92	1.672	122.01	43
SW6	93.2	1.444	122.73	42
SW7	94.44	6.992	123.76	42
SW8	97.32	0.551	125.41	40

2021b MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	129.35	59
B2	87.74	1.995	129.19	59
B3 - 1/2	88.1	5.367	129.1	58
B3 - 1/4	88.2	2.209	129.3	58
B3 - 1/4 (2)	88.39	2.209	128.9	57
F1 & F2	89.46	1.71	128.24	55
F3 (2/5) & F4	95.81	0.76	127.87	45
F3 (3/5)	92.55	0.912	127.19	49
NE2 & J1	89.99	5.814	128.19	54
NE3 & J3	90.7	4.37	127.77	53
NW1	90	252.907	123.99	48
NW2	90.98	0.608	126.64	51
NW3	90	1.482	125.82	51
NW4 - 1/2	90.27	3.334	126.74	52
NW4 - 1/2 (2)	91.29	3.334	126.45	50
SE1 - 1/2	91.44	2.47	126.95	50
SE1 - 1/2 (2)	92.13	2.47	126.73	49
SE2 & J4	92.66	4.959	127.36	49
SE3	93.56	1.71	127.4	48
SE5 & J5	94.42	3.097	127.44	47
SE6	95.49	1.292	127.24	45
SE7	95.9	0.551	127.5	45
SW 5 (1/2), 9, 10	96.74	2.318	127.77	44
SW1	91.07	0.855	126.39	50
SW2 - 1/2	91.25	4.759	126.24	50
SW2 - 1/2 (2)	92.89	4.759	126.73	48
SW3	91.6	1.387	126.32	49
SW5 - 1/2	92	1.672	126.46	49
SW6	93.2	1.444	126.59	47
SW7	94.44	6.992	126.91	46
SW8	97.32	0.551	128.14	44

2021b MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	129.39	59
B2	87.74	1.995	129.24	59
B3 - 1/2	88.1	5.367	129.15	58
B3 - 1/4	88.2	2.209	129.32	58
B3 - 1/4 (2)	88.39	2.209	128.86	57
F1 & F2	89.46	1.71	128.19	55
F3 (2/5) & F4	95.81	0.76	127.68	45
F3 (3/5)	92.55	0.912	127.06	49
NE2 & J1	89.99	5.814	128.06	54
NE3 & J3	90.7	4.37	127.57	52
NW1	90	2.907	126.44	52
NW2	90.98	0.608	126.54	50
NW3	90	1.482	126.96	52
NW4 - 1/2	90.27	3.334	126.86	52
NW4 - 1/2 (2)	91.29	3.334	126.27	50
SE1 - 1/2	91.44	2.47	126.69	50
SE1 - 1/2 (2)	92.13	2.47	126.3	49
SE2 & J4	92.66	4.959	127.08	49
SE3	93.56	1.71	127.1	48
SE5 & J5	94.42	3.097	127.11	46
SE6	95.49	1.292	126.75	44
SE7	95.9	0.551	127.15	44
SW 5 (1/2), 9, 10	96.74	2.318	127.46	44
SW1	91.07	0.855	126.29	50
SW2 - 1/2	91.25	4.759	124.64	47
SW2 - 1/2 (2)	92.89	4.759	126.14	47
SW3	91.6	251.387	123.69	46
SW5 - 1/2	92	1.672	124.51	46
SW6	93.2	1.444	125.23	45
SW7	94.44	6.992	126.26	45
SW8	97.32	0.551	127.91	43

2021a PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	126.79	55
B2	87.74	3.15	126.73	55
B3 - 1/2	88.1	8.375	126.65	55
B3 - 1/4	88.2	3.487	126.67	55
B3 - 1/4 (2)	88.39	3.487	126.54	54
F1 & F2	89.46	2.7	126.6	53
F3 (2/5) & F4	95.81	1.2	126.52	44
F3 (3/5)	92.55	1.44	126.45	48
NE2 & J1	89.99	9.18	126.39	52
NE3 & J3	90.7	6.9	126.35	51
NW1	90	4.59	126.38	52
NW2	90.98	0.96	126.41	50
NW3	90	2.34	126.42	52
NW4 - 1/2	90.27	5.265	126.39	51
NW4 - 1/2 (2)	91.29	5.265	126.35	50
SE1 - 1/2	91.44	3.9	126.34	50
SE1 - 1/2 (2)	92.13	3.9	126.34	49
SE2 & J4	92.66	7.83	126.32	48
SE3	93.56	2.7	126.32	46
SE5 & J5	94.42	4.89	126.32	45
SE6	95.49	2.04	126.36	44
SE7	95.9	0.87	126.35	43
SW 5 (1/2), 9, 10	96.74	3.66	126.44	42
SW1	91.07	1.35	126.39	50
SW2 - 1/2	91.25	7.515	126.35	50
SW2 - 1/2 (2)	92.89	7.515	126.34	47
SW3	91.6	2.19	126.34	49
SW5 - 1/2	92	2.64	126.34	49
SW6	93.2	2.28	126.34	47
SW7	94.44	11.04	126.34	45
SW8	97.32	0.87	126.55	41

2021b PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	128.89	58
B2	87.74	3.15	128.83	58
B3 - 1/2	88.1	8.375	128.75	58
B3 - 1/4	88.2	3.487	128.77	58
B3 - 1/4 (2)	88.39	3.487	128.64	57
F1 & F2	89.46	2.7	128.7	56
F3 (2/5) & F4	95.81	1.2	128.62	47
F3 (3/5)	92.55	1.44	128.55	51
NE2 & J1	89.99	9.18	128.49	55
NE3 & J3	90.7	6.9	128.45	54
NW1	90	4.59	128.48	55
NW2	90.98	0.96	128.51	53
NW3	90	2.34	128.52	55
NW4 - 1/2	90.27	5.265	128.49	54
NW4 - 1/2 (2)	91.29	5.265	128.46	53
SE1 - 1/2	91.44	3.9	128.44	53
SE1 - 1/2 (2)	92.13	3.9	128.44	52
SE2 & J4	92.66	7.83	128.42	51
SE3	93.56	2.7	128.42	49
SE5 & J5	94.42	4.89	128.42	48
SE6	95.49	2.04	128.46	47
SE7	95.9	0.87	128.45	46
SW 5 (1/2), 9, 10	96.74	3.66	128.54	45
SW1	91.07	1.35	128.49	53
SW2 - 1/2	91.25	7.515	128.45	53
SW2 - 1/2 (2)	92.89	7.515	128.44	50
SW3	91.6	2.19	128.44	52
SW5 - 1/2	92	2.64	128.44	52
SW6	93.2	2.28	128.44	50
SW7	94.44	11.04	128.44	48
SW8	97.32	0.87	128.65	44

2031a ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	128.59	58
B2	87.74	1.05	128.58	58
B3 - 1/2	88.1	2.825	128.57	57
B3 - 1/4	88.2	1.163	128.57	57
B3 - 1/4 (2)	88.39	1.163	128.55	57
F1 & F2	89.46	0.9	128.57	56
F3 (2/5) & F4	95.81	0.4	128.56	46
F3 (3/5)	92.55	0.48	128.55	51
NE2 & J1	89.99	3.06	128.53	55
NE3 & J3	90.7	2.3	128.53	54
NW1	90	1.53	128.54	55
NW2	90.98	0.32	128.54	53
NW3	90	0.78	128.54	55
NW4 - 1/2	90.27	1.755	128.54	54
NW4 - 1/2 (2)	91.29	1.755	128.53	53
SE1 - 1/2	91.44	1.3	128.53	53
SE1 - 1/2 (2)	92.13	1.3	128.53	52
SE2 & J4	92.66	2.61	128.52	51
SE3	93.56	0.9	128.52	50
SE5 & J5	94.42	1.63	128.52	48
SE6	95.49	0.68	128.53	47
SE7	95.9	0.29	128.53	46
SW 5 (1/2), 9, 10	96.74	1.22	128.55	45
SW1	91.07	0.45	128.54	53
SW2 - 1/2	91.25	2.505	128.53	53
SW2 - 1/2 (2)	92.89	2.505	128.53	51
SW3	91.6	0.73	128.53	52
SW5 - 1/2	92	0.88	128.53	52
SW6	93.2	0.76	128.53	50
SW7	94.44	3.68	128.53	48
SW8	97.32	0.29	128.57	44

2031b ADD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	0.78	130.96	61
B2	87.74	1.05	130.95	61
B3 - 1/2	88.1	2.825	130.94	61
B3 - 1/4	88.2	1.163	130.94	61
B3 - 1/4 (2)	88.39	1.163	130.92	60
F1 & F2	89.46	0.9	130.94	59
F3 (2/5) & F4	95.81	0.4	130.92	50
F3 (3/5)	92.55	0.48	130.91	54
NE2 & J1	89.99	3.06	130.9	58
NE3 & J3	90.7	2.3	130.89	57
NW1	90	1.53	130.9	58
NW2	90.98	0.32	130.91	57
NW3	90	0.78	130.9	58
NW4 - 1/2	90.27	1.755	130.9	58
NW4 - 1/2 (2)	91.29	1.755	130.9	56
SE1 - 1/2	91.44	1.3	130.89	56
SE1 - 1/2 (2)	92.13	1.3	130.89	55
SE2 & J4	92.66	2.61	130.89	54
SE3	93.56	0.9	130.89	53
SE5 & J5	94.42	1.63	130.89	52
SE6	95.49	0.68	130.9	50
SE7	95.9	0.29	130.89	50
SW 5 (1/2), 9, 10	96.74	1.22	130.91	49
SW1	91.07	0.45	130.9	57
SW2 - 1/2	91.25	2.505	130.9	56
SW2 - 1/2 (2)	92.89	2.505	130.89	54
SW3	91.6	0.73	130.89	56
SW5 - 1/2	92	0.88	130.89	55
SW6	93.2	0.76	130.89	54
SW7	94.44	3.68	130.89	52
SW8	97.32	0.29	130.93	48

2031a MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	127.6	56
B2	87.74	1.995	127.56	57
B3 - 1/2	88.1	5.517	127.51	56
B3 - 1/4	88.2	2.209	127.51	56
B3 - 1/4 (2)	88.39	2.209	127.45	55
F1 & F2	89.46	1.71	127.52	54
F3 (2/5) & F4	95.81	0.76	127.49	45
F3 (3/5)	92.55	0.912	127.44	50
NE2 & J1	89.99	5.814	127.39	53
NE3 & J3	90.7	4.37	127.37	52
NW1	90	2.907	127.4	53
NW2	90.98	0.608	127.42	52
NW3	90	1.482	127.41	53
NW4 - 1/2	90.27	3.334	127.4	53
NW4 - 1/2 (2)	91.29	3.334	127.38	51
SE1 - 1/2	91.44	2.47	127.38	51
SE1 - 1/2 (2)	92.13	2.47	127.38	50
SE2 & J4	92.66	4.959	127.36	49
SE3	93.56	1.71	127.36	48
SE5 & J5	94.42	3.097	127.36	47
SE6	95.49	1.292	127.39	45
SE7	95.9	0.551	127.38	45
SW 5 (1/2), 9, 10	96.74	2.318	127.44	44
SW1	91.07	0.855	127.4	52
SW2 - 1/2	91.25	4.759	127.38	51
SW2 - 1/2 (2)	92.89	4.759	127.38	49
SW3	91.6	1.387	127.38	51
SW5 - 1/2	92	1.672	127.38	50
SW6	93.2	1.444	127.38	49
SW7	94.44	6.992	127.38	47
SW8	97.32	0.551	127.5	43

2031b MDD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	130.1	60
B2	87.74	1.995	130.06	60
B3 - 1/2	88.1	5.517	130	59
B3 - 1/4	88.2	2.209	130.01	59
B3 - 1/4 (2)	88.39	2.209	129.94	59
F1 & F2	89.46	1.71	130.01	58
F3 (2/5) & F4	95.81	0.76	129.97	48
F3 (3/5)	92.55	0.912	129.93	53
NE2 & J1	89.99	5.814	129.88	57
NE3 & J3	90.7	4.37	129.87	56
NW1	90	2.907	129.89	57
NW2	90.98	0.608	129.91	55
NW3	90	1.482	129.91	57
NW4 - 1/2	90.27	3.334	129.89	56
NW4 - 1/2 (2)	91.29	3.334	129.88	55
SE1 - 1/2	91.44	2.47	129.87	55
SE1 - 1/2 (2)	92.13	2.47	129.87	54
SE2 & J4	92.66	4.959	129.85	53
SE3	93.56	1.71	129.85	52
SE5 & J5	94.42	3.097	129.85	50
SE6	95.49	1.292	129.88	49
SE7	95.9	0.551	129.87	48
SW 5 (1/2), 9, 10	96.74	2.318	129.92	47
SW1	91.07	0.855	129.9	55
SW2 - 1/2	91.25	4.759	129.87	55
SW2 - 1/2 (2)	92.89	4.759	129.87	52
SW3	91.6	1.387	129.87	54
SW5 - 1/2	92	1.672	129.87	54
SW6	93.2	1.444	129.87	52
SW7	94.44	6.992	129.87	50
SW8	97.32	0.551	129.99	46

2031a MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.48	55
B2	87.74	1.995	126.31	55
B3 - 1/2	88.1	5.517	126.17	54
B3 - 1/4	88.2	2.209	126.37	54
B3 - 1/4 (2)	88.39	2.209	125.96	53
F1 & F2	89.46	1.71	125.39	51
F3 (2/5) & F4	95.81	0.76	125.03	41
F3 (3/5)	92.55	0.912	124.33	45
NE2 & J1	89.99	5.814	125.26	50
NE3 & J3	90.7	4.37	124.85	48
NW1	90	252.907	121.09	44
NW2	90.98	0.608	123.75	47
NW3	90	1.482	122.92	47
NW4 - 1/2	90.27	3.334	123.84	48
NW4 - 1/2 (2)	91.29	3.334	123.55	46
SE1 - 1/2	91.44	2.47	124.04	46
SE1 - 1/2 (2)	92.13	2.47	123.82	45
SE2 & J4	92.66	4.959	124.45	45
SE3	93.56	1.71	124.48	44
SE5 & J5	94.42	3.097	124.53	43
SE6	95.49	1.292	124.33	41
SE7	95.9	0.551	124.6	41
SW 5 (1/2), 9, 10	96.74	2.318	124.89	40
SW1	91.07	0.855	123.5	46
SW2 - 1/2	91.25	4.759	123.35	46
SW2 - 1/2 (2)	92.89	4.759	123.83	44
SW3	91.6	1.387	123.43	45
SW5 - 1/2	92	1.672	123.57	45
SW6	93.2	1.444	123.69	43
SW7	94.44	6.992	124	42
SW8	97.32	0.551	125.3	40

2031a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	126.52	55
B2	87.74	1.995	126.36	55
B3 - 1/2	88.1	5.517	126.22	54
B3 - 1/4	88.2	2.209	126.39	54
B3 - 1/4 (2)	88.39	2.209	125.93	53
F1 & F2	89.46	1.71	125.34	51
F3 (2/5) & F4	95.81	0.76	124.85	41
F3 (3/5)	92.55	0.912	124.2	45
NE2 & J1	89.99	5.814	125.13	50
NE3 & J3	90.7	4.37	124.65	48
NW1	90	2.907	123.55	48
NW2	90.98	0.608	123.66	46
NW3	90	1.482	124.06	48
NW4 - 1/2	90.27	3.334	123.96	48
NW4 - 1/2 (2)	91.29	3.334	123.37	46
SE1 - 1/2	91.44	2.47	123.79	46
SE1 - 1/2 (2)	92.13	2.47	123.4	44
SE2 & J4	92.66	4.959	124.17	45
SE3	93.56	1.71	124.18	43
SE5 & J5	94.42	3.097	124.2	42
SE6	95.49	1.292	123.84	40
SE7	95.9	0.551	124.24	40
SW 5 (1/2), 9, 10	96.74	2.318	124.58	40
SW1	91.07	0.855	123.41	46
SW2 - 1/2	91.25	4.759	121.74	43
SW2 - 1/2 (2)	92.89	4.759	123.24	43
SW3	91.6	251.387	120.79	41
SW5 - 1/2	92	1.672	121.61	42
SW6	93.2	1.444	122.33	41
SW7	94.44	6.992	123.36	41
SW8	97.32	0.551	125.06	39

2031b MDD + FF Results (Junction NW1)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	129.01	58
B2	87.74	1.995	128.83	58
B3 - 1/2	88.1	5.517	128.7	58
B3 - 1/4	88.2	2.209	128.9	58
B3 - 1/4 (2)	88.39	2.209	128.48	57
F1 & F2	89.46	1.71	127.9	55
F3 (2/5) & F4	95.81	0.76	127.54	45
F3 (3/5)	92.55	0.912	126.84	49
NE2 & J1	89.99	5.814	127.78	54
NE3 & J3	90.7	4.37	127.37	52
NW1	90	252.907	123.61	48
NW2	90.98	0.608	126.27	50
NW3	90	1.482	125.43	50
NW4 - 1/2	90.27	3.334	126.36	51
NW4 - 1/2 (2)	91.29	3.334	126.06	49
SE1 - 1/2	91.44	2.47	126.56	50
SE1 - 1/2 (2)	92.13	2.47	126.34	49
SE2 & J4	92.66	4.959	126.97	49
SE3	93.56	1.71	127	47
SE5 & J5	94.42	3.097	127.04	46
SE6	95.49	1.292	126.85	45
SE7	95.9	0.551	127.11	44
SW 5 (1/2), 9, 10	96.74	2.318	127.4	44
SW1	91.07	0.855	126.02	50
SW2 - 1/2	91.25	4.759	125.86	49
SW2 - 1/2 (2)	92.89	4.759	126.34	47
SW3	91.6	1.387	125.94	49
SW5 - 1/2	92	1.672	126.08	48
SW6	93.2	1.444	126.21	47
SW7	94.44	6.992	126.52	46
SW8	97.32	0.551	127.81	43

2031a MDD + FF Results (Junction SW3)				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	1.482	129.04	59
B2	87.74	1.995	128.88	58
B3 - 1/2	88.1	5.517	128.75	58
B3 - 1/4	88.2	2.209	128.91	58
B3 - 1/4 (2)	88.39	2.209	128.45	57
F1 & F2	89.46	1.71	127.86	55
F3 (2/5) & F4	95.81	0.76	127.36	45
F3 (3/5)	92.55	0.912	126.71	48
NE2 & J1	89.99	5.814	127.65	53
NE3 & J3	90.7	4.37	127.17	52
NW1	90	2.907	126.06	51
NW2	90.98	0.608	126.17	50
NW3	90	1.482	126.58	52
NW4 - 1/2	90.27	3.334	126.47	51
NW4 - 1/2 (2)	91.29	3.334	125.89	49
SE1 - 1/2	91.44	2.47	126.3	49
SE1 - 1/2 (2)	92.13	2.47	125.92	48
SE2 & J4	92.66	4.959	126.69	48
SE3	93.56	1.71	126.7	47
SE5 & J5	94.42	3.097	126.71	46
SE6	95.49	1.292	126.35	44
SE7	95.9	0.551	126.75	44
SW 5 (1/2), 9, 10	96.74	2.318	127.09	43
SW1	91.07	0.855	125.92	49
SW2 - 1/2	91.25	4.759	124.26	47
SW2 - 1/2 (2)	92.89	4.759	125.75	47
SW3	91.6	251.387	123.3	45
SW5 - 1/2	92	1.672	124.13	46
SW6	93.2	1.444	124.84	45
SW7	94.44	6.992	125.87	45
SW8	97.32	0.551	127.57	43

2031a PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	125.98	54
B2	87.74	3.15	125.91	54
B3 - 1/2	88.1	8.575	125.78	53
B3 - 1/4	88.2	3.487	125.79	53
B3 - 1/4 (2)	88.39	3.487	125.65	53
F1 & F2	89.46	2.7	125.8	52
F3 (2/5) & F4	95.81	1.2	125.73	42
F3 (3/5)	92.55	1.44	125.63	47
NE2 & J1	89.99	9.18	125.51	50
NE3 & J3	90.7	6.9	125.48	49
NW1	90	4.59	125.52	50
NW2	90.98	0.96	125.57	49
NW3	90	2.34	125.56	50
NW4 - 1/2	90.27	5.265	125.53	50
NW4 - 1/2 (2)	91.29	5.265	125.5	49
SE1 - 1/2	91.44	3.9	125.48	48
SE1 - 1/2 (2)	92.13	3.9	125.49	47
SE2 & J4	92.66	7.83	125.44	47
SE3	93.56	2.7	125.44	45
SE5 & J5	94.42	4.89	125.44	44
SE6	95.49	2.04	125.5	43
SE7	95.9	0.87	125.48	42
SW 5 (1/2), 9, 10	96.74	3.66	125.61	41
SW1	91.07	1.35	125.54	49
SW2 - 1/2	91.25	7.515	125.49	49
SW2 - 1/2 (2)	92.89	7.515	125.48	46
SW3	91.6	2.19	125.49	48
SW5 - 1/2	92	2.64	125.48	48
SW6	93.2	2.28	125.48	46
SW7	94.44	11.04	125.48	44
SW8	97.32	0.87	125.76	40

2031b PHD Results				
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
B1	87.83	2.34	128.07	57
B2	87.74	3.15	128	57
B3 - 1/2	88.1	8.575	127.87	56
B3 - 1/4	88.2	3.487	127.88	56
B3 - 1/4 (2)	88.39	3.487	127.74	56
F1 & F2	89.46	2.7	127.89	55
F3 (2/5) & F4	95.81	1.2	127.82	45
F3 (3/5)	92.55	1.44	127.72	50
NE2 & J1	89.99	9.18	127.6	53
NE3 & J3	90.7	6.9	127.57	52
NW1	90	4.59	127.61	53
NW2	90.98	0.96	127.66	52
NW3	90	2.34	127.65	53
NW4 - 1/2	90.27	5.265	127.62	53
NW4 - 1/2 (2)	91.29	5.265	127.59	52
SE1 - 1/2	91.44	3.9	127.57	51
SE1 - 1/2 (2)	92.13	3.9	127.58	50
SE2 & J4	92.66	7.83	127.53	50
SE3	93.56	2.7	127.53	48
SE5 & J5	94.42	4.89	127.53	47
SE6	95.49	2.04	127.59	46
SE7	95.9	0.87	127.57	45
SW 5 (1/2), 9, 10	96.74	3.66	127.7	44
SW1	91.07	1.35	127.63	52
SW2 - 1/2	91.25	7.515	127.58	52
SW2 - 1/2 (2)	92.89	7.515	127.57	49
SW3	91.6	2.19	127.58	51
SW5 - 1/2	92	2.64	127.57	50
SW6	93.2	2.28	127.57	49
SW7	94.44	11.04	127.57	47
SW8	97.32	0.87	127.85	43