



*Potable Water System Report for  
City of Winter Springs, FL*

# *Winter Springs Marketplace Potable Water Analysis*

*Winter Springs, FL*

Prepared by:

Kimley-Horn and Associates, Inc.  
Orlando, Florida  
July 28, 2020



Potable Water System Report for  
Winter Springs, FL

Winter Springs Marketplace  
Winter Springs, FL

Prepared for:

**EQUINOX DEVELOPMENT**

Prepared by:

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July 28, 2020

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*FL P.E. # 54055*

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## 1 PROJECT DESCRIPTION

Winter Springs Marketplace is a proposed  $\pm 10.23$  acre commercial retail project. The project will contain six (6) commercial retail buildings with associated parking ( $\pm 9.11$  AC.) and an area dedicated to Future Development ( $\pm 1.12$  AC.) The site is located south of SR-434, west of Tuskawilla Rd. in Winter Springs, FL.

## 2 POTABLE WATER DISTRIBUTION SYSTEM

The proposed potable water system will connect to the existing 12-inch water main located along SR-434.

A combined system will be utilized to provide potable water service, as well as fire protection. A Fire Line Master Meter with backflow preventer will be provided at the connection point to the City of Winter Springs Utility System.

### 2.1 POTABLE WATER HYDRAULIC ANALYSIS SUMMARY

A complete water distribution system analysis has been performed for the proposed Winter Springs Marketplace development.

Estimated domestic potable water Average Daily Flows (ADF), Max Daily Flows (MDF), and Peak Hourly Flows (PHF) for the proposed site are shown in Section 2.2. The MDF was determined by multiplying the ADF by a peaking factor of 2.0, while the PHF uses a peaking factor of 4.0. Additional service and fire flow as a placeholder for the Future Development has been implemented into the demands and schematic.

Needed Fire Flow (NFF) calculations for buildings within the site were determined per NFPA 1 Uniform Code. The NFF for the future development was designed to provide the required flow rate based on NFPA requirements. Based on City of Winter Springs criteria (Section 23.2.2) no fire flows will be less than 1,250 gpm. The NFF Calculations are summarized in Section 2.3.

The domestic water distribution system has been modeled in WaterCAD V8i.

The model has been analyzed to ensure adequate flows and pressures are provided within the system during potential worst-case scenarios. Five (5) scenarios were analyzed within the WaterCAD model. Three (3) scenarios are comprised of the MDF plus the required fire flow split between two of the proposed hydrants on the site. The remaining scenarios analyzed were the ADF and PHF.

Wiginton Fire Systems has provided a static pressure of 57 PSI and a residual pressure of 64 PSI per a hydrant flow test performed on July 7, 2020. The results of the hydrant flow test, performed by Wiginton Fire Systems, can be found in Appendix A. The residual pressure (57 PSI) was converted to a pressure head of 131.67 ft and was added to the elevation of the tested flow hydrant (44 ft), resulting in a reservoir pressure head of 175.67 ft for both connection points.

Per City of Winter Springs Utility Manual (Section 3.2.B.iv), the system must provide a normal level of service of 20 PSI. The lowest pressure in the system during Average Daily Flow is 53 PSI. The lowest pressure in the system during Peak Hourly Flow is 52 PSI. During any Fire Flow scenario the potable system must maintain a minimum pressure of 20 PSI at all nodes per Winter Springs Utility Manual criteria (Section 3.2.B.ii). The minimum system pressure measured during any of the three (3) Fire Flow scenarios was 41 PSI (MDF+FF [H4+H5]).

The proposed system meets or exceeds all of the Winter Springs Utility Manual criteria (Section 3). Please see the WaterCAD results in Section 2.5 for more details regarding the flows and pressures provided during each scenario.

## **2.2 POTABLE WATER DEMAND DETERMINATION**



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Made By: DCB  
Checked By: MIG  
KHA Project Number: 149170016

DATE: 7/28/2020  
DATE: 7/28/2020

## Winter Springs Marketplace

### Potable Water Demand

per Exhibit A of Seminole County Administrative Code and Seminole County Utilities Engineering Manual

Building	Building Type	Number of Units	GPD/Unit	ADF		MDF		PHF	
				GPD	GPM	GPD	GPM	GPD	GPM
Retail C	Store (Grocery)	19,209 SF	0.1	1,921	1.33	3,842	2.67	7,684	5.34
Retail B	Store	10,000 SF	0.1	1,000	0.69	2,000	1.39	4,000	2.78
Retail A	Store	19,000 SF	0.1	1,900	1.32	3,800	2.64	7,600	5.28
OP 1	Fast Food	82 Seats	25.0	2,050	1.42	4,100	2.85	8,200	5.69
OP 2	Fast Food	62 Seats	25.0	1,550	1.08	3,100	2.15	6,200	4.31
BLDG A	Store	4,280 SF	0.1	428	0.30	856	0.59	1,712	1.19
Future Dev.	Store	4,500 SF	0.1	450	0.31	900	0.63	1,800	1.25
<b>TOTAL</b>				<b>9,299</b>	<b>6.46</b>	<b>18,598</b>	<b>12.92</b>	<b>37,196</b>	<b>25.83</b>

#### Max Daily Flow (MDF)

MDF = ADF x 2.0

#### Peak Hourly Flow (PHF)

PHF = ADF x 4.0

## **2.3 NEEDED FIRE FLOW DETERMINATION**

# *Winter Springs Marketplace*

## Retail A Needed Fire Flow (NFF) per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

### 19,000 SF Building

<b>Building Fire Area=</b>	19,000	SF
<b>Building Type (per NFPA 220) =</b>	V(III)	
<b>Associated Min. Required Fire Flow=</b>	2,500	GPM
(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)		
<b>Fire Sprinkler - Yes or No=</b>	yes	
<b>Calculated Fire Flow=</b>	625	GPM
(with 75% fire sprinkler credit, if applicable)		
<b>Minimum Fire Flow Required (City of Winter Springs) =</b>	1,250	GPM

<b>Fire Flow Provided=</b>	<b>2,000 GPM</b>
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# *Winter Springs Marketplace*

## Retail B Needed Fire Flow (NFF) per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

### 10,000 SF Building

<b>Building Fire Area=</b>	10,000	SF
<b>Building Type (per NFPA 220) =</b>	V(III)	
<b>Associated Min. Required Fire Flow=</b>	1,750	GPM
(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)		
<b>Fire Sprinkler - Yes or No=</b>	yes	
<b>Calculated Fire Flow=</b>	438	GPM
(with 75% fire sprinkler credit, if applicable)		
<b>Minimum Fire Flow Required (City of Winter Springs) =</b>	1,250	GPM

<b>Fire Flow Provided=</b>	<b>2,000 GPM</b>
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## *Winter Springs Marketplace*

### Retail C Needed Fire Flow (NFF)

per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

### 19,209 SF Building

**Building Fire Area=**

19,209 SF

**Building Type (per NFPA 220) =**

V(III)

**Associated Min. Required Fire Flow=**

2,500 GPM

(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)

**Fire Sprinkler - Yes or No=**

yes

**Calculated Fire Flow=**

625 GPM

(with 75% fire sprinkler credit, if applicable)

**Minimum Fire Flow Required (City of Winter Springs) =**

1,250 GPM

**Fire Flow Provided= 2,000 GPM**



# *Winter Springs Marketplace*

## Bldg A Needed Fire Flow (NFF)

per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

### 4,280 SF Building

<b>Building Fire Area=</b>	4,280	SF
<b>Building Type (per NFPA 220) =</b>	V(III)	
<b>Associated Min. Required Fire Flow=</b>	1,500	GPM
(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)		
<b>Fire Sprinkler - Yes or No=</b>	yes	
<b>Calculated Fire Flow=</b>	375	GPM
(with 75% fire sprinkler credit, if applicable)		
<b>Minimum Fire Flow Required (City of Winter Springs) =</b>	1,250	GPM

<b>Fire Flow Provided=</b>	<b>2,000 GPM</b>
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*Winter Springs Marketplace*

Outparcel 1 Needed Fire Flow (NFF)

per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

**2,325 SF Building**

<b>Building Fire Area=</b>	2,325	SF
<b>Building Type (per NFPA 220) =</b>	V(III)	
<b>Associated Min. Required Fire Flow=</b>	1,500	GPM
(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)		
<b>Fire Sprinkler - Yes or No=</b>	yes	
<b>Calculated Fire Flow=</b>	375	GPM
(with 75% fire sprinkler credit, if applicable)		
<b>Minimum Fire Flow Required (City of Winter Springs) =</b>	1,250	GPM

<b>Fire Flow Provided=</b>	<b>2,000 GPM</b>
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# *Winter Springs Marketplace*

## Outparcel 2 Needed Fire Flow (NFF)

per NFPA 1 Uniform Fire Code Handbook, 2012 Edition

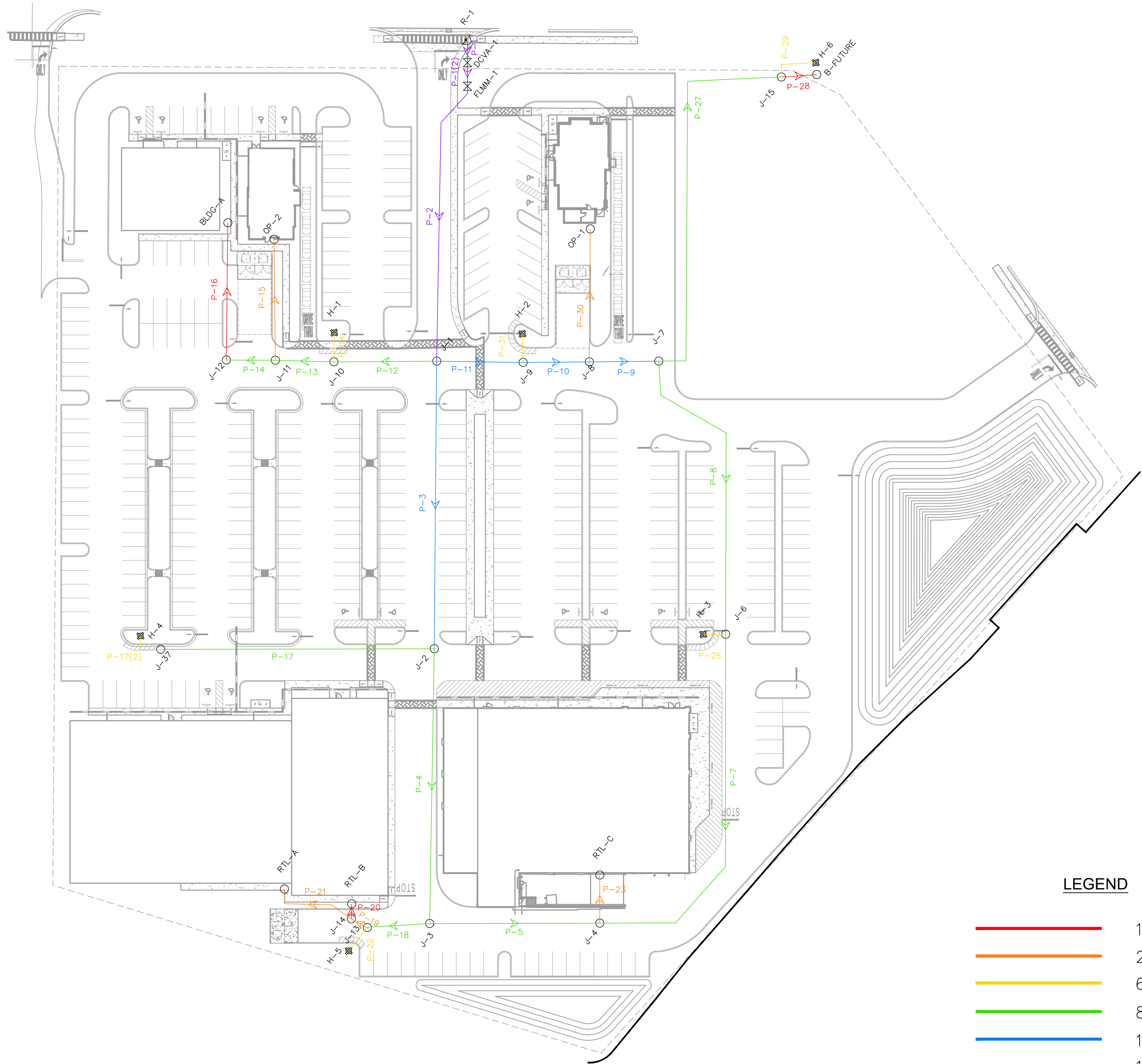
### 3,056 SF Building

<b>Building Fire Area=</b>	<b>3,056</b>	<b>SF</b>
<b>Building Type (per NFPA 220) =</b>	<b>V(III)</b>	
<b>Associated Min. Required Fire Flow=</b>	<b>1,500</b>	<b>GPM</b>
(per Table 18.4.5.1.2 of the NFPA 1 Uniform Fire Code Handbook)		
<b>Fire Sprinkler - Yes or No=</b>	<b>yes</b>	
<b>Calculated Fire Flow=</b>	<b>375</b>	<b>GPM</b>
(with 75% fire sprinkler credit, if applicable)		
<b>Minimum Fire Flow Required (City of Winter Springs) =</b>	<b>1,250</b>	<b>GPM</b>

<b>Fire Flow Provided=</b>	<b>2,000 GPM</b>
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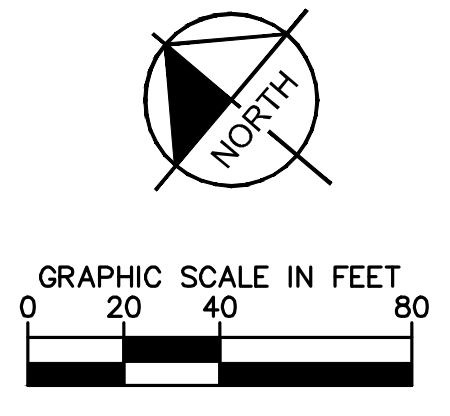
## **2.4 WATERCAD SCHEMATIC DIAGRAM**

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**LEGEND**

- 1" PIPE
- 2" PIPE
- 6" PIPE
- 8" PIPE
- 10" PIPE
- 12" PIPE



<b>WINTER SPRINGS MARKETPLACE</b>	KHA PROJECT	LICENSED PROFESSIONAL	<b>Kimley»Horn</b> 189 S. ORANGE AVENUE, SUITE 1000, ORLANDO, FLORIDA 32801 PHONE: 407-898-1511 WWW.KIMLEY-HORN.COM CA 00000696	No.	REVISIONS	DATE	BY
	DATE	DATE		No.	REVISIONS	DATE	BY
SHEET NUMBER	SCALE AS SHOWN	DESIGNED BY	DRAWN BY	CHECKED BY	DATE		
WATERCAD POTABLE SCHEMATIC							

## **2.5 WATERCAD RESULTS**

# **BUILD-OUT AVERAGE DAILY FLOW (ADF) ANALYSIS**

## Winter Springs Marketplace WaterCAD Tables

### ADF

#### Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Minor Loss Coefficient (Unified)	Velocity (ft/s)	Headloss (ft)
P-1	R-1	DCVA-1	16	12.0	PVC	120.0	6	0.050	0.02	0.00
P-1(2)	DCVA-1	FLMM-1	13	12.0	PVC	120.0	6	0.080	0.02	0.00
P-2	FLMM-1	J-1	210	12.0	PVC	120.0	6	1.320	0.02	0.00
P-3	J-1	J-2	209	10.0	PVC	120.0	2	0.740	0.01	0.00
P-4	J-2	J-3	200	8.0	PVC	120.0	2	0.740	0.01	0.00
P-5	J-4	J-3	124	8.0	PVC	120.0	0	0.350	0.00	0.00
P-7	J-6	J-4	279	8.0	PVC	120.0	1	0.750	0.01	0.00
P-8	J-7	J-6	226	8.0	PVC	120.0	1	1.540	0.01	0.00
P-9	J-7	J-8	50	10.0	PVC	120.0	-2	0.890	0.01	0.00
P-10	J-8	J-9	48	10.0	PVC	120.0	-3	0.350	0.01	0.00
P-11	J-9	J-1	63	10.0	PVC	120.0	-3	1.490	0.01	0.00
P-12	J-1	J-10	75	8.0	PVC	120.0	1	0.740	0.01	0.00
P-13	J-10	J-11	42	8.0	PVC	120.0	1	0.350	0.01	0.00
P-14	J-10	H-1	21	6.0	PVC	120.0	0	2.470	0.00	0.00
P-14	J-11	J-12	36	8.0	PVC	120.0	0	0.350	0.00	0.00
P-15	J-11	OP-2	88	2.0	PVC	120.0	1	2.080	0.11	0.01
P-16	J-12	BLDG-A	100	1.0	PVC	120.0	0	2.080	0.12	0.02
P-17 (1)	J-2	J-37	203	8.0	PVC	120.0	0	2.760	0.00	0.00
P-17 (2)	J-37	H-4	20	6.0	PVC	120.0	0	4.010	0.00	0.00
P-18	J-3	J-13	48	8.0	PVC	120.0	2	0.690	0.01	0.00
P-19	J-13	J-14	14	2.0	PVC	120.0	2	0.800	0.21	0.00
P-20	J-14	RTL-B	11	1.0	PVC	120.0	1	1.300	0.28	0.01
P-21	J-14	RTL-A	63	2.0	PVC	120.0	1	1.800	0.13	0.01
P-22	J-13	H-5	33	6.0	PVC	120.0	0	1.390	0.00	0.00
P-23	J-4	RTL-C	35	2.0	PVC	120.0	1	1.800	0.14	0.00
P-26	J-6	H-3	16	6.0	PVC	120.0	0	2.470	0.00	0.00
P-27	J-7	J-15	409	8.0	PVC	120.0	0	1.990	0.00	0.00
P-28	J-15	B-FUTUR E	26	1.0	PVC	120.0	0	3.270	0.13	0.01
P-29	J-15	H-6	34	6.0	PVC	120.0	0	4.340	0.00	0.00
P-30	J-8	OP-1	96	2.0	PVC	120.0	1	2.080	0.15	0.01
P-31	J-9	H-2	21	6.0	PVC	120.0	0	2.470	0.00	0.00



## Winter Springs Marketplace WaterCAD Tables

### ADF

#### Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
B-FUTURE	47.00	0	170.30	53
BLDG-A	47.00	0	170.29	53
J-1	43.00	0	170.30	55
J-2	43.00	0	170.30	55
J-3	43.00	0	170.30	55
J-4	43.00	0	170.30	55
J-6	43.00	0	170.30	55
J-7	43.00	0	170.30	55
J-8	43.00	0	170.30	55
J-9	43.00	0	170.30	55
J-10	43.00	0	170.30	55
J-11	43.00	0	170.30	55
J-12	43.00	0	170.30	55
J-13	43.00	0	170.30	55
J-14	43.00	0	170.30	55
J-15	43.00	0	170.30	55
J-37	43.00	0	170.30	55
OP-1	47.00	1	170.29	53
OP-2	47.00	1	170.30	53
RTL-A	47.35	1	170.30	53
RTL-B	47.35	1	170.29	53
RTL-C	47.00	1	170.30	53

# Winter Springs Marketplace WaterCAD Tables

## ADF

### Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	175.67	6	175.67

## Winter Springs Marketplace WaterCAD Tables

### ADF

#### GPV Table - Time: 0.00 hours

Label	Elevation (ft)	Diameter (Valve) (in)	General Purpose Valve Headloss Curve	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
DCVA-1	44.00	10.0	AMES 10" DCVA	6	175.67	170.90	4.77
FLMM-1	44.00	10.0	Sensus 10" Fire Meter	6	170.90	170.30	0.60

# **BUILD-OUT PEAK HOURLY FLOW (PHF) ANALYSIS**

## Winter Springs Marketplace WaterCAD Tables

### PHF

#### Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Minor Loss Coefficient (Unified)	Velocity (ft/s)	Headloss (ft)
P-1	R-1	DCVA-1	16	12.0	PVC	120.0	26	0.050	0.07	0.00
P-1(2)	DCVA-1	FLMM-1	13	12.0	PVC	120.0	26	0.080	0.07	0.00
P-2	FLMM-1	J-1	210	12.0	PVC	120.0	26	1.320	0.07	0.00
P-3	J-1	J-2	209	10.0	PVC	120.0	9	0.740	0.03	0.00
P-4	J-2	J-3	200	8.0	PVC	120.0	9	0.740	0.05	0.00
P-5	J-4	J-3	124	8.0	PVC	120.0	-1	0.350	0.00	0.00
P-7	J-6	J-4	279	8.0	PVC	120.0	5	0.750	0.03	0.00
P-8	J-7	J-6	226	8.0	PVC	120.0	5	1.540	0.03	0.00
P-9	J-7	J-8	50	10.0	PVC	120.0	-6	0.890	0.02	0.00
P-10	J-8	J-9	48	10.0	PVC	120.0	-12	0.350	0.05	0.00
P-11	J-9	J-1	63	10.0	PVC	120.0	-12	1.490	0.05	0.00
P-12	J-1	J-10	75	8.0	PVC	120.0	6	0.740	0.04	0.00
P-13	J-10	J-11	42	8.0	PVC	120.0	6	0.350	0.04	0.00
P-14	J-10	H-1	21	6.0	PVC	120.0	0	2.470	0.00	0.00
P-14	J-11	J-12	36	8.0	PVC	120.0	1	0.350	0.01	0.00
P-15	J-11	OP-2	88	2.0	PVC	120.0	4	2.080	0.44	0.07
P-16	J-12	BLDG-A	100	1.0	PVC	120.0	1	2.080	0.49	0.21
P-17 (1)	J-2	J-37	203	8.0	PVC	120.0	0	2.760	0.00	0.00
P-17 (2)	J-37	H-4	20	6.0	PVC	120.0	0	4.010	0.00	0.00
P-18	J-3	J-13	48	8.0	PVC	120.0	8	0.690	0.05	0.00
P-19	J-13	J-14	14	2.0	PVC	120.0	8	0.800	0.82	0.04
P-20	J-14	RTL-B	11	1.0	PVC	120.0	3	1.300	1.14	0.13
P-21	J-14	RTL-A	63	2.0	PVC	120.0	5	1.800	0.54	0.08
P-22	J-13	H-5	33	6.0	PVC	120.0	0	1.390	0.00	0.00
P-23	J-4	RTL-C	35	2.0	PVC	120.0	5	1.800	0.55	0.05
P-26	J-6	H-3	16	6.0	PVC	120.0	0	2.470	0.00	0.00
P-27	J-7	J-15	409	8.0	PVC	120.0	1	1.990	0.01	0.00
P-28	J-15	B-FUTUR E	26	1.0	PVC	120.0	1	3.270	0.51	0.07
P-29	J-15	H-6	34	6.0	PVC	120.0	0	4.340	0.00	0.00
P-30	J-8	OP-1	96	2.0	PVC	120.0	6	2.080	0.58	0.13
P-31	J-9	H-2	21	6.0	PVC	120.0	0	2.470	0.00	0.00

## Winter Springs Marketplace WaterCAD Tables

### PHF

#### Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
B-FUTURE	47.00	1	167.99	52
BLDG-A	47.00	1	167.85	52
J-1	43.00	0	168.06	54
J-2	43.00	0	168.06	54
J-3	43.00	0	168.06	54
J-4	43.00	0	168.06	54
J-6	43.00	0	168.06	54
J-7	43.00	0	168.06	54
J-8	43.00	0	168.06	54
J-9	43.00	0	168.06	54
J-10	43.00	0	168.06	54
J-11	43.00	0	168.06	54
J-12	43.00	0	168.06	54
J-13	43.00	0	168.06	54
J-14	43.00	0	168.02	54
J-15	43.00	0	168.06	54
J-37	43.00	0	168.06	54
OP-1	47.00	6	167.93	52
OP-2	47.00	4	167.99	52
RTL-A	47.35	5	167.94	52
RTL-B	47.35	3	167.89	52
RTL-C	47.00	5	168.02	52

# Winter Springs Marketplace WaterCAD Tables

## PHF

### Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	175.67	26	175.67

## Winter Springs Marketplace WaterCAD Tables

### PHF

#### GPV Table - Time: 0.00 hours

Label	Elevation (ft)	Diameter (Valve) (in)	General Purpose Valve Headloss Curve	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
DCVA-1	44.00	10.0	AMES 10" DCVA	26	175.67	170.45	5.22
FLMM-1	44.00	10.0	Sensus 10" Fire Meter	26	170.45	168.07	2.39



**NEEDED FIRE FLOW (NFF) ANALYSIS  
MDF+FF (H1+H2)**

## Winter Springs Marketplace WaterCAD Tables

### MDF+H1+H2

#### Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Minor Loss Coefficient (Unified)	Velocity (ft/s)	Headloss (ft)
P-1	R-1	DCVA-1	16	12.0	PVC	120.0	2,013	0.050	5.71	0.20
P-1(2)	DCVA-1	FLMM-1	13	12.0	PVC	120.0	2,013	0.080	5.71	0.18
P-2	FLMM-1	J-1	210	12.0	PVC	120.0	2,013	1.320	5.71	2.93
P-3	J-1	J-2	209	10.0	PVC	120.0	151	0.740	0.62	0.05
P-4	J-2	J-3	200	8.0	PVC	120.0	151	0.740	0.97	0.14
P-5	J-4	J-3	124	8.0	PVC	120.0	-147	0.350	0.94	0.08
P-7	J-6	J-4	279	8.0	PVC	120.0	-145	0.750	0.92	0.17
P-8	J-7	J-6	226	8.0	PVC	120.0	-145	1.540	0.92	0.15
P-9	J-7	J-8	50	10.0	PVC	120.0	144	0.890	0.59	0.01
P-10	J-8	J-9	48	10.0	PVC	120.0	141	0.350	0.58	0.01
P-11	J-9	J-1	63	10.0	PVC	120.0	-859	1.490	3.51	0.62
P-12	J-1	J-10	75	8.0	PVC	120.0	1,003	0.740	6.40	2.06
P-13	J-10	J-11	42	8.0	PVC	120.0	3	0.350	0.02	0.00
P-14	J-10	H-1	21	6.0	PVC	120.0	1,000	2.470	11.35	6.77
P-14	J-11	J-12	36	8.0	PVC	120.0	1	0.350	0.00	0.00
P-15	J-11	OP-2	88	2.0	PVC	120.0	2	2.080	0.22	0.02
P-16	J-12	BLDG-A	100	1.0	PVC	120.0	1	2.080	0.24	0.06
P-17 (1)	J-2	J-37	203	8.0	PVC	120.0	0	2.760	0.00	0.00
P-17 (2)	J-37	H-4	20	6.0	PVC	120.0	0	4.010	0.00	0.00
P-18	J-3	J-13	48	8.0	PVC	120.0	4	0.690	0.03	0.00
P-19	J-13	J-14	14	2.0	PVC	120.0	4	0.800	0.41	0.01
P-20	J-14	RTL-B	11	1.0	PVC	120.0	1	1.300	0.57	0.04
P-21	J-14	RTL-A	63	2.0	PVC	120.0	3	1.800	0.27	0.02
P-22	J-13	H-5	33	6.0	PVC	120.0	0	1.390	0.00	0.00
P-23	J-4	RTL-C	35	2.0	PVC	120.0	3	1.800	0.27	0.01
P-26	J-6	H-3	16	6.0	PVC	120.0	0	2.470	0.00	0.00
P-27	J-7	J-15	409	8.0	PVC	120.0	1	1.990	0.00	0.00
P-28	J-15	B-FUTUR E	26	1.0	PVC	120.0	1	3.270	0.26	0.02
P-29	J-15	H-6	34	6.0	PVC	120.0	0	4.340	0.00	0.00
P-30	J-8	OP-1	96	2.0	PVC	120.0	3	2.080	0.29	0.04
P-31	J-9	H-2	21	6.0	PVC	120.0	1,000	2.470	11.35	6.73

## Winter Springs Marketplace WaterCAD Tables

### MDF+H1+H2

#### Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
B-FUTURE	47.00	1	154.80	47
BLDG-A	47.00	1	153.29	46
J-1	43.00	0	155.41	49
J-2	43.00	0	155.36	49
J-3	43.00	0	155.22	49
J-4	43.00	0	155.14	49
J-6	43.00	0	154.97	48
J-7	43.00	0	154.82	48
J-8	43.00	0	154.80	48
J-9	43.00	0	154.79	48
J-10	43.00	0	153.35	48
J-11	43.00	0	153.35	48
J-12	43.00	0	153.35	48
J-13	43.00	0	155.22	49
J-14	43.00	0	155.21	49
J-15	43.00	0	154.82	48
J-37	43.00	0	155.36	49
OP-1	47.00	3	154.76	47
OP-2	47.00	2	153.33	46
RTL-A	47.35	3	155.19	47
RTL-B	47.35	1	155.18	47
RTL-C	47.00	3	155.13	47

**Winter Springs Marketplace WaterCAD Tables**  
**MDF+H1+H2**

**Reservoir Table - Time: 0.00 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	175.67	2,013	175.67

## Winter Springs Marketplace WaterCAD Tables

### MDF+H1+H2

#### GPV Table - Time: 0.00 hours

Label	Elevation (ft)	Diameter (Valve) (in)	General Purpose Valve Headloss Curve	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
DCVA-1	44.00	10.0	AMES 10" DCVA	2,013	175.47	164.72	10.75
FLMM-1	44.00	10.0	Sensus 10" Fire Meter	2,013	164.54	158.34	6.20

## Winter Springs Marketplace WaterCAD Tables

### MDF+H1+H2

#### Hydrant Table - Time: 0.00 hours

Label	Length (Hydrant Lateral) (ft)	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	20	45.00	1,000	146.59	44
H-2	20	45.00	1,000	148.06	45
H-3	20	45.00	0	154.97	48
H-4	20	45.00	0	155.36	48
H-5	20	45.00	0	155.22	48
H-6	20	45.00	0	154.82	48

**NEEDED FIRE FLOW (NFF) ANALYSIS  
MDF+FF (H4+H5)**

## Winter Springs Marketplace WaterCAD Tables

### MDF+H4+H5

#### Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Minor Loss Coefficient (Unified)	Velocity (ft/s)	Headloss (ft)
P-1	R-1	DCVA-1	16	12.0	PVC	120.0	2,013	0.050	5.71	0.20
P-1(2)	DCVA-1	FLMM-1	13	12.0	PVC	120.0	2,013	0.080	5.71	0.18
P-2	FLMM-1	J-1	210	12.0	PVC	120.0	2,013	1.320	5.71	2.93
P-3	J-1	J-2	209	10.0	PVC	120.0	1,494	0.740	6.10	3.57
P-4	J-2	J-3	200	8.0	PVC	120.0	494	0.740	3.15	1.26
P-5	J-4	J-3	124	8.0	PVC	120.0	510	0.350	3.26	0.81
P-7	J-6	J-4	279	8.0	PVC	120.0	513	0.750	3.27	1.84
P-8	J-7	J-6	226	8.0	PVC	120.0	513	1.540	3.27	1.65
P-9	J-7	J-8	50	10.0	PVC	120.0	-514	0.890	2.10	0.17
P-10	J-8	J-9	48	10.0	PVC	120.0	-517	0.350	2.11	0.13
P-11	J-9	J-1	63	10.0	PVC	120.0	-517	1.490	2.11	0.24
P-12	J-1	J-10	75	8.0	PVC	120.0	3	0.740	0.02	0.00
P-13	J-10	J-11	42	8.0	PVC	120.0	3	0.350	0.02	0.00
P-14	J-10	H-1	21	6.0	PVC	120.0	0	2.470	0.00	0.00
P-14	J-11	J-12	36	8.0	PVC	120.0	1	0.350	0.00	0.00
P-15	J-11	OP-2	88	2.0	PVC	120.0	2	2.080	0.22	0.02
P-16	J-12	BLDG-A	100	1.0	PVC	120.0	1	2.080	0.24	0.06
P-17 (1)	J-2	J-37	203	8.0	PVC	120.0	1,000	2.760	6.38	6.05
P-17 (2)	J-37	H-4	20	6.0	PVC	120.0	1,000	4.010	11.35	9.76
P-18	J-3	J-13	48	8.0	PVC	120.0	1,004	0.690	6.41	1.47
P-19	J-13	J-14	14	2.0	PVC	120.0	4	0.800	0.41	0.01
P-20	J-14	RTL-B	11	1.0	PVC	120.0	1	1.300	0.57	0.04
P-21	J-14	RTL-A	63	2.0	PVC	120.0	3	1.800	0.27	0.02
P-22	J-13	H-5	33	6.0	PVC	120.0	1,000	1.390	11.35	5.60
P-23	J-4	RTL-C	35	2.0	PVC	120.0	3	1.800	0.27	0.01
P-26	J-6	H-3	16	6.0	PVC	120.0	0	2.470	0.00	0.00
P-27	J-7	J-15	409	8.0	PVC	120.0	1	1.990	0.00	0.00
P-28	J-15	B-FUTUR E	26	1.0	PVC	120.0	1	3.270	0.26	0.02
P-29	J-15	H-6	34	6.0	PVC	120.0	0	4.340	0.00	0.00
P-30	J-8	OP-1	96	2.0	PVC	120.0	3	2.080	0.29	0.04
P-31	J-9	H-2	21	6.0	PVC	120.0	0	2.470	0.00	0.00



## Winter Springs Marketplace WaterCAD Tables

### MDF+H4+H5

#### Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
B-FUTURE	47.00	1	154.87	47
BLDG-A	47.00	1	155.36	47
J-1	43.00	0	155.41	49
J-2	43.00	0	151.85	47
J-3	43.00	0	150.59	47
J-4	43.00	0	151.40	47
J-6	43.00	0	153.24	48
J-7	43.00	0	154.89	48
J-8	43.00	0	155.05	48
J-9	43.00	0	155.18	49
J-10	43.00	0	155.41	49
J-11	43.00	0	155.41	49
J-12	43.00	0	155.41	49
J-13	43.00	0	149.11	46
J-14	43.00	0	149.10	46
J-15	43.00	0	154.89	48
J-37	43.00	0	145.80	44
OP-1	47.00	3	155.02	47
OP-2	47.00	2	155.39	47
RTL-A	47.35	3	149.08	44
RTL-B	47.35	1	149.07	44
RTL-C	47.00	3	151.39	45

**Winter Springs Marketplace WaterCAD Tables**  
**MDF+H4+H5**

**Reservoir Table - Time: 0.00 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	175.67	2,013	175.67

## Winter Springs Marketplace WaterCAD Tables

### MDF+H4+H5

#### GPV Table - Time: 0.00 hours

Label	Elevation (ft)	Diameter (Valve) (in)	General Purpose Valve Headloss Curve	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
DCVA-1	44.00	10.0	AMES 10" DCVA	2,013	175.47	164.72	10.75
FLMM-1	44.00	10.0	Sensus 10" Fire Meter	2,013	164.54	158.34	6.20

## Winter Springs Marketplace WaterCAD Tables

### MDF+H4+H5

#### Hydrant Table - Time: 0.00 hours

Label	Length (Hydrant Lateral) (ft)	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	20	45.00	0	155.41	48
H-2	20	45.00	0	155.18	48
H-3	20	45.00	0	153.24	47
H-4	20	45.00	1,000	136.04	39
H-5	20	45.00	1,000	143.52	43
H-6	20	45.00	0	154.89	48

**NEEDED FIRE FLOW (NFF) ANALYSIS  
MDF+FF (H3+H6)**

## Winter Springs Marketplace WaterCAD Tables

### MDF+H3+H6

#### Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Minor Loss Coefficient (Unified)	Velocity (ft/s)	Headloss (ft)
P-1	R-1	DCVA-1	16	12.0	PVC	120.0	2,013	0.050	5.71	0.20
P-1(2)	DCVA-1	FLMM-1	13	12.0	PVC	120.0	2,013	0.080	5.71	0.18
P-2	FLMM-1	J-1	210	12.0	PVC	120.0	2,013	1.320	5.71	2.93
P-3	J-1	J-2	209	10.0	PVC	120.0	553	0.740	2.26	0.56
P-4	J-2	J-3	200	8.0	PVC	120.0	553	0.740	3.53	1.56
P-5	J-4	J-3	124	8.0	PVC	120.0	-549	0.350	3.51	0.93
P-7	J-6	J-4	279	8.0	PVC	120.0	-547	0.750	3.49	2.07
P-8	J-7	J-6	226	8.0	PVC	120.0	453	1.540	2.89	1.31
P-9	J-7	J-8	50	10.0	PVC	120.0	-1,454	0.890	5.94	1.21
P-10	J-8	J-9	48	10.0	PVC	120.0	-1,457	0.350	5.95	0.88
P-11	J-9	J-1	63	10.0	PVC	120.0	-1,457	1.490	5.95	1.72
P-12	J-1	J-10	75	8.0	PVC	120.0	3	0.740	0.02	0.00
P-13	J-10	J-11	42	8.0	PVC	120.0	3	0.350	0.02	0.00
P-14	J-10	H-1	21	6.0	PVC	120.0	0	2.470	0.00	0.00
P-14	J-11	J-12	36	8.0	PVC	120.0	1	0.350	0.00	0.00
P-15	J-11	OP-2	88	2.0	PVC	120.0	2	2.080	0.22	0.02
P-16	J-12	BLDG-A	100	1.0	PVC	120.0	1	2.080	0.24	0.06
P-17 (1)	J-2	J-37	203	8.0	PVC	120.0	0	2.760	0.00	0.00
P-17 (2)	J-37	H-4	20	6.0	PVC	120.0	0	4.010	0.00	0.00
P-18	J-3	J-13	48	8.0	PVC	120.0	4	0.690	0.03	0.00
P-19	J-13	J-14	14	2.0	PVC	120.0	4	0.800	0.41	0.01
P-20	J-14	RTL-B	11	1.0	PVC	120.0	1	1.300	0.57	0.04
P-21	J-14	RTL-A	63	2.0	PVC	120.0	3	1.800	0.27	0.02
P-22	J-13	H-5	33	6.0	PVC	120.0	0	1.390	0.00	0.00
P-23	J-4	RTL-C	35	2.0	PVC	120.0	3	1.800	0.27	0.01
P-26	J-6	H-3	16	6.0	PVC	120.0	1,000	2.470	11.35	6.34
P-27	J-7	J-15	409	8.0	PVC	120.0	1,001	1.990	6.39	9.93
P-28	J-15	B-FUTUR E	26	1.0	PVC	120.0	1	3.270	0.26	0.02
P-29	J-15	H-6	34	6.0	PVC	120.0	1,000	4.340	11.35	11.61
P-30	J-8	OP-1	96	2.0	PVC	120.0	3	2.080	0.29	0.04
P-31	J-9	H-2	21	6.0	PVC	120.0	0	2.470	0.00	0.00

## Winter Springs Marketplace WaterCAD Tables

### MDF+H3+H6

#### Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
B-FUTURE	47.00	1	141.65	41
BLDG-A	47.00	1	155.36	47
J-1	43.00	0	155.41	49
J-2	43.00	0	154.85	48
J-3	43.00	0	153.30	48
J-4	43.00	0	152.37	47
J-6	43.00	0	150.30	46
J-7	43.00	0	151.60	47
J-8	43.00	0	152.81	48
J-9	43.00	0	153.69	48
J-10	43.00	0	155.41	49
J-11	43.00	0	155.41	49
J-12	43.00	0	155.41	49
J-13	43.00	0	153.30	48
J-14	43.00	0	153.29	48
J-15	43.00	0	141.67	43
J-37	43.00	0	154.85	48
OP-1	47.00	3	152.77	46
OP-2	47.00	2	155.39	47
RTL-A	47.35	3	153.27	46
RTL-B	47.35	1	153.25	46
RTL-C	47.00	3	152.35	46

**Winter Springs Marketplace WaterCAD Tables**  
**MDF+H3+H6**

**Reservoir Table - Time: 0.00 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	175.67	2,013	175.67



## Winter Springs Marketplace WaterCAD Tables

### MDF+H3+H6

#### GPV Table - Time: 0.00 hours

Label	Elevation (ft)	Diameter (Valve) (in)	General Purpose Valve Headloss Curve	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
DCVA-1	44.00	10.0	AMES 10" DCVA	2,013	175.47	164.72	10.75
FLMM-1	44.00	10.0	Sensus 10" Fire Meter	2,013	164.54	158.34	6.20

## Winter Springs Marketplace WaterCAD Tables

### MDF+H3+H6

#### Hydrant Table - Time: 0.00 hours

Label	Length (Hydrant Lateral) (ft)	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	20	45.00	0	155.41	48
H-2	20	45.00	0	153.69	47
H-3	20	45.00	1,000	143.96	43
H-4	20	45.00	0	154.85	48
H-5	20	45.00	0	153.30	47
H-6	20	45.00	1,000	130.06	37

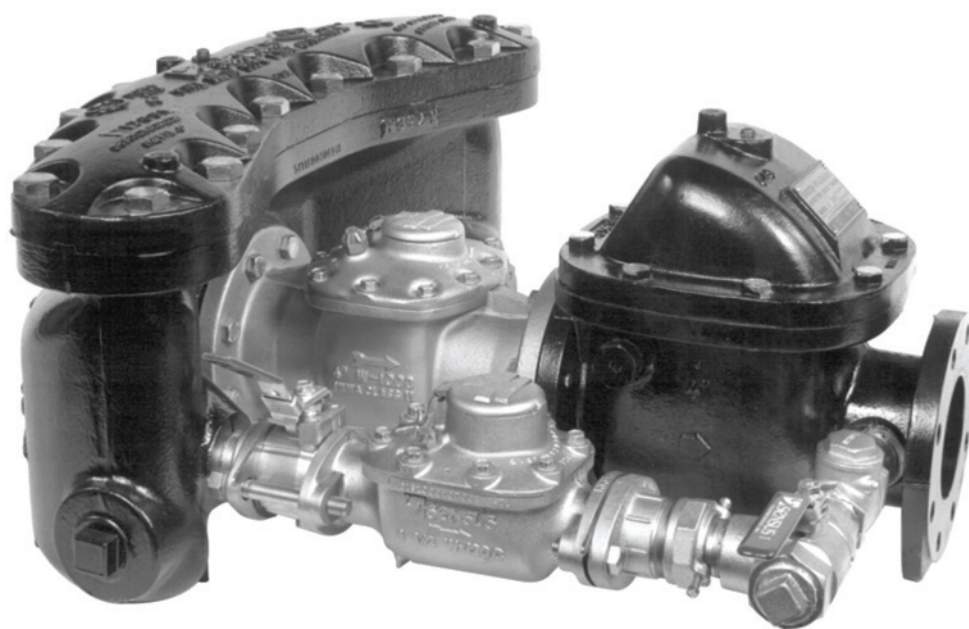
## **2.6 METER SPECIFICATIONS**

# Compact FireLine

4, 6, 8, 10-Inch Fire Service Assemblies

(Compact Fire Service) Bronze Magnetic Drive Size 10" (DN 250mm)

**FIRELINE**®



## FireLine® Fire Service Meter Assemblies

### Sizes:

4" (DN 100mm) x 1-1/2" (DN 40mm)

6" (DN 150mm) x 2" (DN 50mm)

8" (DN 200mm) x 2" (DN 50mm)

10" (DN 250mm) x 2" (DN 50mm)

# COMPACT FIRELINE® FIRE SERVICE WATER METER ASSEMBLIES

Compact Sensus FireLine® Meter Assemblies save time and reduce installation costs by eliminating the need for a secondary service line in industrial, multi-residential and commercial applications. They can also be used in various manufacturing or processing applications where frequent high-capacity water flows are encountered.

FireLine Meter Assemblies with 1-1/2" and 2" Turbo Meters on the by-pass are UL Listed and FM approved. All Compact FireLine Meter Assemblies comply with ANSI/AWWA Standard C703 (most recent revision) and are individually performance tested to insure compliance.

Each Compact FireLine assembly includes a 4", 6", 8" or 10" size Sensus "W" Series Turbo Meter and strainer to measure high volume water flows, and a 1-1/2" or 2" Sensus "W" Series Turbo Meter to measure water flows within normal usage ranges. Whenever instantaneous high volume flow is required, such as when a building's automatic fire sprinkler or deluge system is activated, the Compact FireLine Meter Assembly automatically switches to its higher volume flow path. The high volume flows are measured by both meters as the water passes through the assembly.

Compact FireLine Meter Assemblies include all valves, meters, strainers and by-pass piping required. Each assembly is shipped completely assembled, ready to install.

Compact FireLine Fire Service Meter Assemblies are designed to be an exact replacement fit for inefficient or worn fire service meters having a short laying length.

Their specially designed fire service strainers help eliminate the need for digging extra deep pits or enlarging existing vaults for replacement applications. Compact FireLine Meter Assemblies can be ordered with optional electronic communication (ECR) registers for above-ground on-site or remote meter reading.

## 1. High Capacity Turbo Meter

Compact FireLine Meter Assemblies include a 4", 6", 8" or 10" "W" Series bronze Turbo Meter, proven in years of dependable service. Each is accuracy and pressure tested at the factory eliminating the need for adjustments in the field.

"W" Series Turbo Meters consist of two basic components; the maincase and a removable measuring chamber. Straightening vanes in the maincase minimize water "swirl" upstream of the meter, helping direct the flow evenly to the rotor.

"W" Series Turbo Meters feature a patented right angle magnetic drive. The only moving part exposed to water is the rotor assembly.

## 2. Compact Strainer

The patented compact V-shaped strainer screen is made of stainless steel and is designed to prevent debris or objects from damaging the meter's rotor or clogging the assembly. The compact strainer's narrow design body and lid are made of ductile iron. The removable lid provides easy access to the screen for routine inspection and maintenance.

## 3. Detector Check Valve

A gravity induced bronze clapper in the detector check valve directs any normal flow in the system through the smaller "regular strainservice" Turbo Meter and bypass. When full flow capacity is required, the clapper opens fully allowing unobstructed water flow.

## 4. Series "W" Turbo Meter On By-Pass

Each 4", 6", 8" and 10" Compact FireLine Meter Assembly includes either Model W-120 1/2" or Model W-160 2" Turbo Meter on the bypass to provide an operating range of from 4 to 160 gallons a minute (0.9 to 36. m³/h). Accuracy registration of the 2" or 1-1/2" Turbo Meter is 100% ±1.5% of actual throughput.

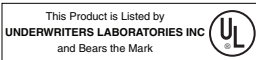
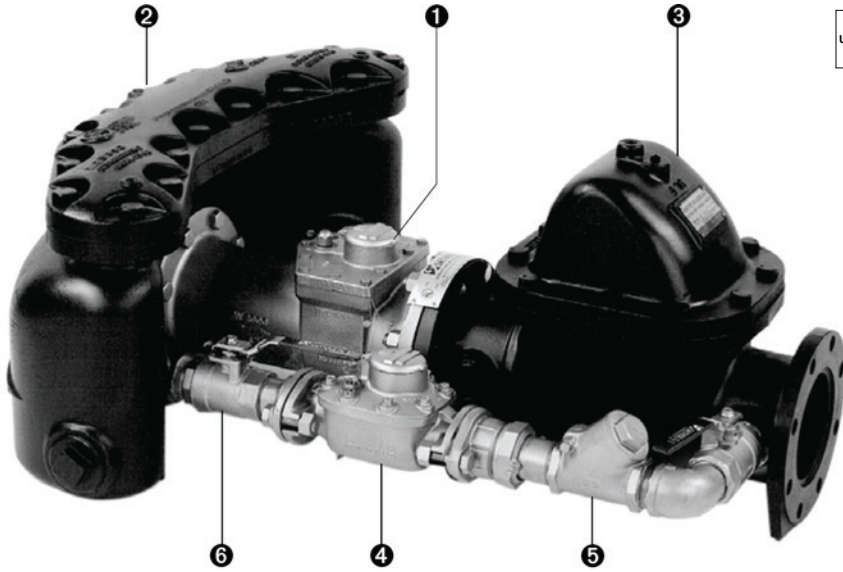
These meters feature a patented right angle magnetic drive which eliminates conventional worm or miter gears normally required for horizontally mounted rotors or turbine measuring elements. Each meter is factory tested to ensure years of trouble free service.

## 5. Check Valves

The valve is used to check or impede backflow in the line. Line pressure forces an internal disc to open, allowing water flow in the direction desired. When pressure drops, gravity and line backpressure close the disc, impeding backflow.

## 6. Ball Valves

Each Compact FireLine Meter Assembly includes two lockable ball valves; one upstream and one downstream of the normal service meter. Optional bronze gate valves are also available.



## SPECIFICATIONS, MATERIALS AND DIMENSIONS

All Turbo Meters used in FireLine Meter Assemblies utilize hermetically sealed, direct read registers which are available in readouts of gallons, cubic feet, or metric units, as specified.

### LIST OF MATERIALS – 4"

No.	Name	Quantity	Material
1	Sensus 4" Turbo Meter	1	Bronze
2	Compact Strainer	1	Ductile Iron
3	Sensus Detector Check Valve	1	Cast Iron
4	Sensus 1-1/2" Turbo Meter	1	Bronze
5	Check Valve	1	Bronze
6	Ball Valve — Locking <sup>1</sup>	2	Bronze
7	Upstream Bolts Supplied as Standard Equipment	8	Type 316 Stainless Steel
	4" Smith-Blair Flanged Coupling Adapter (Optional-Not Shown) <sup>2</sup>	1	Cast Iron

### DIMENSIONS – 4"

A	Laying Length	33.00"
B	Overall Height	16.25"
C	Center Line to Meter Base	4.50"
D	Center Line to Strainer Base	4.50"
E	Overall Width	35.00"
F	Center Line to Center Line	11.75"
G	Center Line to By-Pass Extreme Flanged Coupling Adapter Length	14.25"
	By-Pass Size (nom.)	1.50"
	Weight (Lbs)	480

### FLOW RANGES AND ACCURACY LIMITS – 4"

4" Continuous Flows:	4 to 1000 GPM
Intermittent Flows:	1250 GPM
Low Flows:	3 GPM
Accuracy <sup>3</sup> :	±1.5% of Actual Throughput—95% at Low Flow

### LIST OF MATERIALS – 6"

No.	Name	Quantity	Material
1	Sensus 6" Turbo Meter	1	Bronze
2	Compact Strainer	1	Ductile Iron
3	Sensus Detector Check Valve	1	Cast Iron
4	Sensus 2" Turbo Meter	1	Bronze
5	Check Valve	1	Bronze
6	Ball Valve — Locking <sup>1</sup>	2	Bronze
7	Upstream Bolts Supplied as Standard Equipment	8	Type 316 Stainless Steel
	6" Smith-Blair Special 913 Flanged Coupling Adapter (Optional-Not Shown) <sup>2</sup>	1	Fabricated Steel

### DIMENSIONS – 6"

A	Laying Length	45.00"
B	Overall Height	20.75"
C	Center Line to Meter Base	5.75"
D	Center Line to Strainer Base	5.75"
E	Overall Width	40.44"
F	Center Line to Center Line	11.34"
G	Center Line to By-Pass Extreme Flanged Coupling Adapter Length	14.25"
	By-Pass Size (nom.)	5.00"
	Weight (Lbs)	950

### FLOW RANGES AND ACCURACY LIMITS – 6"

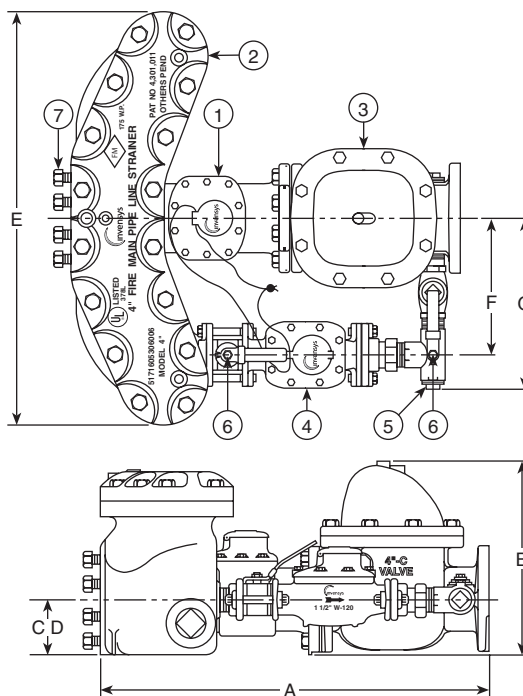
6" Continuous Flows:	4 to 2000 GPM
Intermittent Flows:	2500 GPM
Low Flows:	3 GPM
Accuracy <sup>3</sup> :	±1.5% of Actual Throughput—95% at Low Flow

<sup>1</sup> Bronze gate valve optional

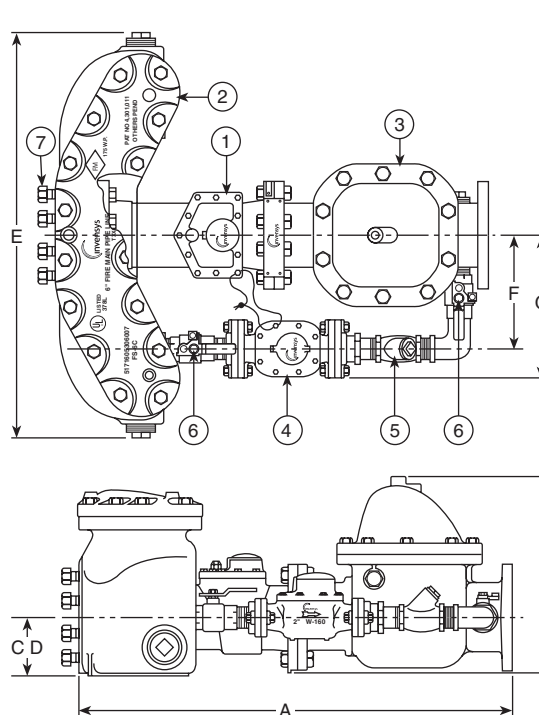
<sup>2</sup> Pipeline OD required

<sup>3</sup> Except at crossover

Electronic and remote reading registers are available. Consult your Sales Representative for more details.



4"



6"

## SPECIFICATIONS, MATERIALS AND DIMENSIONS

All Turbo Meters used in FireLine Meter Assemblies utilize hermetically sealed, direct read registers which are available in readouts of gallons, cubic feet, or metric units, as specified.

### LIST OF MATERIALS – 8"

No.	Name	Quantity	Material
1	Sensus 8" Turbo Meter	1	Bronze
2	Compact Strainer	1	Ductile Iron
3	Sensus Detector Check Valve	1	Cast Iron
4	Sensus 2" Turbo Meter	1	Bronze
5	Check Valve	1	Bronze
6	Ball Valve — Locking <sup>1</sup>	2	Bronze
7	Upstream Bolts Supplied as Standard Equipment	8	Type 316 Stainless Steel
8	8" Smith-Blair Special 913 Flanged Coupling Adapter (Optional-Not Shown) <sup>2</sup>	1	Fabricated Steel

### DIMENSIONS – 8"

A	Laying Length	53.00"
B	Overall Height	24.00"
C	Center Line to Meter Base	6.75"
D	Center Line to Strainer Base	6.75"
E	Overall Width	45.50"
F	Center Line to Center Line	13.65"
G	Center Line to By-Pass Extreme	17.00"
	Flanged Coupling Adapter Length	5.13"
	By-Pass Size (nom.)	2.00"
	Weight (Lbs)	1175

### FLOW RANGES AND ACCURACY LIMITS – 8"

8"	Continuous Flows: 4 to 3500 GPM
	Intermittent Flows: 4400 GPM
	Low Flows: 3 GPM
	Accuracy <sup>3</sup> : ±1.5% of Actual Throughput–95% at Low Flow

### LIST OF MATERIALS – 10"

No.	Name	Quantity	Material
1	Sensus 10" Turbo Meter	1	Bronze
2	Compact Strainer	1	Ductile Iron
3	Sensus Detector Check Valve	1	Cast Iron
4	Sensus 2" Turbo Meter	1	Bronze
5	Check Valve	1	Bronze
6	Ball Valve — Locking <sup>1</sup>	2	Bronze
7	Upstream Bolts Supplied as Standard Equipment	8	Type 316 Stainless Steel
10"	10" Smith-Blair Special 913 Flanged Coupling Adapter (Optional-Not Shown) <sup>2</sup>	1	Fabricated Steel

### DIMENSIONS – 10"

A	Laying Length	68.00"
B	Overall Height	28.13"
C	Center Line to Meter Base	8.50"
D	Center Line to Strainer Base	8.50"
E	Overall Width	50.00"
F	Center Line to Center Line	16.18"
G	Center Line to By-Pass Extreme	18.74"
	Flanged Coupling Adapter Length	5.56"
	By-Pass Size (nom.)	2.00"
	Weight (Lbs)	1840

### FLOW RANGES AND ACCURACY LIMITS – 10"

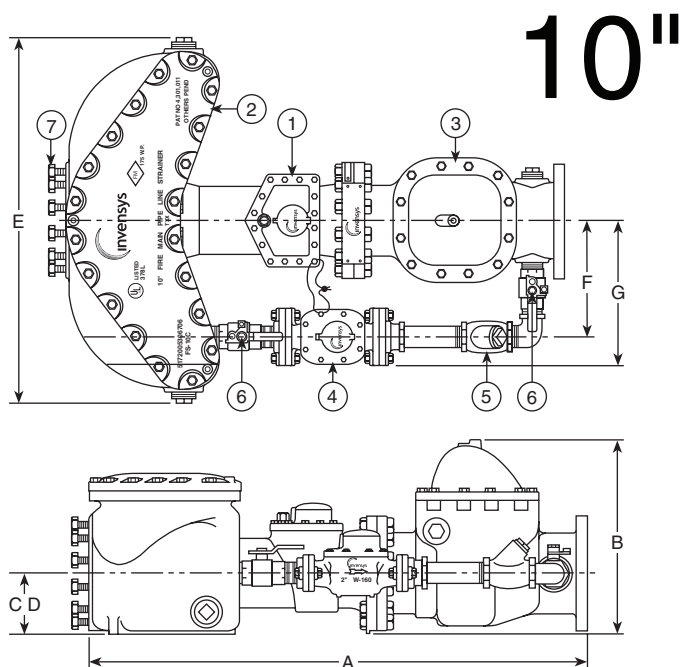
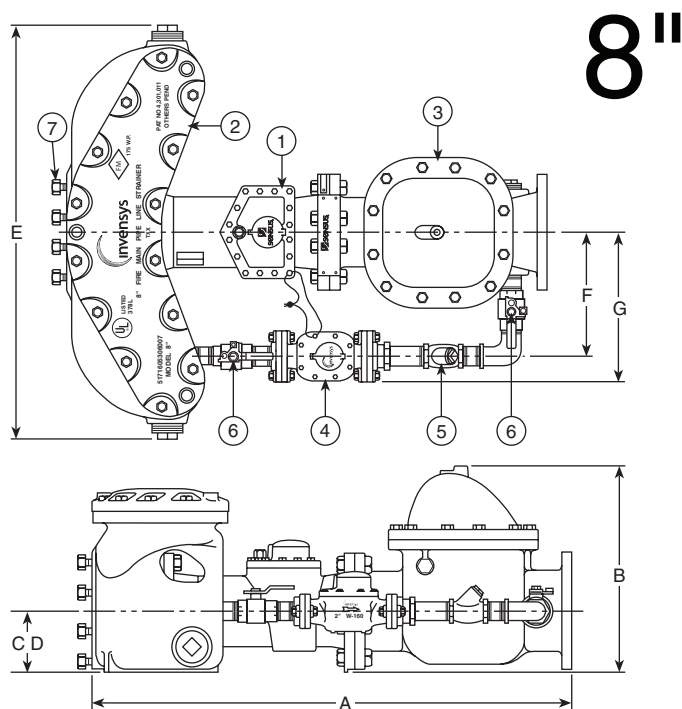
10"	Continuous Flows: 4 to 5500 GPM
	Intermittent Flows: 7000 GPM
	Low Flows: 3 GPM
	Accuracy <sup>3</sup> : ±1.5% of Actual Throughput–95% at Low Flow

<sup>1</sup> Bronze gate valve optional

<sup>2</sup> Pipeline OD required

<sup>3</sup> Except at crossover

Electronic and remote reading registers are available. Consult your Sales Representative for more details.

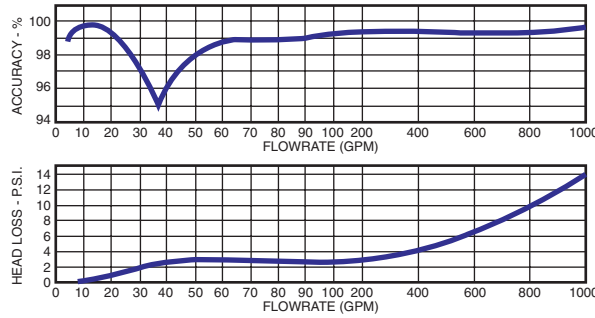


## FIRELINE® METER ASSEMBLIES – ACCURACY AND HEAD LOSS CURVES

# 4"

### Accuracy and Head Loss Curves

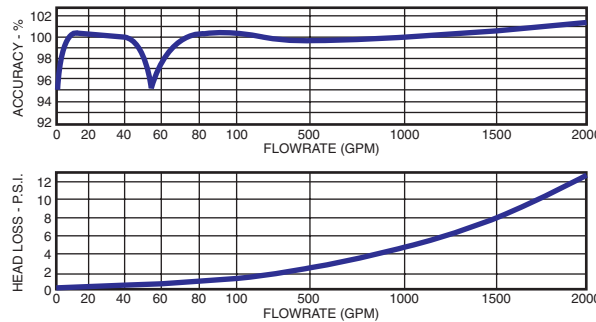
4" FireLine Assembly with 1-1/2" Bronze By-Pass and 1-1/2" W-120 Turbo Meter



# 6"

### Accuracy and Head Loss Curves

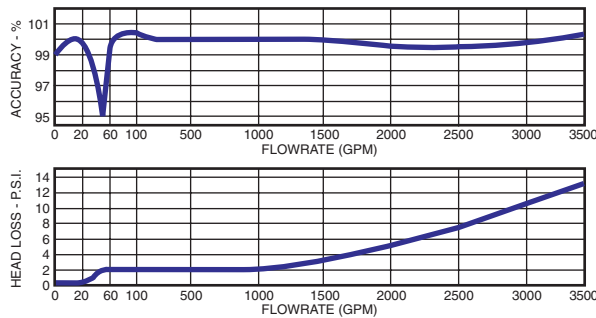
6" FireLine Assembly with 2" Bronze By-Pass and 2" W-160 Turbo Meter



# 8"

### Accuracy and Head Loss Curves

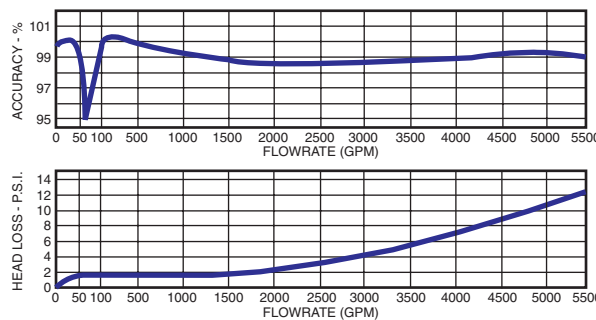
8" FireLine Assembly with 2" Bronze By-Pass and 2" W-160 Turbo Meter



# 10"

### Accuracy and Head Loss Curves

10" FireLine Assembly with 2" Bronze By-Pass and 2" W-160 Turbo Meter



## TOUCHREAD® SYSTEM

The fast, accurate, safe and efficient way to read underground vault-set water meters

TouchRead System registers and lid-mounted modules can be optionally added to your Sensus fire service or other underground meters to provide a faster, more efficient way to obtain readings from vault-set meters. The TouchRead System provides a realistic payback by eliminating many of the problems associated with reading underground meters—such as pumping out flooded vaults or sending two-person crews to comply with confined space safety regulations.



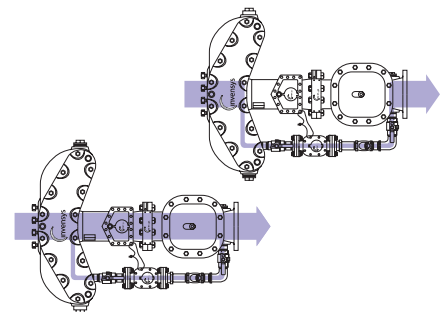
TouchRead equipped vault-set meters are read by touching the tip of a PitProbe reading gun to an electronic module mounted in the vault lid and depressing a button on the gun's handle. In about two seconds, each meter's reading data is electronically transferred to a hand held visual reader or Handheld device carried by the meter reader.

For more information, contact your Sensus representative or authorized distributor.

## DUAL RANGE ACCURACY FROM A SINGLE SERVICE LINE

FireLine Meter Assemblies provide a dual range water flow path. During normal flow range usage, the flow travels through only the smaller line and is accurately measured by the 1-1/2" W-120 or 2" W-160 Turbo Meter.

For sudden high capacity flow requirements — such as when a building's automatic fire sprinkler or deluge system is activated, the assembly's detector check valve responds to the demand and automatically opens the flow path to include the large line. At high flow, both meters will be measuring and supplying water. No outside electronic switching devices are required.







# Series 2000SS

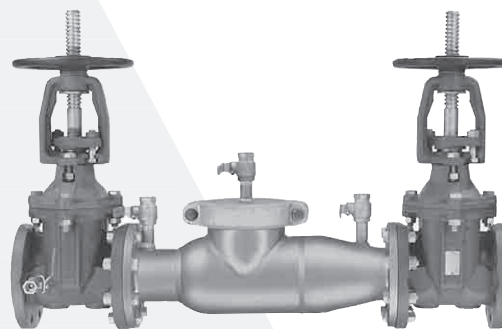
## Double Check Valve Assemblies

Sizes: 2½" – 12" (65 – 300mm)

**LEAD FREE\***

### Features

- Cam-Check Assembly provides low head loss
- Short lay length is ideally suited for retrofit installations
- Stainless Steel body is half the weight of competitive designs reducing installation and shipping cost
- Stainless steel construction provides long term corrosion protection and maximum strength
- Single top access cover with two-bolt grooved style coupling for ease of maintenance
- No special tools required for servicing
- Compact construction allows for smaller vaults and enclosures
- May be installed in horizontal or vertical "flow up" position



2000SS

Series 2000SS Double Check Valve Assemblies are designed to prevent the reverse flow of polluted water from entering into the potable water system. This series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. Features short end-to-end dimensions, lightweight stainless steel body, and low head loss.

### Specifications

A Double Check Valve Assembly shall be installed at each noted location to prevent the unwanted reversal of polluted water into the potable water supply. The main valve body shall be manufactured from 300 series stainless steel to provide corrosion resistance, 100% lead free through the waterway. The double check shall consist of two independently operated spring loaded cam-check valves, required test cocks, and optional inlet and outlet resilient seated shutoff valves. Each cam-check shall be internally loaded and provide a positive drip tight closure against the reverse flow of liquid caused by backsiphonage or backpressure. The modular cam-check includes a stainless steel spring and cam-arm, rubber faced disc and a replaceable seat. There shall be no brass or bronze parts used within the cam-check valve assembly. The valve cover shall be held in place through the use of a single grooved style two-bolt coupling. The main assembly shall consist of two independently operating torsion spring check assemblies, two resilient seated isolation valves, and four ball valve type test cocks. The assembly shall be an Ames Company Series 2000SS.

### Available Models

Suffix:

NRS – non-rising stem resilient seated gate valves

OSY – UL/FM outside stem and yoke resilient seated gate valves

\*\*OSY FxG – flanged inlet gate connection and grooved outlet gate connection

\*\*OSY GxF – grooved inlet gate connection and flanged outlet gate connection

\*\*OSY GxG – grooved inlet gate connection and grooved outlet gate connection

LG – less gates

Available with grooved NRS gate valves - consult factory\*\*

Post indicator plate and operating nut available – consult factory\*\*

\*\*Consult factory for dimensions

\*The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight.

### Materials

All internal metal parts: 300 Series stainless steel

Main valve body: 300 Series stainless steel

Check assembly: Noryl®

Flange dimension in accordance with AWWA Class D

Noryl® is a registered trademark of General Electric Company.

### Pressure — Temperature

Temperature Range: 33°F – 110°F (5°C – 43°C)

Maximum Working Pressure: 175psi (12.06 bar)

### Standards

AWWA C510-92, CSA B64.5

### Approvals



1015 (OSY ONLY) For 12" approvals consult factory

Job Name \_\_\_\_\_ Contractor \_\_\_\_\_

Job Location \_\_\_\_\_ Approval \_\_\_\_\_

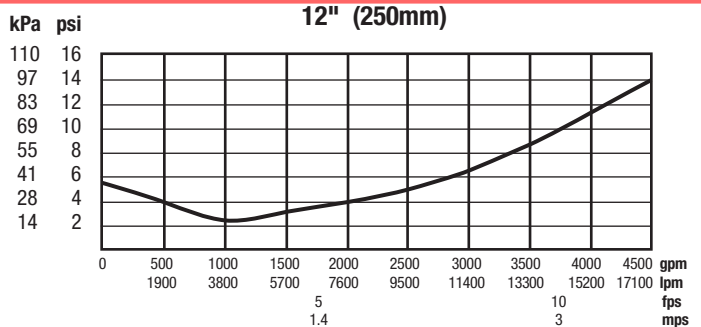
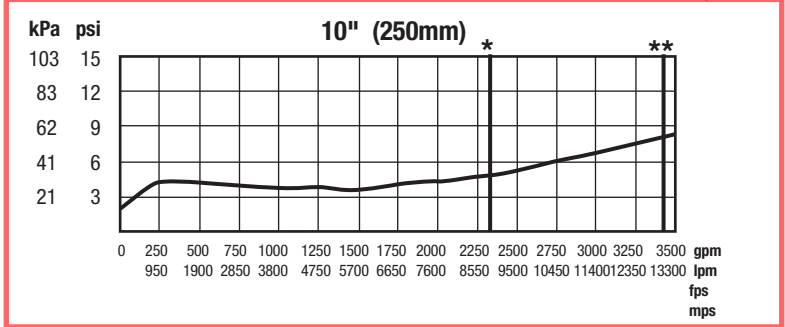
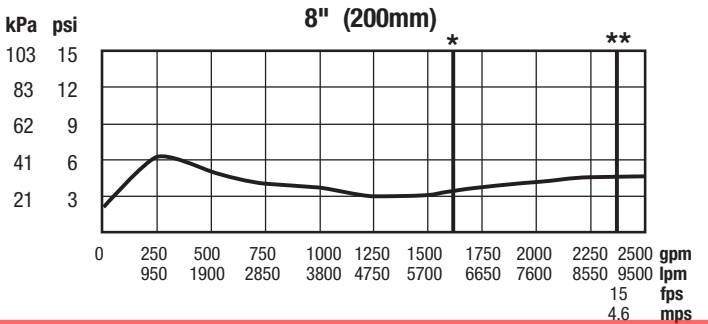
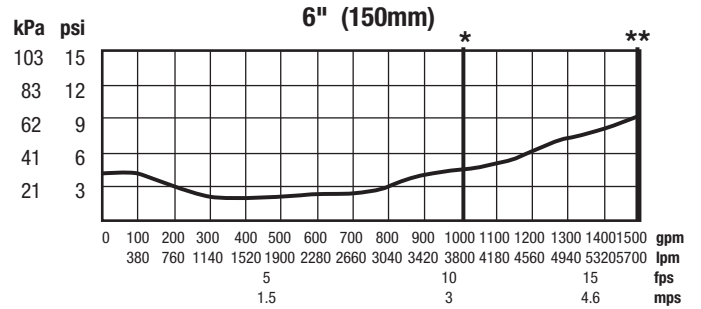
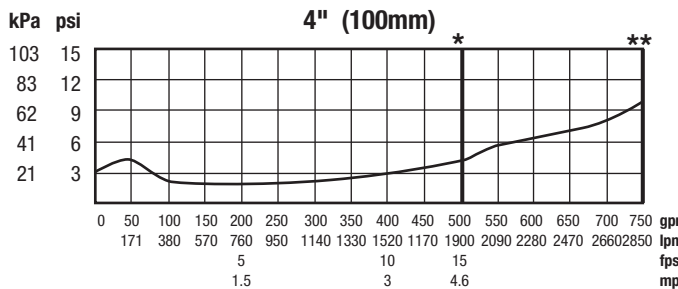
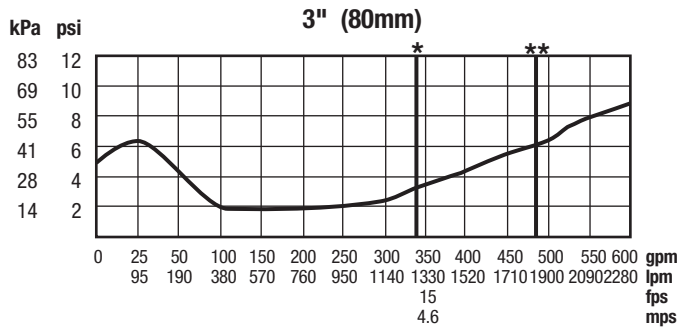
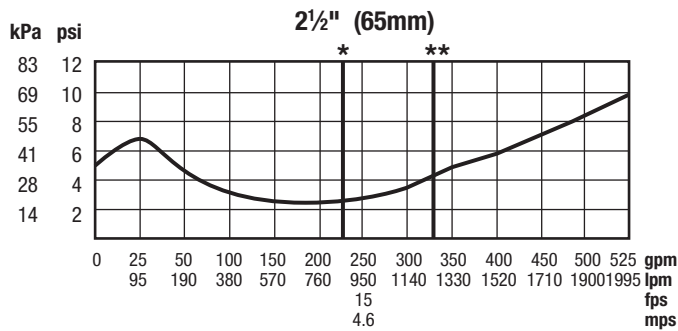
Engineer \_\_\_\_\_ Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_ Representative \_\_\_\_\_

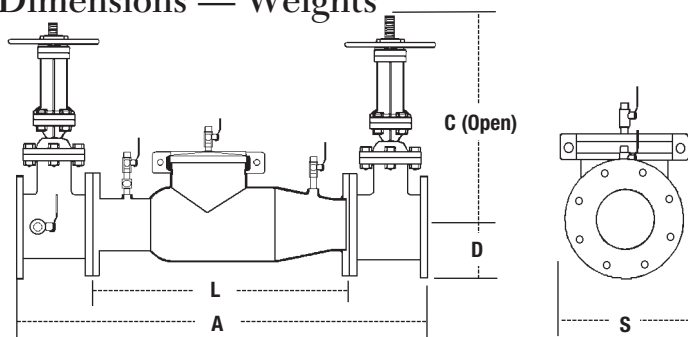
Ames product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Ames Technical Service. Ames reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Ames products previously or subsequently sold.

# Capacities

Rated working pressure 175psi (12.06 bar) \* Rated flow \*\*UL Tested



# Dimensions — Weights



SIZE (DN)		DIMENSIONS								WEIGHT							
in.	mm	A		C (OSY)		C(NRS)		D		L		S		w/Gates		w/o Gates	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.	lb.	kg.
2½	65	37	965	16¾	416	9¾	238	3½	89	22	559	7	178	140	64	53	24
3	80	38	965	18⅞	479	10¼	260	3¾	95	22	559	7½	191	215	98	55	25
4	100	40	1016	22¾	578	12¾	310	4½	114	22	559	9	229	225	102	58	26
6	150	48½	1232	30⅞	765	16	406	5½	140	27½	699	11	279	375	170	105	48
8	200	52½	1334	37¾	959	19½	506	6¾	171	29½	749	13½	343	561	254	169	77
10	250	55½	1410	45¾	1162	23¾	605	8	200	29½	749	16	406	763	346	179	81
12	300	57½	1461	53⅞	1349	26¾	679	9½	241	29½	749	19	483	1033	469	209	95



www.amesfirewater.com



ISO 9001-2008 CERTIFIED

A Watts Water Technologies Company

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 Control Valves- Houston, TX • Tel. (713) 943-0688 • Fax (713) 944-9445  
 Canada: Burlington, ON • Tel. (905) 332-4090 • Fax (905) 332-7068

**APPENDICES**

**HYDRANT FLOW TEST RESULTS WIGINTON FIRE SYSTEMS ..... APPENDIX A**

**APPENDIX A**  
**HYDRANT FLOW TEST RESULTS**  
PER WIGINTON FIRE SYSTEMS

**From:** Nick E. Guerrina <neg@Wiginton.net>  
**Sent:** Thursday, July 9, 2020 1:51 PM  
**To:** Baker, Danny  
**Cc:** Geiger, Marcus  
**Subject:** RE: Winter Springs Marketplace Hydrant Flow Test  
**Attachments:** Hydrant Flow Location results.pdf  
  
**Categories:** External

Hey Danny see attached as requested. Please keep me updated with the project. I would like the opportunity to try to estimate it. Also please reach out if the architect is looking for a fire protection drawing for the building permit.

Thank you,

**Nick E. Guerrina** | Contract Sales Representative  
Wiginton Fire Systems - Orlando, FL  
699 Aero Lane, Sanford, FL 32771

tel: 407-585-3200,292

dir: 407-585-3292

cell: 407-639-7800

[neg@wiginton.net](mailto:neg@wiginton.net)

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\*\*\*\*\* **NOTICE** \*\*\*\*\*

Have you seen our Customer Portal?

To get registered click the following link

<https://customer.wiginton.net>

---

**From:** Baker, Danny [<mailto:Danny.Baker@kimley-horn.com>]

**Sent:** Monday, July 6, 2020 12:21 PM

**To:** Nick E. Guerrina <[neg@Wiginton.net](mailto:neg@Wiginton.net)>

**Cc:** Geiger, Marcus <[Marcus.Geiger@kimley-horn.com](mailto:Marcus.Geiger@kimley-horn.com)>

**Subject:** RE: Winter Springs Marketplace Hydrant Flow Test

Nick,

Yes, 9:00 AM works well for me, thank you. I'll be there tomorrow at 9:00 AM. My cell phone number is 561-354-8543. If you want to give me call tomorrow morning to let me know which hydrants you want to start on or if you want to let me know via email, either works. Thank you.

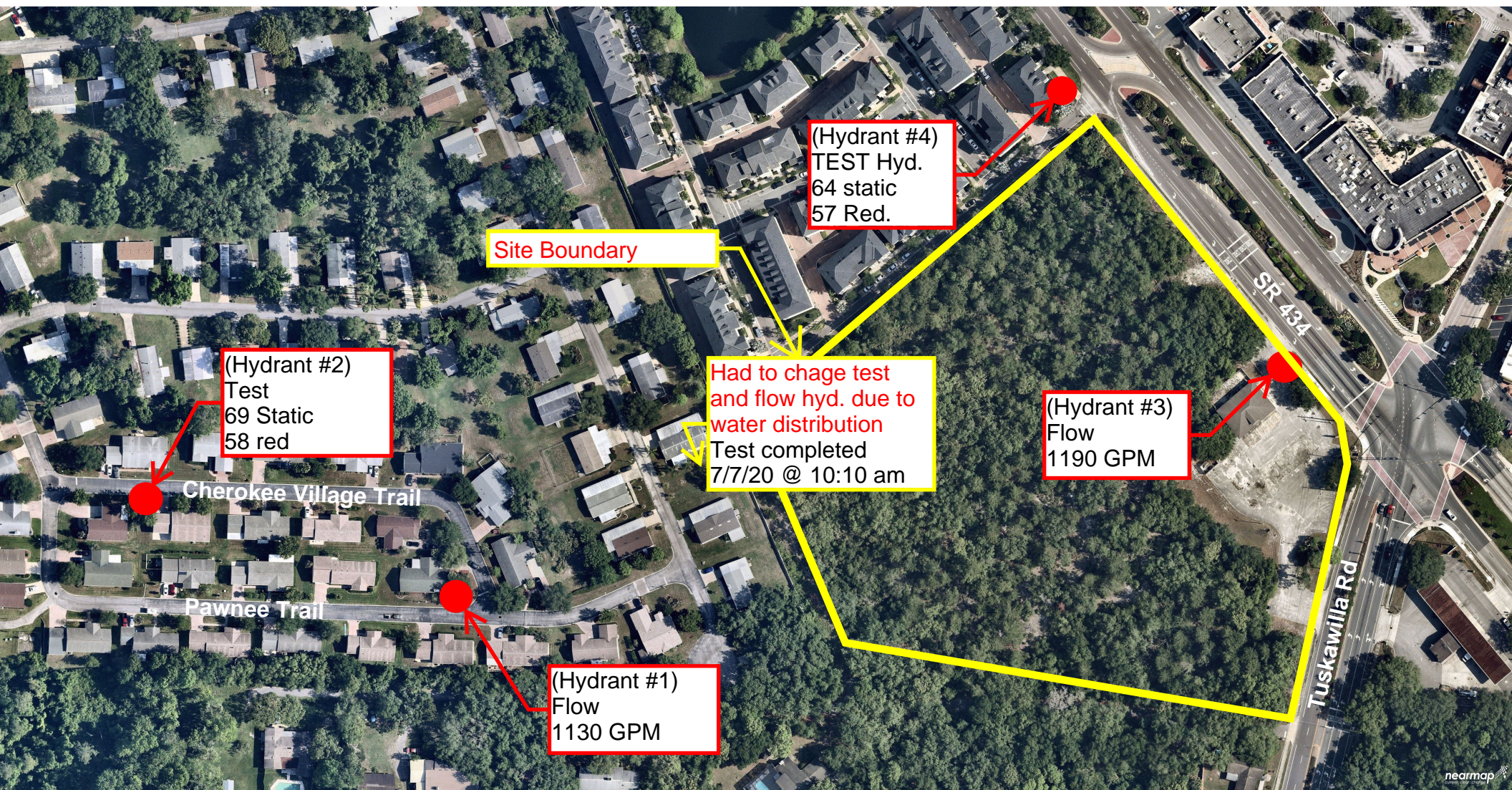
**Danny Baker, E.I.**

**Kimley-Horn** | 189 S. Orange Avenue, Suite 1000, Orlando, FL 32801

Direct: 407 815 3574

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(Hydrant #4)  
TEST Hyd.  
64 static  
57 Red.

Site Boundary

(Hydrant #2)  
Test  
69 Static  
58 red

Had to chage test  
and flow hyd. due to  
water distribution  
Test completed  
7/7/20 @ 10:10 am

(Hydrant #3)  
Flow  
1190 GPM

Cherokee Village Trail

Pawnee Trail

(Hydrant #1)  
Flow  
1130 GPM

SR 434

Tuskawilla Rd