

Remote Area #2

SHOP DRAWING / SUBMITTAL REVIEW

REVIEWED REVIEWED AS NOTED
 REVISE AND RESUBMIT REJECTED

Project No.: 2265 Submittal No.: 211300.001

Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. This contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his or her work with that and other trades and performing all in a safe and satisfactory manner.

By: David Dammon Date: 11/9/2016

DAMMON ENGINEERING, INC.

Slidell, LA

HYDRAULIC CALCULATIONS for

Job Information

Project Name : MAINSTAY SUITES

Contract No. :

City: HACKBERRY, LA 70645

Project Location: 700 MAIN ST - LA HWY 27

Date: 11/3/2016

Contractor Information

Name of Contractor: LIFE SAFETY

Address: 11168 LUCUIS LANE

City: HAMMOND, LA 70404

Phone Number: 504-915-5514

E-mail:

Name of Designer: DRURY

Authority Having Jurisdiction: STATE FIRE MARSHAL

Design

Remote Area Name	2
Remote Area Location	DOUBLE QUEEN SUITE
Occupancy Classification	RESIDENTIAL
Density (gpm/ft ²)	0.05
Area of Application (ft ²)	282
Coverage per Sprinkler (ft ²)	340
Number of Calculated Sprinklers	2
In-Rack Demand (gpm)	0
Special Heads	
Hose Streams (gpm)	100
Total Water Required (incl. Hose Streams) (gpm)	134.3
Required Pressure at Source (psi)	47.9
Type of System	Wet
Volume - Entire System (gal)	625.1 gal

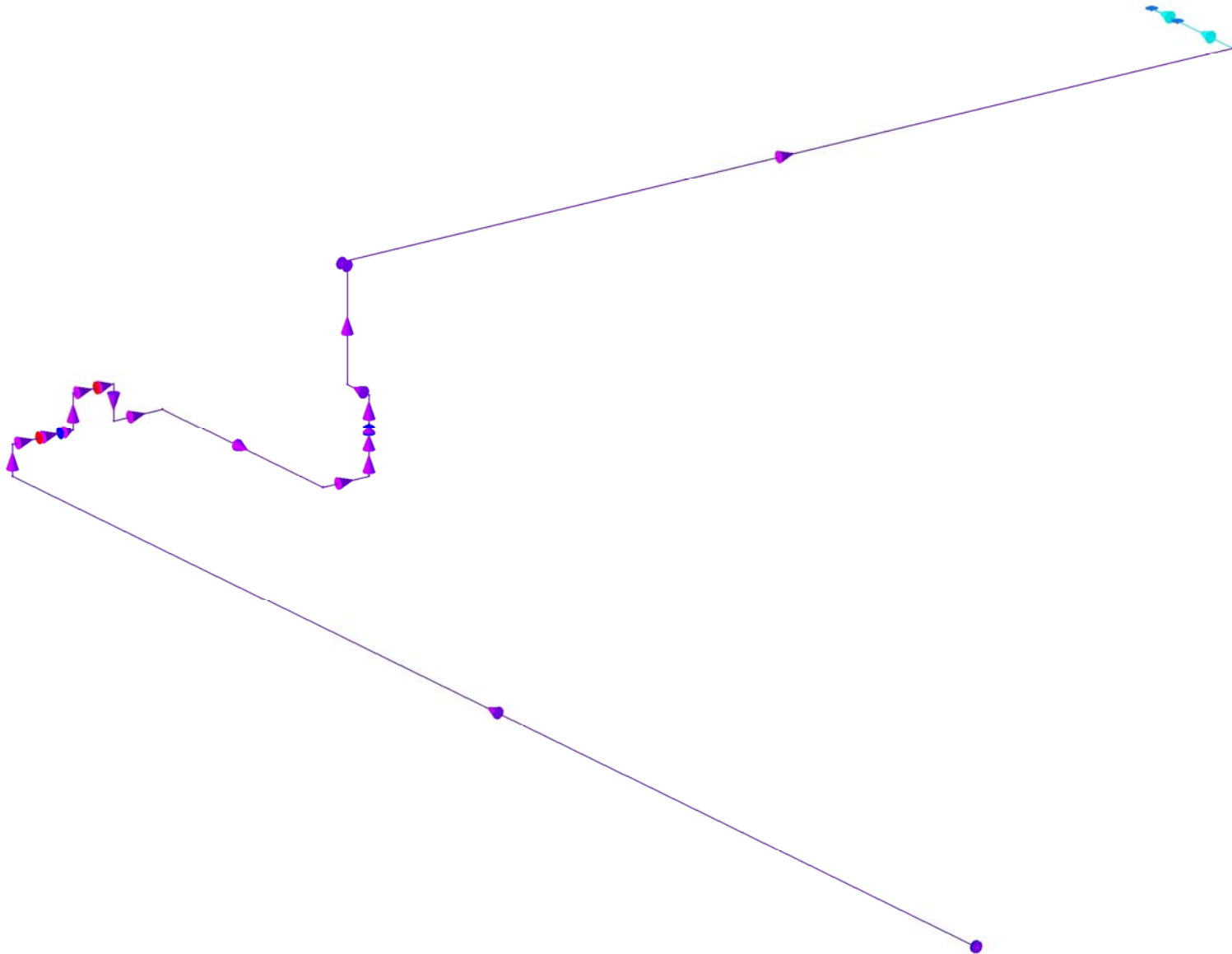
Water Supply Information

Date	11/02/16
Location	LA HWY 27 11:55am
Source	W1

Notes

2 SPRINKLERS

Diagram for Design Area : 2 (Optimized Hvdraulic Simplified)



Hydraulic Analysis for : 2

Calculation Info

Calculation Mode	Demand
Hydraulic Model	Hazen-Williams
Fluid Name	Water @ 60F (15.6C)
Fluid Weight, (lb/ft ³)	N/A for Hazen-Williams calculation.
Fluid Dynamic Viscosity, (lb·s/ft ²)	N/A for Hazen-Williams calculation.

Water Supply Parameters

Supply 1 : W1

Flow (gpm)	Pressure (psi)
0	58
1060	55

Supply Analysis

Node at Source	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)	Available Pressure (psi)	Total Demand (gpm)	Required Pressure (psi)
W1	58	55	1060	58	134.3	47.9

Hoses

Inside Hose Flow / Standpipe Demand (gpm)

Outside Hose Flow (gpm)

Additional Outside Hose Flow (gpm) 100

Other (custom defined) Hose Flow (gpm)

 Total Hose Flow (gpm) 100

Sprinklers

Ovehead Sprinkler Flow (gpm) 34.3

InRack Sprinkler Flow (gpm) 0

Other (custom defined) Sprinkler Flow (gpm) 0

 Total Sprinkler Flow (gpm) 34.3

Other

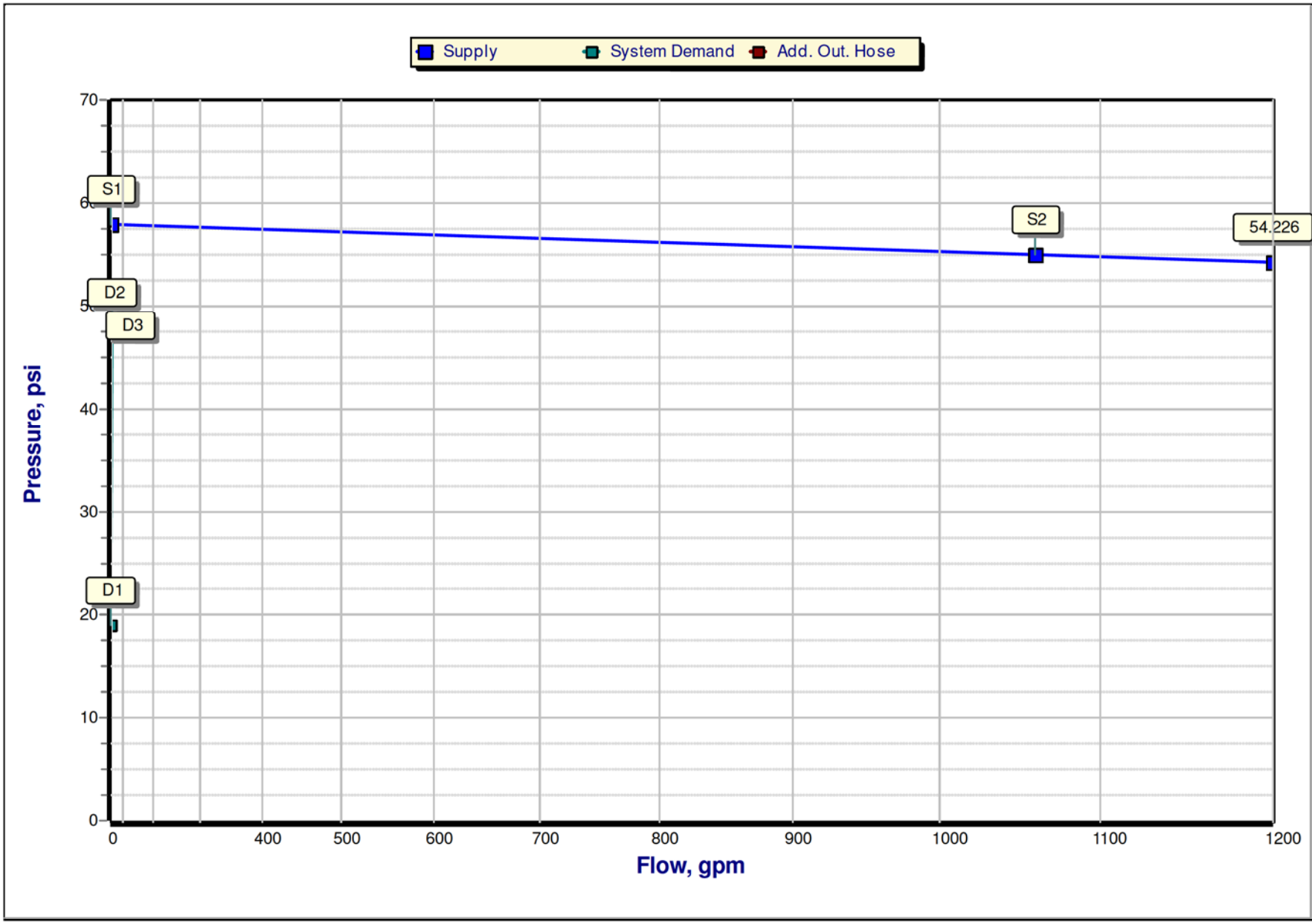
Required Margin of Safety (psi) 0

W1 - Pressure (psi) 47.9

W1 - Flow (gpm) 34.3

Demand w/o System Pump(s) N/A

Hydraulic Analysis for : 2



Hydraulic Analysis for : 2

Graph Labels

Label	Description	Values	
		Flow (gpm)	Pressure (psi)
S1	Supply point #1 - Static	0	58
S2	Supply point #2 - Residual	1060	55
D1	Elevation Pressure	0	19
D2	System Demand	34.3	47.9
D3	System Demand + Add.Out.Hose	134.3	47.9

Curve Intersections & Safety Margins

Curve Name	Intersection		Safety Margin	
	Pressure (psi)	Flow (gpm)	Pressure (psi)	@ Flow (gpm)
Supply	58	40.3	10	134.3

Open Heads

Head Ref.	Head Type	Coverage	K-Factor	Required			Calculated		
				Density	Flow	Pressure	Density	Flow	Pressure
		(ft ²)	(gpm/psi ^{1/2})	(gpm/ft ²)	(gpm)	(psi)	(gpm/ft ²)	(gpm)	(psi)
5	Overhead Sprinkler	340	4.9	0.05	17	12	0.05	17	12
6	Overhead Sprinkler	340	4.9	0.05	17	12	0.051	17.3	12.5

Node Data

Node# Elev	Type Hgroup	K-Fact. Open/Closed	Discharge Overdischarge	Coverage Density	Tot. Pres. Elev. Pres.	Req. Pres. Req. Discharge
ft		gpm/psi ^{1/2}	gpm gpm	ft ² gpm/ft ²	psi psi	psi gpm
5 33.75	Overhead Sprinkler HEAD	4.9 Open	17 0	340 0.05	12 -19	12 17
6 33.75	Overhead Sprinkler HEAD	4.9 Open	17.3 0.3	340 0.051	12.5 -19	12 17
001 34	Node NODE				12.6 -19.1	
007 34	Node NODE				17.1 -19.1	
031 34	Node NODE				19.4 -19.1	
033 11.5	Node NODE				29.6 -9.3	
035-O 6.08	Node NODE				32.1 -7	
035-I 5.42	Node NODE				32.6 -6.7	
036-O 4.32	Node NODE				33.1 -6.2	
036-I 4	Node NODE				33.3 -6.1	
043-I 3	Node NODE				33.7 -5.6	
037 1	Node NODE				34.6 -4.8	
043-O 3	Node NODE				39.2 -5.6	
046-I -4	Node NODE				42.3 -2.6	
046-O -4	Node NODE				42.3 -2.6	
047-I -4	Node NODE				42.3 -2.6	
047-O -4	Node NODE				45.3 -2.6	
050-I -10	Node NODE				47.9 0	
050-O -10	Node NODE				47.9 0	
W1 -10	Supply SUPPLY		-34.3		47.9 0	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi ^{1/2})	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	

Path No: 1

5 001	33.75 34	4.9	17 17	1 1.101	1x(BM.Tee-Run)=1 1x(BM.90)=5	8.25 6 14.25	150 0.0502	12 -0.1 0.7	
001 007	34 34		17.3 34.3	1 1.101	2x(BM.Tee-Run)=2 1x(BM.Tee-Br)=5	17.3 7 24.3	150 0.1841	12.6 0 4.5	
007 031	34 34		0 34.3	2 2.003	1x(coupling)=1.3 25x(BM.Tee-Run)=25 1x(BM.90)=10	195.12 36.3 231.41	150 0.01	17.1 0 2.3	
031 033	34 11.5		0 34.3	2 2.157	1x(us.Tee-Br)=12.31 1x(us.90)=6.15	24.33 18.46 42.79	120 0.0105	19.4 9.7 0.5	
033 035-O	11.5 6.08		0 34.3	2.5 2.635	1x(coupling)=1.37 1x(us.90)=8.24	12.16 9.61 21.77	120 0.004	29.6 2.3 0.1	
035-O 035-I	6.08 5.42		0 34.3	2.5 0		0.67 0 0.67	0 0.3738	32.1 0.3 0.2	CV-1 FR Check ***
035-I 036-O	5.42 4.32		0 34.3	2.5 2.635	1x(coupling)=1.37	1.1 1.37 2.47	120 0.004	32.6 0.5 0	
036-O 036-I	4.32 4		0 34.3	2.5 0		0.32 0 0.32	0 0.1067	33.1 0.1 0.0	BFV-N ***
036-I 037	4 1		0 34.3	4 4.26	1x(coupling)=1.32	3 1.32 4.32	120 0.0004	33.3 1.3 0	
037 043-I	1 3		0 34.3	6 5.86	1x(coupling)=1.28 5x(us.90)=89.4	85.83 90.68 176.51	150 0.0001	34.6 -0.9 0	
043-I 043-O	3 3		0 34.3	6 0		0.5 0 0.5	0 11.063	33.7 0 5.5	WATTS 757 ***
043-O 046-I	3 -4		0 34.3	6 5.86	1x(coupling)=1.28 2x(us.90)=35.76	14.04 37.04 51.08	150 0.0001	39.2 3 0	
046-I 046-O	-4 -4		0 34.3	6 0		0.88 0 0.88	0 0.0004	42.3 0 0	Gate A2360 ***
046-O 047-I	-4 -4		0 34.3	6 5.86	1x(coupling)=1.28	4.11 1.28 5.39	150 0.0001	42.3 0 0	
047-I 047-O	-4 -4		0 34.3	6 0		0.5 0 0.5	0 6	42.3 0 3	WATTS SS07F ***
047-O 050-I	-4 -10		0 34.3	6 5.86	1x(coupling)=1.28 1x(us.Tee-Br)=38.32 1x(us.90)=17.88	310.41 57.47 367.88	150 0.0001	45.3 2.6 0.0	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per ft	total (Pt) elev (Pe) frict (Pf)	NOTES
	(ft)	(gpm/psi ^{1/2})	(gpm)	(in)	(ft)	(ft)	(psi)	(psi)	

Path No: 1

050-I	-10		0	6		0.88	0	47.9	Gate A2360
050-O	-10		34.3	0		0	0.0004	0	***
						0.88		0	
050-O	-10		0	6		0.48	150	47.9	
W1	-10		34.3	5.86		0	0.0001	0	
						0.48		0	
W1								47.9	

Path No: 2

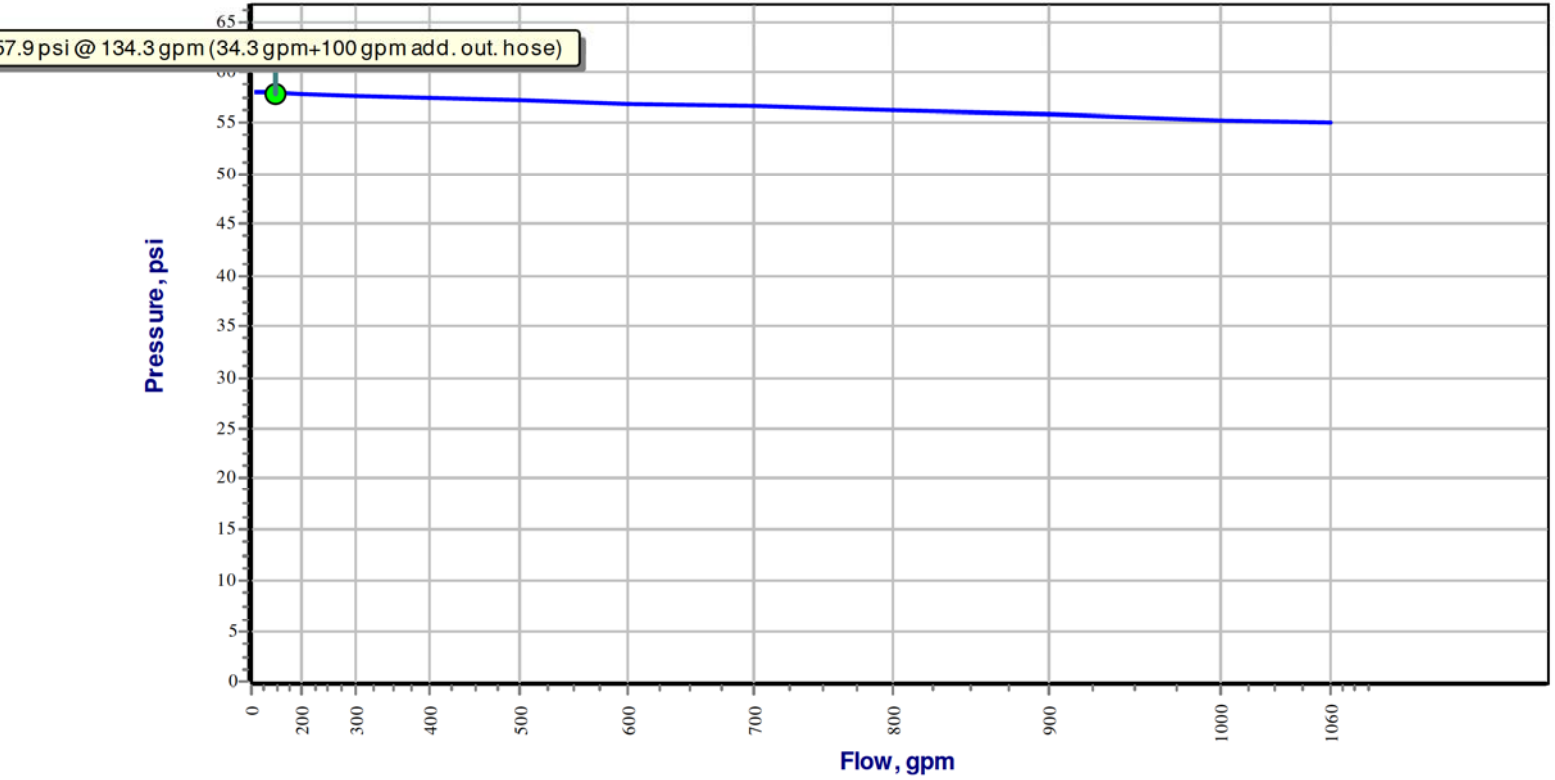
6	33.75	4.9	17.3	1	1x(BM.Tee-Br)=5	0.25	150	12.5	
001	34		17.3	1.101		5	0.0519	-0.1	
						5.25		0.3	
001								12.6	

* Pressures are balanced to a high degree of accuracy. Values may vary by 0.1 psi due to display rounding.

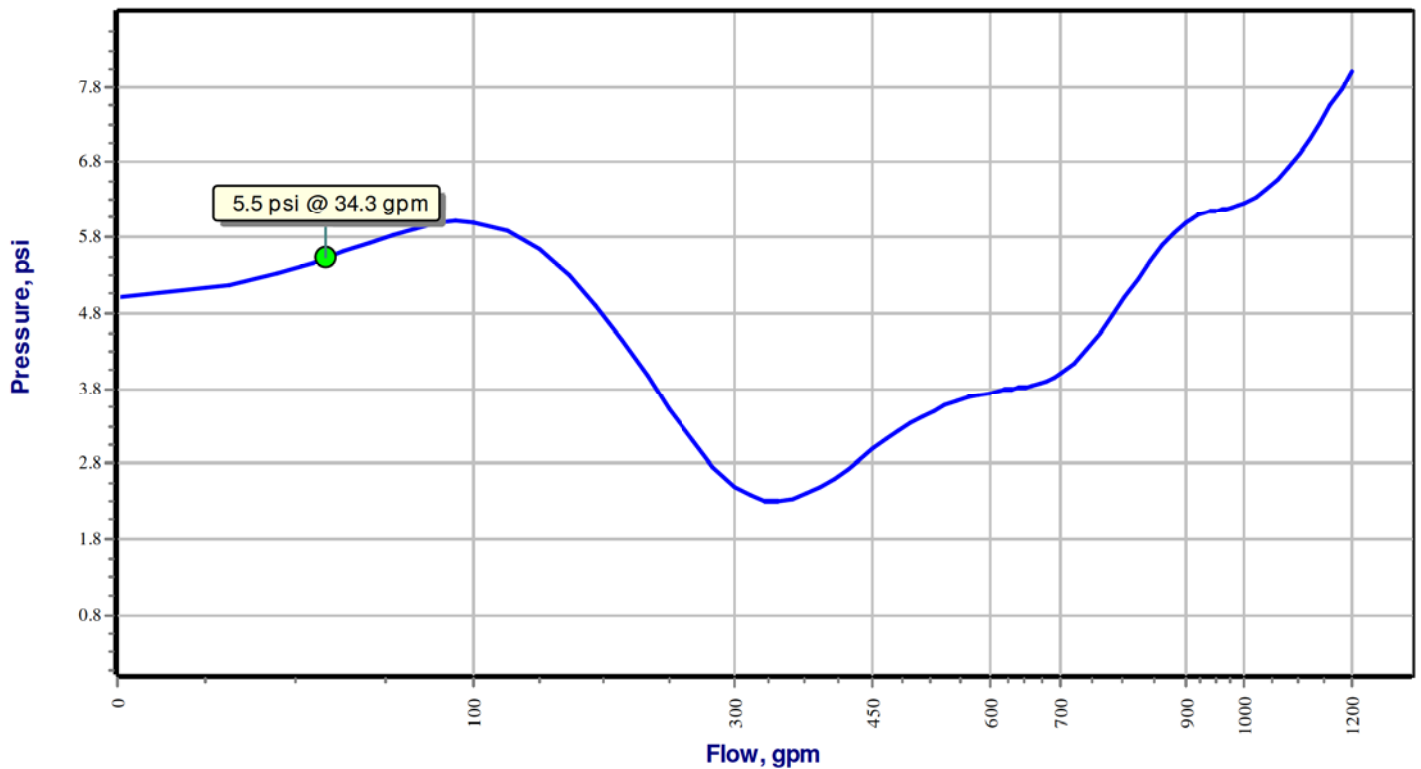
* Maximum Velocity of 11.56 ft/s occurs in the following pipe(s): (007-001)

*** Device pressure loss (gain in the case of pumps) is calculated from the device's curve. If the device curve is printed with this report, it will appear below. The length of the device as shown in the table above comes from the CAD drawing. The friction loss per unit of length is calculated based upon the length and the curve-based loss/gain value. Internal ID and C Factor values are irrelevant as the device is not represented as an addition to any pipe, but is an individual item whose loss/gain is based solely on the curve data.

Pressure vs. Flow Function Design Area: 2; Supply Ref.: W1; Supply Name:W1

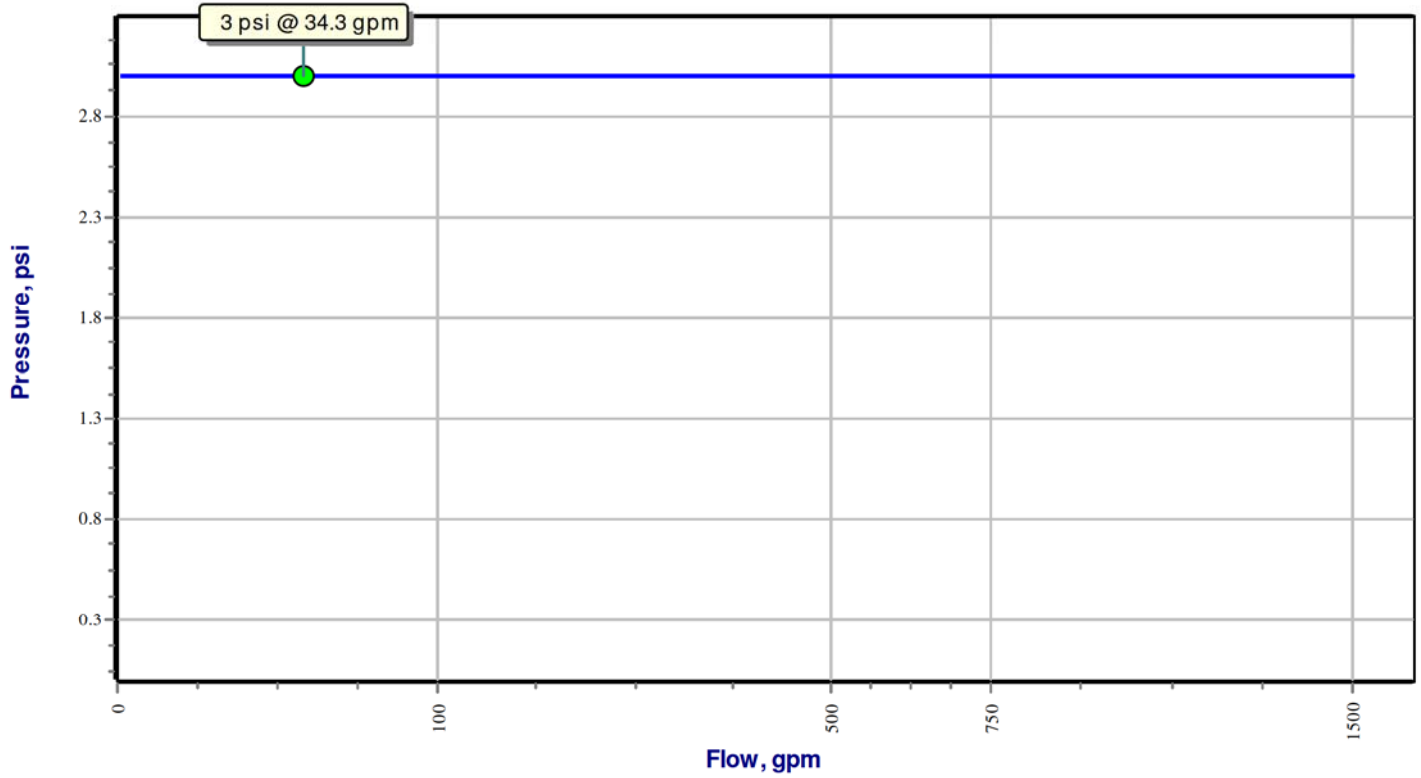


Pressure Loss Function Design Area: 2; BFP Ref.: 650 (WATTS 757, Size = 6); Inlet Node: 043-I; Outlet Node: 043-O



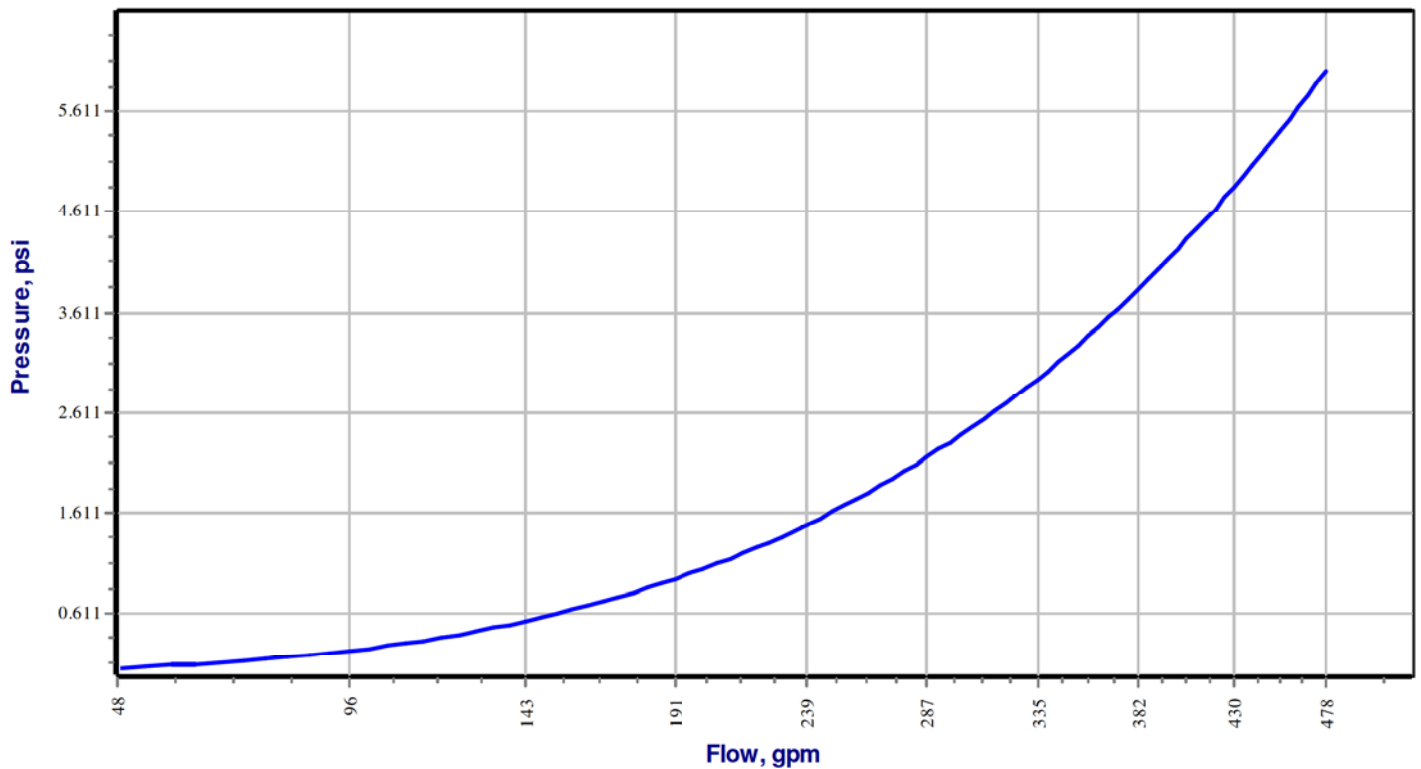
Pressure Loss Function

Design Area: 2; BFP Ref.: 652 (WATTS SS07F, Size = 6); Inlet Node: 047-I; Outlet Node: 047-O



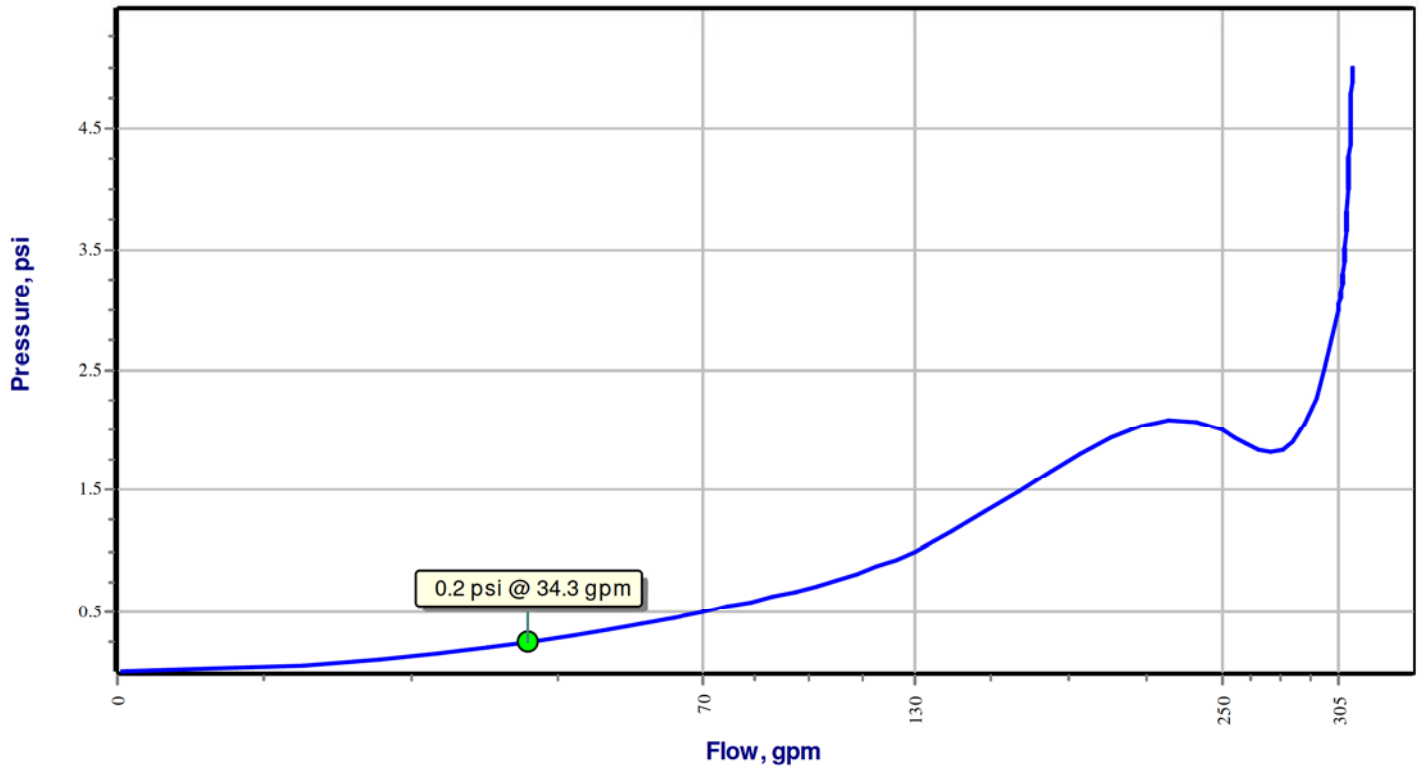
Pressure Loss Function

Design Area: 2; Valve Ref.: 648 (BFV-N, Size = 2.5); Inlet Node: 036-I; Outlet Node: 036-O



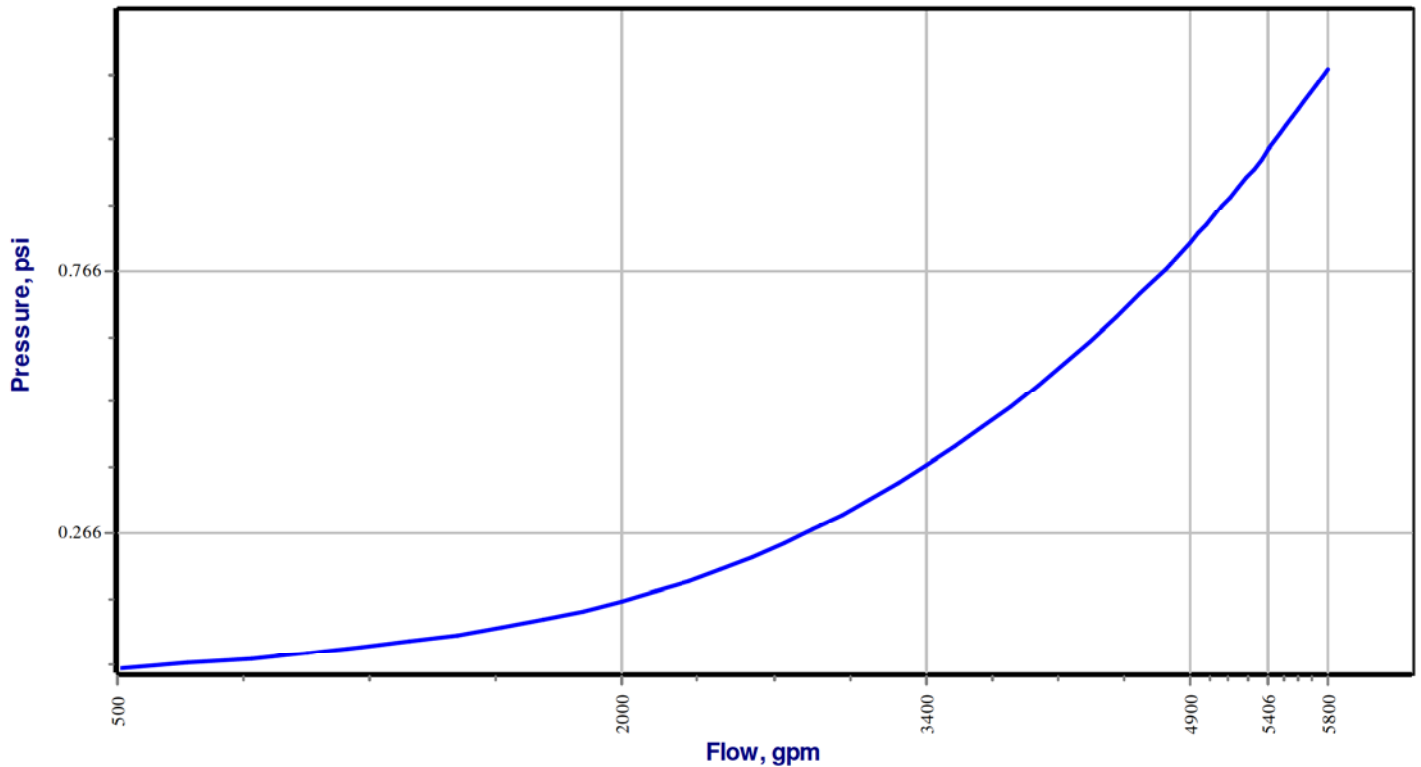
Pressure Loss Function

Design Area: 2; Valve Ref.: 649 (CV-1 FR Check, Size = 2.5); Inlet Node: 035-I; Outlet Node: 035-O



Pressure Loss Function

Design Area: 2; Valve Ref.: 651 (Gate A2360, Size = 6); Inlet Node: 046-I; Outlet Node: 046-O



Pressure Loss Function
Design Area: 2; Valve Ref.: 653 (Gate A2360, Size = 6); Inlet Node: 050-I; Outlet Node: 050-O

