Job Name : **The Discovery at Discovery - Lot 5**
Address : **19200 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info :

Calculation Summary :

Area #1: **Unit, 3rd Floor**
Area #2: **Unit, 3rd Floor**
Area #3: **Unit, 2nd Floor**
Area #4: **Unit, 2nd Floor**
Area #5: **Shell Space**

Water Supply :

Flow Test :
Date : **6-3-2025**
Static : **115** PSI
Residual : **70** PSI
Flow : **1501** GPM
Elevation : **Same as 1st F.F.**
Location of Flow Test : **Looped City Main**
Source of Flow Test : **Goal Fire Protection**

9-6-2025
STATE OF MISSOURI
CHRISTOPHER T. GROSS
NUMBER
PE-2015038448
REGISTERED PROFESSIONAL ENGINEER

Notes :

WATER FLOW TEST REPORT

Goal Fire Protection, llc
"Reliable Service is our Goal"

Property Name: Discovery Park

City, State: Lee's Summit, MO **Conducted by:** Wyatt Porter

HYDRANT # & LOCATION Ramp DATE: 6/3/2025

WITNESS BY N/A DAY OR WEEK: TIME OF DAY: 8:30 WEATHER: Cloudy

WATER SUPPLIED BY:

PURPOSE OF TEST: Annual Inspection & Flow Rate

DATA

FLOW HYDRANT(S)	A1	A2	A3
SIZE OPENING:	2.5	0	0
COEFFICIENT:	0.9	0	0
PITOT READING:	80	0	0
GPM:	**1501**	0	0

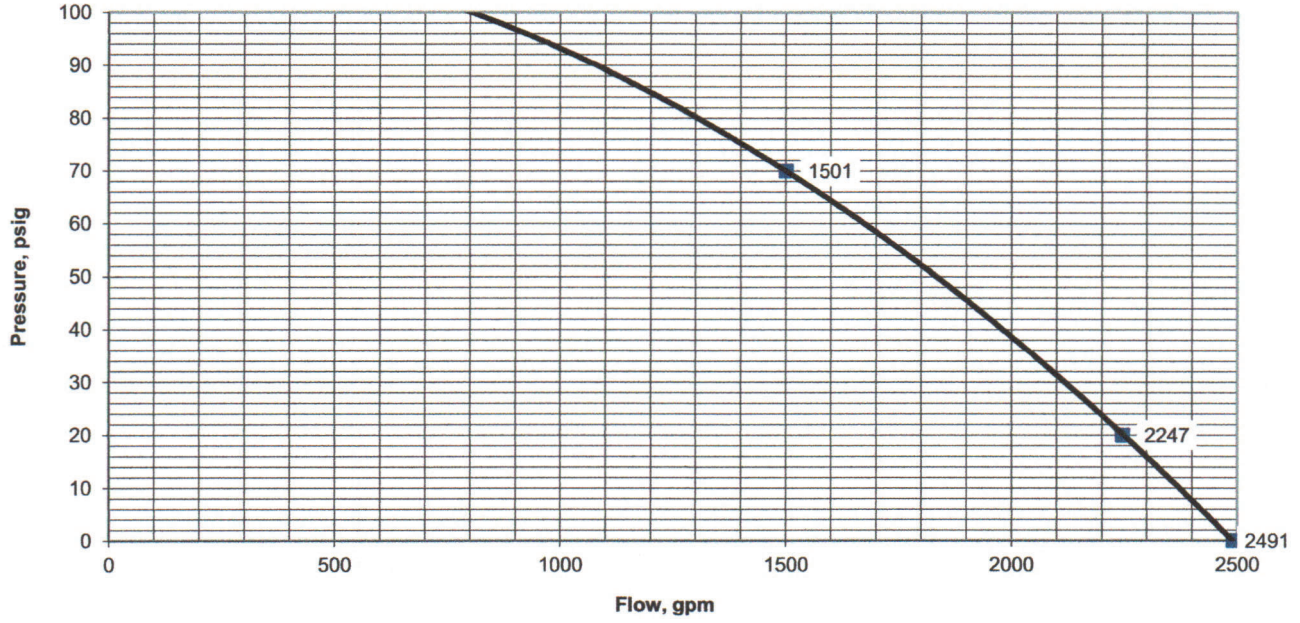
TOTAL FLOW DURING TEST: **1501** GPM

STATIC READING: **115** PSI RESIDUAL: **70** PSI

RESULTS: AT 20 PSI RESIDUAL **2247** GPM AT 0 PSI **2491** GPM

ESTIMATED CONSUMPTION: **1501** GAL.

REMARKS: Coeffient Per NFPA 291 (Smooth & Rounded Hydrant Butt = 0.90) (Square & Sharp Hydrant Butt = 0.80) (Square Butt Projecting Into Hydrant Barrell 0.70) (Smooth & Rounded Hydant Butt **FM GLOBAL** = 0.80)



Job Name : **The Discovery at Discovery - Lot 5**
Address : **1900 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Area #1 - Unit, 3rd Floor**
Area Design : **Per NFPA-13R, 2016**

Design Criteria :
Gpm for head: **17.0** Psi for head: **15.0**
Total Sprinklers Operating: **2** Sprinkler K Factor: **4.4**
Outside Hose Allowance: **100**

Calculation Summary :

GPM Required :**46.47**	PSI Required :**82.25**	**@ Base of Riser**
GPM Required :**146.47**	PSI Required :**82.69**	**@ Connection to City Main**

Area Safety Margin: **31.6** PSI **28** %

Notes :

Water Supply Curve

The Village at Discovery - Lot 5 Area #1

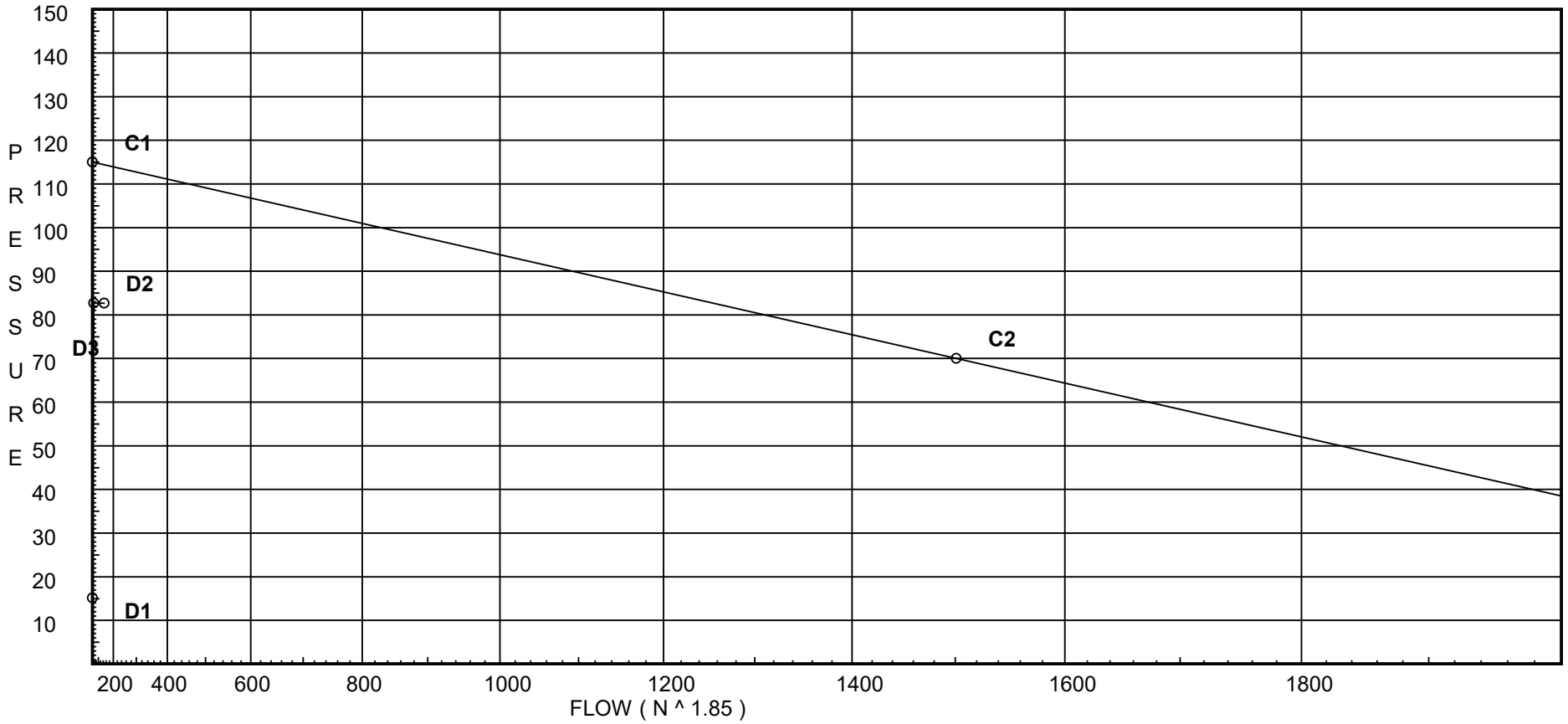
Date

City Water Supply:

C1 - Static Pressure	: 115
C2 - Residual Pressure:	70
C2 - Residual Flow	: 1501

Demand:

D1 - Elevation	: 15.158
D2 - System Flow	: 46.471
D2 - System Pressure	: 82.696
Hose (Demand)	: 100
D3 - System Demand	: 146.471
Safety Margin	: 31.697



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
N *	CPVC 90' Ell	0	4	5	6	7	9	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O *	CPVC Branch Tee	0	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	115.0	70	1501.0	114.392	146.47	82.696

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
H101	35.0	4.4	28.38	23.44	0.1	170
101A	35.0		28.86			
101B	26.0		34.06			
H102	35.0	4.4	27.4	23.03	0.1	230
102A	35.0		27.87			
102B	26.0		33.02			
303	26.0		33.59			
A2	26.0		34.76			
A3	26.0		34.9			
A4	26.0		41.95			
A5	26.0		42.37			
A6	26.0		43.15			
A7	26.0		43.61			
A8	26.0		58.21			
A9	25.5		59.46			
A10	13.85		66.59			
TOR2	13.85		66.82			
BOR2	3.5		74.74			
UG	1.0		82.25			
HOSE	0.0		82.7	100.0		
TEST	0.0		82.7			

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
H101	35	4.40	23.44	1	N	5.0	0.300	150	28.379	
to							5.000		0.0	
101A	35		23.44	1.101			5.300	0.0913	0.484	Vel = 7.90
101A	35		0.0	1	N	5.0	9.250	150	28.863	
to							5.000		3.898	
101B	26		23.44	1.101			14.250	0.0912	1.300	Vel = 7.90
101B	26		0.0	1	O	5.0	2.650	150	34.061	
to							5.000		0.0	
A2	26		23.44	1.101			7.650	0.0912	0.698	Vel = 7.90
			0.0							
A2			23.44						34.759	K Factor = 3.98
H102	35	4.40	23.03	1	N	5.0	0.300	150	27.400	
to							5.000		0.0	
102A	35		23.03	1.101			5.300	0.0883	0.468	Vel = 7.76
102A	35		0.0	1	N	5.0	9.250	150	27.868	
to							5.000		3.898	
102B	26		23.03	1.101			14.250	0.0884	1.259	Vel = 7.76
102B	26		0.0	1	O	5.0	1.400	150	33.025	
to							5.000		0.0	
303	26		23.03	1.101			6.400	0.0883	0.565	Vel = 7.76
303	26		0.0	1	O	5.0	9.850	150	33.590	
to							5.000		0.0	
A3	26		23.03	1.101			14.850	0.0884	1.312	Vel = 7.76
			0.0							
A3			23.03						34.902	K Factor = 3.90
A2	26		23.44	1.25			4.950	150	34.759	
to									0.0	
A3	26		23.44	1.394			4.950	0.0289	0.143	Vel = 4.93
A3	26		23.03	1.25			68.650	150	34.902	
to									0.0	
A4	26		46.47	1.394			68.650	0.1026	7.043	Vel = 9.77
A4	26		0.0	1.25			4.100	150	41.945	
to									0.0	
A5	26		46.47	1.394			4.100	0.1027	0.421	Vel = 9.77
A5	26		0.0	1.25			7.650	150	42.366	
to									0.0	
A6	26		46.47	1.394			7.650	0.1025	0.784	Vel = 9.77
A6	26		0.0	1.25			4.450	150	43.150	
to									0.0	
A7	26		46.47	1.394			4.450	0.1027	0.457	Vel = 9.77
A7	26		0.0	1.25	N	6.0	130.300	150	43.607	
to					O	6.0	12.000		0.0	
A8	26		46.47	1.394			142.300	0.1026	14.599	Vel = 9.77
A8	26		0.0	1.25	N	6.0	4.100	150	58.206	
to							6.000		0.217	
A9	25.500		46.47	1.394			10.100	0.1025	1.035	Vel = 9.77
A9	25.500		0.0	1.25	E	3.716	12.150	120	59.458	
to							3.716		5.046	
A10	13.850		46.47	1.442			15.866	0.1315	2.086	Vel = 9.13

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
			0.0							
A10			46.47						66.590	K Factor = 5.69
A10	13.850		46.47	2			12.330	120	66.590	
to									0.0	
TOR2	13.850		46.47	2.157			12.330	0.0185	0.228	Vel = 4.08
			0.0							
TOR2			46.47						66.818	K Factor = 5.68
TOR2	13.850		46.47	2	B	7.384	10.350	120	66.818	
to					E	6.153	13.537		7.483	* * Fixed Loss = 3
BOR2	3.500		46.47	2.157	Fsp	0.0	23.887	0.0185	0.441	Vel = 4.08
BOR2	3.500		0.0	4	E	13.167	6.500	120	74.742	
to					Zca	0.0	13.167		7.499	* * Fixed Loss = 6.417
UG	1		46.47	4.26			19.667	0.0007	0.014	Vel = 1.05
UG	1		0.0	6	G	4.304	20.000	140	82.255	
to					E	20.084	67.425		0.433	
HOSE	0		46.47	6.16	T	43.037	87.425	0.0001	0.007	Vel = 0.50
HOSE	0	H100	100.00	6			1.000	140	82.695	
to									0.0	
TEST	0		146.47	6.16			1.000	0.0010	0.001	Vel = 1.58
			0.0							
TEST			146.47						82.696	K Factor = 16.11

Job Name : **The Discovery at Discovery - Lot 5**
Address : **1900 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Area #2 - Unit, 3rd Floor**
Area Design : **Per NFPA-13R, 2016**

Design Criteria :
Gpm for head: **17.0** Psi for head: **15.0**
Total Sprinklers Operating: **3** Sprinkler K Factor: **4.4**
Outside Hose Allowance: **100**

Calculation Summary :

GPM Required :**70.58**	PSI Required :**100.66**	**@ Base of Riser**
GPM Required :**170.58**	PSI Required :**101.11**	**@ Connection to City Main**

Area Safety Margin: **13.0** PSI **12** %

Notes :

Water Supply Curve

The Village at Discovery - Lot 5 Area #2

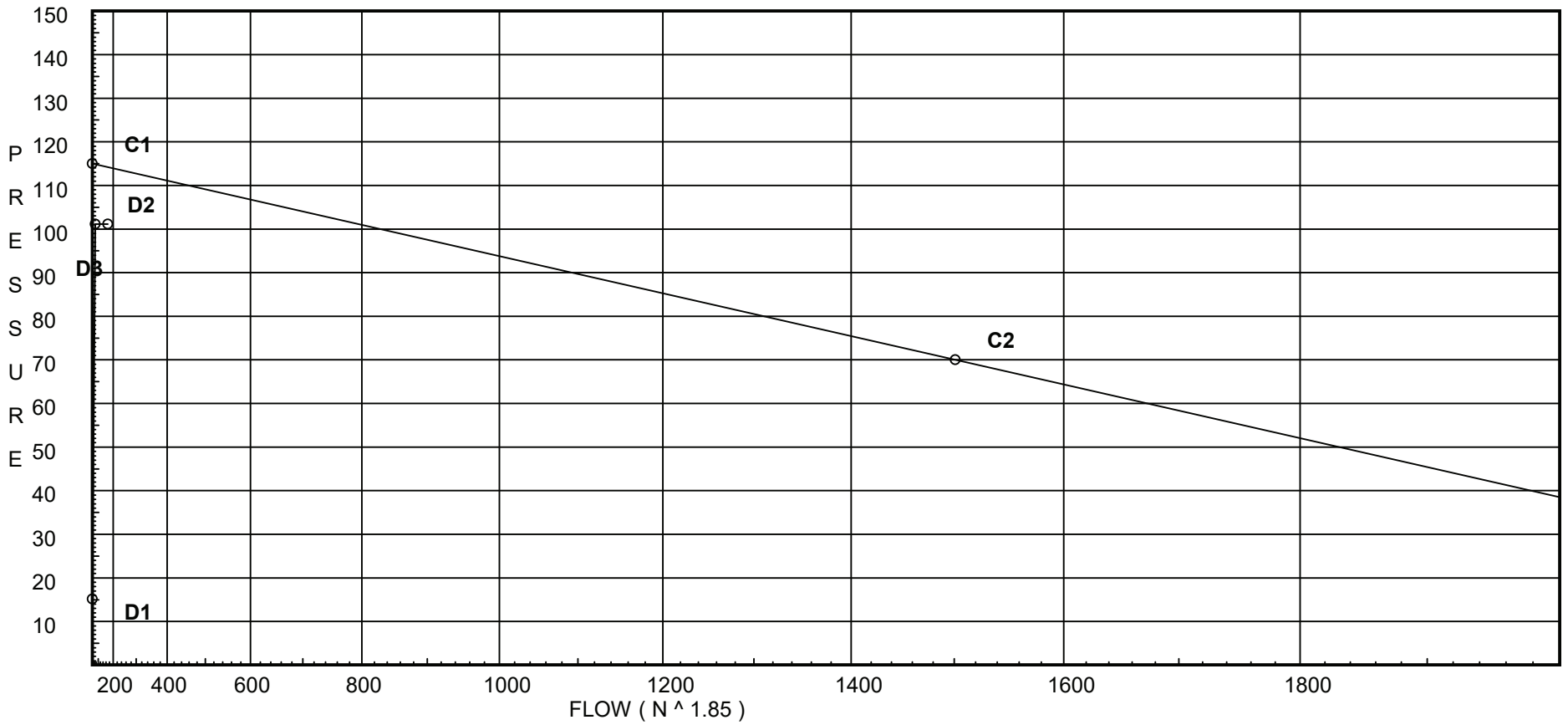
Date

City Water Supply:

C1 - Static Pressure	: 115
C2 - Residual Pressure	: 70
C2 - Residual Flow	: 1501

Demand:

D1 - Elevation	: 15.158
D2 - System Flow	: 70.583
D2 - System Pressure	: 101.113
Hose (Demand)	: 100
D3 - System Demand	: 170.583
Safety Margin	: 13.081



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
N *	CPVC 90' Ell	0	4	5	6	7	9	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O *	CPVC Branch Tee	0	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	115.0	70	1501.0	114.195	170.58	101.113

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
H201	35.0	4.4	30.02	24.11	0.1	170
201A	35.0		30.53			
201B	26.0		35.8			
201C	26.0		36.44			
H203	35.0	4.4	28.39	23.44	0.1	230
203A	35.0		28.87			
203B	26.0		34.07			
H202	35.0	4.4	27.4	23.03	0.1	230
202A	35.0		27.87			
202B	26.0		33.02			
H402	26.0		33.95			
402	26.0		34.77			
A4	26.0		37.94			
A5	26.0		38.07			
A6	26.0		38.3			
A7	26.0		39.29			
A8	26.0		70.92			
A9	25.5		73.38			
A10	13.85		82.95			
TOR2	13.85		83.44			
BOR2	3.5		91.88			
UG	1.0		100.66			
HOSE	0.0		101.11	100.0		
TEST	0.0		101.11			

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
H201	35	4.40	24.11	1	O	5.0	0.300	150	30.018	
to							5.000		0.0	
201A	35		24.11	1.101			5.300	0.0962	0.510	Vel = 8.12
201A	35		0.0	1	N	5.0	9.250	150	30.528	
to							5.000		3.898	
201B	26		24.11	1.101			14.250	0.0961	1.369	Vel = 8.12
201B	26		0.0	1	O	5.0	1.750	150	35.795	
to							5.000		0.0	
201C	26		24.11	1.101			6.750	0.0961	0.649	Vel = 8.12
201C	26		0.0	1	O	5.0	10.600	150	36.444	
to							5.000		0.0	
A4	26		24.11	1.101			15.600	0.0962	1.500	Vel = 8.12
			0.0							
A4			24.11						37.944	K Factor = 3.91
H203	35	4.40	23.44	1	N	5.0	0.300	150	28.390	
to							5.000		0.0	
203A	35		23.44	1.101			5.300	0.0911	0.483	Vel = 7.90
203A	35		0.0	1	N	5.0	9.250	150	28.873	
to							5.000		3.898	
203B	26		23.44	1.101			14.250	0.0913	1.301	Vel = 7.90
203B	26		0.0	1	O	5.0	2.670	150	34.072	
to							5.000		0.0	
402	26		23.44	1.101			7.670	0.0913	0.700	Vel = 7.90
			0.0							
402			23.44						34.772	K Factor = 3.98
H202	35	4.40	23.03	1	O	5.0	0.300	150	27.400	
to							5.000		0.0	
202A	35		23.03	1.101			5.300	0.0883	0.468	Vel = 7.76
202A	35		0.0	1	N	5.0	9.250	150	27.868	
to							5.000		3.898	
202B	26		23.03	1.101			14.250	0.0884	1.259	Vel = 7.76
202B	26		0.0	1	N	5.0	5.450	150	33.025	
to							5.000		0.0	
H402	26		23.03	1.101			10.450	0.0883	0.923	Vel = 7.76
H402	26		0.0	1			9.330	150	33.948	
to									0.0	
402	26		23.03	1.101			9.330	0.0883	0.824	Vel = 7.76
402	26		23.45	1	O	5.0	5.900	150	34.772	
to							5.000		0.0	
A6	26		46.48	1.101			10.900	0.3239	3.530	Vel = 15.66
			0.0							
A6			46.48						38.302	K Factor = 7.51
A4	26		24.11	1.25			4.100	150	37.944	
to									0.0	
A5	26		24.11	1.394			4.100	0.0302	0.124	Vel = 5.07
A5	26		0.0	1.25			7.650	150	38.068	
to									0.0	
A6	26		24.11	1.394			7.650	0.0306	0.234	Vel = 5.07

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
A6	26		46.47	1.25			4.450	150	38.302	
to									0.0	
A7	26		70.58	1.394			4.450	0.2222	0.989	Vel = 14.84
A7	26		0.0	1.25	N	6.0	130.300	150	39.291	
to					O	6.0	12.000		0.0	
A8	26		70.58	1.394			142.300	0.2223	31.630	Vel = 14.84
A8	26		0.0	1.25	N	6.0	4.100	150	70.921	
to							6.000		0.217	
A9	25.500		70.58	1.394			10.100	0.2223	2.245	Vel = 14.84
A9	25.500		0.0	1.25	E	3.716	12.150	120	73.383	
to							3.716		5.046	
A10	13.850		70.58	1.442			15.866	0.2848	4.519	Vel = 13.87
			0.0							
A10			70.58						82.948	K Factor = 7.75
A10	13.850		70.58	2			12.330	120	82.948	
to									0.0	
TOR2	13.850		70.58	2.157			12.330	0.0401	0.494	Vel = 6.20
			0.0							
TOR2			70.58						83.442	K Factor = 7.73
TOR2	13.850		70.58	2	B	7.384	10.350	120	83.442	
to					E	6.153	13.537		7.483	* * Fixed Loss = 3
BOR2	3.500		70.58	2.157	Fsp	0.0	23.887	0.0401	0.957	Vel = 6.20
BOR2	3.500		0.0	4	E	13.167	6.500	120	91.882	
to					Zca	0.0	13.167		8.753	* * Fixed Loss = 7.67
UG	1		70.58	4.26			19.667	0.0014	0.028	Vel = 1.59
UG	1		0.0	6	G	4.304	20.000	140	100.663	
to					E	20.084	67.425		0.433	
HOSE	0		70.58	6.16	T	43.037	87.425	0.0002	0.016	Vel = 0.76
HOSE	0	H100	100.00	6			1.000	140	101.112	
to									0.0	
TEST	0		170.58	6.16			1.000	0.0010	0.001	Vel = 1.84
			0.0							
TEST			170.58						101.113	K Factor = 16.96

Job Name : **The Discovery at Discovery - Lot 5**
Address : **1900 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Area #3 - Unit, 2nd Floor**
Area Design : **Per NFPA-13R, 2016**

Design Criteria :
Gpm for head: **17.0** Psi for head: **12.0**
Total Sprinklers Operating: **3** Sprinkler K Factor: **4.9**
Outside Hose Allowance: **100**

Calculation Summary :

GPM Required :**52.67**	PSI Required :**70.42**	**@ Base of Riser**
GPM Required :**152.67**	PSI Required :**70.86**	**@ Connection to City Main**

Area Safety Margin: **43.4** PSI **38** %

Notes :

Water Supply Curve

The Village at Discovery - Lot 5 Area #3

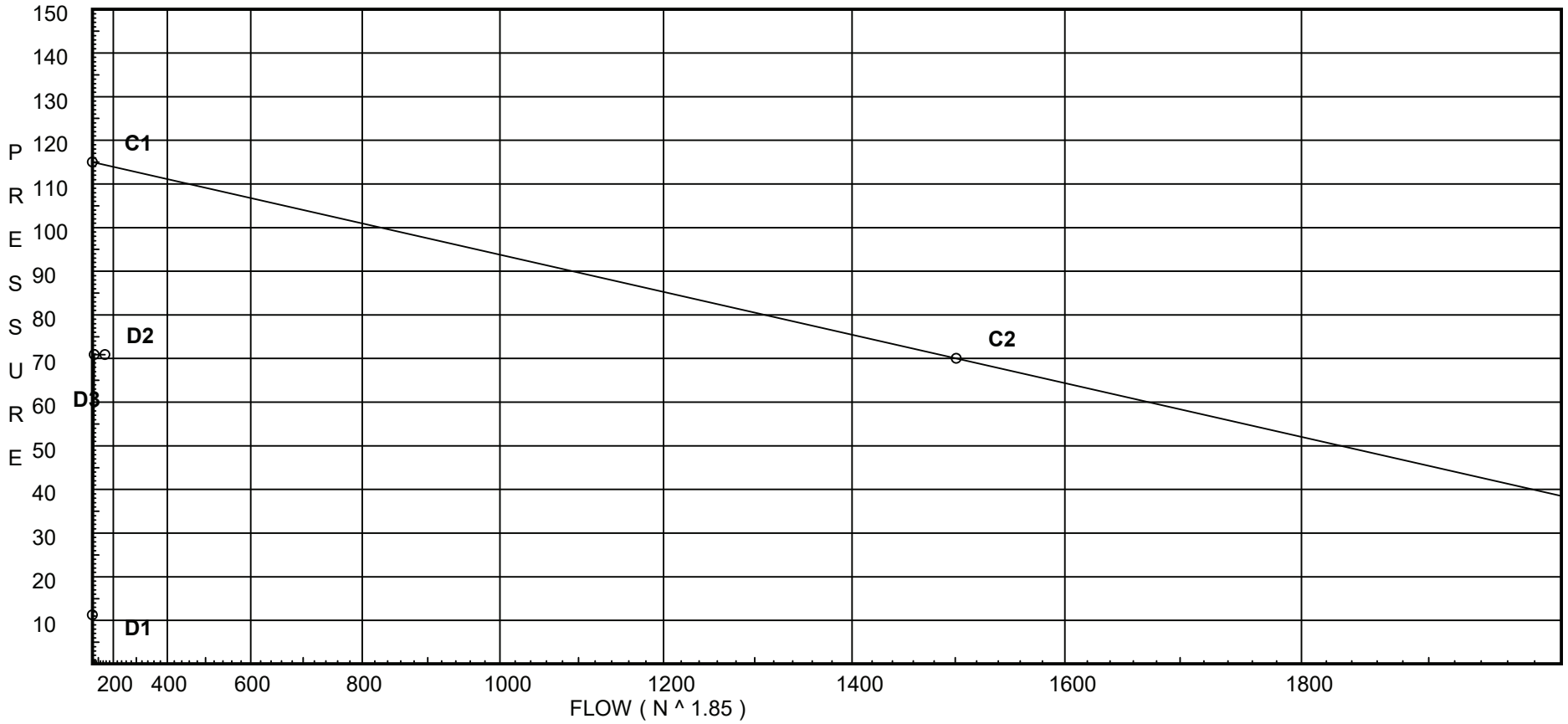
Date

City Water Supply:

C1 - Static Pressure	: 115
C2 - Residual Pressure:	70
C2 - Residual Flow	: 1501

Demand:

D1 - Elevation	: 11.261
D2 - System Flow	: 52.669
D2 - System Pressure	: 70.869
Hose (Demand)	: 100
D3 - System Demand	: 152.669
Safety Margin	: 43.475



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
N *	CPVC 90' Ell	0	4	5	6	7	9	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O *	CPVC Branch Tee	0	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	115.0	70	1501.0	114.344	152.67	70.869

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
DP01	25.0	4.9	12.04	17.0	0.1 170
EQ01	26.0		11.88		
H301	26.0	4.93	13.46	18.1	K=K @ EQ01
H302	26.0	4.93	11.88	17.0	K=K @ EQ01
H303	26.0	4.93	12.68	17.57	K=K @ EQ01
303	26.0		12.91		
A1	26.0		14.37		
A2	26.0		15.6		
A3	26.0		15.69		
A4	26.0		24.56		
A5	26.0		25.1		
A6	26.0		26.08		
A7	26.0		26.66		
A8	26.0		45.06		
A9	25.5		46.59		
A10	13.85		54.26		
TOR2	13.85		54.55		
BOR2	3.5		62.59		
UG	1.0		70.43		
HOSE	0.0		70.87	100.0	
TEST	0.0		70.87		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
DP01	25	4.90	17.00	1	O	5.0	0.400	150	12.037	
to							5.000		-0.433	
EQ01	26		17.0	1.101			5.400	0.0504	0.272	Vel = 5.73
			0.0							
EQ01			17.00						11.876	K Factor = 4.93
H301	26	4.93	18.10	1	O	5.0	10.950	150	13.465	K = K @ EQ01
to							5.000		0.0	
A1	26		18.1	1.101			15.950	0.0566	0.902	Vel = 6.10
			0.0							
A1			18.10						14.367	K Factor = 4.78
H302	26	4.93	17.00	1			16.000	150	11.876	K = K @ EQ01
to									0.0	
H303	26		17.0	1.101			16.000	0.0504	0.806	Vel = 5.73
H303	26	4.93	17.57	1			1.200	150	12.682	K = K @ EQ01
to									0.0	
303	26		34.57	1.101			1.200	0.1867	0.224	Vel = 11.65
303	26		0.0	1	O	5.0	9.850	150	12.906	
to							5.000		0.0	
A3	26		34.57	1.101			14.850	0.1873	2.781	Vel = 11.65
			0.0							
A3			34.57						15.687	K Factor = 8.73
A1	26		18.10	1.25			68.650	150	14.367	
to									0.0	
A2	26		18.1	1.394			68.650	0.0179	1.231	Vel = 3.80
A2	26		0.0	1.25			4.950	150	15.598	
to									0.0	
A3	26		18.1	1.394			4.950	0.0180	0.089	Vel = 3.80
A3	26		34.57	1.25			68.650	150	15.687	
to									0.0	
A4	26		52.67	1.394			68.650	0.1293	8.878	Vel = 11.07
A4	26		0.0	1.25			4.100	150	24.565	
to									0.0	
A5	26		52.67	1.394			4.100	0.1293	0.530	Vel = 11.07
A5	26		0.0	1.25			7.650	150	25.095	
to									0.0	
A6	26		52.67	1.394			7.650	0.1294	0.990	Vel = 11.07
A6	26		0.0	1.25			4.450	150	26.085	
to									0.0	
A7	26		52.67	1.394			4.450	0.1292	0.575	Vel = 11.07
A7	26		0.0	1.25	N	6.0	130.300	150	26.660	
to					O	6.0	12.000		0.0	
A8	26		52.67	1.394			142.300	0.1293	18.403	Vel = 11.07
A8	26		0.0	1.25	N	6.0	4.100	150	45.063	
to							6.000		0.217	
A9	25.500		52.67	1.394			10.100	0.1293	1.306	Vel = 11.07
A9	25.500		0.0	1.25	E	3.716	12.150	120	46.586	
to							3.716		5.046	
A10	13.850		52.67	1.442			15.866	0.1657	2.629	Vel = 10.35

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
			0.0							
A10			52.67						54.261	K Factor = 7.15
A10	13.850		52.67	2			12.330	120	54.261	
to									0.0	
TOR2	13.850		52.67	2.157			12.330	0.0233	0.287	Vel = 4.62
			0.0							
TOR2			52.67						54.548	K Factor = 7.13
TOR2	13.850		52.67	2	B	7.384	10.350	120	54.548	
to					E	6.153	13.537		7.483	* * Fixed Loss = 3
BOR2	3.500		52.67	2.157	Fsp	0.0	23.887	0.0233	0.557	Vel = 4.62
BOR2	3.500		0.0	4	E	13.167	6.500	120	62.588	
to					Zca	0.0	13.167		7.822	* * Fixed Loss = 6.739
UG	1		52.67	4.26			19.667	0.0008	0.016	Vel = 1.19
UG	1		0.0	6	G	4.304	20.000	140	70.426	
to					E	20.084	67.425		0.433	
HOSE	0		52.67	6.16	T	43.037	87.425	0.0001	0.010	Vel = 0.57
HOSE	0	H100	100.00	6			1.000	140	70.869	
to									0.0	
TEST	0		152.67	6.16			1.000	0	0.0	Vel = 1.64
			0.0							
TEST			152.67						70.869	K Factor = 18.14

Job Name : **The Discovery at Discovery - Lot 5**
Address : **190 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Area #4 - Unit, 2nd Floor**
Area Design : **Per NFPA-13R, 2016**

Design Criteria :
Gpm for head: **17.0** Psi for head: **12.0**
Total Sprinklers Operating: **4** Sprinkler K Factor: **4.9**
Outside Hose Allowance: **100**

Calculation Summary :

GPM Required :**51.65**	PSI Required :**56.43**	**@ Base of Riser**
GPM Required :**151.65**	PSI Required :**56.84**	**@ Connection to City Main**

Area Safety Margin: **57.4** PSI **50** %

Notes :

Water Supply Curve

The Village at Discovery - Lot 5 Area #3

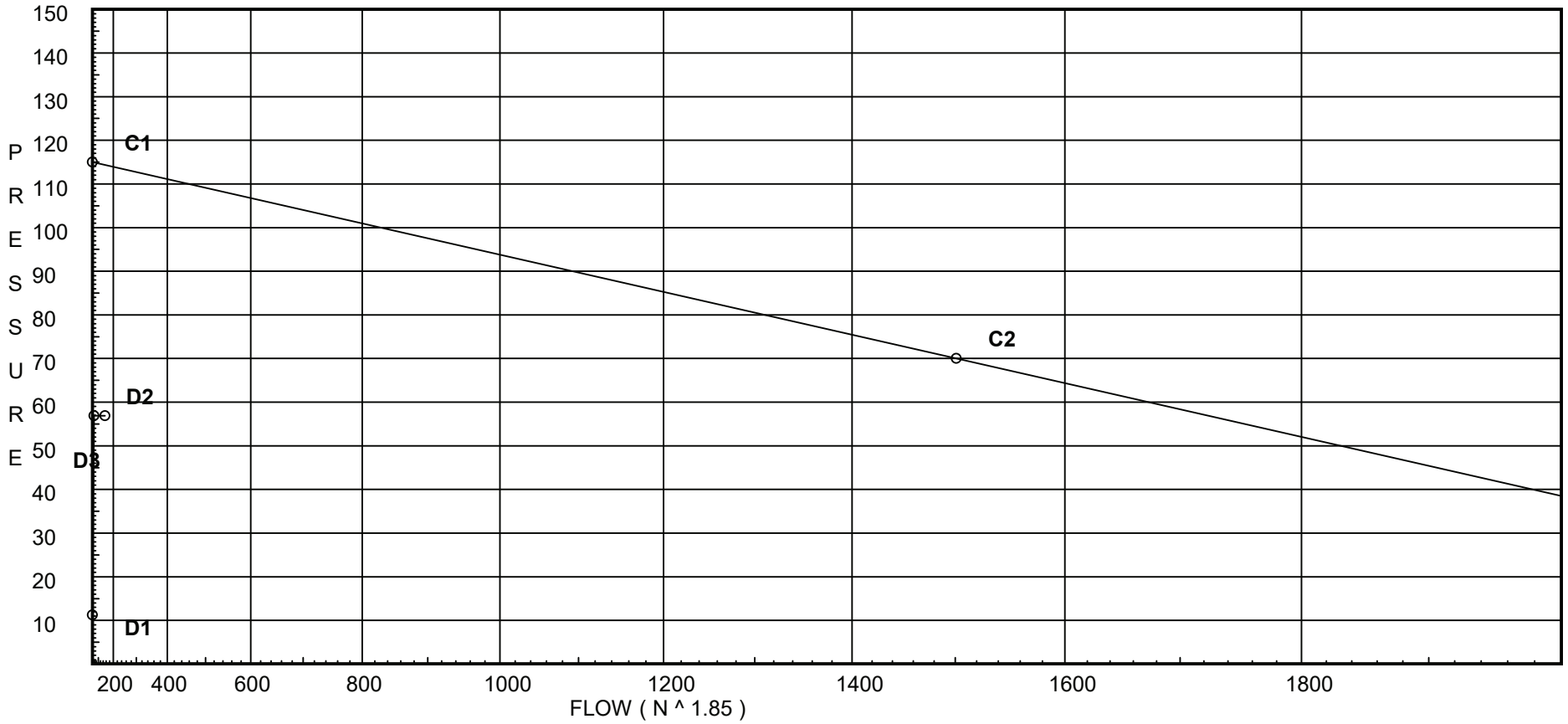
Date

City Water Supply:

C1 - Static Pressure	: 115
C2 - Residual Pressure	: 70
C2 - Residual Flow	: 1501

Demand:

D1 - Elevation	: 11.261
D2 - System Flow	: 51.646
D2 - System Pressure	: 56.879
Hose (Demand)	: 100
D3 - System Demand	: 151.646
Safety Margin	: 57.473



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
N *	CPVC 90' Ell	0	4	5	6	7	9	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O *	CPVC Branch Tee	0	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	115.0	70	1501.0	114.352	151.65	56.879

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
DP01	25.0	4.9	12.04	17.0	0.1 170
EQ01	26.0		11.88		
H401	26.0	4.93	12.43	17.39	K=K @ EQ01
H402	26.0	4.93	12.24	17.26	K=K @ EQ01
402	26.0		12.72		
H403	26.0	4.93	11.88	17.0	K=K @ EQ01
403	26.0		12.16		
H404	26.0		12.96		
A1	26.0		13.16		
A2	26.0		13.16		
A3	26.0		13.16		
A4	26.0		13.16		
A5	26.0		13.16		
A6	26.0		13.29		
A7	26.0		13.55		
A8	26.0		31.3		
A9	25.5		32.77		
A10	13.85		40.36		
TOR2	13.85		40.63		
BOR2	3.5		48.65		
UG	1.0		56.44		
HOSE	0.0		56.88	100.0	
TEST	0.0		56.88		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
DP01	25	4.90	17.00	1	O	5.0	0.400	150	12.037	
to							5.000		-0.433	
EQ01	26		17.0	1.101			5.400	0.0504	0.272	Vel = 5.73
			0.0							
EQ01			17.00						11.876	K Factor = 4.93
H401	26	4.93	17.39	1	O	5.0	8.950	150	12.425	K = K @ EQ01
to							5.000		0.0	
A5	26		17.39	1.101			13.950	0.0525	0.733	Vel = 5.86
			0.0							
A5			17.39						13.158	K Factor = 4.79
H402	26	4.93	17.26	1			9.330	150	12.238	K = K @ EQ01
to									0.0	
402	26		17.26	1.101			9.330	0.0518	0.483	Vel = 5.82
402	26		0.0	1	O	5.0	5.900	150	12.721	
to							5.000		0.0	
A6	26		17.26	1.101			10.900	0.0517	0.564	Vel = 5.82
			0.0							
A6			17.26						13.285	K Factor = 4.74
H403	26	4.93	17.00	1	O	5.0	0.650	150	11.876	K = K @ EQ01
to							5.000		0.0	
403	26		17.0	1.101			5.650	0.0503	0.284	Vel = 5.73
403	26		0.0	1	N	5.0	10.800	150	12.160	
to							5.000		0.0	
H404	26		17.0	1.101			15.800	0.0504	0.796	Vel = 5.73
H404	26		0.0	1	N	5.0	6.800	150	12.956	
to							5.000		0.0	
A7	26		17.0	1.101			11.800	0.0503	0.594	Vel = 5.73
			0.0							
A7			17.00						13.550	K Factor = 4.62
A1	26		0.0	1.25			68.650	150	13.158	
to									0.0	
A2	26		0.0	1.394			68.650	0	0.0	Vel = 0
A2	26		0.0	1.25			4.950	150	13.158	
to									0.0	
A3	26		0.0	1.394			4.950	0	0.0	Vel = 0
A3	26		0.0	1.25			68.650	150	13.158	
to									0.0	
A4	26		0.0	1.394			68.650	0	0.0	Vel = 0
A4	26		0.0	1.25			4.100	150	13.158	
to									0.0	
A5	26		0.0	1.394			4.100	0	0.0	Vel = 0
A5	26		17.39	1.25			7.650	150	13.158	
to									0.0	
A6	26		17.39	1.394			7.650	0.0166	0.127	Vel = 3.66
A6	26		17.26	1.25			4.450	150	13.285	
to									0.0	
A7	26		34.65	1.394			4.450	0.0596	0.265	Vel = 7.28
A7	26		17.00	1.25	N	6.0	130.300	150	13.550	
to					O	6.0	12.000		0.0	
A8	26		51.65	1.394			142.300	0.1247	17.748	Vel = 10.86

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
A8	26		0.0	1.25	N	6.0	4.100	150	31.298	
to							6.000		0.217	
A9	25.500		51.65	1.394			10.100	0.1247	1.259	Vel = 10.86
A9	25.500		0.0	1.25	E	3.716	12.150	120	32.774	
to							3.716		5.046	
A10	13.850		51.65	1.442			15.866	0.1598	2.535	Vel = 10.15
			0.0							
A10			51.65						40.355	K Factor = 8.13
A10	13.850		51.65	2			12.330	120	40.355	
to									0.0	
TOR2	13.850		51.65	2.157			12.330	0.0225	0.277	Vel = 4.53
			0.0							
TOR2			51.65						40.632	K Factor = 8.10
TOR2	13.850		51.65	2	B	7.384	10.350	120	40.632	
to					E	6.153	13.537		7.483	* * Fixed Loss = 3
BOR2	3.500		51.65	2.157	Fsp	0.0	23.887	0.0225	0.537	Vel = 4.53
BOR2	3.500		0.0	4	E	13.167	6.500	120	48.652	
to					Zca	0.0	13.167		7.768	* * Fixed Loss = 6.686
UG	1		51.65	4.26			19.667	0.0009	0.017	Vel = 1.16
UG	1		0.0	6	G	4.304	20.000	140	56.437	
to					E	20.084	67.425		0.433	
HOSE	0		51.65	6.16	T	43.037	87.425	0.0001	0.009	Vel = 0.56
HOSE	0	H100	100.00	6			1.000	140	56.879	
to									0.0	
TEST	0		151.65	6.16			1.000	0	0.0	Vel = 1.63
			0.0							
TEST			151.65						56.879	K Factor = 20.11

Job Name : **The Discovery at Discovery - Lot 5**
Address : **1900 NE Discovery Ave. - Lee's summit, Mo**

Date : **8/26/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Area #5 - Shell Space**
Area Design : **Per NFPA-13, 2016**
System Type : **Wet System**

Design Criteria :

Density: **0.20** gpm/sq. ft. Operating Area: **1500** sq. ft.
Max. Area Per Sprinkler: **130** Total Sprinklers Operating: **18** Sprinkler K Factor: **5.6**
Outside Hose Allowance: **250**

Calculation Summary :

GPM Required :**459.31**	PSI Required :**91.34**	**@ Base of Riser**
GPM Required :**709.31**	PSI Required :**92.30**	**@ Connection to City Main**

Area Safety Margin: **11.4** PSI **11** %

Notes :

Water Supply Curve

The Village at Discovery - Lot 5 -

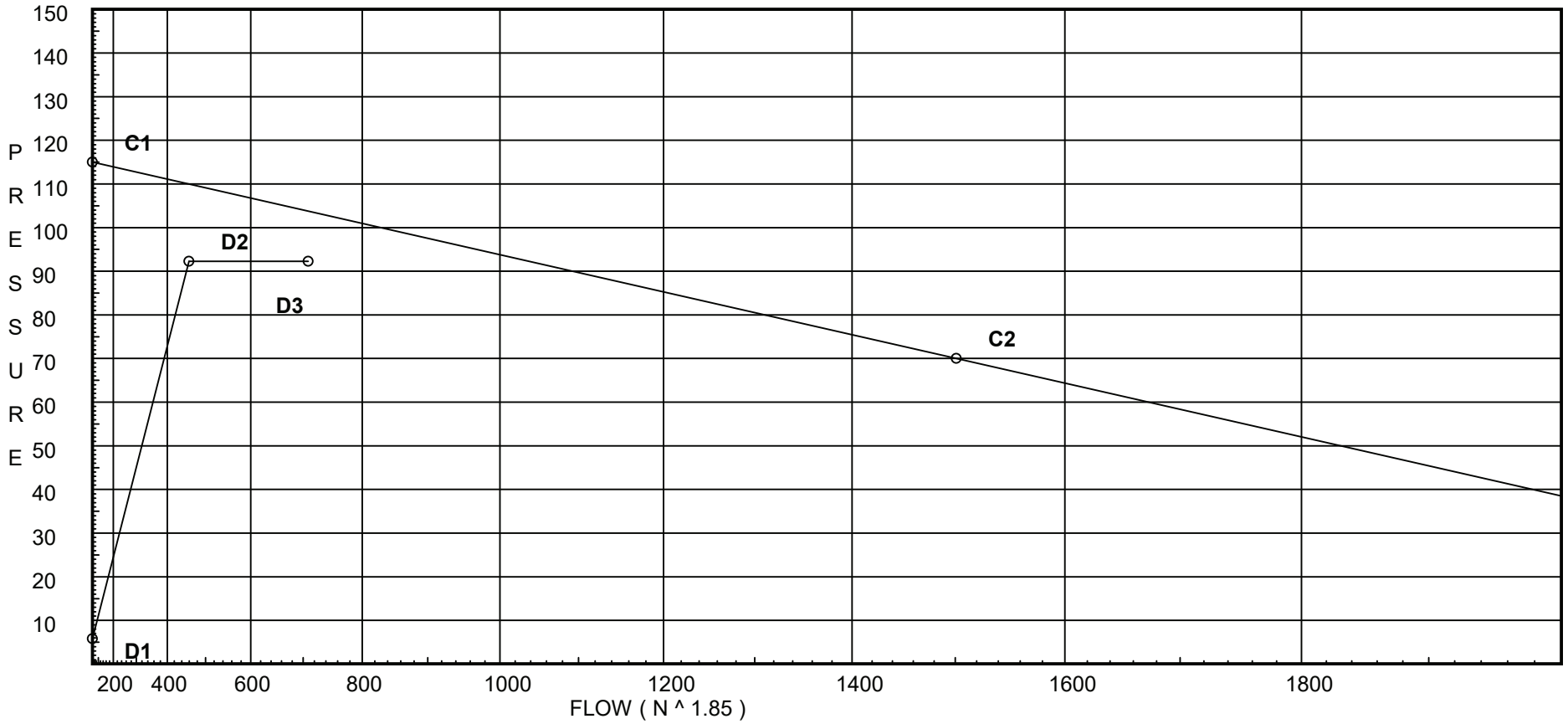
Date

City Water Supply:

C1 - Static Pressure	: 115
C2 - Residual Pressure:	70
C2 - Residual Flow	: 1501

Demand:

D1 - Elevation	: 5.812
D2 - System Flow	: 459.31
D2 - System Pressure	: 92.302
Hose (Demand)	: 250
D3 - System Demand	: 709.31
Safety Margin	: 11.454



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	115.0	70	1501.0	103.755	709.31	92.302

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
SP01	14.42	5.6	18.37	24.0	0.2 120
EQ01	13.42		19.35		
SP02	13.95	5.6	17.46	23.4	0.2 117
EQ02	13.42		18.65		
H501	13.42	5.46	24.09	26.78	K=K @ EQ01
H502	13.42	5.42	25.34	27.28	K=K @ EQ02
H503	13.42	5.42	21.35	25.04	K=K @ EQ02
H504	13.42	5.42	21.5	25.13	K=K @ EQ02
H505	13.42	5.42	21.94	25.38	K=K @ EQ02
H506	13.42	5.42	23.01	25.99	K=K @ EQ02
H507	13.42	5.42	22.02	25.43	K=K @ EQ02
H508	13.42	5.42	22.21	25.54	K=K @ EQ02
H509	13.42	5.42	22.87	25.92	K=K @ EQ02
H510	13.42	5.42	24.03	26.56	K=K @ EQ02
H511	13.42	5.42	18.65	23.4	K=K @ EQ02
H512	13.42	5.42	18.78	23.48	K=K @ EQ02
H513	13.42	5.42	19.1	23.68	K=K @ EQ02
H514	13.42	5.42	19.91	24.18	K=K @ EQ02
H515	13.42	5.42	22.92	25.94	K=K @ EQ02
H516	13.42	5.42	23.11	26.05	K=K @ EQ02
H517	13.42	5.42	23.8	26.44	K=K @ EQ02
H518	13.42	5.42	25.0	27.09	K=K @ EQ02
B1	13.42		27.0		
B2	13.42		27.01		
B3	13.42		27.2		
B4	13.42		27.29		
B5	13.42		28.29		
B6	13.42		40.98		
TOR1	13.42		68.66		
BOR1	3.5		82.03		
BOR2	3.5		82.1		
UG	1.0		91.35		
HOSE	0.0		92.29	250.0	
TEST	0.0		92.3		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
SP01	14.42	5.60	24.00	1	E	2.0	1.000	120	18.367	
to							2.000		0.433	
EQ01	13.42		24.0	1.049			3.000	0.1823	0.547	Vel = 8.91
			0.0							
EQ01			24.00						19.347	K Factor = 5.46
SP02	13.950	5.60	23.40	1	T	5.0	0.500	120	17.460	
to							5.000		0.230	
EQ02	13.42		23.4	1.049			5.500	0.1740	0.957	Vel = 8.69
			0.0							
EQ02			23.40						18.647	K Factor = 5.42
H501	13.42	5.46	26.78	1			5.610	120	24.089	K = K @ EQ01
to									0.0	
H502	13.42		26.78	1.049			5.610	0.2234	1.253	Vel = 9.94
H502	13.42	5.42	27.28	1.25	T	6.0	1.720	120	25.342	K = K @ EQ02
to							6.000		0.0	
B1	13.42		54.06	1.38			7.720	0.2154	1.663	Vel = 11.60
			0.0							
B1			54.06						27.005	K Factor = 10.40
H503	13.42	5.42	25.04	1.5			7.500	120	21.352	K = K @ EQ02
to									0.0	
H504	13.42		25.04	1.682			7.500	0.0197	0.148	Vel = 3.62
H504	13.42	5.42	25.13	1.5			6.120	120	21.500	K = K @ EQ02
to									0.0	
H505	13.42		50.17	1.682			6.120	0.0716	0.438	Vel = 7.24
H505	13.42	5.42	25.38	1.5			7.000	120	21.938	K = K @ EQ02
to									0.0	
H506	13.42		75.55	1.682			7.000	0.1526	1.068	Vel = 10.91
H506	13.42	5.42	25.99	1.5	T	9.9	5.280	120	23.006	K = K @ EQ02
to							9.900		0.0	
B2	13.42		101.54	1.682			15.180	0.2638	4.004	Vel = 14.66
			0.0							
B2			101.54						27.010	K Factor = 19.54
H507	13.42	5.42	25.43	1.5			9.000	120	22.025	K = K @ EQ02
to									0.0	
H508	13.42		25.43	1.682			9.000	0.0203	0.183	Vel = 3.67
H508	13.42	5.42	25.54	1.5			9.000	120	22.208	K = K @ EQ02
to									0.0	
H509	13.42		50.97	1.682			9.000	0.0737	0.663	Vel = 7.36
H509	13.42	5.42	25.91	1.5			7.330	120	22.871	K = K @ EQ02
to									0.0	
H510	13.42		76.88	1.682			7.330	0.1577	1.156	Vel = 11.10
H510	13.42	5.42	26.56	1.5	T	9.9	1.720	120	24.027	K = K @ EQ02
to							9.900		0.0	
B3	13.42		103.44	1.682			11.620	0.2729	3.171	Vel = 14.94
			0.0							
B3			103.44						27.198	K Factor = 19.83
H511	13.42	5.42	23.40	1.5			7.500	120	18.647	K = K @ EQ02
to									0.0	
H512	13.42		23.4	1.682			7.500	0.0175	0.131	Vel = 3.38

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
H512	13.42	5.42	23.48	1.5			5.120	120	18.778	K = K @ EQ02
to									0.0	
H513	13.42		46.88	1.682			5.120	0.0631	0.323	Vel = 6.77
H513	13.42	5.42	23.69	1.5			6.000	120	19.101	K = K @ EQ02
to									0.0	
H514	13.42		70.57	1.682			6.000	0.1345	0.807	Vel = 10.19
H514	13.42	5.42	24.17	1.5	2E	9.9	12.030	120	19.908	K = K @ EQ02
to					T	9.9	19.800		0.0	
B4	13.42		94.74	1.682			31.830	0.2320	7.385	Vel = 13.68
			0.0							
B4			94.74						27.293	K Factor = 18.13
H515	13.42	5.42	25.94	1.5			9.000	120	22.921	K = K @ EQ02
to									0.0	
H516	13.42		25.94	1.682			9.000	0.0211	0.190	Vel = 3.75
H516	13.42	5.42	26.05	1.5			9.000	120	23.111	K = K @ EQ02
to									0.0	
H517	13.42		51.99	1.682			9.000	0.0764	0.688	Vel = 7.51
H517	13.42	5.42	26.44	1.5			7.330	120	23.799	K = K @ EQ02
to									0.0	
H518	13.42		78.43	1.682			7.330	0.1636	1.199	Vel = 11.32
H518	13.42	5.42	27.09	1.5	T	9.9	1.720	120	24.998	K = K @ EQ02
to							9.900		0.0	
B5	13.42		105.52	1.682			11.620	0.2831	3.290	Vel = 15.24
			0.0							
B5			105.52						28.288	K Factor = 19.84
B1	13.42		54.06	3			1.420	120	27.005	
to									0.0	
B2	13.42		54.06	3.26			1.420	0.0035	0.005	Vel = 2.08
B2	13.42		101.54	3			8.160	120	27.010	
to									0.0	
B3	13.42		155.6	3.26			8.160	0.0230	0.188	Vel = 5.98
B3	13.42		103.44	3			1.590	120	27.198	
to									0.0	
B4	13.42		259.04	3.26			1.590	0.0597	0.095	Vel = 9.96
B4	13.42		94.75	3			9.410	120	27.293	
to									0.0	
B5	13.42		353.79	3.26			9.410	0.1057	0.995	Vel = 13.60
B5	13.42		105.52	3			74.000	120	28.288	
to									0.0	
B6	13.42		459.31	3.26			74.000	0.1715	12.689	Vel = 17.65
B6	13.42		0.0	3	2E	18.815	142.610	120	40.977	
to							18.815		0.0	
TOR1	13.420		459.31	3.26			161.425	0.1715	27.679	Vel = 17.65
			0.0							
TOR1			459.31						68.656	K Factor = 55.43
TOR1	13.420		459.31	3	T	20.159	9.950	120	68.656	
to					B	13.44	43.007		4.296	
BOR1	3.500		459.31	3.26	E	9.408	52.957	0.1715	9.081	Vel = 17.65

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
BOR1	3.500		0.0	4			1.500	120	82.033	
to									0.0	
BOR2	3.500		459.31	4.26			1.500	0.0460	0.069	Vel = 10.34
BOR2	3.500		0.0	4	E	13.167	6.500	120	82.102	
to					Zca	0.0	13.167		8.328	* * Fixed Loss = 7.246
UG	1		459.31	4.26			19.667	0.0466	0.917	Vel = 10.34
UG	1		0.0	6	G	4.304	20.000	140	91.347	
to					E	20.084	67.425		0.433	
HOSE	0		459.31	6.16	T	43.037	87.425	0.0058	0.508	Vel = 4.94
HOSE	0	H250	250.00	6			1.000	140	92.288	
to									0.0	
TEST	0		709.31	6.16			1.000	0.0140	0.014	Vel = 7.64
			0.0							
TEST			709.31						92.302	K Factor = 73.83