Job Name : **Bob Sight Ford - Under Mezz Parts Storage**
Address : **610 nw Blue Pkwy - Lee's summint, MO**

Date : **4/21/2025**
Sprinkler Contractor : **Goal Fire Protection, LLC**

Area Info : **Tire Storage**
Area Design : **Per NFPA-13, 2016**
System Type : **Wet System**

Design Criteria :

Density: **0.29** gpm/sq. ft. Operating Area: **Entire Tire Storage Area - 1200** sq. ft.
Max. Area Per Sprinkler: **100** Total Sprinklers Operating: **18** Sprinkler K Factor: **11.2/8.0**
Outside Hose Allowance: **0**

Calculation Summary :

GPM Required :**495.98**	PSI Required :**17.06**	**@ Base of Riser**

Area Safety Margin: **4.2** PSI **19** %

4-28-2025

Water Supply :

Flow Test :
Date : **4-21-2025**
Static : **82** PSI
Residual : **55** PSI
Flow : **320** GPM
Elevation : **1' Above F.F.**
Location of Flow Test : **Base of Riser**
Source of Flow Test : **Goal Fire Protection, LLC**

Notes :
Calcs are based on a calculated Flow Test, based on current system design.
City Hydrants in area do not currently allow for the ability to take a Flow test on the City Main.
There is No hose allowance in the Calcs, due to it being located at the Base of the Existing Riser.

Water Supply Curve

Tire Storage

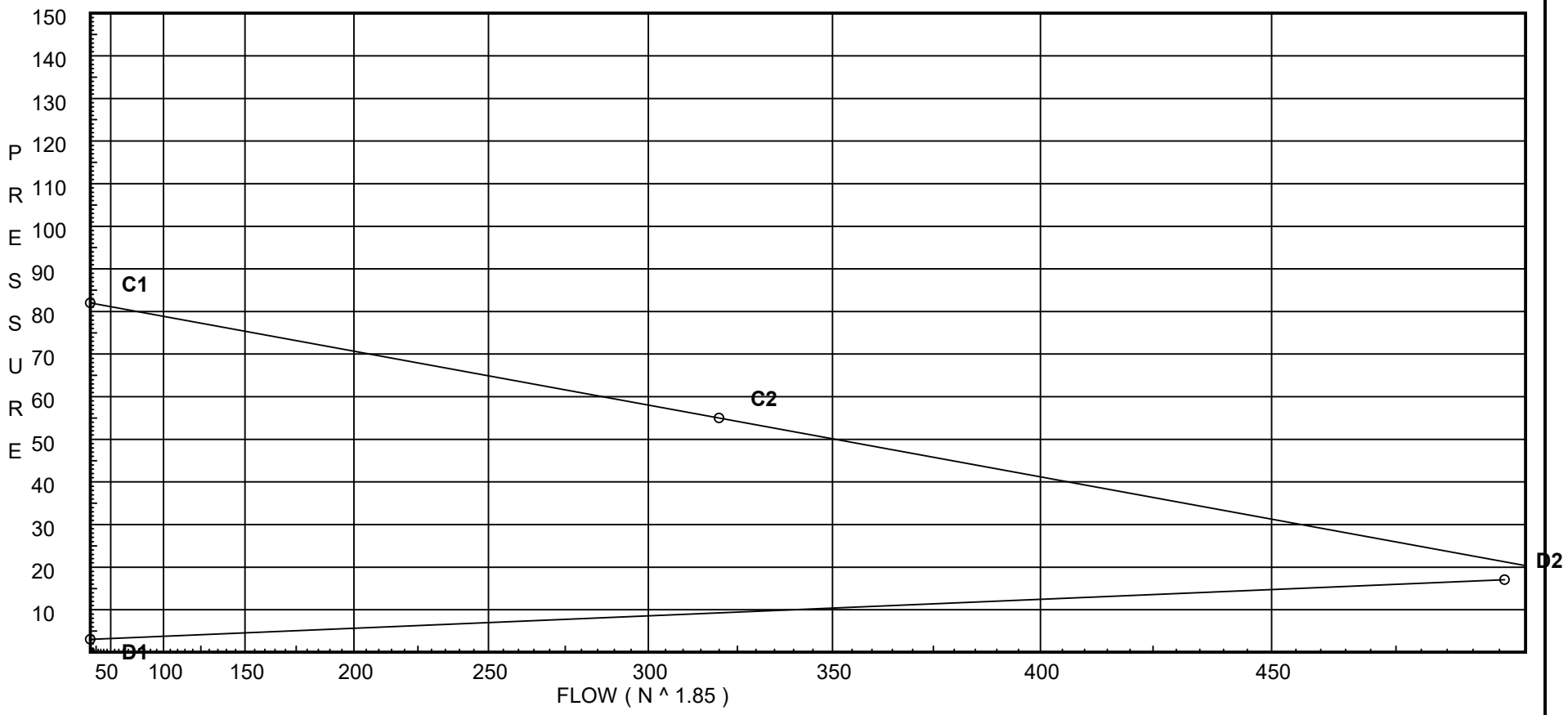
Date

City Water Supply:

C1 - Static Pressure	: 82
C2 - Residual Pressure:	55
C2 - Residual Flow	: 320

Demand:

D1 - Elevation	: 3.032
D2 - System Flow	: 495.981
D2 - System Pressure	: 17.064
Hose (Demand)	:
D3 - System Demand	: 495.981
Safety Margin	: 4.200



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
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

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	82.0	55	320.0	21.264	495.98	17.064

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
H101	7.0	8	7.81	22.35	0.29	70
H102	7.0	8	7.37	21.72	0.29	74
H103	7.0	8	7.82	22.37	0.29	70
H104	7.0	8	7.39	21.75	0.29	75
H105	7.0	8	7.86	22.43	0.29	70
H106	7.0	8	7.46	21.85	0.29	75
H107	7.0	8	7.95	22.55	0.29	70
H108	7.0	8	7.6	22.06	0.29	75
H109	7.0	8	8.26	22.99	0.29	70
H110	7.0	8	7.84	22.4	0.29	75
H111	7.0	8	8.5	23.33	0.29	70
H112	11.0	11.2	7.4	30.47	0.29	95
H113	11.0	11.2	7.47	30.6	0.29	95
H114	11.0	11.2	7.7	31.07	0.29	95
H115	11.0	11.2	8.19	32.05	0.29	95
H116	11.0	11.2	7.62	30.91	0.29	95
H117	11.0	11.2	7.68	31.05	0.29	95
H118	11.0	11.2	7.92	31.52	0.29	95
H119	11.0	11.2	8.43	32.51	0.29	95
A1	8.0		7.81			
A2	8.0		7.82			
A3	8.0		7.82			
A4	8.0		7.84			
A5	8.0		7.87			
A6	8.0		7.92			
A7	8.0		7.96			
A8	8.0		8.08			
A9	8.0		8.12			
A10	8.0		8.34			
A11	8.0		8.38			
A12	11.0		9.7			
A13	11.0		9.82			
A14	11.0		10.1			
TOR	11.0		10.21			
TEST	0.0		17.06			

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	7	8.00	22.35	1.25	T	7.432	5.500	120	7.808	
to							7.432		-0.433	
A1	8		22.35	1.442			12.932	0.0339	0.439	Vel = 4.39
			0.0							
A1			22.35						7.814	K Factor = 8.00
H102	7	8.00	21.72	1	T	6.217	1.000	120	7.369	
to							6.217		-0.433	
A2	8		21.72	1.097			7.217	0.1218	0.879	Vel = 7.37
			0.0							
A2			21.72						7.815	K Factor = 7.77
H103	7	8.00	22.37	1.25	T	7.432	5.500	120	7.818	
to							7.432		-0.433	
A3	8		22.37	1.442			12.932	0.0340	0.440	Vel = 4.39
			0.0							
A3			22.37						7.825	K Factor = 8.00
H104	7	8.00	21.75	1	T	6.217	1.000	120	7.392	
to							6.217		-0.433	
A4	8		21.75	1.097			7.217	0.1222	0.882	Vel = 7.38
			0.0							
A4			21.75						7.841	K Factor = 7.77
H105	7	8.00	22.43	1.25	T	7.432	5.500	120	7.859	
to							7.432		-0.433	
A5	8		22.43	1.442			12.932	0.0341	0.441	Vel = 4.41
			0.0							
A5			22.43						7.867	K Factor = 8.00
H106	7	8.00	21.85	1	T	6.217	1.000	120	7.462	
to							6.217		-0.433	
A6	8		21.85	1.097			7.217	0.1232	0.889	Vel = 7.42
			0.0							
A6			21.85						7.918	K Factor = 7.77
H107	7	8.00	22.55	1.25	T	7.432	5.500	120	7.948	
to							7.432		-0.433	
A7	8		22.55	1.442			12.932	0.0345	0.446	Vel = 4.43
			0.0							
A7			22.55						7.961	K Factor = 7.99
H108	7	8.00	22.06	1	T	6.217	1.000	120	7.604	
to							6.217		-0.433	
A8	8		22.06	1.097			7.217	0.1254	0.905	Vel = 7.49
			0.0							
A8			22.06						8.076	K Factor = 7.76
H109	7	8.00	22.99	1.25	T	7.432	1.000	120	8.256	
to							7.432		-0.433	
A9	8		22.99	1.442			8.432	0.0358	0.302	Vel = 4.52
			0.0							
A9			22.99						8.125	K Factor = 8.07
H110	7	8.00	22.40	1	T	6.217	1.000	120	7.842	
to							6.217		-0.433	
A10	8		22.4	1.097			7.217	0.1290	0.931	Vel = 7.60

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 ******
A10			0.0 22.40						8.340	K Factor = 7.76
H111 to A11	7 8	8.00	23.33 23.33	1.25 1.442	T	7.432	1.000 7.432 8.432	120 0.0368	8.502 -0.433 0.310	Vel = 4.58
A11			0.0 23.33						8.379	K Factor = 8.06
H112 to H113	11 11	11.20	30.47 30.47	2 2.157			7.500 7.500	120 0.0085	7.402 0.0 0.064	Vel = 2.68
H113 to H114	11 11	11.20	30.60 61.07	2 2.157			7.500 7.500	120 0.0307	7.466 0.0 0.230	Vel = 5.36
H114 to H115	11 11	11.20	31.07 92.14	2 2.157			7.500 7.500	120 0.0656	7.696 0.0 0.492	Vel = 8.09
H115 to A13	11 11	11.20	32.05 124.19	2 2.157	T	12.307	2.000 12.307 14.307	120 0.1140	8.188 0.0 1.631	Vel = 10.90
A13			0.0 124.19						9.819	K Factor = 39.63
H116 to H117	11 11	11.20	30.91 30.91	2 2.157			7.500 7.500	120 0.0088	7.618 0.0 0.066	Vel = 2.71
H117 to H118	11 11	11.20	31.05 61.96	2 2.157			7.500 7.500	120 0.0315	7.684 0.0 0.236	Vel = 5.44
H118 to H119	11 11	11.20	31.52 93.48	2 2.157			7.500 7.500	120 0.0673	7.920 0.0 0.505	Vel = 8.21
H119 to A14	11 11	11.20	32.51 125.99	2 2.157	T	12.307	2.000 12.307 14.307	120 0.1171	8.425 0.0 1.675	Vel = 11.06
A14			0.0 125.99						10.100	K Factor = 39.64
A1 to A2	8 8		22.35 22.35	3 3.26			2.500 2.500	120 0.0004	7.814 0.0 0.001	Vel = 0.86
A2 to A3	8 8		21.72 44.07	3 3.26			4.150 4.150	120 0.0024	7.815 0.0 0.010	Vel = 1.69
A3 to A4	8 8		22.37 66.44	3 3.26			3.300 3.300	120 0.0048	7.825 0.0 0.016	Vel = 2.55
A4 to A5	8 8		21.75 88.19	3 3.26			3.300 3.300	120 0.0079	7.841 0.0 0.026	Vel = 3.39

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 ******
A5	8		22.43	3			4.150	120	7.867	
to									0.0	
A6	8		110.62	3.26			4.150	0.0123	0.051	Vel = 4.25
A6	8		21.85	3			2.500	120	7.918	
to									0.0	
A7	8		132.47	3.26			2.500	0.0172	0.043	Vel = 5.09
A7	8		22.55	3			5.000	120	7.961	
to									0.0	
A8	8		155.02	3.26			5.000	0.0230	0.115	Vel = 5.96
A8	8		22.06	3			1.650	120	8.076	
to									0.0	
A9	8		177.08	3.26			1.650	0.0297	0.049	Vel = 6.81
A9	8		22.99	3			5.850	120	8.125	
to									0.0	
A10	8		200.07	3.26			5.850	0.0368	0.215	Vel = 7.69
A10	8		22.40	3			0.850	120	8.340	
to									0.0	
A11	8		222.47	3.26			0.850	0.0459	0.039	Vel = 8.55
A11	8		23.33	3	2E	18.815	9.650	120	8.379	
to					T	20.159	38.974		-1.299	
A12	11		245.8	3.26			48.624	0.0539	2.622	Vel = 9.45
A12	11		0.0	4			8.000	120	9.702	
to									0.0	
A13	11		245.8	4.26			8.000	0.0146	0.117	Vel = 5.53
A13	11		124.19	4			9.000	120	9.819	
to									0.0	
A14	11		369.99	4.26			9.000	0.0312	0.281	Vel = 8.33
A14	11		125.99	4			2.000	120	10.100	
to									0.0	
TOR	11		495.98	4.26			2.000	0.0535	0.107	Vel = 11.16
TOR	11		0.0	4	E	13.167	10.000	120	10.207	
to					B	15.8	28.967		4.764	
TEST	0		495.98	4.26			38.967	0.0537	2.093	Vel = 11.16
			0.0							
TEST			495.98						17.064	K Factor = 120.07