PATRIOT
FIRE PROTECTION

Expires DEC 31, 26

WASHINGTON STATE
CERTIFICATE OF COMPETENCY
FIRE SPRINKLER SYSTEMS

Derek Strickland
3408-0225-C Level 3
Patriot Fire Protection, Inc.
PATRIFP099CF

Derek Strickland 06/16/2026

Signature **Date**

PATRIOT FIRE PROTECTION
2707 70TH AVE. EAST
TACOMA, WA 89424
253-284-3449

Job Name	:	Centeris L2 Expansion
Drawing	:	
Location	:	1023 39TH AVE SE PUYALLUP, WA 98374
Remote Area	:	L2 ROW D
Contract	:	18-0181
Data File	:	Centeris L2 Expansion Area L2 DDC.WXF
Date/Time	:	06/16/2026 - 11:04 PM

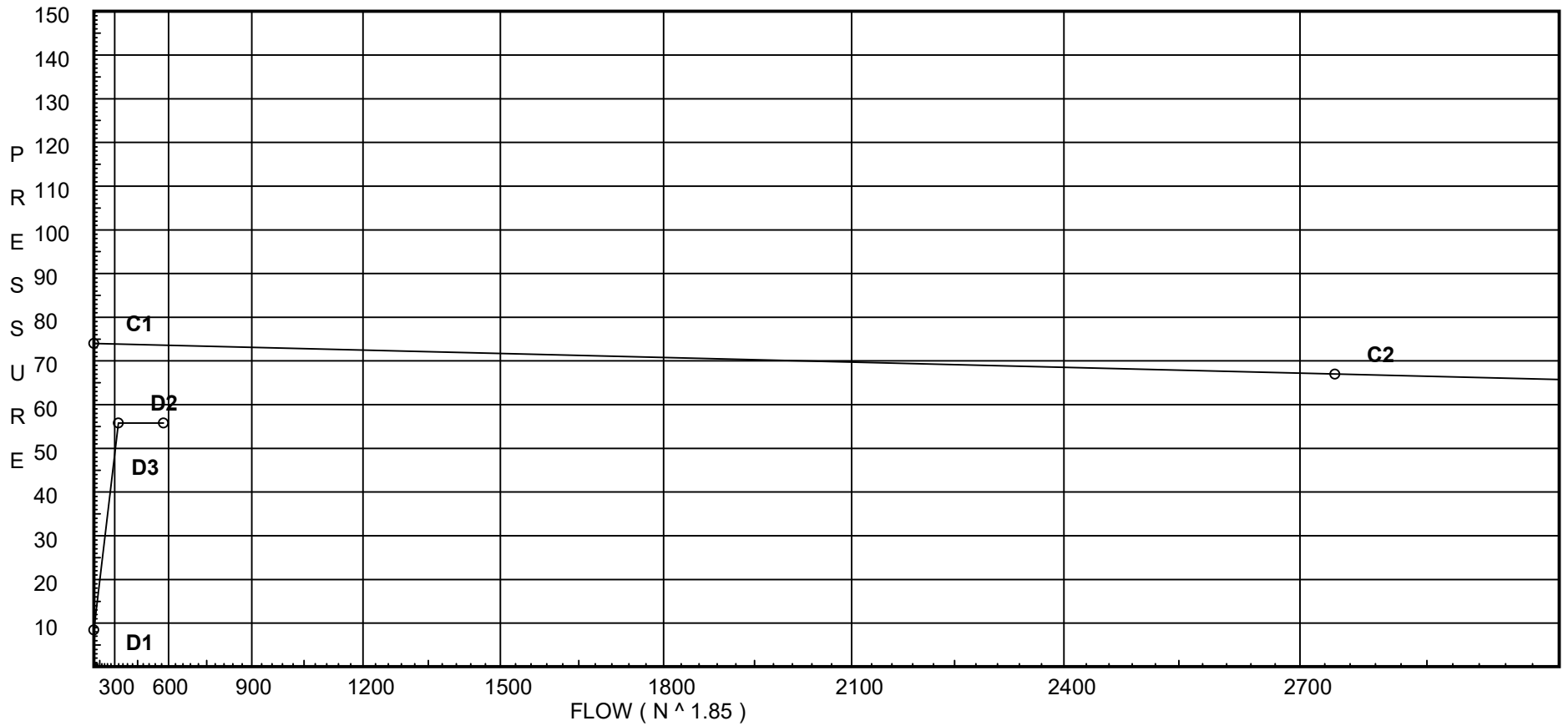
Water Supply Curve

PATRIOT FIRE PROTECTION
Centeris L2 Expansion

Date

City Water Supply:
- C1 - Static Pressure : 74
- C2 - Residual Pressure: 67
- C2 - Residual Flow : 2742

Demand:
- D1 - Elevation : 8.432
- D2 - System Flow : 327.949
- D2 - System Pressure : 55.819
- Hose (Demand) : 250
- D3 - System Demand : 577.949
- Safety Margin : 17.788



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
D	Dry Valve Rel FX						10	11.4	13.2		23.5		37								
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
Ziw	Wilkins 350AST	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
SRC	74.0	67	2742.0	73.607	577.95	55.819

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
A1	517.47	5.6	7.17	15.0	0.15	100
A2	517.42	5.6	7.32	15.15	0.15	100
A3	517.37	5.6	7.79	15.63	0.15	100
A4	517.33	5.6	8.77	16.58	0.15	100
A5	517.28	5.6	10.51	18.15	0.15	100
A6	517.23	5.6	13.27	20.4	0.15	100
A10	517.49	5.6	7.32	15.15	0.15	100
A11	517.44	5.6	7.47	15.31	0.15	100
A12	517.39	5.6	7.95	15.79	0.15	100
A13	517.34	5.6	8.95	16.76	0.15	100
A14	517.29	5.6	10.72	18.33	0.15	100
A15	517.25	5.6	13.54	20.6	0.15	100
A9	517.35	5.6	13.3	20.42	0.15	100
A8	517.3	5.6	13.53	20.6	0.15	100
A7	517.25	5.6	14.35	21.21	0.15	100
21	517.22		16.75			
22	517.24		17.09			
23	521.07		29.39			
24	519.61		35.36			
TOR	500.76		46.34			
BOR	484.34		55.13			
12	482.56		57.36			
FLG	481.0		58.11			
SRC	498.0		55.82	250.0		
A18	517.37	5.6	13.57	20.63	0.15	100
A17	517.32	5.6	13.81	20.81	0.15	100
A16	517.27	5.6	14.64	21.42	0.15	100

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 ******
A1	517.47	5.60	15.00	1.5			11.420	100	7.175	
to									0.022	
A2	517.42		15.0	1.682			11.420	0.0107	0.122	Vel = 2.17
A2	517.42	5.60	15.15	1.5			11.420	100	7.319	
to									0.022	
A3	517.37		30.15	1.682			11.420	0.0391	0.446	Vel = 4.35
A3	517.37	5.60	15.63	1.5			11.420	100	7.787	
to									0.017	
A4	517.33		45.78	1.682			11.420	0.0847	0.967	Vel = 6.61
A4	517.33	5.60	16.58	1.5			11.420	100	8.771	
to									0.022	
A5	517.28		62.36	1.682			11.420	0.1499	1.712	Vel = 9.00
A5	517.28	5.60	18.15	1.5			11.420	100	10.505	
to									0.022	
A6	517.23		80.51	1.682			11.420	0.2405	2.747	Vel = 11.62
A6	517.23	5.60	20.41	1.5	T	7.065	2.440	100	13.274	
to							7.066		0.004	
21	517.22		100.92	1.682			9.506	0.3653	3.473	Vel = 14.57
			0.0							
21			100.92						16.751	K Factor = 24.66
A10	517.49	5.60	15.15	1.5			11.420	100	7.323	
to									0.022	
A11	517.44		15.15	1.682			11.420	0.0109	0.125	Vel = 2.19
A11	517.44	5.60	15.31	1.5			11.420	100	7.470	
to									0.022	
A12	517.39		30.46	1.682			11.420	0.0398	0.454	Vel = 4.40
A12	517.39	5.60	15.79	1.5			11.420	100	7.946	
to									0.022	
A13	517.34		46.25	1.682			11.420	0.0863	0.985	Vel = 6.68
A13	517.34	5.60	16.75	1.5			11.420	100	8.953	
to									0.022	
A14	517.29		63.0	1.682			11.420	0.1528	1.745	Vel = 9.10
A14	517.29	5.60	18.34	1.5			11.420	100	10.720	
to									0.017	
A15	517.25		81.34	1.682			11.420	0.2451	2.799	Vel = 11.74
A15	517.25	5.60	20.60	1.5	T	7.065	2.460	100	13.536	
to							7.066		0.004	
22	517.24		101.94	1.682			9.526	0.3722	3.546	Vel = 14.72
			0.0							
22			101.94						17.086	K Factor = 24.66
A9	517.35	5.60	20.42	1.5			11.420	100	13.296	
to									0.022	
A8	517.3		20.42	1.682			11.420	0.0190	0.217	Vel = 2.95
A8	517.3	5.60	20.60	1.5			11.420	100	13.535	
to									0.022	
A7	517.25		41.02	1.682			11.420	0.0691	0.789	Vel = 5.92
A7	517.25	5.60	21.21	1.5	T	7.065	8.950	100	14.346	
to							7.066		0.013	
21	517.22		62.23	1.682			16.016	0.1494	2.392	Vel = 8.99

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 ******
21	517.22		100.92	3			9.710	100	16.751	
to									-0.009	
22	517.24		163.15	3.26			9.710	0.0354	0.344	Vel = 6.27
22	517.24		164.80	3	3E	20.143	73.830	100	17.086	
to					T	14.388	34.530		-1.659	
23	521.07		327.95	3.26			108.360	0.1288	13.960	Vel = 12.61
23	521.07		0.0	4	T	18.795	96.250	100	29.387	
to					4E	37.589	56.384		0.632	
24	519.610		327.95	4.26			152.634	0.0350	5.344	Vel = 7.38
24	519.610		0.0	4	2E	18.795	61.510	100	35.363	
to							18.795		8.164	
TOR	500.76		327.95	4.26			80.305	0.0350	2.811	Vel = 7.38
TOR	500.76		0.0	4	E	9.397	16.420	100	46.338	
to					D	22.084	31.481		7.112	
BOR	484.34		327.95	4.26			47.901	0.0350	1.676	Vel = 7.38
BOR	484.34		0.0	4	B	15.8	3.380	120	55.126	
to					T	26.334	55.301		0.771	
12	482.56		327.95	4.26	E	13.167	58.681	0.0250	1.466	Vel = 7.38
12	482.56		0.0	6	E	17.603	1.560	120	57.363	
to							17.603		0.676	
FLG	481		327.95	6.357			19.163	0.0035	0.068	Vel = 3.32
FLG	481		0.0	8	E	28.468	217.730	140	58.107	
to					2G	12.652	41.120		-2.480	* * Fixed Loss = 4.882
SRC	498		327.95	8.27	Ziw	0.0	258.850	0.0007	0.192	Vel = 1.96
			250.00							Qa = 250.00
SRC			577.95						55.819	K Factor = 77.36
A18	517.37	5.60	20.63	1.5			11.420	100	13.567	
to									0.022	
A17	517.32		20.63	1.682			11.420	0.0194	0.221	Vel = 2.98
A17	517.32	5.60	20.81	1.5			11.420	100	13.810	
to									0.022	
A16	517.27		41.44	1.682			11.420	0.0704	0.804	Vel = 5.98
A16	517.27	5.60	21.42	1.5	T	7.065	8.950	100	14.636	
to							7.066		0.013	
22	517.24		62.86	1.682			16.016	0.1522	2.437	Vel = 9.08
			0.0							
22			62.86						17.086	K Factor = 15.21