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HYDRAULIC CALCULATIONS FOR
PUYALLUP MAZDA ADDITION
608 RIVER ROAD
PUYALLUP, WA 98371

DRAWING NUMBER: 12-24254 DATE: JUL 7, 2025

-DESIGN DATA-

REMOTE AREA NUMBER: 1 REMOTE AREA LOCATION: SERVICE ADDITION

OCCUPANCY CLASSIFICATION: ORDINARY HAZARD GROUP 2

DENSITY: 0.2 GPM / SQFT

AREA OF APPLICATION: 990 SQFT

COVERAGE PER SPRINKLER: 120 sq. ft.

TYPE OF SPRINKLERS CALCULATED: QR UPRIGHTS

NUMBER OF SPRINKLERS CALCULATED: 10

HOSE-STREAM DEMAND: 250 gpm

TOTAL WATER REQUIRED (INCLUDING HOSE): 517.4 gpm

TYPE OF SYSTEM: WET

WATER SUPPLY

Source: EXISTING RISER W/ 55 PSI STATIC

Static: 55 psi Residual: 20 psi Flow: 1500.0 gpm

Source Elevation Relative to Finished Floor Level: 4 ft.

INSTALLING CONTRACTOR

Name: PATRIOT FIRE PROTECTION INC

Address: 2707 70TH AVE FIFE, WA

Phone: (253)-926-2290

NAME OF DESIGNER: HUNTER ANDERSON

AUTHORITY HAVING JURISDICTION: CITY OF PUYALLUP

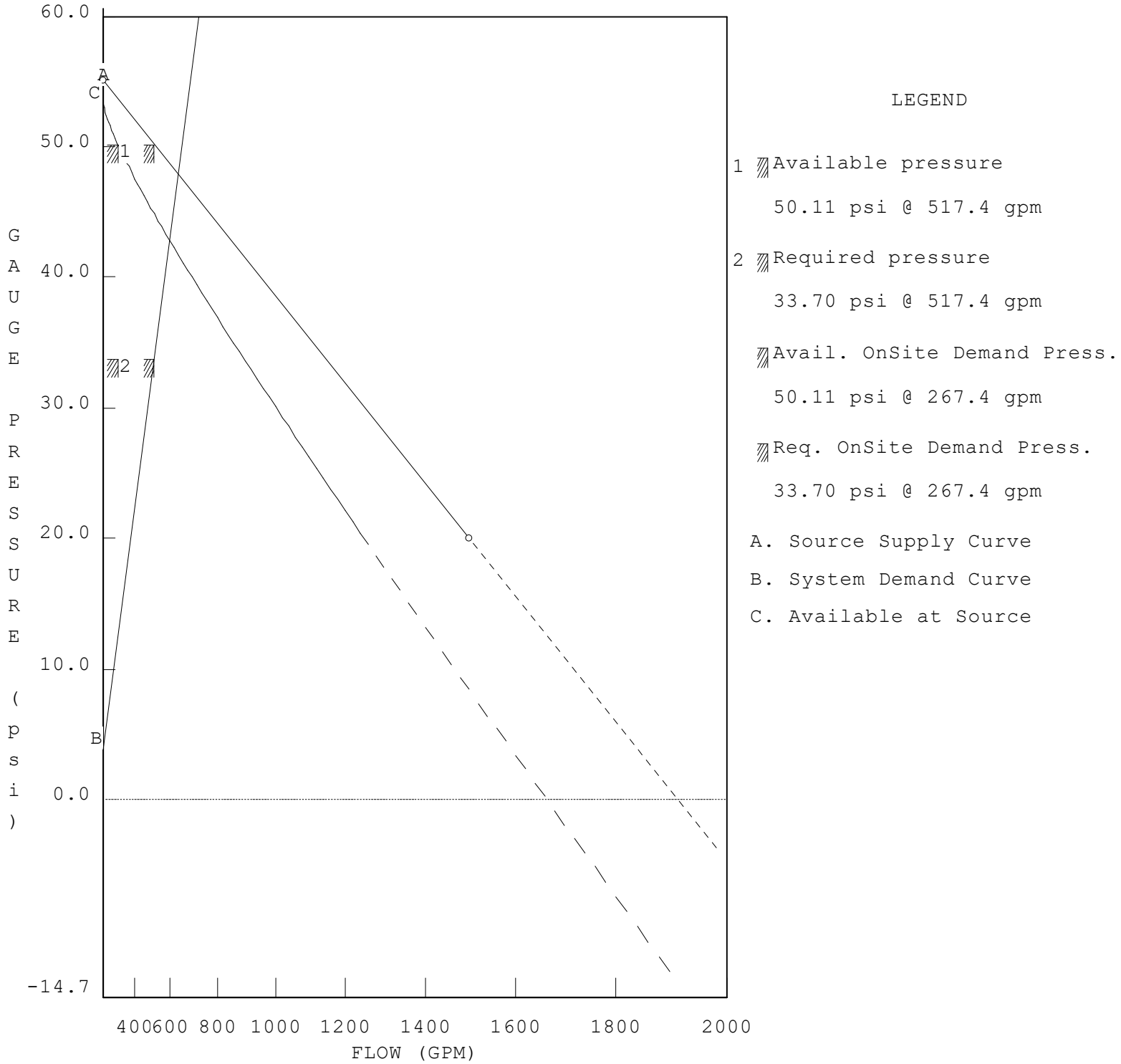
NOTES:

Calculations performed by HASS under license # 65839843 ,
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

WATER SUPPLY ANALYSIS

Static: 55.00 psi Resid: 20.00 psi Flow: 1500.0 gpm



Note: (1) Dashed Lines indicate extrapolated values from Test Results

(2) On Site pressures are based on hose stream deduction at the source

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 JOB TITLE: Mazda Puyallup

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SRC	55.0	20.0	1500.0	50.1	517.4	33.7

Available pressure is 16.4 psi (33%) greater than required pressure.

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	517.4 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	250.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	267.4 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
S1	12.8	K= 5.60	21.6	26.0
S2	12.8	K= 5.60	21.8	26.1
S3	12.8	K= 5.60	22.7	26.7
S4	12.8	K= 5.60	25.2	28.1
S5	12.8	K= 5.60	21.6	26.0
S6	12.9	K= 5.60	21.7	26.1
S7	12.9	K= 5.60	22.6	26.6
S8	12.9	K= 5.60	25.1	28.0
S9	12.9	K= 5.60	22.9	26.8
S10	13.1	K= 5.60	23.1	26.9
TR	10.8	- - - -	30.7	- - -
1	10.8	- - - -	30.4	- - -
2	11.6	- - - -	28.5	- - -
3	11.6	- - - -	27.7	- - -
4	11.6	- - - -	27.7	- - -
5	11.6	- - - -	27.5	- - -
6	11.6	- - - -	27.5	- - -
P1	11.6	- - - -	23.4	- - -
P2	11.6	- - - -	23.6	- - -
P3	11.6	- - - -	24.5	- - -
P4	11.6	- - - -	27.2	- - -
P5	11.6	- - - -	23.4	- - -
P6	11.6	- - - -	23.7	- - -
P7	11.6	- - - -	24.6	- - -
P8	11.6	- - - -	27.2	- - -
P9	11.6	- - - -	25.0	- - -
P10	11.6	- - - -	25.2	- - -
SRC	4.0	SOURCE	33.7	267.4

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NFPA PIPE DATA 5

Pipe Tag	K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt)		
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	(Pe)		
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	(Pf)		
						F			
						T	Pf/ft.		
Pipe: 1	Source	0.0				7.17	120	3.0	
SRC	4.0	33.7	267.4	1	B5.000	----	0.00	2.9	
TR	10.8	30.7	267.4		5.295		7.17	0.006	0.0
Pipe: 2	0.0	0.0				25.33	120	0.3	
TR	10.8	30.7	267.4	2	B5.000	2E:30.0	30.00	-0.0	
1	10.8	30.4	267.4		5.295		55.33	0.006	0.3
Pipe: 3	0.0	0.0				26.00	120	1.9	
1	10.8	30.4	267.4	3	B4.000	3E:39.0	65.00	0.4	
2	11.6	28.5	267.4		4.260	T:26.0	91.00	0.017	1.6
Pipe: 4	0.0	0.0				31.58	120	0.8	
2	11.6	28.5	267.4	4	B4.000	E:13.0	13.00	-0.0	
3	11.6	27.7	267.4		4.260		44.58	0.017	0.8
Pipe: 5	0.0	53.7		P10		4.08	120	0.1	
3	11.6	27.7	213.7	5	B4.000	----	0.00	-0.0	
4	11.6	27.7	267.4		4.260		4.08	0.017	0.1
Pipe: 6	0.0	78.7		P7		10.00	120	0.1	
4	11.6	27.7	106.9	6	B4.000	----	0.00	-0.0	
5	11.6	27.5	213.7		4.260		10.00	0.011	0.1
Pipe: 7	0.0	78.8		P3		10.00	120	0.0	
5	11.6	27.5	28.1	P4	B4.000	----	0.00	-0.0	
6	11.6	27.5	106.9		4.260		10.00	0.003	0.0
Pipe: 8	0.0	26.9		S10		20.00	120	2.4	
4	11.6	27.7	26.8	P9	B1.500	T:10.0	10.00	-0.0	
P10	11.6	25.2	53.7		1.682		30.00	0.081	2.4
Pipe: 9	0.0	0.0				12.00	120	0.3	
P10	11.6	25.2	26.8	S9	B1.500	----	0.00	-0.0	
P9	11.6	25.0	26.8		1.682		12.00	0.022	0.3
Pipe: 10	0.0	0.0				4.00	120	0.3	
5	11.6	27.5	28.0	S8	B1.500	T:10.0	10.00	-0.0	
P8	11.6	27.2	28.0		1.682		14.00	0.024	0.3
Pipe: 11	0.0	26.6		S7		8.00	120	3.0	
5	11.6	27.5	52.1	P6	B1.500	T:10.0	10.00	-0.0	
P7	11.6	24.6	78.7		1.682		18.00	0.165	3.0
Pipe: 12	0.0	26.1		S6		12.00	120	0.9	
P7	11.6	24.6	26.0	P5	B1.500	----	0.00	-0.0	
P6	11.6	23.7	52.1		1.682		12.00	0.077	0.9
Pipe: 13	0.0	0.0				12.00	120	0.3	
P6	11.6	23.7	26.0	S5	B1.500	----	0.00	-0.0	
P5	11.6	23.4	26.0		1.682		12.00	0.021	0.3

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JOB TITLE: Mazda Puyallup

Pipe Tag	K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt)	
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	(Pe)	
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	(Pf)	
						F		
						T	Pf/ft.	
Pipe: 14	0.0	0.0				4.00	120	0.3
6	11.6	27.5	28.1	S4	B1.500	T:10.0	10.00	-0.0
P4	11.6	27.2	28.1		1.682	14.00	0.024	0.3
Pipe: 15	0.0	26.7		S3		8.00	120	3.0
6	11.6	27.5	52.1	P2	B1.500	T:10.0	10.00	-0.0
P3	11.6	24.5	78.8		1.682	18.00	0.165	3.0
Pipe: 16	0.0	26.1		S2		12.00	120	0.9
P3	11.6	24.5	26.0	P1	B1.500	----	0.00	-0.0
P2	11.6	23.6	52.1		1.682	12.00	0.077	0.9
Pipe: 17	0.0	0.0				12.00	120	0.3
P2	11.6	23.6	26.0	S1	B1.500	----	0.00	-0.0
P1	11.6	23.4	26.0		1.682	12.00	0.021	0.3
Pipe: 20	5.60	26.0		Disch		1.17	120	1.8
P1	11.6	23.4	0.0		A1.000	T: 5.0	5.00	0.5
S1	12.8	21.6	26.0		1.049	6.17	0.211	1.3
Pipe: 21	5.60	26.1		Disch		1.17	120	1.8
P2	11.6	23.6	0.0		A1.000	T: 5.0	5.00	0.5
S2	12.8	21.8	26.1		1.049	6.17	0.214	1.3
Pipe: 22	5.60	26.7		Disch		1.17	120	1.9
P3	11.6	24.5	0.0		A1.000	T: 5.0	5.00	0.5
S3	12.8	22.7	26.7		1.049	6.17	0.221	1.4
Pipe: 23	5.60	28.1		Disch		1.17	120	2.0
P4	11.6	27.2	0.0		A1.000	T: 5.0	5.00	0.5
S4	12.8	25.2	28.1		1.049	6.17	0.244	1.5
Pipe: 24	5.60	26.0		Disch		1.33	120	1.8
P5	11.6	23.4	0.0		A1.000	T: 5.0	5.00	0.5
S5	12.8	21.6	26.0		1.049	6.33	0.211	1.3
Pipe: 25	5.60	26.1		Disch		1.33	120	1.9
P6	11.6	23.7	0.0		A1.000	T: 5.0	5.00	0.6
S6	12.9	21.7	26.1		1.049	6.33	0.213	1.3
Pipe: 26	5.60	26.6		Disch		1.33	120	2.0
P7	11.6	24.6	0.0		A1.000	T: 5.0	5.00	0.6
S7	12.9	22.6	26.6		1.049	6.33	0.221	1.4
Pipe: 27	5.60	28.0		Disch		1.33	120	2.1
P8	11.6	27.2	0.0		A1.000	T: 5.0	5.00	0.6
S8	12.9	25.1	28.0		1.049	6.33	0.243	1.5
Pipe: 28	5.60	26.8		Disch		1.50	120	2.0
P9	11.6	25.0	0.0		A1.000	T: 5.0	5.00	0.6
S9	12.9	22.9	26.8		1.049	6.50	0.224	1.5

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PAGE: B MATERIAL: THNWL HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NP Tee

	F								
	F45Ell								
1.682	5.00	10.00	3.00	11.00	8.00	1.00	12.00	12.00	10.00
	2.50								
4.260	13.00	26.00	8.00	29.00	16.00	3.00	26.00	26.00	26.00
	6.50								
5.295	15.00	32.00	10.00	34.00	11.00	3.00	27.00	27.00	32.00
	7.50								

