AquaSAFE™ FIRE SAFETY SYSTEM

Uponor
5925 148th Street West

Apple Valley, MN 55124
800-321-4739

Job Name	:	10 HOWARD STREET - Two Head Calculation (H.30 & H.26)
Drawing	:	RESIDENTIAL
Location	:	PORTLAND ME 04101
Remote Area	:	1
Contract	:	13359F
Data File	:	13359F REV 1 10 Howard St.wx2

HYDRAULIC DESIGN INFORMATION SHEET

Name - 10 HOWARD STREET Date - 4/22/13
Location - PORTLAND ME 04101
Building - RESIDENTIAL System No. - 1
Contractor - FORTIN SERVICES Contract No. - 13359F
Calculated By - BRENT KOTULA SET IV Drawing No. - 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height VARIES
OCCUPANCY - RESIDENTIAL

S Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Y Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )
S ( )Other
T ( )Specific Ruling Made by Date
E
M Listed Flow at Start Point - 13 Gpm System Type
Listed Pres. at Start Point - 7.04 Psi (X) Wet ( ) Dry
D MAXIMUM LISTED SPACING 16 x 16 ( ) Deluge ( ) PreAction
E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
S Additional Flow Added - Gpm Make SENJU SPRINKLER Model RC-RES
I Elevation at Highest Outlet - 123 Feet Size 7/16 K-Factor 4.9
G Note: Temperature Rating 162
N

Calculation Gpm Required 26.2894 Psi Required 53.24 At Ref Pt STR
Summary C-Factor Used: Overhead 150 Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 4/15/13 Rated Cap. Cap.
T Time of Test - AM @ Psi Elev.
E Static (Psi) - 85 Elev.
R Residual (Psi) - 80 Other Well
Flow (Gpm) - 300 Proof Flow Gpm
S Elevation - 99

P Location: STREET
P
L Source of Information: CONTRACTOR
Y

Water Supply Curve (C)

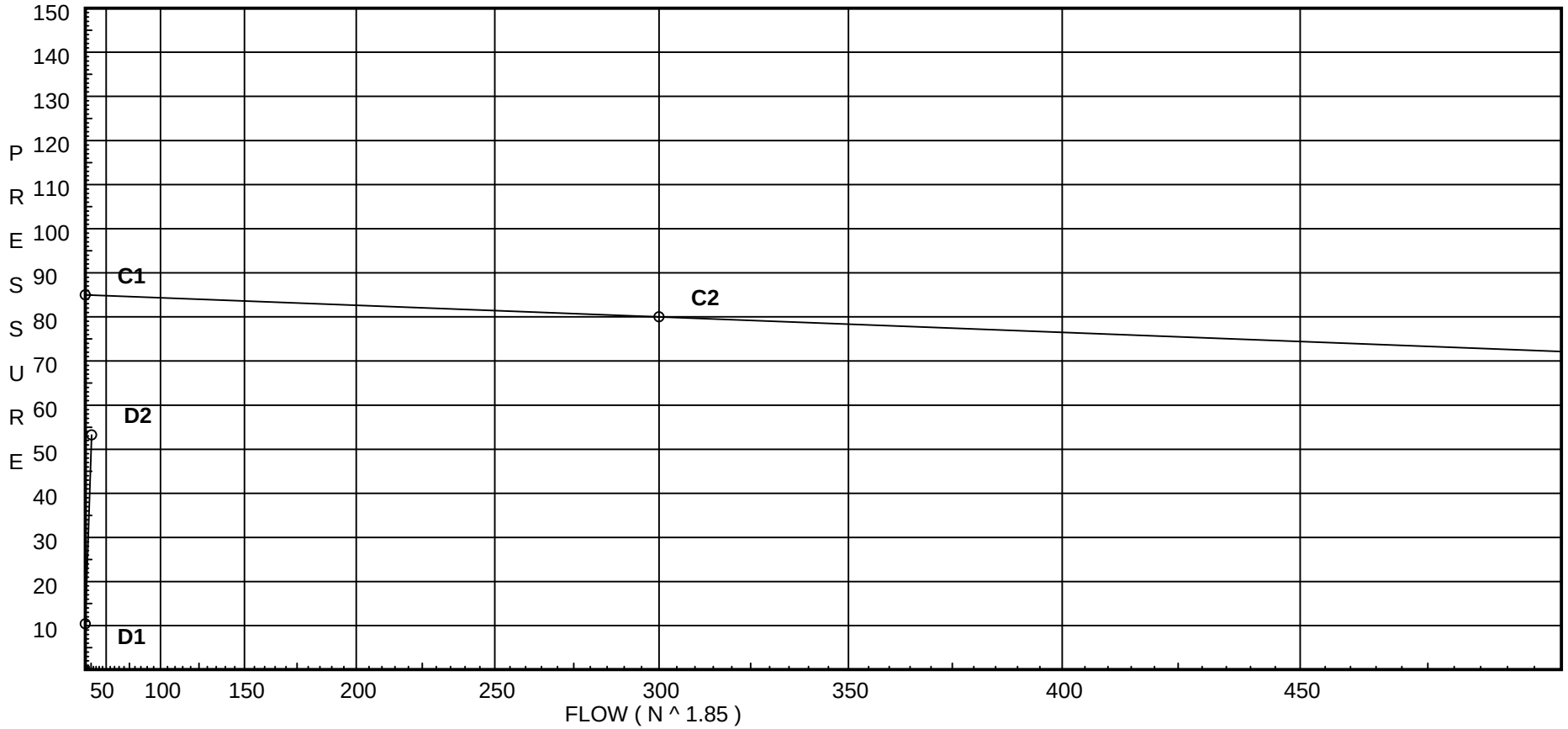
Uponor
10 HOWARD STREET - Two Head Calculation (H.30 & H.26)

Date 4/26/2013

City Water Supply:
- C1 - Static Pressure : 85
- C2 - Residual Pressure: 80
- C2 - Residual Flow : 300

Demand:

D1 - Elevation	:	10.394
D2 - System Flow	:	26.2894
D2 - System Pressure	:	53.243
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	26.2894
Safety Margin	:	31.702



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
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	Generic Gate Valve	1	1	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Utb	Aquapex Tee - Branch	2	17	14	9	12	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utr	Aquapex Tee - Run	1	2	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Units Summary

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

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
STR	85.0	80	300.0	84.945	26.29	53.243

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
H.30	123.0	4.9	7.04	13.0	
H.36	123.0		7.49		
H.31	123.0		10.38		
H.27	123.0		13.06		
T.59	123.0		19.97		
H.19	123.0		20.81		
T.47	123.0		21.28		
T.48	123.0		21.68		
T.53	109.0		27.88		
T.41	99.0		32.51		
T.45	99.0		34.02		
T.46	99.0		34.16		
H.16	99.0		34.91		
H.23	99.0		36.21		
H.34	99.0		37.37		
T.77	99.0		38.06		
H.35	109.0		33.9		
H.32	109.0		33.92		
T.76	99.0		38.43		
T.75	99.0		38.7		
T.74	99.0		38.84		
T.73	99.0		40.28		
T.72	99.0		40.74		
S.1	94.0		46.96		
MTR	99.0		50.09		
STR	99.0		53.24		
T.70	123.0		7.3		
H.26	123.0	4.9	7.35	13.29	
T.68	123.0		19.87		
T.67	109.0		27.58		
T.66	99.0		32.51		
T.69	99.0		35.86		
H.22	99.0		36.4		
T.71	99.0		36.93		
H.20	123.0		20.71		
H.18	123.0		21.0		
T.50	123.0		21.43		
T.49	123.0		21.56		
T.58	109.0		26.5		
H.12	109.0		27.25		
T.43	109.0		27.32		
T.44	109.0		27.37		

NODE ANALYSIS (cont.)

Node Tag	*Elevation*	*Node Type*	*Pressure at Node*	*Discharge at Node*	*Notes*
T.42	109.0		27.84		
H.3	109.0		28.03		
H.4	109.0		28.11		
T.39	109.0		28.25		
H.13	109.0		29.5		
H.14	109.0		29.75		
T.51	109.0		29.96		
T.54	109.0		30.36		
H.17	109.0		30.66		
T.57	109.0		31.11		
T.61	109.0		31.41		
T.65	109.0		31.61		
T.64	109.0		31.72		
T.63	109.0		32.63		
H.21	109.0		27.09		
T.62	109.0		27.79		
H.7	109.0		27.34		
H.11	123.0		21.34		
H.1	123.0		21.48		
H.2	123.0		21.62		
T.37	123.0		21.86		
T.38	109.0		28.13		
H.9	123.0		21.49		
H.10	123.0		21.54		
T.40	99.0		32.47		
H.15	99.0		32.49		
H.5	99.0		32.48		
H.6	99.0		32.49		
H.8	99.0		34.08		
H.24	109.0		32.04		
H.25	109.0		32.1		
H.28	109.0		31.67		
H.33	99.0		38.18		
H.29	99.0		38.77		

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
H.30	10.32	0.671		0.0	2.000	7.040		K Factor = 4.90
to		150.0		0.0	0.0	0.0		
H.36	10.32	0.2230		0.0	2.000	0.446		Vel = 9.36
H.36	0.0	0.671	1Utr	2.0	11.000	7.486		
to		150.0		0.0	2.000	0.0		
H.31	10.32	0.2229		0.0	13.000	2.898		Vel = 9.36
H.31	0.0	0.671	1Utr	2.0	10.000	10.384		
to		150.0		0.0	2.000	0.0		
H.27	10.32	0.2230		0.0	12.000	2.676		Vel = 9.36
H.27	0.0	0.671	1Utb	17.0	12.000	13.060		
to		150.0	1Utr	2.0	19.000	0.0		
T.59	10.32	0.2229		0.0	31.000	6.911		Vel = 9.36
T.59	-6.45	0.671	1Utb	17.0	6.000	19.971		
to		150.0		0.0	17.000	0.0		
H.19	3.87	0.0363		0.0	23.000	0.836		Vel = 3.51
H.19	0.0	0.671	1Utr	2.0	11.000	20.807		
to		150.0		0.0	2.000	0.0		
T.47	3.87	0.0363		0.0	13.000	0.472		Vel = 3.51
T.47	-1.90	0.671	2Utb	34.0	5.000	21.279		
to		150.0		0.0	34.000	0.0		
T.48	1.97	0.0104		0.0	39.000	0.405		Vel = 1.79
T.48	1.45	0.862		0.0	16.000	21.684		
to		150.0		0.0	0.0	6.063		
T.53	3.42	0.0086		0.0	16.000	0.137		Vel = 1.88
T.53	1.61	0.862	1Utr	2.0	15.000	27.884		
to		150.0		0.0	2.000	4.331		
T.41	5.03	0.0174		0.0	17.000	0.296		Vel = 2.77
T.41	0.42	0.671	1Utr	2.0	3.000	32.511		
to		150.0	1Utb	17.0	19.000	0.0		
T.45	5.45	0.0685		0.0	22.000	1.507		Vel = 4.94
T.45	-1.05	0.671	1Utr	2.0	1.000	34.018		
to		150.0		0.0	2.000	0.0		
T.46	4.4	0.0460		0.0	3.000	0.138		Vel = 3.99
T.46	1.05	0.671	1Utr	2.0	9.000	34.156		
to		150.0		0.0	2.000	0.0		
H.16	5.45	0.0685		0.0	11.000	0.753		Vel = 4.94
H.16	0.0	0.671	1Utr	2.0	17.000	34.909		
to		150.0		0.0	2.000	0.0		
H.23	5.45	0.0685		0.0	19.000	1.301		Vel = 4.94
H.23	0.0	0.671	1Utr	2.0	15.000	36.210		
to		150.0		0.0	2.000	0.0		
H.34	5.45	0.0685		0.0	17.000	1.164		Vel = 4.94
H.34	0.0	0.671	1Utr	2.0	8.000	37.374		
to		150.0		0.0	2.000	0.0		
T.77	5.45	0.0685		0.0	10.000	0.685		Vel = 4.94
T.77	-4.14	0.671	1Utb	17.0	17.000	38.059		
to		150.0		0.0	17.000	-4.331		
H.35	1.31	0.0049		0.0	34.000	0.168		Vel = 1.19

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
H.35	0.0	0.671	1Utr	2.0	3.000	33.896		
to		150.0		0.0	2.000	0.0		
H.32	1.31	0.0048		0.0	5.000	0.024		Vel = 1.19
H.32	0.0	0.671	1Utb	17.0	17.000	33.920		
to		150.0	1Utr	2.0	19.000	4.331		
T.76	1.31	0.0049		0.0	36.000	0.178		Vel = 1.19
T.76	4.14	0.671	1Utr	2.0	2.000	38.429		
to		150.0		0.0	2.000	0.0		
T.75	5.45	0.0685		0.0	4.000	0.274		Vel = 4.94
T.75	-1.07	0.671	1Utr	2.0	1.000	38.703		
to		150.0		0.0	2.000	0.0		
T.74	4.38	0.0457		0.0	3.000	0.137		Vel = 3.97
T.74	1.07	0.671	1Utr	2.0	2.000	38.840		
to		150.0	1Utb	17.0	19.000	0.0		
T.73	5.45	0.0685		0.0	21.000	1.438		Vel = 4.94
T.73	8.61	0.862	1Utr	2.0	2.000	40.278		
to		150.0		0.0	2.000	0.0		
T.72	14.06	0.1168		0.0	4.000	0.467		Vel = 7.73
T.72	12.23	0.862	1T	7.528	8.000	40.745		
to		150.0		0.0	2.904	2.166		
S.1	26.29	0.3715		0.0	10.904	4.051		Vel = 14.45
S.1	0.0	1.049	2E	6.044	10.000	46.962		
to		150.0		0.0	6.044	0.834		* Fixed loss = 3
MTR	26.29	0.1429		0.0	16.044	2.292		Vel = 9.76
MTR	0.0	1.049	1E	3.022	10.000	50.088		
to		150.0	1T	7.555	12.089	0.0		
STR	26.29	0.1428	1G	1.511	22.089	3.155		Vel = 9.76
	0.0							
	26.29					53.243		K Factor = 3.60
H.30	2.68	0.671	1Utr	2.0	12.000	7.040		
to		150.0		0.0	2.000	0.0		
T.70	2.68	0.0185		0.0	14.000	0.259		Vel = 2.43
T.70	0.0	0.671	1Utr	2.0	1.000	7.299		
to		150.0		0.0	2.000	0.0		
H.26	2.68	0.0183		0.0	3.000	0.055		Vel = 2.43
H.26	13.29	0.671	1Utb	17.0	6.000	7.354		K Factor = 4.90
to		150.0	1Utr	2.0	19.000	0.0		
T.68	15.97	0.5006		0.0	25.000	12.516		Vel = 14.49
T.68	-3.63	0.862		0.0	18.000	19.870		
to		150.0		0.0	0.0	6.063		
T.67	12.34	0.0917		0.0	18.000	1.651		Vel = 6.78
T.67	-4.18	0.862	1Utr	2.0	12.000	27.584		
to		150.0		0.0	2.000	4.331		
T.66	8.16	0.0427		0.0	14.000	0.598		Vel = 4.49
T.66	0.45	0.671	1Utr	2.0	2.000	32.513		
to		150.0	1Utb	17.0	19.000	0.0		
T.69	8.61	0.1596		0.0	21.000	3.352		Vel = 7.81
T.69	-2.35	0.671	1Utr	2.0	4.000	35.865		
to		150.0		0.0	2.000	0.0		
H.22	6.26	0.0883		0.0	6.000	0.530		Vel = 5.68

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
H.22	0.0	0.671	1Utr	2.0	4.000	36.395		
to		150.0		0.0	2.000	0.0		
T.71	6.26	0.0885		0.0	6.000	0.531		Vel = 5.68
T.71	2.35	0.671	1Utb	17.0	4.000	36.926		
to		150.0		0.0	17.000	0.0		
T.73	8.61	0.1596		0.0	21.000	3.352		Vel = 7.81
	0.0							
	8.61					40.278		K Factor = 1.36
T.68	3.64	0.671	1Utb	17.0	9.000	19.870		
to		150.0		0.0	17.000	0.0		
H.20	3.64	0.0324		0.0	26.000	0.843		Vel = 3.30
H.20	0.0	0.671	1Utr	2.0	7.000	20.713		
to		150.0		0.0	2.000	0.0		
H.18	3.64	0.0323		0.0	9.000	0.291		Vel = 3.30
H.18	0.0	0.671	1Utr	2.0	11.000	21.004		
to		150.0		0.0	2.000	0.0		
T.50	3.64	0.0325		0.0	13.000	0.422		Vel = 3.30
T.50	-2.19	0.671	1Utb	17.0	5.617	21.426		
to		150.0		0.0	17.000	0.0		
T.49	1.45	0.0059		0.0	22.617	0.134		Vel = 1.32
T.49	0.0	0.671	1Utr	2.0	2.000	21.560		
to		150.0	1Utb	17.0	19.000	0.0		
T.48	1.45	0.0059		0.0	21.000	0.124		Vel = 1.32
	0.0							
	1.45					21.684		K Factor = 0.31
T.59	6.45	0.862		0.0	17.000	19.971		
to		150.0		0.0	0.0	6.063		
T.58	6.45	0.0276		0.0	17.000	0.470		Vel = 3.55
T.58	-3.45	0.671	1Utb	17.0	16.000	26.504		
to		150.0		0.0	17.000	0.0		
H.12	3.0	0.0227		0.0	33.000	0.749		Vel = 2.72
H.12	0.0	0.671	1Utr	2.0	1.000	27.253		
to		150.0		0.0	2.000	0.0		
T.43	3.0	0.0227		0.0	3.000	0.068		Vel = 2.72
T.43	-0.58	0.671	1Utr	2.0	1.000	27.321		
to		150.0		0.0	2.000	0.0		
T.44	2.42	0.0153		0.0	3.000	0.046		Vel = 2.20
T.44	0.58	0.671	1Utr	2.0	2.000	27.367		
to		150.0	1Utb	17.0	19.000	0.0		
T.42	3.0	0.0227		0.0	21.000	0.477		Vel = 2.72
T.42	-1.60	0.671	1Utb	17.0	17.000	27.844		
to		150.0		0.0	17.000	0.0		
H.3	1.4	0.0055		0.0	34.000	0.187		Vel = 1.27
H.3	0.0	0.671	1Utr	2.0	12.000	28.031		
to		150.0		0.0	2.000	0.0		
H.4	1.4	0.0055		0.0	14.000	0.077		Vel = 1.27
H.4	0.0	0.671	1Utb	17.0	8.000	28.108		
to		150.0		0.0	17.000	0.0		
T.39	1.4	0.0055		0.0	25.000	0.138		Vel = 1.27

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
T.39	3.21	0.671	1Utb	17.0	6.000	28.246		
to		150.0	1Utr	2.0	19.000	0.0		
H.13	4.61	0.0503		0.0	25.000	1.257		Vel = 4.18
H.13	0.0	0.671	1Utr	2.0	3.000	29.503		
to		150.0		0.0	2.000	0.0		
H.14	4.61	0.0502		0.0	5.000	0.251		Vel = 4.18
H.14	0.0	0.671	1Utr	2.0	2.000	29.754		
to		150.0		0.0	2.000	0.0		
T.51	4.61	0.0503		0.0	4.000	0.201		Vel = 4.18
T.51	0.0	0.671	1Utr	2.0	6.000	29.955		
to		150.0		0.0	2.000	0.0		
T.54	4.61	0.0503		0.0	8.000	0.402		Vel = 4.18
T.54	0.0	0.671	1Utr	2.0	4.000	30.357		
to		150.0		0.0	2.000	0.0		
H.17	4.61	0.0503		0.0	6.000	0.302		Vel = 4.18
H.17	0.0	0.671	1Utr	2.0	7.000	30.659		
to		150.0		0.0	2.000	0.0		
T.57	4.61	0.0502		0.0	9.000	0.452		Vel = 4.18
T.57	0.0	0.671	1Utr	2.0	4.000	31.111		
to		150.0		0.0	2.000	0.0		
T.61	4.61	0.0503		0.0	6.000	0.302		Vel = 4.18
T.61	0.0	0.671	1Utr	2.0	2.000	31.413		
to		150.0		0.0	2.000	0.0		
T.65	4.61	0.0503		0.0	4.000	0.201		Vel = 4.18
T.65	-0.75	0.671	1Utr	2.0	1.000	31.614		
to		150.0		0.0	2.000	0.0		
T.64	3.86	0.0360		0.0	3.000	0.108		Vel = 3.50
T.64	0.75	0.671	1Utb	17.0	1.000	31.722		
to		150.0		0.0	17.000	0.0		
T.63	4.61	0.0503		0.0	18.000	0.905		Vel = 4.18
T.63	7.62	0.862	1Utb	17.0	28.000	32.627		
to		150.0		0.0	14.000	4.331		
T.72	12.23	0.0902		0.0	42.000	3.787		Vel = 6.72
	0.0							
	12.23					40.745		K Factor = 1.92
T.58	3.44	0.671	1Utb	17.0	1.000	26.504		
to		150.0	1Utr	2.0	19.000	0.0		
H.21	3.44	0.0293		0.0	20.000	0.586		Vel = 3.12
H.21	0.0	0.671	1Utb	17.0	7.000	27.090		
to		150.0		0.0	17.000	0.0		
T.62	3.44	0.0293		0.0	24.000	0.703		Vel = 3.12
T.62	4.18	0.671	2Utb	34.0	4.000	27.793		
to		150.0		0.0	34.000	0.0		
T.63	7.62	0.1272		0.0	38.000	4.834		Vel = 6.91
	0.0							
	7.62					32.627		K Factor = 1.33
T.43	0.58	0.671	1Utb	17.0	2.000	27.321		
to		150.0	1Utr	2.0	19.000	0.0		
H.7	0.58	0.0011		0.0	21.000	0.023		Vel = 0.53

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
H.7	0.0	0.671	1Utb	17.0	4.000	27.344		
to		150.0		0.0	17.000	0.0		
T.44	0.58	0.0011		0.0	21.000	0.023		Vel = 0.53
	0.0							
	0.58					27.367		K Factor = 0.11
T.47	1.90	0.671	1Utr	2.0	4.000	21.279		
to		150.0		0.0	2.000	0.0		
H.11	1.9	0.0097		0.0	6.000	0.058		Vel = 1.72
H.11	0.0	0.671	1Utr	2.0	13.000	21.337		
to		150.0		0.0	2.000	0.0		
H.1	1.9	0.0098		0.0	15.000	0.147		Vel = 1.72
H.1	0.0	0.671	1Utr	2.0	12.000	21.484		
to		150.0		0.0	2.000	0.0		
H.2	1.9	0.0098		0.0	14.000	0.137		Vel = 1.72
H.2	0.0	0.671	1Utb	17.0	7.000	21.621		
to		150.0		0.0	17.000	0.0		
T.37	1.9	0.0098		0.0	24.000	0.234		Vel = 1.72
T.37	2.19	0.862	1Utr	2.0	16.000	21.855		
to		150.0		0.0	2.000	6.063		
T.38	4.09	0.0119		0.0	18.000	0.214		Vel = 2.25
T.38	-0.87	0.862	1Utb	17.0	1.000	28.132		
to		150.0		0.0	14.000	0.0		
T.39	3.22	0.0076		0.0	15.000	0.114		Vel = 1.77
	0.0							
	3.22					28.246		K Factor = 0.61
T.50	2.18	0.671	1Utr	2.0	3.000	21.426		
to		150.0		0.0	2.000	0.0		
H.9	2.18	0.0126		0.0	5.000	0.063		Vel = 1.98
H.9	0.0	0.671	1Utr	2.0	2.000	21.489		
to		150.0		0.0	2.000	0.0		
H.10	2.18	0.0125		0.0	4.000	0.050		Vel = 1.98
H.10	0.0	0.671	1Utb	17.0	6.000	21.539		
to		150.0	1Utr	2.0	19.000	0.0		
T.37	2.18	0.0126		0.0	25.000	0.316		Vel = 1.98
	0.0							
	2.18					21.855		K Factor = 0.47
T.67	4.17	0.862	1Utb	17.0	3.000	27.584		
to		150.0		0.0	14.000	0.0		
T.62	4.17	0.0123		0.0	17.000	0.209		Vel = 2.29
	0.0							
	4.17					27.793		K Factor = 0.79
T.42	1.61	0.862	1Utb	17.0	5.000	27.844		
to		150.0		0.0	14.000	0.0		
T.53	1.61	0.0021		0.0	19.000	0.040		Vel = 0.89
	0.0							
	1.61					27.884		K Factor = 0.30
T.38	0.87	0.862		0.0	12.000	28.132		
to		150.0		0.0	0.0	4.331		
T.40	0.87	0.0007		0.0	12.000	0.008		Vel = 0.48

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
T.40	-0.42	0.671	1Utb	17.0	12.000	32.471		
to		150.0	1Utr	2.0	19.000	0.0		
H.15	0.45	0.0007		0.0	31.000	0.021		Vel = 0.41
H.15	0.0	0.671	1Utb	17.0	14.000	32.492		
to		150.0		0.0	17.000	0.0		
T.66	0.45	0.0007		0.0	31.000	0.021		Vel = 0.41
	0.0							
	0.45					32.513		K Factor = 0.08
T.40	0.42	0.671	1Utb	17.0	6.000	32.471		
to		150.0		0.0	17.000	0.0		
H.5	0.42	0.0006		0.0	23.000	0.014		Vel = 0.38
H.5	0.0	0.671	1Utr	2.0	10.000	32.485		
to		150.0		0.0	2.000	0.0		
H.6	0.42	0.0006		0.0	12.000	0.007		Vel = 0.38
H.6	0.0	0.671	1Utb	17.0	14.000	32.492		
to		150.0		0.0	17.000	0.0		
T.41	0.42	0.0006		0.0	31.000	0.019		Vel = 0.38
	0.0							
	0.42					32.511		K Factor = 0.07
T.45	1.04	0.671	1Utb	17.0	4.000	34.018		
to		150.0		0.0	17.000	0.0		
H.8	1.04	0.0032		0.0	21.000	0.067		Vel = 0.94
H.8	0.0	0.671	1Utb	17.0	3.000	34.085		
to		150.0	1Utr	2.0	19.000	0.0		
T.46	1.04	0.0032		0.0	22.000	0.071		Vel = 0.94
	0.0							
	1.04					34.156		K Factor = 0.18
T.69	2.36	0.671	1Utb	17.0	16.000	35.865		
to		150.0	1Utr	2.0	19.000	-4.331		
H.24	2.36	0.0145		0.0	35.000	0.508		Vel = 2.14
H.24	0.0	0.671	1Utr	2.0	2.000	32.042		
to		150.0		0.0	2.000	0.0		
H.25	2.36	0.0148		0.0	4.000	0.059		Vel = 2.14
H.25	0.0	0.671	1Utb	17.0	17.000	32.101		
to		150.0		0.0	17.000	4.331		
T.71	2.36	0.0145		0.0	34.000	0.494		Vel = 2.14
	0.0							
	2.36					36.926		K Factor = 0.39
T.65	0.75	0.671	1Utb	17.0	13.000	31.614		
to		150.0		0.0	17.000	0.0		
H.28	0.75	0.0017		0.0	30.000	0.052		Vel = 0.68
H.28	0.0	0.671	1Utb	17.0	13.000	31.666		
to		150.0	1Utr	2.0	19.000	0.0		
T.64	0.75	0.0018		0.0	32.000	0.056		Vel = 0.68
	0.0							
	0.75					31.722		K Factor = 0.13
T.77	4.14	0.671		0.0	3.000	38.059		
to		150.0		0.0	0.0	0.0		
H.33	4.14	0.0410		0.0	3.000	0.123		Vel = 3.76

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*******	Notes	******
H.33	0.0	0.671	1Utr	2.0	4.000	38.182				
to		150.0		0.0	2.000	0.0				
T.76	4.14	0.0412		0.0	6.000	0.247		Vel = 3.76		
	0.0									
	4.14					38.429		K Factor = 0.67		
T.75	1.07	0.671	1Utb	17.0	3.000	38.703				
to		150.0		0.0	17.000	0.0				
H.29	1.07	0.0034		0.0	20.000	0.067		Vel = 0.97		
H.29	0.0	0.671	1Utb	17.0	2.000	38.770				
to		150.0	1Utr	2.0	19.000	0.0				
T.74	1.07	0.0033		0.0	21.000	0.070		Vel = 0.97		
	0.0									
	1.07					38.840		K Factor = 0.17		