

... Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTY HAWK AVE
AUBURN, ME 04210
207-784-1507

Job Name : 62 INDIA ST.
Drawing : WOOD/STEEL
Location : STAND PIPE A, B
Remote Area : 1
Contract : 5583
Data File : 62 INDIA ST. STAND PIPE CALC..W XF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 62 INDIA ST. Date - 6/8/17
Location - STAND PIPE A, B
Building - WOOD/STEEL System No. - 1
Contractor - EASTERN FIRE Contract No. - 5583
Calculated By - EWM Drawing No. - 3 OF 3
Occupancy - RESIDENTAIL/ OHI

S (X)NFPA 14 Number of Standpipes ()1 ()2 (X)3 ()4 ()
Y ()Other
S ()Specific Ruling Made by Date 6/8/17
T
E Flow at Top Most Outlet - 250 Gpm System Type
M Pres. at Top Most Outlet - 100 Psi (X) Wet () Dry
Flow For Ea. Additional Standpipe - 250 Gpm
D Total Additional Flow - 750 Gpm
E Elevation at Highest Outlet - 71.02 Feet
S Hose Valve Connection ()1 1/2" (X)2 1/2"
I Class Service (X)I ()II ()III
G Note:
N

Calculation Gpm Required 750 Psi Required 153.626 At Test
Summary C-Factor Used: Overhead 120 Underground 120

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - Cap.
T Time of Test - Rated Cap. Elev.
E Static (Psi) - 160 @ Psi
R Residual (Psi) - 149 Elev. Well
Flow (Gpm) - 1500 Proof Flow Gpm
S Elevation - 34.5

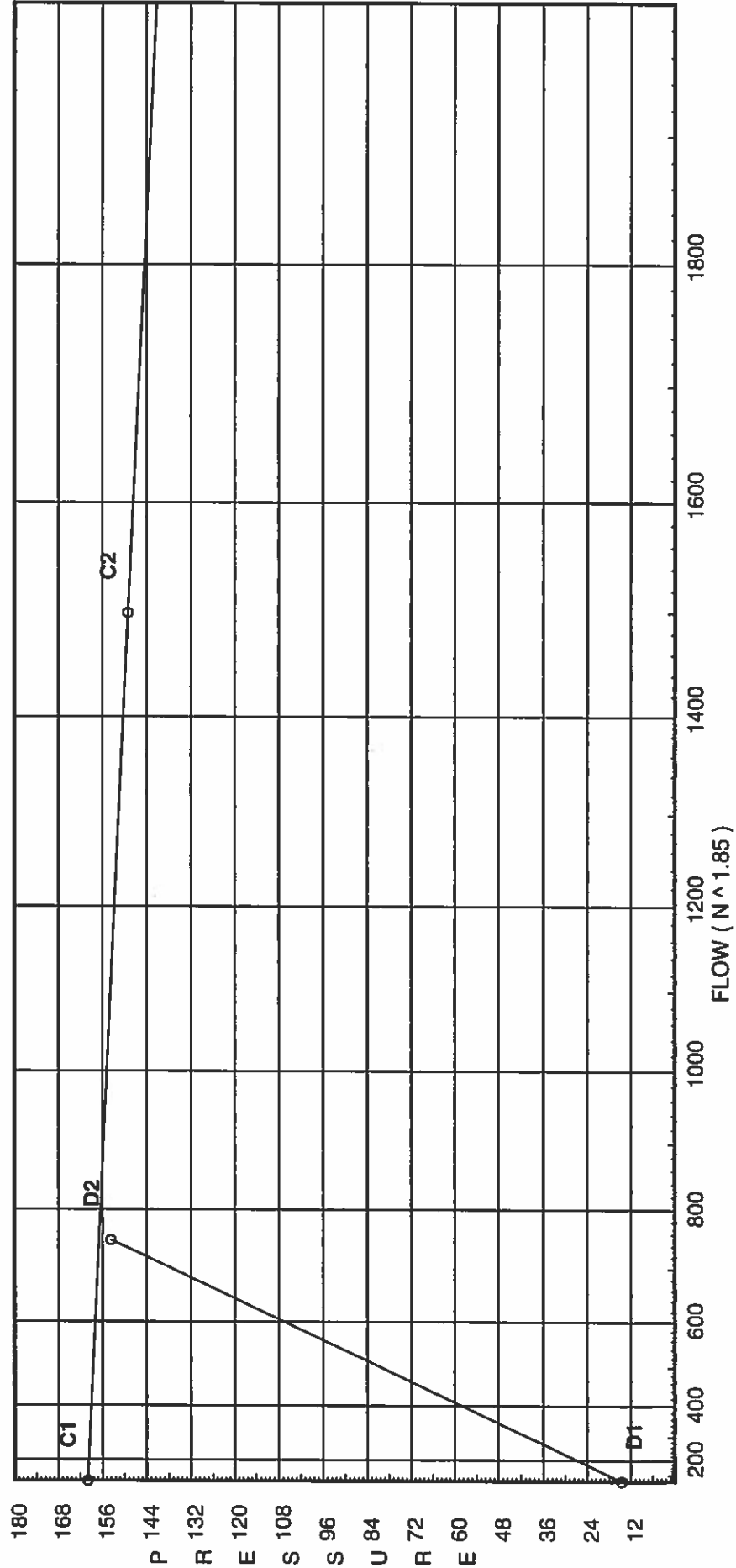
U
P Location: AT NEW 4"X 2-1/2"X 2-1/2"X 2-1/2" F.D.C.
P
L Source of Information: PORTLAND FIRE DEPT.
Y PUMPER TRUCK WATER DATA INPUT AT: 160 STATIC, 149 RESIDUAL, 1500GPM.

Water Supply Curve C

EASTERN FIRE PROTECTION
62 INDIA ST.

City Water Supply:
C1 - Static Pressure : 160
C2 - Residual Pressure: 149
C2 - Residual Flow : 1500

Demand:
D1 - Elevation : 14.518
D2 - System Flow : 750
D2 - System Pressure : 153.626
Hose (Demand) :
D3 - System Demand : 750
Safety Margin : 3.323



Fittings Used Summary

EASTERN FIRE PROTECTION
62 INDIA ST.

Fitting Legend Abbrev. Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	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
I 90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40
S NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65	71	81	91	101	121
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 NFFPA.

SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TEST	160.0	149	1500.0	156.949	750.0	153.626

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
600A	71.02		100.0	250.0	
600	71.02		103.4		
601A	60.35		104.78	250.0	
601	60.35		108.19		
602	55.13		112.16		
603	55.13		120.02		
604A	40.32		124.67	250.0	
604	40.32		128.08		
114	44.44		126.75		
605	44.44		128.16		
TOR1	44.44		136.51		
HDR1	37.5		148.53		
TEST	37.5		153.63		

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
62 INDIA ST.

Page 5
Date 6/7/17

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
600A to 600	71.020+ 71.020	250.00	250.00	4	T	26.334	0.400 26.334	120	100.000 3.000		** Fixed Loss = 3	
600 to 601	71.020 60.350		250.0 0.0	4		0.0	26.734 10.667	0.0151	0.404 103.404		Vel = 5.63	
601			0.0			0.0	0.0		4.621		Vel = 5.63	
601			0.0 250.00						108.187		K Factor = 24.04	
601A to 601	60.350+ 60.350	250.00	250.00	4	T	26.334	0.400 26.334	120	104.782 3.000		** Fixed Loss = 3	
601 to 602	60.350 55.130		250.0 500.0	4	T	26.334	5.167 26.334	120	108.187 2.261		Vel = 11.25	
602 to 603	55.130 55.130		0.0 500.0	4	B 4l	15.8 36.868	91.375 52.668	120	112.165 0.0		Vel = 11.25	
603 to 605	55.130 44.440		0.0 500.0	4	2l T	18.434 26.334	19.620 44.768	120	120.017 4.630		Vel = 11.25	
605			0.0 500.00						128.157		K Factor = 44.17	
604A to 604	40.320+ 40.320	250.00	250.00	4	T	26.334	0.400 26.334	120	124.674 3.000		** Fixed Loss = 3	
604 to 114	40.320 44.440		250.0 250.0	4	T	26.334	4.125 26.334	120	128.078 -1.784		Vel = 5.63	
114 to 605	44.440 44.440		0.0 250.0	4	B 2l T	15.8 18.434 26.334	32.210 60.568 92.778	120	126.754 0.0		Vel = 5.63	
605 to TOR1	44.440 44.440		500.00 750.0	4	I	9.217 0.0	63.170 9.217	120	128.157 0.0		Vel = 16.88	
TOR1 to HDR1	44.440 37.500		0.0 750.0	4	B S T	15.8 28.968 26.334	6.940 71.102 78.042	120	136.513 3.006		Vel = 16.88	
HDR1 to TEST	37.500 37.500		0.0 750.0	4	I S	9.217 28.968	6.000 38.185	120	148.526 0.0		Vel = 16.88	
TEST			0.0 750.00						153.626		K Factor = 60.51	