



Hydraulic Calculations by HydraCALC

Hydratec Incorporated
64 Haverhill Road
Route 111
Windham, NH 03087
603-434-0502

Job Name : BOYD FUNERAL HOME
Drawing : SHEET 1
Location : 4800 DOWNMAN RD, NEW ORLEANS, LA 70126
Remote Area : 2
Contract : 16228
Data File : Boyd Funeral Home Sprinkler Plans Area 2.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME BOYD FUNERAL HOME
Location 4800 DOWNMAN RD, NEW ORLEANS, LA 70126
Drawing # SHEET 1
Contract # 16228
Date 04/22/2021

DESIGN

Remote area # 2
Remote area location MERCHANDISE
Occupancy classification ORDINARY HAZARD GROUP 2 (MERCANTILE)
Density 0.20 - Gpm/SqFt
Area of application 900 (MIN) - SqFt
Coverage/sprinkler 130 (MAX) - SqFt
Type of sprinkler calculated VK3021 QR PEND K5.6 1/2"NPT 175F BRASS
Sprinklers calculated 8
In-rack demand N/A - GPM
Hose streams 250 - GPM
Total water required (including hose streams) 469 - GPM @ 50 - Psi
Type of system WET
Volume of system (dry or pre-action) N/A - Gal

WATER SUPPLY INFORMATION

Test date 01/28/2021
Location DOWNMAN RD @ BABYLON ST
Source of info JSI

CONTRACTOR INFO JEFFERSON SPRINKLER

Address 1903 HANCOCK ST
Phone # (504) 393-7699
Name of designer BLAKE MICKLER
Authority having jurisdiction LASFM
NOTES:

text1(35) - invisible

Water Supply Curve

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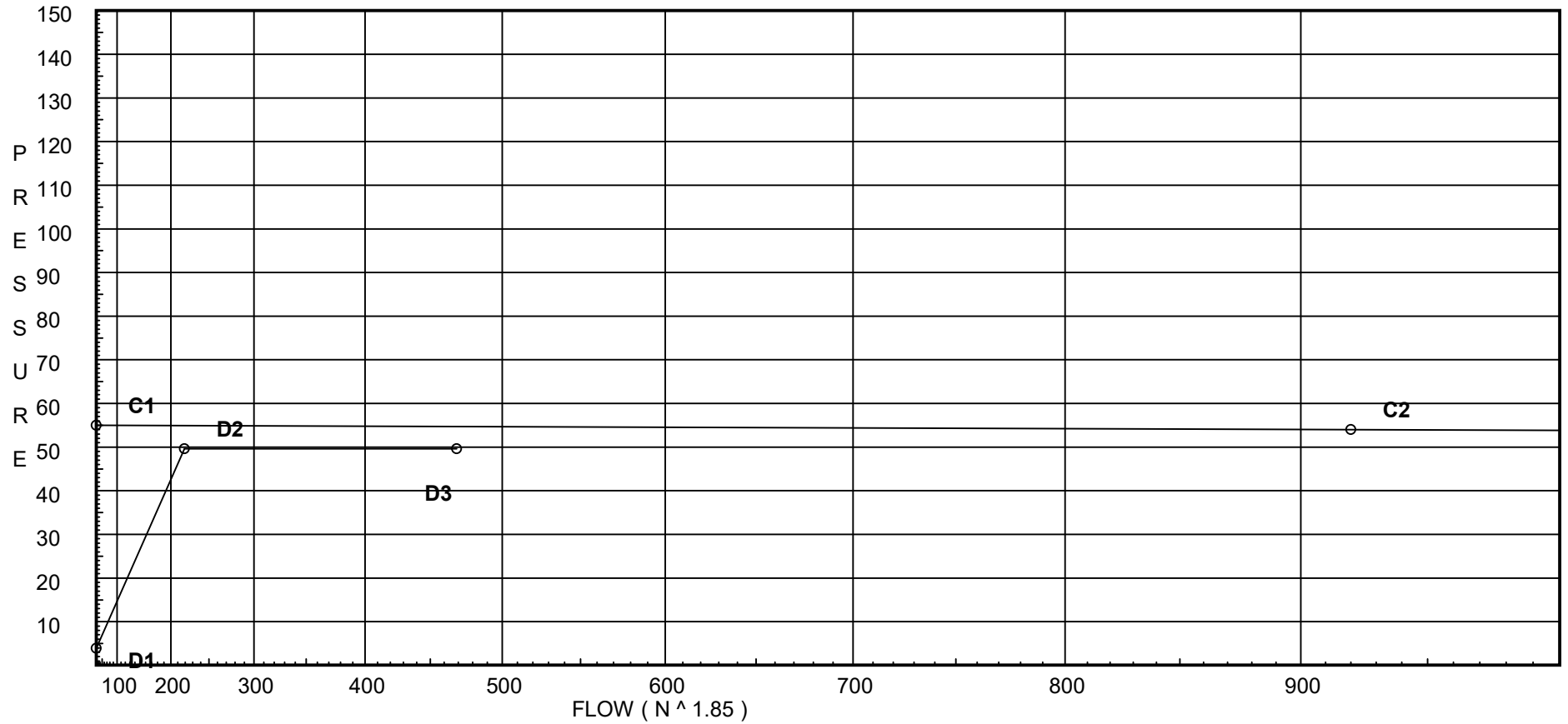
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City Water Supply:

C1 - Static Pressure : 55
C2 - Residual Pressure: 54
C2 - Residual Flow : 920

Demand:

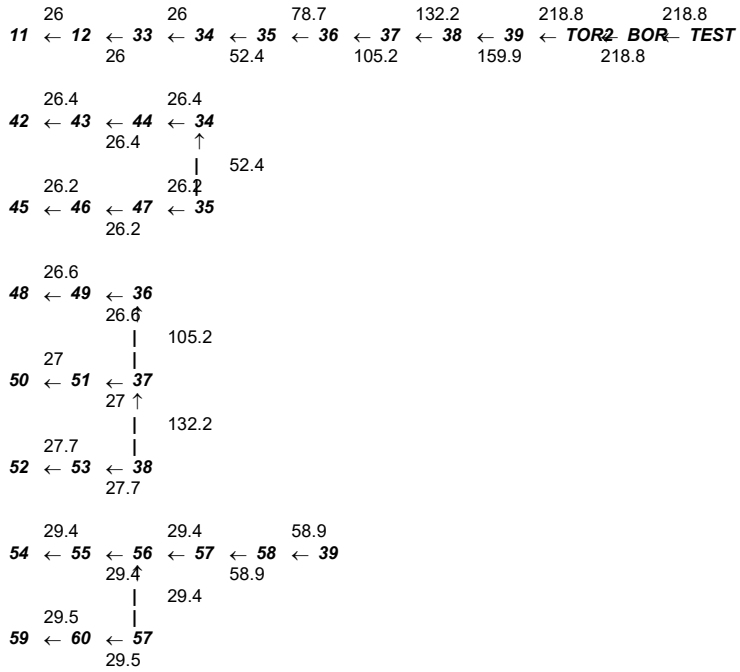
D1 - Elevation : 3.898
D2 - System Flow : 218.846
D2 - System Pressure : 49.620
Hose (Demand) : 250
D3 - System Demand : 468.846
Safety Margin : 5.092



Flow Diagram

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Fittings Used Summary

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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
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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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
Zcd	Colt C300 Horz Butt	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
TEST	55.0	54	920.0	54.713	468.85	49.62

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
11	10.0	5.6	21.56	26.0	0.2 130
12	11.25		21.7		
33	11.25		23.26		
34	11.25		23.72		
35	11.25		23.87		
36	11.25		23.91		
37	11.25		24.75		
38	11.25		26.3		
39	11.25		31.05		
TOR2	11.25		36.24		
BOR	1.0		44.48		
TEST	1.0		49.62	250.0	
42	10.0	5.6	22.29	26.44	0.2 130
43	11.25		22.46		
44	11.25		23.7		
45	10.0	5.6	21.95	26.24	0.2 130
46	11.25		22.11		
47	11.25		23.34		
48	10.0	5.6	22.48	26.55	0.2 130
49	11.25		22.65		
50	10.0	5.6	23.25	27.0	0.2 130
51	11.25		23.45		
52	10.0	5.6	24.41	27.67	0.2 130
53	11.25		24.64		
54	10.0	5.6	27.63	29.43	0.2 130
55	11.25		27.95		
56	11.25		29.81		
57	11.25		29.93		
58	11.25		30.77		
59	10.0	5.6	27.77	29.51	0.2 130
60	11.25		28.09		

Final Calculations : Hazen-Williams

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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	*****
11 to 12	10 11.25	5.60	26.00 26.0	1 1.049	E	2.0	1.250 2.000 3.250	120 0.2114	21.556 -0.541 0.687		Vel = 9.65	
12 to 33	11.25 11.25		0.0 26.0	1 1.049	T	5.0	2.370 5.000 7.370	120 0.2114	21.702 0.0 1.558		Vel = 9.65	
33 to 34	11.25 11.25		0.0 26.0	1.5 1.682	T	9.9	11.790 9.900 21.690	120 0.0212	23.260 0.0 0.460		Vel = 3.75	
34 to 35	11.25 11.25		26.44 52.44	2 2.157			6.490 6.490	120 0.0231	23.720 0.0 0.150		Vel = 4.60	
35 to 36	11.25 11.25		26.24 78.68	2 2.157			0.730 0.730	120 0.0493	23.870 0.0 0.036		Vel = 6.91	
36 to 37	11.25 11.25		26.55 105.23	2 2.157			10.000 10.000	120 0.0839	23.906 0.0 0.839		Vel = 9.24	
37 to 38	11.25 11.25		27.00 132.23	2 2.157			12.180 12.180	120 0.1280	24.745 0.0 1.559		Vel = 11.61	
38 to 39	11.25 11.25		27.67 159.9	2 2.157	T	12.307	13.790 12.307 26.097	120 0.1820	26.304 0.0 4.749		Vel = 14.04	
39 to TOR2	11.25 11.25		58.95 218.85	2 2.157	E	6.153	9.800 6.153 15.953	120 0.3251	31.053 0.0 5.187		Vel = 19.21	
TOR2 to BOR	11.25 1		0.0 218.85	4 4.26	B S Fsp E	15.8 28.968 0.0 13.167	10.250 57.935 68.185	120 0.0118	36.240 7.439 0.806		** Fixed Loss = 3 Vel = 4.93	
BOR to TEST	1 1		0.0 218.85	4 4.07	2E G Zcd	31.864 3.186 0.0	96.000 35.050 131.050	150 0.0098	44.485 3.855 1.280		** Fixed Loss = 3.855 Vel = 5.40	
TEST			250.00 468.85						49.620		Qa = 250.00 K Factor = 66.56	
42 to 43	10 11.25	5.60	26.44 26.44	1 1.049	E	2.0	1.250 2.000 3.250	120 0.2182	22.292 -0.541 0.709		Vel = 9.82	
43 to 44	11.25 11.25		0.0 26.44	1 1.049	T	5.0	0.710 5.000 5.710	120 0.2180	22.460 0.0 1.245		Vel = 9.82	
44 to 34	11.25 11.25		0.0 26.44	2 2.157			2.370 2.370	120 0.0063	23.705 0.0 0.015		Vel = 2.32	
34			0.0 26.44						23.720		K Factor = 5.43	
45 to 46	10 11.25	5.60	26.24 26.24	1 1.049	E	2.0	1.250 2.000 3.250	120 0.2151	21.952 -0.541 0.699		Vel = 9.74	

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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	*****
46 to 47	11.25 11.25		0.0 26.24	1 1.049	T	5.0	0.730 5.000 5.730	120	22.110 0.0 1.232			Vel = 9.74
47 to 35	11.25 11.25		0.0 26.24	1.5 1.61	T	8.0	11.790 8.000 19.790	120	23.342 0.0 0.528			Vel = 4.14
35			0.0 26.24						23.870			K Factor = 5.37
48 to 49	10 11.25	5.60	26.55 26.55	1 1.049	E	2.0	1.250 2.000 3.250	120	22.478 -0.541 0.714			Vel = 9.86
49 to 36	11.25 11.25		0.0 26.55	1 1.049	T	5.0	0.710 5.000 5.710	120	22.651 0.0 1.255			Vel = 9.86
36			0.0 26.55						23.906			K Factor = 5.43
50 to 51	10 11.25	5.60	27.00 27.0	1 1.049	E	2.0	1.250 2.000 3.250	120	23.254 -0.541 0.737			Vel = 10.02
51 to 37	11.25 11.25		0.0 27.0	1 1.049	T	5.0	0.710 5.000 5.710	120	23.450 0.0 1.295			Vel = 10.02
37			0.0 27.00						24.745			K Factor = 5.43
52 to 53	10 11.25	5.60	27.67 27.67	1 1.049	E	2.0	1.250 2.000 3.250	120	24.414 -0.541 0.771			Vel = 10.27
53 to 38	11.25 11.25		0.0 27.67	1 1.049	T	5.0	2.000 5.000 7.000	120	24.644 0.0 1.660			Vel = 10.27
38			0.0 27.67						26.304			K Factor = 5.40
54 to 55	10 11.25	5.60	29.43 29.43	1 1.049	E	2.0	1.250 2.000 3.250	120	27.627 -0.541 0.864			Vel = 10.93
55 to 56	11.25 11.25		0.0 29.43	1 1.049	T	5.0	2.000 5.000 7.000	120	27.950 0.0 1.862			Vel = 10.93
56 to 57	11.25 11.25		0.0 29.43	2 2.067			12.180 12.180	120	29.812 0.0 0.119			Vel = 2.81
57 to 58	11.25 11.25		29.51 58.94	2 2.067	T	10.0	13.790 10.000 23.790	120	29.931 0.0 0.841			Vel = 5.64
58 to 39	11.25 11.25		0.0 58.94	2 2.157			9.790 9.790	120	30.772 0.0 0.281			Vel = 5.17

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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	*****
39			0.0 58.94						31.053		K Factor = 10.58	
59 to 60	10 11.25	5.60	29.51	1	E	2.0	1.250 2.000 3.250	120	27.768 -0.541 0.868		Vel = 10.95	
60 to 57	11.25 11.25		0.0 29.51	1	T	5.0	1.870 5.000 6.870	120	28.095 0.0 1.836		Vel = 10.95	
57			0.0 29.51						29.931		K Factor = 5.39	