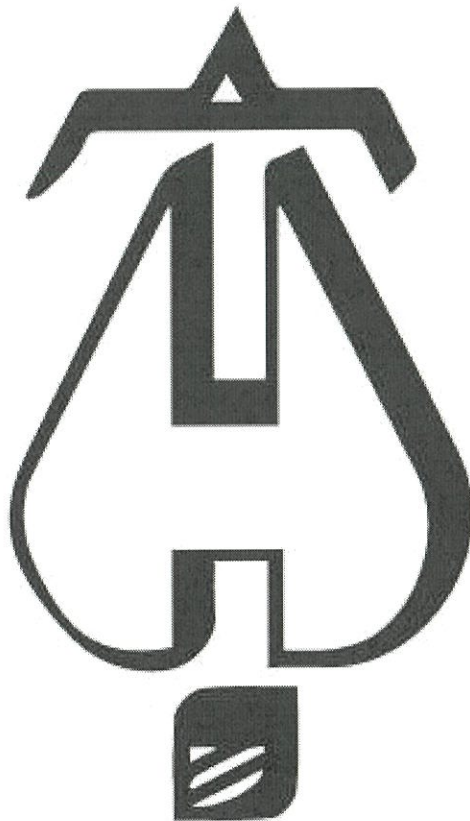




Hydraulic Calculations by HydraCALC

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

Job Name : LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM
Drawing : PG.16
Location : NY312 & PUGSLEY RD, BREWSTER, NY 10509
Remote Area : SYS 10 ELEC RM
Contract : SA COMUNALE
Data File : Lincoln Equities - BLDG B ALTERNATE SYS 10 ELEC RM 8.23.23.W



HYDRAULIC CALCULATIONS
for

Project name: SYS 10 ELEC RM
Location: NY312 & PUGSLEY RD, BREWSTER, NY 10509
Drawing no: PG.16
Date: 8.23.23

Design

Remote area number: SYS 10 ELEC RM
Remote area location: SYS 10 ELEC RM
Occupancy classification: ORDINARY HAZARD GR. 2
Density: 0.2 - Gpm/SqFt
Area of application: 1500 - SqFt
Coverage per sprinkler: 130 - SqFt
Type of sprinklers calculated: K5.6
No. of sprinklers calculated: 6
In-rack demand: NA - GPM
Hose streams: 250 - GPM
Total water required (including hose streams): 405.620 - GPM @ 43.986 - Psi
Type of system: WET
Volume of dry or preaction system: NA - Gal

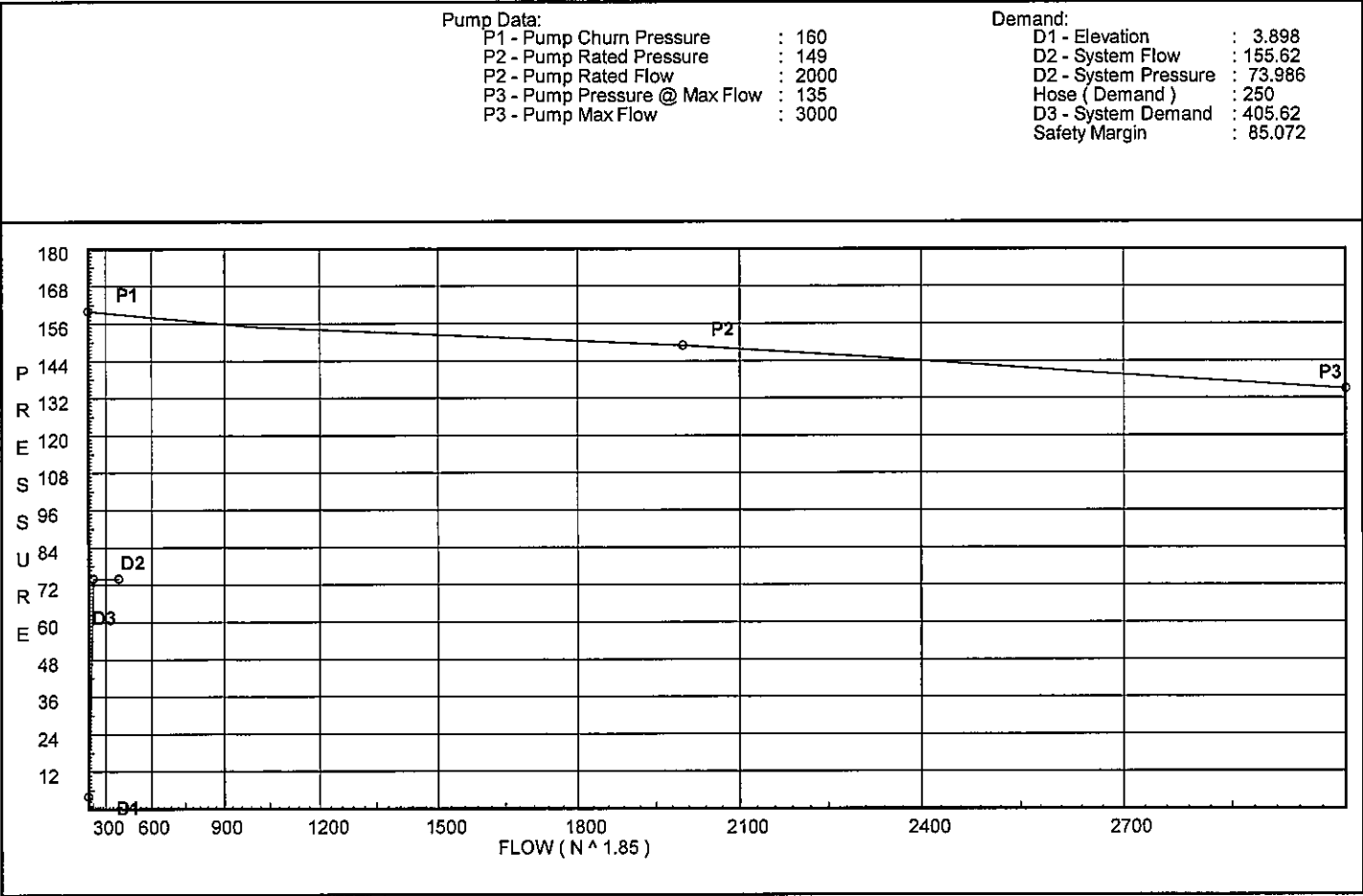
Water supply information

Date:
Location:
Source:

Name of contractor:
Address:
Phone number:
Name of designer:
Authority having jurisdiction:
Notes: (Include peaking information or gridded systems here.)

Water Supply Curve C

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM



Fittings Used Summary

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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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
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
F	NFPA 13 45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
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
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
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
V	90° Ell Firelock #001	0	0	0	0	0	3.5	4.3	5	0	6.8	8.5	10	13	4.5	5.1	0	0	0	0	0
X	90° Tee-Branch Firelock 002	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	9.3	11	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

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.

Flow Summary - NFPA

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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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>
PO	See Information on Pump Curve			159.058	405.62	73.986

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>
H1	11.0	5.6	20.25	25.2	
H2	11.0	5.6	20.72	25.49	
H3	11.0	5.6	22.1	26.33	
H4	11.0	5.6	22.1	26.33	
M1	11.0	5.6	21.09	25.72	
M2	11.0	5.6	22.49	26.56	
R13	45.5		53.59		
R14	45.5		53.59		
R15	45.5		53.59		
R16	45.5		53.59		
R17	45.5		53.59		
R18	45.5		53.59		
R19	45.5		53.59		
R20	45.5		53.59		
R21	45.5		53.59		
R22	45.5		53.59		
R23	45.5		53.59		
R24	45.5		53.59		
R25	45.5		53.59		
R26	45.5		53.59		
R27	45.5		53.59		
R28	45.5		52.81		
MT	45.5		51.82		
13	45.5		53.59		
14	45.5		53.59		
15	45.5		53.59		
16	45.5		53.59		
17	45.5		53.59		
18	45.5		53.59		
19	45.5		53.59		
20	45.5		53.59		
21	45.5		53.59		
22	45.5		53.59		
23	45.5		53.59		
24	45.5		53.59		
25	45.5		53.59		
26	45.5		53.59		
27	45.5		53.59		
28	45.5		53.59		

Flow Summary - NFPA

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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NODE ANALYSIS (cont.)

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
29	45.5		53.59		
30	45.5		53.59		
31	45.5		53.59		
32	45.5		53.59		
33	45.5		53.59		
34	45.5		53.6		
35	45.5		53.6		
36	45.5		53.6		
37	45.5		53.6		
38	45.5		53.6		
39	45.5		53.6		
40	45.5		53.61		
41	45.5		53.61		
42	45.5		53.61		
43	45.5		53.62		
44	45.5		53.62		
FMJ	45.5		53.63		
TR4	45.5		53.66		
BR4	2.0		73.52	100.0	
FLG	2.0		73.53		
UG7	-5.0		76.69		
UG8	-5.0		76.7		
UG9	-5.0		76.72		
UG10	-5.0		76.76		
UG11	-5.0		76.76		
UG12	-5.0		76.76		
UG13	-5.0		76.62	150.0	
UG14	-5.0		76.63		
UG15	-5.0		76.65		
UG16	-5.0		76.67		
UG6	-5.0		76.95		
PUMP	2.0		73.93		
PO	2.0		73.99		

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftns Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
H1 to M1	11 11	5.60	25.20 25.2	1.25 1.442	T	7.432 0.0 0.0	12.333 7.432 19.765	120 0.0424	20.250 0.0 0.838		Vel = 4.95	
M1			0.0 25.20						21.088		K Factor = 5.49	
H2 to M1	11 11	5.60	25.49 25.49	1.25 1.442	T	7.432 0.0 0.0	1.000 7.432 8.432	120 0.0434	20.722 0.0 0.366		Vel = 5.01	
M1			0.0 25.49						21.088		K Factor = 5.55	
H3 to M2	11 11	5.60	26.33 26.33	1.25 1.442	T	7.432 0.0 0.0	1.000 7.432 8.432	120 0.0459	22.103 0.0 0.387		Vel = 5.17	
M2			0.0 26.33						22.490		K Factor = 5.55	
H4 to M2	11 11	5.60	26.33 26.33	1.25 1.442	T	7.432 0.0 0.0	1.000 7.432 8.432	120 0.0459	22.103 0.0 0.387		Vel = 5.17	
M2			0.0 26.33						22.490		K Factor = 5.55	
M1 to M2	11 11	5.60	76.41 76.41	1.5 1.682		0.0 0.0 0.0	9.000 0.0 9.000	120 0.1558	21.088 0.0 1.402		Vel = 11.03	
M2 to MT	11 45.500	5.60	79.21 155.62	1.5 1.682	4E T	19.799 9.9 0.0	46.500 29.699 76.199	120 0.5810	22.490 -14.942 44.275		Vel = 22.47	
MT			0.0 155.62						51.823		K Factor = 21.62	
R13 to R29	45.500 45.500		-1.81 -1.81	2.5 2.635		0.0 0.0 0.0	191.958 0.0 191.958	120 0	53.592 0.0 -0.003		Vel = 0.11	
R29			0.0 -1.81						53.589		K Factor = -0.25	
R14 to R30	45.500 45.500		-1.43 -1.43	2.5 2.635		0.0 0.0 0.0	191.958 0.0 191.958	120 0	53.592 0.0 -0.002		Vel = 0.08	
R30			0.0 -1.43						53.590		K Factor = -0.20	
R15 to R31	45.500 45.500		-0.98 -0.98	2.5 2.635		0.0 0.0 0.0	191.958 0.0 191.958	120 0	53.593 0.0 -0.001		Vel = 0.06	
R31			0.0 -0.98						53.592		K Factor = -0.13	
R16 to R32	45.500 45.500		-0.18 -0.18	2.5 2.635		0.0 0.0 0.0	191.958 0.0 191.958	120 0	53.593 0.0 0.0		Vel = 0.01	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R32			0.0 -0.18					53.593		K Factor = -0.02	
R17 to R33	45.500 45.500		0.93	2.5	0.0 0.0	191.958 0.0	120	53.593 0.0			
			0.93	2.635	0.0	191.958	0	0.001		Vel = 0.05	
R33			0.0 0.93					53.594		K Factor = 0.13	
R18 to R34	45.500 45.500		1.39	2.5	0.0 0.0	191.958 0.0	120	53.593 0.0			
			1.39	2.635	0.0	191.958	0	0.002		Vel = 0.08	
R34			0.0 1.39					53.595		K Factor = 0.19	
R19 to R35	45.500 45.500		1.77	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			1.77	2.635	0.0	191.958	0	0.003		Vel = 0.10	
R35			0.0 1.77					53.597		K Factor = 0.24	
R20 to R36	45.500 45.500		2.10	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			2.1	2.635	0.0	191.958	0	0.004		Vel = 0.12	
R36			0.0 2.10					53.598		K Factor = 0.29	
R21 to R37	45.500 45.500		2.42	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			2.42	2.635	0.0	191.958	0	0.006		Vel = 0.14	
R37			0.0 2.42					53.600		K Factor = 0.33	
R22 to R38	45.500 45.500		2.74	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			2.74	2.635	0.0	191.958	0	0.007		Vel = 0.16	
R38			0.0 2.74					53.601		K Factor = 0.37	
R23 to R39	45.500 45.500		3.07	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			3.07	2.635	0.0	191.958	0	0.009		Vel = 0.18	
R39			0.0 3.07					53.603		K Factor = 0.42	
R24 to R40	45.500 45.500		3.43	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			3.43	2.635	0.0	191.958	0.0001	0.011		Vel = 0.20	
R40			0.0 3.43					53.605		K Factor = 0.47	
R25 to R41	45.500 45.500		3.82	2.5	0.0 0.0	191.958 0.0	120	53.594 0.0			
			3.82	2.635	0.0	191.958	0.0001	0.013		Vel = 0.22	
			0.0								

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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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	*****
R41			3.82						53.607		K Factor = 0.52	
R26 to R42	45.500 45.500		4.24 4.24	2.5 2.635		0.0 0.0	191.958 0.0	120 0.0001	53.593 0.016		Vel = 0.25	
R42			0.0 4.24						53.609		K Factor = 0.58	
R27 to R43	45.500 45.500		4.49 4.49	2.5 2.635	4V	23.613 0.0	191.958 23.613	120 0.0001	53.592 0.020		Vel = 0.26	
R43			0.0 4.49						53.612		K Factor = 0.61	
R28 to MT	45.500 45.500		-90.14 -90.14	2.5 2.635		0.0 0.0	41.667 0.0	120 -0.0238	52.813 -0.990		Vel = 5.30	
MT to R44	45.500 45.500		155.62 65.48	2.5 2.635		0.0 0.0	103.792 103.792	120 0.0132	51.823 1.366		Vel = 3.85	
R44			0.0 65.48						53.189		K Factor = 8.98	
13 to R13	45.500 45.500		-1.81 -1.81	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.11	
R13			0.0 -1.81						53.592		K Factor = -0.25	
14 to R14	45.500 45.500		-1.43 -1.43	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.08	
R14			0.0 -1.43						53.592		K Factor = -0.20	
15 to R15	45.500 45.500		-0.98 -0.98	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.06	
R15			0.0 -0.98						53.593		K Factor = -0.13	
16 to R16	45.500 45.500		-0.18 -0.18	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.01	
R16			0.0 -0.18						53.593		K Factor = -0.02	
17 to R17	45.500 45.500		0.93 0.93	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.05	
R17			0.0 0.93						53.593		K Factor = 0.13	
18 to R18	45.500 45.500		1.39 1.39	2.5 2.635	X T	14.827 16.474	1.250 31.301	120 0	53.593 0.0		Vel = 0.08	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R18			0.0 1.39						53.593		K Factor = 0.19	
19 to R19	45.500 45.500		1.77 1.77	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0	53.593 0.0 0.001		Vel = 0.10	
R19			0.0 1.77						53.594		K Factor = 0.24	
20 to R20	45.500 45.500		2.10 2.1	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0	53.593 0.0 0.001		Vel = 0.12	
R20			0.0 2.10						53.594		K Factor = 0.29	
21 to R21	45.500 45.500		2.42 2.42	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0	53.593 0.0 0.001		Vel = 0.14	
R21			0.0 2.42						53.594		K Factor = 0.33	
22 to R22	45.500 45.500		2.74 2.74	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0	53.593 0.0 0.001		Vel = 0.16	
R22			0.0 2.74						53.594		K Factor = 0.37	
23 to R23	45.500 45.500		3.07 3.07	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0	53.593 0.0 0.001		Vel = 0.18	
R23			0.0 3.07						53.594		K Factor = 0.42	
24 to R24	45.500 45.500		3.43 3.43	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0.0001	53.592 0.0 0.002		Vel = 0.20	
R24			0.0 3.43						53.594		K Factor = 0.47	
25 to R25	45.500 45.500		3.82 3.82	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0.0001	53.592 0.0 0.002		Vel = 0.22	
R25			0.0 3.82						53.594		K Factor = 0.52	
26 to R26	45.500 45.500		4.24 4.24	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0.0001	53.591 0.0 0.002		Vel = 0.25	
R26			0.0 4.24						53.593		K Factor = 0.58	
27 to R27	45.500 45.500		4.49 4.49	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 0.0001	53.589 0.0 0.003		Vel = 0.26	
			0.0									

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R27			4.49						53.592		K Factor = 0.61	
28 to R28	45.500 45.500		-90.14 -90.14	2.5 2.635	X T	14.827 16.474 0.0	1.250 31.301 32.551	120 -0.0238	53.587 0.0 -0.774		Vel = 5.30	
R28			0.0 -90.14						52.813		K Factor = -12.40	
29 to R29	45.500 45.500		1.81 1.81	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.588 0.0 0.001		Vel = 0.11	
R29			0.0 1.81						53.589		K Factor = 0.25	
30 to R30	45.500 45.500		1.43 1.43	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.590 0.0 0.0		Vel = 0.08	
R30			0.0 1.43						53.590		K Factor = 0.20	
31 to R31	45.500 45.500		0.98 0.98	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.591 0.0 0.001		Vel = 0.06	
R31			0.0 0.98						53.592		K Factor = 0.13	
32 to R32	45.500 45.500		0.18 0.18	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.593 0.0 0.0		Vel = 0.01	
R32			0.0 0.18						53.593		K Factor = 0.02	
33 to R33	45.500 45.500		-0.93 -0.93	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.594 0.0 0.0		Vel = 0.05	
R33			0.0 -0.93						53.594		K Factor = -0.13	
34 to R34	45.500 45.500		-1.39 -1.39	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.596 0.0 -0.001		Vel = 0.08	
R34			0.0 -1.39						53.595		K Factor = -0.19	
35 to R35	45.500 45.500		-1.77 -1.77	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.597 0.0 0.0		Vel = 0.10	
R35			0.0 -1.77						53.597		K Factor = -0.24	
36 to R36	45.500 45.500		-2.10 -2.1	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.599 0.0 -0.001		Vel = 0.12	
R36			0.0 -2.10						53.598		K Factor = -0.29	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES BLDG B ALTERNATE SYS 10 ELEC RM

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
37 to R37	45.500 45.500		-2.42 -2.42	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.601 0.0 -0.001		Vel = 0.14	
R37			0.0 -2.42						53.600		K Factor = -0.33	
38 to R38	45.500 45.500		-2.74 -2.74	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.602 0.0 -0.001		Vel = 0.16	
R38			0.0 -2.74						53.601		K Factor = -0.37	
39 to R39	45.500 45.500		-3.07 -3.07	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 0	53.604 0.0 -0.001		Vel = 0.18	
R39			0.0 -3.07						53.603		K Factor = -0.42	
40 to R40	45.500 45.500		-3.43 -3.43	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 -0.0001	53.607 0.0 -0.002		Vel = 0.20	
R40			0.0 -3.43						53.605		K Factor = -0.47	
41 to R41	45.500 45.500		-3.82 -3.82	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 -0.0001	53.609 0.0 -0.002		Vel = 0.22	
R41			0.0 -3.82						53.607		K Factor = -0.52	
42 to R42	45.500 45.500		-4.24 -4.24	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 -0.0001	53.612 0.0 -0.003		Vel = 0.25	
R42			0.0 -4.24						53.609		K Factor = -0.58	
43 to R43	45.500 45.500		-4.49 -4.49	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 -0.0001	53.615 0.0 -0.003		Vel = 0.26	
R43			0.0 -4.49						53.612		K Factor = -0.61	
44 to R44	45.500 45.500		-65.48 -65.48	2.5 2.635	X T	14.827 16.474 0.0	1.333 31.301 32.634	120 -0.0131	53.618 0.0 -0.429		Vel = 3.85	
R44			0.0 -65.48						53.189		K Factor = -8.98	
13 to 14	45.500 45.500		1.81 1.81	4 4.26		0.0 0.0 0.0	9.417 0.0 9.417	120 0	53.593 0.0 0.0		Vel = 0.04	
14 to 15	45.500 45.500		1.43 3.24	4 4.26		0.0 0.0 0.0	9.417 0.0 9.417	120 0	53.593 0.0 0.0		Vel = 0.07	

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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	*****
15 to 16	45.500 45.500		0.98 4.22	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.09	
16 to 17	45.500 45.500		0.18 4.4	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.10	
17 to 18	45.500 45.500		-0.92 3.48	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.08	
18 to 19	45.500 45.500		-1.39 2.09	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.05	
19 to 20	45.500 45.500		-1.77 0.32	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.01	
20 to 21	45.500 45.500		-2.10 -1.78	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.04	
21 to 22	45.500 45.500		-2.43 -4.21	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.09	
22 to 23	45.500 45.500		-2.73 -6.94	4 4.26		0.0 0.0	9.417 0.0	120 0	53.593 0.0			
						0.0	9.417	0	0.0	Vel =	0.16	
23 to 24	45.500 45.500		-3.07 -10.01	4 4.26		0.0 0.0	10.000 0.0	120 -0.0001	53.593 0.0			
						0.0	10.000	-0.0001	-0.001	Vel =	0.23	
24 to 25	45.500 45.500		-3.44 -13.45	4 4.26		0.0 0.0	10.000 0.0	120 0	53.592 0.0			
						0.0	10.000	0	0.0	Vel =	0.30	
25 to 26	45.500 45.500		-3.81 -17.26	4 4.26		0.0 0.0	10.000 0.0	120 -0.0001	53.592 0.0			
						0.0	10.000	-0.0001	-0.001	Vel =	0.39	
26 to 27	45.500 45.500		-4.24 -21.5	4 4.26		0.0 0.0	10.000 0.0	120 -0.0002	53.591 0.0			
						0.0	10.000	-0.0002	-0.002	Vel =	0.48	
27 to 28	45.500 45.500		-4.49 -25.99	4 4.26		0.0 0.0	10.000 0.0	120 -0.0002	53.589 0.0			
						0.0	10.000	-0.0002	-0.002	Vel =	0.59	
28			0.0 -25.99						53.587	K Factor = -3.55		
28 to 29	45.500 45.500		64.14 64.14	6 6.357		0.0 0.0	9.417 0.0	120 0.0001	53.587 0.0			
						0.0	9.417	0.0001	0.001	Vel =	0.65	
29 to 30	45.500 45.500		-1.80 62.34	6 6.357		0.0 0.0	9.417 0.0	120 0.0002	53.588 0.0			
						0.0	9.417	0.0002	0.002	Vel =	0.63	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	***** Notes *****
30 to 31	45.500 45.500		-1.44 60.9	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0001	53.590 0.0 0.001	Vel = 0.62
31 to 32	45.500 45.500		-0.98 59.92	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0002	53.591 0.0 0.002	Vel = 0.61
32 to 33	45.500 45.500		-0.18 59.74	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0001	53.593 0.0 0.001	Vel = 0.60
33 to 34	45.500 45.500		0.93 60.67	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0002	53.594 0.0 0.002	Vel = 0.61
34 to 35	45.500 45.500		1.39 62.06	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0001	53.596 0.0 0.001	Vel = 0.63
35 to 36	45.500 45.500		1.76 63.82	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0002	53.597 0.0 0.002	Vel = 0.65
36 to 37	45.500 45.500		2.11 65.93	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0002	53.599 0.0 0.002	Vel = 0.67
37 to 38	45.500 45.500		2.42 68.35	6 6.357	0.0 0.0 0.0	9.417 0.0 9.417	120 0.0001	53.601 0.0 0.001	Vel = 0.69
38 to 39	45.500 45.500		2.73 71.08	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0002	53.602 0.0 0.002	Vel = 0.72
39 to 40	45.500 45.500		3.08 74.16	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0003	53.604 0.0 0.003	Vel = 0.75
40 to 41	45.500 45.500		3.43 77.59	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0002	53.607 0.0 0.002	Vel = 0.78
41 to 42	45.500 45.500		3.82 81.41	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0003	53.609 0.0 0.003	Vel = 0.82
42 to 43	45.500 45.500		4.24 85.65	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0003	53.612 0.0 0.003	Vel = 0.87
43 to 44	45.500 45.500		4.49 90.14	6 6.357	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0003	53.615 0.0 0.003	Vel = 0.91
44 to FMJ	45.500 45.500		65.48 155.62	6 6.357	V 12.573 0.0 0.0	3.083 12.573 15.656	120 0.0009	53.618 0.0 0.014	Vel = 1.57
FMJ			0.0 155.62					53.632	K Factor = 21.25

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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	*****
FMJ to TR4	45.500 45.500		155.62	8	2V	30.537 0.0	63.833 30.537	120	53.632 0.0			
TR4 to BR4	45.500 2		155.62	8.249		0.0	94.370	0.0003	0.024	Vel = 0.93		
BR4 to FLG	2 2	H100	0.0	8	T	41.108 0.0	38.875 41.108	120	53.656 19.840		** Fixed Loss = 1	
FLG to UG13	2 -5		155.62	8.249		0.0	79.983	0.0003	0.020	Vel = 0.93		
UG13 to UG7	-5 -5		0.0	8	L	19.632 0.0	2.000 19.632	150	73.516 0.0			
UG7 to UG8	-5 -5		255.62	7.98		0.0	21.632	0.0005	0.011	Vel = 1.64		
UG8 to UG9	-5 -5		0.0	8	L T	19.632 52.855	51.125 72.487	150	73.527 3.032			
UG9 to UG10	-5 -5		255.62	7.98		0.0	123.612	0.0005	0.060	Vel = 1.64		
UG10 to UG11	-5 -5		0.0									
UG11 to UG12	-5 -5		255.62						76.619	K Factor = 29.20		
UG12 to UG13	-5 -5		55.62	8	G	6.041 0.0	483.333 6.040	150	76.689 0.0			
UG13 to UG14	-5 -5		55.62	7.98		0.0	489.373	0	0.014	Vel = 0.36		
UG14 to UG15	-5 -5		0.0	8	G	6.041 0.0	486.000 6.040	150	76.703 0.0			
UG15 to UG16	-5 -5		55.62	7.98		0.0	492.040	0	0.015	Vel = 0.36		
UG16 to UG17	-5 -5		0.0	8	6F 2G	81.548 12.081	1180.417 93.630	150	76.718 0.0			
UG17 to UG18	-5 -5		55.62	7.98		0.0	1274.047	0	0.037	Vel = 0.36		
UG18 to UG19	-5 -5		0.0	8	G	6.041 0.0	29.750 6.040	150	76.755 0.0			
UG19 to UG20	-5 -5		55.62	7.98		0.0	35.790	0	0.001	Vel = 0.36		
UG20 to UG21	-5 -5		0.0	12	2F G	34.882 8.05	489.875 42.932	150	76.756 0.0			
UG21 to UG22	-5 -5		55.62	11.65		0.0	532.807	0	0.002	Vel = 0.17		
UG22 to UG23	-5 -5		-405.62	8	F G	13.591 6.041	139.417 19.632	150	76.758 0.0			
UG23 to UG24	-5 -5		-350.0	7.98		0.0	159.049	-0.0009	-0.139	Vel = 2.25		
UG24 to UG25	-5 -5	H150	405.62	8	G	6.041 0.0	441.708 6.040	150	76.619 0.0			
UG25 to UG26	-5 -5		55.62	7.98		0.0	447.748	0	0.013	Vel = 0.36		
UG26 to UG27	-5 -5		0.0	8	F G	13.591 6.041	487.667 19.632	150	76.632 0.0			
UG27 to UG28	-5 -5		55.62	7.98		0.0	507.299	0	0.015	Vel = 0.36		
UG28 to UG29	-5 -5		0.0	8	4F G	54.365 6.041	785.000 60.405	150	76.647 0.0			
UG29 to UG30	-5 -5		55.62	7.98		0.0	845.405	0	0.025	Vel = 0.36		
UG30 to UG31	-5 -5		0.0	8	G	6.041 0.0	596.667 6.040	150	76.672 0.0			
UG31 to UG32	-5 -5		55.62	7.98		0.0	602.707	0	0.017	Vel = 0.36		
UG32 to UG33	-5 -5		0.0									
UG33 to UG34	-5 -5		55.62						76.689	K Factor = 6.35		

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
UG12 to UG6	-5 -5		405.62	12	6F 3G	104.647 24.149	817.042 209.294	150	76.758 0.0			
UG6 to PUMP	-5 2		405.62	11.65	T	80.498	1026.336	0.0002	0.188	Vel =	1.22	
UG6 to PUMP	-5 2		0.0	12	2L	48.299 0.0	45.500 48.298	150	76.946 -3.032			
PUMP to PO	2 2		405.62	11.65		0.0	93.798	0.0002	0.017	Vel =	1.22	
PUMP to PO	2 2		0.0	10	2V S	10.89 66.551	15.000 100.431	120	73.931 0.0			
PO	2		405.62	10.42	B	22.99	115.431	0.0005	0.055	Vel =	1.53	
PO			0.0 405.62						73.986	K Factor =	47.16	