

Hydraulic Summary

Job
Job Number
NC-1478
Job Name:
1460 Broadway
Address 1
1460 SE Broadway Dr
Address 2
Lee's Summit, MO
Address 3

System
Most Demanding Sprinkler Data
25.2 K-Factor 97.60 at 15.000
Hose Allowance At Source
250.00
Additional Hose Supplies
Node Flow(gpm)

Total Hose Streams
250.00
System Flow Demand
1185.77
Maximum Pressure Unbalance In Loops
0.000
Maximum Velocity Above Ground
26.08 between nodes 71 and 163
Maximum Velocity Under Ground
12.17 between nodes 1 and 12
Volume capacity of Wet Pipes
1509.24gal
Total Water Required (including Hose Allowance)
1435.77
Volume capacity of Dry Pipes

Supplies

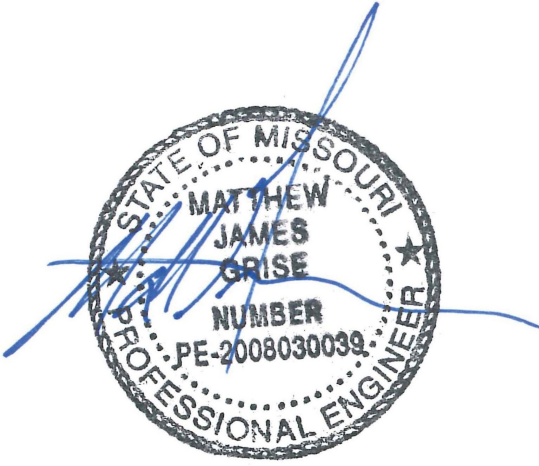
Node	Name	Hose Flow (gpm)	Static (psi)	Residual (psi)	@	Flow (gpm)	Available (psi)	@	Total Demand (gpm)	Required (psi)	Safety Margin (psi)
1	Water Supply	250.00	89.000	49.000		1875.00	64.587		1435.77	53.808	10.779

Contractor

Contractor Number
01
Name of Contractor:
Alliance Fire Protection
Address 1
130 W 9th Ave #101
Address 2
North Kansas City, MO 64116
City State Zip Code

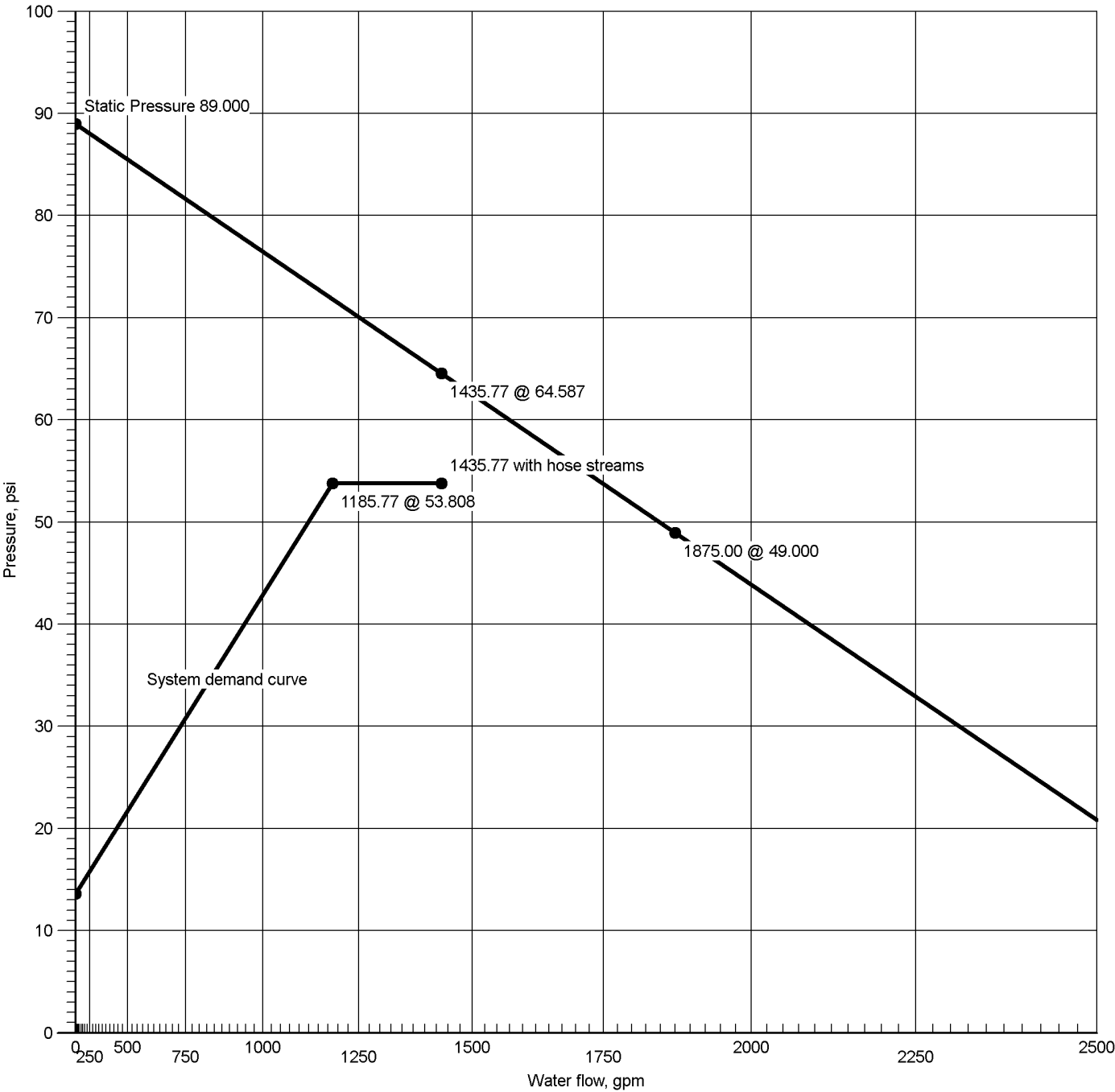
Designer
State Certification/License Number
AHJ
Lee's Summit FM
Job Site/Building
Storage - ESFR - System 01
Drawing Name
1460Broadway-City-09-03-2025

Remote Area(s)
Occupancy
ESFR
Pressure
15.000
Number Of Sprinklers Calculated
12
Area of Application
NA
Number Of Nozzles Calculated
0
Coverage Per Sprinkler
88ft²



Contact Name
Contact Title
Phone
913-888-0647
FAX
913-888-0618
E-mail
Web-Site
Extension

Water Supply at Node 1



Hydraulic Graph
Water Supply at Node 1
Static: Pressure
89.000
Residual: Pressure
49.000 @ 1875.00
Available Pressure at {?}blTestTime
64.587 @ 1435.77
System Demand
53.808 @ 1185.77
System Demand (Including Hose Allowance at Source)
53.808 @ 1435.77

Summary Of Outflowing Devices

Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)
Sprinkler	910	99.03	97.60	25.2	15.443
Sprinkler	911	99.26	97.60	25.2	15.514
Sprinkler	912	100.08	97.60	25.2	15.771
Sprinkler	936	98.13	97.60	25.2	15.164
Sprinkler	937	98.36	97.60	25.2	15.234
Sprinkler	938	99.18	97.60	25.2	15.489
⇒ Sprinkler	963	97.60	97.60	25.2	15.000
Sprinkler	964	97.83	97.60	25.2	15.070
Sprinkler	965	98.65	97.60	25.2	15.325
Sprinkler	985	98.80	97.60	25.2	15.370
Sprinkler	986	99.02	97.60	25.2	15.441
Sprinkler	987	99.84	97.60	25.2	15.696

⇒ Most Demanding Sprinkler Data

Node Analysis

Job Number: NC-1478

Report Description: ESFR (Storage - ESFR - Sys 01)

Node	Elevation(Foot)	Fittings	Pressure(psi)	Discharge(gpm)
1	-6'-0	S	53.808	1185.77
910	24'-9	Spr(-15.443)	15.443	99.03
911	24'-9	Spr(-15.514)	15.514	99.26
912	24'-9	Spr(-15.771)	15.771	100.08
936	25'-2	Spr(-15.164)	15.164	98.13
937	25'-2	Spr(-15.234)	15.234	98.36
938	25'-2	Spr(-15.489)	15.489	99.18
963	25'-6½	Spr(-15.000)	15.000	97.60
964	25'-6½	Spr(-15.070)	15.070	97.83
965	25'-6½	Spr(-15.325)	15.325	98.65
985	25'-2	Spr(-15.370)	15.370	98.80
986	25'-2	Spr(-15.441)	15.441	99.02
987	25'-2	Spr(-15.696)	15.696	99.84
12	1'-6½	sCV(40'-3)	44.175	
71	19'-0		33.752	
134	19'-0	PO(22'-6)	20.678	
135	19'-0	PO(22'-6)	20.765	
138	19'-0	PO(22'-6)	21.079	
139	19'-0	PO(22'-6)	21.750	
140	19'-0	PO(22'-6)	22.398	
143	19'-0	PO(22'-6)	23.037	
144	19'-0	PO(22'-6)	23.602	
149	19'-0	PO(22'-6)	25.366	
150	19'-0	PO(22'-6)	25.932	
153	19'-0	PO(22'-6)	26.570	
154	19'-0	PO(22'-6)	27.146	
155	19'-0	PO(22'-6)	27.741	
158	19'-0	PO(22'-6)	28.448	
159	19'-0	PO(22'-6)	29.135	
160	19'-0	PO(22'-6)	29.912	
163	19'-0	T(27'-10½)	33.752	
166	19'-0	PO(22'-6)	32.495	
167	19'-0	PO(22'-6)	32.458	
234	19'-0	PO(22'-6)	32.630	
644	19'-0	PO(22'-6)	20.820	
645	19'-0	PO(22'-6)	20.899	
648	19'-0	PO(22'-6)	21.182	
649	19'-0	PO(22'-6)	21.783	
650	19'-0	PO(22'-6)	22.405	
653	19'-0	PO(22'-6)	23.037	
654	19'-0	PO(22'-6)	23.602	
659	19'-0	PO(22'-6)	25.366	
660	19'-0	PO(22'-6)	25.931	
663	19'-0	PO(22'-6)	26.563	
664	19'-0	PO(22'-6)	27.116	
665	19'-0	PO(22'-6)	27.652	
668	19'-0	PO(22'-6)	28.219	
669	19'-0	PO(22'-6)	28.672	
670	19'-0	PO(22'-6)	29.056	
675	19'-0	PO(22'-6)	29.524	
676	19'-0	PO(22'-6)	29.561	

Hydraulic Analysis

Job Number: NC-1478

Report Description: ESFR (Storage - ESFR - Sys 01)

Pipe Type Downstream Upstream	Diameter Elevation	Flow Discharge	Velocity K-Factor	HWC Pt	Pn	Friction Loss Fittings	Length Eq. Length Total Length	Pressure Summary
..... Route 1								
BL	3.3340	5.10	0.19	120		0.000037	9'-0	Pf 0.000
963	25'-6½	97.60	25.2	15.000		Sprinkler		Pe 0.164
936	25'-2			15.164			9'-0	Pv
BL	3.3340	103.24	3.79	120		0.009714	10'-0	Pf 0.097
936	25'-2	98.13	25.2	15.164		Sprinkler		Pe 0.182
910	24'-9			15.443			10'-0	Pv
BL	3.3340	202.27	7.43	120		0.033710	36'-4	Pf 2.741
910	24'-9	99.03	25.2	15.443		Sprinkler,	44'-11½	Pe 2.494
134	19'-0			20.678		2PO(22'-6)	81'-4	Pv
CM	4.3100	202.27	4.45	120		0.009654	9'-0	Pf 0.087
134	19'-0			20.678				Pe
135	19'-0			20.765			9'-0	Pv
CM	4.3100	405.16	8.91	120		0.034902	9'-0	Pf 0.314
135	19'-0	202.89		20.765		Flow (q) from Route 3		Pe
138	19'-0			21.079			9'-0	Pv
CM	4.3100	610.30	13.42	120		0.074474	9'-0	Pf 0.670
138	19'-0	205.15		21.079		Flow (q) from Route 5		Pe
139	19'-0			21.750			9'-0	Pv
CM	4.3100	599.38	13.18	120		0.072028	9'-0	Pf 0.648
139	19'-0			21.750				Pe
140	19'-0			22.398			9'-0	Pv
CM	4.3100	594.54	13.07	120		0.070955	9'-0	Pf 0.639
140	19'-0			22.398				Pe
143	19'-0			23.037			9'-0	Pv
CM	4.3100	593.10	13.04	120		0.070637	8'-0	Pf 0.565
143	19'-0			23.037				Pe
144	19'-0			23.602			8'-0	Pv
CM	4.3100	592.89	13.04	120		0.070591	25'-0	Pf 1.765
144	19'-0			23.602				Pe
149	19'-0			25.366			25'-0	Pv
CM	4.3100	593.09	13.04	120		0.070636	8'-0	Pf 0.565
149	19'-0	0.20		25.366		Flow (q) from Route 2		Pe
150	19'-0			25.932			8'-0	Pv
CM	4.3100	594.51	13.07	120		0.070948	9'-0	Pf 0.639
150	19'-0	1.41		25.932		Flow (q) from Route 22		Pe
153	19'-0			26.570			9'-0	Pv
CM	4.3100	599.29	13.18	120		0.072007	8'-0	Pf 0.576
153	19'-0	4.78		26.570		Flow (q) from Route 16		Pe
154	19'-0			27.146			8'-0	Pv
CM	4.3100	609.60	13.41	120		0.074315	8'-0	Pf 0.595
154	19'-0	10.31		27.146		Flow (q) from Route 18		Pe
155	19'-0			27.741			8'-0	Pv
CM	4.3100	628.19	13.81	120		0.078563	9'-0	Pf 0.707
155	19'-0	18.59		27.741		Flow (q) from Route 23		Pe
158	19'-0			28.448			9'-0	Pv
CM	4.3100	659.22	14.50	120		0.085892	8'-0	Pf 0.687
158	19'-0	31.03		28.448		Flow (q) from Route 20		Pe
159	19'-0			29.135			8'-0	Pv
CM	4.3100	704.62	15.49	120		0.097154	8'-0	Pf 0.777
159	19'-0	45.40		29.135		Flow (q) from Route 13		Pe
160	19'-0			29.912			8'-0	Pv
CM	4.3100	767.95	16.89	120		0.113923	5'-10	Pf 3.840
160	19'-0	63.33		29.912		Flow (q) from Route 15	27'-10½	Pe
163	19'-0			33.752		T(27'-10½)	33'-8½	Pv
DY	4.3100	1185.77	26.08	120		0.254477	0'-0	Pf 0.000
163	19'-0	417.82		33.752		Flow (q) from Route 7		Pe
71	19'-0			33.752			0'-0	Pv
DY	6.3570	1185.77	11.99	120		0.038345	21'-6½	Pf 2.850
71	19'-0			33.752			52'-9½	Pe 7.573
12	1'-6½			44.175		f(-0.000), BV(12'-7), sCV(40'-3)	74'-4	Pv
UG	6.3100	1185.77	12.17	150		0.026310	87'-0	Pf 6.368
12	1'-6½			44.175			76'-11	Pe 3.265
1	-6'-0			53.808		E(25'-7½), 4EE(12'-10), BFP(-2.05 5), S	163'-11	Pv
..... Route 2								

Hydraulic Analysis

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Pipe Type Downstream Upstream	Diameter Elevation	Flow Discharge	Velocity K-Factor	HWC Pt	Pn	Friction Loss Fittings	Length Eq. Length Total Length	Pressure Summary
BL 963 985	3.3340 25'-6½" 25'-2"	92.49 97.60	3.40 25.2	120 15.000 15.370		0.007927 Sprinkler, 2E(10'-6)	5'-0½" 21'-0" 26'-0"	Pf 0.206 Pe 0.164 Pv
BL 985 644	3.3340 25'-2" 19'-0"	191.29 98.80	7.03 25.2	120 15.370 20.820		0.030405 Sprinkler, 2PO(22'-6)	46'-3½" 44'-11½" 91'-3"	Pf 2.774 Pe 2.676 Pv
CM 644 645	4.3100 19'-0" 19'-0"	191.29	4.21	120 20.820 20.899		0.008707	9'-0" 9'-0" 9'-0"	Pf 0.078 Pe Pv
CM 645 648	4.3100 19'-0" 19'-0"	382.87 191.58	8.42	120 20.899 21.182		0.031433 Flow (q) from Route 4	9'-0" 9'-0" 9'-0"	Pf 0.283 Pe Pv
CM 648 649	4.3100 19'-0" 19'-0"	575.47 192.60	12.65	120 21.182 21.783		0.066801 Flow (q) from Route 6	9'-0" 9'-0" 9'-0"	Pf 0.601 Pe Pv
CM 649 650	4.3100 19'-0" 19'-0"	586.39 10.92	12.89	120 21.783 22.405		0.069165 Flow (q) from Route 9	9'-0" 9'-0" 9'-0"	Pf 0.622 Pe Pv
CM 650 653	4.3100 19'-0" 19'-0"	591.23 4.84	13.00	120 22.405 23.037		0.070225 Flow (q) from Route 11	9'-0" 9'-0" 9'-0"	Pf 0.632 Pe Pv
CM 653 654	4.3100 19'-0" 19'-0"	592.67 1.44	13.03	120 23.037 23.602		0.070542 Flow (q) from Route 12	8'-0" 8'-0" 8'-0"	Pf 0.564 Pe Pv
CM 654 659	4.3100 19'-0" 19'-0"	592.88 0.21	13.04	120 23.602 25.366		0.070589 Flow (q) from Route 10	25'-0" 25'-0" 25'-0"	Pf 1.765 Pe Pv
RN 659 149	3.3340 19'-0" 19'-0"	0.20	0.01	120 25.366 25.366		0.000000 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½" 110'-11½" 217'-7"	Pf 0.000 Pe 0.000 Pv
***** Route 3 *****								
BL 964 937	3.3340 25'-6½" 25'-2"	5.27 97.83	0.19 25.2	120 15.070 15.234		0.000040 Sprinkler	9'-0" 9'-0" 9'-0"	Pf 0.000 Pe 0.164 Pv
BL 937 911	3.3340 25'-2" 24'-9"	103.63 98.36	3.81 25.2	120 15.234 15.514		0.009783 Sprinkler	10'-0" 10'-0" 10'-0"	Pf 0.098 Pe 0.182 Pv
BL 911 135	3.3340 24'-9" 19'-0"	202.89 99.26	7.46 25.2	120 15.514 20.765		0.033904 Sprinkler, 2PO(22'-6)	36'-4" 44'-11½" 81'-4"	Pf 2.757 Pe 2.494 Pv
***** Route 4 *****								
BL 964 986	3.3340 25'-6½" 25'-2"	92.55 97.83	3.40 25.2	120 15.070 15.441		0.007937 Sprinkler, 2E(10'-6)	5'-0½" 21'-0" 26'-0"	Pf 0.206 Pe 0.164 Pv
BL 986 645	3.3340 25'-2" 19'-0"	191.58 99.02	7.04 25.2	120 15.441 20.899		0.030489 Sprinkler, 2PO(22'-6)	46'-3½" 44'-11½" 91'-3"	Pf 2.782 Pe 2.676 Pv
***** Route 5 *****								
BL 965 938	3.3340 25'-6½" 25'-2"	5.89 98.65	0.22 25.2	120 15.325 15.489		0.000049 Sprinkler	9'-0" 9'-0" 9'-0"	Pf 0.000 Pe 0.164 Pv
BL 938 912	3.3340 25'-2" 24'-9"	105.07 99.18	3.86 25.2	120 15.489 15.771		0.010036 Sprinkler	10'-0" 10'-0" 10'-0"	Pf 0.100 Pe 0.182 Pv
BL 912 138	3.3340 24'-9" 19'-0"	205.15 100.08	7.54 25.2	120 15.771 21.079		0.034604 Sprinkler, 2PO(22'-6)	36'-4" 44'-11½" 81'-4"	Pf 2.814 Pe 2.494 Pv
***** Route 6 *****								
BL 965 987	3.3340 25'-6½" 25'-2"	92.76 98.65	3.41 25.2	120 15.325 15.696		0.007969 Sprinkler, 2E(10'-6)	5'-0½" 21'-0" 26'-0"	Pf 0.207 Pe 0.164 Pv
BL 987 648	3.3340 25'-2" 19'-0"	192.60 99.84	7.08 25.2	120 15.696 21.182		0.030790 Sprinkler, 2PO(22'-6)	46'-3½" 44'-11½" 91'-3"	Pf 2.810 Pe 2.676 Pv
***** Route 7 *****								
CM 166 234	4.3100 19'-0" 19'-0"	273.51 135.82 + 137.69	6.01	120 32.495 32.630		0.016871 Flow (q) from Route 8 and 19	8'-0" 8'-0" 8'-0"	Pf 0.135 Pe Pv

Hydraulic Analysis

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Pipe Type Downstream Upstream	Diameter Elevation	Flow Discharge	Velocity K-Factor	HWC Pt	Pn	Friction Loss Fittings	Length Eq. Length Total Length	Pressure Summary
CM 234 163	4.3100 19'-0 19'-0	417.82 144.31	9.19	120 32.630 33.752		0.036947 Flow (q) from Route 14 T(27'-10½)	2'-6 27'-10½ 30'-4½	Pf 1.122 Pe Pv
..... Route 8								
CM 167 166	4.3100 19'-0 19'-0	135.82 135.82	2.99	120 32.458 32.495		0.004621 Flow (q) from Route 24	8'-0 Pe 8'-0	Pf 0.037 Pe Pv
..... Route 9								
RN 139 649	3.3340 19'-0 19'-0	10.92	0.40	120 21.750 21.783		0.000152 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.033 Pe -0.000 Pv
..... Route 10								
RN 144 654	3.3340 19'-0 19'-0	0.21	0.01	120 23.602 23.602		0.000000 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.000 Pe -0.000 Pv
..... Route 11								
RN 140 650	3.3340 19'-0 19'-0	4.84	0.18	120 22.398 22.405		0.000034 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.007 Pe -0.000 Pv
..... Route 12								
RN 143 653	3.3340 19'-0 19'-0	1.44	0.05	120 23.037 23.037		0.000004 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.001 Pe -0.000 Pv
..... Route 13								
RN 669 159	3.3340 19'-0 19'-0	45.40 526.55	1.67	120 28.672 29.135		0.002125 PO(22'-6), Flow (q) from Route 17 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.462 Pe Pv
..... Route 14								
CM 669 670	4.3100 19'-0 19'-0	481.15 526.55	10.58	120 28.672 29.056		0.047970 Flow (q) from Route 17	8'-0 Pe 8'-0	Pf 0.384 Pe Pv
CM 670 757	4.3100 19'-0 19'-0	417.82	9.19	120 29.056 29.389		0.036947	9'-0 Pe 9'-0	Pf 0.333 Pe Pv
RN 757 234	3.3340 19'-0 19'-0	144.31	5.30	120 29.389 32.630		0.018052 PO(22'-6) 3PO(22'-6), 2E(10'-6)	68'-7 110'-11½ 179'-6½	Pf 3.241 Pe Pv
..... Route 15								
RN 670 160	3.3340 19'-0 19'-0	63.33	2.33	120 29.056 29.912		0.003933 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.856 Pe Pv
..... Route 16								
RN 663 153	3.3340 19'-0 19'-0	4.78 591.26	0.18	120 26.563 26.570		0.000033 PO(22'-6), Flow (q) from Route 21 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.007 Pe 0.000 Pv
..... Route 17								
CM 663 664	4.3100 19'-0 19'-0	586.48 591.26	12.90	120 26.563 27.116		0.069185 Flow (q) from Route 21	8'-0 Pe 8'-0	Pf 0.553 Pe Pv
CM 664 665	4.3100 19'-0 19'-0	576.17	12.67	120 27.116 27.652		0.066953	8'-0 Pe 8'-0	Pf 0.536 Pe Pv
CM 665 668	4.3100 19'-0 19'-0	557.58	12.26	120 27.652 28.219		0.063011	9'-0 Pe 9'-0	Pf 0.567 Pe Pv
CM 668 669	4.3100 19'-0 19'-0	526.55	11.58	120 28.219 28.672		0.056678	8'-0 Pe 8'-0	Pf 0.453 Pe Pv
..... Route 18								
RN 664 154	3.3340 19'-0 19'-0	10.31	0.38	120 27.116 27.146		0.000137 PO(22'-6) 3PO(22'-6), 2E(10'-6)	106'-7½ 110'-11½ 217'-7	Pf 0.030 Pe Pv
..... Route 19								
CM 757 675	4.3100 19'-0 19'-0	273.51 144.31	6.01	120 29.389 29.524		0.016871 Flow (q) from Route 14	8'-0 Pe 8'-0	Pf 0.135 Pe Pv

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Pipe Type Downstream Upstream	Diameter Elevation	Flow Discharge	Velocity K-Factor	HWC Pt	Pn	Friction Loss Fittings	Length Eq. Length Total Length	Pressure Summary
RN	3.3340	137.69	5.06	120		0.016548		68'-7 Pf 2.971
675	19'-0			29.524		PO(22'-6)		110'-11½ Pe 0.000
166	19'-0			32.495		3PO(22'-6), 2E(10'-6)		179'-6½ Pv
***** Route 20 *****								
RN	3.3340	31.03	1.14	120		0.001051		106'-7½ Pf 0.229
668	19'-0			28.219		PO(22'-6)		110'-11½ Pe
158	19'-0			28.448		3PO(22'-6), 2E(10'-6)		217'-7 Pv
***** Route 21 *****								
CM	4.3100	592.68	13.03	120		0.070544		8'-0 Pf 0.564
659	19'-0	0.20		25.366		Flow (q) from Route 2		Pe
660	19'-0			25.931				8'-0 Pv
CM	4.3100	591.26	13.00	120		0.070233		9'-0 Pf 0.632
660	19'-0			25.931				Pe
663	19'-0			26.563				9'-0 Pv
***** Route 22 *****								
RN	3.3340	1.41	0.05	120		0.000003		106'-7½ Pf 0.001
660	19'-0			25.931		PO(22'-6)		110'-11½ Pe 0.000
150	19'-0			25.932		3PO(22'-6), 2E(10'-6)		217'-7 Pv
***** Route 23 *****								
RN	3.3340	18.59	0.68	120		0.000408		106'-7½ Pf 0.089
665	19'-0			27.652		PO(22'-6)		110'-11½ Pe
155	19'-0			27.741		3PO(22'-6), 2E(10'-6)		217'-7 Pv
***** Route 24 *****								
CM	4.3100	135.82	2.99	120		0.004621		8'-0 Pf 0.037
675	19'-0	137.69		29.524		Flow (q) from Route 19		Pe
676	19'-0			29.561				8'-0 Pv
RN	3.3340	135.82	4.99	120		0.016137		68'-7 Pf 2.897
676	19'-0			29.561		PO(22'-6)		110'-11½ Pe 0.000
167	19'-0			32.458		3PO(22'-6), 2E(10'-6)		179'-6½ Pv

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

C Value Multiplier

Actual Inside Diameter

Schedule 40 Steel Pipe Inside Diameter

4.87

= Factor

Value Of C	100	130	140	150
Multiplying Factor	0.713	1.16	1.33	1.51

M.E.P.CAD

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Hydraulic Analysis

Job Number: NC-1478

Report Description: ESFR (Storage - ESFR - Sys 01)

Pipe Type Downstream Upstream	Diameter Elevation	Flow Discharge	Velocity K-Factor	HWC Pt	Pn	Friction Loss Fittings	Length Eq. Length Total Length	Pressure Summary
Pipe Type Legend			Units Legend			Fittings Legend		
AO	Arm-Over	Diameter	Inch			ALV	Alarm Valve	
BL	Branch Line	Elevation	Foot			AngV	Angle Valve	
CM	Cross Main	Flow	gpm			b	Bushing	
DN	Drain	Discharge	gpm			BaIV	Ball Valve	
DR	Drop	Velocity	fps			BFP	Backflow Preventer	
DY	Dynamic	Pressure	psi			BV	Butterfly Valve	
FM	Feed Main	Length	Foot			C	Cross Flow Turn 90°	
FR	Feed Riser	Friction Loss	psi/Foot			cplg	Coupling	
MS	Miscellaneous	HWC	Hazen-Williams Constant			Cr	Cross Run	
OR	Outrigger	Pt	Total pressure at a point in a pipe			CV	Check Valve	
RN	Riser Nipple	Pn	Normal pressure at a point in a pipe			DeIV	Deluge Valve	
SN	Swing Nipple	Pf	Pressure loss due to friction between points			DPV	Dry Pipe Valve	
SP	Sprig	Pe	Pressure due to elevation difference between indicated points			E	90° Elbow	
ST	Stand Pipe	Pv	Velocity pressure at a point in a pipe			EE	45° Elbow	
UG	Underground					Ee1	11¼° Elbow	
						Ee2	22½° Elbow	
						f	Flow Device	
						fd	Flex Drop	
						FDC	Fire Department Connection	
						fE	90° FireLock(TM) Elbow	
						fEE	45° FireLock(TM) Elbow	
						flg	Flange	
						FN	Floating Node	
						fT	FireLock(TM) Tee	
						g	Gauge	
						GloV	Globe Valve	
						GV	Gate Valve	
						Ho	Hose	
						Hose	Hose	
						HV	Hose Valve	
						Hyd	Hydrant	
						LtE	Long Turn Elbow	
						mecT	Mechanical Tee	
						Noz	Nozzle	
						P1	Pump In	
						P2	Pump Out	
						PIV	Post Indicating Valve	
						PO	Pipe Outlet	
						PrV	Pressure Relief Valve	
						PRV	Pressure Reducing Valve	
						red	Reducer/Adapter	
						S	Supply	
						sCV	Swing Check Valve	
						SFx	Seismic Flex	
						Spr	Sprinkler	
						St	Strainer	
						T	Tee Flow Turn 90°	
						Tr	Tee Run	
						U	Union	
						WirF	Wirsbo	
						WMV	Water Meter Valve	
						Z	Cap	

