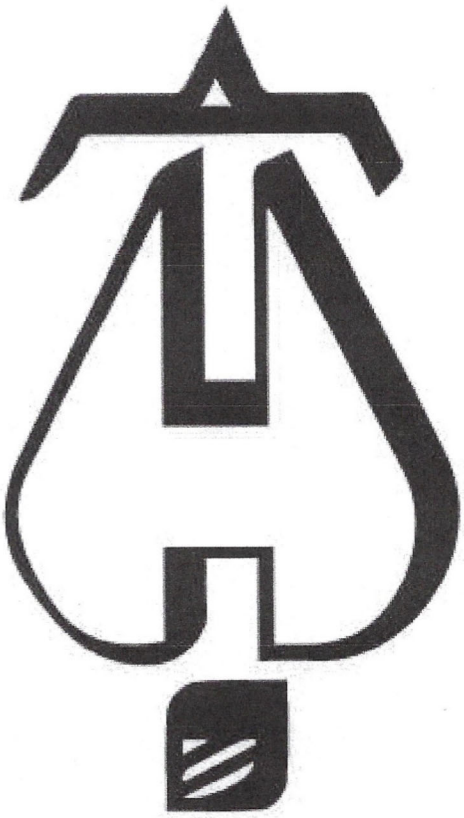


Hydraulic Calculations by HydraCALC

PERFORMANCE FIRE SYSTEMS
11425 W 59TH STREET SOUTH
SAND SPRINGS, OK 74063
(918) 630-7344

Job Name	:	Lakeview Storage
Drawing	:	FP 5 of 5
Location	:	Lee's Summit, Missouri
Remote Area	:	1
Contract	:	LS-01-23
Data File	:	Lakeview Storage - Fire Submit Area 1.WXF

Computer Programs by Hydratec Inc. Revision: 50.5520.727

HYDRAULIC CALCULATIONS
for

JOB NAME Lakeview Storage
Location Lee's Summit, Missouri
Drawing # FP 5 of 5
Contract # LS-01-23
Date 9/10/2023

DESIGN

Remote area # 1
Remote area location LEVEL 3 - AREA 1
Occupancy classification ORDINARY HAZARD GROUP II
Density 0.2 - Gpm/SqFt
Area of application 1287 - SqFt
Coverage/sprinkler 100 - SqFt
Type of sprinkler calculated QUICK RESPONSE
 # Sprinklers calculated 16
In-rack demand N/A - GPM
Hose streams 250 - GPM
Total water required (including hose streams) 639.862 - GPM @ 76.5755 - Psi
Type of system WET
Volume of system (dry or pre-action) N/A - Gal

WATER SUPPLY INFORMATION

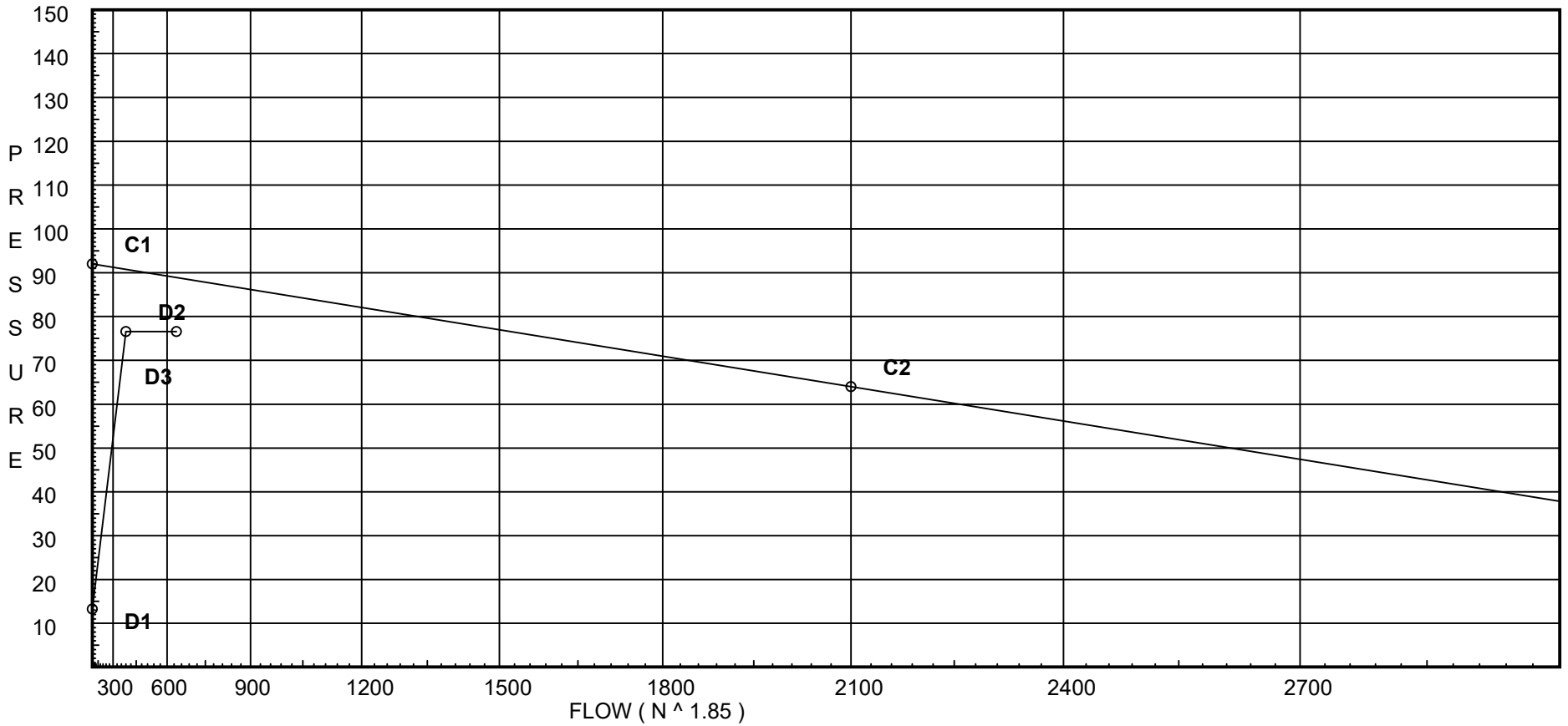
Test date 8/17/2023
Location NE PORT DRIVE
Source of info CITY OF LEES SUMMIT

CONTRACTOR INFO PERFORMANCE FIRE SYSTEMS
Address 11425 W 59TH STREET SOUTH / SAND SPRINGS, OK 74063
Phone # (918) 630-7344
Name of designer XSTREAM FIRE SYSTEMS
Authority having jurisdiction LOCAL
NOTES:

text1(35) - invisible

City Water Supply:
- C1 - Static Pressure : 92
- C2 - Residual Pressure: 64
- C2 - Residual Flow : 2100

Demand:
- D1 - Elevation : 13.236
- D2 - System Flow : 389.862
- D2 - System Pressure : 76.576
- Hose (Demand) : 250
- D3 - System Demand : 639.862
- Safety Margin : 12.318



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
Bvca	B Fly Vic 705						6	6	7		8	12	14	16	18	19					
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
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-BranchFirelock002	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	9.3	11	0	0	0	0	0
Zfb	Febco 850	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	92.0	64	2100.0	88.893	639.86	76.576

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
100	30.56	5.6	12.76	20.0	0.2	100
101	30.35	5.6	13.12	20.29	0.2	100
102	30.14	5.6	14.22	21.12	0.2	100
103	29.93	5.6	16.51	22.76	0.2	100
104	29.77		22.67			
105	29.77		24.64			
106	29.77		27.32			
107	29.87		32.73			
108	29.87		33.93			
109	29.87		35.21			
110	29.87		36.52			
111	29.87		37.63			
112	29.87		38.59			
113	29.87		39.47			
114	29.87		40.28			
115	29.87		41.05			
116	29.87		41.81			
117	29.87		42.55			
118	29.87		43.28			
119	29.87		43.98			
120	29.87		44.66			
121	29.87		45.29			
122	29.87		45.84			
123	29.87		46.3			
124	29.87		46.65			
125	29.87		46.92			
126	29.87		47.01			
127	29.87		47.06			
128	31.88		50.69			
129	31.88		51.81			
TR1	9.833		64.22			
BR1	2.5		71.73			
UG1	-4.0		74.75			
TEST	0.0		76.58	250.0		
132	29.77		22.19			
133	29.77		22.1			
134	29.93	5.6	20.22	25.18	0.2	100
135	30.14	5.6	19.9	24.98	0.2	100
136	30.35	5.6	19.84	24.94	0.2	100
137	30.56	5.6	20.39	25.29	0.2	100
138	31.98		34.16			
139	31.98		34.18			

NODE ANALYSIS (cont.)

Node Tag	*Elevation*	*Node Type*	*Pressure at Node*	*Discharge at Node*	*Notes*	
140	31.98		34.4			
141	31.98		34.62			
142	31.88		35.5			
143	31.88		35.77			
144	31.88		36.19			
145	31.88		36.77			
146	31.88		37.4			
147	31.88		38.07			
148	31.88		38.77			
149	31.88		39.48			
150	31.88		40.21			
151	31.88		40.94			
152	31.88		41.68			
153	31.88		42.43			
154	31.88		43.18			
155	31.88		43.94			
156	31.88		44.72			
157	31.88		45.53			
158	31.88		46.38			
159	31.88		47.28			
160	31.88		48.44			
161	31.88		49.27			
162	29.93	5.6	20.3	25.23	0.2	100
163	30.14	5.6	19.97	25.02	0.2	100
164	30.35	5.6	19.91	24.99	0.2	100
165	30.56	5.6	20.46	25.33	0.2	100
166	29.93	5.6	22.17	26.37	0.2	100
167	30.14	5.6	21.68	26.07	0.2	100
168	30.35	5.6	21.59	26.02	0.2	100
169	30.56	5.6	22.0	26.27	0.2	100
170	30.52		47.37			
171	30.96		48.28			

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 ******
100	30.56	5.60	20.00	1.25			10.000	120	12.755	
to									0.091	
101	30.35		20.0	1.442			10.000	0.0276	0.276	Vel = 3.93
101	30.35	5.60	20.29	1.25			10.000	120	13.122	
to									0.091	
102	30.14		40.29	1.442			10.000	0.1010	1.010	Vel = 7.92
102	30.14	5.60	21.12	1.25			10.000	120	14.223	
to									0.091	
103	29.93		61.41	1.442			10.000	0.2201	2.201	Vel = 12.06
103	29.93	5.60	22.75	1.25	T	7.432	8.000	120	16.515	
to							7.432		0.069	
104	29.77		84.16	1.442			15.432	0.3944	6.087	Vel = 16.53
104	29.77		87.44	2			9.500	120	22.671	
to									0.0	
105	29.77		171.6	2.157			9.500	0.2074	1.970	Vel = 15.07
105	29.77		50.89	2			8.000	120	24.641	
to									0.0	
106	29.77		222.49	2.157			8.000	0.3351	2.681	Vel = 19.53
106	29.77		-32.61	2	2E	12.307	9.500	120	27.322	
to							12.307		-0.043	
107	29.87		189.88	2.157			21.807	0.2500	5.452	Vel = 16.67
107	29.87		-21.97	2			6.000	120	32.731	
to									0.0	
108	29.87		167.91	2.157			6.000	0.1992	1.195	Vel = 14.74
108	29.87		-18.74	2			8.000	120	33.926	
to									0.0	
109	29.87		149.17	2.157			8.000	0.1600	1.280	Vel = 13.10
109	29.87		-15.23	2			10.000	120	35.206	
to									0.0	
110	29.87		133.94	2.157			10.000	0.1311	1.311	Vel = 11.76
110	29.87		-11.62	2			10.000	120	36.517	
to									0.0	
111	29.87		122.32	2.157			10.000	0.1108	1.108	Vel = 10.74
111	29.87		-8.62	2			10.000	120	37.625	
to									0.0	
112	29.87		113.7	2.157			10.000	0.0969	0.969	Vel = 9.98
112	29.87		-6.14	2			10.000	120	38.594	
to									0.0	
113	29.87		107.56	2.157			10.000	0.0873	0.873	Vel = 9.44
113	29.87		-4.17	2			10.000	120	39.467	
to									0.0	
114	29.87		103.39	2.157			10.000	0.0812	0.812	Vel = 9.08
114	29.87		-2.64	2			10.000	120	40.279	
to									0.0	
115	29.87		100.75	2.157			10.000	0.0775	0.775	Vel = 8.85
115	29.87		-1.53	2			10.000	120	41.054	
to									0.0	
116	29.87		99.22	2.157			10.000	0.0752	0.752	Vel = 8.71

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 ******
116	29.87		-0.87	2			10.000	120	41.806	
to									0.0	
117	29.87		98.35	2.157			10.000	0.0740	0.740	Vel = 8.64
117	29.87		-0.83	2			10.000	120	42.546	
to									0.0	
118	29.87		97.52	2.157			10.000	0.0729	0.729	Vel = 8.56
118	29.87		-1.42	2			10.000	120	43.275	
to									0.0	
119	29.87		96.1	2.157			10.000	0.0709	0.709	Vel = 8.44
119	29.87		-2.46	2			10.000	120	43.984	
to									0.0	
120	29.87		93.64	2.157			10.000	0.0676	0.676	Vel = 8.22
120	29.87		-3.91	2			10.000	120	44.660	
to									0.0	
121	29.87		89.73	2.157			10.000	0.0625	0.625	Vel = 7.88
121	29.87		-5.74	2			10.000	120	45.285	
to									0.0	
122	29.87		83.99	2.157			10.000	0.0553	0.553	Vel = 7.37
122	29.87		-7.99	2			10.000	120	45.838	
to									0.0	
123	29.87		76.0	2.157			10.000	0.0460	0.460	Vel = 6.67
123	29.87		-10.61	2			10.000	120	46.298	
to									0.0	
124	29.87		65.39	2.157			10.000	0.0348	0.348	Vel = 5.74
124	29.87		-13.60	2			12.000	120	46.646	
to									0.0	
125	29.87		51.79	2.157			12.000	0.0226	0.271	Vel = 4.55
125	29.87		-16.41	2			8.000	120	46.917	
to									0.0	
126	29.87		35.38	2.157			8.000	0.0111	0.089	Vel = 3.11
126	29.87		-11.88	2			10.000	120	47.006	
to									0.0	
127	29.87		23.5	2.157			10.000	0.0053	0.053	Vel = 2.06
127	29.87		0.0	1.25	2T	14.864	98.500	120	47.059	
to					2E	7.432	22.296		-0.871	
128	31.88		23.5	1.442			120.796	0.0372	4.497	Vel = 4.62
128	31.88		366.36	3	V	6.72	2.170	120	50.685	
to							6.720		0.0	
129	31.88		389.86	3.26			8.890	0.1267	1.126	Vel = 14.99
129	31.88		0.0	4	5V	44.768	38.300	120	51.811	
to							44.768		9.549	
TR1	9.833		389.86	4.26			83.068	0.0344	2.857	Vel = 8.78
TR1	9.833		0.0	4	X	21.067	7.333	120	64.217	
to					Bvca	10.534	31.601		6.176	* * Fixed Loss = 3
BR1	2.5		389.86	4.26	Fsp	0.0	38.934	0.0344	1.340	Vel = 8.78
BR1	2.5		0.0	6	X	31.433	8.960	120	71.733	
to							31.433		2.815	
UG1	-4		389.86	6.357			40.393	0.0049	0.198	Vel = 3.94

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 ******
UG1	-4		0.0	6	2E	43.166	96.030	150	74.746	
to					Zfb	0.0	101.747		1.040	* * Fixed Loss = 2.772
TEST	0		389.86	6.09	2G	9.25	197.777	0.0040	0.790	Vel = 4.29
					S	49.333				
			250.00							Qa = 250.00
TEST			639.86						76.576	K Factor = 73.12
104	29.77		-87.44	2			8.000	120	22.671	
to									0.0	
132	29.77		-87.44	2.157			8.000	-0.0596	-0.477	Vel = 7.68
132	29.77		43.86	2			6.000	120	22.194	
to									0.0	
133	29.77		-43.58	2.157			6.000	-0.0163	-0.098	Vel = 3.83
133	29.77		0.0	1.25	T	7.432	8.000	120	22.096	
to							7.432		-0.069	
134	29.93		-43.58	1.442			15.432	-0.1168	-1.802	Vel = 8.56
134	29.93	5.60	25.18	1.25			10.000	120	20.225	
to									-0.091	
135	30.14		-18.4	1.442			10.000	-0.0237	-0.237	Vel = 3.61
135	30.14	5.60	24.98	1.25			10.000	120	19.897	
to									-0.091	
136	30.35		6.58	1.442			10.000	0.0036	0.036	Vel = 1.29
136	30.35	5.60	24.94	1.25			10.000	120	19.842	
to									-0.091	
137	30.56		31.52	1.442			10.000	0.0641	0.641	Vel = 6.19
137	30.56	5.60	25.29	1.25	T	7.432	68.000	120	20.392	
to							7.432		-0.615	
138	31.98		56.81	1.442			75.432	0.1906	14.380	Vel = 11.16
138	31.98		0.0	3			6.000	120	34.157	
to									0.0	
139	31.98		56.81	3.26			6.000	0.0035	0.021	Vel = 2.18
139	31.98		56.72	3			17.500	120	34.178	
to									0.0	
140	31.98		113.53	3.26			17.500	0.0129	0.226	Vel = 4.36
140	31.98		53.84	3			8.000	120	34.404	
to									0.0	
141	31.98		167.37	3.26			8.000	0.0265	0.212	Vel = 6.43
141	31.98		32.61	3	2V	13.44	9.500	120	34.616	
to							13.440		0.043	
142	31.88		199.98	3.26			22.940	0.0368	0.845	Vel = 7.69
142	31.88		21.97	3			6.000	120	35.504	
to									0.0	
143	31.88		221.95	3.26			6.000	0.0447	0.268	Vel = 8.53
143	31.88		18.74	3			8.000	120	35.772	
to									0.0	
144	31.88		240.69	3.26			8.000	0.0519	0.415	Vel = 9.25
144	31.88		15.24	3			10.000	120	36.187	
to									0.0	
145	31.88		255.93	3.26			10.000	0.0581	0.581	Vel = 9.84

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	******
145	31.88		11.62	3			10.000	120	36.768			
to									0.0			
146	31.88		267.55	3.26			10.000	0.0631	0.631	Vel = 10.28		
146	31.88		8.61	3			10.000	120	37.399			
to									0.0			
147	31.88		276.16	3.26			10.000	0.0669	0.669	Vel = 10.61		
147	31.88		6.14	3			10.000	120	38.068			
to									0.0			
148	31.88		282.3	3.26			10.000	0.0697	0.697	Vel = 10.85		
148	31.88		4.17	3			10.000	120	38.765			
to									0.0			
149	31.88		286.47	3.26			10.000	0.0716	0.716	Vel = 11.01		
149	31.88		2.64	3			10.000	120	39.481			
to									0.0			
150	31.88		289.11	3.26			10.000	0.0728	0.728	Vel = 11.11		
150	31.88		1.53	3			10.000	120	40.209			
to									0.0			
151	31.88		290.64	3.26			10.000	0.0736	0.736	Vel = 11.17		
151	31.88		0.88	3			10.000	120	40.945			
to									0.0			
152	31.88		291.52	3.26			10.000	0.0739	0.739	Vel = 11.21		
152	31.88		0.82	3			10.000	120	41.684			
to									0.0			
153	31.88		292.34	3.26			10.000	0.0744	0.744	Vel = 11.24		
153	31.88		1.42	3			10.000	120	42.428			
to									0.0			
154	31.88		293.76	3.26			10.000	0.0750	0.750	Vel = 11.29		
154	31.88		2.46	3			10.000	120	43.178			
to									0.0			
155	31.88		296.22	3.26			10.000	0.0761	0.761	Vel = 11.39		
155	31.88		3.91	3			10.000	120	43.939			
to									0.0			
156	31.88		300.13	3.26			10.000	0.0781	0.781	Vel = 11.54		
156	31.88		5.75	3			10.000	120	44.720			
to									0.0			
157	31.88		305.88	3.26			10.000	0.0808	0.808	Vel = 11.76		
157	31.88		7.98	3			10.000	120	45.528			
to									0.0			
158	31.88		313.86	3.26			10.000	0.0848	0.848	Vel = 12.06		
158	31.88		10.61	3			10.000	120	46.376			
to									0.0			
159	31.88		324.47	3.26			10.000	0.0901	0.901	Vel = 12.47		
159	31.88		13.61	3			12.000	120	47.277			
to									0.0			
160	31.88		338.08	3.26			12.000	0.0972	1.167	Vel = 12.99		
160	31.88		12.08	3			8.000	120	48.444			
to									0.0			
161	31.88		350.16	3.26			8.000	0.1039	0.831	Vel = 13.46		

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 ******
161	31.88		16.20	3			12.500	120	49.275	
to									0.0	
128	31.88		366.36	3.26			12.500	0.1128	1.410	Vel = 14.08
			0.0							
128			366.36						50.685	K Factor = 51.46
132	29.77		-43.86	1.25	T	7.432	8.000	120	22.194	
to							7.432		-0.069	
162	29.93		-43.86	1.442			15.432	-0.1181	-1.823	Vel = 8.62
162	29.93	5.60	25.24	1.25			10.000	120	20.302	
to									-0.091	
163	30.14		-18.62	1.442			10.000	-0.0242	-0.242	Vel = 3.66
163	30.14	5.60	25.02	1.25			10.000	120	19.969	
to									-0.091	
164	30.35		6.4	1.442			10.000	0.0034	0.034	Vel = 1.26
164	30.35	5.60	24.99	1.25			10.000	120	19.912	
to									-0.091	
165	30.56		31.39	1.442			10.000	0.0636	0.636	Vel = 6.17
165	30.56	5.60	25.33	1.25	T	7.432	68.000	120	20.457	
to							7.432		-0.615	
139	31.98		56.72	1.442			75.432	0.1901	14.336	Vel = 11.14
			0.0							
139			56.72						34.178	K Factor = 9.70
105	29.77		-50.89	1.25	T	7.432	8.000	120	24.641	
to							7.432		-0.069	
166	29.93		-50.89	1.442			15.432	-0.1555	-2.400	Vel = 10.00
166	29.93	5.60	26.37	1.25			10.000	120	22.172	
to									-0.091	
167	30.14		-24.52	1.442			10.000	-0.0403	-0.403	Vel = 4.82
167	30.14	5.60	26.08	1.25			10.000	120	21.678	
to									-0.091	
168	30.35		1.56	1.442			10.000	0.0003	0.003	Vel = 0.31
168	30.35	5.60	26.02	1.25			10.000	120	21.590	
to									-0.091	
169	30.56		27.58	1.442			10.000	0.0500	0.500	Vel = 5.42
169	30.56	5.60	26.26	1.25	T	7.432	68.000	120	21.999	
to							7.432		-0.615	
140	31.98		53.84	1.442			75.432	0.1726	13.020	Vel = 10.58
			0.0							
140			53.84						34.404	K Factor = 9.18
106	29.77		32.61	1.25	2T	14.864	106.000	120	27.322	
to							14.864		-0.957	
141	31.98		32.61	1.442			120.864	0.0683	8.251	Vel = 6.41
			0.0							
141			32.61						34.616	K Factor = 5.54
107	29.87		21.97	1.25	2T	14.864	96.000	120	32.731	
to							14.864		-0.871	
142	31.88		21.97	1.442			110.864	0.0329	3.644	Vel = 4.32
			0.0							

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 ******
142			21.97						35.504	K Factor = 3.69
108	29.87		18.74	1.25	2T	14.864	96.000	120	33.926	
to							14.864		-0.871	
143	31.88		18.74	1.442			110.864	0.0245	2.717	Vel = 3.68
			0.0							
143			18.74						35.772	K Factor = 3.13
109	29.87		15.23	1.25	2T	14.864	96.000	120	35.206	
to							14.864		-0.871	
144	31.88		15.23	1.442			110.864	0.0167	1.852	Vel = 2.99
			0.0							
144			15.23						36.187	K Factor = 2.53
110	29.87		11.62	1.25	2T	14.864	96.000	120	36.517	
to							14.864		-0.871	
145	31.88		11.62	1.442			110.864	0.0101	1.122	Vel = 2.28
			0.0							
145			11.62						36.768	K Factor = 1.92
111	29.87		8.61	1.25	2T	14.864	96.000	120	37.625	
to							14.864		-0.871	
146	31.88		8.61	1.442			110.864	0.0058	0.645	Vel = 1.69
			0.0							
146			8.61						37.399	K Factor = 1.41
112	29.87		6.15	1.25	2T	14.864	96.000	120	38.594	
to							14.864		-0.871	
147	31.88		6.15	1.442			110.864	0.0031	0.345	Vel = 1.21
			0.0							
147			6.15						38.068	K Factor = 1.00
113	29.87		4.17	1.25	2T	14.864	96.000	120	39.467	
to							14.864		-0.871	
148	31.88		4.17	1.442			110.864	0.0015	0.169	Vel = 0.82
			0.0							
148			4.17						38.765	K Factor = 0.67
114	29.87		2.64	1.25	2T	14.864	96.000	120	40.279	
to							14.864		-0.871	
149	31.88		2.64	1.442			110.864	0.0007	0.073	Vel = 0.52
			0.0							
149			2.64						39.481	K Factor = 0.42
115	29.87		1.53	1.25	2T	14.864	96.000	120	41.054	
to							14.864		-0.871	
150	31.88		1.53	1.442			110.864	0.0002	0.026	Vel = 0.30
			0.0							
150			1.53						40.209	K Factor = 0.24
116	29.87		0.87	1.25	2T	14.864	96.000	120	41.806	
to							14.864		-0.871	
151	31.88		0.87	1.442			110.864	0.0001	0.010	Vel = 0.17
			0.0							
151			0.87						40.945	K Factor = 0.14
117	29.87		0.83	1.25	2T	14.864	96.000	120	42.546	
to							14.864		-0.871	
152	31.88		0.83	1.442			110.864	0.0001	0.009	Vel = 0.16

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 ******
152			0.0 0.83						41.684	K Factor = 0.13
118 to 153	29.87 31.88		1.42 1.42	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0002	43.275 -0.871 0.024	Vel = 0.28
153			0.0 1.42						42.428	K Factor = 0.22
119 to 154	29.87 31.88		2.46 2.46	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0006	43.984 -0.871 0.065	Vel = 0.48
154			0.0 2.46						43.178	K Factor = 0.37
120 to 155	29.87 31.88		3.91 3.91	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0014	44.660 -0.871 0.150	Vel = 0.77
155			0.0 3.91						43.939	K Factor = 0.59
121 to 156	29.87 31.88		5.75 5.75	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0028	45.285 -0.871 0.306	Vel = 1.13
156			0.0 5.75						44.720	K Factor = 0.86
122 to 157	29.87 31.88		7.98 7.98	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0051	45.838 -0.871 0.561	Vel = 1.57
157			0.0 7.98						45.528	K Factor = 1.18
123 to 158	29.87 31.88		10.61 10.61	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0086	46.298 -0.871 0.949	Vel = 2.08
158			0.0 10.61						46.376	K Factor = 1.56
124 to 159	29.87 31.88		13.61 13.61	1.25 1.442	2T	14.864	96.000 14.864 110.864	120 0.0135	46.646 -0.871 1.502	Vel = 2.67
159			0.0 13.61						47.277	K Factor = 1.98
125 to 170	29.87 30.52		16.40 16.4	1.25 1.442	T	7.432	31.000 7.432 38.432	120 0.0192	46.917 -0.282 0.736	Vel = 3.22
170 to 171	30.52 30.96		11.89 28.29	1.25 1.442			21.000 21.000	120 0.0525	47.371 -0.191 1.103	Vel = 5.56
171 to 161	30.96 31.88		-12.09 16.2	1.25 1.442	3T	22.296	52.000 22.296 74.296	120 0.0187	48.283 -0.398 1.390	Vel = 3.18
161			0.0 16.20						49.275	K Factor = 2.31

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 ******
126	29.87		11.88	1.25	3T	22.296	39.010	120	47.006	
to							22.296		-0.282	
170	30.52		11.88	1.442			61.306	0.0106	0.647	Vel = 2.33
			0.0							
170			11.88						47.371	K Factor = 1.73
171	30.96		12.09	1.25	T	7.432	44.000	120	48.283	
to							7.432		-0.398	
160	31.88		12.09	1.442			51.432	0.0109	0.559	Vel = 2.38
			0.0							
160			12.09						48.444	K Factor = 1.74