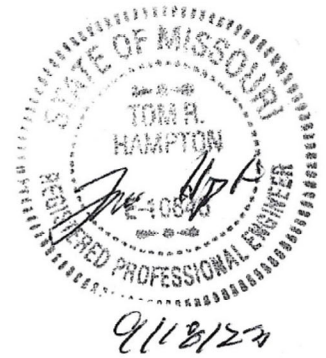




Hydraulic Calculations by HydraCALC

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

Job Name : Lakeview Storage
Drawing : FP 4 of 5
Location : Lee's Summit, Missouri
Remote Area : 2
Contract : LS-01-23
Data File : Lakeview Storage - Fire Submit Area 2.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME Lakeview Storage
Location Lee's Summit, Missouri
Drawing # FP 4 of 5
Contract # LS-01-23
Date 9/10/2023

DESIGN

Remote area # 2
Remote area location LEVEL 2 - AREA 2
Occupancy classification ORDINARY HAZARD GROUP II
Density 0.2 - Gpm/SqFt
Area of application 1557 - SqFt
Coverage/sprinkler VARIES - SqFt
Type of sprinkler calculated STANDARD RESPONSE AND SR EC
Sprinklers calculated 12
In-rack demand N/A - GPM
Hose streams 250 - GPM
Total water required (including hose streams) 667.229 - GPM @ 73.1864 - 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

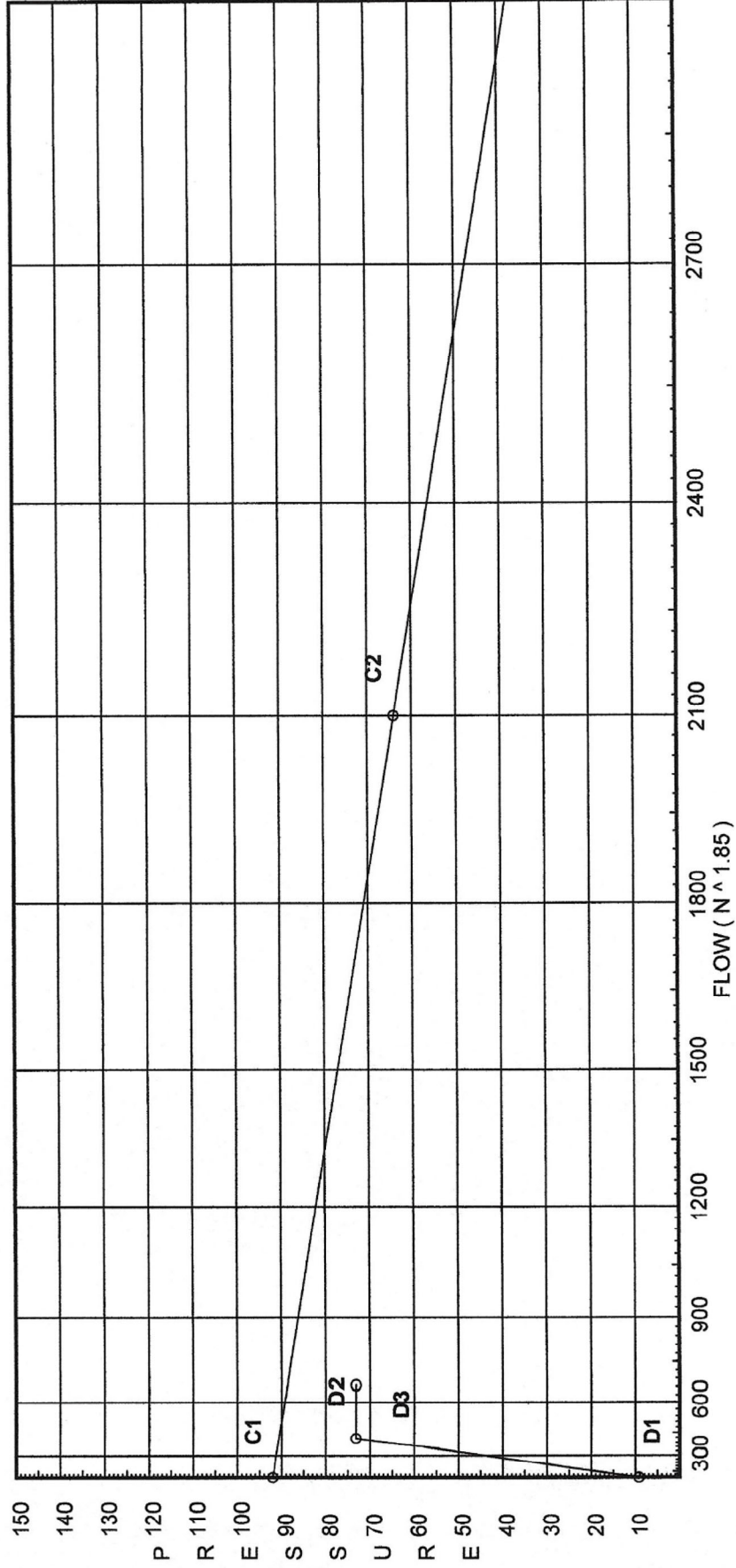
Water Supply Curve

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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

Demand:

D1 - Elevation : 9.186
D2 - System Flow : 417.229
D2 - System Pressure : 73.186
Hose (Demand) : 250
D3 - System Demand : 667.229
Safety Margin : 15.456



Fittings Used Summary

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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
Bvca B Fly Vic 705	1	2	2	3	4	6	6	7	8	8	12	14	16	18	19	35	40	45	50	61
E NFPA 13 90' Standard Elbow	Fitting generates a Fixed Loss Based on Flow																			
Fsp Flow Switch Potter VSR	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
G NFPA 13 Gate Valve	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
T NFPA 13 90' Flow thru Tee	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
V 90' Ell Firelock #001	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	9.3	11	0	0	0	0	0
X 90'Tee-Branch Firelock002	Fitting generates a Fixed Loss Based on Flow																			
Zfb Febco 850																				

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

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
TEST	92.0	64	2100.0	88.643	667.23	73.186

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
200	21.21	5.6	18.89	24.34	0.2	121.7
201	21.21	5.6	18.99	24.4	0.2	121.7
202	21.21	5.6	19.8	24.92	0.2	121.7
203	21.21		24.53			
204	21.21		26.54			
205	21.21		31.68			
206	21.21		32.38			
207	21.21		33.41			
208	21.21		34.65			
209	21.21		35.74			
210	21.21		36.73			
211	21.21		37.65			
212	21.21		38.53			
213	21.21		39.38			
214	21.21		40.22			
215	21.21		41.04			
216	21.21		41.85			
217	21.21		42.61			
218	21.21		43.32			
219	21.21		43.94			
220	21.21		44.46			
221	21.21		44.82			
222	21.21		45.47			
223	21.21		45.64			
224	21.21		45.66			
225	21.21		46.9			
226	21.21		49.02			
227	21.21		50.92			
228	21.21		52.44			
229	21.21		52.44			
230	21.21		52.47			
TR2	10.5		60.46			
BR2	2.5		68.46			
UG1	-4.0		71.51			
TEST	0.0		73.19	250.0		
232	21.21	5.6	18.99	24.4	0.1	130
233	21.21	5.6	20.04	25.07	0.2	121.7
234	21.21		32.06			
235	21.21		32.54			
236	21.21		32.94			
237	21.21		33.94			
238	21.21		34.18			

Flow Summary - NFPA

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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NODE ANALYSIS (cont.)

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes	
239	21.21		34.65			
240	21.21		35.37			
241	21.21		36.13			
242	21.21		36.92			
243	21.21		37.73			
244	21.21		38.56			
245	21.21		39.39			
246	21.21		40.23			
247	21.21		41.07			
248	21.21		41.92			
249	21.21		42.79			
250	21.21		43.67			
251	21.21		44.59			
252	21.21		45.55			
253	21.21		46.57			
254	21.21		47.67			
255	21.21		49.1			
256	21.21		23.69			
257	21.21	11.2	21.96	52.49	0.2	256
258	21.21	11.2	21.83	52.33	0.2	256
259	21.21	11.2	21.85	52.35	0.2	256
260	21.21	5.6	22.13	26.34	0.1	130
261	21.21	11.2	22.92	53.62	0.2	256
262	21.21		31.79			
263	21.21	5.6	25.86	28.47	0.2	130
264	21.21	5.6	25.9	28.5	0.2	130

Final Calculations : Hazen-Williams

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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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	*****
200 to 201	21.21 21.21	5.60	11.39	1.25			10.000	120	18.891 0.0			
201 to 202	21.21 21.21	5.60	24.40	1.25			10.000	120	18.989 0.0	Vel = 2.24		
202 to 203	21.21 21.21	5.60	35.79	1.442			10.000	0.0811	0.811	Vel = 7.03		
203 to 204	21.21 21.21	5.60	24.92	1.25	T	7.432	14.500 7.432	120	19.800 0.0			
204 to 205	21.21 21.21		60.71	1.442			21.932	0.2155	4.727	Vel = 11.93		
205 to 206	21.21 21.21		91.28	2			12.170	120	24.527 0.0			
206 to 207	21.21 21.21		151.99	2.157			12.170	0.1657	2.016	Vel = 13.34		
207 to 208	21.21 21.21		21.41	2	2E	12.307	12.000 12.307	120	26.543 0.0			
208 to 209	21.21 21.21		173.4	2.157			24.307	0.2114	5.138	Vel = 15.22		
209 to 210	21.21 21.21		-16.58	2			4.000	120	31.681 0.0			
210 to 211	21.21 21.21		156.82	2.157			4.000	0.1755	0.702	Vel = 13.77		
211 to 212	21.21 21.21		-14.66	2			7.000	120	32.383 0.0			
212 to 213	21.21 21.21		142.16	2.157			7.000	0.1463	1.024	Vel = 12.48		
213 to 214	21.21 21.21		-11.98	2			10.000	120	33.407 0.0			
214 to 215	21.21 21.21		130.18	2.157			10.000	0.1244	1.244	Vel = 11.43		
215 to 216	21.21 21.21		-8.90	2			10.000	120	34.651 0.0			
216 to 217	21.21 21.21		121.28	2.157			10.000	0.1091	1.091	Vel = 10.65		
217 to 218	21.21 21.21		-6.38	2			10.000	120	35.742 0.0			
218 to 219	21.21 21.21		114.9	2.157			10.000	0.0987	0.987	Vel = 10.09		
219 to 220	21.21 21.21		-4.34	2			10.000	120	36.729 0.0			
220 to 221	21.21 21.21		110.56	2.157			10.000	0.0920	0.920	Vel = 9.71		
221 to 222	21.21 21.21		-2.76	2			10.000	120	37.649 0.0			
222 to 223	21.21 21.21		107.8	2.157			10.000	0.0877	0.877	Vel = 9.46		
223 to 224	21.21 21.21		-1.62	2			10.000	120	38.526 0.0			
224 to 225	21.21 21.21		106.18	2.157			10.000	0.0853	0.853	Vel = 9.32		
225 to 226	21.21 21.21		-0.96	2			10.000	120	39.379 0.0			
226 to 227	21.21 21.21		105.22	2.157			10.000	0.0839	0.839	Vel = 9.24		
227 to 228	21.21 21.21		-0.93	2			10.000	120	40.218 0.0			
228 to 229	21.21 21.21		104.29	2.157			10.000	0.0825	0.825	Vel = 9.16		
229 to 230	21.21 21.21		-1.56	2			10.000	120	41.043 0.0			
230 to 231	21.21 21.21		102.73	2.157			10.000	0.0803	0.803	Vel = 9.02		

Final Calculations : Hazen-Williams

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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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	*****
216 to 217	21.21 21.21		-2.68 100.05	2 2.157		10.000 10.000	120 0.0764	41.846 0.764		Vel = 8.78	
217 to 218	21.21 21.21		-4.18 95.87	2 2.157		10.000 10.000	120 0.0706	42.610 0.706		Vel = 8.42	
218 to 219	21.21 21.21		-6.11 89.76	2 2.157		10.000 10.000	120 0.0625	43.316 0.625		Vel = 7.88	
219 to 220	21.21 21.21		-8.44 81.32	2 2.157		10.000 10.000	120 0.0521	43.941 0.521		Vel = 7.14	
220 to 221	21.21 21.21		-11.17 70.15	2 2.157		9.000 9.000	120 0.0396	44.462 0.356		Vel = 6.16	
221 to 222	21.21 21.21		-13.91 56.24	2 2.157	2E 12.307	12.500 12.307 24.807	120 0.0264	44.818 0.654		Vel = 4.94	
222 to 223	21.21 21.21		-16.44 39.8	2 2.157		12.000 12.000	120 0.0138	45.472 0.166		Vel = 3.49	
223 to 224	21.21 21.21		-22.60 17.2	2 2.157		8.000 8.000	120 0.0030	45.638 0.024		Vel = 1.51	
224 to 225	21.21 21.21		0.0 17.2	1.25 1.442	3T 22.296	37.000 22.296 59.296	120 0.0209	45.662 0.0 1.239		Vel = 3.38	
225 to 226	21.21 21.21		22.60 39.8	1.25 1.442		21.500 21.500	120 0.0987	46.901 2.122		Vel = 7.82	
226 to 227	21.21 21.21		-3.95 35.85	1.25 1.442	2T 14.864	8.500 14.864 23.364	120 0.0814	49.023 0.0 1.901		Vel = 7.04	
227 to 228	21.21 21.21		-19.70 16.15	1.25 1.442	3T 22.296	59.000 22.296 81.296	120 0.0186	50.924 0.0 1.512		Vel = 3.17	
228 to 229	21.21 21.21		0.0 16.15	3 3.26		10.000 10.000	120 0.0004	52.436 0.004		Vel = 0.62	
229 to 230	21.21 21.21		19.70 35.85	3 3.26	X 17.471	0.960 17.471 18.431	120 0.0015	52.440 0.028		Vel = 1.38	
230 to TR2	21.21 10.5		381.38 417.23	4 4.26	5V 44.768	41.090 44.768 85.858	120 0.0390	52.468 4.638 3.350		Vel = 9.39	
TR2 to BR2	10.5 2.5		0.0 417.23	4 4.26	X Bvca 21.067 Fsp 10.534	8.000 31.601 39.601	120 0.0390	60.456 6.465 1.544	** Fixed Loss = 3	Vel = 9.39	

Final Calculations : Hazen-Williams

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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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	*****
BR2 to UG1	2.5 -4		0.0 417.23	6 6.357	X	31.433 31.433 40.893	120 0.0056	68.465 2.815 0.227		Vel = 4.22	
UG1 to TEST	-4 0		0.0 417.23	6 6.09	2E Zfb 2G	43.166 0.0 9.25	150 0.0045	71.507 1.007 0.672		** Fixed Loss = 2.739 Vel = 4.60	
TEST			250.00 667.23					73.186		Qa = 250.00 K Factor = 77.99	
200 to 232	21.21 21.21		12.95	1.25		8.000	120	18.891 0.0		Vel = 2.54	
232 to 233	21.21 21.21	5.60	24.40	1.25		12.000	120	18.990 0.0		Vel = 7.34	
233 to 234	21.21 21.21	5.60	25.08	1.25	T	7.432	120	20.044 0.0		Vel = 12.26	
234 to 235	21.21 21.21		62.43	1.442		52.932	0.2269	12.012			
234 to 235	21.21 21.21		145.84	3		12.170	120	32.056 0.0		Vel = 8.01	
235 to 236	21.21 21.21		208.27	3.26		12.170	0.0397	0.483			
235 to 236	21.21 21.21		35.56	3		7.500	120	32.539 0.0		Vel = 9.37	
236 to 237	21.21 21.21		243.83	3.26		7.500	0.0532	0.399			
236 to 237	21.21 21.21		0.0	3	2V	13.44	120	32.938 0.0		Vel = 9.37	
237 to 238	21.21 21.21		243.83	3.26		18.940	0.0531	1.006			
237 to 238	21.21 21.21		16.58	3		4.000	120	33.944 0.0		Vel = 10.01	
238 to 239	21.21 21.21		260.41	3.26		4.000	0.0600	0.240			
238 to 239	21.21 21.21		14.65	3		7.000	120	34.184 0.0		Vel = 10.57	
239 to 240	21.21 21.21		275.06	3.26		7.000	0.0664	0.465			
239 to 240	21.21 21.21		11.99	3		10.000	120	34.649 0.0		Vel = 11.03	
240 to 241	21.21 21.21		287.05	3.26		10.000	0.0719	0.719			
240 to 241	21.21 21.21		8.90	3		10.000	120	35.368 0.0		Vel = 11.38	
241 to 242	21.21 21.21		295.95	3.26		10.000	0.0760	0.760			
241 to 242	21.21 21.21		6.37	3		10.000	120	36.128 0.0		Vel = 11.62	
242 to 243	21.21 21.21		302.32	3.26		10.000	0.0791	0.791			
242 to 243	21.21 21.21		4.35	3		10.000	120	36.919 0.0		Vel = 11.79	
243 to 244	21.21 21.21		306.67	3.26		10.000	0.0812	0.812			
243 to 244	21.21 21.21		2.76	3		10.000	120	37.731 0.0		Vel = 11.89	
244 to 245	21.21 21.21		309.43	3.26		10.000	0.0826	0.826			
244 to 245	21.21 21.21		1.62	3		10.000	120	38.557 0.0		Vel = 11.96	
245	21.21		311.05	3.26		10.000	0.0833	0.833			

Final Calculations : Hazen-Williams

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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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	*****
245 to 246	21.21 21.21		0.95 312.0	3 3.26			10.000 10.000	120 0.0839	39.390 0.0 0.839		Vel = 11.99	
246 to 247	21.21 21.21		0.94 312.94	3 3.26			10.000 10.000	120 0.0843	40.229 0.0 0.843		Vel = 12.03	
247 to 248	21.21 21.21		1.56 314.5	3 3.26			10.000 10.000	120 0.0851	41.072 0.0 0.851		Vel = 12.09	
248 to 249	21.21 21.21		2.68 317.18	3 3.26			10.000 10.000	120 0.0864	41.923 0.0 0.864		Vel = 12.19	
249 to 250	21.21 21.21		4.18 321.36	3 3.26			10.000 10.000	120 0.0886	42.787 0.0 0.886		Vel = 12.35	
250 to 251	21.21 21.21		6.11 327.47	3 3.26			10.000 10.000	120 0.0917	43.673 0.0 0.917		Vel = 12.59	
251 to 252	21.21 21.21		8.44 335.91	3 3.26			10.000 10.000	120 0.0961	44.590 0.0 0.961		Vel = 12.91	
252 to 253	21.21 21.21		11.17 347.08	3 3.26			10.000 10.000	120 0.1021	45.551 0.0 1.021		Vel = 13.34	
253 to 254	21.21 21.21		13.91 360.99	3 3.26			10.000 10.000	120 0.1098	46.572 0.0 1.098		Vel = 13.88	
254 to 255	21.21 21.21		16.43 377.42	3 3.26			12.000 12.000	120 0.1192	47.670 0.0 1.431		Vel = 14.51	
255 to 230	21.21 21.21		3.96 381.38	3 3.26	T	20.159	7.540 20.159 27.699	120 0.1216	49.101 0.0 3.367		Vel = 14.66	
230			0.0 381.38						52.468		K Factor = 52.65	
203 to 256	21.21 21.21		-91.28 -91.28	2 2.157			13.000 13.000	120 -0.0645	24.527 0.0 -0.838		Vel = 8.01	
256 to 257	21.21 21.21		0.0 -91.28	2 2.157	T	12.307	14.500 12.307 26.807	120 -0.0645	23.689 0.0 -1.729		Vel = 8.01	
257 to 258	21.21 21.21	11.20	52.49 -38.79	2 2.157			10.000 10.000	120 -0.0132	21.960 0.0 -0.132		Vel = 3.41	
258 to 259	21.21 21.21	11.20	52.33 13.54	2 2.157			10.000 10.000	120 0.0019	21.828 0.0 0.019		Vel = 1.19	
259 to 260	21.21 21.21	11.20	52.35 65.89	2 2.157			8.000 8.000	120 0.0352	21.847 0.0 0.282		Vel = 5.79	

Final Calculations : Hazen-Williams

PERFORMANCE FIRE SYSTEMS
Lakeview Storage

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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	*****
260 to 261	21.21 21.21	5.60	26.34 92.23	2 2.157			12.000 12.000	120 0.0658	22.129 0.0 0.789		Vel = 8.10	
261 to 262	21.21 21.21	11.20	53.61 145.84	2 2.157	T	12.307	45.500 12.307 57.807	120 0.1535	22.918 0.0 8.871		Vel = 12.80	
262 to 234	21.21 21.21		0.0 145.84	3 3.26			13.000 13.000	120 0.0205	31.789 0.0 0.267		Vel = 5.61	
234 to 204			0.0 145.84						32.056		K Factor = 25.76	
204 to 263	21.21 21.21		-21.42 -21.42	1.25 1.442	T	7.432	14.500 7.432 21.932	120 -0.0314	26.543 0.0 -0.688		Vel = 4.21	
263 to 264	21.21 21.21	5.60	28.48 7.06	1.25 1.442			10.000 10.000	120 0.0040	25.855 0.0 0.040		Vel = 1.39	
264 to 235	21.21 21.21	5.60	28.50 35.56	1.25 1.442	T	7.432	75.500 7.432 82.932	120 0.0801	25.895 0.0 6.644		Vel = 6.99	
235 to 205			0.0 35.56						32.539		K Factor = 6.23	
205 to 237	21.21 21.21		16.58 16.58	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0195	31.681 0.0 2.263		Vel = 3.26	
237 to 206			0.0 16.58						33.944		K Factor = 2.85	
206 to 238	21.21 21.21		14.66 14.66	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0155	32.383 0.0 1.801		Vel = 2.88	
238 to 207			0.0 14.66						34.184		K Factor = 2.51	
207 to 239	21.21 21.21		11.98 11.98	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0107	33.407 0.0 1.242		Vel = 2.35	
239 to 208			0.0 11.98						34.649		K Factor = 2.04	
208 to 240	21.21 21.21		8.90 8.9	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0062	34.651 0.0 0.717		Vel = 1.75	
240 to 209			0.0 8.90						35.368		K Factor = 1.50	
209 to 241	21.21 21.21		6.37 6.37	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0033	35.742 0.0 0.386		Vel = 1.25	
241 to 210			0.0 6.37						36.128		K Factor = 1.06	
210 to 242	21.21 21.21		4.34 4.34	1.25 1.442	2T	14.864	101.000 14.864 115.864	120 0.0016	36.729 0.0 0.190		Vel = 0.85	

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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	*****
242			0.0 4.34					36.919		K Factor = 0.71	
211 to 243	21.21 21.21		2.76 2.76	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0007	37.649 0.0 0.082		Vel = 0.54	
243			0.0 2.76					37.731		K Factor = 0.45	
212 to 244	21.21 21.21		1.62 1.62	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0003	38.526 0.0 0.031		Vel = 0.32	
244			0.0 1.62					38.557		K Factor = 0.26	
213 to 245	21.21 21.21		0.95 0.95	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0001	39.379 0.0 0.011		Vel = 0.19	
245			0.0 0.95					39.390		K Factor = 0.15	
214 to 246	21.21 21.21		0.93 0.93	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0001	40.218 0.0 0.011		Vel = 0.18	
246			0.0 0.93					40.229		K Factor = 0.15	
215 to 247	21.21 21.21		1.57 1.57	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0003	41.043 0.0 0.029		Vel = 0.31	
247			0.0 1.57					41.072		K Factor = 0.24	
216 to 248	21.21 21.21		2.67 2.67	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0007	41.846 0.0 0.077		Vel = 0.52	
248			0.0 2.67					41.923		K Factor = 0.41	
217 to 249	21.21 21.21		4.19 4.19	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0015	42.610 0.0 0.177		Vel = 0.82	
249			0.0 4.19					42.787		K Factor = 0.64	
218 to 250	21.21 21.21		6.11 6.11	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0031	43.316 0.0 0.357		Vel = 1.20	
250			0.0 6.11					43.673		K Factor = 0.92	
219 to 251	21.21 21.21		8.44 8.44	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0056	43.941 0.0 0.649		Vel = 1.66	
251			0.0 8.44					44.590		K Factor = 1.26	

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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	*****
220 to 252	21.21 21.21		11.17 11.17	1.25 1.442	2T 14.864	101.000 14.864 115.864	120 0.0094	44.462 0.0 1.089		Vel = 2.19	
252			0.0 11.17					45.551		K Factor = 1.66	
221 to 253	21.21 21.21		13.91 13.91	1.25 1.442	2T 2E 7.432	102.000 22.296 124.296	120 0.0141	44.818 0.0 1.754		Vel = 2.73	
253			0.0 13.91					46.572		K Factor = 2.04	
222 to 254	21.21 21.21		16.44 16.44	1.25 1.442	2T 14.864	99.500 14.864 114.364	120 0.0192	45.472 0.0 2.198		Vel = 3.23	
254			0.0 16.44					47.670		K Factor = 2.38	
223 to 225	21.21 21.21		22.61 22.61	1.25 1.442	T 7.432	29.000 7.432 36.432	120 0.0347	45.638 0.0 1.263		Vel = 4.44	
225			0.0 22.61					46.901		K Factor = 3.30	
226 to 255	21.21 21.21		3.95 3.95	1.25 1.442	T 7.432	49.000 7.432 56.432	120 0.0014	49.023 0.0 0.078		Vel = 0.78	
255			0.0 3.95					49.101		K Factor = 0.56	
227 to 229	21.21 21.21		19.70 19.7	1.25 1.442	T 7.432	49.000 7.432 56.432	120 0.0269	50.924 0.0 1.516		Vel = 3.87	
229			0.0 19.70					52.440		K Factor = 2.72	