

. . . Fire Protection by Computer Design

EASTERN FIRE PROTECTION
AUBURN, MAINE
207-784-1507

Job Name : AMERICAN TIRE DIST
Drawing : 1 OF 2
Location : PORTLAND, ME
Remote Area : SYSTEM#5
Contract : AU-5258-15
Data File : 5258 AMERICAN TIRE SYSTEM 5.WXF

HYDRAULIC CALCULATIONS
for

Project name: AMERICAN TIRE DIST
Location: PORTLAND, ME
Drawing no: 1 OF 2
Date: 1-19-15

Design

Remote area number: SYSTEM#5
Remote area location: SYSTEM#5
Occupancy classification:
Density: 25 PSI - Gpm/SqFt
Area of application: 12 HEADS - SqFt
Coverage per sprinkler: N/A - SqFt
Type of sprinklers calculated: TYCO 25.2 ESFR PENDENT
No. of sprinklers calculated: 12
In-rack demand: - GPM
Hose streams: 250 - GPM
Total water required (including hose streams): 1783.19 - GPM @ 113.168 - Psi
Type of system: WET
Volume of dry or preaction system: N/A - Gal

Water supply information

Date: 12-12-14
Location: FIRE PUMP TEST
Source: EASTERN FIRE PROTECTION

Name of contractor: EASTERN FIRE PROTECTION
Address: AUBURN, MAINE
Phone number: 207-784-1507
Name of designer: GRD

Authority having jurisdiction: MAINE STATE FIRE MARSHAL

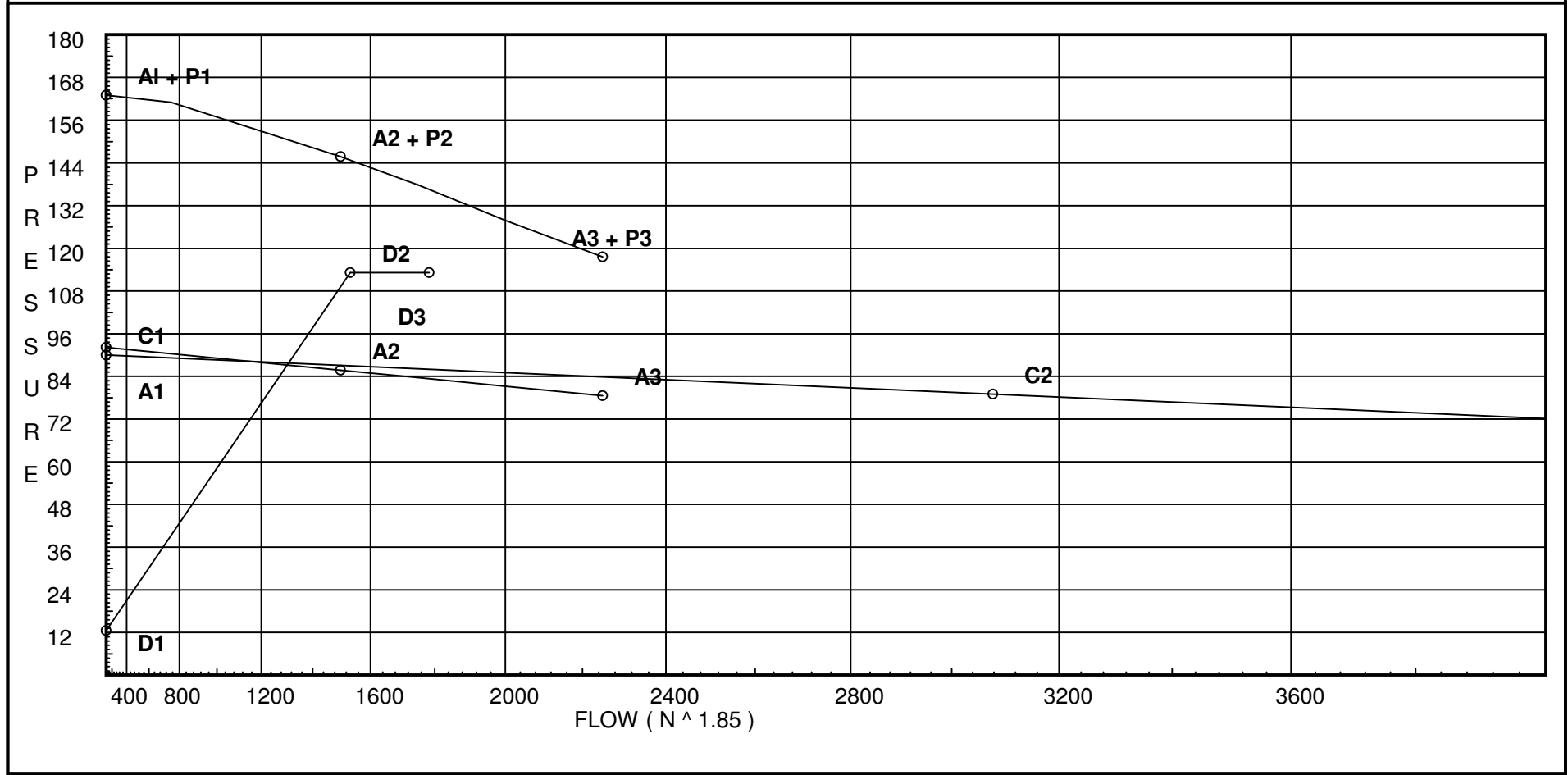
Notes: (Include peaking information or gridded systems here.) TOTAL SYSTEM DEMAND AND PRESSURE INDICATED AT DISCHARGE FLANGE OF FIRE PUMP

Water Supply Curve C

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City Water Supply: C1 - Static Pressure : 90 C2 - Residual Pressure: 79 C2 - Residual Flow : 3078 City Water Adjusted to Pump Inlet for Pf - Elev - Hose Flow A1 - Adjusted Static: 92.166 A2 - Adj Resid : 85.759 @ 1500 A3 - Adj Resid : 78.602 @ 2250	Pump Data: P1 - Pump Churn Pressure : 70.8 P2 - Pump Rated Pressure : 60 P2 - Pump Rated Flow : 1500 P3 - Pump Pressure @ Max Flow : 39 P3 - Pump Max Flow : 2250 City Residual Flow @ 0 = 9587.40 City Residual Flow @ 20 = 8369.59 City Water @ 150% of Pump = 83.84	Demand: D1 - Elevation : 12.560 D2 - System Flow : 1533.19 D2 - System Pressure : 113.168 Hose (Demand) : 250 D3 - System Demand : 1783.19 Safety Margin : 23.379
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Fittings Used Summary

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Fitting Legend		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	
Aty	Alarm Tyco AV-1							14			23			24	23							
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	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	61
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	13
I	90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40	40
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	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	121
Zca	Colt C200 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
PO	See Information on Pump Curve			136.547	1783.19	113.168
TEST	90.0	79	3078.0	85.993	1783.19	85.993

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
820	130.58		55.12		
821	130.58		55.26		
822	130.58		55.8		
823	130.58		57.06		
824	130.58		57.98		
825	130.58		58.66		
826	130.58		59.21		
827	130.58		59.66		
828	130.58		60.1		
829	130.58		60.45		
830	130.58		60.69		
831	130.58		60.86		
832	130.58		61.0		
833	130.58		61.11		
834	130.58		61.17		
835	130.58		61.2		
880	128.67		58.24		
881	128.67		58.38		
882	128.67		58.92		
883	128.67		60.16		
884	128.67		61.15		
885	128.67		61.96		
886	128.67		62.67		
887	128.67		63.28		
888	128.67		63.86		
889	128.67		64.25		
890	128.67		64.42		
891	128.67		64.49		
892	128.67		64.53		
893	128.67		64.54		
894	128.67		64.54		
895	128.67		64.54		
896	128.67		64.54		
897	128.67		64.54		
898	128.67		64.54		
840	131.58		56.33		
841	131.58		56.43		
842	131.58		56.54		

NODE ANALYSIS (cont.)

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
843	131.58		56.97		
844	131.58		57.7		
845	131.58		58.37		
846	131.58		58.98		
847	131.58		59.16		
848	131.58		59.43		
849	131.58		59.83		
850	131.58		60.15		
851	131.58		60.42		
852	131.58		60.49		
853	131.58		60.58		
854	131.58		60.7		
855	131.58		60.8		
856	131.58		60.84		
857	131.58		60.86		
858	131.58		60.88		
860	129.67		59.89		
861	129.67		59.97		
862	129.67		60.07		
863	129.67		60.45		
864	129.67		61.26		
865	129.67		62.22		
866	129.67		63.34		
867	129.67		63.78		
868	129.67		64.64		
900	129.67		69.26		
869	129.67		66.28		
870	129.67		65.57		
871	129.67		65.05		
872	129.67		64.92		
873	129.67		64.77		
874	129.67		64.58		
875	129.67		64.45		
876	129.67		64.4		
877	129.67		64.38		
878	129.67		64.36		
840A	134.0		50.28		
800	134.0	25.2	26.07	128.66	
801	134.0	25.2	25.0	126.01	
802	134.0	25.2	25.0	126.0	
803	134.0	25.2	25.89	128.23	
860A	134.0		53.59		
841A	134.0		50.38		
804	134.0	25.2	26.12	128.79	
805	134.0	25.2	25.06	126.14	
806	134.0	25.2	25.05	126.13	
807	134.0	25.2	25.94	128.36	
861A	134.0		53.7		

NODE ANALYSIS (cont.)

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
842A	134.0		51.52		
808	134.0	25.2	26.69	130.19	
809	134.0	25.2	25.6	127.49	
810	134.0	25.2	25.59	127.48	
811	134.0	25.2	26.5	129.71	
862A	134.0		54.7		
843A	134.0		55.98		
863A	134.0		57.97		
844A	134.0		56.76		
864A	134.0		58.88		
845A	134.0		57.44		
865A	134.0		59.73		
846A	134.0		58.06		
866A	134.0		60.59		
847A	134.0		58.3		
867A	134.0		61.1		
848A	134.0		58.7		
868A	134.0		61.78		
849A	134.0		59.11		
869A	134.0		62.71		
850A	134.0		59.37		
870A	134.0		62.5		
851A	134.0		59.57		
871A	134.0		62.34		
852A	134.0		59.63		
872A	134.0		62.44		
853A	134.0		59.75		
873A	134.0		62.28		
854A	134.0		59.84		
874A	134.0		62.24		
855A	134.0		59.91		
875A	134.0		62.22		
836	130.58		61.2		
856A	134.0		59.9		
876A	134.0		62.24		
857A	134.0		60.16		
877A	134.0		62.22		
858A	134.0		60.18		
878A	134.0		62.23		
859	131.58		60.88		
859A	134.0		60.18		
879A	134.0		62.23		
TR5	130.67		72.63		
BR5	101.0		89.37		
UG5	100.0		91.37	250.0	
UG4	100.0		93.32		
UG3	100.0		96.54		
50	100.0		97.09		

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>
FLG	100.0		99.65		
PO	100.0		113.17		
PI	100.0		83.34		
BASE	100.0		84.62		
TEST	105.0		85.99		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
820 to 821	130.580 130.580		76.12 76.12	2.5 2.635	0.0 0.0	8.000 0.0	120 0.0174	55.118 0.0		Vel = 4.48	
821 to 822	130.580 130.580		76.56 152.68	2.5 2.635	0.0 0.0	8.670 8.670	120 0.0630	55.257 0.0		Vel = 8.98	
822 to 823	130.580 130.580		69.07 221.75	2.5 2.635	0.0 0.0	10.000 10.000	120 0.1257	55.803 0.0		Vel = 13.05	
823 to 824	130.580 130.580		-24.14 197.61	2.5 2.635	0.0 0.0	9.080 9.080	120 0.1015	57.060 0.0		Vel = 11.63	
824 to 825	130.580 130.580		-18.90 178.71	2.5 2.635	0.0 0.0	8.080 8.080	120 0.0844	57.982 0.0		Vel = 10.51	
825 to 826	130.580 130.580		-19.13 159.58	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0684	58.664 0.0		Vel = 9.39	
826 to 827	130.580 130.580		-21.56 138.02	2.5 2.635	0.0 0.0	8.670 8.670	120 0.0522	59.211 0.0		Vel = 8.12	
827 to 828	130.580 130.580		-12.34 125.68	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0440	59.664 0.0		Vel = 7.39	
828 to 829	130.580 130.580		-10.01 115.67	2.5 2.635	0.0 0.0	9.080 9.080	120 0.0377	60.104 0.0		Vel = 6.81	
829 to 830	130.580 130.580		-13.89 101.78	2.5 2.635	0.0 0.0	8.080 8.080	120 0.0297	60.446 0.0		Vel = 5.99	
830 to 831	130.580 130.580		-14.76 87.02	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0224	60.686 0.0		Vel = 5.12	
831 to 832	130.580 130.580		-16.06 70.96	2.5 2.635	0.0 0.0	8.670 8.670	120 0.0152	60.865 0.0		Vel = 4.17	
832 to 833	130.580 130.580		-11.98 58.98	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0109	60.997 0.0		Vel = 3.47	
833 to 834	130.580 130.580		-12.75 46.23	2.5 2.635	0.0 0.0	9.080 9.080	120 0.0068	61.106 0.0		Vel = 2.72	
834 to 835	130.580 130.580		-14.31 31.92	2.5 2.635	0.0 0.0	8.080 8.080	120 0.0035	61.168 0.0		Vel = 1.88	

Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
835 to 836	130.580 130.580		-16.16 15.76	2.5 2.635	0.0 0.0 0.0	8.000 0.0 8.000	120 0.0010	61.196 0.0 0.008			Vel = 0.93
836			0.0 15.76					61.204			K Factor = 2.01
880 to 881	128.670 128.670		75.79 75.79	2.5 2.635	0.0 0.0 0.0	8.000 0.0 8.000	120 0.0173	58.238 0.0 0.138			Vel = 4.46
881 to 882	128.670 128.670		76.40 152.19	2.5 2.635	0.0 0.0 0.0	8.670 0.0 8.670	120 0.0626	58.376 0.0 0.543			Vel = 8.95
882 to 883	128.670 128.670		68.05 220.24	2.5 2.635	0.0 0.0 0.0	10.000 0.0 10.000	120 0.1241	58.919 0.0 1.241			Vel = 12.96
883 to 884	128.670 128.670		-15.18 205.06	2.5 2.635	0.0 0.0 0.0	9.080 0.0 9.080	120 0.1087	60.160 0.0 0.987			Vel = 12.06
884 to 885	128.670 128.670		-8.72 196.34	2.5 2.635	0.0 0.0 0.0	8.080 0.0 8.080	120 0.1004	61.147 0.0 0.811			Vel = 11.55
885 to 886	128.670 128.670		-12.54 183.8	2.5 2.635	0.0 0.0 0.0	8.000 0.0 8.000	120 0.0889	61.958 0.0 0.711			Vel = 10.81
886 to 887	128.670 128.670		-21.74 162.06	2.5 2.635	0.0 0.0 0.0	8.670 0.0 8.670	120 0.0704	62.669 0.0 0.610			Vel = 9.53
887 to 888	128.670 128.670		-16.15 145.91	2.5 2.635	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0579	63.279 0.0 0.579			Vel = 8.58
888 to 889	128.670 128.670		-21.47 124.44	2.5 2.635	0.0 0.0 0.0	9.080 0.0 9.080	120 0.0432	63.858 0.0 0.392			Vel = 7.32
889 to 890	128.670 128.670		-41.50 82.94	2.5 2.635	0.0 0.0 0.0	8.080 0.0 8.080	120 0.0204	64.250 0.0 0.165			Vel = 4.88
890 to 891	128.670 128.670		-28.85 54.09	2.5 2.635	0.0 0.0 0.0	8.000 0.0 8.000	120 0.0092	64.415 0.0 0.074			Vel = 3.18
891 to 892	128.670 128.670		-17.81 36.28	2.5 2.635	0.0 0.0 0.0	8.670 0.0 8.670	120 0.0044	64.489 0.0 0.038			Vel = 2.13
892 to 893	128.670 128.670		-21.27 15.01	2.5 2.635	0.0 0.0 0.0	10.000 0.0 10.000	120 0.0009	64.527 0.0 0.009			Vel = 0.88
893 to 894	128.670 128.670		-9.93 5.08	2.5 2.635	0.0 0.0 0.0	9.080 0.0 9.080	120 0.0001	64.536 0.0 0.001			Vel = 0.30

Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
894 to 895	128.670 128.670		-3.73 1.35	2.5 2.635	0.0 0.0	8.080 0.0	120 0	64.537 0.0			
									Vel =	0.08	
895 to 896	128.670 128.670		2.43 3.78	2.5 2.635	0.0 0.0	8.000 0.0	120 0	64.537 0.0			
									Vel =	0.22	
896 to 897	128.670 128.670		-3.30 0.48	2.5 2.635	0.0 0.0	8.670 0.0	120 0	64.537 0.0			
									Vel =	0.03	
897 to 898	128.670 128.670		3.97 4.45	2.5 2.635	0.0 0.0	8.500 0.0	120 0.0001	64.537 0.001			
									Vel =	0.26	
898 to 899	128.670 0		-2.48 1.97	2.5 2.635	0.0 0.0	9.670 0.0	120 0	64.538 55.727			
									Vel =	0.12	
899			0.0 1.97						120.265	K Factor =	0.18
840 to 841	131.580 131.580		184.52 184.52	4 4.26	0.0 0.0	11.250 0.0	120 0.0086	56.331 0.0			
									Vel =	4.15	
841 to 842	131.580 131.580		184.38 368.9	4 4.26	0.0 0.0	3.750 0.0	120 0.0309	56.428 0.0			
									Vel =	8.30	
842 to 843	131.580 131.580		195.15 564.05	4 4.26	0.0 0.0	6.250 0.0	120 0.0682	56.544 0.426			
									Vel =	12.70	
843 to 844	131.580 131.580		-16.68 547.37	4 4.26	0.0 0.0	11.250 0.0	120 0.0644	56.970 0.725			
									Vel =	12.32	
844 to 845	131.580 131.580		-23.39 523.98	4 4.26	0.0 0.0	11.330 0.0	120 0.0595	57.695 0.674			
									Vel =	11.79	
845 to 846	131.580 131.580		-24.89 499.09	4 4.26	0.0 0.0	11.250 0.0	120 0.0543	58.369 0.611			
									Vel =	11.23	
846 to 847	131.580 131.580		-24.97 474.12	4 4.26	0.0 0.0	3.750 0.0	120 0.0493	58.980 0.185			
									Vel =	10.67	
847 to 848	131.580 131.580		-36.80 437.32	4 4.26	0.0 0.0	6.250 0.0	120 0.0426	59.165 0.266			
									Vel =	9.84	
848 to 849	131.580 131.580		-41.62 395.7	4 4.26	0.0 0.0	11.250 0.0	120 0.0354	59.431 0.398			
									Vel =	8.91	
849 to 850	131.580 131.580		-42.33 353.37	4 4.26	0.0 0.0	11.330 0.0	120 0.0287	59.829 0.325			
									Vel =	7.95	

Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
850 to 851	131.580 131.580		-37.38 315.99	4 4.26	0.0 0.0	11.250 0.0	120 0.0233	60.154 0.0			
									Vel =	7.11	
851 to 852	131.580 131.580		-32.72 283.27	4 4.26	0.0 0.0	3.750 0.0	120 0.0192	60.416 0.0			
									Vel =	6.38	
852 to 853	131.580 131.580		-37.26 246.01	4 4.26	0.0 0.0	6.250 0.0	120 0.0147	60.488 0.0			
									Vel =	5.54	
853 to 854	131.580 131.580		-33.75 212.26	4 4.26	0.0 0.0	11.250 0.0	120 0.0111	60.580 0.0			
									Vel =	4.78	
854 to 855	131.580 131.580		-30.82 181.44	4 4.26	0.0 0.0	11.330 0.0	120 0.0084	60.705 0.0			
									Vel =	4.08	
855 to 856	131.580 131.580		-28.16 153.28	4 4.26	0.0 0.0	6.330 0.0	120 0.0062	60.800 0.0			
									Vel =	3.45	
856 to 857	131.580 131.580		-28.69 124.59	4 4.26	0.0 0.0	4.930 0.0	120 0.0041	60.839 0.0			
									Vel =	2.80	
857 to 858	131.580 131.580		-41.58 83.01	4 4.26	0.0 0.0	10.000 0.0	120 0.0020	60.859 0.0			
									Vel =	1.87	
858 to 859	131.580 131.580		-41.54 41.47	4 4.26	0.0 0.0	11.250 0.0	120 0.0005	60.879 0.0			
									Vel =	0.93	
859			0.0 41.47					60.885		K Factor =	5.31
860 to 861	129.670 129.670		172.46 172.46	4 4.26	0.0 0.0	11.250 0.0	120 0.0076	59.886 0.0			
									Vel =	3.88	
861 to 862	129.670 129.670		172.08 344.54	4 4.26	0.0 0.0	3.750 0.0	120 0.0275	59.971 0.0			
									Vel =	7.76	
862 to 863	129.670 129.670		182.62 527.16	4 4.26	0.0 0.0	6.250 0.0	120 0.0602	60.074 0.0			
									Vel =	11.87	
863 to 864	129.670 129.670		55.99 583.15	4 4.26	0.0 0.0	11.250 0.0	120 0.0724	60.450 0.0			
									Vel =	13.13	
864 to 865	129.670 129.670		51.01 634.16	4 4.26	0.0 0.0	11.330 0.0	120 0.0846	61.265 0.0			
									Vel =	14.27	
865 to 866	129.670 129.670		56.56 690.72	4 4.26	0.0 0.0	11.250 0.0	120 0.0991	62.224 0.0			
									Vel =	15.55	

Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****	
866 to 867	129.670 129.670		68.27 758.99	4 4.26		3.750 0.0 3.750	120 0.1179	63.339 0.0 0.442		Vel = 17.08		
867 to 868	129.670 129.670		65.29 824.28	4 4.26		6.250 0.0 6.250	120 0.1374	63.781 0.0 0.859		Vel = 18.55		
868 to 900	129.670 129.670		73.10 897.38	4 4.26	T 26.334	2.417 0.0 26.334 28.751	120 0.1609	64.640 0.0 4.625		Vel = 20.20		
900 to 869	129.670 129.670		-1533.19 -635.81	4 4.26	T 26.334	8.830 0.0 26.334 35.164	120 -0.0850	69.265 0.0 -2.990		Vel = 14.31		
869 to 870	129.670 129.670		97.72 -538.09	4 4.26		11.330 0.0 0.0 11.330	120 -0.0624	66.275 0.0 -0.707		Vel = 12.11		
870 to 871	129.670 129.670		80.99 -457.1	4 4.26		11.250 0.0 0.0 11.250	120 -0.0462	65.568 0.0 -0.520		Vel = 10.29		
871 to 872	129.670 129.670		66.60 -390.5	4 4.26		3.750 0.0 0.0 3.750	120 -0.0347	65.048 0.0 -0.130		Vel = 8.79		
872 to 873	129.670 129.670		70.49 -320.01	4 4.26		6.250 0.0 0.0 6.250	120 -0.0238	64.918 0.0 -0.149		Vel = 7.20		
873 to 874	129.670 129.670		56.44 -263.57	4 4.26		11.250 0.0 0.0 11.250	120 -0.0166	64.769 0.0 -0.187		Vel = 5.93		
874 to 875	129.670 129.670		48.87 -214.7	4 4.26		11.330 0.0 0.0 11.330	120 -0.0115	64.582 0.0 -0.130		Vel = 4.83		
875 to 876	129.670 129.670		41.88 -172.82	4 4.26		6.330 0.0 0.0 6.330	120 -0.0076	64.452 0.0 -0.048		Vel = 3.89		
876 to 877	129.670 129.670		47.75 -125.07	4 4.26		4.930 0.0 0.0 4.930	120 -0.0043	64.404 0.0 -0.021		Vel = 2.82		
877 to 878	129.670 129.670		37.62 -87.45	4 4.26		10.000 0.0 0.0 10.000	120 -0.0021	64.383 0.0 -0.021		Vel = 1.97		
878 to 879	129.670 0		44.01 -43.44	4 4.26		11.250 0.0 0.0 11.250	120 -0.0006	64.362 56.160 -0.007		Vel = 0.98		
879			0.0 -43.44					120.515		K Factor = -3.96		
820 to 840A	130.580 134		-76.12 -76.12	2 2.157	I 2T	4.307 24.613 0.0	44.000 28.920 72.920	120 -0.0461	55.118 -1.481 -3.361		Vel = 6.68	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
840A to 840	134 131.580		260.64 184.52	2 2.157	I T 4.307 12.307 0.0	4.500 16.614 21.114	120 0.2371	50.276 1.048 5.007			Vel = 16.20
840			0.0 184.52					56.331			K Factor = 24.58
840A to 800	134 134		-260.65 -260.65	2 2.157	T 0.0 0.0	12.307 12.307 53.887	120 -0.4493	50.276 0.0 -24.210			Vel = 22.88
800 to 801	134 134	25.20	128.66 -131.99	2 2.157	0.0 0.0	8.330 0.0	120 -0.1275	26.066 0.0 -1.062			Vel = 11.59
801 to 802	134 134	25.20	126.01 -5.98	2 2.157	0.0 0.0	8.330 8.330	120 -0.0005	25.004 0.0 -0.004			Vel = 0.53
802 to 803	134 134	25.20	126.00 120.02	2 2.157	0.0 0.0	8.330 8.330	120 0.1070	25.000 0.0 0.891			Vel = 10.54
803 to 860A	134 134	25.20	128.23 248.25	2 2.157	T 0.0 0.0	12.307 12.307 67.477	120 0.4105	25.891 0.0 27.701			Vel = 21.80
860A to 860	134 129.670		-75.79 172.46	2 2.157	I T 4.307 12.307 0.0	4.500 16.614 21.114	120 0.2093	53.592 1.875 4.419			Vel = 15.14
860			0.0 172.46					59.886			K Factor = 22.29
860A to 880	134 128.670		75.79 75.79	2 2.157	2T 0.0 0.0	24.613 24.613 51.113	120 0.0457	53.592 2.308 2.338			Vel = 6.65
880			0.0 75.79					58.238			K Factor = 9.93
821 to 841A	130.580 134		-76.55 -76.55	2 2.157	I 2T 4.307 24.613 0.0	44.000 28.920 72.920	120 -0.0466	55.257 -1.481 -3.396			Vel = 6.72
841A to 841	134 131.580		260.93 184.38	2 2.157	I T 4.307 12.307 0.0	4.500 16.614 21.114	120 0.2368	50.380 1.048 5.000			Vel = 16.19
841			0.0 184.38					56.428			K Factor = 24.55
841A to 804	134 134		-260.94 -260.94	2 2.157	T 0.0 0.0	12.307 12.307 53.887	120 -0.4502	50.380 0.0 -24.259			Vel = 22.91
804 to 805	134 134	25.20	128.80 -132.14	2 2.157	0.0 0.0	8.330 0.0	120 -0.1279	26.121 0.0 -1.065			Vel = 11.60
805 to 806	134 134	25.20	126.14 -6.0	2 2.157	0.0 0.0	8.330 8.330	120 -0.0005	25.056 0.0 -0.004			Vel = 0.53

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
806 to 807	134 134	25.20	126.13 120.13	2		0.0 0.0	8.330 0.0	120 0.1072	25.052 0.0 0.893			Vel = 10.55
807 to 861A	134 134	25.20	128.36 248.49	2	T	12.307 0.0	55.170 12.307	120 0.4113	25.945 0.0 27.751			Vel = 21.82
861A to 861	134 129.670		-76.40 172.09	2	I T	4.307 12.307	4.500 16.614	120 0.2084	53.696 1.875 4.400			Vel = 15.11
861			0.0 172.09						59.971			K Factor = 22.22
861A to 881	134 128.670		76.40 76.4	2	2T	24.613 0.0	26.500 24.613	120 0.0464	53.696 2.308 2.372			Vel = 6.71
881			0.0 76.40						58.376			K Factor = 10.00
822 to 842A	130.580 134		-69.07 -69.07	2	I 2T	4.307 24.613	44.000 28.920	120 -0.0385	55.803 -1.481 -2.807			Vel = 6.06
842A to 842	134 131.580		264.22 195.15	2	T	12.307 0.0	2.830 12.307	120 0.2630	51.515 1.048 3.981			Vel = 17.13
842			0.0 195.15						56.544			K Factor = 25.95
842A to 808	134 134		-264.21 -264.21	2	T	12.307 0.0	41.580 12.307	120 -0.4607	51.515 0.0 -24.826			Vel = 23.20
808 to 809	134 134	25.20	130.18	2		0.0 0.0	8.330 0.0	120	26.689 0.0			
809 to 810	134 134	25.20	-134.03 127.49	2		0.0 0.0	8.330 0.0	120	25.595 0.0			Vel = 11.77
810 to 811	134 134	25.20	-6.54 127.48	2		0.0 0.0	8.330 0.0	120	25.591 0.0			Vel = 0.57
811 to 862A	134 134	25.20	120.94 129.72	2		0.0 0.0	8.330 0.0	0.1085	0.904			Vel = 10.62
811 to 862A	134 134	25.20	129.72 250.66	2	T	12.307 0.0	55.170 12.307	120 0.4179	26.495 0.0 28.201			Vel = 22.01
862A to 862	134 129.670		-68.05 182.61	2	T	12.307 0.0	2.750 12.307	120 0.2326	54.696 1.875 3.503			Vel = 16.03
862			0.0 182.61						60.074			K Factor = 23.56
862A to 882	134 128.670		68.04 68.04	2	2T	24.613 0.0	26.500 24.613	120 0.0375	54.696 2.308 1.915			Vel = 5.97

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
882			0.0 68.04					58.919		K Factor = 8.86	
823 to 843A	130.580 134		24.14	2	I 2T	4.307 24.613	44.000 28.920	120	57.060 -1.481		
843A to 843	134 131.580		24.14	2.157		0.0	72.920	0.0055	0.401	Vel = 2.12	
843A to 843	134 131.580		-40.82	2	I T	4.307 12.307	4.500 16.614	120	55.980 1.048		
843			-16.68	2.157		0.0	21.114	-0.0027	-0.058	Vel = 1.46	
843			0.0 -16.68						56.970	K Factor = -2.21	
843A to 863A	134 134		40.81	2	T	12.307 0.0	124.500 12.307	120	55.980 0.0		
863A to 863	134 129.670		40.81	2.157		0.0	136.807	0.0146	1.991	Vel = 3.58	
863A to 863	134 129.670		15.18	2	I T	4.307 12.307	6.500 16.614	120	57.971 1.875		
863			55.99	2.157		0.0	23.114	0.0261	0.604	Vel = 4.92	
863			0.0 55.99						60.450	K Factor = 7.20	
863A to 883	134 128.670		-15.18	2	2T	24.613 0.0	26.500 24.613	120	57.971 2.308		
883			-15.18	2.157		0.0	51.113	-0.0023	-0.119	Vel = 1.33	
883			0.0 -15.18						60.160	K Factor = -1.96	
824 to 844A	130.580 134		18.90	2	I 2T	4.307 24.613	44.000 28.920	120	57.982 -1.481		
844A to 844	134 131.580		18.9	2.157		0.0	72.920	0.0035	0.255	Vel = 1.66	
844A to 844	134 131.580		-42.29	2	I T	4.307 12.307	4.500 16.614	120	56.756 1.048		
844			-23.39	2.157		0.0	21.114	-0.0052	-0.109	Vel = 2.05	
844			0.0 -23.39						57.695	K Factor = -3.08	
844A to 864A	134 134		42.29	2	T	12.307 0.0	124.500 12.307	120	56.756 0.0		
864A to 864	134 129.670		42.29	2.157		0.0	136.807	0.0155	2.126	Vel = 3.71	
864A to 864	134 129.670		8.72	2	I T	4.307 12.307	6.500 16.614	120	58.882 1.875		
864			51.01	2.157		0.0	23.114	0.0220	0.508	Vel = 4.48	
864			0.0 51.01						61.265	K Factor = 6.52	
864A to 884	134 128.670		-8.72	2	2T	24.613 0.0	26.500 24.613	120	58.882 2.308		
884			-8.72	2.157		0.0	51.113	-0.0008	-0.043	Vel = 0.77	
884			0.0 -8.72						61.147	K Factor = -1.12	
825 to 845A	130.580 134		19.13	2	I 2T	4.307 24.613	44.000 28.920	120	58.664 -1.481		
845A			19.13	2.157		0.0	72.920	0.0036	0.261	Vel = 1.68	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
845A to 845	134 131.580		-44.03 -24.9	2 2.157	I T 4.307 12.307 0.0	4.500 16.614 21.114	120 -0.0058	57.444 1.048 -0.123			Vel = 2.19
845			0.0 -24.90					58.369			K Factor = -3.26
845A to 865A	134 134		44.03 44.03	2 2.157	T 0.0 12.307	124.500 12.307 136.807	120 0.0167	57.444 0.0 2.289			Vel = 3.87
865A to 865	134 129.670		12.53 56.56	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0267	59.733 1.875 0.616			Vel = 4.97
865			0.0 56.56					62.224			K Factor = 7.17
865A to 885	134 128.670		-12.53 -12.53	2 2.157	2T 0.0 24.613 0.0	26.500 24.613 51.113	120 -0.0016	59.733 2.308 -0.083			Vel = 1.10
885			0.0 -12.53					61.958			K Factor = -1.59
826 to 846A	130.580 134		21.56 21.56	2 2.157	I 2T 4.307 24.613 0.0	44.000 28.920 72.920	120 0.0045	59.211 -1.481 0.326			Vel = 1.89
846A to 846	134 131.580		-46.53 -24.97	2 2.157	I T 4.307 12.307 0.0	4.500 16.614 21.114	120 -0.0059	58.056 1.048 -0.124			Vel = 2.19
846			0.0 -24.97					58.980			K Factor = -3.25
846A to 866A	134 134		46.53 46.53	2 2.157	T 0.0 12.307	124.500 12.307 136.807	120 0.0185	58.056 0.0 2.536			Vel = 4.09
866A to 866	134 129.670		21.75 68.28	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0377	60.592 1.875 0.872			Vel = 5.99
866			0.0 68.28					63.339			K Factor = 8.58
866A to 886	134 128.670		-21.74 -21.74	2 2.157	2T 0.0 24.613 0.0	26.500 24.613 51.113	120 -0.0045	60.592 2.308 -0.231			Vel = 1.91
886			0.0 -21.74					62.669			K Factor = -2.75
827 to 847A	130.580 134		12.34 12.34	2 2.157	I 2T 4.307 24.613 0.0	44.000 28.920 72.920	120 0.0016	59.664 -1.481 0.116			Vel = 1.08
847A to 847	134 131.580		-49.14 -36.8	2 2.157	T 0.0 12.307 0.0	2.830 12.307 15.137	120 -0.0120	58.299 1.048 -0.182			Vel = 3.23

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
847			0.0 -36.80					59.165		K Factor = -4.78	
847A to 867A	134 134		49.13	2	T	12.307 0.0 12.307	124.500 12.307	120	58.299 0.0		
867A to 867	134 129.670		49.13	2.157		0.0 4.307 12.307 0.0	136.807 6.500 16.614 23.114	0.0205	2.805 61.104 1.875 0.802	Vel = 4.31	
867			0.0 65.28					63.781		K Factor = 8.17	
867A to 887	134 128.670		-16.15	2	2T	24.613 0.0 0.0	26.500 24.613 51.113	120	61.104 2.308 -0.133	Vel = 1.42	
887			0.0 -16.15					63.279		K Factor = -2.03	
828 to 848A	130.580 134		10.02	2	I 2T	4.307 24.613 0.0	44.000 28.920 72.920	120	60.104 -1.481 0.078	Vel = 0.88	
848A to 848	134 131.580		-51.64	2	I T	4.307 12.307 0.0	4.500 16.614 21.114	120	58.701 1.048 -0.318	Vel = 3.65	
848			0.0 -41.62					59.431		K Factor = -5.40	
848A to 868A	134 134		51.63	2	T	12.307 0.0 0.0	124.500 12.307 136.807	120	58.701 0.0		
868A to 868	134 129.670		51.63	2.157		0.0 4.307 12.307 0.0	136.807 6.500 16.614 23.114	0.0225	3.075 61.776 1.875 0.989	Vel = 4.53	
868			0.0 73.11					64.640		K Factor = 9.09	
868A to 888	134 128.670		-21.47	2	2T	24.613 0.0 0.0	26.500 24.613 51.113	120	61.776 2.308 -0.226	Vel = 1.89	
888			0.0 -21.47					63.858		K Factor = -2.69	
829 to 849A	130.580 134		13.89	2	I 2T	4.307 24.613 0.0	44.000 28.920 72.920	120	60.446 -1.481 0.144	Vel = 1.22	
849A to 849	134 131.580		-56.22	2	I T	4.307 12.307 0.0	4.500 16.614 21.114	120	59.109 1.048 -0.328	Vel = 3.72	
849			0.0 -42.33					59.829		K Factor = -5.47	
849A to 869A	134 134		56.22	2	T	12.307 0.0 0.0	124.500 12.307 136.807	120	59.109 0.0		
869A			56.22	2.157		0.0	136.807	0.0263	3.600	Vel = 4.94	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
869A to 869	134 129.670		41.50 97.72	2 2.157	I T 0.0	4.307 12.307 23.114	6.500 16.614 23.114	120 62.709 1.875			Vel = 8.58
869			0.0 97.72					66.275			K Factor = 12.00
869A to 889	134 128.670		-41.50 -41.5	2 2.157	2T 0.0	24.613 24.613 51.113	26.500 24.613	120 62.709 2.308			Vel = 3.64
889			0.0 -41.50					64.250			K Factor = -5.18
830 to 850A	130.580 134		14.76 14.76	2 2.157	I 2T 0.0	4.307 24.613 72.920	44.000 28.920	120 60.686 -1.481			Vel = 1.30
850A to 850	134 131.580		-52.14 -37.38	2 2.157	I T 0.0	4.307 12.307 21.114	4.500 16.614	120 59.367 1.048			Vel = 3.28
850			0.0 -37.38					60.154			K Factor = -4.82
850A to 870A	134 134		52.14 52.14	2 2.157	T 0.0	12.307 12.307 136.807	124.500 12.307	120 59.367 0.0			Vel = 4.58
870A to 870	134 129.670		28.84 80.98	2 2.157	I T 0.0	4.307 12.307 23.114	6.500 16.614	120 62.498 1.875			Vel = 7.11
870			0.0 80.98					65.568			K Factor = 10.00
870A to 890	134 128.670		-28.84 -28.84	2 2.157	2T 0.0	24.613 0.0 51.113	26.500 24.613	120 62.498 2.308			Vel = 2.53
890			0.0 -28.84					64.415			K Factor = -3.59
831 to 851A	130.580 134		16.06 16.06	2 2.157	I 2T 0.0	4.307 24.613 72.920	44.000 28.920	120 60.865 -1.481			Vel = 1.41
851A to 851	134 131.580		-48.79 -32.73	2 2.157	I T 0.0	4.307 12.307 21.114	4.500 16.614	120 59.572 1.048			Vel = 2.87
851			0.0 -32.73					60.416			K Factor = -4.21
851A to 871A	134 134		48.78 48.78	2 2.157	T 0.0	12.307 12.307 136.807	124.500 12.307	120 59.572 0.0			Vel = 4.28
871A to 871	134 129.670		17.82 66.6	2 2.157	I T 0.0	4.307 12.307 23.114	6.500 16.614	120 62.341 1.875			Vel = 5.85

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
871			0.0 66.60					65.048		K Factor = 8.26	
871A to 891	134 128.670		-17.82	2	2T 24.613 0.0	26.500 24.613	120	62.341 2.308			
			-17.82	2.157	0.0	51.113	-0.0031	-0.160		Vel = 1.56	
891			0.0 -17.82					64.489		K Factor = -2.22	
832 to 852A	130.580 134		11.98	2	I 2T 4.307 24.613 0.0	44.000 28.920 72.920	120	60.997 -1.481			
			11.98	2.157	0.0	72.920	0.0015	0.110		Vel = 1.05	
852A to 852	134 131.580		-49.23	2	T 12.307 0.0	2.830 12.307	120	59.626 1.048			
			-37.25	2.157	0.0	15.137	-0.0123	-0.186		Vel = 3.27	
852			0.0 -37.25					60.488		K Factor = -4.79	
852A to 872A	134 134		49.23	2	T 12.307 0.0	124.500 12.307	120	59.626 0.0			
			49.23	2.157	0.0	136.807	0.0206	2.815		Vel = 4.32	
872A to 872	134 129.670		21.27	2	T 12.307 0.0	2.750 12.307	120	62.441 1.875			
			70.5	2.157	0.0	15.057	0.0400	0.602		Vel = 6.19	
872			0.0 70.50					64.918		K Factor = 8.75	
872A to 892	134 128.670		-21.26	2	2T 24.613 0.0	26.500 24.613	120	62.441 2.308			
			-21.26	2.157	0.0	51.113	-0.0043	-0.222		Vel = 1.87	
892			0.0 -21.26					64.527		K Factor = -2.65	
833 to 853A	130.580 134		12.75	2	I 2T 4.307 24.613 0.0	44.000 28.920 72.920	120	61.106 -1.481			
			12.75	2.157	0.0	72.920	0.0017	0.123		Vel = 1.12	
853A to 853	134 131.580		-46.51	2	I T 4.307 12.307 0.0	4.500 16.614	120	59.748 1.048			
			-33.76	2.157	0.0	21.114	-0.0102	-0.216		Vel = 2.96	
853			0.0 -33.76					60.580		K Factor = -4.34	
853A to 873A	134 134		46.51	2	T 12.307 0.0	124.500 12.307	120	59.748 0.0			
			46.51	2.157	0.0	136.807	0.0185	2.534		Vel = 4.08	
873A to 873	134 129.670		9.93	2	I T 4.307 12.307 0.0	6.500 16.614	120	62.282 1.875			
			56.44	2.157	0.0	23.114	0.0265	0.612		Vel = 4.96	
873			0.0 56.44					64.769		K Factor = 7.01	
873A to 893	134 128.670		-9.93	2	2T 24.613 0.0	26.500 24.613	120	62.282 2.308			
			-9.93	2.157	0.0	51.113	-0.0011	-0.054		Vel = 0.87	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
893			0.0 -9.93						64.536		K Factor = -1.24	
834 to 854A	130.580 134		14.31	2	I 2T	4.307 24.613	44.000 28.920	120	61.168 -1.481			
854A to 854	134 131.580		14.31	2.157		0.0	72.920	0.0021	0.153		Vel = 1.26	
854A to 854	134 131.580		-45.13	2	I T	4.307 12.307	4.500 16.614	120	59.840 1.048			
854			-30.82	2.157		0.0	21.114	-0.0087	-0.183		Vel = 2.71	
854			0.0 -30.82						60.705		K Factor = -3.96	
854A to 874A	134 134		45.13	2	T	12.307 0.0	124.500 12.307	120	59.840 0.0			
874A to 874	134 129.670		45.13	2.157		0.0	136.807	0.0175	2.397		Vel = 3.96	
874A to 874	134 129.670		3.74	2	I T	4.307 12.307	6.500 16.614	120	62.237 1.875			
874			48.87	2.157		0.0	23.114	0.0203	0.470		Vel = 4.29	
874			0.0 48.87						64.582		K Factor = 6.08	
874A to 894	134 128.670		-3.74	2	2T	24.613 0.0	26.500 24.613	120	62.237 2.308			
894			-3.74	2.157		0.0	51.113	-0.0002	-0.008		Vel = 0.33	
894			0.0 -3.74						64.537		K Factor = -0.47	
835 to 855A	130.580 134		16.16	2	I 2T	4.307 24.613	44.000 28.920	120	61.196 -1.481			
855A to 855	134 131.580		16.16	2.157		0.0	72.920	0.0026	0.191		Vel = 1.42	
855A to 855	134 131.580		-44.32	2	I T	4.307 12.307	4.500 16.614	120	59.906 1.048			
855			-28.16	2.157		0.0	21.114	-0.0073	-0.154		Vel = 2.47	
855			0.0 -28.16						60.800		K Factor = -3.61	
855A to 875A	134 134		44.32	2	T	12.307 0.0	124.500 12.307	120	59.906 0.0			
875A to 875	134 129.670		44.32	2.157		0.0	136.807	0.0169	2.318		Vel = 3.89	
875A to 875	134 129.670		-2.43	2	I T	4.307 12.307	6.500 16.614	120	62.224 1.875			
875			41.89	2.157		0.0	23.114	0.0153	0.353		Vel = 3.68	
875			0.0 41.89						64.452		K Factor = 5.22	
875A to 895	134 128.670		2.43	2	2T	24.613 0.0	26.500 24.613	120	62.224 2.308			
895			2.43	2.157		0.0	51.113	0.0001	0.005		Vel = 0.21	
895			0.0 2.43						64.537		K Factor = 0.30	
836 to 856A	130.580 134		15.76	2	I 2T	4.307 24.613	44.000 28.920	120	61.204 -1.481			
856A			15.76	2.157		0.0	72.920	0.0025	0.182		Vel = 1.38	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
856A to 856	134 131.580		-44.45 -28.69	2 2.157	T 0.0 0.0	12.307 12.307 15.137	120 -0.0075	59.905 1.048 -0.114		Vel = 2.52	
856			0.0 -28.69					60.839		K Factor = -3.68	
856A to 876A	134 134		44.45 44.45	2 2.157	T 0.0 0.0	12.307 12.307 136.807	120 0.0170	59.905 0.0 2.331		Vel = 3.90	
876A to 876	134 129.670		3.30 47.75	2 2.157	T 0.0 0.0	12.307 12.307 15.057	120 0.0195	62.236 1.875 0.293		Vel = 4.19	
876			0.0 47.75					64.404		K Factor = 5.95	
876A to 896	134 128.670		-3.30 -3.3	2 2.157	2T 0.0 0.0	24.613 24.613 51.113	120 -0.0001	62.236 2.308 -0.007		Vel = 0.29	
896			0.0 -3.30					64.537		K Factor = -0.41	
857 to 857A	131.580 134		41.58 41.58	2 2.157	I T 0.0	4.307 12.307 23.114	120 0.0151	60.859 -1.048 0.348		Vel = 3.65	
857A to 877A	134 134		0.0 41.58	2 2.157	T 0.0 0.0	12.307 12.307 136.807	120 0.0151	60.159 0.0 2.060		Vel = 3.65	
877A to 877	134 129.670		-3.96 37.62	2 2.157	I T 0.0	4.307 12.307 23.114	120 0.0125	62.219 1.875 0.289		Vel = 3.30	
877			0.0 37.62					64.383		K Factor = 4.69	
877A to 897	134 128.670		3.96 3.96	2 2.157	2T 0.0 0.0	24.613 24.613 51.113	120 0.0002	62.219 2.308 0.010		Vel = 0.35	
897			0.0 3.96					64.537		K Factor = 0.49	
858 to 858A	131.580 134		41.54 41.54	2 2.157	I T 0.0	4.307 12.307 23.114	120 0.0150	60.879 -1.048 0.347		Vel = 3.65	
858A to 878A	134 134		0.0 41.54	2 2.157	T 0.0 0.0	12.307 12.307 136.807	120 0.0150	60.178 0.0 2.056		Vel = 3.65	
878A to 878	134 129.670		2.48 44.02	2 2.157	T 0.0 0.0	12.307 12.307 15.057	120 0.0168	62.234 1.875 0.253		Vel = 3.86	
878			0.0 44.02					64.362		K Factor = 5.49	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
878A to 898	134 128.670		-2.47 -2.47	2 2.157	2T 2I 0.0	24.613 8.615 59.728	26.500 33.228 -0.0001	120 62.234 -0.004			Vel = 0.22
898			0.0 -2.47					64.538			K Factor = -0.31
859 to 859A	131.580 134		41.47 41.47	2 2.157	I T 0.0	4.307 12.307 23.114	6.500 16.614 0.0150	120 60.885 -1.048 0.346			Vel = 3.64
859A to 879A	134 134		0.0 41.47	2 2.157	T 0.0	12.307 12.307 136.807	124.500 12.307 0.0150	120 60.183 0.0 2.050			Vel = 3.64
879A to 879	134 0		1.97 43.44	2 2.157	T 0.0	12.307 12.307 15.137	2.830 12.307 0.0163	120 62.233 58.035 0.247			Vel = 3.81
879			0.0 43.44					120.515			K Factor = 3.96
879A to 899	134 0		-1.97 -1.97	2 2.157	2T 0.0	24.613 24.613 51.113	26.500 24.613 -0.0001	120 62.233 58.035 -0.003			Vel = 0.17
899			0.0 -1.97					120.265			K Factor = -0.18
900 to TR5	129.670 130.670		1533.19 1533.19	6 6.357	2I 0.0	25.147 25.147 61.647	36.500 25.147 0.0617	120 69.265 -0.433 3.802			Vel = 15.50
TR5 to BR5	130.670 101		0.0 1533.19	6 6.357	Aty G 0.0	30.176 3.772 62.948	29.000 33.948 0.0617	120 72.634 12.850 3.883			Vel = 15.50
BR5 to UG5	101 100		0.0 1533.19	8 7.98	E T G	27.183 52.855 6.041	30.000 86.077 116.077	150 89.367 0.433 1.566			Vel = 9.84
UG5 to UG4	100 100	H250	-415.21 1117.98	8 7.98	2E G 0.0	54.365 6.041 260.405	200.000 60.405 0.0075	150 91.366 0.0 1.958			Vel = 7.17
UG4 to 50	100 100		0.0 1117.98	8 7.98	2T 2L G	105.71 39.264 6.041	350.000 151.014 501.014	150 93.324 0.0 3.768			Vel = 7.17
50			0.0 1117.98					97.092			K Factor = 113.46
UG5 to UG3	100 100		665.21 665.21	8 7.98	4L 3G 0.0	78.528 18.122 1796.649	1700.000 96.649 0.0029	150 91.366 0.0 5.171			Vel = 4.27
UG3 to 50	100 100		0.0 665.21	8 7.98	T 0.0	52.855 0.0	140.000 52.855	150 96.537 0.0			Vel = 4.27
50 to FLG	100 100		1117.98 1783.19	8 7.98	2E T G	54.365 52.855 6.041	30.000 113.260 143.260	150 97.092 0.0 2.556			Vel = 11.44

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
FLG to PO	100 100		0.0 1783.19	8 8.249	S B 6l Zca	52.853 14.094 91.611 0.0	149.000 158.558 307.558	120 6.467 0.0229	99.648 7.053	** Fixed Loss = 6.467 Vel = 10.70	
PO			0.0 1783.19					113.168		K Factor = 167.62	
System Demand Pressure								113.168			
Safety Margin								23.379			
Continuation Pressure								136.547			
Pressure @ Pump Outlet								136.547			
Pressure From Pump Curve								-53.203			
Pressure @ Pump Inlet								83.344			
PI to BASE	100 100		0.0 1783.19	8 8.249	G T	4.698 41.108 0.0	10.000 45.806 55.806	120 0.0229	83.344 0.0 1.280	Vel = 10.70	
BASE to TEST	100 105		0.0 1783.19	8 7.98	2L T G	39.264 52.855 6.041	100.000 98.159 198.159	150 0.0178	84.624 -2.166 3.535	Vel = 11.44	
TEST			0.0 1783.19					85.993		K Factor = 192.29	