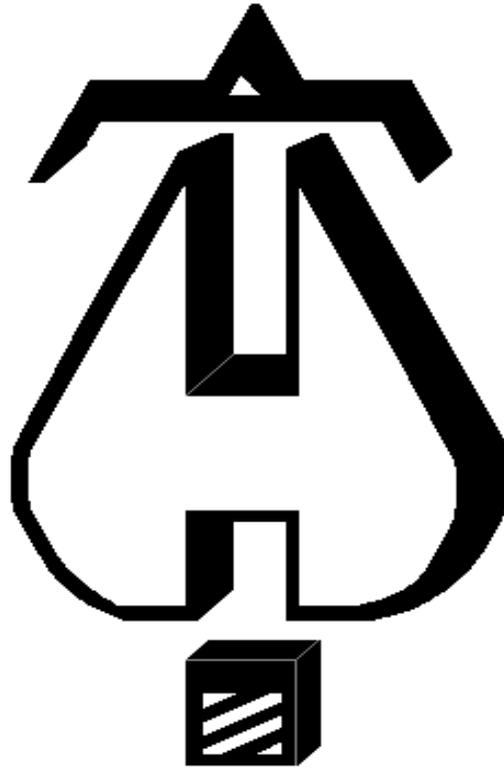




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Inspections Division  
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Date: 03/24/15



**. . . 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#4  
Contract : AU-5258-15  
Data File : 5258 AMERICAN TIRE SYSTEM 4.WXF



**HYDRAULIC CALCULATIONS**  
*for*

Date: 03/24/15

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

**Design**

**Remote area number:** SYSTEM#4  
**Remote area location:** SYSTEM#4 ROOF  
**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):** 1922.37 - GPM @ 125.527 - 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

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



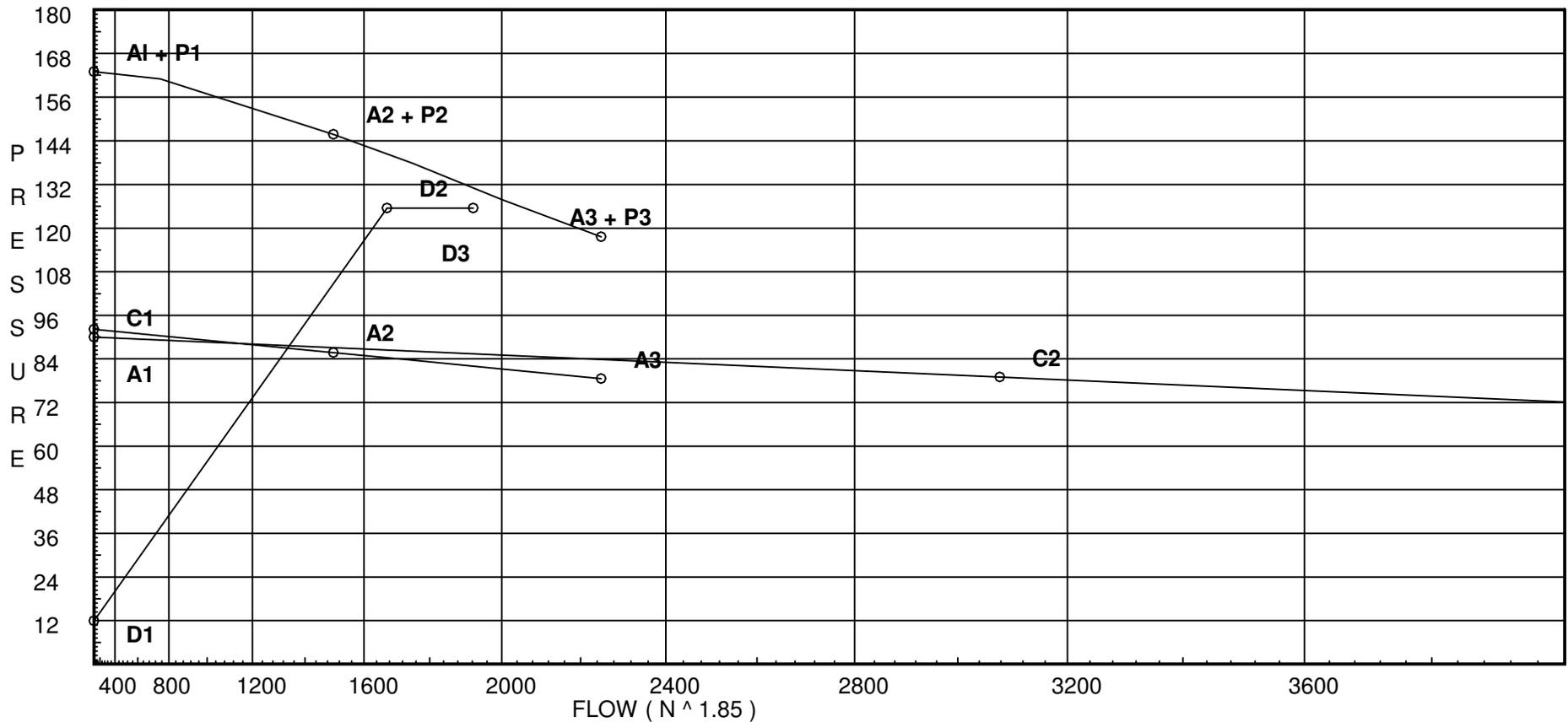
City Water Supply:  
 C1 - Static Pressure : 90  
 C2 - Residual Pressure: 79  
 C2 - Residual Flow : 3078

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 - Elv  
 D2 - Sy  
 D2 - Sy  
 Hose ( Date: 03/24/15  
 D3 - Sy  
 Safety Margin : 5.527

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



# Fittings Used Summary

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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	23	25	30	36	40	
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	2										
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	2										
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6										
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					
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40					
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65										
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121					
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																								

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Date: 03/24/15

## 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 2007

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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**SUPPLY ANALYSIS**

<b>Node at Source</b>	<b>Static Pressure</b>	<b>Residual Pressure</b>	<b>Flow</b>	<b>Available Pressure</b>	<b>Total Demand</b>
PO	See Information on Pump Curve			131.054	1922.37
TEST	90.0	79	3078.0	85.395	1922.37

Date: 03/24/15

85.395

**NODE ANALYSIS**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
701	127.83		78.54		
702	127.83		78.55		
703	127.83		78.56		
704	127.83		78.57		
705	127.83		78.6		
706	127.83		78.62		
707	127.83		78.63		
600	132.67	25.2	25.0	126.0	
601	132.67	25.2	25.98	128.43	
602	132.67	25.2	29.55	137.0	
604	132.67	25.2	43.03	165.3	
603	132.67		46.05		
605	132.67	25.2	25.17	126.42	
606	132.67	25.2	26.15	128.86	
607	132.67	25.2	29.75	137.45	
609	132.67	25.2	43.31	165.83	
608	132.67		46.35		
610	132.67	25.2	25.03	126.08	
611	132.67	25.2	26.01	128.51	
612	132.67	25.2	29.59	137.08	
614	132.67	25.2	43.08	165.4	
613	132.67		46.11		
691A	132.67		75.4		
950	132.67		75.64		
692A	132.67		75.64		
951	132.67		75.69		
952	132.67		75.71		
953	132.67		75.73		
954	132.67		75.74		
693A	132.67		75.74		
955	132.67		75.76		
956	132.67		75.77		
957	132.67		75.78		
702A	132.67		75.81		
958	132.67		75.97		
694A	132.67		75.97		
959	132.67		76.02		
960	132.67		76.05		



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**NODE ANALYSIS (cont.)**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>
961	132.67		76.08	
695A	132.67		76.29	
696A	132.67		76.58	
697A	132.67		76.79	
698A	132.67		76.89	
706A	132.67		76.79	
699	130.67		78.6	
699A	132.67		77.52	
700	130.67		78.84	
700A	132.67		77.71	
680	130.67		73.55	
681	130.67		73.55	
682	130.67		73.63	
691	130.67		76.09	
692	130.67		76.46	
693	130.67		76.58	
694	130.67		76.78	
695	130.67		77.13	
696	130.67		77.46	
697	130.67		77.66	
698	130.67		77.81	
684	130.67		73.82	
685	130.67		77.76	
A	130.67		78.88	
TR4	130.67		82.58	
BR4	101.0		99.99	
UG3	100.0		106.82	
UG4	100.0		102.26	250.0
50	100.0		107.3	
FLG	100.0		110.24	
PO	100.0		125.53	
PI	100.0		82.03	
BASE	100.0		83.5	
TEST	105.0		85.4	

Date: 03/24/15

EOD

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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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	*
701 to 702	127.830 127.830		29.38 29.38	4 4.26		0.0 0.0	11.250 0.0	120 0.0003	78.543 0.0	Vel = 0.66
702 to 703	127.830 127.830		27.71 57.09	4 4.26		0.0 0.0	10.000 10.000	120 0.0010	78.546 0.0	Vel = 1.29
703 to 704	127.830 127.830		18.53 75.62	4 4.26		0.0 0.0	11.250 11.250	120 0.0016	78.556 0.0	Vel = 1.70
704 to 705	127.830 127.830		11.52 87.14	4 4.26		0.0 0.0	11.330 11.330	120 0.0022	78.574 0.0	Vel = 1.96
705 to 706	127.830 127.830		-7.41 79.73	4 4.26		0.0 0.0	11.250 11.250	120 0.0018	78.599 0.0	Vel = 1.79
706 to 707	127.830 127.830		-17.16 62.57	4 4.26		0.0 0.0	10.000 10.000	120 0.0012	78.619 0.0	Vel = 1.41
707 to 708	127.830 0		-29.76 32.81	4 4.26		0.0 0.0	11.250 11.250	120 0.0004	78.631 55.363	Vel = 0.74
708			0.0 32.81						133.998	K Factor = 2.83
600 to 601	132.67 132.67	25.20	126.00 126.0	2 2.157		0.0 0.0	8.330 0.0	120 0.1170	25.000 0.0	Vel = 11.06
601 to 602	132.67 132.67	25.20	128.43 254.43	2 2.157		0.0 0.0	8.330 8.330	120 0.4297	25.975 0.0	Vel = 22.34
602 to 603	132.67 132.670	25.20	137.00 391.43	2 2.157	T	12.307 0.0	5.000 12.307	120 0.9533	29.554 0.0	Vel = 34.37
603			0.0 391.43						46.052	K Factor = 57.68
604 to 603	132.670 132.670	25.20	165.30 165.3	2 2.157	T	12.307 0.0	3.330 12.307	120 0.1935	43.027 0.0	Vel = 14.51
603 to 680	132.670 130.670		391.43 556.73	2 2.157	T	12.307 0.0	2.250 12.307	120 1.8292	46.052 0.866	Vel = 48.88
680			0.0 556.73						73.546	K Factor = 64.92
605 to 606	132.67 132.670	25.20	126.42 126.42	2 2.157		0.0 0.0	8.330 8.330	120 0.1178	25.168 0.0	Vel = 11.10

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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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	*
606 to 607	132.670 132.67	25.20	128.86 255.28	2		0.0 0.0	8.330 0.0	120	26.149 0.0	
607 to 608	132.67 132.670	25.20	137.45 392.73	2	T	12.307 0.0	5.000 12.307	120	29.750 0.0	Vel = 22.41
608			0.0 392.73						46.350	K Factor = 57.69
609 to 608	132.670 132.670	25.20	165.84 165.84	2	T	12.307 0.0	3.330 12.307 15.637	120	43.306 0.0 3.044	Vel = 14.56
608 to 681	132.670 130.670		392.73 558.57	2	T	12.307 0.0	2.000 12.307 14.307	120	46.350 0.866 26.330	Vel = 49.04
681			0.0 558.57						73.546	K Factor = 65.13
610 to 611	132.67 132.670	25.20	126.08 126.08	2		0.0 0.0	8.330 0.0	120	25.031 0.0	Vel = 11.07
611 to 612	132.670 132.67	25.20	128.51 254.59	2		0.0 0.0	8.330 0.0	120	26.007 0.0	Vel = 22.35
612 to 613	132.67 132.670	25.20	137.08 391.67	2	T	12.307 0.0	5.000 12.307 17.307	120	29.590 0.0 16.518	Vel = 34.39
613			0.0 391.67						46.108	K Factor = 57.68
614 to 613	132.670 132.670	25.20	165.40 165.4	2	T	12.307 0.0	3.330 12.307 15.637	120	43.079 0.0 3.029	Vel = 14.52
613 to 682	132.670 130.670		391.67 557.07	2	T	12.307 0.0	2.250 12.307 14.557	120	46.108 0.866 26.657	Vel = 48.91
682			0.0 557.07						73.631	K Factor = 64.92
691A to 691	132.670 130.670		-29.38 -29.38	2	E T	6.153 12.307	4.000 18.460 22.460	120	75.403 0.866 -0.178	Vel = 2.58
691			0.0 -29.38						76.091	K Factor = -3.37
691A to 701	132.670 127.830		29.38 29.38	2	2I 2T	8.615 24.613	98.500 33.228 131.728	120	75.403 2.096 1.044	Vel = 2.58
701			0.0 29.38						78.543	K Factor = 3.32

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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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	*
950 to 692A	132.670 132.670	.0	0.0	2	T	12.307 0.0	3.500 12.307	120	75.640 0.0	
692A to 692	132.670 130.670		0.0	2.157		0.0	15.807	0	0.0	Vel = 0
692A to 692	132.670 130.670		-16.83	2	T	12.307 0.0	2.500 12.307	120	75.640 0.866	
692			0.0			0.0	14.807	-0.0028	-0.042	Vel = 1.48
692			-16.83						76.464	K Factor = -1.92
692A to 951	132.670 132.670		16.83	2	T	12.307 0.0	4.830 12.307	120	75.640 0.0	
951 to 952	132.670 132.670		16.83	2.157		0.0	17.137	0.0028	0.048	Vel = 1.48
951 to 952	132.670 132.670		0.0	2		0.0	8.000	120	75.688	
952 to 953	132.670 132.670		16.83	2.157		0.0	8.000	0.0028	0.022	Vel = 1.48
952 to 953	132.670 132.670		0.0	2		0.0	8.000	120	75.710	
953 to 702A	132.670 132.670		16.83	2.157		0.0	8.000	0.0029	0.023	Vel = 1.48
953 to 702A	132.670 132.670		0.0	2	I T	4.307 12.307	11.670 16.614	120	75.733 0.0	
702A			0.0			0.0	28.284	0.0028	0.080	Vel = 1.48
702A			16.83						75.813	K Factor = 1.93
954 to 693A	132.670 132.670	.0	0.0	2	T	12.307 0.0	3.500 12.307	120	75.737 0.0	
693A to 693	132.670 130.670		0.0	2.157		0.0	15.807	0	0.0	Vel = 0
693A to 693	132.670 130.670		-10.88	2	T	12.307 0.0	2.500 12.307	120	75.737 0.866	
693			0.0			0.0	14.807	-0.0013	-0.019	Vel = 0.96
693			-10.88						76.584	K Factor = -1.24
693A to 955	132.670 132.670		10.88	2	T	12.307 0.0	4.830 12.307	120	75.737 0.0	
955 to 956	132.670 132.670		10.88	2.157		0.0	17.137	0.0013	0.022	Vel = 0.96
955 to 956	132.670 132.670		0.0	2		0.0	8.000	120	75.759	
956 to 957	132.670 132.670		10.88	2.157		0.0	8.000	0.0012	0.010	Vel = 0.96
956 to 957	132.670 132.670		0.0	2		0.0	8.000	120	75.769	
957 to 702A	132.670 132.670		10.88	2.157		0.0	8.000	0.0012	0.010	Vel = 0.96
957 to 702A	132.670 132.670		0.0	2	I T	4.307 12.307	10.500 16.614	120	75.779 0.0	
702A			0.0			0.0	27.114	0.0013	0.034	Vel = 0.96
702A to 702	132.670 127.830		16.83	2	2T	24.613 0.0	65.000 24.613	120	75.813 2.096	
702			27.71	2.157		0.0	89.613	0.0071	0.637	Vel = 2.43

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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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	*
702			0.0 27.71						78.546	K Factor = 3.13
958 to 694A	132.670 132.670	.0	0.0	2	T	12.307	3.500	120	75.966 0.0	
694A to 694	132.670 130.670		0.0	2.157		0.0	15.807	0	0.0	Vel = 0
694A to 694	132.670 130.670		-18.52	2	T	12.307	2.500	120	75.966 0.866	
694			0.0 -18.52						76.782	K Factor = -2.11
694A to 959	132.670 132.670		18.52	2	T	12.307	4.830	120	75.966 0.0	
959 to 960	132.670 132.670		18.52	2.157		0.0	17.137	0.0034	0.058	Vel = 1.63
959 to 960	132.670 132.670		0.0	2		0.0	8.000	120	76.024 0.0	
960 to 961	132.670 132.670		18.52	2.157		0.0	8.000	0.0032	0.026	Vel = 1.63
960 to 961	132.670 132.670		0.0	2		0.0	8.000	120	76.050 0.0	
961 to 703	132.670 127.830		18.52	2.157		0.0	8.000	0.0035	0.028	Vel = 1.63
961 to 703	132.670 127.830		0.0	2	2I 2T	8.615 24.613	80.000 33.228	120	76.078 2.096	
703			0.0 18.52						78.556	K Factor = 2.09
695A to 695	132.670 130.670		-11.52	2	E T	6.153 12.307	6.000 18.460	120	76.294 0.866	
695			0.0 -11.52						77.126	K Factor = -1.31
695A to 704	132.670 127.830		11.52	2	2I 2T	8.615 24.613	98.250 33.228	120	76.294 2.096	
704			0.0 11.52						78.574	K Factor = 1.30
696A to 696	132.670 130.670		7.40	2	E T	6.153 12.307	6.000 18.460	120	76.584 0.866	
696			0.0 7.40						77.465	K Factor = 0.84
696A to 705	132.670 127.830		-7.40	2	2I 2T	8.615 24.613	98.500 33.228	120	76.584 2.096	
705			0.0 -7.40						78.599	K Factor = -0.83
697A to 697	132.670 130.670		2.58	2	T	12.307	2.250	120	76.790 0.866	
697			2.58	2.157		0.0	14.557	0.0001	0.002	Vel = 0.23

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



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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	*
			0.0 2.58						77.658	K Factor = 0.29
697A to 706A	132.670 132.670		-2.58 -2.58	2 2.157	I T	4.307 12.307 0.0	34.250 16.614 50.864	120 -0.0001	76.790 0.0 -0.004	Vel = 0.23
			0.0 -2.58						76.786	K Factor = -0.29
698A to 698	132.670 130.670		14.58 14.58	2 2.157	E T	6.153 12.307 0.0	5.500 18.460 23.960	120 0.0022	76.892 0.866 0.052	Vel = 1.28
			0.0 14.58						77.810	K Factor = 1.65
698A to 706A	132.670 132.670		-14.58 -14.58	2 2.157	I T	4.307 12.307 0.0	32.500 16.614 49.114	120 -0.0022	76.892 0.0 -0.106	Vel = 1.28
706A to 706	132.670 127.830		-2.58 -17.16	2 2.157	2T	24.613 0.0 0.0	65.000 24.613 89.613	120 -0.0029	76.786 2.096 -0.263	Vel = 1.51
			0.0 -17.16						78.619	K Factor = -1.94
699 to 699A	130.670 132.670		-29.76 -29.76	2 2.157	2T	24.613 0.0 0.0	2.500 24.613 27.113	120 -0.0081	78.601 -0.866 -0.220	Vel = 2.61
699A to 707	132.670 127.830		0.0 -29.76	2 2.157	2T	24.613 0.0 0.0	96.250 24.613 120.863	120 -0.0081	77.515 2.096 -0.980	Vel = 2.61
			0.0 -29.76						78.631	K Factor = -3.36
700 to 700A	130.670 132.670		-32.81 -32.81	2 2.157	2T	24.613 0.0 0.0	2.500 24.613 27.113	120 -0.0097	78.842 -0.866 -0.263	Vel = 2.88
700A to 708	132.670 0		0.0 -32.81	2 2.157	2T	24.613 0.0 0.0	96.250 24.613 120.863	120 -0.0097	77.713 57.459 -1.174	Vel = 2.88
			0.0 -32.81						133.998	K Factor = -2.83
680 to 681	130.670 130.670		9.18 9.18	6 6.357		0.0 0.0 0.0	8.000 0.0 8.000	120 0	73.546 0.0 0.0	Vel = 0.09
681 to 682	130.670 130.670		558.57 567.75	6 6.357		0.0 0.0 0.0	8.670 0.0 8.670	120 0.0098	73.546 0.0 0.085	Vel = 5.74
682 to 691	130.670 130.670		557.07 1124.82	6 6.357		0.0 0.0 0.0	70.750 0.0 70.750	120 0.0348	73.631 0.0 2.460	Vel = 11.37

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



Reviewed for Code Compliance  
Inspections Division  
Approved with Conditions

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	*
691 to 692	130.670 130.670		-29.39 1095.43	6 6.357		0.0 0.0	11.250 0.0	120 0.0332	76.091 0.0	Vel = 11.07
692 to 693	130.670 130.670		-16.82 1078.61	6 6.357		0.0 0.0	3.750 3.750	120 0.0320	76.464 0.120	Vel = 10.90
693 to 694	130.670 130.670		-10.88 1067.73	6 6.357		0.0 0.0	6.250 6.250	120 0.0317	76.584 0.198	Vel = 10.79
694 to 695	130.670 130.670		-18.53 1049.2	6 6.357		0.0 0.0	11.250 11.250	120 0.0306	76.782 0.344	Vel = 10.61
695 to 696	130.670 130.670		-11.52 1037.68	6 6.357		0.0 0.0	11.330 11.330	120 0.0299	77.126 0.339	Vel = 10.49
696 to 697	130.670 130.670		7.41 1045.09	6 6.357		0.0 0.0	6.330 6.330	120 0.0305	77.465 0.193	Vel = 10.56
697 to 698	130.670 130.670		2.58 1047.67	6 6.357		0.0 0.0	5.000 5.000	120 0.0304	77.658 0.152	Vel = 10.59
698 to A	130.670 130.670		14.58 1062.25	6 6.357	I	12.573 0.0	21.500 12.573	120 0.0313	77.810 0.0	Vel = 10.74
A			0.0 1062.25						78.876	K Factor = 119.61
680 to 684	130.670 130.670		547.55 547.55	6 6.357	2I	25.147 0.0	5.000 25.147	120 0.0092	73.546 0.276	Vel = 5.53
684 to 685	130.670 130.670		0.0 547.55	4 4.26		0.0 0.0	61.000 61.000	120 0.0645	73.822 3.934	Vel = 12.33
685 to 699	130.670 130.670		0.0 547.55	6 6.357		0.0 0.0	92.000 92.000	120 0.0092	77.756 0.845	Vel = 5.53
699 to 700	130.670 130.670		29.76 577.31	6 6.357	I	12.573 0.0	11.250 12.573	120 0.0101	78.601 0.241	Vel = 5.84
700 to A	130.670 130.670		32.81 610.12	6 6.357		0.0 0.0	3.000 3.000	120 0.0113	78.842 0.034	Vel = 6.17
A to TR4	130.670 130.670		1062.25 1672.37	6 6.357	2I	25.147 0.0	26.000 51.147	120 0.0724	78.876 3.705	Vel = 16.91
TR4 to BR4	130.670 101		0.0 1672.37	6 6.357	Aty G	30.176 3.772	29.000 33.948	120 0.0724	82.581 12.850	Vel = 16.91

Date: 03/24/15

# Final Calculations - Hazen-Williams

EASTERN FIRE PROTECTION  
AMERICAN TIRE DIST



Reviewed for Code Compliance  
Inspections Division  
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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	*
BR4 to UG4	101 100		0.0 1672.37	8 7.98	E T G	27.183 52.855 6.041	30.000 86.077 116.077	150	99.991 0.433 1.839	Vel = 10.73
UG4			0.0 1672.37						102.263	K Factor = 165.38
UG3 to 50	100 100		614.24 614.24	8 7.98	T	52.855 0.0 0.0	140.000 52.855 192.855	150	106.822 0.0 0.479	Vel = 3.94
50			0.0 614.24						107.301	K Factor = 59.30
UG3 to UG4	100 100		-614.24 -614.24	8 7.98	6L 3G	117.791 18.122 0.0	1700.000 135.913 1835.913	150	106.822 0.0 -4.559	Vel = 3.94
UG4 to 50	100 100	H250	1922.37 1308.13	8 7.98	2T 2L G	105.71 39.264 6.041	350.000 151.014 501.014	150	102.263 0.0 5.038	Vel = 8.39
50 to FLG	100 100		614.24 1922.37	8 7.98	2E T G	54.365 52.855 6.041	30.000 113.260 143.260	150	107.301 0.0 2.937	Vel = 12.33
FLG to PO	100 100		0.0 1922.37	8 8.249	S B 6I Zca	52.853 14.094 91.611 0.0	149.000 158.558 307.558	120	110.238 7.183 8.106	** Fixed Loss = 7.183 Vel = 11.54
PO			0.0 1922.37						125.527	K Factor = 171.58
System Demand Pressure									125.527	
Safety Margin									5.527	
Continuation Pressure									131.054	
Pressure @ Pump Outlet									131.054	
Pressure From Pump Curve									-49.026	
Pressure @ Pump Inlet									82.028	
PI to BASE	100 100		0.0 1922.37	8 8.249	G T	4.698 41.108 0.0	10.000 45.806 55.806	120	82.028 0.0 1.471	Vel = 11.54
BASE to TEST	100 105		0.0 1922.37	8 7.98	2L T G	39.264 52.855 6.041	100.000 98.159 198.159	150	83.499 -2.166 4.062	Vel = 12.33
TEST			0.0 1922.37						85.395	K Factor = 208.03

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