

**... 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#3A  
Contract : AU-5258-15  
Data File : 5258 AMERICAN TIRE SYSTEM 3A.WXF

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**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#3A  
**Remote area location:** SYSTEM#3A  
**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):** 1927.46 - GPM @ 125.689 - 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

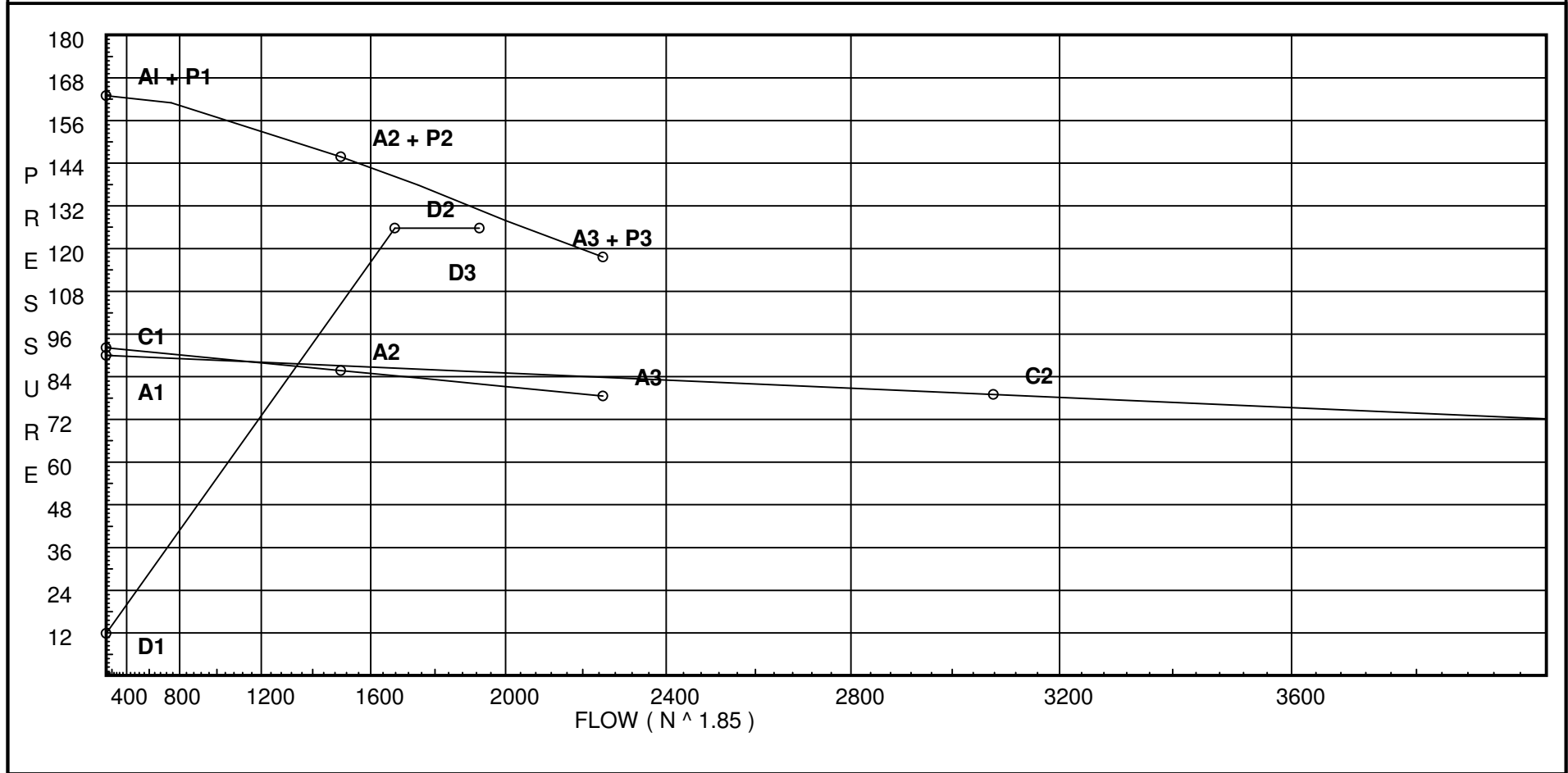
**Notes: (Include peaking information or gridded systems here.)** TOTAL SYSTEM DEMAND AND PRESSURE INDICATED AT DISCHARGE FLANGE OF FIRE PUMP

# Water Supply Curve C

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AMERICAN TIRE DIST

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<b>City Water Supply:</b> C1 - Static Pressure : 90 C2 - Residual Pressure: 79 C2 - Residual Flow : 3078  <b>City Water Adjusted to Pump Inlet for Pf - Elev - Hose Flow</b> A1 - Adjusted Static: 92.166 A2 - Adj Resid : 85.759 @ 1500 A3 - Adj Resid : 78.602 @ 2250	<b>Pump Data:</b> 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	<b>Demand:</b> D1 - Elevation : 11.910 D2 - System Flow : 1677.46 D2 - System Pressure : 125.689 Hose ( Demand ) : 250 D3 - System Demand : 1927.46 Safety Margin : 5.157
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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**

<b>Node at Source</b>	<b>Static Pressure</b>	<b>Residual Pressure</b>	<b>Flow</b>	<b>Available Pressure</b>	<b>Total Demand</b>	<b>Required Pressure</b>
PO	See Information on Pump Curve			130.846	1927.46	125.689
TEST	90.0	79	3078.0	85.373	1927.46	85.373

**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>
300	132.5		25.0	126.0	
301	132.67		25.9	128.25	
320	132.75		32.92		
302	132.917	25.2	32.89	144.53	
303	133.083	25.2	34.7	148.45	
343	133.5		56.76		
500	134.5		62.05		
501	134.5		63.0		
502	134.25		64.14		
503	134.0		65.49		
389	133.5		73.39		
304	132.5	25.2	25.53	127.34	
305	132.67	25.2	26.46	129.61	
322	132.75		33.61		
306	132.917	25.2	33.57	146.0	
307	133.083	25.2	35.27	149.66	
345	133.5		56.76		
504	134.5		60.97		
505	134.5		61.98		
506	134.25		63.19		
507	134.0		64.63		
391	133.5		73.08		
308	132.5	25.2	28.0	133.35	
309	132.67	25.2	29.01	135.73	
324	132.75		36.81		
310	132.917	25.2	36.74	152.74	
311	133.083	25.2	38.22	155.8	
347	133.5		59.02		
508	134.5		62.65		
509	134.5		63.54		
510	134.25		64.61		
511	134.0		65.89		
393	133.5		73.32		
326	129.67		54.29		
349	133.5		62.8		
395	133.5		73.34		
327	129.67		59.75		
351	133.5		64.24		

**NODE ANALYSIS (cont.)**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
397	133.5		73.54		
328	129.67		63.32		
353	133.5		65.43		
399	133.5		73.76		
329	129.67		65.93		
355	133.5		66.55		
401	133.5		74.03		
330	129.67		67.84		
357	133.5		67.24		
403	133.5		74.38		
331	129.67		69.04		
359	133.5		67.87		
405	133.5		74.47		
332	129.67		69.9		
361	133.5		68.63		
407	133.5		74.64		
333	129.67		70.57		
363	133.5		69.31		
409	133.5		75.39		
334	129.67		71.14		
365	133.5		69.91		
411	133.5		76.58		
335	129.67		71.57		
367	133.5		70.08		
413	133.5		76.67		
336	129.67		71.83		
369	133.5		70.36		
415	133.5		76.11		
337	129.67		72.03		
371	133.5		70.54		
417	133.5		75.77		
338	129.67		72.16		
373	133.5		70.67		
419	133.5		75.54		
339	129.67		72.24		
375	133.5		70.75		
421	133.5		75.4		
340	129.67		72.29		
377	133.5		70.69		
423	133.5		75.36		
341	129.67		72.32		
379	133.5		70.8		
425	133.5		75.22		
342	129.67		72.32		
381	133.5		70.8		
427	133.5		75.11		
321	129.67		39.24		
323	129.67		40.35		

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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>	<b>Notes</b>
325	129.67		44.96		
344	130.67		63.96		
346	130.67		64.08		
348	130.67		64.3		
350	130.67		64.59		
352	130.67		65.58		
354	130.67		66.65		
356	130.67		67.71		
358	130.67		68.28		
360	130.67		68.58		
362	130.67		69.37		
364	130.67		70.03		
366	130.67		70.59		
368	130.67		70.84		
370	130.67		70.95		
372	130.67		71.19		
374	130.67		71.37		
376	130.67		71.48		
378	130.67		71.52		
380	130.67		71.53		
390	130.67		75.13		
392	130.67		75.14		
394	130.67		75.17		
396	130.67		75.2		
398	130.67		75.37		
400	130.67		75.62		
402	130.67		75.96		
404	130.67		76.21		
406	130.67		76.41		
408	130.67		77.3		
410	130.67		78.19		
448	130.67		81.54		
412	130.67		80.6		
414	130.67		79.69		
416	130.67		79.3		
418	130.67		78.41		
420	130.67		77.74		
422	130.67		77.23		
424	130.67		77.01		
426	130.67		76.91		
428	129.67		77.12		
429	129.67		76.38		
430	129.67		76.02		
431	129.67		75.9		
432	129.67		75.89		
433	129.67		75.89		
434	129.67		75.96		
435	129.67		76.12		

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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>	<b>Notes</b>
436	129.67		76.3		
437	129.67		76.53		
438	129.67		76.87		
439	129.67		77.16		
440	129.67		77.25		
441	129.67		77.25		
442	129.67		77.23		
443	129.67		77.17		
444	129.67		77.1		
445	129.67		77.04		
446	129.67		77.0		
TR3	130.67		85.07		
BR3	101.0		102.51		
UG3	100.0		104.79	250.0	
UG4	100.0		106.83		
50	100.0		107.38		
FLG	100.0		110.33		
PO	100.0		125.69		
PI	100.0		81.98		
BASE	100.0		83.46		
TEST	105.0		85.37		



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	*****
300 to 301	132.500 132.670	25.20	126.00 126.0	2		0.0 0.0	8.330 0.0	120	25.000 -0.074			
				2.157		0.0	8.330	0.1172	0.976	Vel =	11.06	
301 to 320	132.670 132.750	25.20	128.25 254.25	2	T	12.307 0.0	4.125 12.307	120	25.902 -0.035			
				2.157		0.0	16.432	0.4291	7.051	Vel =	22.32	
320 to 321	132.750 129.670		-35.24 219.01	2	T	12.307 0.0	3.000 12.307	120	32.918 1.334			
				2.157		0.0	15.307	0.3255	4.983	Vel =	19.23	
321			0.0 219.01						39.235	K Factor =	34.96	
320 to 302	132.750 132.917		35.24 35.24	2		0.0 0.0	4.208 0.0	120	32.918 -0.072			
				2.157		0.0	4.208	0.0109	0.046	Vel =	3.09	
302 to 303	132.917 133.083	25.20	144.53 179.77	2		0.0 0.0	8.330 0.0	120	32.892 -0.072			
				2.157		0.0	8.330	0.2259	1.882	Vel =	15.78	
303 to 343	133.083 133.500	25.20	148.45 328.22	2	T	12.307 0.0	20.000 12.307	120	34.702 -0.181			
				2.157		0.0	32.307	0.6882	22.234	Vel =	28.82	
343 to 344	133.500 130.670		-123.82 204.4	2	I T	4.307 12.307	4.250 16.614	120	56.755 1.226			
				2.157		0.0	20.864	0.2865	5.978	Vel =	17.95	
344			0.0 204.40						63.959	K Factor =	25.56	
343 to 500	133.500 134.500		123.82 123.82	2	T	12.307 0.0	38.250 12.307	120	56.755 -0.433			
				2.157		0.0	50.557	0.1134	5.731	Vel =	10.87	
500 to 501	134.500 134.500		0.0 123.82	2		0.0 0.0	8.330 0.0	120	62.053 0.0			
				2.157		0.0	8.330	0.1133	0.944	Vel =	10.87	
501 to 502	134.500 134.250		0.0 123.82	2		0.0 0.0	9.080 0.0	120	62.997 0.108			
				2.157		0.0	9.080	0.1134	1.030	Vel =	10.87	
502 to 503	134.250 134		0.0 123.82	2		0.0 0.0	11.000 0.0	120	64.135 0.108			
				2.157		0.0	11.000	0.1134	1.247	Vel =	10.87	
503 to 389	134 133.500		0.0 123.82	2	T	12.307 0.0	55.500 12.307	120	65.490 0.217			
				2.157		0.0	67.807	0.1134	7.686	Vel =	10.87	
389 to 390	133.500 130.670		-69.73 54.09	2	I T	4.307 12.307	4.250 16.614	120	73.393 1.226			
				2.157		0.0	20.864	0.0245	0.511	Vel =	4.75	
390			0.0 54.09						75.130	K Factor =	6.24	

# 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	*****
389 to 428	133.500 129.670		69.73 69.73	2 2.157	2T 0.0	24.613 24.613 52.863	120 0.0392	73.393 1.659 2.071			Vel = 6.12
428			0.0 69.73					77.123			K Factor = 7.94
304 to 305	132.500 132.670	25.20	127.34 127.34	2 2.157	0.0 0.0	8.330 0.0 8.330	120 0.1194	25.534 -0.074 0.995			Vel = 11.18
305 to 322	132.670 132.750	25.20	129.61 256.95	2 2.157	T 0.0	12.307 12.307 16.432	120 0.4376	26.455 -0.035 7.190			Vel = 22.56
322 to 323	132.750 129.670		-28.07 228.88	2 2.157	T 0.0	12.307 12.307 15.307	120 0.3532	33.610 1.334 5.407			Vel = 20.10
323			0.0 228.88					40.351			K Factor = 36.03
322 to 306	132.750 132.917		28.07 28.07	2 2.157	0.0 0.0	4.208 0.0 4.208	120 0.0071	33.610 -0.072 0.030			Vel = 2.46
306 to 307	132.917 133.083	25.20	146.00 174.07	2 2.157	0.0 0.0	8.330 0.0 8.330	120 0.2130	33.568 -0.072 1.774			Vel = 15.28
307 to 345	133.083 133.500	25.20	149.66 323.73	2 2.157	T 0.0	12.307 12.307 32.307	120 0.6709	35.270 -0.181 21.674			Vel = 28.42
345 to 346	133.500 130.670		-128.44 195.29	2 2.157	I T 0.0	4.307 12.307 23.114	120 0.2633	56.763 1.226 6.087			Vel = 17.15
346			0.0 195.29					64.076			K Factor = 24.40
345 to 504	133.500 134.500		128.44 128.44	2 2.157	0.0 0.0	38.250 0.0 38.250	120 0.1213	56.763 -0.433 4.641			Vel = 11.28
504 to 505	134.500 134.500		0.0 128.44	2 2.157	0.0 0.0	8.330 0.0 8.330	120 0.1212	60.971 0.0 1.010			Vel = 11.28
505 to 506	134.500 134.250		0.0 128.44	2 2.157	0.0 0.0	9.080 0.0 9.080	120 0.1214	61.981 0.108 1.102			Vel = 11.28
506 to 507	134.250 134		0.0 128.44	2 2.157	0.0 0.0	11.000 0.0 11.000	120 0.1214	63.191 0.108 1.335			Vel = 11.28
507 to 391	134 133.500		0.0 128.44	2 2.157	T 0.0	12.307 12.307 67.807	120 0.1213	64.634 0.217 8.225			Vel = 11.28

# 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	*****
391 to 392	133.500 130.670		-61.59 66.85	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0363	73.076 1.226 0.838			Vel = 5.87
392			0.0 66.85					75.140			K Factor = 7.71
391 to 429	133.500 129.670		61.60 61.6	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 0.0312	73.076 1.659 1.647			Vel = 5.41
429			0.0 61.60					76.382			K Factor = 7.05
308 to 309	132.500 132.670	25.20	133.35 133.35	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 0.1301	28.001 -0.074 1.084			Vel = 11.71
309 to 324	132.670 132.750	25.20	135.73 269.08	2 2.157	T 0.0 0.0	12.307 12.307 16.432	120 0.4765	29.011 -0.035 7.830			Vel = 23.62
324 to 325	132.750 129.670		-9.49 259.59	2 2.157	T 0.0 0.0	12.307 12.307 15.307	120 0.4459	36.806 1.334 6.825			Vel = 22.79
325			0.0 259.59					44.965			K Factor = 38.71
324 to 310	132.750 132.917		9.49 9.49	2 2.157	0.0 0.0 0.0	4.208 0.0 4.208	120 0.0010	36.806 -0.072 0.004			Vel = 0.83
310 to 311	132.917 133.083	25.20	152.74 162.23	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 0.1869	36.738 -0.072 1.557			Vel = 14.24
311 to 347	133.083 133.500	25.20	155.80 318.03	2 2.157	T 0.0 0.0	12.307 12.307 32.307	120 0.6492	38.223 -0.181 20.973			Vel = 27.92
347 to 348	133.500 130.670		-119.65 198.38	2 2.157	T 0.0 0.0	12.307 12.307 14.977	120 0.2711	59.015 1.226 4.061			Vel = 17.42
348			0.0 198.38					64.302			K Factor = 24.74
347 to 508	133.500 134.500		119.64 119.64	2 2.157	0.0 0.0 0.0	38.250 0.0 38.250	120 0.1064	59.015 -0.433 4.069			Vel = 10.50
508 to 509	134.500 134.500		0.0 119.64	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 0.1065	62.651 0.0 0.887			Vel = 10.50
509 to 510	134.500 134.250		0.0 119.64	2 2.157	0.0 0.0 0.0	9.080 0.0 9.080	120 0.1064	63.538 0.108 0.966			Vel = 10.50
510 to 511	134.250 134		0.0 119.64	2 2.157	0.0 0.0 0.0	11.000 0.0 11.000	120 0.1064	64.612 0.108 1.170			Vel = 10.50

# 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	*****
511 to 393	134 133.500		0.0 119.64	2	T	12.307 0.0 12.307	55.500 12.307 67.807	120 0.1064	65.890 0.217 7.214	Vel = 10.50	
393 to 394	133.500 130.670		-47.93 71.71	2	T	12.307 0.0 12.307	2.670 12.307 14.977	120 0.0413	73.321 1.226 0.618	Vel = 6.30	
394			0.0 71.71						75.165	K Factor = 8.27	
393 to 430	133.500 129.670		47.93 47.93	2	2T	24.613 0.0 24.613	28.250 24.613 52.863	120 0.0196	73.321 1.659 1.035	Vel = 4.21	
430			0.0 47.93						76.015	K Factor = 5.50	
326 to 349	129.670 133.500		153.64 153.64	2	2T	24.613 0.0 24.613	35.580 24.613 60.193	120 0.1690	54.286 -1.659 10.171	Vel = 13.49	
349 to 350	133.500 130.670		-101.54 52.1	2	I T	4.307 12.307 16.614	8.000 16.614 24.614	120 0.0228	62.798 1.226 0.562	Vel = 4.57	
350			0.0 52.10						64.586	K Factor = 6.48	
349 to 395	133.500 133.500		101.54 101.54	2	T	12.307 0.0 12.307	122.000 12.307 134.307	120 0.0785	62.798 0.0 10.547	Vel = 8.92	
395 to 396	133.500 130.670		-44.30 57.24	2	I T	4.307 12.307 16.614	6.500 16.614 23.114	120 0.0272	73.345 1.226 0.629	Vel = 5.03	
396			0.0 57.24						75.200	K Factor = 6.60	
395 to 431	133.500 129.670		44.30 44.3	2	2T	24.613 0.0 24.613	28.250 24.613 52.863	120 0.0169	73.345 1.659 0.895	Vel = 3.89	
431			0.0 44.30						75.899	K Factor = 5.08	
327 to 351	129.670 133.500		117.02 117.02	2	2T	24.613 0.0 24.613	35.580 24.613 60.193	120 0.1021	59.754 -1.659 6.147	Vel = 10.27	
351 to 352	133.500 130.670		-94.82 22.2	2	I T	4.307 12.307 16.614	8.000 16.614 24.614	120 0.0047	64.242 1.226 0.115	Vel = 1.95	
352			0.0 22.20						65.583	K Factor = 2.74	
351 to 397	133.500 133.500		94.82 94.82	2	T	12.307 0.0 12.307	122.000 12.307 134.307	120 0.0692	64.242 0.0 9.293	Vel = 8.33	

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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	*****
397 to 398	133.500 130.670		-38.55 56.27	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0263	73.535 1.226 0.609		Vel = 4.94	
398			0.0 56.27					75.370		K Factor = 6.48	
397 to 432	133.500 129.670		38.55 38.55	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 0.0131	73.535 1.659 0.691		Vel = 3.38	
432			0.0 38.55					75.885		K Factor = 4.43	
328 to 353	129.670 133.500		89.85 89.85	2 2.157	2T 0.0 0.0	24.613 24.613 60.193	120 0.0626	63.315 -1.659 3.770		Vel = 7.89	
353 to 354	133.500 130.670		-89.37 0.48	2 2.157	I T 4.307 12.307 0.0	8.000 16.614 24.614	120 0	65.426 1.226 0.0		Vel = 0.04	
354			0.0 0.48					66.652		K Factor = 0.06	
353 to 399	133.500 133.500		89.37 89.37	2 2.157	T 0.0 0.0	12.307 12.307 134.307	120 0.0620	65.426 0.0 8.329		Vel = 7.85	
399 to 400	133.500 130.670		-31.65 57.72	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0276	73.755 1.226 0.638		Vel = 5.07	
400			0.0 57.72					75.619		K Factor = 6.64	
399 to 433	133.500 129.670		31.65 31.65	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 0.0091	73.755 1.659 0.480		Vel = 2.78	
433			0.0 31.65					75.894		K Factor = 3.63	
329 to 355	129.670 133.500		68.47 68.47	2 2.157	2T 0.0 0.0	24.613 24.613 60.193	120 0.0379	65.929 -1.659 2.280		Vel = 6.01	
355 to 356	133.500 130.670		-84.31 -15.84	2 2.157	I T 4.307 12.307 0.0	8.000 16.614 24.614	120 -0.0025	66.550 1.226 -0.062		Vel = 1.39	
356			0.0 -15.84					67.714		K Factor = -1.92	
355 to 401	133.500 133.500		84.31 84.31	2 2.157	T 0.0 0.0	12.307 12.307 134.307	120 0.0557	66.550 0.0 7.479		Vel = 7.40	
401 to 402	133.500 130.670		-23.40 60.91	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0305	74.029 1.226 0.705		Vel = 5.35	

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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	*****
402			0.0 60.91					75.960		K Factor = 6.99	
401 to 434	133.500 129.670		23.40 23.4	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0052	74.029 1.659 0.274		Vel = 2.05
434			0.0 23.40					75.962		K Factor = 2.68	
330 to 357	129.670 133.500		45.05 45.05	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0175	67.844 -1.659 1.052		Vel = 3.96
357 to 358	133.500 130.670		-82.28 -37.23	2 2.157	T 0.0	12.307 12.307	2.670 14.977	120 -0.0123	67.237 1.226 -0.184		Vel = 3.27
358			0.0 -37.23					68.279		K Factor = -4.51	
357 to 403	133.500 133.500		82.28 82.28	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0532	67.237 0.0 7.147		Vel = 7.22
403 to 404	133.500 130.670		-11.62 70.66	2 2.157	T 0.0	12.307 12.307	2.670 14.977	120 0.0402	74.384 1.226 0.602		Vel = 6.20
404			0.0 70.66					76.212		K Factor = 8.09	
403 to 435	133.500 129.670		11.62 11.62	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0014	74.384 1.659 0.075		Vel = 1.02
435			0.0 11.62					76.118		K Factor = 1.33	
331 to 359	129.670 133.500		29.54 29.54	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0080	69.043 -1.659 0.482		Vel = 2.59
359 to 360	133.500 130.670		-78.87 -49.33	2 2.157	I T 0.0	4.307 12.307	8.000 16.614 24.614	120 -0.0207	67.866 1.226 -0.509		Vel = 4.33
360			0.0 -49.33					68.583		K Factor = -5.96	
359 to 405	133.500 133.500		78.87 78.87	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0492	67.866 0.0 6.609		Vel = 6.92
405 to 406	133.500 130.670		-17.66 61.21	2 2.157	I T 0.0	4.307 12.307	6.500 16.614 23.114	120 0.0308	74.475 1.226 0.711		Vel = 5.37
406			0.0 61.21					76.412		K Factor = 7.00	
405 to 436	133.500 129.670		17.66 17.66	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0031	74.475 1.659 0.163		Vel = 1.55

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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	*****
436			0.0 17.66					76.297		K Factor = 2.02	
332 to 361	129.670 133.500		26.30 26.3	2 2.157	2T 0.0	24.613 24.613	120	69.904 -1.659			Vel = 2.31
361 to 362	133.500 130.670		-74.87 -48.57	2 2.157	I T 0.0	4.307 12.307 24.614	120	68.634 1.226 -0.494			Vel = 4.26
362			0.0 -48.57					69.366		K Factor = -5.83	
361 to 407	133.500 133.500		74.87 74.87	2 2.157	T 0.0	12.307 12.307	120	68.634 0.0			Vel = 6.57
407 to 406	133.500 130.670		-21.61 53.26	2 2.157	I T 0.0	4.307 12.307 23.114	120	74.637 1.226 0.549			Vel = 4.68
406			0.0 53.26					76.412		K Factor = 6.09	
407 to 437	133.500 129.670		21.61 21.61	2 2.157	2T 0.0	24.613 24.613	120	74.637 1.659			Vel = 1.90
437			0.0 21.61					76.532		K Factor = 2.47	
333 to 363	129.670 133.500		26.56 26.56	2 2.157	2T 0.0	24.613 24.613	120	70.571 -1.659			Vel = 2.33
363 to 364	133.500 130.670		-75.41 -48.85	2 2.157	I T 0.0	4.307 12.307 24.614	120	69.308 1.226 -0.500			Vel = 4.29
364			0.0 -48.85					70.034		K Factor = -5.84	
363 to 409	133.500 133.500		75.40 75.4	2 2.157	T 0.0	12.307 12.307	120	69.308 0.0			Vel = 6.62
409 to 410	133.500 130.670		18.62 94.02	2 2.157	I T 0.0	4.307 12.307 23.114	120	75.390 1.226 1.574			Vel = 8.25
410			0.0 94.02					78.190		K Factor = 10.63	
409 to 438	133.500 129.670		-18.61 -18.61	2 2.157	2T 0.0	24.613 24.613	120	75.390 1.659			Vel = 1.63
438			0.0 -18.61					76.869		K Factor = -2.12	
334 to 365	129.670 133.500		27.74 27.74	2 2.157	2T 0.0	24.613 24.613	120	71.143 -1.659			Vel = 2.44

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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	*****
365 to 366	133.500 130.670		-79.23 -51.49	2 2.157	I T 4.307 12.307 0.0	8.000 16.614 24.614	120 -0.0223	69.912 1.226 -0.550		Vel = 4.52	
366			0.0 -51.49					70.588		K Factor = -6.13	
365 to 411	133.500 133.500		79.22 79.22	2 2.157	T 0.0 12.307 0.0	122.000 12.307 134.307	120 0.0496	69.912 0.0 6.665		Vel = 6.96	
411 to 412	133.500 130.670		49.04 128.26	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.1210	76.577 1.226 2.797		Vel = 11.26	
412			0.0 128.26					80.600		K Factor = 14.29	
411 to 439	133.500 129.670		-49.04 -49.04	2 2.157	2T 0.0 24.613 0.0	28.250 24.613 52.863	120 -0.0204	76.577 1.659 -1.080		Vel = 4.31	
439			0.0 -49.04					77.156		K Factor = -5.58	
335 to 367	129.670 133.500		17.00 17.0	2 2.157	2T 0.0 24.613 0.0	35.580 24.613 60.193	120 0.0029	71.567 -1.659 0.174		Vel = 1.49	
367 to 368	133.500 130.670		-78.71 -61.71	2 2.157	T 0.0 12.307 0.0	2.670 12.307 14.977	120 -0.0313	70.082 1.226 -0.469		Vel = 5.42	
368			0.0 -61.71					70.839		K Factor = -7.33	
367 to 413	133.500 133.500		78.71 78.71	2 2.157	T 0.0 12.307 0.0	122.000 12.307 134.307	120 0.0490	70.082 0.0 6.585		Vel = 6.91	
413 to 414	133.500 130.670		48.90 127.61	2 2.157	T 0.0 12.307 0.0	2.670 12.307 14.977	120 0.1199	76.667 1.226 1.795		Vel = 11.20	
414			0.0 127.61					79.688		K Factor = 14.30	
413 to 440	133.500 129.670		-48.90 -48.9	2 2.157	2T 0.0 24.613 0.0	28.250 24.613 52.863	120 -0.0203	76.667 1.659 -1.074		Vel = 4.29	
440			0.0 -48.90					77.252		K Factor = -5.56	
336 to 369	129.670 133.500		17.51 17.51	2 2.157	2T 0.0 24.613 0.0	35.580 24.613 60.193	120 0.0030	71.834 -1.659 0.183		Vel = 1.54	
369 to 370	133.500 130.670		-73.15 -55.64	2 2.157	I T 4.307 12.307 0.0	8.000 16.614 24.614	120 -0.0258	70.358 1.226 -0.636		Vel = 4.89	



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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	*****
370			0.0 -55.64					70.948		K Factor = -6.61	
369 to 415	133.500 133.500		73.15	2	T 0.0	12.307 12.307	120	70.358 0.0			
415 to 416	133.500 130.670		73.15	2.157	0.0	134.307	0.0428	5.750		Vel = 6.42	
415 to 416	133.500 130.670		32.81	2	I T 0.0	4.307 12.307 23.114	120	76.108 1.226 1.964		Vel = 9.30	
416			0.0 105.96					79.298		K Factor = 11.90	
415 to 441	133.500 129.670		-32.81	2	2T 0.0	24.613 24.613	120	76.108 1.659			
441			0.0 -32.81			0.0	52.863	-0.0097	-0.514	Vel = 2.88	
441			0.0 -32.81					77.253		K Factor = -3.73	
337 to 371	129.670 133.500		16.91	2	2T 0.0	24.613 24.613	120	72.026 -1.659			
371 to 372	133.500 130.670		16.91	2.157	0.0	60.193	0.0029	0.172		Vel = 1.48	
371 to 372	133.500 130.670		-69.47	2	I T 0.0	4.307 12.307 24.614	120	70.539 1.226 -0.572		Vel = 4.61	
372			0.0 -52.56					71.193		K Factor = -6.23	
371 to 417	133.500 133.500		69.47	2	T 0.0	12.307 12.307	120	70.539 0.0			
417 to 418	133.500 130.670		69.47	2.157	0.0	134.307	0.0389	5.227		Vel = 6.10	
417 to 418	133.500 130.670		19.30	2	I T 0.0	4.307 12.307 23.114	120	75.766 1.226 1.415		Vel = 7.79	
418			0.0 88.77					78.407		K Factor = 10.03	
417 to 442	133.500 129.670		-19.30	2	2T 0.0	24.613 24.613	120	75.766 1.659			
442			0.0 -19.30			0.0	52.863	-0.0037	-0.193	Vel = 1.69	
442			0.0 -19.30					77.232		K Factor = -2.20	
338 to 373	129.670 133.500		16.62	2	2T 0.0	24.613 24.613	120	72.159 -1.659			
373 to 374	133.500 130.670		16.62	2.157	0.0	60.193	0.0028	0.166		Vel = 1.46	
373 to 374	133.500 130.670		-66.86	2	I T 0.0	4.307 12.307 24.614	120	70.666 1.226 -0.526		Vel = 4.41	
374			0.0 -50.24					71.366		K Factor = -5.95	
373 to 419	133.500 133.500		66.86	2	T 0.0	12.307 12.307	120	70.666 0.0			
419			66.86	2.157	0.0	134.307	0.0363	4.870		Vel = 5.87	

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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	*****
419 to 420	133.500 130.670		5.70 72.56	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0421	75.536 1.226 0.974		Vel = 6.37	
420			0.0 72.56					77.736		K Factor = 8.23	
419 to 443	133.500 129.670		-5.70 -5.7	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 -0.0004	75.536 1.659 -0.021		Vel = 0.50	
443			0.0 -5.70					77.174		K Factor = -0.65	
339 to 375	129.670 133.500		16.60 16.6	2 2.157	2T 0.0 0.0	24.613 24.613 60.193	120 0.0028	72.243 -1.659 0.166		Vel = 1.46	
375 to 376	133.500 130.670		-65.18 -48.58	2 2.157	I T 4.307 12.307 0.0	8.000 16.614 24.614	120 -0.0201	70.750 1.226 -0.495		Vel = 4.27	
376			0.0 -48.58					71.481		K Factor = -5.75	
375 to 421	133.500 133.500		65.18 65.18	2 2.157	T 0.0 0.0	12.307 12.307 134.307	120 0.0346	70.750 0.0 4.645		Vel = 5.72	
421 to 422	133.500 130.670		-9.03 56.15	2 2.157	I T 4.307 12.307 0.0	6.500 16.614 23.114	120 0.0262	75.395 1.226 0.606		Vel = 4.93	
422			0.0 56.15					77.227		K Factor = 6.39	
421 to 444	133.500 129.670		9.03 9.03	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 0.0009	75.395 1.659 0.047		Vel = 0.79	
444			0.0 9.03					77.101		K Factor = 1.03	
340 to 377	129.670 133.500		9.09 9.09	2 2.157	2T 0.0 0.0	24.613 24.613 60.193	120 0.0009	72.292 -1.659 0.055		Vel = 0.80	
377 to 378	133.500 130.670		-65.35 -56.26	2 2.157	T 0.0 0.0	12.307 12.307 14.977	120 -0.0264	70.688 1.226 -0.395		Vel = 4.94	
378			0.0 -56.26					71.519		K Factor = -6.65	
377 to 423	133.500 133.500		65.35 65.35	2 2.157	T 0.0 0.0	12.307 12.307 134.307	120 0.0348	70.688 0.0 4.668		Vel = 5.74	
423 to 424	133.500 130.670		-6.67 58.68	2 2.157	T 0.0 0.0	12.307 12.307 14.977	120 0.0284	75.356 1.226 0.426		Vel = 5.15	

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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	*****
424			0.0 58.68					77.008		K Factor = 6.69	
423 to 445	133.500 129.670		6.67	2	2T	24.613 0.0 24.613	28.250	120	75.356 1.659		
			6.67	2.157		0.0	52.863	0.0005	0.026	Vel = 0.59	
445			0.0 6.67					77.041		K Factor = 0.76	
341 to 379	129.670 133.500		15.00	2	2T	24.613 0.0 24.613	35.580	120	72.318 -1.659		
			15.0	2.157		0.0	60.193	0.0023	0.137	Vel = 1.32	
379 to 380	133.500 130.670		-63.51	2	I T	4.307 12.307 16.614	8.000	120	70.796 1.226		
			-48.51	2.157		0.0	24.614	-0.0200	-0.493	Vel = 4.26	
380			0.0 -48.51					71.529		K Factor = -5.74	
379 to 425	133.500 133.500		63.51	2	T	12.307 0.0 12.307	122.000	120	70.796 0.0		
			63.51	2.157		0.0	134.307	0.0330	4.428	Vel = 5.58	
425 to 426	133.500 130.670		-15.13	2	I T	4.307 12.307 16.614	6.500	120	75.224 1.226		
			48.38	2.157		0.0	23.114	0.0199	0.460	Vel = 4.25	
426			0.0 48.38					76.910		K Factor = 5.52	
425 to 446	133.500 129.670		15.13	2	2T	24.613 0.0 24.613	28.250	120	75.224 1.659		
			15.13	2.157		0.0	52.863	0.0023	0.122	Vel = 1.33	
446			0.0 15.13					77.005		K Factor = 1.72	
342 to 381	129.670 133.500		14.59	2	2T	24.613 0.0 24.613	35.580	120	72.324 -1.659		
			14.59	2.157		0.0	60.193	0.0022	0.131	Vel = 1.28	
381 to 382	133.500 0		-62.65	2	I T	4.307 12.307 16.614	8.000	120	70.796 57.819		
			-48.06	2.157		0.0	24.614	-0.0197	-0.485	Vel = 4.22	
382			0.0 -48.06					128.130		K Factor = -4.25	
381 to 427	133.500 133.500		62.65	2	T	12.307 0.0 12.307	122.000	120	70.796 0.0		
			62.65	2.157		0.0	134.307	0.0321	4.317	Vel = 5.50	
427 to 428	133.500 129.670		-20.81	2	I T	4.307 12.307 16.614	6.500	120	75.113 1.659		
			41.84	2.157		0.0	23.114	0.0152	0.351	Vel = 3.67	
428			0.0 41.84					77.123		K Factor = 4.76	
427 to 447	133.500 0		20.81	2	2T	24.613 0.0 24.613	28.250	120	75.113 57.819		
			20.81	2.157		0.0	52.863	0.0042	0.221	Vel = 1.83	

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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	*****
			0.0 20.81					133.153		K Factor = 1.80	
321 to 323	129.670 129.670		219.01 219.01	2.5 2.635	0.0 0.0	9.083 0.0	120 0.1229	39.235 0.0		Vel = 12.89	
323 to 325	129.670 129.670		228.88 447.89	2.5 2.635	0.0 0.0	10.000 0.0	120 0.4614	40.351 0.0		Vel = 26.35	
325 to 326	129.670 129.670		259.59 707.48	2.5 2.635	0.0 0.0	8.670 8.670	120 1.0751	44.965 9.321		Vel = 41.62	
326 to 327	129.670 129.670		-153.64 553.84	2.5 2.635	0.0 0.0	8.000 8.000	120 0.6835	54.286 5.468		Vel = 32.58	
327 to 328	129.670 129.670		-117.02 436.82	2.5 2.635	0.0 0.0	8.083 8.083	120 0.4406	59.754 3.561		Vel = 25.70	
328 to 329	129.670 129.670		-89.84 346.98	2.5 2.635	0.0 0.0	9.083 9.083	120 0.2878	63.315 0.0		Vel = 20.41	
329 to 330	129.670 129.670		-68.48 278.5	2.5 2.635	0.0 0.0	10.000 10.000	120 0.1915	65.929 1.915		Vel = 16.39	
330 to 331	129.670 129.670		-45.04 233.46	2.5 2.635	0.0 0.0	8.670 8.670	120 0.1383	67.844 1.199		Vel = 13.74	
331 to 332	129.670 129.670		-29.54 203.92	2.5 2.635	0.0 0.0	8.000 8.000	120 0.1076	69.043 0.861		Vel = 12.00	
332 to 333	129.670 129.670		-26.30 177.62	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0834	69.904 0.667		Vel = 10.45	
333 to 334	129.670 129.670		-26.55 151.07	2.5 2.635	0.0 0.0	9.250 9.250	120 0.0618	70.571 0.572		Vel = 8.89	
334 to 335	129.670 129.670		-27.74 123.33	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0424	71.143 0.424		Vel = 7.26	
335 to 336	129.670 129.670		-17.00 106.33	2.5 2.635	0.0 0.0	8.250 8.250	120 0.0324	71.567 0.267		Vel = 6.26	
336 to 337	129.670 129.670		-17.52 88.81	2.5 2.635	0.0 0.0	8.330 8.330	120 0.0230	71.834 0.192		Vel = 5.23	
337 to 338	129.670 129.670		-16.91 71.9	2.5 2.635	0.0 0.0	8.500 8.500	120 0.0156	72.026 0.133		Vel = 4.23	

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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	*****
338 to 339	129.670 129.670		-16.62 55.28	2.5 2.635	0.0 0.0	8.670 0.0	120 0.0097	72.159 0.0			
									Vel =	3.25	
339 to 340	129.670 129.670		-16.60 38.68	2.5 2.635	0.0 0.0	10.000 0.0	120 0.0049	72.243 0.0			
									Vel =	2.28	
340 to 341	129.670 129.670		-9.09 29.59	2.5 2.635	0.0 0.0	8.330 0.0	120 0.0031	72.292 0.0			
									Vel =	1.74	
341 to 342	129.670 129.670		-15.00 14.59	2.5 2.635	0.0 0.0	8.000 0.0	120 0.0008	72.318 0.0			
									Vel =	0.86	
342			0.0 14.59					72.324	K Factor =	1.72	
344 to 346	130.670 130.670		204.40 204.4	4 4.26	0.0 0.0	11.250 0.0	120 0.0104	63.959 0.0			
									Vel =	4.60	
346 to 348	130.670 130.670		195.29 399.69	4 4.26	0.0 0.0	6.250 0.0	120 0.0362	64.076 0.0			
									Vel =	9.00	
348 to 350	130.670 130.670		198.39 598.08	4 4.26	0.0 0.0	3.750 0.0	120 0.0757	64.302 0.0			
									Vel =	13.46	
350 to 352	130.670 130.670		52.10 650.18	4 4.26	0.0 0.0	11.250 0.0	120 0.0886	64.586 0.0			
									Vel =	14.64	
352 to 354	130.670 130.670		22.20 672.38	4 4.26	0.0 0.0	11.330 0.0	120 0.0944	65.583 0.0			
									Vel =	15.14	
354 to 356	130.670 130.670		0.48 672.86	4 4.26	0.0 0.0	11.250 0.0	120 0.0944	66.652 0.0			
									Vel =	15.15	
356 to 358	130.670 130.670		-15.84 657.02	4 4.26	0.0 0.0	6.250 0.0	120 0.0904	67.714 0.0			
									Vel =	14.79	
358 to 360	130.670 130.670		-37.23 619.79	4 4.26	0.0 0.0	3.750 0.0	120 0.0811	68.279 0.0			
									Vel =	13.95	
360 to 362	130.670 130.670		-49.33 570.46	4 4.26	0.0 0.0	11.250 0.0	120 0.0696	68.583 0.0			
									Vel =	12.84	
362 to 364	130.670 130.670		-48.57 521.89	4 4.26	0.0 0.0	11.330 0.0	120 0.0590	69.366 0.0			
									Vel =	11.75	
364 to 366	130.670 130.670		-48.85 473.04	4 4.26	0.0 0.0	11.250 0.0	120 0.0492	70.034 0.0			
									Vel =	10.65	

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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	*****
366 to 368	130.670 130.670		-51.49 421.55	4 4.26	0.0 0.0	6.330 0.0	120 0.0397	70.588 0.0			
									Vel =	9.49	
368 to 370	130.670 130.670		-61.71 359.84	4 4.26	0.0 0.0	3.670 3.670	120 0.0297	70.839 0.109			
									Vel =	8.10	
370 to 372	130.670 130.670		-55.64 304.2	4 4.26	0.0 0.0	11.250 0.0	120 0.0218	70.948 0.0			
									Vel =	6.85	
372 to 374	130.670 130.670		-52.56 251.64	4 4.26	0.0 0.0	11.330 11.330	120 0.0153	71.193 0.173			
									Vel =	5.66	
374 to 376	130.670 130.670		-50.24 201.4	4 4.26	0.0 0.0	11.330 11.330	120 0.0102	71.366 0.115			
									Vel =	4.53	
376 to 378	130.670 130.670		-48.58 152.82	4 4.26	0.0 0.0	6.250 6.250	120 0.0061	71.481 0.038			
									Vel =	3.44	
378 to 380	130.670 130.670		-56.25 96.57	4 4.26	0.0 0.0	3.750 3.750	120 0.0027	71.519 0.010			
									Vel =	2.17	
380 to 382	130.670 0		-48.51 48.06	4 4.26	0.0 0.0	11.250 11.250	120 0.0007	71.529 56.593			
									Vel =	1.08	
382			0.0 48.06					128.130		K Factor =	4.25
390 to 392	130.670 130.670		54.09 54.09	4 4.26	0.0 0.0	11.250 11.250	120 0.0009	75.130 0.010			
									Vel =	1.22	
392 to 394	130.670 130.670		66.85 120.94	4 4.26	0.0 0.0	6.250 6.250	120 0.0040	75.140 0.025			
									Vel =	2.72	
394 to 396	130.670 130.670		71.71 192.65	4 4.26	0.0 0.0	3.750 3.750	120 0.0093	75.165 0.035			
									Vel =	4.34	
396 to 398	130.670 130.670		57.23 249.88	4 4.26	0.0 0.0	11.250 11.250	120 0.0151	75.200 0.170			
									Vel =	5.62	
398 to 400	130.670 130.670		56.28 306.16	4 4.26	0.0 0.0	11.330 11.330	120 0.0220	75.370 0.249			
									Vel =	6.89	
400 to 402	130.670 130.670		57.72 363.88	4 4.26	0.0 0.0	11.250 11.250	120 0.0303	75.619 0.341			
									Vel =	8.19	
402 to 404	130.670 130.670		60.90 424.78	4 4.26	0.0 0.0	6.250 6.250	120 0.0403	75.960 0.252			
									Vel =	9.56	

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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	*****
404 to 406	130.670 130.670		70.66 495.44	4 4.26	0.0 0.0	3.750 0.0	120 0.0533	76.212 0.0			
406 to 408	130.670 130.670		114.47 609.91	4 4.26	0.0 0.0	11.250 11.250	120 0.0788	76.412 0.0		Vel = 11.15	
408 to 410	130.670 130.670		0.0 609.91	4 4.26	0.0 0.0	11.330 11.330	120 0.0787	77.298 0.0		Vel = 13.73	
410 to 448	130.670 130.670		94.01 703.92	4 4.26	T 26.334 0.0	6.250 26.334 32.584	120 0.1027	78.190 0.0		Vel = 13.73	
448 to 412	130.670 130.670		-1677.46 -973.54	4 4.26	0.0 0.0	5.000 5.000	120 -0.1870	81.535 -0.935		Vel = 15.85	
412 to 414	130.670 130.670		128.27 -845.27	4 4.26	0.0 0.0	6.330 6.330	120 -0.1441	80.600 -0.912		Vel = 21.91	
414 to 416	130.670 130.670		127.61 -717.66	4 4.26	0.0 0.0	3.670 3.670	120 -0.1063	79.688 -0.390		Vel = 19.03	
416 to 418	130.670 130.670		105.96 -611.7	4 4.26	0.0 0.0	11.250 11.250	120 -0.0792	79.298 -0.891		Vel = 16.15	
418 to 420	130.670 130.670		88.77 -522.93	4 4.26	0.0 0.0	11.330 11.330	120 -0.0592	78.407 -0.671		Vel = 13.77	
420 to 422	130.670 130.670		72.57 -450.36	4 4.26	0.0 0.0	11.330 11.330	120 -0.0449	77.736 -0.509		Vel = 11.77	
422 to 424	130.670 130.670		56.15 -394.21	4 4.26	0.0 0.0	6.250 6.250	120 -0.0350	77.227 -0.219		Vel = 10.14	
424 to 426	130.670 130.670		58.68 -335.53	4 4.26	0.0 0.0	3.750 3.750	120 -0.0261	77.008 -0.098		Vel = 8.87	
426 to 428	130.670 129.670		48.38 -287.15	4 4.26	0.0 0.0	11.250 11.250	120 -0.0196	76.910 0.433		Vel = 7.55	
428			0.0 -287.15					77.123		K Factor = -32.70	
428 to 429	129.670 129.670		-175.59 -175.59	2.5 2.635	0.0 0.0	9.083 9.083	120 -0.0816	77.123 -0.741		Vel = 6.46	
429 to 430	129.670 129.670		61.60 -113.99	2.5 2.635	0.0 0.0	10.000 10.000	120 -0.0367	76.382 -0.367		Vel = 10.33	

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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	*****
430 to 431	129.670 129.670		47.93 -66.06	2.5 2.635	0.0 0.0	8.670 0.0	120 -0.0134	76.015 0.0		Vel = 3.89	
431 to 432	129.670 129.670		44.30 -21.76	2.5 2.635	0.0 0.0	8.000 0.0	120 -0.0018	75.899 0.0		Vel = 1.28	
432 to 433	129.670 129.670		38.55 16.79	2.5 2.635	0.0 0.0	8.083 0.0	120 0.0011	75.885 0.0		Vel = 0.99	
433 to 434	129.670 129.670		31.64 48.43	2.5 2.635	0.0 0.0	9.083 0.0	120 0.0075	75.894 0.0		Vel = 2.85	
434 to 435	129.670 129.670		23.41 71.84	2.5 2.635	0.0 0.0	10.000 0.0	120 0.0156	75.962 0.0		Vel = 4.23	
435 to 436	129.670 129.670		11.62 83.46	2.5 2.635	0.0 0.0	8.670 0.0	120 0.0206	76.118 0.0		Vel = 4.91	
436 to 437	129.670 129.670		17.66 101.12	2.5 2.635	0.0 0.0	8.000 0.0	120 0.0294	76.297 0.0		Vel = 5.95	
437 to 438	129.670 129.670		21.61 122.73	2.5 2.635	0.0 0.0	8.000 0.0	120 0.0421	76.532 0.0		Vel = 7.22	
438 to 439	129.670 129.670		-18.61 104.12	2.5 2.635	0.0 0.0	9.250 0.0	120 0.0310	76.869 0.0		Vel = 6.13	
439 to 440	129.670 129.670		-49.04 55.08	2.5 2.635	0.0 0.0	10.000 0.0	120 0.0096	77.156 0.0		Vel = 3.24	
440 to 441	129.670 129.670		-48.90 6.18	2.5 2.635	0.0 0.0	8.250 0.0	120 0.0001	77.252 0.0		Vel = 0.36	
441 to 442	129.670 129.670		-32.82 -26.64	2.5 2.635	0.0 0.0	8.330 0.0	120 -0.0025	77.253 0.0		Vel = 1.57	
442 to 443	129.670 129.670		-19.30 -45.94	2.5 2.635	0.0 0.0	8.500 0.0	120 -0.0068	77.232 0.0		Vel = 2.70	
443 to 444	129.670 129.670		-5.70 -51.64	2.5 2.635	0.0 0.0	8.670 0.0	120 -0.0084	77.174 0.0		Vel = 3.04	
444 to 445	129.670 129.670		9.03 -42.61	2.5 2.635	0.0 0.0	10.000 0.0	120 -0.0060	77.101 0.0		Vel = 2.51	



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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	*****
445 to 446	129.670 129.670		6.67 -35.94	2.5 2.635	0.0 0.0	8.330 0.0	120 -0.0043	77.041 0.0		Vel = 2.11	
446 to 447	129.670 0		15.13 -20.81	2.5 2.635	0.0 0.0	8.000 0.0	120 -0.0015	77.005 56.160		Vel = 1.22	
447			0.0 -20.81					133.153		K Factor = -1.80	
448 to TR3	130.670 130.670		1677.46 1677.46	6 6.357	I 0.0	12.573 12.573	120 0.0729	81.535 0.0		Vel = 16.96	
TR3 to BR3	130.670 101		0.0 1677.46	6 6.357	Aty G	30.176 3.772	120 0.0728	85.074 12.850		Vel = 16.96	
BR3 to UG3	101 100		0.0 1677.46	8 7.98	E T G	27.183 52.855 6.041	150 0.0159	102.509 0.433 1.849		Vel = 10.76	
UG3 to 50	100 100	H250	-147.29 1530.17	8 7.98	T 0.0	52.855 52.855	150 0.0134	104.791 0.0		Vel = 9.82	
50			0.0 1530.17					107.383		K Factor = 147.66	
UG3 to UG4	100 100		397.29 397.29	8 7.98	6L 3G	117.791 18.122	150 0.0011	104.791 0.0		Vel = 2.55	
UG4 to 50	100 100		0.0 397.29	8 7.98	2T 2L G	105.71 39.264 6.041	150 0.0011	106.828 0.0 0.555		Vel = 2.55	
50 to FLG	100 100		1530.17 1927.46	8 7.98	2E T G	54.365 52.855 6.041	150 0.0206	107.383 0.0 2.951		Vel = 12.36	
FLG to PO	100 100		0.0 1927.46	8 8.249	S B 6l Zca	52.853 14.094 91.611 0.0	120 0.0265	110.334 7.209 8.146		** Fixed Loss = 7.209 Vel = 11.57	
PO			0.0 1927.46					125.689		K Factor = 171.92	
System Demand Pressure								125.689			
Safety Margin								5.157			
Continuation Pressure								130.846			
Pressure @ Pump Outlet								130.846			
Pressure From Pump Curve								-48.868			
Pressure @ Pump Inlet								81.978			
PI to BASE	100 100		0.0 1927.46	8 8.249	G T	4.698 41.108	120 0.0265	81.978 0.0		Vel = 11.57	

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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	*****
BASE to TEST	100 105		0.0 1927.46	8 7.98	2L T G	39.264 52.855 6.041	100.000 98.159 198.159	150 0.0206	83.456 -2.166 4.083		Vel = 12.36	
TEST			0.0 1927.46						85.373		K Factor = 208.61	