



HYDRAULIC CALCULATION

Bruce Fire Protection Ltd
400 Applewood Cres
Suite 100
Vaughan, ON L4K 0C3
905 482 8099



Job Name : FIREARMS OUTLET CANADA
Drawing : 25-5143-SP
Location : 725 WESTNEY DR. S, AJAX, ON.
System : 2
Contract :
Data File : 25-5143-2.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME FIREARMS OUTLET CANADA
Location 725 WESTNEY DR. S, AJAX, ON.
Drawing # 25-5143-SP
Contract #
Date MAY 26/25

DESIGN

Remote area # 2
Remote area location KITCHEN
Occupancy classification ORDINARY HAZARD GR1
Density 0.15 - Gpm/SqFt
Area of application ENTIRE AREA - SqFt
Coverage/sprinkler 125 - SqFt
Type of sprinkler calculated SS, QR,
Sprinklers calculated 11
In-rack demand N/A - GPM
Hose streams 250 - GPM
Total water required (including hose streams) 499.58 - GPM @ 60.6188 - Psi
Type of system WET
Volume of system (dry or pre-action) N/A - Gal

WATER SUPPLY INFORMATION

Test date MAY 22/25
Location ON SITE
Source of info Bruce Fire Protection Ltd

CONTRACTOR INFO

Address
Phone #
Name of designer
Authority having jurisdiction CITY OF AJAX
NOTES:

text1(35) - invisible

Water Supply Curve

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FIREARMS OUTLET CANADA

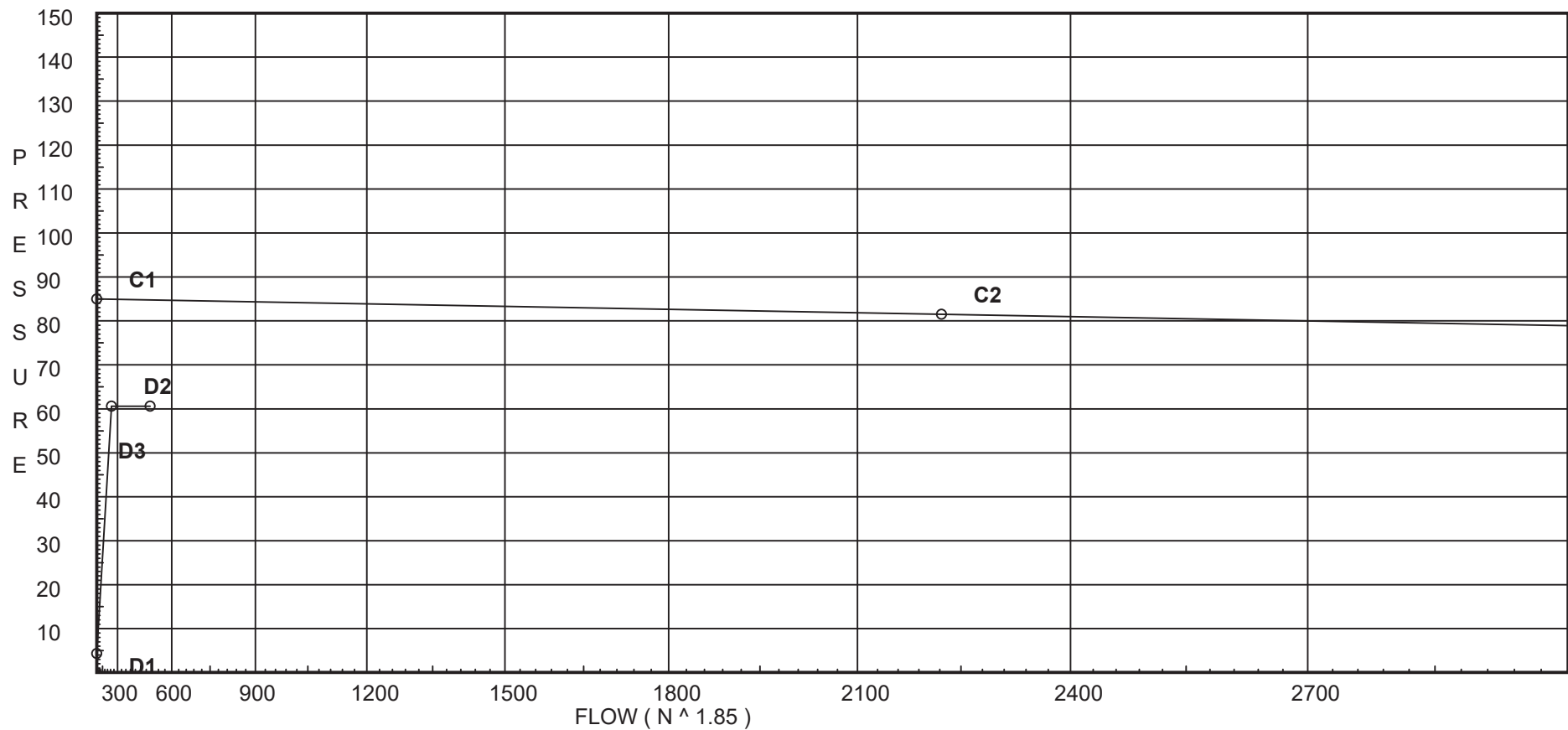
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City Water Supply:

C1 - Static Pressure : 85
C2 - Residual Pressure: 81.5
C2 - Residual Flow : 2222.4

Demand:

D1 - Elevation : 4.331
D2 - System Flow : 249.58
D2 - System Pressure : 60.619
Hose (Demand) : 250
D3 - System Demand : 499.58
Safety Margin : 24.160



Flow Summary - NFPA

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TEST	85.0	81.5	2222.4	84.779	499.58	60.619

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>	
201	10.0	5.6	12.39	19.71	0.15	125
202	10.0	5.6	11.21	18.75	0.15	125
203	10.0	5.6	12.02	19.41	0.15	125
204	10.0	5.6	14.66	21.44	0.15	125
205	10.0	5.6	14.72	21.48	0.15	125
206	10.0	5.6	22.37	26.49	0.15	125
207	10.0	5.6	22.6	26.62	0.15	125
208	10.0	5.6	17.86	23.67	0.15	125
209	10.0	5.6	18.04	23.79	0.15	125
210	10.0	5.6	18.41	24.03	0.15	125
211	10.0	5.6	18.66	24.19	0.15	125
L2	14.5		10.88			
L3	14.5		11.79			
L1	14.5		12.9			
L4	14.5		14.99			
L5	14.5		15.16			
L6	14.5		23.94			
L7	14.5		24.2			
L8	14.5		17.24			
L9	14.5		17.64			
L10	14.5		19.91			
L20	14.5		26.97			
L21	14.5		29.08			
L22	14.5		27.69			
M20	14.5		29.81			
M21	14.5		29.95			
M22	14.5		30.26			
M23	14.5		32.95			
M24	17.83		40.4			
M25	1.0		51.18			
UG	1.0		57.28			
TEST	0.0		60.62	250.0		

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
201 to L1	10 14.500	5.60	19.71 19.71	1 1.049	2E T 4.0 5.0	10.420 9.000 19.420	120 0.1267	12.392 -1.949 2.461	Vel = 7.32		
L1			0.0 19.71					12.904	K Factor = 5.49		
202 to L2	10 14.500	5.60	18.75 18.75	1 1.049	2E T 4.0 5.0	5.000 9.000 14.000	120 0.1155	11.210 -1.949 1.617	Vel = 6.96		
L2			0.0 18.75					10.878	K Factor = 5.68		
203 to L3	10 14.500	5.60	19.41 19.41	1 1.049	2E T 4.0 5.0	5.000 9.000 14.000	120 0.1231	12.019 -1.949 1.724	Vel = 7.21		
L3			0.0 19.41					11.794	K Factor = 5.65		
204 to L4	10 14.500	5.60	21.44 21.44	1 1.049	2E T 4.0 5.0	6.420 9.000 15.420	120 0.1480	14.659 -1.949 2.282	Vel = 7.96		
L4			0.0 21.44					14.992	K Factor = 5.54		
205 to L5	10 14.500	5.60	21.48 21.48	1 1.049	2E T 4.0 5.0	7.080 9.000 16.080	120 0.1486	14.719 -1.949 2.389	Vel = 7.97		
L5			0.0 21.48					15.159	K Factor = 5.52		
206 to L6	10 14.500	5.60	26.49 26.49	1 1.049	2E T 4.0 5.0	7.080 9.000 16.080	120 0.2188	22.369 -1.949 3.518	Vel = 9.83		
L6			0.0 26.49					23.938	K Factor = 5.41		
207 to L7	10 14.500	5.60	26.62 26.62	1 1.049	2E T 4.0 5.0	7.080 9.000 16.080	120 0.2209	22.599 -1.949 3.552	Vel = 9.88		
L7			0.0 26.62					24.202	K Factor = 5.41		
208 to L8	10 14.500	5.60	23.67 23.67	1 1.049	E 2.0	5.510 2.000 7.510	120 0.1776	17.859 -1.949 1.334	Vel = 8.79		
L8			0.0 23.67					17.244	K Factor = 5.70		
209 to L8	10 14.500	5.60	23.79 23.79	1 1.049	T 5.0	1.420 5.000 6.420	120 0.1793	18.042 -1.949 1.151	Vel = 8.83		
L8			0.0 23.79					17.244	K Factor = 5.73		
210 to L9	10 14.500	5.60	24.03 24.03	1 1.049	T 5.0	1.420 5.000 6.420	120 0.1827	18.412 -1.949 1.173	Vel = 8.92		

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
L9			0.0 24.03						17.636		K Factor = 5.72	
211 to L10	10 14.500	5.60	24.19	1	2E 2T	4.0 10.0	3.280 14.000 17.280	120	18.659 -1.949 3.197		Vel = 8.98	
L10			0.0 24.19						19.907		K Factor = 5.42	
L2 to L3	14.500 14.500		18.75	1			7.930	120	10.878 0.0		Vel = 6.96	
L3 to L1	14.500 14.500		18.75 19.41	1.049			7.930 2.580	0.1155	0.916 11.794 0.0		Vel = 14.17	
L1 to L4	14.500 14.500		38.16	1.049			2.580	0.4302	1.110		Vel = 8.36	
L4 to L5	14.500 14.500		19.72	1.5	T	9.9	12.500 9.900 22.400	120	12.904 0.0		Vel = 11.45	
L5 to L20	14.500 14.500		57.88	1.682			1.000	0.0932	2.088		Vel = 14.55	
L20			21.44	1.5			1.000	0.1670	14.992 0.0		K Factor = 19.41	
L6 to L7	14.500 14.500		79.32	1.682			1.000	0.0220	0.167		Vel = 3.82	
L7 to L21	14.500 14.500		21.48	1.5	T	9.9	35.500 9.900 45.400	120	15.159 0.0		Vel = 7.67	
L21			100.8	1.682			0.2602	11.813			K Factor = 9.85	
L8 to L9	14.500 14.500		0.0 53.11						26.972		Vel = 6.85	
L9 to L10	14.500 14.500		26.49	1.5			12.000	120	23.938 0.0		Vel = 10.32	
L10 to L22	14.500 14.500		26.49	1.682			12.000	0.0795	0.264		Vel = 13.81	
L22			26.62	1.5	2E T	9.9	41.600 19.800 61.400	120	24.202 0.0		K Factor = 18.18	
L20 to M20	14.500 14.500		53.11	1.682			6.080	0.0645	0.392		Vel = 14.55	
M20			0.0 95.67						29.083		K Factor = 18.46	
L20 to M20	14.500 14.500		47.45	1.5	T	9.9	6.080	0.1378	17.244 0.0		Vel = 14.55	
M20			47.45	1.682			6.080	0.2362	0.392		K Factor = 18.46	
L20 to M20	14.500 14.500		24.03	1.5	T	9.9	6.580 9.900 16.480	120	17.636 0.0		Vel = 14.55	
M20			71.48	1.682			32.930	0.2602	2.271		K Factor = 18.46	
M20			24.19	1.5			32.930	0.2362	19.907 0.0		K Factor = 18.46	
M20			95.67	1.682			32.930	0.2362	7.779		K Factor = 18.46	
M20			0.0 100.80						27.686		K Factor = 18.46	
M20			100.80	1.5	T	9.9	1.000 9.900 10.900	120	26.972 0.0		K Factor = 18.46	
M20			100.8	1.682			10.900	0.2602	2.836		K Factor = 18.46	
M20			0.0 100.80						29.808		K Factor = 18.46	

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
L21 to M21	14.500 14.500		53.11 53.11	1.5 1.682	T	9.9	1.000 9.900 10.900	120 0.0795	29.083 0.0 0.867		Vel = 7.67	
M21			0.0 53.11						29.950		K Factor = 9.70	
L22 to M22	14.500 14.500		95.67 95.67	1.5 1.682	T	9.9	1.000 9.900 10.900	120 0.2361	27.686 0.0 2.574		Vel = 13.81	
M22			0.0 95.67						30.260		K Factor = 17.39	
M20 to M21	14.500 14.500		100.80 100.8	3 3.26			13.680 13.680	120 0.0104	29.808 0.0 0.142		Vel = 3.87	
M21 to M22	14.500 14.500		53.11 153.91	3 3.26			13.680 13.680	120 0.0227	29.950 0.0 0.310		Vel = 5.92	
M22 to M23	14.500 14.500		95.67 249.58	3 3.26	2E	18.815	29.580 18.815 48.395	120 0.0555	30.260 0.0 2.685		Vel = 9.59	
M23 to M24	14.500 17.830		0.0 249.58	3 3.26	3E T	28.223 20.159	111.930 48.382 160.312	120 0.0555	32.945 -1.442 8.894		Vel = 9.59	
M24 to M25	17.830 1		0.0 249.58	4 4.26	B Fsp	15.8 0.0	16.830 15.800 32.630	120 0.0151	40.397 10.289 0.492		** Fixed Loss = 3 Vel = 5.62	
M25 to UG	1 1		0.0 249.58	4 4.26			7.000 7.000	120 0.0150	51.178 6.000 0.105		** Fixed Loss = 6 Vel = 5.62	
UG to TEST	1 0		0.0 249.58	4 4.1	E G T	14.534 2.907 29.067	166.000 46.508 212.508	140 0.0137	57.283 0.433 2.903		Vel = 6.07	
TEST			250.00 499.58						60.619		Qa = 250.00 K Factor = 64.17	