

Hydraulic Calculations by HydraCALC

SOSCIA PROFESSTIONAL ENGINERRS
85 EDEN VALE DRIVE
KING CITY
905 237 5410

Job Name	:	LEPORIS CONSTN INDUSTRIAL BUILDING F
Drawing	:	24-020 SP3
Location	:	10533 KEELE STREET VAUGHAN ONTARIO
Remote Area	:	DA#1
Contract	:	24-020
Data File	:	k8 cal.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME 10533 KEELE STREET
Location 10533 KEELE STREET VAUGHAN ONTARIO
Drawing # 24-020 SP3
Contract # 24-020
Date 07/28/2026

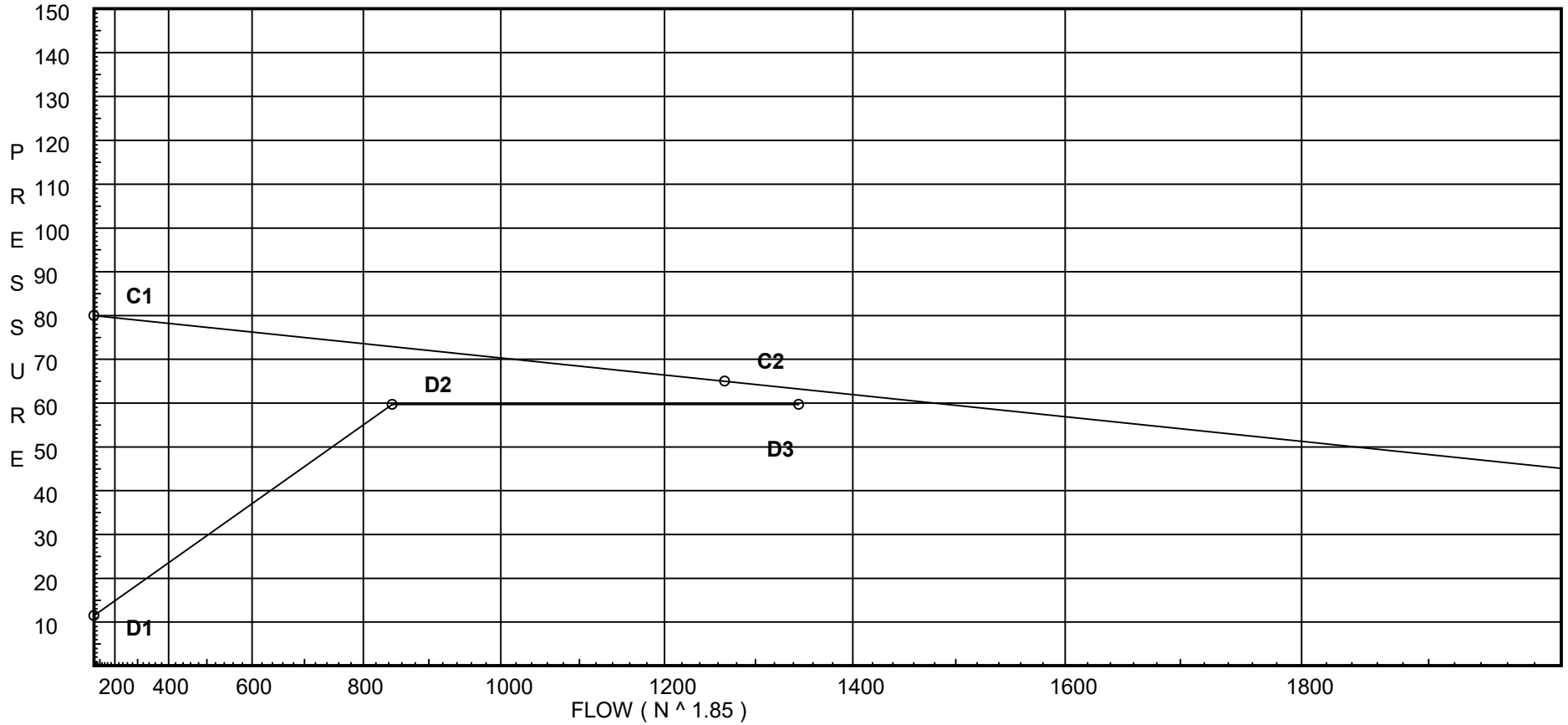
DESIGN
Remote area # DA#1
Remote area location WAREHOUSE
Occupancy classification EXTRA HAZARD
Density 0.4 - Gpm/SqFt
Area of application 2000 - SqFt
Coverage/sprinkler 100 - SqFt
Type of sprinkler calculated K8.0
 # Sprinklers calculated 21
In-rack demand 500 - GPM
Hose streams - GPM
Total water required (including hose streams) 1345.33 - GPM @ 59.6838 - Psi
Type of system WET
Volume of system (dry or pre-action) - Gal

WATER SUPPLY INFORMATION
Test date 07/26/2025
Location ST SITE
Source of info SPARKMAN

CONTRACTOR INFO SOSCIA PROFESSTIONAL ENGINERRS
Address 85 EDEN VALE DRIVE / KING CITY
Phone # 905 237 5410
Name of designer LW
Authority having jurisdiction VAUGHAN
NOTES:
CITY SUPPLY: STATIC PRESSURE 80; RESIDUAL 1267 GPM @ 65 PSI

City Water Supply:
C1 - Static Pressure : 80
C2 - Residual Pressure: 65
C2 - Residual Flow : 1267

Demand:
D1 - Elevation : 11.477
D2 - System Flow : 845.33
D2 - System Pressure : 59.684
Hose (Demand) : 500
D3 - System Demand : 1345.33
Safety Margin : 3.556



Fitting Legend

Abbrev.	Name	?.840	?1.050	1	1?1.660	1?1.900	2	2?2.875	3	3?4	4	5	6	8	10	12	14	16	18	20	24
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
E	NFPA 13 90' Standard Elbow	0	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	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
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 Horiz	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.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
B101	26.0		26.15	na				
B103	26.0		26.16	na				
B105	26.0		26.18	na				
B107	26.0		26.23	na				
B109	26.0		26.26	na				
T101	26.5		25.53	na				
101	26.5	8	25.49	na	40.39	0.4	100	7.0
102	26.5	8	25.31	na	40.25	0.4	100	7.0
103	26.5	8	25.25	na	40.2	0.4	100	7.0
104	26.5	8	25.25	na	40.2	0.4	100	7.0
105	26.5	8	25.29	na	40.23	0.4	100	7.0
106	26.5	8	25.44	na	40.35	0.4	100	7.0
107	26.5	8	25.76	na	40.61	0.4	100	7.0
T102	26.5		31.84	na				
T103	26.5		25.54	na				
108	26.5	8	25.5	na	40.4	0.4	100	7.0
109	26.5	8	25.31	na	40.25	0.4	100	7.0
110	26.5	8	25.26	na	40.21	0.4	100	7.0
111	26.5	8	25.26	na	40.21	0.4	100	7.0
112	26.5	8	25.3	na	40.24	0.4	100	7.0
113	26.5	8	25.44	na	40.35	0.4	100	7.0
114	26.5	8	25.77	na	40.61	0.4	100	7.0
T104	26.5		31.85	na				
T105	26.5		25.25	na				
115	26.5	8	25.21	na	40.17	0.4	100	7.0
116	26.5	8	25.05	na	40.04	0.4	100	7.0
117	26.5	8	25.0	na	40.0	0.4	100	7.0
118	26.5	8	25.0	na	40.0	0.4	100	7.0
119	26.5	8	25.04	na	40.04	0.4	100	7.0
120	26.5	8	25.21	na	40.16	0.4	100	7.0
121	26.5	8	25.55	na	40.44	0.4	100	7.0
T106	26.5		31.85	na				
T107	26.5		26.75	na				
T108	26.5		32.39	na				
T109	26.5		26.78	na				
T110	26.5		32.5	na				
B111	26.0		26.26	na				
T111	26.5		26.81	na				
T112	26.5		32.65	na				
B102	26.0		33.22	na				
B104	26.0		33.23	na				
B106	26.0		33.27	na				
B108	26.0		33.34	na				
B110	26.0		33.46	na				
B112	26.0		33.63	na				
BMT	26.0		35.92	na				
BMG	10.0		43.58	na				
TOR	10.0		45.49	na				
BOR	2.0		51.37	na	100.0			
DC	2.0		54.67	na				
UG	0.0		59.39	na				
TEST	0.0		59.68	na	400.0			

The maximum velocity is 9.56 and it occurs in the pipe between nodes BOR and DC

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 ******
B101	26		125.24	6			11.083	120	26.154	
to									0.0	
B103	26		125.24	6.357			11.083	0.0005	0.006	Vel = 1.27
B103	26		125.24	6			11.083	120	26.160	
to									0.0	
B105	26		250.48	6.357			11.083	0.0022	0.024	Vel = 2.53
B105	26		120.83	6			10.500	120	26.184	
to									0.0	
B107	26		371.31	6.357			10.500	0.0045	0.047	Vel = 3.75
B107	26		-122.68	6			11.083	120	26.231	
to									0.0	
B109	26		248.63	6.357			11.083	0.0022	0.024	Vel = 2.51
B109	26		-123.57	6			11.083	120	26.255	
to									0.0	
B111	26		125.06	6.357			11.083	0.0006	0.007	Vel = 1.26
			0.0							
B111			125.06						26.262	K Factor = 24.40
B101	26		-125.24	2.5	E	8.237	1.000	120	26.154	
to							8.237		-0.217	
T101	26.500		-125.24	2.635			9.237	-0.0436	-0.403	Vel = 7.37
T101	26.500		0.0	2.5			1.000	120	25.534	
to									0.0	
101	26.500		-125.24	2.635			1.000	-0.0440	-0.044	Vel = 7.37
101	26.500	8.00	40.39	2.5			8.583	120	25.490	
to									0.0	
102	26.500		-84.85	2.635			8.583	-0.0212	-0.182	Vel = 4.99
102	26.500	8.00	40.24	2.5			8.583	120	25.308	
to									0.0	
103	26.500		-44.61	2.635			8.583	-0.0065	-0.056	Vel = 2.62
103	26.500	8.00	40.21	2.5			8.583	120	25.252	
to									0.0	
104	26.500		-4.4	2.635			8.583	-0.0001	-0.001	Vel = 0.26
104	26.500	8.00	40.20	2.5			8.583	120	25.251	
to									0.0	
105	26.500		35.8	2.635			8.583	0.0043	0.037	Vel = 2.11
105	26.500	8.00	40.23	2.5			8.583	120	25.288	
to									0.0	
106	26.500		76.03	2.635			8.583	0.0174	0.149	Vel = 4.47
106	26.500	8.00	40.34	2.5			8.583	120	25.437	
to									0.0	
107	26.500		116.37	2.635			8.583	0.0381	0.327	Vel = 6.85
107	26.500	8.00	40.61	2.5	T	16.474	75.167	120	25.764	
to							16.474		0.0	
T102	26.500		156.98	2.635			91.641	0.0663	6.080	Vel = 9.24
T102	26.500		0.0	2.5	T	16.474	1.000	120	31.844	
to							16.474		0.217	
B102	26		156.98	2.635			17.474	0.0663	1.159	Vel = 9.24
			0.0							

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 ******
B102			156.98						33.220	K Factor = 27.24
B103	26		-125.24	2.5	E	8.237	1.000	120	26.160	
to							8.237		-0.217	
T103	26.500		-125.24	2.635			9.237	-0.0436	-0.403	Vel = 7.37
T103	26.500		0.0	2.5			1.000	120	25.540	
to									0.0	
108	26.500		-125.24	2.635			1.000	-0.0430	-0.043	Vel = 7.37
108	26.500	8.00	40.39	2.5			8.583	120	25.497	
to									0.0	
109	26.500		-84.85	2.635			8.583	-0.0213	-0.183	Vel = 4.99
109	26.500	8.00	40.25	2.5			8.583	120	25.314	
to									0.0	
110	26.500		-44.6	2.635			8.583	-0.0064	-0.055	Vel = 2.62
110	26.500	8.00	40.21	2.5			8.583	120	25.259	
to									0.0	
111	26.500		-4.39	2.635			8.583	-0.0001	-0.001	Vel = 0.26
111	26.500	8.00	40.21	2.5			8.583	120	25.258	
to									0.0	
112	26.500		35.82	2.635			8.583	0.0043	0.037	Vel = 2.11
112	26.500	8.00	40.23	2.5			8.583	120	25.295	
to									0.0	
113	26.500		76.05	2.635			8.583	0.0174	0.149	Vel = 4.47
113	26.500	8.00	40.35	2.5			8.583	120	25.444	
to									0.0	
114	26.500		116.4	2.635			8.583	0.0382	0.328	Vel = 6.85
114	26.500	8.00	40.62	2.5	T	16.474	75.167	120	25.772	
to							16.474		0.0	
T104	26.500		157.02	2.635			91.641	0.0664	6.082	Vel = 9.24
T104	26.500		0.0	2.5	T	16.474	1.000	120	31.854	
to							16.474		0.217	
B104	26		157.02	2.635			17.474	0.0663	1.159	Vel = 9.24
			0.0							
B104			157.02						33.230	K Factor = 27.24
B105	26		-120.82	2.5	T	16.474	1.000	120	26.184	
to							16.474		-0.217	
T105	26.500		-120.82	2.635			17.474	-0.0408	-0.713	Vel = 7.11
T105	26.500		0.0	2.5			1.000	120	25.254	
to									0.0	
115	26.500		-120.82	2.635			1.000	-0.0410	-0.041	Vel = 7.11
115	26.500	8.00	40.17	2.5			8.583	120	25.213	
to									0.0	
116	26.500		-80.65	2.635			8.583	-0.0193	-0.166	Vel = 4.74
116	26.500	8.00	40.03	2.5			8.583	120	25.047	
to									0.0	
117	26.500		-40.62	2.635			8.583	-0.0055	-0.047	Vel = 2.39
117	26.500	8.00	40.00	2.5			8.583	120	25.000	
to									0.0	
118	26.500		-0.62	2.635			8.583	0	0.0	Vel = 0.04

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 ******
118	26.500	8.00	40.00	2.5			8.583	120	25.000	
to									0.0	
119	26.500		39.38	2.635			8.583	0.0051	0.044	Vel = 2.32
119	26.500	8.00	40.04	2.5			8.583	120	25.044	
to									0.0	
120	26.500		79.42	2.635			8.583	0.0189	0.162	Vel = 4.67
120	26.500	8.00	40.16	2.5			8.583	120	25.206	
to									0.0	
121	26.500		119.58	2.635			8.583	0.0401	0.344	Vel = 7.04
121	26.500	8.00	40.44	2.5	T	16.474	75.167	120	25.550	
to							16.474		0.0	
T106	26.500		160.02	2.635			91.641	0.0687	6.298	Vel = 9.41
T106	26.500		0.0	2.5	T	16.474	1.000	120	31.848	
to							16.474		0.217	
B106	26		160.02	2.635			17.474	0.0687	1.201	Vel = 9.41
			0.0							
B106			160.02						33.266	K Factor = 27.74
B107	26		122.68	2.5	T	16.474	1.000	120	26.231	
to							16.474		-0.217	
T107	26.500		122.68	2.635			17.474	0.0421	0.736	Vel = 7.22
T107	26.500		0.0	2.5	T	16.474	117.667	120	26.750	
to							16.474		0.0	
T108	26.500		122.68	2.635			134.141	0.0420	5.639	Vel = 7.22
T108	26.500		0.0	2.5	T	16.474	1.000	120	32.389	
to							16.474		0.217	
B108	26		122.68	2.635			17.474	0.0420	0.734	Vel = 7.22
			0.0							
B108			122.68						33.340	K Factor = 21.25
B109	26		123.57	2.5	T	16.474	1.000	120	26.255	
to							16.474		-0.217	
T109	26.500		123.57	2.635			17.474	0.0426	0.745	Vel = 7.27
T109	26.500		0.0	2.5	T	16.474	117.667	120	26.783	
to							16.474		0.0	
T110	26.500		123.57	2.635			134.141	0.0426	5.715	Vel = 7.27
T110	26.500		0.0	2.5	T	16.474	1.000	120	32.498	
to							16.474		0.217	
B110	26		123.57	2.635			17.474	0.0426	0.744	Vel = 7.27
			0.0							
B110			123.57						33.459	K Factor = 21.36
B111	26		125.06	2.5	T	16.474	1.000	120	26.262	
to							16.474		-0.217	
T111	26.500		125.06	2.635			17.474	0.0436	0.761	Vel = 7.36
T111	26.500		0.0	2.5	T	16.474	117.667	120	26.806	
to							16.474		0.0	
T112	26.500		125.06	2.635			134.141	0.0436	5.844	Vel = 7.36
T112	26.500		0.0	2.5	T	16.474	1.000	120	32.650	
to							16.474		0.217	
B112	26		125.06	2.635			17.474	0.0436	0.761	Vel = 7.36

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 ******
			0.0							
B112			125.06						33.628	K Factor = 21.57
B102	26		156.98	6			11.083	120	33.220	
to									0.0	
B104	26		156.98	6.357			11.083	0.0009	0.010	Vel = 1.59
B104	26		157.02	6			11.083	120	33.230	
to									0.0	
B106	26		314.0	6.357			11.083	0.0032	0.036	Vel = 3.17
B106	26		160.02	6			10.500	120	33.266	
to									0.0	
B108	26		474.02	6.357			10.500	0.0070	0.074	Vel = 4.79
B108	26		122.68	6			11.083	120	33.340	
to									0.0	
B110	26		596.7	6.357			11.083	0.0107	0.119	Vel = 6.03
B110	26		123.56	6			11.083	120	33.459	
to									0.0	
B112	26		720.26	6.357			11.083	0.0152	0.169	Vel = 7.28
B112	26		125.07	6	3E	52.808	59.000	120	33.628	
to							52.808		0.0	
BMT	26		845.33	6.357			111.808	0.0205	2.293	Vel = 8.54
BMT	26		0.0	6	E	17.603	18.000	120	35.921	
to							17.603		6.930	
BMG	10		845.33	6.357			35.603	0.0205	0.729	Vel = 8.54
BMG	10		0.0	6	2E	35.205	20.000	120	43.580	
to					T	37.72	72.925		0.0	
TOR	10		845.33	6.357			92.925	0.0205	1.905	Vel = 8.54
TOR	10		0.0	6	B	12.573	10.000	120	45.485	
to					S	40.235	108.131		3.465	
BOR	2		845.33	6.357	T	37.72	118.131	0.0205	2.422	Vel = 8.54
					E	17.603				
BOR	2	H100	100.00	6	2E	35.205	20.000	120	51.372	
to					2T	75.44	110.645		0.0	
DC	2		945.33	6.357			130.645	0.0252	3.294	Vel = 9.56
DC	2		0.0	8	E	21.141	25.000	120	54.666	
to					Zca	0.0	21.141		4.392	* * Fixed Loss = 3.526
UG	0		945.33	8.249			46.141	0.0071	0.328	Vel = 5.68
UG	0		0.0	12	G	8.05	100.000	150	59.386	
to					2E	72.448	241.494		0.0	
TEST	0		945.33	11.65	2T	160.996	341.494	0.0009	0.298	Vel = 2.85
			400.00							Qa = 400.00
TEST			1345.33						59.684	K Factor = 174.14

Auto Peaking Summary - List of Pipes for Area Calculated

Left Side			Right Side		
From	To	Length	From	To	Length
T101	101	1.000	121	T106	75.167

			Flow Required	Safety Margin	Pressure Differential
Area Calculated		|	1345.327	3.556	0.000
Right	8.000	|	1344.684	3.678	-0.123

Typical Distance Between Heads = 8.000

Split Point Used in Worst Area Peaked = 118