PROJECT TITLE:	L&M Gardens Block 140
PROJECT No.:	07:146
CLIENT:	Sorbara/L&M G.P. Inc.
ISSUED FOR:	1st Submission

STORM SEWER DESIGN SHEET
5 - YEAR STORM
TOWN OF WHITCHURCH STOUFFVILLE - REGION OF YORK
DATE: SEPTEMBER 2026

ENGINEER'S SEAL

PREPARED BY:

SABOURIN KIMBLE & ASSOCIATES LTD.
CONSULTING ENGINEERS

NOTES, STANDARDS AND DESIGN INPUT PARAMETERS

Captured Overland Flow = Q(100yr) - Q(5yr)
Inlet Time (mins): 10.00

Run-off Coefficients:

Park/Open Space	0.20
Single Family Residential	0.45
Townhouses	0.75
Institutional	0.75
Commercial/Asphalt	0.90
Other (if applicable)	

IDF Parameters:

Storm:	A	B	C
5 - Year	1016	5	1
25 - Year	1547	6	1
100 - Year	2052	6	0.86

Formula: $I_{YR} = \frac{A}{(t + B)^C}$

where; I= Intensity (mm/hr)
t= Time of Concentration (mins)

Note: PVC pipe is manufactured in metric dimensions, therefore, the pipe diameter stated is used to calculate capacity and velocity. However, since concrete pipe is manufactured in imperial dimensions, standard imperial equivalent sizes for the diameter stated have been used to calculate capacity and velocity.

PROPERTY	STREET	Upstream Manhole	Downstream Manhole	A Park/ Open Space (ha)	A Single Family Res. (ha)	A Townhouses (ha)	A Institutional (ha)	A Commercial / Asphalt (ha)	A Other - Specified Above (ha)	A x R This Section (ha)	Acc. AR (ha)	t (min)	I (5yr) (mm/hr)	Q (5yr) (l/s)	I (25yr) (mm/hr)	Q (25yr) (l/s)	I (100yr) (mm/hr)	Q (100yr) (l/s)	Captured Overland Flow (l/s)	Acc. Captured Overland Flow (l/s)	Q(design) (l/s)	Modeled Q(HGL) (l/s)	Type	Pipe (mm)	Grade (%)	Capacity (l/s)	Length (m)	Velocity (m/s)	Down-stream Velocity (m/s)	Change in Velocity (m/s)	Time (min)	Total Time (min)	Downstream Invert	Upstream Invert	Capacity (%)
Block 140	Laneway	4(w)	1			0.20				0.150	0.150	10.00	107.00	44.58	150.60	62.75	186.74	77.81		0.00	44.58		PVC	300	2.00	136.76	40.0	1.93	1.28	0.65	0.34	10.34	255.18	255.98	33%
		1	2			0.45				0.338	0.488	10.34	105.04	142.25	147.87	200.24	183.40	248.35		0.00	142.25		CONC	450	0.50	210.32	99.9	1.28	1.55	0.27	1.30	11.64	254.53	255.03	68%
		2	3			0.06				0.045	0.533	11.64	98.32	145.44	138.48	204.83	171.87	254.23	164.87	164.87	310.31		CONC	600	0.50	452.95	44.1	1.55	1.63	0.08	0.47	12.12	254.16	254.38	69%
		4	5			0.34				0.255	0.255	10.00	107.00	75.79	150.60	106.68	186.74	132.28		0.00	75.79		PVC	300	1.30	110.26	91.5	1.56	1.12	0.44	0.98	10.98	254.32	255.51	69%
		5	3			0.05				0.038	0.293	10.98	101.65	82.59	143.13	116.29	177.58	144.28		0.00	82.59		PVC	375	0.50	123.98	20.4	1.12	1.63	0.51	0.30	11.28	254.17	254.27	67%
		3	9							0.000	0.825	12.12	96.10	220.24	135.37	310.22	168.05	385.11		164.87	385.11		CONC	600	0.55	475.05	36.5	1.63	2.81	1.18	0.37	12.49	253.74	253.94	81%
		6	7			0.10				0.075	0.075	10.00	107.00	22.29	150.60	31.38	186.74	38.90		0.00	22.29		PVC	300	1.00	96.70	15.8	1.37	0.97	0.40	0.19	10.19	255.12	255.28	23%
		7	8			0.01				0.008	0.083	10.19	105.90	24.27	149.06	34.16	184.86	42.36		0.00	24.27		PVC	300	0.50	68.38	9.1	0.97	1.23	0.26	0.16	10.35	254.72	254.77	35%
		8	9			0.38				0.285	0.368	10.35	105.02	107.21	147.83	150.92	183.35	187.17		0.00	107.21		PVC	375	0.60	135.81	101.4	1.23	2.81	1.58	1.37	11.72	254.02	254.63	79%
		9	10			0.05				0.038	1.230	12.49	94.43	322.64	133.02	454.49	165.16	564.29	172.48	337.35	659.98		CONC	675	1.40	1037.60	39.0	2.81	3.75	0.94	0.23	12.72	253.11	253.66	64%
		7(w)	12			0.12				0.090	0.090	10.00	107.00	26.75	150.60	37.65	186.74	46.69		0.00	26.75		PVC	300	1.00	96.70	38.0	1.37	1.12	0.25	0.46	10.46	254.64	255.02	28%
		11	12			0.12				0.090	0.090	10.00	107.00	26.75	150.60	37.65	186.74	46.69	19.94	19.94	46.69		PVC	300	1.00	96.70	18.5	1.37	1.12	0.25	0.23	10.23	254.15	254.35	48%
		12	13			0.08				0.060	0.240	10.46	104.39	69.59	146.96	97.97	182.28	121.52		19.94	89.53		PVC	375	0.50	123.98	20.0	1.12	1.42	0.30	0.30	10.76	253.63	253.73	72%
		13	10			0.49				0.368	0.608	10.76	102.79	173.46	144.72	244.22	179.54	302.97		19.94	193.39		CONC	525	0.50	317.25	91.1	1.42	3.75	2.33	1.07	11.83	253.02	253.48	61%
		10	Ex(C394)							0.000	1.838	12.72	93.42	476.86	131.61	671.77	163.42	834.14		357.28	834.14		CONC	675	2.50	1386.56	28.2	3.75	3.60	0.15	0.13	12.85	252.16	252.87	60%
		Ex(C394)	*Ex(C350)*							*0.000*	*1.838*	*12.85*	*92.89*	*474.13*	*130.86*	*667.94*	*162.50*	*829.43*		*357.28*	*831.42*		*CONC*	*750*	*2.00*	*1642.49*	*6.2*	*3.60*	*N/A*		*0.03*	*12.88*	*250.25*	*250.37*	*51%*