

SANITARY SEWER CALCULATION SHEET

Manning's $n=0.013$

LOCATION				RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+H	INFILTRATION				PIPE				VEL.			
STREET		FROM M.H.	TO M.H.	AREA	UNITS	POP.	CUMULATIVE	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA	INFILT. FLOW	TOTAL FLOW	DIST	DIA	SLOPE	CAP. (FULL)	RATIO Q act/Q cap	(FULL)	(ACT.)	
				(ha)			(ha)		(l/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(l/s)	(ha)	(ha)	(l/s)	(l/s)	(m)	(mm)	(%)	(l/s)		(m/s)	(m/s)	
STREET 5																												
Contribution From STREET 3, Pipe 117A - 123A							0.28	28			0.00		0.00		0.00		0.28	0.28										
Contribution From STREET 3, Pipe 122A - 123A							0.51	42			0.00		0.00		0.00		0.51	0.79										
		123A	118A	0.19	5	17	0.98	87			0.00		0.00		0.00		0.19	0.98										
				0.23	11	30	1.21	117	3.6	1.36	0.00		0.00		0.00	0.00	0.23	1.21	0.40	1.76	86.0	200	0.35	19.40	0.09	0.62	0.38	
				0.20	6	21	1.41	138			0.00		0.00		0.00		0.20	1.41										
		118A	119A	0.21	10	27	1.62	165	3.5	1.89	0.00		0.00		0.00	0.00	0.21	1.62	0.53	2.43	74.5	200	0.35	19.40	0.13	0.62	0.42	
To STREET 3, Pipe 119A - 120A							1.62	165			0.00		0.00		0.00			1.62										
STREET 4																												
		114A	115A	0.22	10	27	0.22	27	3.7	0.32	0.00		0.00		0.00	0.00	0.22	0.22	0.07	0.40	35.5	200	0.65	26.44	0.01	0.84	0.30	
		115A	116A	0.66	32	87	0.88	114	3.6	1.32	0.00		0.00		0.00	0.00	0.66	0.88	0.29	1.61	115.0	200	0.35	19.40	0.08	0.62	0.37	
To STREET 3, Pipe 116A - 119A							0.88	114			0.00		0.00		0.00			0.88										
STREET 1																												
		103A	104A	0.22	4	14	0.22	14	3.7	0.17	0.00		0.00		0.00	0.00	0.22	0.22	0.07	0.24	47.5	200	0.65	26.44	0.01	0.84	0.26	
To STREET 3, Pipe 104A - 105A							0.22	14			0.00		0.00		0.00			0.22										
		110A	111A	0.49	12	41	0.49	41	3.7	0.49	0.00		0.00		0.00	0.00	0.49	0.49	0.16	0.65	69.5	200	0.65	26.44	0.02	0.84	0.35	
		111A	112A	0.60	18	62	1.09	103	3.6	1.20	0.00		0.00		0.00	0.00	0.60	1.09	0.36	1.56	109.5	200	0.35	19.40	0.08	0.62	0.37	
To STREET 3, Pipe 112A - 113A							1.09	103			0.00		0.00		0.00			1.09										
STREET 3																												
		117A	123A	0.28	8	28	0.28	28	3.7	0.33	0.00		0.00		0.00	0.00	0.28	0.28	0.09	0.43	52.5	200	0.65	26.44	0.02	0.84	0.30	
To STREET 5, Pipe 123A - 118A							0.28	28			0.00		0.00		0.00			0.28										
		121A	122A	0.27	6	21	0.27	21	3.7	0.25	0.00		0.00		0.00	0.00	0.27	0.27	0.09	0.34	60.0	200	0.65	26.44	0.01	0.84	0.28	
		122A	123A	0.24	6	21	0.51	42	3.7	0.50	0.00		0.00		0.00	0.00	0.24	0.51	0.17	0.67	60.0	200	0.35	19.40	0.03	0.62	0.29	
To STREET 5, Pipe 123A - 118A							0.51	42			0.00		0.00		0.00			0.51										
		108A	109A	0.12	5	14	0.12	14	3.7	0.17	0.00		0.00		0.00	0.00	0.12	0.12	0.04	0.21	27.0	200	0.65	26.44	0.01	0.84	0.24	
Contribution From STREET 2, Pipe 107A - 109A							0.68	45			0.00		0.00		0.80		1.48	1.60										
		109A	112A	0.22	9	25	1.02	84	3.6	0.98	0.00		0.00		0.80	0.09	0.22	1.82	0.60	1.67	60.0	200	0.35	19.40	0.09	0.62	0.37	
Contribution From STREET 1, Pipe 111A - 112A							1.09	103			0.00		0.00		0.00		1.09	2.91										
		112A	113A	0.20	7	19	2.31	206	3.5	2.35	0.00		0.00		0.80	0.09	0.20	3.11	1.03	3.46	60.0	200	0.35	19.40	0.18	0.62	0.47	
		117A	124A	0.29	8	28	0.29	28	3.7	0.33	0.00		0.00		0.00	0.00	0.29	0.29	0.10	0.43	43.0	200	0.65	26.44	0.02	0.84	0.30	
		124A	125A	0.15	3	11	0.44	39	3.7	0.46	0.00		0.00		0.00	0.00	0.15	0.44	0.15	0.61	29.5	200	0.35	19.40	0.03	0.62	0.28	
		125A	126A	0.11	2	7	0.55	46	3.7	0.55	0.00		0.00		0.00	0.00	0.11	0.55	0.18	0.73	28.0	200	0.35	19.40	0.04	0.62	0.29	
		126A	127A	0.14	2	7	0.69	53	3.6	0.63	0.00		0.00		0.00	0.00	0.14	0.69	0.23	0.85	12.0	200	0.35	19.40	0.04	0.62	0.31	
		127A	128A	0.29	7	24	0.98	77	3.6	0.90	0.00		0.00		0.00	0.00	0.29	0.98	0.32	1.23	43.0	200	0.35	19.40	0.06	0.62	0.34	
		128A	129A	0.13	2	7	1.11	84	3.6	0.98	0.00		0.00		0.00	0.00	0.13	1.11	0.37	1.35	11.0	200	0.35	19.40	0.07	0.62	0.35	
		129A	130A	0.45	11	38	1.56	122	3.6	1.41	0.00		0.00		0.00	0.00	0.45	1.56	0.51	1.93	86.0	200	0.35	19.40	0.10	0.62	0.39	
To SANITARY SERVICING EASEMENT, Pipe 130A - 131A							1.56	122			0.00		0.00		0.00			1.56										
		101A	102A	0.23	8	22	0.23	22	3.7	0.26	0.00		0.00		0.00	0.00	0.23	0.23	0.08	0.34	50.5	200	0.65	26.44	0.01	0.84	0.28	
		102A	104A	0.23	9	25	0.46	47	3.7	0.56	0.00		0.00	0.25	0.25	0.03	0.48	0.71	0.23	0.82	60.5	200	0.35	19.40	0.04	0.62	0.31	
DESIGN PARAMETERS				Designed: A.S.										PROJECT: Caivan Leitrim														
Average Daily Flow = 9300 L/ha/da				Checked: W.L.										LOCATION: City of Ottawa														
Comm/Inst Flow = 28000 L/ha/da				Dwg. Reference: Sanitary Drainage Plan, Dwgs. No.										File Ref: 24-1414														
Industrial Flow = 35000 L/ha/da				Date: 18 Jun 2026										Sheet No. 1 of 3														
Max Res. Peak Factor = 4.00																												
Commercial/Inst./Park Peak Factor = 1.00																												
Institutional = 0.32 l/s/ha																												

SANITARY SEWER CALCULATION SHEET																																	
Manning's n=0.013																																	
LOCATION				RESIDENTIAL AREA AND POPULATION								COMM		INSTIT		PARK		C+H	INFILTRATION						PIPE								
STREET		FROM M.H.	TO M.H.	AREA (ha)	UNITS	POP.	CUMULATIVE		PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL.						
							AREA (ha)	POP.																			(FULL) (m/s)	(ACT.) (m/s)					
							0.22	14				0.00		0.00		0.00		0.22	0.93														
Contribution From STREET 1, Pipe 103A - 104A							0.27	8	28	0.95	89			0.00		0.00	0.25		0.27	1.20													
		104A	105A	0.29	15	41	1.24	130	3.6	1.50		0.00		0.00	0.25	0.03	0.29	1.49	0.49	2.02	94.5	200	0.35	19.40	0.10	0.62	0.40						
				0.25	7	24	1.49	154				0.00		0.00	0.25		0.25	1.74															
		105A	113A	0.28	14	38	1.77	192	3.5	2.19		0.00		0.00	0.25	0.03	0.28	2.02	0.67	2.89	94.5	200	0.35	19.40	0.15	0.62	0.44						
		113A	116A	0.23	9	25	4.31	423	3.4	4.67		0.00		0.00	1.05	0.11	0.23	5.36	1.77	6.55	60.0	200	0.35	19.40	0.34	0.62	0.56						
Contribution From STREET 4, Pipe 115A - 116A							0.88	114				0.00		0.00	0.00			0.88	6.24														
		116A	119A	0.23	9	25	5.42	562	3.4	6.12		0.00		0.00	1.05	0.11	0.23	6.47	2.14	8.36	60.0	200	0.35	19.40	0.43	0.62	0.59						
Contribution From STREET 5, Pipe 118A - 119A							1.62	165				0.00		0.00	0.00			1.62	8.09														
		119A	120A	0.20	8	22	7.24	749	3.3	8.01		0.00		0.00	1.05	0.11	0.20	8.29	2.74	10.86	49.0	200	0.35	19.40	0.56	0.62	0.63						
		120A	130A	0.15	4	11	7.39	760	3.3	8.13		0.00		0.00	1.05	0.11	0.15	8.44	2.79	11.02	13.0	200	0.35	19.40	0.57	0.62	0.64						
To SANITARY SERVICING EASEMENT, Pipe 130A - 131A							7.39	760				0.00		0.00	1.05			8.44															
SANITARY SERVICING EASEMENT																																	
Contribution From STREET 3, Pipe 120A - 130A							7.39	760				0.00		0.00	1.05		8.44	8.44															
Contribution From STREET 3, Pipe 129A - 130A							1.56	122				0.00		0.00	0.00		1.56	10.00															
		130A	131A	0.03		0	8.98	882	3.3	9.34		0.00		0.00	1.05	0.11	0.03	10.03	3.31	12.76	33.0	200	0.35	19.40	0.66	0.62	0.66						
		131A	132A	0.02		0	9.00	882	3.3	9.34		0.00		0.00	1.05	0.11	0.02	10.05	3.32	12.77	34.5	200	0.35	19.40	0.66	0.62	0.66						
		132A	133A	0.05		0	9.05	882	3.3	9.34		0.00		0.00	1.05	0.11	0.05	10.10	3.33	12.79	82.5	200	0.35	19.40	0.66	0.62	0.66						
		133A	134A	0.05		0	9.10	882	3.3	9.34		0.00		0.00	1.05	0.11	0.05	10.15	3.35	12.80	76.5	200	0.35	19.40	0.66	0.62	0.66						
		134A	135A	0.02		0	9.12	882	3.3	9.34		0.00		0.00	1.05	0.11	0.02	10.17	3.36	12.81	34.0	200	0.35	19.40	0.66	0.62	0.66						
		135A	136A				9.12	882	3.3	9.34		0.00		0.00	1.05	0.11	0.00	10.17	3.36	12.81	13.0	200	0.35	19.40	0.66	0.62	0.66						
STREET 2																																	
		203A	204A	0.26	7	19	0.26	19	3.7	0.23		0.00		0.00	0.00	0.00	0.26	0.26	0.09	0.31	47.0	200	0.65	26.44	0.01	0.84	0.28						
To STREET 6, Pipe 204A - 209A							0.26	19				0.00		0.00	0.00			0.26															
		106A	107A	0.38	6	21	0.38	21	3.7	0.25		0.00		0.00		0.00	0.38	0.38	0.13	0.38	75.5	200	0.65	26.44	0.01	0.84	0.29						
		107A	109A	0.30	7	24	0.68	45	3.7	0.53		0.00		0.00	0.80	0.80	0.09	1.10	1.48	0.49	1.11	82.0	200	0.35	19.40	0.06	0.62	0.33					
To STREET 3, Pipe 109A - 112A							0.68	45				0.00		0.00		0.80			1.48														
		201A	202A	0.36	9	25	0.36	25	3.7	0.30		0.00		0.00		0.00	0.36	0.36	0.12	0.42	59.0	200	0.65	26.44	0.02	0.84	0.30						
				0.17	6	17	0.53	42				0.00		0.00		0.00		0.17	0.53														
		202A	2020A	2.04	252	454	2.57	496	3.4	5.43		0.00		0.00		0.00	2.04	2.57	0.85	6.28	42.5	200	0.35	19.40	0.32	0.62	0.55						
		2020A	204A	0.16	5	14	2.73	510	3.4	5.58		0.00		0.00		0.00	0.16	2.73	0.90	6.48	42.0	200	0.35	19.40	0.33	0.62	0.55						
To STREET 6, Pipe 204A - 209A							2.73	510				0.00		0.00		0.00			2.73														
STREET 6																																	
		210A	211A	0.26	9	25	0.26	25	3.7	0.30		0.00		0.00		0.00	0.26	0.26	0.09	0.39	76.5	200	0.65	26.44	0.01	0.84	0.29						
To SANITARY OUTLET, Pipe 211A - 212A							0.26	25				0.00		0.00		0.00			0.26														
Contribution From STREET 2, Pipe 2020A - 204A							2.73	510				0.00		0.00		0.00		2.73	2.73														
Contribution From STREET 2, Pipe 203A - 204A							0.26	19				0.00		0.00		0.00		0.26	2.99														
		204A	209A	0.23	8	22	3.22	551	3.4	6.00		0.00		0.00		0.00	0.23	3.22	1.06	7.07	64.0	200	0.35	19.40	0.36	0.62	0.57						
		205A	206A	0.27	9	25	0.27	25	3.7	0.30		0.00		0.00		0.00	0.27	0.27	0.09	0.39	48.5	200	0.65	26.44	0.01	0.84	0.29						
		206A	207A	0.06	2	6	0.33	31	3.7	0.37		0.00		0.00		0.00	0.06	0.33	0.11	0.48	9.0	200	0.35	19.40	0.02	0.62	0.26						
		207A	208A	0.36	15	41	0.69	72	3.6	0.85		0.00		0.00		0.00	0.36	0.69	0.23	1.07	52.0	200	0.35	19.40	0.06	0.62	0.33						
		208A	209A				0.69	72	3.6	0.85		0.00		0.00		0.00	0.00	0.69	0.23	1.07	13.0	200	0.35	19.40	0.06	0.62	0.33						
DESIGN PARAMETERS														Designed: A.S.					PROJECT: Caivan Leitrim														
Park Flow =		9300	L/ha/da	0.10764	I/s/Ha							Checked: W.L.					LOCATION: City of Ottawa																
Average Daily Flow =		280	I/p/day							Industrial Peak Factor = as per MOE Graph					Dwg. Reference: Sanitary Drainage Plan, Dwgs. No.					File Ref: 24-1414					Date: 18 Jun 2026								
Comm/Inst Flow =		28000	L/ha/da	0.3241	I/s/Ha							Extraneous Flow =					Sheet No					2											
Industrial Flow =		35000	L/ha/da	0.40509	I/s/Ha							Minimum Velocity =					0.600					m/s											
Max Res. Peak Factor =		4.00												Manning's n =					(Conc)					0.013 (Pvc)									
Commercial/Inst./Park Peak Factor =		1.00												Townhouse coeff=					2.7														
Institutional =		0.32	I/s/Ha												Single house coeff=					3.4													

Manning's $n=0.013$

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