

Consultant: GM BluePlan Engineering Limited

Date: April 2023

Designed By: SG

Checked By: SZ

CITY OF GUELPH

SANITARY SEWER DESIGN

File No: 105172

Cityview Drive, Guelph

Sheet: 2 of 3

Roughness Coefficient (n): Concrete Pipe: 0.013

Min. Pipe Size: 200 mm

Pipe Capacity =

$$A \cdot R^{2/3} \cdot S^{1/2}$$

where: A = Area

S = Pipe Slope

PVC SDR 35: 0.013

Max. Velocity: 3 m/s

n

R = Hydraulic Radius n = Roughness

Location			Area						Maximum Flow	Maximum Cumulative Flow	Proposed Sewer						
Street	Upper MH	Lower MH	Single Family	Comm. Or Ind.	Schools & Mult. Family	Apart. - 150 u.p.ha.	Apart. - 295 u.p.ha.	Hi-Dens. Apart.			Type of Pipe	Grade	Length	Pipe Diameter	Pipe Capacity at % Grade	Full Flow Velocity	Actual Velocity
			0.0010	0.0017	0.0025	0.0060	0.0070	0.0070	(m ³ /s)	(m ³ /s)	"n"	%	(m)	(mm)	(m ³ /s)	(m/s)	(m/s)
STREET 1	MH.A	MH.B	0.63						0.0006	0.0006	0.013	3.39	90.0	200	0.0604	1.922	0.747
	MH.B	MH.C	0.40						0.0004	0.0010	0.013	1.25	50.8	200	0.0367	1.167	0.522
	MH.C	MH.D	0.16						0.0002	0.0012	0.013	1.00	14.0	200	0.0328	1.044	0.493
	MH.D	MH.E							0.0000	0.0012	0.013	1.00	14.0	200	0.0328	1.044	0.493
	MH.E	MH.F	0.16						0.0002	0.0014	0.013	0.50	66.4	200	0.0232	0.738	0.396
	MH.F	MH.G	0.15						0.0002	0.0022	0.013	0.69	74.3	200	0.0272	0.867	0.513
	MH.G	MH.H	0.04						0.0000	0.0022	0.013	0.69	21.4	200	0.0272	0.867	0.516
	MH.H	MH.I	0.02						0.0000	0.0022	0.013	4.18	12.7	200	0.0671	2.134	0.990
	MH.I	MH.J	0.10						0.0001	0.0023	0.013	3.00	55.3	200	0.0568	1.808	0.881
(FROM BLOCK 108)					1.19				0.0030	0.0030							
	MH.J	MH.K	0.06						0.0001	0.0054	0.013	2.00	12.6	200	0.0464	1.476	0.991
	MH.K	MH.L	0.05						0.0001	0.0054	0.013	3.84	19.0	200	0.0643	2.046	1.232
	MH.L	MH.M	0.13						0.0001	0.0056	0.013	4.86	53.3	200	0.0723	2.302	1.344
(FROM STREET 3)	MH.M	MH.N	0.41						0.0004	0.0091	0.013	0.50	70.8	200	0.0232	0.738	0.721

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			0.0010	0.0017	0.0025	0.0060	0.0070	0.0070	(m ³ /s)	(m ³ /s)	"n"	%	(m)	(mm)	(m ³ /s)	(m/s)	(m/s)
(FROM CITYVIEW DR.)	MH.N	MH.AB							0.0000	0.0224	0.013	5.71	15.1	200	0.0784	2.495	2.253
	MH.AB	MH.AC							0.0000	0.0224	0.013	1.70	23.0	200	0.0428	1.361	1.410
	MH.AC	MH.AD							0.0000	0.0224	0.013	3.18	19.0	200	0.0585	1.862	1.810
	MH.AD	MH.AE							0.0000	0.0224	0.013	3.00	80.4	200	0.0568	1.808	1.770
	MH.AE	MH.AF							0.0000	0.0224	0.013	3.00	33.1	200	0.0568	1.808	1.770
	MH.AF	MH.AG							0.0000	0.0224	0.013	2.43	55.1	200	0.0511	1.627	1.629
	MH.AG	EX.MH							0.0000	0.0224	0.013	1.16	10.6	200	0.0353	1.124	1.204

Note:

Lamont St flows obtained from Walterfedy Cityview Estates Subdivision Sanitary Sewer design sheet project #2019-0869-10, dated March 21, 2023