SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION									COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	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. (FULL) (m/s)	VEL. (ACT.) (m/s)
Anemone Mews																													
Contribution From Peninsula Road, Pipe 62A - 63A								0.95	90				0.00		0.00		0.00		0.95	0.95									
Contribution From Peninsula Road, Pipe 89A - 63A								0.17	14				0.00		0.00		0.00		0.17	1.12									
			0.09				0	1.21	104				0.00		0.00		0.00		0.09	1.21									
	63A	75A	0.09				0	1.30	104	3.59	1.21		0.00		0.00		0.00	0.00	0.09	1.30	0.43	1.64	62.5	250	0.25	29.73	0.06	0.61	0.32
To Conservancy Drive, Pipe 75A - 76A								1.30	104				0.00		0.00		0.00			1.30									
Contribution From Les Emmerson Drive (N), Pipe 70A - 72A								1.09	89				0.00		0.00		0.00		1.09	1.09									
Contribution From Les Emmerson Drive (N), Pipe 71A - 72A								2.38	313				0.00		0.00		0.00		2.38	3.47									
	72A	74A	0.27	6	6		21	3.74	423	3.41	4.67		0.00		0.00		0.00	0.00	0.27	3.74	1.23	5.91	58.5	250	0.25	29.73	0.20	0.61	0.47
Contribution From Les Emmerson Drive (S), Pipe 69A - 74A								1.30	153				0.00		0.00		0.00		1.30	5.04									
Contribution From Les Emmerson Drive (S), Pipe 73A - 74A								0.79	101				0.00		0.00		0.00		0.79	5.83									
	74A	750A	0.26	6	6		21	6.09	698	3.32	7.50		0.00		0.00		0.00	0.00	0.26	6.09	2.01	9.51	53.0	250	0.25	29.73	0.32	0.61	0.54
	750A	75A	0.01				0	6.10	698	3.32	7.50		0.00		0.00		0.00	0.00	0.01	6.10	2.01	9.51	9.5	250	0.25	29.73	0.32	0.61	0.54
To Conservancy Drive, Pipe 75A - 76A								6.10	698				0.00		0.00		0.00			6.10									
Peninsula Road																													
	89A	63A	0.17	4	4		14	0.17	14	3.72	0.17		0.00		0.00		0.00	0.00	0.17	0.17	0.06	0.22	41.0	200	0.65	26.44	0.01	0.84	0.26
To Anemone Mews, Pipe 63A - 75A								0.17	14				0.00		0.00		0.00			0.17									
	380A	38A	0.46	18		18	49	0.46	49	3.65	0.58		0.00		0.00		0.00	0.00	0.46	0.46	0.15	0.73	56.5	200	0.65	26.44	0.03	0.84	0.36
	38A	39A	0.60	30		30	81	1.06	130	3.57	1.50		0.00		0.00		0.00	0.00	0.60	1.06	0.35	1.85	108.5	250	0.25	29.73	0.06	0.61	0.33
To Mineral Street, Pipe 39A - 47A								1.06	130				0.00		0.00		0.00			1.06									
	620A	62A	0.50	13	13		45	0.50	45	3.66	0.53		0.00		0.00		0.00	0.00	0.50	0.50	0.17	0.70	83.0	200	0.65	26.44	0.03	0.84	0.36
	62A	63A	0.45	13	13		45	0.95	90	3.60	1.05		0.00		0.00		0.00	0.00	0.45	0.95	0.31	1.36	82.0	250	0.25	29.73	0.05	0.61	0.31
To Anemone Mews, Pipe 63A - 75A								0.95	90				0.00		0.00		0.00			0.95									
Gallium Crescent																													
	30A	31A	0.37	10	10		34	0.37	34	3.68	0.41		0.00		0.00		0.00	0.00	0.37	0.37	0.12	0.53	65.0	200	0.65	26.44	0.02	0.84	0.33
	31A	32A	0.34	9	9		31	0.71	65	3.63	0.77		0.00		0.00		0.00	0.00	0.34	0.71	0.23	1.00	64.0	250	0.25	29.73	0.03	0.61	0.28
To Sapling Grove, Pipe 32A - 37A								0.71	65				0.00		0.00		0.00			0.71									
	30A	33A	0.13	2	2		7	0.13	7	3.74	0.08		0.00		0.00		0.00	0.00	0.13	0.13	0.04	0.13	9.5	200	0.65	26.44	0.00	0.84	0.22
	33A	34A	0.16	3	3		11	0.29	18	3.71	0.22		0.00		0.00		0.00	0.00	0.16	0.29	0.10	0.31	43.5	250	0.25	29.73	0.01	0.61	0.19
	34A	35A	0.12	1	1		4	0.41	22	3.70	0.26		0.00		0.00		0.00	0.00	0.12	0.41	0.14	0.40	11.5	250	0.25	29.73	0.01	0.61	0.21
	35A	36A	0.44	11	11		38	0.85	60	3.64	0.71		0.00		0.00		0.00	0.00	0.44	0.85	0.28	0.99	68.5	250	0.25	29.73	0.03	0.61	0.27
	36A	37A	0.31	9	9		31	1.16	91	3.60	1.06		0.00		0.00		0.00	0.00	0.31	1.16	0.38	1.45	61.5	250	0.25	29.73	0.05	0.61	0.31
To Mineral Street, Pipe 37A - 39A								1.16	91				0.00		0.00		0.00			1.16									
Pollination Place																													
	250A	26A	0.11	2	2		7	0.11	7	3.74	0.08		0.00		0.00		0.00	0.00	0.11	0.11	0.04	0.12	24.5	200	0.65	26.44	0.00	0.84	0.20
			0.09	1	1		4	0.20	11				0.00		0.00		0.00		0.09	0.20									
	26A	27A	0.09	1	1		4	0.29	15	3.72	0.18		0.00		0.00		0.00	0.00	0.09	0.29	0.10	0.28	11.0	200	0.65	26.44	0.01	0.84	0.27
	27A	28A	0.39	10	10		34	0.68	49	3.65	0.58		0.00		0.00		0.00	0.00	0.39	0.68	0.22	0.80	63.5	250	0.25	29.73	0.03	0.61	0.26
	28A	29A	0.34	10	10		34	1.02	83	3.61	0.97		0.00		0.00		0.00	0.00	0.34	1.02	0.34	1.31	62.5	250	0.25	29.73	0.04	0.61	0.30
To Sapling Grove, Pipe 29A - 32A								1.02	83				0.00		0.00		0.00			1.02									
	250A	25A	0.09	2	2		7	0.09	7	3.74	0.08		0.00		0.00		0.00	0.00	0.09	0.09	0.03	0.11	20.5	200	0.65	26.44	0.00	0.84	0.20

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha	Industrial Peak Factor = as per MOE Graph			
Average Daily Flow =	280	l/p/day			Extraneous Flow =	0.330	L/s/ha	
Comm/Inst Flow =	28000	L/ha/da	0.3241	l/s/Ha	Minimum Velocity =	0.600	m/s	
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Manning's n = (Conc)	0.013	(Pvc)	0.013
Max Res. Peak Factor =	4.00				Townhouse coeff=	2.7		
Commercial/Inst./Park Peak Factor =	1.50				Stacked Townhouse coeff=	4.0		
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4		

Designed: R.B.	PROJECT: BARRHAVEN CONCERVANCY EAST, PHASE 3 AND 4		
Checked: W.L.	LOCATION: City of Ottawa		
Dwg. Reference: Sanitary Tributary Area Plan, Dwg No. 5	File Ref: 20-1180	Date: 05 Apr 2024	Sheet No. 1 of 5

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION									COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	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. (FULL) (m/s)	VEL. (ACT.) (m/s)
	25A	19A	0.04				0	0.13	7	3.74	0.08		0.00		0.00		0.00	0.00	0.04	0.13	0.04	0.13	8.0	250	0.25	29.73	0.00	0.61	0.15
			0.28	5	5		17	0.41	24				0.00		0.00		0.00		0.28	0.41									
	19A	20A	0.28	5	5		17	0.69	41	3.67	0.49		0.00		0.00		0.00	0.00	0.28	0.69	0.23	0.71	71.0	250	0.25	29.73	0.02	0.61	0.25
	20A	21A	0.19	4	4		14	0.88	55	3.64	0.65		0.00		0.00		0.00	0.00	0.19	0.88	0.29	0.94	54.5	250	0.25	29.73	0.03	0.61	0.27
To Sapling Grove, Pipe 21A - 29A								0.88	55				0.00		0.00		0.00			0.88									
Mineral Street																													
	430A	46A	0.09				0	0.09	0				0.00		0.00		0.00	0.00	0.09	0.09	0.03	0.03	50.0	200	0.65	26.44	0.00	0.84	0.14
Contribution From Les Emmerson Drive (S), Pipe 45A - 46A								0.72	194				0.00		0.00		0.00		0.72	0.81									
	46A	47A	0.20	6		6	17	1.01	211	3.51	2.40		0.00		0.00		0.00	0.00	0.20	1.01	0.33	2.73	58.0	250	0.25	29.73	0.09	0.61	0.37
To Conservancy Drive, Pipe 47A - 48A								1.01	211				0.00		0.00		0.00			1.01									
Contribution From Sapling Grove, Pipe 32A - 37A								3.27	268				0.00		0.00		0.00		3.27	3.27									
Contribution From Gallium Crescent, Pipe 36A - 37A								1.16	91				0.00		0.00		0.00		1.16	4.43									
	37A	39A	0.09				0	4.52	359	3.44	4.00		0.00		0.00		0.00	0.00	0.09	4.52	1.49	5.49	60.0	250	0.25	29.73	0.18	0.61	0.46
Contribution From Peninsula Road, Pipe 38A - 39A								1.06	130				0.00		0.00		0.00		1.06	5.58									
	39A	47A	0.09				0	5.67	489	3.38	5.36		0.00		0.00		0.00	0.00	0.09	5.67	1.87	7.23	62.5	250	0.25	29.73	0.24	0.61	0.50
To Conservancy Drive, Pipe 47A - 48A								5.67	489				0.00		0.00		0.00			5.67									
Les Emmerson Drive (S)																													
	44A	17A	1.04	120		120	276	1.04	276	3.47	3.11		0.00		0.00		0.00	0.00	1.04	1.04	0.34	3.45	20.0	200	0.65	26.44	0.13	0.84	0.58
To Les Emmerson Drive (N), Pipe 17A - 18A								1.04	276				0.00		0.00		0.00			1.04									
	45A	46A	0.72	84		84	194	0.72	194	3.52	2.21		0.00		0.00		0.00	0.00	0.72	0.72	0.24	2.45	20.0	200	0.65	26.44	0.09	0.84	0.53
To Mineral Street, Pipe 46A - 47A								0.72	194				0.00		0.00		0.00			0.72									
	730A	73A	0.51	25		25	68	0.51	68	3.63	0.80		0.00		0.00		0.00	0.00	0.51	0.51	0.17	0.97	92.0	200	0.65	26.44	0.04	0.84	0.40
	73A	74A	0.28	12		12	33	0.79	101	3.59	1.18		0.00		0.00		0.00	0.00	0.28	0.79	0.26	1.44	68.5	250	0.25	29.73	0.05	0.61	0.31
To Anemone Mews, Pipe 74A - 750A								0.79	101				0.00		0.00		0.00			0.79									
	65A	66A	0.17	4		4	11	0.17	11	3.73	0.13		0.00		0.00		0.00	0.00	0.17	0.17	0.06	0.19	37.5	200	0.65	26.44	0.01	0.84	0.24
	66A	67A	0.11	3		3	9	0.28	20	3.70	0.24		0.00		0.00		0.00	0.00	0.11	0.28	0.09	0.33	11.0	250	0.25	29.73	0.01	0.61	0.19
	67A	69A	0.63	31		31	84	0.91	104	3.59	1.21		0.00		0.00		0.00	0.00	0.63	0.91	0.30	1.51	100.0	250	0.25	29.73	0.05	0.61	0.31
	69A	74A	0.39	18		18	49	1.30	153	3.55	1.76		0.00		0.00		0.00	0.00	0.39	1.30	0.43	2.19	93.0	250	0.25	29.73	0.07	0.61	0.35
To Anemone Mews, Pipe 74A - 750A								1.30	153				0.00		0.00		0.00			1.30									
Les Emmerson Drive (N)																													
	210A	18A						0.00					0.00		0.00	3.09	3.09	0.50	3.09	3.09	1.02	1.52	14.0	200	0.65	26.44	0.06	0.84	0.45
To Conservancy Drive, Pipe 18A - 23A								0.00	0				0.00		0.00		3.09			3.09									
	16A	17A	0.22	9		9	25	0.22	25	3.69	0.30		0.00		0.00		0.00	0.00	0.22	0.22	0.07	0.37	52.0	200	0.65	26.44	0.01	0.84	0.29
Contribution From Les Emmerson Drive (S), Pipe 44A - 17A								1.04	276				0.00		0.00		0.00		1.04	1.26									
	17A	18A	0.20	7		7	19	1.46	320	3.45	3.58		0.00		0.00		0.00	0.00	0.20	1.46	0.48	4.06	58.0	250	0.25	29.73	0.14	0.61	0.42
To Conservancy Drive, Pipe 18A - 23A								1.46	320				0.00		0.00		0.00			1.46									
	64A	70A	0.45	10	10		34	0.45	34	3.68	0.41		0.00		0.00		0.00	0.00	0.45	0.45	0.15	0.55	70.5	200	0.65	26.44	0.02	0.84	0.34
	70A	72A	0.64	16	16		55	1.09	89	3.61	1.04		0.00		0.00		0.00	0.00	0.64	1.09	0.36	1.40	119.0	250	0.25	29.73	0.05	0.61	0.31
To Anemone Mews, Pipe 72A - 74A								1.09	89				0.00		0.00		0.00			1.09									

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha	Industrial Peak Factor = as per MOE Graph		
Average Daily Flow =	280	l/p/day			Extraneous Flow =	0.330	L/s/ha
Comm/Inst Flow =	28000	L/ha/da	0.3241	l/s/Ha	Minimum Velocity =	0.600	m/s
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Manning's n = (Conc)	0.013	(Pvc) 0.013
Max Res. Peak Factor =	4.00				Townhouse coeff=	2.7	
Commercial/Inst./Park Peak Factor =	1.50				Stacked Townhouse coeff=	4.0	
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4	

Designed: R.B.

Checked: W.L.

Dwg. Reference: Sanitary Tributary Area Plan, Dwg No. 5

PROJECT: **BARRHAVEN CONCERVANCY EAST, PHASE 3 AND 4**

LOCATION: **City of Ottawa**

File Ref: 20-1180

Date: **05 Apr 2024**

Sheet No. 2 of 5

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION									COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	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. (FULL) (m/s)	VEL. (ACT.) (m/s)
	16A	40A	0.11	3		3	9	0.11	9	3.74	0.11		0.00		0.00		0.00	0.00	0.11	0.11	0.04	0.15	17.5	200	0.65	26.44	0.01	0.84	0.22
	40A	41A	0.34	17		17	46	0.45	55	3.64	0.65		0.00		0.00		0.00	0.00	0.34	0.45	0.15	0.80	49.5	250	0.65	47.94	0.02	0.98	0.35
	41A	42A	0.66	33		33	90	1.11	145	3.56	1.67		0.00		0.00		0.00	0.00	0.66	1.11	0.37	2.04	108.5	250	0.25	29.73	0.07	0.61	0.34
	42A	43A	0.36	18		18	49	1.47	194	3.52	2.21		0.00		0.00		0.00	0.00	0.36	1.47	0.49	2.70	64.5	250	0.25	29.73	0.09	0.61	0.37
	43A	71A	0.53	26		26	71	2.00	265	3.48	2.99		0.00		0.00		0.00	0.00	0.53	2.00	0.66	3.65	98.0	250	0.25	29.73	0.12	0.61	0.41
			0.08	2	2		7	2.08	272				0.00		0.00		0.00		0.08	2.08									
	71A	72A	0.30	15		15	41	2.38	313	3.46	3.51		0.00		0.00		0.00	0.00	0.30	2.38	0.79	4.29	76.5	250	0.25	29.73	0.14	0.61	0.43
To Anemone Mews, Pipe 72A - 74A								2.38	313				0.00		0.00		0.00			2.38									
Deciduous Crescent																													
	8A	9A	0.45	19		19	52	0.45	52	3.65	0.61		0.00		0.00		0.00	0.00	0.45	0.45	0.15	0.76	61.5	200	0.65	26.44	0.03	0.84	0.37
	9A	11A	0.31	14		14	27	0.76	79	3.62	0.93		0.00		0.00		0.00	0.00	0.31	0.76	0.25	1.18	66.5	250	0.25	29.73	0.04	0.61	0.29
To Conservancy Drive, Pipe 11A - 15A								0.76	79				0.00		0.00		0.00			0.76									
	12A	13A	0.09	2		2	6	0.09	6	3.75	0.07		0.00		0.00		0.00	0.00	0.09	0.09	0.03	0.10	7.5	200	0.65	26.44	0.00	0.84	0.20
	13A	14A	0.39	19		19	52	0.48	58	3.64	0.68		0.00		0.00		0.00	0.00	0.39	0.48	0.16	0.84	66.0	250	0.25	29.73	0.03	0.61	0.27
	14A	15A	0.36	17		17	46	0.84	104	3.59	1.21		0.00		0.00		0.00	0.00	0.36	0.84	0.28	1.49	69.5	250	0.25	29.73	0.05	0.61	0.31
To Conservancy Drive, Pipe 15A - 18A								0.84	104				0.00		0.00		0.00			0.84									
Ephemeral Crescent																													
	2A	3A	0.17	2		2	6	0.17	6	3.75	0.07		0.00		0.00		0.00	0.00	0.17	0.17	0.06	0.13	13.0	200	0.70	27.44	0.00	0.87	0.21
	3A	4A	0.66	32		32	87	0.83	93	3.60	1.09		0.00		0.00		0.00	0.00	0.66	0.83	0.27	1.36	107.5	250	0.25	29.73	0.05	0.61	0.31
	4A	15A	0.40	15		15	41	1.23	134	3.57	1.55		0.00		0.00		0.00	0.00	0.40	1.23	0.41	1.95	112.0	250	0.25	29.73	0.07	0.61	0.34
To Conservancy Drive, Pipe 15A - 18A								1.23	134				0.00		0.00		0.00			1.23									
	5A	500A	0.15	7		7	19	0.15	19	3.71	0.23		0.00		0.00		0.00	0.00	0.15	0.15	0.05	0.28	21.0	200	0.65	26.44	0.01	0.84	0.27
	500A	6A	0.46	24		24	65	0.61	84	3.61	0.98		0.00		0.00		0.00	0.00	0.46	0.61	0.20	1.18	78.5	250	0.25	29.73	0.04	0.61	0.29
	6A	11A	0.54	26		26	71	1.15	155	3.55	1.78		0.00		0.00		0.00	0.00	0.54	1.15	0.38	2.16	104.5	250	0.25	29.73	0.07	0.61	0.35
To Conservancy Drive, Pipe 11A - 15A								1.15	155				0.00		0.00		0.00			1.15									
Borrisokane Road																													
	1002A	1001A	0.18	4		4	11	0.18	11	3.73	0.13		0.00		0.00		0.00	0.00	0.18	0.18	0.06	0.19	40.0	200	0.65	26.44	0.01	0.84	0.24
	1001A	10A	0.40	12		12	33	0.58	44	3.66	0.52		0.00		0.00		0.00	0.00	0.40	0.58	0.19	0.71	100.0	250	0.25	29.73	0.02	0.61	0.25
To Conservancy Drive, Pipe 10A - 11A								0.58	44				0.00		0.00		0.00			0.58									
	1004A	1003A	0.50	14		14	38	0.50	38	3.67	0.45		0.00		0.00		0.00	0.00	0.50	0.50	0.17	0.62	98.5	200	0.65	26.44	0.02	0.84	0.35
	1003A	10A	0.41	13		13	36	0.91	74	3.62	0.87		0.00		0.00		0.00	0.00	0.41	0.91	0.30	1.17	100.0	250	0.25	29.73	0.04	0.61	0.29
To Conservancy Drive, Pipe 10A - 11A								0.91	74				0.00		0.00		0.00			0.91									
Conservancy Drive																													
			12.88				1182	12.88	1182			4.21	4.21		0.00	0.58	0.58		17.67	17.67									
	1005A	10A	36.45				3771	49.33	4953	2.80	44.93	13.70	17.91		0.00	3.47	4.05	9.36	53.62	71.29	23.53	77.81	20.5	525	0.10	136.00	0.57	0.63	0.65
Contribution From Borrisokane Road, Pipe 1001A - 10A								0.58	44				0.00		0.00		0.00		0.58	71.87									
Contribution From Borrisokane Road, Pipe 1003A - 10A								0.91	74				0.00		0.00		0.00		0.91	72.78									
	10A	11A	0.15				0	50.97	5071	2.79	45.87		17.91		0.00		4.05	9.36	0.15	72.93	24.07	79.30	71.5	525	0.10	136.00	0.58	0.63	0.65

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha	Industrial Peak Factor = as per MOE Graph			
Average Daily Flow =	280	l/p/day			Extraneous Flow =	0.330	L/s/ha	
Comm/Inst Flow =	28000	L/ha/da	0.3241	l/s/Ha	Minimum Velocity =	0.600	m/s	
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Manning's n = (Conc)	0.013	(Pvc)	0.013
Max Res. Peak Factor =	4.00				Townhouse coeff=	2.7		
Commercial/Inst./Park Peak Factor =	1.50				Stacked Townhouse coeff=	4.0		
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4		

Designed: R.B.	PROJECT: BARRHAVEN CONCERVANCY EAST, PHASE 3 AND 4		
Checked: W.L.	LOCATION: City of Ottawa		
Dwg. Reference: Sanitary Tributary Area Plan, Dwg No. 5	File Ref: 20-1180	Date: 05 Apr 2024	Sheet No. 3 of 5

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION									COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	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. (FULL) (m/s)	VEL. (ACT.) (m/s)
Contribution From Ephemeral Crescent, Pipe 6A - 11A								1.15	155				0.00		0.00		0.00		1.15	74.08									
Contribution From Deciduous Crescent, Pipe 9A - 11A								0.76	79				0.00		0.00		0.00		0.76	74.84									
	11A	15A	0.12				0	53.00	5305	2.78	47.74		17.91		0.00		4.05	9.36	0.12	74.96	24.74	81.84	59.0	525	0.10	136.00	0.60	0.63	0.66
Contribution From Deciduous Crescent, Pipe 14A - 15A								0.84	104				0.00		0.00		0.00		0.84	75.80									
Contribution From Ephemeral Crescent, Pipe 4A - 15A								1.23	134				0.00		0.00		0.00		1.23	77.03									
	15A	18A	0.13				0	55.20	5543	2.76	49.63		17.91		0.00		4.05	9.36	0.13	77.16	25.46	84.45	62.0	525	0.10	136.00	0.62	0.63	0.66
Contribution From Les Emmerson Drive (N), Pipe 17A - 18A								1.46	320				0.00		0.00		0.00		1.46	78.62									
Contribution From Les Emmerson Drive (N), Pipe 210A - 18A								0.00	0				0.00		0.00		3.09		3.09	81.71									
	18A	23A	0.16				0	56.82	5863	2.74	52.14		17.91		0.00		7.14	9.86	0.16	81.87	27.02	89.02	73.0	525	0.10	136.00	0.65	0.63	0.67
	23A	24A	0.34	9		9	25	57.16	5888	2.74	52.34		17.91		0.00		7.14	9.86	0.34	82.21	27.13	89.32	71.0	525	0.10	136.00	0.66	0.63	0.67
	24A	47A	0.45	15		15	41	57.61	5929	2.74	52.66		17.91		0.00		7.14	9.86	0.45	82.66	27.28	89.79	106.0	525	0.10	136.00	0.66	0.63	0.67
Contribution From Mineral Street, Pipe 39A - 47A								5.67	489				0.00		0.00		0.00		5.67	88.33									
Contribution From Mineral Street, Pipe 46A - 47A								1.01	211				0.00		0.00		0.00		1.01	89.34									
	47A	48A	0.56	14	14		48	64.85	6677	2.70	58.45		17.91		0.00		7.14	9.86	0.56	89.90	29.67	97.97	99.0	525	0.10	136.00	0.72	0.63	0.68
	48A	75A	0.42	10	10		34	65.27	6711	2.70	58.71		17.91		0.00		7.14	9.86	0.42	90.32	29.81	98.37	76.5	525	0.10	136.00	0.72	0.63	0.68
Contribution From Anemone Mews, Pipe 63A - 75A								1.30	104				0.00		0.00		0.00		1.30	91.62									
Contribution From Anemone Mews, Pipe 750A - 75A								6.10	698				0.00		0.00		0.00		6.10	97.72									
	75A	76A	0.31	7	7		24	72.98	7537	2.66	64.98		17.91		0.00		7.14	9.86	0.31	98.03	32.35	107.19	62.0	525	0.10	136.00	0.79	0.63	0.69
	76A	77A	0.39	11	11		38	73.37	7575	2.66	65.27		17.91		0.00		7.14	9.86	0.39	98.42	32.48	107.61	60.0	525	0.10	136.00	0.79	0.63	0.70
Ainsworth Crescent																													
	80A	81A	0.51	10	10		34	0.51	34	3.68	0.41		0.00		0.00		0.00	0.00	0.51	0.51	0.17	0.57	69.0	200	0.65	26.44	0.02	0.84	0.34
	81A	82A	0.38	11	11		38	0.89	72	3.62	0.85		0.00		0.00		0.00	0.00	0.38	0.89	0.29	1.14	70.0	250	0.25	29.73	0.04	0.61	0.29
To Sapling Grove, Pipe 82A - 85A								0.89	72				0.00		0.00		0.00			0.89									
	78A	59A	0.07	1	1		4	0.07	4	3.76	0.05		0.00		0.00		0.00	0.00	0.07	0.07	0.02	0.07	13.0	200	0.65	26.44	0.00	0.84	0.17
	59A	60A	0.45	11	11		38	0.52	42	3.66	0.50		0.00		0.00		0.00	0.00	0.45	0.52	0.17	0.67	76.0	250	0.25	29.73	0.02	0.61	0.24
	60A	61A	0.41	12	12		41	0.93	83	3.61	0.97		0.00		0.00		0.00	0.00	0.41	0.93	0.31	1.28	75.0	250	0.25	29.73	0.04	0.61	0.30
To Sapling Grove, Pipe 61A - 82A								0.93	83				0.00		0.00		0.00			0.93									
Syringa Court																													
	55A	56A	0.14	2	2		7	0.14	7	3.74	0.08		0.00		0.00		0.00	0.00	0.14	0.14	0.05	0.13	11.0	200	0.65	26.44	0.00	0.84	0.22
	56A	57A	0.42	11	11		38	0.56	45	3.66	0.53		0.00		0.00		0.00	0.00	0.42	0.56	0.18	0.72	67.0	250	0.65	47.94	0.01	0.98	0.35
	57A	58A	0.34	10	10		34	0.90	79	3.62	0.93		0.00		0.00		0.00	0.00	0.34	0.90	0.30	1.22	67.5	250	0.25	29.73	0.04	0.61	0.29
To Sapling Grove, Pipe 58A - 61A								0.90	79				0.00		0.00		0.00			0.90									
	55A	53A	0.17	3	3		11	0.17	11	3.73	0.13		0.00		0.00		0.00	0.00	0.17	0.17	0.06	0.19	45.5	200	0.65	26.44	0.01	0.84	0.24
	53A	49A	0.08	1	1		4	0.25	15	3.72	0.18		0.00		0.00		0.00	0.00	0.08	0.25	0.08	0.26	9.0	250	0.25	29.73	0.01	0.61	0.18
	49A	50A	0.44	11	11		38	0.69	53	3.65	0.63		0.00		0.00		0.00	0.00	0.44	0.69	0.23	0.85	68.5	250	0.25	29.73	0.03	0.61	0.27
	50A	51A	0.34	10	10		34	1.03	87	3.61	1.02		0.00		0.00		0.00	0.00	0.34	1.03	0.34	1.36	66.5	250	0.25	29.73	0.05	0.61	0.31
To Sapling Grove, Pipe 51A - 58A								1.03	87				0.00		0.00		0.00			1.03									
Sapling Grove																													
Contribution From Pollination Place, Pipe 20A - 21A								0.88	55				0.00		0.00		0.00		0.88	0.88									
	21A	29A	0.24	7		7	19	1.12	74	3.62	0.87		0.00		0.00		0.00	0.00	0.24	1.12	0.37	1.24	59.0	250	0.25	29.73	0.04	0.61	0.29
Contribution From Pollination Place, Pipe 28A - 29A								1.02	83				0.00		0.00		0.00		1.02	2.14									
	29A	32A	0.23	10		10	27	2.37	184	3.53	2.10		0.00		0.00		0.00	0.00	0.23	2.37	0.78	2.89	58.5	250	0.25	29.73	0.10	0.61	0.38

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha	Industrial Peak Factor = as per MOE Graph		
Average Daily Flow =	280	l/p/day			Extraneous Flow =	0.330	L/s/ha
Comm/Inst Flow =	28000	L/ha/da	0.3241	l/s/Ha	Minimum Velocity =	0.600	m/s
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Manning's n = (Conc)	0.013 (Pvc)	0.013
Max Res. Peak Factor =	4.00				Townhouse coeff=	2.7	
Commercial/Inst./Park Peak Factor =	1.50				Stacked Townhouse coeff=	4.0	
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4	

Designed: R.B.	PROJECT: BARRHAVEN CONCERVANCY EAST, PHASE 3 AND 4		
Checked: W.L.	LOCATION: City of Ottawa		
Dwg. Reference: Sanitary Tributary Area Plan, Dwg No. 5	File Ref: 20-1180	Date: 05 Apr 2024	Sheet No. 4 of 5

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION									COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	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. (FULL) (m/s)	VEL. (ACT.) (m/s)
Contribution From Gallium Crescent, Pipe 31A - 32A								0.71	65				0.00		0.00		0.00		0.71	3.08									
	32A	37A	0.19	7		7	19	3.27	268	3.48	3.02		0.00		0.00		0.00	0.00	0.19	3.27	1.08	4.10	58.5	250	0.25	29.73	0.14	0.61	0.42
To Mineral Street, Pipe 37A - 39A								3.27	268				0.00		0.00		0.00			3.27									
	510A	51A	0.18	3	3		11	0.18	11	3.73	0.13		0.00		0.00		0.00	0.00	0.18	0.18	0.06	0.19	48.5	200	0.65	26.44	0.01	0.84	0.24
Contribution From Syringa Court, Pipe 50A - 51A								1.03	87				0.00		0.00		0.00		1.03	1.21									
	51A	58A	0.25	5	5		17	1.46	115	3.58	1.33		0.00		0.00		0.00	0.00	0.25	1.46	0.48	1.82	58.5	250	0.25	29.73	0.06	0.61	0.33
Contribution From Syringa Court, Pipe 57A - 58A								0.90	79				0.00		0.00		0.00		0.90	2.36									
	58A	61A	0.19	4	4		14	2.55	208	3.51	2.37		0.00		0.00		0.00	0.00	0.19	2.55	0.84	3.21	58.5	250	0.25	29.73	0.11	0.61	0.39
Contribution From Ainsworth Crescent, Pipe 60A - 61A								0.93	83				0.00		0.00		0.00		0.93	3.48									
	61A	82A	0.22	4	4		14	3.70	305	3.46	3.42		0.00		0.00		0.00	0.00	0.22	3.70	1.22	4.64	60.0	250	0.25	29.73	0.16	0.61	0.44
Contribution From Ainsworth Crescent, Pipe 81A - 82A								0.89	72				0.00		0.00		0.00		0.89	4.59									
	82A	85A	0.18	4	4		14	4.77	391	3.42	4.34		0.00		0.00		0.00	0.00	0.18	4.77	1.57	5.91	58.5	250	0.25	29.73	0.20	0.61	0.47

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha	Industrial Peak Factor = as per MOE Graph			
Average Daily Flow =	280	l/p/day			Extraneous Flow =	0.330	L/s/ha	
Comm/Inst Flow =	28000	L/ha/da	0.3241	l/s/Ha	Minimum Velocity =	0.600	m/s	
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Manning's n = (Conc)	0.013	(Pvc)	0.013
Max Res. Peak Factor =	4.00				Townhouse coeff=	2.7		
Commercial/Inst./Park Peak Factor =	1.50				Stacked Townhouse coeff=	4.0		
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4		

Designed: R.B.	PROJECT: **BARRHAVEN CONCERVANCY EAST, PHASE 3 AND 4**		
Checked: W.L.	LOCATION: **City of Ottawa**		
Dwg. Reference: Sanitary Tributary Area Plan, Dwg No. 5	File Ref: 20-1180	Date: **05 Apr 2024**	Sheet No. 5 of 5