


Design Sheet for Conservancy East detailed design.

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013



LOCATION			RESIDENTIAL AREA AND POPULATION							COMM		INSTIT		PARK		C+H	INFILTRATION			PIPE						VEL.				
STREET	FROM	TO	AREA (ha)	UNITS	UNITS Singles	UNITS Townhouse	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	(FULL)	(ACT.)	
	M.H.	M.H.						AREA (ha)	POP.																			(m/s)	(m/s)	
Ainsworth Crescent																														
	80A	81A	0.51	10	10		34	0.51	34	3.68	0.41		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		0.38	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					0.89										
	78A	59A	0.07	1	1		4	0.07	4	3.76	0.05		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		0.45	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		0.41	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					0.93										
Syringa Court																														
	55A	56A	0.14	2	2		7	0.14	7	3.74	0.08		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		0.42	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		0.34	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					0.90										
	55A	53A	0.17	3	3		11	0.17	11	3.73	0.13		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		0.08	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		0.44	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		0.34	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					1.03										
Ecology Lane																														
	880A	88A	0.44	10	10		34	0.44	34	3.68	0.41		0.00		0.00		0.00		0.44	0.44	0.15		0.55	76.0	200	0.65	26.44	0.02	0.84	0.33
Contribution From Sapling Grove, Pipe 85A - 88A								5.48	453				0.00		0.00				5.48	5.92										
	88A	91A	0.18	4	4		14	6.10	501	3.38	5.49		0.00		0.00		0.00		0.18	6.10	2.01		7.50	60.0	250	0.25	29.73	0.25	0.61	0.50
Contribution From Peninsula Road, Pipe 90A - 91A								0.78	79				0.00		0.00				0.78	6.88										
	91A	92A	0.08				0	6.96	580	3.35	6.30		0.00		0.00		0.00		0.08	6.96	2.30		8.60	62.5	250	0.25	29.73	0.29	0.61	0.52
To Conservancy Drive, Pipe 92A - 93A								6.96	580				0.00		0.00					6.96										
Anemone Mews																														
			0.09				0	0.09	0				0.00		0.00		0.00		0.09	0.09										
Contribution From Peninsula Road, Pipe 62A - 63A								0.95	90				0.00		0.00					0.95	1.04									
Contribution From Peninsula Road, Pipe 89A - 63A								0.17	14				0.00		0.00				0.17	1.21										
	63A	75A	0.09				0	1.30	104	3.59	1.21		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					1.30										
Contribution From Les Emmerson Drive (N), Pipe 70A - 72A								1.09	99				0.00		0.00					1.09	1.09									
Contribution From Les Emmerson Drive (N), Pipe 71A - 72A								2.25	216				0.00		0.00					2.25	3.34									
	72A	74A	0.27	6	6		21	3.61	336	3.45	3.75		0.00		0.00		0.00		0.27	3.61	1.19		4.94	58.5	250	0.25	29.73	0.17	0.61	0.45
Contribution From Les Emmerson Drive (S), Pipe 69A - 74A								1.30	132				0.00		0.00					1.30	4.91									
Contribution From Les Emmerson Drive (S), Pipe 73A - 74A								0.71	76				0.00		0.00					0.71	5.62									
	74A	750A	0.26	6	6		21	5.88	565	3.36	6.15		0.00		0.00		0.00		0.26	5.88	1.94		8.09	52.0	250	0.25	29.73	0.27	0.61	0.51
	750A	75A	0.01				0	5.89	565	3.36	6.15		0.00		0.00		0.00		0.01	5.89	1.94		8.09	10.5	250	0.25	29.73	0.27	0.61	0.51
To Conservancy Drive, Pipe 75A - 76A								5.89	565				0.00		0.00					5.89										
Gallium Crescent																														
	30A	31A	0.37	10	10		34	0.37	34	3.68	0.41		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

DESIGN PARAMETERS			
Park Flow =	9300	L/ha/da	0.10764 I/s/ha
Average Daily Flow =	280	l/p/day	
Comm/Inst Flow =	28000	L/ha/da	0.3241 I/s/ha
Industrial Flow =	35000	L/ha/da	0.40509 I/s/ha
Max Res. Peak Factor =	4.00		
Commercial/Inst./Park Peak Factor =	1.50		
Institutional =	0.32	I/s/ha	

Designed:	A.K.	PROJECT:	BARRHAVEN CONSERVANCY EAST PH2, 3, AND JOCK RIVER		
Checked:	W.L.	LOCATION:	City of Ottawa		
Dwg. Reference:	Sanitary Drainage Plan, Dwg. No. 110-112	File Ref:	20-1180	Date:	Aug 2022
		Sheet No.	1	of	6



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 (ha)	UNITS	UNITS Singles	UNITS Townhouse	POP.	CUMULATIVE		PEAK FLOW (l/s)	PEAK FACT.	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	(FULL)	(ACT.)
								AREA (ha)	POP.																			(m/s)	(m/s)
	31A	32A	0.34	9	9		31	0.71	65	3.63	0.77		0.00		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	
	26A	27A	0.09	1	1		4	0.20	11	3.73	0.13		0.00		0.00	0.00	0.00	0.09	0.20	0.07	0.20	11.0	200	0.65	26.44	0.01	0.84	0.24	
	27A	28A	0.39	10	10		34	0.59	45	3.66	0.53		0.00		0.00	0.00	0.00	0.39	0.59	0.19	0.73	63.5	250	0.25	29.73	0.02	0.61	0.25	
	28A	29A	0.34	10	10		34	0.93	79	3.62	0.93		0.00		0.00	0.00	0.00	0.34	0.93	0.31	1.23	62.5	250	0.25	29.73	0.04	0.61	0.29	
To Sapling Grove, Pipe 29A - 32A								0.93	79				0.00	0.00		0.00			0.93										
	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	
	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	
	19A	20A	0.28	5	5		17	0.41	24	3.70	0.29		0.00		0.00	0.00	0.00	0.28	0.41	0.14	0.42	71.0	250	0.25	29.73	0.01	0.61	0.21	
	20A	21A	0.19	4	4		14	0.60	38	3.67	0.45		0.00		0.00	0.00	0.00	0.19	0.60	0.20	0.65	54.5	250	0.25	29.73	0.02	0.61	0.24	
To Sapling Grove, Pipe 21A - 29A								0.60	38				0.00	0.00		0.00			0.60										
Sapling Grove																													
Contribution From Pollination Place, Pipe 20A - 21A								0.60	38				0.00	0.00		0.00			0.60	0.60									
	21A	29A	0.23	3	3		11	0.83	49	3.65	0.58		0.00		0.00	0.00	0.00	0.23	0.83	0.27	0.85	59.0	250	0.25	29.73	0.03	0.61	0.27	
Contribution From Pollination Place, Pipe 28A - 29A								0.93	79				0.00	0.00		0.00			0.93	1.76									
	29A	32A	0.25	5	5		17	2.01	145	3.56	1.67		0.00		0.00	0.00	0.00	0.25	2.01	0.66	2.33	58.5	250	0.25	29.73	0.08	0.61	0.36	
Contribution From Gallium Crescent, Pipe 31A - 32A								0.71	65				0.00	0.00		0.00			0.71	2.72									
	32A	37A	0.19	4	4		14	2.91	224	3.50	2.54		0.00		0.00	0.00	0.00	0.19	2.91	0.96	3.50	58.5	250	0.25	29.73	0.12	0.61	0.40	
To Mineral Street, Pipe 37A - 39A								2.91	224				0.00	0.00		0.00			2.91										
	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	
Contribution From Meander Way, Pipe 84A - 85A								0.50	45				0.00	0.00		0.00			0.50	5.27									
	85A	88A	0.21	5	5		17	5.48	453	3.40	4.99		0.00		0.00	0.00	0.00	0.21	5.48	1.81	6.79	58.5	250	0.25	29.73	0.23	0.61	0.49	
To Ecology Lane, Pipe 88A - 91A								5.48	453				0.00	0.00		0.00			5.48										

DESIGN PARAMETERS

Park Flow = 9300 L/ha/day
 Average Daily Flow = 280 l/p/day
 Comm/Inst Flow = 28000 L/ha/day
 Industrial Flow = 35000 L/ha/day
 Max Res. Peak Factor = 4.00
 Commercial/Inst./Park Peak Factor = 1.50
 Institutional = 0.32 l/s/ha



Industrial Peak Factor = as per MOE Graph
 Extraneous Flow = 0.330 L/s/ha
 Minimum Velocity = 0.600 m/s
 Manning's n = 0.013 (Conc) (Pvc)
 Townhouse coeff = 2.7
 Single house coeff = 3.4

Designed: A.K.	PROJECT: BARRHAVEN CONCERVANCY EAST PH2, 3, AND JOCK RIVER
Checked: W.L.	LOCATION: City of Ottawa
Dwg. Reference: Sanitary Drainage Plan, Dwgs. No. 110-112	File Ref: 20-1180 Date: Aug 2022 Sheet No. 2 of 6

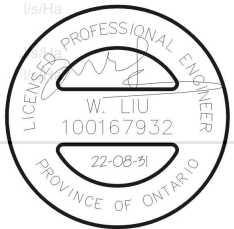
SANITARY SEWER CALCULATION SHEET



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	UNITS Singles	UNITS Townhouse	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)
Deciduous Crescent																													
	8A	9A	0.44	17		17	46	0.44	46	3.66	0.55		0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.15	0.69	62.0	200	0.65	26.44	0.03	0.84	0.36	
	9A	11A	0.26	10		10	27	0.70	73	3.62	0.86		0.00	0.00	0.00	0.00	0.00	0.26	0.70	0.23	1.09	66.0	250	0.25	29.73	0.04	0.61	0.29	
	To Conservancy Drive, Pipe 11A - 15A							0.70	73				0.00	0.00	0.00	0.00			0.70										
	12A	13A	0.09	2		2	6	0.09	6	3.75	0.07		0.00	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	0.38	15		15	41	0.47	47	3.66	0.56		0.00	0.00	0.00	0.00	0.00	0.38	0.47	0.16	0.71	66.0	250	0.25	29.73	0.02	0.61	0.25	
	14A	15A	0.30	11		11	30	0.77	77	3.62	0.90		0.00	0.00	0.00	0.00	0.00	0.30	0.77	0.25	1.16	69.5	250	0.25	29.73	0.04	0.61	0.29	
	To Conservancy Drive, Pipe 15A - 18A							0.77	77				0.00	0.00	0.00	0.00			0.77										
Ephemeral Crescent																													
	2A	3A	0.16	1	1		4	0.16	4	3.76	0.05		0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.05	0.10	13.0	200	0.70	27.44	0.00	0.87	0.19	
			0.25	5	5		17	0.41	21				0.00	0.00	0.00	0.00		0.25	0.41										
	3A	4A	0.31	13		13	36	0.72	57	3.64	0.67		0.00	0.00	0.00	0.00	0.00	0.31	0.72	0.24	0.91	107.5	250	0.25	29.73	0.03	0.61	0.27	
	4A	15A	0.35	9		9	25	1.07	82	3.61	0.96		0.00	0.00	0.00	0.00	0.00	0.35	1.07	0.35	1.31	112.0	250	0.25	29.73	0.04	0.61	0.30	
	To Conservancy Drive, Pipe 15A - 18A							1.07	82				0.00	0.00	0.00	0.00			1.07										
	5A	500A	0.14	6		6	17	0.14	17	3.71	0.20		0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.05	0.25	21.0	200	0.65	26.44	0.01	0.84	0.26	
	500A	6A	0.45	22		22	60	0.59	77	3.62	0.90		0.00	0.00	0.00	0.00	0.00	0.45	0.59	0.19	1.10	78.5	250	0.25	29.73	0.04	0.61	0.29	
	6A	11A	0.48	21		21	57	1.07	134	3.57	1.55		0.00	0.00	0.00	0.00	0.00	0.48	1.07	0.35	1.90	104.5	250	0.25	29.73	0.06	0.61	0.34	
	To Conservancy Drive, Pipe 11A - 15A							1.07	134				0.00	0.00	0.00	0.00			1.07										
Borrisokane Road																													
	1002A	1001A	0.18	4		4	11	0.18	11	3.73	0.13		0.00	0.00	0.00	0.00	0.00	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	0.00	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	0.00			0.58										
	1004A	1003A	0.50	14		14	38	0.50	38	3.67	0.45		0.00	0.00	0.00	0.00	0.00	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	0.00	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	0.00			0.91										
Conservancy Drive																													
			12.88				1182	12.88	1182			4.21	4.21	0.00	0.58	0.58			17.67	17.67									
	PLUG	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	0.00			0.58	71.87									
	Contribution From Borrisokane Road, Pipe 1003A - 10A							0.91	74				0.00	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		
	Contribution From Ephemeral Crescent, Pipe 6A - 11A							1.07	134				0.00	0.00	0.00	0.00			1.07	74.00									
	Contribution From Deciduous Crescent, Pipe 9A - 11A							0.70	73				0.00	0.00	0.00	0.00			0.70	74.70									
		11A	15A	0.30	6	6	21	53.04	5299	2.78	47.69		17.91	0.00	4.05	9.36	0.30	75.00	24.75	81.80	59.0	525	0.10	136.00	0.60	0.63	0.66		
	Contribution From Deciduous Crescent, Pipe 14A - 15A							0.77	77				0.00	0.00	0.00	0.00			0.77	75.77									
	Contribution From Ephemeral Crescent, Pipe 4A - 15A							1.07	82				0.00	0.00	0.00	0.00			1.07	76.84									
		15A	18A	0.12			0	55.00	5458	2.77	48.95		17.91	0.00	4.05	9.36	0.12	76.96	25.40	83.71	58.5	525	0.10	136.00	0.62	0.63	0.66		
	Contribution From Les Emmerson Drive (N), Pipe 17A - 18A							0.83	75				0.00	0.00	0.00	0.00			0.83	77.79									
	Contribution From Park (Block 773), Pipe 210A - 18A							0.00	0.00				0.00	0.00	3.22				3.22	81.01									
		18A	23A	0.31	5	5	17	56.14	5550	2.76	49.68		17.91	0.00	4.05	9.36	0.31	81.32	26.84	85.88	76.5	525	0.10	136.00	0.63	0.63	0.66		
		23A	24A	0.49	11	11	38	56.63	5588	2.76	49.98		17.91	0.00	4.05	9.36	0.49	81.81	27.00	86.34	71.0	525	0.10	136.00	0.63	0.63	0.66		
		24A	47A	0.61	15	15	51	57.24	5639	2.76	50.38		17.91	0.00	4.05	9.36	0.61	82.42	27.20	86.94	106.0	525	0.10	136.00	0.64	0.63	0.67		

DESIGN PARAMETERS		
Park Flow =	9300	L/ha/da 0.10764
Average Daily Flow =	280	l/p/day
Comm/Inst Flow =	28000	L/ha/da 0.3241
Industrial Flow =	35000	L/ha/da 0.40509
Max Res. Peak Factor =	4.00	
Commercial/Inst./Park Peak Factor =	1.50	
Institutional =	0.32	l/s/ha



Industrial Peak Factor = as per MOE Graph
 Extraneous Flow = 0.330 L/s/ha
 Minimum Velocity = 0.600 m/s
 Manning's n = (Conc) 0.013 (Pvc) 0.013
 Townhouse coeff= 2.7
 Single house coeff= 3.4

Designed:	A.K.	PROJECT:	BARRHAVEN CONSERVANCY EAST PH2, 3, AND JOCK RIVER		
Checked:	W.L.	LOCATION:	City of Ottawa		
Dwg. Reference:	Sanitary Drainage Plan, Dwg. No. 110-112	File Ref:	20-1180	Date:	Aug 2022
				Sheet No.	4 of 6

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	UNITS Singles	UNITS Townhouse	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)								
Contribution From Mineral Street, Pipe 39A - 47A								5.28	398				0.00	0.00	0.00	0.00			5.28	87.70																	
Contribution From Mineral Street, Pipe 46A - 47A								1.45	137				0.00	0.00	0.00	0.00			1.45	89.15																	
	47A	48A	0.56	14	14		48	64.53	6222	2.72	54.94	17.91	0.00	4.05	9.36	0.56	89.71	29.60	93.90	99.0	525	0.10	136.00	0.69	0.63	0.68											
	48A	75A	0.42	10	10		34	64.95	6256	2.72	55.20	17.91	0.00	4.05	9.36	0.42	90.13	29.74	94.30	76.5	525	0.10	136.00	0.69	0.63	0.68											
Contribution From Anemone Mews, Pipe 63A - 75A								1.30	104				0.00	0.00	0.00			1.30	91.43																		
Contribution From Anemone Mews, Pipe 750A - 75A								5.89	565				0.00	0.00	0.00	0.00			5.89	97.32																	
	75A	76A	0.31	7	7		24	72.45	6949	2.69	60.53	17.91	0.00	4.05	9.36	0.31	97.63	32.22	102.11	62.0	525	0.10	136.00	0.75	0.63	0.69											
	76A	77A	0.39	11	11		38	72.84	6987	2.69	60.82	17.91	0.00	4.05	9.36	0.39	98.02	32.35	102.52	60.0	525	0.10	136.00	0.75	0.63	0.69											
	77A	92A	0.33	9	9		31	73.17	7018	2.68	61.05	17.91	0.00	4.05	9.36	0.33	98.35	32.46	102.87	53.0	525	0.10	136.00	0.76	0.63	0.69											
Contribution From Ecology Lane, Pipe 91A - 92A								6.96	580				0.00	0.00	0.00			6.96	105.31																		
	92A	93A	0.51	12	12		41	80.64	7639	2.66	65.75	17.91	0.00	4.05	9.36	0.51	105.82	34.92	110.03	90.5	525	0.10	136.00	0.81	0.63	0.70											
	93A	119A	0.37	6	6		21	81.01	7660	2.65	65.91	17.91	0.00	4.57	9.44	0.89	106.71	35.21	110.56	88.0	525	0.10	136.00	0.81	0.63	0.70											
To Canoe Street, Pipe 119A - 120A								81.01	7660				17.91	0.00	4.57			106.71																			
Meander Way																																					
	84A	85A	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	92.5	200	0.65	26.44	0.03	0.84	0.36											
To Sapling Grove, Pipe 85A - 88A								0.50	45				0.00	0.00	0.00			0.50																			
	84A	86A	0.16	1	1		4	0.16	4	3.76	0.05	0.00	0.00	0.00	0.00	0.16	0.16	0.05	0.10	13.0	200	0.65	26.44	0.00	0.84	0.20											
	86A	87A	0.22	4	4		14	0.38	18	3.71	0.22	0.00	0.00	0.00	0.00	0.22	0.38	0.13	0.34	50.5	250	0.65	26.44	0.01	0.98	0.28											
	87A	114A	0.23	5	5		17	0.61	35	3.67	0.42	0.00	0.00	0.00	0.00	0.23	0.61	0.20	0.62	58.0	250	0.25	29.73	0.02	0.61	0.24											
	114A	115A	0.07	1	1		4	0.68	39	3.67	0.46	0.00	0.00	0.00	0.00	0.07	0.68	0.22	0.69	10.0	250	0.25	29.73	0.02	0.61	0.25											
	115A	116A	0.63	17	17		58	1.31	97	3.60	1.13	0.00	0.00	0.00	0.00	0.63	1.31	0.43	1.56	110.5	250	0.25	29.73	0.05	0.61	0.32											
To Peninsula Road, Pipe 116A - 117A								1.31	97				0.00	0.00	0.00			1.31																			
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	0.45	8	8		28	0.45	28	3.69	0.33	0.00	0.00	0.00	0.00	0.45	0.45	0.15	0.48	57.0	200	0.65	26.44	0.02	0.84	0.32											
	38A	39A	0.60	16	16		55	1.05	83	3.61	0.97	0.00	0.00	0.00	0.00	0.60	1.05	0.35	1.32	108.5	250	0.25	29.73	0.04	0.61	0.30											
To Mineral Street, Pipe 39A - 47A								1.05	83				0.00	0.00	0.00			1.05																			
	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																			
	89A	90A	0.41	13	13		45	0.41	45	3.66	0.53	0.00	0.00	0.00	0.00	0.41	0.41	0.14	0.67	67.0	200	0.65	26.44	0.03	0.84	0.35											
	90A	91A	0.37	10	10		34	0.78	79	3.62	0.93	0.00	0.00	0.00	0.00	0.37	0.78	0.26	1.18	68.5	250	0.75	51.50	0.02	1.05	0.42											
To Ecology Lane, Pipe 91A - 92A								0.78	79				0.00	0.00	0.00			0.78																			
	91A	116A	0.18	4	4		14	0.18	14	3.72	0.17	0.00	0.00	0.00	0.00	0.18	0.18	0.06	0.23	58.5	200	0.65	26.44	0.01	0.84	0.26											
Contribution From Meander Way, Pipe 115A - 116A								1.31	97				0.00	0.00	0.00			1.31	1.49																		
	116A	117A	0.23	6	6		21	1.72	132	3.57	1.53	0.00	0.00	0.00	0.00	0.23	1.72	0.57	2.09	58.5	250	0.25	29.73	0.07	0.61	0.34											
Contribution From Elation Heights, Pipe 109A - 117A								0.74	55				0.00	0.00	0.00			0.74	2.46																		
	117A	118A	0.18	3	3		11	2.64	198	3.52	2.26	0.00	0.00	0.00	0.00	0.18	2.64	0.87	3.13	59.0	250	0.25	29.73	0.11	0.61	0.39											
To Canoe Street, Pipe 118A - 1180A								2.64	198				0.00	0.00	0.00			2.64																			

DESIGN PARAMETERS	
Park Flow =	9300 L/ha/day
Average Daily Flow =	280 l/p/day
Comm/Inst Flow =	28000 L/ha/day
Industrial Flow =	35000 L/ha/day
Max Res. Peak Factor =	4.00
Commercial/Inst./Park Peak Factor =	1.50
Institutional =	0.32 l/s/ha

Designed: A.K.	PROJECT: BARRHAVEN CONCERNANCY EAST PH2, 3, AND JOCK RIVER
Checked: W.L.	LOCATION: City of Ottawa
Dwg. Reference: Sanitary Drainage Plan, Dwgs. No. 110-112	File Ref: 20-1180 Date: Aug 2022
	Sheet No. 5 of 6



SANITARY SEWER CALCULATION SHEET

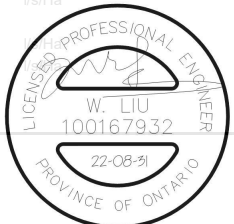


Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION							COMM		INSTIT		PARK		C+I	INFILTRATION			PIPE					VEL.										
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	(FULL) (m/s)	(ACT.) (m/s)						
Elation Heights																																			
To Canoe Street, Pipe 113A - 118A	112A	113A	0.05	1	1		4	0.05	4	3.76	0.05		0.00		0.00		0.00		0.05	0.05	0.02	0.07	15.5	200	0.65	26.44	0.00	0.84	0.17						
	110A	109A	0.16	1	1		4	0.16	4	3.76	0.05		0.00		0.00		0.00		0.16	0.16	0.05	0.10	13.5	200	0.65	26.44	0.00	0.84	0.20						
To Peninsula Road, Pipe 117A - 118A	109A	117A	0.58	15	15		51	0.74	55	3.64	0.65		0.00		0.00		0.00		0.58	0.74	0.24	0.89	103.0	250	0.25	29.73	0.03	0.61	0.27						
Jollity Crescent																																			
To Canoe Street, Pipe 105A - 108A	104A	105A	0.39	10	10		34	0.39	34	3.68	0.41		0.00		0.00		0.00		0.39	0.39	0.13	0.53	69.0	200	0.80	29.34	0.02	0.93	0.35						
	106A	107A	0.15	1	1		4	0.15	4	3.76	0.05		0.00		0.00		0.00		0.15	0.15	0.05	0.10	12.0	200	0.70	27.44	0.00	0.87	0.19						
To Canoe Street, Pipe 108A - 113A	107A	108A	0.48	12	12		41	0.63	45	3.66	0.53		0.00		0.00		0.00		0.48	0.63	0.21	0.74	87.0	250	0.25	29.73	0.02	0.61	0.25						
Euphoria Crescent																																			
To Canoe Street, Pipe 102A - 105A	101A	102A	0.36	7	7		24	0.36	24	3.70	0.29		0.00		0.00		0.00		0.36	0.36	0.12	0.41	62.5	250	0.65	47.94	0.01	0.98	0.30						
	98A	99A	0.28	5	5		17	0.28	17	3.71	0.20		0.00		0.00		0.00		0.28	0.28	0.09	0.30	41.5	200	1.20	35.93	0.01	1.14	0.33						
To Canoe Street, Pipe 99A - 102A																																			
Canoe Street																																			
	94A	95A	0.52	3	3		11	0.52	11	3.73	0.13		0.00		0.00		0.00		0.52	0.52	0.17	0.30	38.5	200	0.65	26.44	0.01	0.84	0.28						
	95A	96A	0.49	9	9		31	1.01	42	3.66	0.50		0.00		0.00		0.00		0.49	1.01	0.33	0.83	83.5	250	0.25	29.73	0.03	0.61	0.26						
	96A	99A	0.10	2	2		7	1.11	49	3.65	0.58		0.00		0.00		0.00		0.10	1.11	0.37	0.95	22.0	250	0.25	29.73	0.03	0.61	0.27						
Contribution From Euphoria Crescent, Pipe 98A - 99A																																			
	99A	102A	0.18	3	3		11	1.29	17	3.62	0.90		0.00		0.00		0.00		0.18	1.57	0.52	1.42	58.5	250	0.25	29.73	0.05	0.61	0.31						
Contribution From Euphoria Crescent, Pipe 101A - 102A																																			
	102A	105A	0.22	4	4		14	2.15	115	3.58	1.33		0.00		0.00		0.00		0.22	2.15	0.71	2.04	58.5	250	0.25	29.73	0.07	0.61	0.34						
Contribution From Jollity Crescent, Pipe 104A - 105A																																			
	105A	108A	0.21	4	4		14	0.39	34				0.00		0.00		0.00		0.39	2.54															
Contribution From Jollity Crescent, Pipe 107A - 108A																																			
	108A	113A	0.20	4	4		14	2.75	163	3.54	1.87		0.00		0.00		0.00		0.21	2.75	0.91	2.78	58.5	250	0.25	29.73	0.09	0.61	0.38						
Contribution From Elation Heights, Pipe 112A - 113A																																			
	113A	118A	0.43	10	10		34	0.63	45				0.00		0.00		0.00		0.63	3.38															
Contribution From Peninsula Road, Pipe 117A - 118A																																			
	118A	1180A	0.16	3	3		11	2.64	198				0.00		0.00		0.00		2.64	6.70															
	1180A	119A	0.03				0	6.86	469	3.39	5.15		0.00		0.00		0.00		0.16	6.86	2.26	7.42	42.5	250	0.25	29.73	0.25	0.61	0.50						
Contribution From Conservancy Drive, Pipe 93A - 119A																																			
	119A	120A	0.17				0	6.89	469	3.39	5.15		0.00		0.00		0.00		0.03	6.89	2.27	7.43	20.0	250	0.25	29.73	0.25	0.61	0.50						
	120A	121A	0.21	4	4		14	81.01	7660				17.91		0.00		4.57		106.71	113.60															
	121A	Ex. MH 8						88.07	8129	2.63	69.41		17.91		0.00		9.44		0.17	113.77	37.54	116.40	75.0	525	0.10	136.00	0.86	0.63	0.71						
								88.28	8143	2.63	69.51		17.91		0.00		9.44		0.00	113.98	37.61	116.57	87.5	525	0.10	136.00	0.86	0.63	0.71						
								88.28	8143	2.63	69.51		17.91		0.00		9.44		0.00	113.98	37.61	116.57	10.0	525	0.10	136.00	0.86	0.63	0.71						
Park (Block 773)																																			
To Conservancy Drive, Pipe 18A - 23A	210A	18A						0.00					0.00		0.00	3	3.22	0.52	3.22	3.22	1.06	1.58	11.5	200	0.65	26.44	0.06	0.84	0.46						
								0.00	0				0.00		0.00		3.22			3.22															

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764
Average Daily Flow =	280	l/p/day	
Comm/Inst Flow =	28000	L/ha/da	0.3241
Industrial Flow =	35000	L/ha/da	0.40509
Max Res. Peak Factor =	4.00		
Commercial/Inst./Park Peak Factor =	1.50		
Institutional =	0.32	l/s/ha	



Industrial Peak Factor = as per MOE Graph
 Extraneous Flow = 0.330 L/s/ha
 Minimum Velocity = 0.600 m/s
 Manning's n = (Conc) 0.013 (Pvc) 0.013
 Townhouse coeff= 2.7
 Single house coeff= 3.4

Designed:	A.K.	PROJECT: BARRHAVEN CONCERNVANCY EAST PH2, 3, AND JOCK RIVER	
Checked:	W.L.	LOCATION: City of Ottawa	
Dwg. Reference:	Sanitary Drainage Plan, Dwgs. No. 110-112	File Ref:	20-1180
Date:	Aug 2022	Sheet No.	6 of 6