AECOM
55 Cedar Pointe Drive, Suite 620
Barrie, ON, Canada L4N 5R7
www.aecom.com

705 721 9222 tel
705 734 0764 fax

August 3, 2018

Bryan Murray, P. Eng.
Director of Public Works
Town of Penetanguishene
10 Robert Street West, P.O. Box 5009
Penetanguishene ON, L9M 2G2

Dear Mr. Murray:

Project No: 60447235

Regarding: Harbour Pointe Phase 4 Functional Servicing

This letter is provided to confirm that the proposed Phase 4 development can be designed and constructed in accordance with Town of Penetanguishene standards in support of registration of the development agreements. Servicing is proposed to be accommodated from the Phase 3 development with service stubs provided as part of the Phase 3 Engineering Submission. Each aspect of servicing and pre-planning will be outlined herein.

1. **Sanitary Servicing**

A 200mm diameter sanitary stub has been provided at the proposed Phase 4 Right-of-Way from the Phase 3 development (SAN MH 2A). The sanitary stub has sufficient capacity per the Phase 3 sanitary sewer design sheet dated June 20, 2018 attached to this letter for reference.

A single length of 200mm diameter sanitary sewers and 1200mm diameter maintenance holes is proposed to service the Phase 4 development.

2. **Water Servicing**

A 200mm diameter watermain stub from Phase 3 is provided and proposed to service the Phase 4 development. Isolation valves are provided at the connection from the main on Street 'C'. Since the Town owns and updates the water distribution model the supply pressures and flows will need to be confirmed, but it is anticipated that due to the relatively small additional demand this will not be an issue.

The Phase 4 watermain layout is proposed to consist of a single length of 200mm diameter watermain extending west to the boundary of Phase 4 complete with hydrants and valves per Town standards.

3. Transportation

A single internal road is proposed to service Phase 4 from Street 'C' in Phase 3. A cul-de-sac a the west boundary of Phase 4 is proposed. The dimensions and orientation of the cul-de-sac to be designed in coordination with Town staff and Engineering Standards.

A traffic impact study is required by the Town and will be submitted by others under separate cover.

If there are any questions please do not hesitate to contact the undersigned.

4. Stormwater

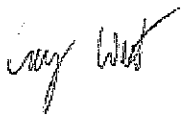
Stormwater runoff generated from the proposed Phase 4 development will be collected in roadside catch basins and a single internal pipe connecting to stormwater maintenance hole 4A in Phase 3.

Capacity in the storm sewer system is confirmed by the storm sewer design sheet dated July 31, 2018 and attached for reference.

The SWM report update dated September 8, 2015 outlined that reserve capacity was available in the SWM pond to accommodate additional development. The Phase 2 storm sewer design sheet dated June 6, 2016 included a total AC of 5.649 and runoff of 1.067 m3/s total west of Phase 2 (SCBMH20). The Phase 3 storm sewer design sheet includes a total AC of 5.887 and total runoff of 1.112 m3/s at the boundary of Phase 2 (SCBMH20). Since the Phase 4 and external design is conservative, and the difference is runoff and flow to the SWM pond is negligible.

Should you have any questions please do not hesitate to contact the undersigned.

Sincerely,
AECOM Canada Ltd.



Craig West, P. Eng.
Project Manager
craig.west@aecom.com

CW:cw
Encl.
cc: G. Defrietas

3 PPU

average daily flow q=450 l/cap/day

extraneous flows peak 227l/cap/day

M=1 + 14/(4+p^0.5) where p=population in 1000's

HARBOUR POINTE PHASE 3

TOWN OF PENETANGUISHENE

COUNTY OF SIMCOE

SANITARY SEWER DESIGN SHEET

June 20, 2018

Project No. 60447235

LOCATION			INDIVIDUAL		CUMULATIVE		PEAKING	PEAK	PEAK	PEAK	ELEVATION			PROP. SEWER					CAPACITY	F.FLOW	ACTUAL
STREET	MANHOLE			Area		Area	FACTOR	POP.	EXT.	DESIGN	MH. From	From	MH. To	PIPE LENGTH	PIPE SIZE	TYPE OF	FALL	SLOPE	(l/s)	VELOCITY	VELOCITY
	From	To	Pop.	(ha.)	Pop.	(ha.)	M	FLOW (l/s)	FLOW Q(i)	FLOW Q(d)	Invert	Surface	Invert	(m)	(mm)	PIPE	(m)	(%)	n=0.013	(m/sec)	(m/sec)
HATTON DRIVE	SA1	SA2	54.00	1.160	54.00	1.160	4.3078	1.2116	0.1419	1.3535	207.860	213.38	205.990	120.00	200	PVC	1.870	1.56	41.486	1.303	1.008
HATTON DRIVE	SA2	SA2a	12.00	0.330	66.00	1.490	4.2888	1.4743	0.1734	1.6477	205.970	209.01	205.190	34.00	200	PVC	0.780	2.29	50.336	1.581	0.718
STREET 'C'	STUB	SA2a	99.00	2.020	165.00	2.350	4.1773	3.5899	0.4335	4.0234	205.440	-	205.190	16.60	200	PVC	0.250	1.51	40.784	1.281	0.718
HATTON DRIVE	SA2a	SA3	12.00	0.410	177.00	2.430	4.1669	3.8414	0.4650	4.3064	205.170	206.90	203.660	66.00	200	PVC	1.510	2.29	50.268	1.579	0.718
HATTON DRIVE	SA3	SA4	0.00	0.000	177.00	1.490	4.1669	3.8414	0.4650	4.3064	203.460	207.48	202.930	22.10	200	PVC	0.530	2.40	51.465	1.617	0.598
HATTON DRIVE	SA4	SA5	33.00	0.730	210.00	2.220	4.1402	4.5284	0.5517	5.0801	202.930	206.70	200.470	68.60	200	PVC	2.460	3.59	62.933	1.977	0.614
STREET "B"	SA7	SA8	54.00	1.180	54.00	1.180	4.3078	1.2116	0.1419	1.3535	203.400	208.49	201.700	118.00	200	PVC	1.700	1.44	39.889	1.253	0.426
STREET "B"	SA8	SA5	36.00	0.850	90.00	2.030	4.2558	1.9949	0.2365	2.2314	201.680	205.87	200.470	113.20	200	PVC	1.210	1.07	34.359	1.079	0.418
HATTON DRIVE	SA5	SA6	9.00	0.380	309.00	4.630	4.0730	6.5549	0.8118	7.3667	200.450	204.98	199.470	82.10	200	PVC	0.980	1.19	36.309	1.141	0.574

Tc, VARIES
n.=0.013 rigid pipe
5Yr. Storm Data, Town of Penetang

TOWN OF PENETANGUISHENE
HARBOUR POINTE PHASE 3
STORM SEWER DESIGN

60447235
PAGE 1
31-Jul-2018

DRAINAGE AREA (STREET A)								RUNOFF AREA							OUTLET PIPE DATA										
FROM MH	T/G EL.	UPSTREAM INVERT	STA.	TO MH	T/G EL.	DOWNSTREAM INVERT	STA.	Tc Min/ SEC	INTENSITY (I) (mm/hr)	AREA (A) (ha)	RUNOFF COEFF (C)	AxC	TOTAL AxC	RUNOFF (Q) (m3/s)	TYPE PIPE	PIPE SIZE (mm)	LENGTH OF SEWER (m)	FALL (m)	SLOPE (m/m)	CAPACITY FULL (m3/s)	VELOCITY FULL (m/s)	VELOCITY ACTUAL (m/s)	VELOCITY MAX. (m/s)	TRAVEL TIME (sec)	REMARKS
SDICB22	212.40	208.920	1+418.91	SCBMH21	213.30	208.670	1+361.54	10.00	90.00	0.690	0.40	0.276	0.276	0.069	RIGID	300	12.80	0.250	0.020	0.135	1.91	1.78	2.20	6.69	AREA-21a
SCBMH21	213.30	208.670	1+408.54	SCBMH1	210.51	208.200	1+361.54	10.00	90.00	0.020	0.40	0.008	0.284	0.071	RIGID	300	47.00	0.470	0.010	0.097	1.37	1.78	1.57	34.36	AREA-21b
SCB2	210.51	208.294	1+361.54	SCBMH1	210.51	208.200	1+361.54	0.60	125.00	0.100	0.40	0.040	0.040	0.014	RIGID	300	8.50	0.094	0.011	0.102	1.44	2.54	1.65	5.91	AREA-2
DI3	210.75	208.273	1+361.54	SCBMH1	210.51	208.200	1+361.54	9.80	90.00	0.550	0.40	0.220	0.220	0.055	RIGID	300	6.60	0.073	0.011	0.102	1.44	2.54	1.65	4.59	AREA 151a
SCBMH1	210.51	208.050	1+361.54	SCBMH4	208.87	206.910	1+286.54	10.00	90.00	0.250	0.40	0.100	0.644	0.161	RIGID	450	75.00	1.140	0.015	0.352	2.21	1.18	2.54	33.93	AREA-1
SCB5	208.82	207.155	1+282.40	SCBMH4	208.87	207.060	1+286.54	0.60	125.00	0.250	0.40	0.100	0.100	0.035	RIGID	300	9.50	0.095	0.010	0.097	1.37	1.03	1.57	6.94	AREA-4
SCBMH4	208.87	206.910	1+286.54	SCBMH4A	208.45	206.470	1+245.00	10.00	90.00	0.630	0.40	0.252	0.996	0.249	RIGID	450	34.10	0.440	0.013	0.324	2.04	2.07	2.34	16.75	AREA-3
SDICB27	208.87	207.130	1+245.00	SCBMH4A	208.87	206.470	1+286.54	16.20	70.00	7.550	0.25	1.910	1.910	0.371	RIGID	600	36.80	0.660	0.018	0.822	2.91	2.07	3.34	12.65	PH4a/PH4b/151/EXT
SCBMH4A	208.87	206.390	1+245.00	SCBMH6	207.83	205.860	1+286.54	10.00	90.00	0.630	0.40	0.252	3.158	0.790	RIGID	600	36.80	0.530	0.014	0.737	2.61	2.07	3.00	14.12	AREA-3
SCB7	208.23	206.100	1+212.48	SCBMH6	207.83	206.010	1+207.33	0.60	125.00	0.180	0.40	0.072	0.072	0.025	RIGID	300	8.50	0.090	0.011	0.100	1.41	1.44	1.62	6.04	AREA-6
SCB8	207.83	206.100	1+207.33	SCBMH6	207.83	206.010	1+207.33	10.00	90.00	4.300	0.29	1.247	1.247	0.312	RIGID	600	8.90	0.090	0.010	0.617	2.18	1.44	2.51	4.08	AREA-D3+151b
SCBMH6	207.83	205.710	1+207.33	SCBMH9	206.93	204.730	1+175.44	10.00	90.00	0.350	0.40	0.140	4.617	1.154	RIGID	750	33.20	0.980	0.030	1.913	4.33	1.45	4.98	7.67	AREA-5
SCBMH9	206.93	204.710	1+175.44	SCBMH10A	205.46	202.650	1+138.33	10.00	90.00	0.150	0.40	0.060	4.677	1.169	RIGID	750	38.10	2.060	0.054	2.589	5.86	1.55	6.74	6.50	AREA-28b
SCB10B	205.40	203.040	1+137.05	SCBMH10A	205.46	202.950	1+138.33	0.60	125.00	0.180	0.40	0.072	0.072	0.025	RIGID	300	8.50	0.090	0.011	0.100	1.41	2.43	1.62	6.04	AREA-8
SCBMH10A	205.46	202.500	1+138.33	SCBMH11A	204.49	201.170	1+085.38	10.00	90.00	0.180	0.40	0.072	4.821	1.205	RIGID	750	49.90	1.330	0.027	1.818	4.11	2.43	4.73	12.13	AREA-7
SDICB25	205.60	202.000	1+085.38	SCBMH11A	204.49	201.170	1+085.38	10.00	90.00	1.000	0.40	0.400	0.400	0.100	RIGID	300	41.70	0.839	0.020	0.136	1.93	2.43	2.22	21.61	AREA-28
SCB11B	204.49	201.755	1+085.38	SCBMH11A	204.49	201.670	1+085.38	0.70	125.00	0.020	0.40	0.008	0.008	0.003	RIGID	300	8.50	0.085	0.010	0.097	1.37	2.43	1.57	6.21	AREA-10
SCBMH11A	204.49	201.150	1+085.38	SCBMH12	202.60	200.550	1+018.30	10.00	90.00	0.210	0.40	0.084	5.313	1.328	RIGID	900	70.10	0.600	0.009	1.675	2.63	2.43	3.03	26.63	AREA-9
SCBMH12	202.45	200.454	1+018.30	SCBMH20	202.30	200.390	1+010.66	9.30	90.00	1.420	0.35	0.497	5.810	1.453	RIGID	900	8.00	0.064	0.008	1.619	2.55	1.12	2.93	3.14	AREA-27A
SCBMH20	202.30	200.746	3+366	SCBMH23	201.91	200.406	3+281.5	25.04	68.00	0.220	0.35	0.077	5.887	1.112	RIGID	900	85.00	0.340	0.004	1.145	1.80	1.47	2.07	47.23	PHASE 2

Tc, VARIES
n,=0.013 rigid pipe
5Yr. Storm Data, Town of Penetang

TOWN OF PENETANGUISHENE
HARBOUR POINTE PHASE 3
STORM SEWER DESIGN

DRAINAGE AREA (STREET B)								RUNOFF AREA							OUTLET PIPE DATA									
FROM MH	T/G EL.	UPSTREAM INVERT	STA.	TO MH	T/G EL.	DOWNSTREAM INVERT	STA.	Tc Min/ SEC	INTENSITY (I) (mm/hr)	AREA (A) (ha)	RUNOFF COEFF (C)	AxC	TOTAL AxC	RUNOFF (Q) (m3/s)	TYPE PIPE	PIPE SIZE (mm)	LENGTH OF SEWER (m)	FALL (m)	SLOPE (m/m)	CAPACITY FULL (m3/s)	VELOCITY FULL (m/s)	VELOCITY ACTUAL (m/s)	VELOCITY MAX. (m/s)	TRAVEL TIME (sec)	REMARKS
SCB20	209.43	205.480	0+256.89	SCBMH19	209.43	205.370	0+245.89	0.80	125.00	0.110	0.50	0.055	0.055	0.019	RIGID	300	11.00	0.110	0.010	0.097	1.37	1.47	1.57	8.04	AREA-22
SCBMH19	209.43	205.350	0+245.89	SCBMH18	208.52	204.730	0+236.17	1.20	125.00	0.100	0.50	0.050	0.105	0.036	RIGID	300	21.34	0.620	0.029	0.165	2.33	1.47	2.68	9.15	AREA-23
SCBMH18	208.52	204.710	0+236.17	SCBMH13	206.85	203.060	0+161.35	5.20	125.00	0.030	0.40	0.012	0.117	0.041	RIGID	300	74.80	1.650	0.022	0.144	2.03	1.47	2.34	36.81	AREA-13A
SCB14	206.85	203.145	0+161.35	SCBMH13	206.85	203.060	0+161.35	0.50	125.00	0.460	0.40	0.184	0.184	0.064	RIGID	300	8.50	0.085	0.010	0.097	1.37	1.47	1.57	6.21	AREA-12
SCBMH13	206.85	203.040	0+161.35	SCBMH15	205.30	202.200	1+089.61	10.00	90.00	0.150	0.40	0.060	0.361	0.090	RIGID	300	73.00	0.840	0.012	0.104	1.47	1.47	1.69	49.74	AREA-13
SCB16	205.30	202.285	1+089.61	SCBMH15	205.30	202.200	1+089.61	0.50	125.00	0.450	0.40	0.180	0.180	0.063	RIGID	300	8.50	0.085	0.010	0.097	1.37	1.47	1.57	6.21	AREA-14
SCBMH15	205.30	202.180	1+089.61	SCBMH17	204.72	201.300	0+014.75	10.00	65.00	0.130	0.40	0.052	0.593	0.107	RIGID	300	73.60	0.880	0.012	0.106	1.50	1.47	1.72	49.20	AREA-15
SCB18	204.72	201.385	0+014.75	SCBMH17	204.72	201.300	0+014.75	0.50	125.00	0.460	0.40	0.184	0.184	0.064	RIGID	300	8.50	0.085	0.010	0.097	1.37	1.47	1.57	6.21	AREA-16
SCBMH17	204.72	201.280	0+014.75	SCBMH11A	204.49	201.170	0-004.1	10.00	85.00	0.150	0.40	0.060	0.837	0.198	RIGID	450	27.20	0.110	0.004	0.181	1.14	2.63	1.31	23.86	AREA-17

DRAINAGE AREA (THOMPSON ROAD W.)								RUNOFF AREA							OUTLET PIPE DATA									
SCB24	205.20	202.145	3+060	SCBMH23	205.20	202.035	3+060	5.40	88.10	0.130	0.50	0.065	0.065	0.016	RIGID	300	11.00	0.110	0.010	0.097	1.37	1.74	1.57	8.04	AREA-25
SCB23	205.20	200.315	3+060	SCBMH6	201.53	199.770	3+136.4	0.60	88.10	0.130	0.50	0.065	0.130	0.032	RIGID	300	77.00	0.545	0.007	0.081	1.15	1.74	1.32	66.90	AREA-24