HAMBLY GROUP

Servicing Analysis for 192 Main St., Wellington, Wellington Hotel

1. Introduction November 2021

Wellington Hotel has retained HAMBLY GROUP to prepare a servicing analysis for the property defined as 192 Main St. [also known as Hwy #33], Wellington, Ontario. The property in question is located on Main St., in Wellington, Prince Edward County.

A plan of the proposed development is attached as Appendix 'A'.

Presently, the property is residential on a site of area totaling 9113.8 sq. m. The current owner, Wellington Hotel, wishes to operate a small hotel and restaurant. It is proposed to add floor area to the third floor, construct an addition on the main floor and reconstruct a flat roof over a portion of the third floor, resulting in the original building area changing from 305.6 to 583.8 sq. m. The other additional buildings will include seven garden suites and a season building. Two existing buildings will de renovated from storage/garage to occupied space. The total existing building area is 529.1 sq.m. After development the total building area will be 1385.6 sq.m.

The building is located in an area of a mix of residential and commercial properties with single family residences on the north side, in front and behind. The east side of the lot is occupied by a commercial enterprise.

The purpose of this report is to:
a) Determine the municipal services that are available; water, sanitary and storm.
b) Determine if sufficient capacity is available to service the proposed development.
c) Determine the location and availability of the other utilities; communications, gas and electrical.
d) Determine stormwater management requirements for the proposed development.

2. Existing Conditions

The subject property is in the centre of the village of Wellington at 192 Main St. , on the north side of Main St. and 150 m. west of Belleville Rd.

The neighbours on the west side, behind the rear yard and across the street are residential. The neighbour on the east side is commercial.

3. Proposed Development

The proposed development to the existing lot includes:

a) Constructing additions to the second and third floors of the building.
b) Constructing additional drives and parking.
c) Construction of seven garden suites and a seasonal building
d) Renovating two existing buildings into lodging and a yoga studio.

Garrett Osbourne, Development Coordinator of Prince Edward County, was contacted to discuss water and sanitary laterals.

4. Water Service

A 200 mm main under Main St., near the centerline of the north lane, services both sides of the street. The existing water service to the subject property is a 50 mm pvc lateral pipe to the developed site.

The hydraulic load for the proposed development was determined to be 303 gal/min. The 80% capacity of the existing 50 mm pvc service is 128 gal/min or 8.0 L/sec. This is inadequate. A water service of 100 mm pvc pressure pipe is recommend with a capacity of 400 gal/min at 80% capacity.

A copy of the service water load calculation is attached in Appendix 'A'.

5. Sanitary Service

The municipal sanitary main is under Main St., near the centerline of the street. This conduit, a 250 mm PVC pipe, has a 125 mm pvc lateral to the property line. The proposed development increases the load; however the 125 mm sanitary lateral was determined as adequate.

The proposed development will result in a total fixture unit count increasing from approximately 88 current to 247 for future use. The OBC12 requires a minimum service lateral of 125 mm with a capacity of 380 fixture units at a slope of 1:133.

The existing sanitary system includes a manhole in the front yard to which all sanitary laterals from all buildings will drain. The outlet from the manhole will drain in a 125 mm pvc pipe to the municipal 250 mm main.

A copy of the sanitary load calculation is attached in Appendix 'A'.

6. Stormwater Management

a) Existing Conditions
The existing storm system servicing the subject property is surface drainage to the road, flowing east one lot to a catch basin with a 300 mm csp that crosses the road, flowing south. Currently some of the runoff from the lot goes to the south east and south west, across neighbouring developed lots.

Because the slopes are low, the flow is not noticeable.

b) Stormwater Management requirements
The proposed grading slopes toward the interior of the lot and to one of two swales. The rate of flow is minimized by low slopes.

General drainage is from the perimeter to the interior. The on-site treatment consists of quality and quantity control for a one in fifty year event. The storm water runoff flows as 'sheet flow' or shallow swales over lawns before reaching a depression in the west yard. Runoff is absorbed into the grass covered soil or evaporates. There are two methods of quality treatment.

1. A shallow inundation of stormwater over a grassy lawn where a controlled outlet will allow sufficient time of draw down to permit adequate settlement of suspended solids. This effluent drains to a buried tank where the water will be stored used for irrigation. And
2. The runoff from roofs and parking lots is collected with a system of catch basins with controlled outlets. The effluent is delivered to 'CULTEC' treatment units at their designed controlled rate, as per manufacturer's specification. The effluent from this system is delivered to the irrigation storage tank.

The excess in the irrigation tank is delivered to the existing catch basin located at the south end of the driveway. This catch basin drains into the municipal storm system.

The perimeter of 300 mm to 500 mm of low slope grass may drain to the neighbouring yards.

6. Utilities

The existing electrical service is 200 amp 120/240 single phase. The proposed development increases the electrical load that requires 600 amp 120/208 3-phase electrical service, provided by Hydro One.

A copy of the electrical load calculation is attached in Appendix 'A'.

There was no existing gas service to the building. The natural gas demand for heating in the cabins, central heat for the main building and a commercial kitchen equipped with natural gas cookers exceeds the capacity of a 25 mm line, so a 50 mm lateral is proposed. The estimated maximum natural gas demand would be approximately 630 tBtu's. The Gas Code for 7-14" w.c. for a drop of 1" w.c., a 250 ft long pipe of 50 mm has a capacity of 928 tBtu's. This service will be provided by Union Gas.

A copy of the gas load calculations are presented in Appendix 'A'.

Edward Trought, P. Eng.

for the HAMBLY GROUP

APPENDIX A

Site Plan of Services
Sanitary Service Calculations
Electrical Load Calculations
Natural Gas Service Calculations

192 Main St Wellington March 2018

Service requirement

Water and Sanitary Service Load Calculation	fixture units	number of	gross
main floor			
restaurant, 2pc washroom	4	8	32
PK15 hand sink	1.5	2	3
pot sink	1.5	1	1.5
PK19 food sink	1.5	1	1.5
mop sink	1.5	1	1.5
ice box	1	2	2
dishwasher	3	1	3
bedroom, 3-pc	0	6	0
bibs/hydrants - 1/2"	1.5	3	4.5
kitchen			
pasta cooler	1.5	1	1.5
18A	1.5	1	1.5
*PK09	1.5	1	1.5
*PK24	0.5	1	0.5
*PK25	0.5	1	0.5
second floor			
bedroom, 3-pc	6	5	30
third floor			
bedroom, 3-pc	6	1	6
studio, 3-pc	6	1	6
2-pc	4	1	4
ea. 1-kitchen sink	1	2	2
fourth floor			
ea. 1-kitchen sink	1	2	2
hand sink	1.5	1	1.5
dishwasher	1.5	1	1.5
basement			
shower	1.5	4	6
laundry sink	1.5	8	12
clotherwasher	2	2	4
bedroom, 3-pc	6	2	12
2-pc	4	3	12

As per OBC20 7.4.10.5.

from email Aug 21			
cottages with 3pcs bath	6	7	42
hot tub	2	7	14
2pc	4	0	0
kitchen sink	1.5	0	0
phase 3			
suites 24			
3pc	0		0
2pc	0	2	0
kitchen sink	1.5	0	0
annex			
cottages with 3pcs bath	6	5	30
hot tubes	2	1	2
retail			
2pc	4	1	4
kitchen sink	1.5	1	1.5

200fixture units is	262	gal/min	247 fixture units
300fixture units is	350	gal/min	
400fixture units is	435	gal/min	88
therefore 247, using interpolation	303.36	gal/min	
use 4" water service	128	gal/min	
total hydraulic load from building is	303.36	gal/min	

as per ASPE vo. 2, table 5-1	1	40	gpm
DIAMETER OF PIPE	1.5	80	gpm
at 80% capacity	2	128	gpm
	3	240	gpm
	4	400	gpm

a 6" waste pipe SDR 28 has a capacity of
as per 7.4.10.8; 5" FROM MAIN BLDG OK 380 fixture units 1 in 133 slope

Natural Gas Service Demand	November 22, 2021					
heat required						
cabins - small, 41.8 sq. m.	7	18	tBtu		126	
gas fire places, July 15, 2021	3	24			72	
store	1	22			22	
large cabin	1	30			30	
house [rooms are electrically heated]	1	50			50	
hot plate	1	90		0.8	72	
deep fryer	1	90		0.8	72	
grill	1	80		0.8	64	
grill over	4	28		0.8	89.6	
	1	40		0.8	32	
					629.6	tBtu

length of lateral	70	m
say	250	ft

recommend 50 mm schedule 40 steel pipe lateral based on table A.2 for 7" w.c., adequate for 928 tBtu

Electrical Load June, 2021-requires updating
service to building is 3-phase

	basic(8-202(1)(a)(i), percent of	area in sq.ft.	area in sq.m.	unit requirement W per sq. m. basic	load kW	factor %	Actual kW
Basement							
existing			204.3				
mechanical		305.1	28.3447157	20	567 0.567	100%	0.5669
reception		227.68	21.1521628	20	423 0.423	100%	0.423
wet room		204.88	19.0339736	20	381 0.381	100%	0.3807
change rooms		674.23	62.6380127	20	1253 1.253	100%	1.2528
halls			73.1311352	20	1463 1.463	100%	1.4626
proposed			265.9				
hammam		225.99	20.9951567	20	420 0.42	100%	0.4199
lounge Table 14		357.08	33.1738154	15	498 0.498	100%	0.4976
treatment rooms		406.91	37.8031736	15	567 0.567	100%	0.567
wash rooms		45.85	4.25960411	15	64 0.064	100%	0.0639
janitor's room		42.4	3.93908864	15	59 0.059	100%	0.0591
locker rm		43.33	4.02548847	15	60 0.06	100%	0.0604
laundry rm		33.37	3.10017425	25	78 0.078	100%	0.0775
office		61.75	5.73676235	50	287 0.287	100%	0.2868
mechanical		54.44	5.05764117	25	126 0.126	100%	0.1264
suites 8-208		396.41	35.396056	20	708 0.708	100%	0.7079
halls			112.413039	20	2248 2.248	100%	2.2483
Ground fl							
existing			305.6				
stairs/hall		125.15	11.6268147	20	233 0.233	100%	0.2325
parlour		383.51	35.6292426	20	713 0.713	100%	0.7126
lounge Table 14		512.68	47.6295275	20	953 0.953	100%	0.9526
bar		496.46	46.1226403	20	922 0.922	100%	0.9225
vestibule		127.18	11.8154079	20	236 0.236	100%	0.2363
washrooms		309.27	28.7321213	20	575 0.575	100%	0.5746
kitchen		637.53	59.2284713	30	1777 1.777	100%	1.7769
halls/stairs			64.8157744	20	1296 1.296	100%	1.2963
proposed			278.9				
dining room		1559.79	144.909223	30	4347 4.347	100%	4.3473
bar		255.66	23.7515897	30	713 0.713	100%	0.7125
vestibule		299.9	27.8616199	20	557 0.557	100%	0.5572
kitchen		329.08	30.5725304	30	917 0.917	100%	0.9172
Second floor							
existing			183.7				
room #1		413.1	38.3782434	20	768 0.768	100%	0.7676
room #2		310.37	28.8343147	20	577 0.577	100%	0.5767
room #3		253.22	23.5249063	20	470 0.47	100%	0.4705
room #4		169.72	15.7675029	20	315 0.315	100%	0.3154
room #5		285.1	26.486655	20	530 0.53	100%	0.5297
halls/stairs			37.9083777	20	758 0.758	100%	0.7582
proposed			12.8				
stairs			12.8				
Third floor							
existing			109.5				
room #6		383.63	35.640391	20	713 0.713	100%	0.7128
room #7		964.04	89.5622409	20	1791 1.791	100%	1.7912
halls/stairs			71.2973681				
proposed			87	20	1740 1.74	100%	1.74
in the above							
Belvedere							
dining room			40.5	30	1215 1.215	100%	1.215
hall/vestibule			18.8	20	376 0.376	100%	0.376
Out buildings							
cabin #1 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
cabin #2 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
cabin #3 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
cabin #4 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
cabin #5 double bedroom		1200	111.483641	20	2230 2.23	100%	2.2297
cabin #6 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
cabin #7 single bedroom		450	41.8063653	20	836 0.836	100%	0.8361
5 unit annex							
unit #1		269	24.9909162	20	500 0.5	100%	0.4998
unit #2		268	24.8980131	20	498 0.498	100%	0.498

unit #3			268	24.8980131	20	498	0.498	100%	0.498	
unit #4			268	24.8980131	20	498	0.498	100%	0.498	
unit #5			269	24.9909162	20	500	0.5	100%	0.4998	
			1342							
special equipment										
cooler, 8x10		1	120	1	16.8	2016	2.016	100%	2.016	
freezer, 8x10		1	120	1	19	2280	2.28	100%	2.28	
salad frig #1		1	120	1	4.5	540	0.54	100%	0.54	
work top freezer [15]		1	120	1	5.8	696	0.696	100%	0.696	
heat lamps		5	120	1		250	1.25			
salad frig #2		1	120	1	1.5	180	0.18	100%	0.18	
pizza frig		1	120	1	3.9	468	0.468	100%	0.468	
heat lamp		1	120	1		675				
salad frig #3 [19]		1	120	1	4.5	540	0.54	100%	0.54	
work top freezer [20]		1	120	1	5.8	696	0.696	100%	0.696	
bar frig [b02]		2	120	1	2.1	504	0.504	100%	0.504	
ice maker [PK24]		1	120	1	6.9	828	0.828	100%	0.828	
ice maker [PK25]		1	120	1	12	1440	1.44	100%	1.44	
MIXER [PK26]		1	120	1	1 hp		0.735		0.7355	
PASTA MACHINE		1	120	1	1 hp		0.735		0.7355	
uner couner dishwsher hobart LXER-2		1	120	1	6.7	804	0.804	100%	0.804	
FRIG WORK TOP [R05]		1	120	1	3	360	0.36	100%	0.36	
induction range		1	120	1	15.8	1896	1.896	100%	1.896	
electric fryer		1	208	1	13.9	2891.2	2.891	100%	2.8912	
wine cabinet		1	120	1	2.4	288	0.288	100%	0.288	
back of bar cabinet [RB02][RB17]		2	120	1	2.1	504	0.504	100%	0.504	
Bunn o matic coffee		1	240	1	23.9	5736	5.736	100%	5.736	
commercial toaster		1	120	1	14.4	1728	1.728	100%	1.728	
hvac										
main building										
lower original, 1 ton		13057	240	1	13	3120	3.12	100%	3.12	
lower addition, 1.5 tn		15800	240	1	19.5	4680	4.68	100%	4.68	
kitchen/dining room, use 10 tn total		98845	12000	8.23708333	72.75	17460	17.46	100%	17.46	
second & third floor, 4 tn		48000	240	1	29.1	6984	6.984	100%	6.984	
belvedere, 2 tn			240	1	26	6240	6.24	100%	6.24	
cabins	7		240	1	9	15120	15.12	100%	15.12	
annex										
units #1	1	2155	240	1	13	3120	3.12	100%	3.12	
units #2, 3 & 4	3	2098								
units #5	1	2168								
		6421 Btu								
use a 1 tn unit										
water pump - fire fighting					5 hp		0.735		3.6775	
garage										
retail sales building			273.33	25.3931863	30	762	0.762	100%	0.7618	
									128.46	kw
					single phase				535.26	amp
go with 600 amp 3-phase				1.732		208			**356.6**	**amp**
for single phase		600	0.8	480	maximum amps for 600 amp service					
for three phase		400	0.8	320	maximum amps for 400 amp service					