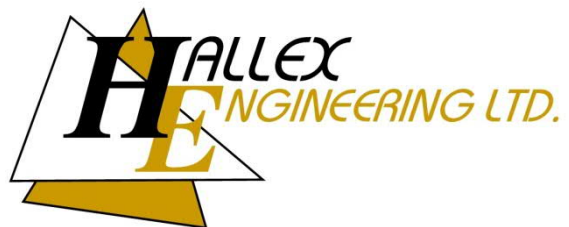

PROPOSED FREESTANDING PAD BUILDING
5150 INNES ROAD, ORLEANS, ON

FUNCTIONAL SERVICING DESIGN BRIEF
EXISTING WATER AND SANITARY SERVICES

REV 0 – August 09, 2019

PREPARED BY:



HALLEX PROJECT #190105

HALLEX NIAGARA
4999 VICTORIA AVENUE,
NIAGARA FALLS, ON L2E 4C9

HALLEX HAMILTON
745 SOUTH SERVICE ROAD, UNIT 205
STONEY CREEK, ON L8E 5

INTRODUCTION

The proposed free-standing pad building is located in an existing commercial retail property at 5150 Innes Road in Orleans, Ontario. It is located at the south west corner of the Innes Road and Trim Road intersection. The subject area of the existing site consists of an asphalt parking lot which shall be redeveloped for the proposed 1 storey building complete with a drive through.

The purpose of the service assessment is to determine the additional flows added to the existing water and sanitary services by the proposed building, to determine the impact on the existing municipal infrastructure.

SANITARY

The existing site is serviced for wastewater by an existing 250mm diameter sanitary sewer and is connected to the existing 525mm diameter municipal sanitary sewer at Trim Road.

The proposed free-standing pad building is currently in the concept phase; therefore, the following assumptions are made in carrying out the calculations based on the architectural drawings.

- The plumbing fixtures and the number of plumbing fixtures indicated in Exhibit #1 are assumed to include the proposed development only and may not represent the final building plumbing design.

The wastewater generation for the proposed building is determined to be 24,400 L/day using Table 8.2.1.3B of the Ontario Building Code. The peak drainage rate for the proposed development is determined to be 202.9 L/min based on the fixtures and fixture units shown in Exhibit #1, attached. Table 7.4.10.5 in the Ontario Building Code is used to determine probable peak drainage rates for the total fixture units.

Based on the assumptions above, Hallex recommends a 150mm diameter PVC lateral connection to a new 200mm diameter PVC sanitary sewer. This new sanitary sewer is to connect to the existing 250mm diameter sanitary sewer on the subject property.

WATER

The existing site is serviced for water supply by an existing 200mm diameter watermain and is connected to the existing 400mm diameter municipal watermain at Trim Road.

The proposed free-standing pad building is currently in the concept phase; therefore, the following assumptions are made in carrying out the calculations based on the architectural drawings:

- The plumbing fixtures and the number of plumbing fixtures indicated in Exhibit #1 are assumed to include the proposed development only and may not represent the final building plumbing design.

The domestic water demand for the proposed development is determined to be 308.6 L/min based on the fixtures and fixture units shown in Exhibit #1, attached. Table 7.4.10.5 in the Ontario Building Code is used to determine water demands for the total fixture units.

Using the calculations provided in the Fire Underwriters Survey – 1999 Water Supply for Public Fire Protection the minimum water supply flow rate for fire protection is determined to be 3,000 L/min based on the above assumptions as shown in Exhibit #2 attached. Although the existing private hydrants on the subject property are greater than 90m from the proposed free-standing pad building, there is an existing municipal fire hydrant near the building which is located approximately 43.5m east of the proposed building (i.e. on the east side of Trim Road).

Based on the assumptions above, Hallex recommends a 50mm copper type 'k' water service be installed from the existing 200mm diameter watermain onsite to the proposed building provided it meets the detailed design requirements of the mechanical engineer.

We trust this letter meets your approval. Please contact the undersigned should you have any questions or comments.

Yours truly,

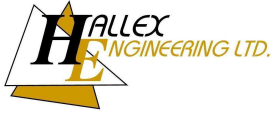
HALLEX ENGINEERING LTD



Jim Halucha P.Eng
Civil/Structural Engineer

A handwritten signature in blue ink, appearing to read 'Jonathan Skinner'.

Jonathan Skinner, C.E.T., B.Tech
Civil Technologist



5150 Innes Road, Orleans, ON
Exhibit#1 - Wastewater Generation
and Water Usage Rate

8/9/2019
 Job: 190105

SANITARY SEWER

Unit Type	# of Seats	Vol. (L) (Table 8.2.1.3B)	Total Daily Volume (L)
Proposed Donut Shop	61	400	24400
		Total =	24400 L/day

Therefore the total calculated sanitary flow is determined to be 24,400 L/day.

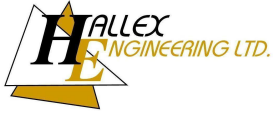
Fixture	Fixture Units (Table 7.4.9.3.)	Total Fixtures	Total Sanitary Fixture Units
	(FU)	(#)	(FU)
Dishwasher	3	1	3.0
Kitchen Sink	1.5	9	13.5
Mop Sink	3.0	1	3.0
Lavatory (3 Compartments)	3.0	1	3.0
Sink	1.5	5	7.5
Icebox	1.0	2	2.0
Water Closet (Direct Flush)	6.0	5	30.0
		Total =	62 FU

Therefore the total calculated peak drainage rate is determined to be 202.9 L/min.

DOMESTIC WATER SUPPLY

Fixture	Fixture Units (Table 7.6.3.2.A.)	Total Fixtures	Total Water Fixture Units	
	(FU)	(#)	(FU)	
Dishwasher	8.0	1	8.0	
Kitchen Sink	4.0	9	36.0	
Mop Sink	3.0	1	3.0	
Lavatory (3 Compartments)	2.0	1	2.0	
Sink	2.0	5	10.0	
Icebox	2.0	2	4.0	
Water Closet (Direct Flush)	0.0	5	115.0	Refer to Table 7.6.3.2.C
		Total =	178 FU	

Therefore the maximum domestic water demand is determined to be 308.6 L/min.



5150 Innes Road, Orleans, ON
Exhibit#2 - Fire Water Demand

8/9/2019
Job: 190105

FIRE WATER SUPPLY

Building Type: No Fire Protection

<u>Floor Area</u>		<u>Reduct.</u>	
First Floor	172 m ²	1.00	172 m ²
			172 m ²

Construction Type: Ordinary Construction Construction Coefficient:

1st Preliminary Fire Flow = 3000 L/min

Fire Hazard: Limited Combustible Fire Hazard Factor:
Net Decrease = -450 L/min

2nd Preliminary Fire Flow = 2550 L/min

Sprinkler System: No System Sprinkler System Factor:
No Change = 0 L/min

Separation Factor

North	45+ m	0.00
South	45+ m	0.00
East	45+ m	0.00
West	45+ m	0.00
		<u>0.00</u>

No Change = 0 L/min

FINAL FIRE FLOW = 3000.0 L/min

Minimum Water Supply Flow Rate for Fire Protection as determined by the Water Supply For Public Fire Protection, dated 1999, by the Fire Underwriter's Survey