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November 25, 2024

VIA EMAIL mtoussaint@mraa.ca

MRA Architecture + Design
443 Saint-Claude,
Montréal, QC
H2Y3B6

Attention: Maxime Toussaint, Project executive assistant

RE: Site Servicing Adequacy Letter
388 Richmond Road, Ottawa, ON

INTRODUCTION

Parsons Inc. (Parsons) is pleased to provide this letter regarding the adequacy of municipal services (drinking water, sanitary and stormwater) for the existing building at 388 Richmond Road, Ottawa, ON. This letter documents the existing municipal infrastructure in the vicinity of the property and the expected servicing requirements for the proposed building. The servicing requirements will address converting the existing Scotiabank to a McDonalds restaurant. We will also identify any constraints/risks we observe in terms of municipal servicing. This letter will not address other utilities such as gas, hydro, telecom, etc.

BACKGROUND INFORMATION

The following documents were reviewed to understand the existing conditions and proposed plans:

- GeoOttawa, the City of Ottawa's interactive web panning application;
- Existing and Proposed site plan, by MRAA, dated June 25, 2024;
- City of Ottawa Sewer Design Guidelines, October 2012; and
- City of Ottawa Design Guidelines – Water Distribution, July 2010.

EXISTING CONDITIONS

The existing Scotiabank at 388 Richmond was originally constructed in circa 1912 on a 0.04 ha property.
The building is connected to a residential apartment building (386 Richmond Rd).

DRINKING WATER

Existing Conditions

According to the City of Ottawa's GIS mapping, there is a 305mm diameter PVC watermain installed in 2004 along Richmond Road. The building is served by a 25mm soft copper water line, with the installation date unknown. Multiple fire hydrants are present along Richmond Road, including one directly in front of the building. Water pressure inside the building is measured at 52 psi. Additionally, a fire flow hydrant test shows an available 211 l/s at 20 PSI, with the results provided in the appendix.

Proposed Servicing Solution

The existing water service is deemed adequate for both domestic and fire demands. Fire demand, based on the Fire Underwriters Survey and City of Ottawa standards, remains at 67 l/s, which can be managed by the existing hydrant. The existing water service connection is expected to be sufficient.

SANITARY SERVICE

Existing Conditions

A CCTV survey indicates a 100mm cast iron sanitary service pipe in fair condition, connected to a 300mm sanitary sewer along Carling Avenue, installed in 2004. The 300mm main has an approximate slope of 0.4%.

Potential Servicing Solution

The 100mm sanitary service is adequate for the increased demands of the new building use. An oil/grease interceptor will be added in the kitchen to comply with the Ontario Building Code (OBC), specified by the mechanical engineer during the Building permit submission.

STORM WATER

Existing Conditions

The existing building roof is a flat roof drained by two roof drains. The outlet for the storm system is connected to an The building has a flat roof with two roof drains connected to a 600mm concrete storm sewer on Richmond Road. The storm sewer has a slope of approximately 0.3%. A CCTV inspection of the storm sewer was attempted but was inconclusive due to debris.

Proposed Servicing Solution

The storm sewer will be cleaned and reused. No additional storm flows are anticipated as the building footprint remains unchanged.

CONCLUSION

The existing water, sanitary, and storm water services are deemed adequate for the proposed development, with minor modifications such as the addition of an oil/grease interceptor. The existing infrastructure is expected to meet the demands of the building without significant upgrades.

Please don't hesitate to contact us if you have any questions or concerns.

Sincerely
Parsons

Mathew Theiner, P.Eng., Ing.
Senior Municipal Engineer

Attachment:

- Fire Flow Calculation
- Water Service Demands Calculation
- Sanitary Design Flows
- Sanitary Sewer Design Sheet
- CCTV Inspection Report
- Hydrant Fire Flow Testing


ch. Richmond Rd.
300mmØ PVC
305mmØ - PVC
600mmØ CONC
225mmØ CONC
152mmØ - UCI
152mmØ - PVC
102mmØ - UNK
203mmØ - PVC
300mmØ CONC
375mmØ CONR
av. Danforth Ave.
MHST28517
IN115901
IN47467
MHSA27554
64.61
64.33
IN120062
IN120063
MHST44686
MHSA46994
65.05
IN91577
IN91578
IN91576
IN120064
MHST44685
MHSA46993
65.25
IN120066
64.7
IN151728
MHST46857
MHSA48936
IN91575
MHSA27545
66.28
MHST27494
66.75
IN89637
IN89634
366
380
383
385
386
387
388
389
390
395
396
399
382

388 Richmond Rd - Estimated Water Demands

Area	Seats	Population	Gross Floor Area (m2)	Average Daily Demand (ADD) (L/s)	Maximum Daily Demand (MDD) (L/s)	Peak Hourly Demand (PHD) (L/s)	Fire Flow (FF) (L/s)	MDD + FF (L/s)
Existing Building								
Bank	NA	NA	366	0.03	0.05	0.09	67	67.05
Proposed Building								
Restaurant (24 hrs)	28	NA	366	0.16	0.25	0.45	67	67.25

Average Daily Demand

Based on Ottawa Design Guidelines - Water Distribution, 2010 and MOE Design Guidelines for Drinking-Water Systems, 2008

Average Residential Daily Flow =	280	L/p/d
Institutional Flow =	28,000	L/gross ha/d
Commercial Flow =	28,000	L/gross ha/d
Light Industrial Flow =	35,000	L/gross ha/d
Heavy Industrial Flow =	55,000	L/gross ha/d
Hotel Daily Flow =	225	L/bed/d
Office/Warehouse Daily Flow =	75	L/person/d
Office/Warehouse Daily Flow =	8.06	L/m2/day
Restaurant (Ordinary not 24 Hours) =	125	L/seat/d
Restaurant (24 Hours) =	200	L/seat/d
Shopping Centres =	2,500	L/(1000m^2/d)
Amenity Area =	5	L/m2/d

Maximum Daily Demand

Residential =	2.5 x Average Daily Demand
	4.9 x Average Daily Demand **
Industrial =	1.5 x Average Daily Demand
Commercial =	1.5 x Average Daily Demand
Institutional =	1.5 x Average Daily Demand

Peak Hourly Demand

Residential =	2.2 x Maximum Daily Demand
	7.4 x Maximum Daily Demand **
Industrial =	1.8 x Maximum Daily Demand
Commercial =	1.8 x Maximum Daily Demand
Institutional =	1.8 x Maximum Daily Demand

388 Richmond Rd

Building	Type of Construction C	Total Floor Area (m2) A	Fire Flow (min. 2,000) (L/min) F	Adjusted (nearest 1,000) (L/min)	Occupancy Factor O	Reduction / Increase due to Occupancy	Fire Flow with Occupancy (min. 2,000) (L/min)	Sprinklers Factor S	Reduction due to Sprinklers (L/min)	Exposure Factor % E	Increase due to Exposure (L/min)	Fire Flow (L/min)	Roof Contribution (L/min) R	Required Fire Demand: Adjusted to the nearest 1000 (min. 2,000, max. 45,000) (L/min) F	Required Fire Demand: Minimum 33 (L/s)
Existing Building B	0.8	366	3,367	3,000	0%	0	3,000	0%	0	25%	750	4,000	0	4,000	67
Proposed Building A	0.8	366	3,367	3,000	0%	0	3,000	0%	0	25%	750	4,000	0	4,000	67

References

Reference: *Water Supply for Public Fire Protection , 2020 by Fire Underwriters Survey (FUS) and Ottawa Design Guidelines - Water Distribution, July 2010* and subsequent Technical Bulletins

C Type of Construction

Wood Frame (Type V)	1.5
Mass Timber (Type IV-A) - Encapsulated Mass Timber	0.8
Mass Timber (Type IV-B) - Rated Mass Timber	0.9
Mass Timber (Type IV-C) - Ordinary Mass Timber	1.0
Mass Timber (Type IV-D) - Unrated Mass Timber	1.5
Ordinary Construction (Type III also known as joisted masonry)	1.0
Non-Combustible Construction (Type II - minimum 1 hour fire resistance rating)	0.8
Fire resistive Construction (Type I - minimum 2 hour fire resistance rating)	0.6

A Total Effective Floor Area (m^2)

Buildings Classified with a Construction Coefficient from 1.0 to 1.5

100% of all Floor Areas

Buildings Classified with a Construction Coefficient below 1.0

Vertical Openings Unprotected

Two (2) Largest Adjoining Floor Areas

Additional Floors (up to eight (8)) at 50%

Vertical Openings Properly Protected

Single Largest Floor

Additional Two (2) Adjoining Floors at 25%

High One Storey Building

When a building has a large single storey space exceeding 3m in height, the number of storeys to be used in determining the total effective area depends upon the use being made of the building.

Subdividing Buildings (Vertical Firewalls)

Minimum two (2) hour fire resistance rating and meets National Building Code requirements.

- Up to 10% can be applied if there is severe risk of fire on the exposed side of the firewall due to hazard conditions.
- An exposure charge of up to 10% can be applied if there are unprotected openings in the firewall

Basement

Basement floor excluded when it is at least 50% below grade.

Open Parking Garages

Use the area of the largest floor.

O Occupancy

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

- Table 3 provides recommended Occupancy and Contents Adjustment Factors for Example Major Occupancies from the National Building Code of Canada.
- Adjustment factors should be adjusted accordingly to the specific fore loading and situation that exists in the subject building.
- Values can be interpolated from the examples given considering fire loading and expected combustibility of contents if the subject building is not listed.
- Values can be modified by up to 10% (+/-) depending on the extent to which the fire loading is unusual for the building.
- Buildings with multiple major occupancies should use the most restrictive factor or interpolate based on the percentage of each occupancy and its associated fire loading.

Table 3 Values for Subject Building

Group:	E
Division:	
Description of Occupancy:	Shops/Stores
Occupancy and Contents:	Combustible
Adjustment Factor:	0%

R Roof

Shake Roof	2,000 to 4,000 L/min	additional should be added to the fire flow
Wood Shingle	2,000 to 4,000 L/min	additional should be added to the fire flow

F Fire Flow (L/Min)

220*C*(A^0.5)

S Sprinklers

	Complete Coverage	Partial Coverage
Automatic Sprinklers NFPA Standards	30%	30% * x%
Standard Water Supply	10%	10% * x%
Full Supervision	10%	10% * x%

(x%: percentage of total protected floor area)

Additional Reductions for Community Level Automatic Sprinkler Protection of Area

Buildings located within communities or subdivisions that are completely sprinkler protected may apply up to a maximum additional 25% reduction in required fire flows beyond the normal maximum of 50% reduction for sprinkler protection of an individual building.

Adjustment of Sprinkler Reductions for Community Level Oversight of Sprinkler Maintenance, Testing, and Water Supply Requirements

The reduction in required fire flow for sprinkler protection may be reduced of eliminated if:
- The community does not have a Fire Prevention Program that provides a system of ensuring that the fire sprinkler systems are inspected, tested, and maintained in accordance with NFPA 25
- The community does not maintain the pressure and flow rate requirements for fire sprinkler installations, or otherwise allows the flow rates and pressure levels that were available during sprinkler system design to significantly degrade, increasing the probability of inadequate water supply for effective sprinkler operation.

E Exposure

The maximum exposure adjustment that can be applied to a building is 75% when summing the percentages of all sides of the building.

Separation Distance (m)	Maximum Exposure Adjustment	N	E	S	W
0 to 3	25%				
3.1 to 10	20%				
10.1 to 20	15%				
20.1 to 30	10%				
Greater than 30	0%				

Table 6: Exposure Adjustment Charges for Subject Building Considering Construction Type of Exposed Building Face

Distance to the Exposure (m)	Length-Height Factor of Exposing Building Face	Type V	Type III-IV[2]	Type III-IV[3]	Type I-II[2]	Type I-II[3]
0 to 3	0-20	20%	15%	5%	10%	0%
	21-40	21%	16%	6%	11%	1%
	41-60	22%	17%	7%	12%	2%
	61-80	23%	18%	8%	13%	3%
	81-100	24%	19%	9%	14%	4%
	Over 100	25%	20%	10%	15%	5%
3.1 to 10	0-20	15%	10%	3%	6%	0%
	21-40	16%	11%	4%	7%	0%
	41-60	17%	12%	5%	8%	1%
	61-80	18%	13%	6%	9%	2%
	81-100	19%	14%	7%	10%	3%
	Over 100	20%	15%	8%	11%	4%
10.1 to 20	0-20	10%	5%	0%	3%	0%
	21-40	11%	6%	1%	4%	0%
	41-60	12%	7%	2%	5%	0%
	61-80	13%	8%	3%	6%	1%
	81-100	14%	9%	4%	7%	2%
	Over 100	15%	10%	5%	8%	3%
20.1 to 30	0-20	0%	0%	0%	0%	0%
	21-40	2%	1%	0%	0%	0%
	41-60	4%	2%	0%	1%	0%
	61-80	6%	3%	1%	2%	0%
	81-100	8%	4%	2%	3%	0%
	Over 100	10%	5%	3%	4%	0%
Over 30m	All Sizes	0%	0%	0%	0%	0%

[2] with unprotected openings

[3] without unprotected openings

Automatic Sprinkler Protection in Exposed Buildings
- If the exposed building is fully protected with an automatic sprinkler system (see note Recognition of Automatic Sprinkler), the exposure adjustment charge determined from Table 6 may be reduced by up to 50% of the value determined.

Automatic Sprinkler Protection in both Subject and Exposed Buildings
- If both the subject building and the exposed building are fully protected with automatic sprinkler systems (see note Recognition of Automatic Sprinkler), no exposure adjustment charge should be applied.

Exposure Protection of Area Between Subject and Exposed Buildings
- If the exposed building is fully protected with an automatic sprinkler system (see note Recognition of Automatic Sprinkler), and the area between the buildings is protected with an exterior automatic sprinkler system, no exposure adjustment charge should be applied.

Reduction of Exposure Charge for Type V Buildings
- If the exposed building face of a Type V building has an exterior cladding assembly with a minimum 1 hour fire resistive rating, then the exposure charge may be treated as a Type III/IV building for the purposes of looking up the appropriate exposure charge in Table 6.

SANITARY DESIGN FLOWS

Area	RESTAURANT						AUTOMOTIVE SERVICE CENTRE				COMMERCIAL/RETAIL			TOTAL	INFILTRATION			Total
	Rest. Area (m^2)	Seats	Flow per seat (L/seat/d)	Rest. Flow (L/s)	Peak Factor over 6-hr	Peak Flow (L/s)	Number of Bays	Average Car Wash Flow	Peak Factor	Peak Flow (L/s)	Retail Area (m^2)	Peak Factor	Peak Flow (L/s)	Peak Flow (L/s)	Site Area (ha)	Infiltration Allowance (L/s/ha)	Infilt. Flow (L/s)	Total Peak Flow (L/s)
Subject Site															0.04	0.33	0.01	0.013
Proposed Restaurant	366	28	200.00	0.1	1.5	0.247					299	1.5	0.015	0.262				0.262
																	Total	**0.27**

Design:	PC	**Project:**	McDonalds
Check :	MT	**Location:**	388 Richmond Rd Ottawa, Ontario
Dwg reference:		**Project # :**	479270
		Date:	25-Nov-24
		Sheet:	1 of 1

Average Daily Demands

(Based on City of Ottawa *Sewer Design Guidelines 2012* and *MOE Water Design Guidelines*)

Average Residential Daily Flow =	280	L/p/d
Institutional Flow =	28,000	L/ha/d
Commercial Flow =	28,000	L/ha/d
Light Industrial Flow =	35,000	L/ha/d
Heavy Industrial Flow =	55,000	L/ha/d
Hotel Daily Flow =	225	L/bed/d
Office/Warehouse Daily Flow =	75	L/empl/d
Shopping Centres =	2,500	L/(1000m^2/d)

Population Densities

Average suburban residential dev.	60	p/ha
Single family	3.4	p./unit
Semi-detached	2.7	p./unit
Duplex	2.3	p./unit
Townhouse	2.7	p./unit
Appartment average	1.8	p./unit
Bachelor	1.4	p./unit
1 Bedroom	1.4	p./unit
2 Bedrooms	2.1	p./unit
3 Bedrooms	3.1	p./unit
Hotel room, 18 m2	1	p./unit
Restaurant, 1 m2	1	p./unit
Office	1	p/25m^2
Warehouse	1	p/90m^2
Automotive Service Centre, per bay	1	p/bay (plus management)

Peak Factors

Commercial =	1.5	if commercial contribution > 20%, otherwise
Institutional =	1.5	if institutional contribution > 20%, otherwise
Industrial =		per Appendix 4-B.0 Graph
Residential :		Harmon Equation
		1 + (14/(4+(Capita/1000) ^ 0.5))*8
		min =
		max =

Infiltration allowance (dry weather)	0.05	L/s/ha
Infiltration allowance (wet weather)	0.28	L/s/ha
I/I (total)	0.33	L/s/ha

(Based on the *Ontario Building Code / Sewage System Design Flows - Section 8.2.1.3*)

Food Service Operations		
Restaurant (not 24 hour), per seat	125	(L/seat/d)
Restaurant (24 hour), per seat	200	(L/seat/d)

SANITARY SEWER DESIGN SHEET

Drainage Area	From	To	Peak Flow Q (L/sec)	Sewer Data										REMARKS
				Type of Pipe	Pipe Dia. nom. (mm)	Pipe Dia. actual (mm)	Slope (%)	Length (m)	Capacity full (L/sec)	Velocity full (m/sec)	Velocity actual (m/sec)	Time of Flow (min)	Q(d) / Q(f)	
	Proposed Building	Main	0.26	DI	100	101.6	1.0	10.9	5.4	0.66	0.32	0.57	0.05	

Manning's n = **0.013**

Design: P. Charlebois
Check: M. Theiner
Date: November, 2024

Project Name: 388 Richmond Rd
Parsons Project #: 479270
Client: MRAA
Client Project #: McDonalds

Sébastien Labelle
Plomberie Environord Inc

388 RICHMOND

Friday, November 15, 2024

Prepared Fro Foucault Construction

10 Issues Identified

ROOF DRAIN

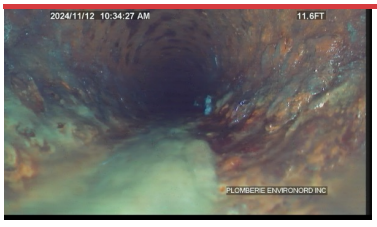
ROOF DRAIN

ROOF DRAIN

Tuyauterie de drainage pluviale ne peut etre inspecter car toute la tuyauterie est bloquer et remplis.

Un flush est nécessaire pour identifier le diametre sous dalle et valider si la tuyauterie est en bonne etat

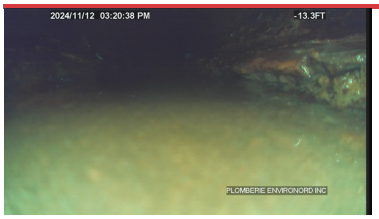
2 colonnes pluviale a l interieur ayant un diametre de 4” chacune



TUYAUTERIE SANITAIRE

La condition actuel de la tuyauterie est bonne

TUYAUTERIE SANITAIRE



TUAYUTERIE SANITAIRE

La tuyauterie sanitaire ayant un diametre de 4” est en bonne etat et a deux leger bas fond comme Identifier sur les photos

Le sanitaire et pluviale ne sont pas combiner

TUYAUTERIE SANITAIRE

ENTREE D EAU

L entree d eau domestique est de 1” cuivre avec un DAR et compteur d eau

PRESSION DE L EAU

La pression a l’interieur du batiment est de 52 psi

GAZ NATUREL

Aucune tuyauterie de gaz a l interieur du batiment

Tuyauterie au compteur est de 1-1/4

		DATE	13-Nov-24
CLIENT	MRA Architecture + Design	INSPECTOR NAME	Ilyas Omari
BUILDING NAME	388 Richmond Road	COMPANY	Avangard Fire & Life Safety
STREET	388 Richmond Road	STREET	2979 Merivale Road
CITY	Ottawa, Ontario	CITY	Ottawa, Ontario
SITE CONTACT		PHONE #	(613) 223-2223
PHONE #		LICENSE #	13866906

FIRE HYDRANT FLOW TEST RESULTS

HYDRANT #1 FLOW TEST

FLOW HYDRANT LOCATION: 388 RICHMOND ROAD (HYDRANT ID#362027H173)

PRESSURE GAUGE HYDRANT LOCATION: 366 RICHMOND ROAD (HYDRANT ID#362027H174)

DEVICES USED TO MEASURE FLOW/PRESSURE: HOSE MONSTER

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)
68	2.5"	20	3354	65

HYDRANT #2 FLOW TEST

FLOW HYDRANT LOCATION:

PRESSURE GAUGE HYDRANT LOCATION:

DEVICES USED TO MEASURE FLOW/PRESSURE:

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

HYDRANT #3 FLOW TEST

FLOW HYDRANT LOCATION:

PRESSURE GAUGE HYDRANT LOCATION:

DEVICES USED TO MEASURE FLOW/PRESSURE:

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

HYDRANT #4 FLOW TEST

FLOW HYDRANT LOCATION:

PRESSURE GAUGE HYDRANT LOCATION:

DEVICES USED TO MEASURE FLOW/PRESSURE:

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

Avangard Fire & Life Safety Inc. /
/ 2979 Merivale Road/
Ottawa, Ontario K2C 3H1 /
(613) 223-2223
www.avangardfire.ca /

FIRE HYDRANT DEFICIENCIES & REPAIRS

DEFICIENCIES

1) N/A
2)
3)

The above are identified as deficiencies as per the applicable code, and will cause a certificate of inspection to be witheld. These deficiencies must be corrected and re-inspected before a certificate can be issued.

NOTES / RECOMMENDATIONS

1)
2)
3)

Fire code mandates that these records are retained for a minimum of two years.

Monthly inspections are not required during the month of the annual inspection.