



FUNCTIONAL SERVICING REPORT

FOR THE PROPERTY OF PETRO CANADA PRODUCTS LOCATED AT

**6250 HAZELDEAN ROAD @ CARP ROAD,
STITTSVILLE, ONTARIO**



Prepared For:
Suncor Energy Products Partnership

Prepared by:
J and B Engineering Inc.

25 Centurian Drive, Suite 201
Markham, Ontario, L3R 5N8

Rev. August 31, 2026



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1. INTRODUCTION

1.1 Study Area

The study area is located at the Hazeldean Road and Carp Road intersection in Ottawa, Ontario. The address for this property is 6250 Hazeldean Road, Stittsville.

The study area consists of an existing one-storey c-store with a one-storey carwash building, underground fuel tanks with associated gas pumps. The proposed redevelopment scope includes addition of the existing c-store building with the drive-thru lane reconfiguration and proposed underground stormwater storage tank. The existing water and sanitary services are proposed to remain.

1.2 Background

This study addresses the servicing requirements for the proposed development which includes water, sanitary and stormwater servicing.

2. WATER SERVICE

2.1 Water Service – Existing

The site is serviced by an existing 50mm water service connected to the existing 400mm watermain located on Carp Road. The water service connects to a water valve located at the property line.

2.2 Water Service – Proposed

Based on the information provided to J+B, the proposed c-store building will have four (4) water closets, four (4) lavatories and three (3) sinks. As per Ontario Building Code, the proposed redevelopment will require 20 GPM (1.515 L/s) of flow, plus the assumed water consumption of 35 GPM (2.21 L/s) from the existing carwash based on historical data for similar type of car washes. The total required flow is 3.72 L/s. Refer to Appendix A for detailed calculation.

The existing 50mm water service will remain since it is able to handle the water demand from the proposed redevelopment. The water service will be metered by the existing 38mm water meter within the mechanical room located in the carwash building. For connection locations and details refer to the Site Servicing Plan P-301 in Appendix D.

2.3 Water service Appurtenances

Considering ordinary construction and an automatic, standard water supply, the required fire flow for the building is estimated to be 5,000 L/minute using the FUS method. Refer to Appendix B for detailed fire flow calculations.

NFPA code requirements stipulate that all fuel dispensers be serviced by a fire hydrant which is located within 90 m from the furthest dispenser. The existing municipal fire hydrant is located at the northwest corner of the site at Hazeldean Road ROW covers a radius of approximately 90m from the furthest dispenser. No additional fire hydrants are required for the proposed redevelopment. Refer to Appendix E for details.

3. SANITARY

3.1 Sanitary - Existing

The site is currently serviced by an existing 200mm sanitary sewer which discharges from an existing manhole located at southeast property line fronting Carp Road into a 250mm sanitary sewer located along Carp Road.

3.2 Sanitary - Proposed

As mentioned in Section 2, four (4) water closets, four (4) lavatories and three (3) sinks are proposed for the redevelopment. As per Ontario Building Code, the proposed redevelopment will generate 27 GPM (1.70 L/s) of flow, plus the assumed water consumption of 35 GPM (2.21 L/s) from the existing carwash. The total discharge flow is 3.91 L/s. Refer to Appendix C for detailed calculation.

The existing 250mm sanitary sewer has capacity to support the proposed sanitary demand. Please see Appendix C for more details.

4. STORM

A Stormwater Management Report for this development has been prepared under a separate cover. It identifies the stormwater quantity and quality controls under which this site will operate to comply with the City's Design Guidelines.

4.1 Pre-Development Conditions

Under the existing conditions the site is serviced by ten (10) catch basins located at various parts of the property and discharges into an existing 300 storm sewer along Carp Road. The site currently has an 122mm orifice plate and an existing stormceptor as the water quantity/quality control measures.

4.2 Post-Development Conditions

The post development will increase the impervious area and surface ponding will be reduced due to proposed grade work. Therefore, an underground storage chamber is proposed to accommodate the increased runoff. Refer to SWM report for detail.

5. SUMMARY AND CONCLUSION

In summary, all required conditions for the City of Ottawa have been satisfied as follows:

- Water service
- Sanitary service
- Stormwater management



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Appendix A – Domestic Water Usage



CITY OF OTTAWA

THEORETICAL DOMESTIC WATER DEMAND CALCULATION

6250 Hazeldean Rd

Existing

	Fixture	Count	FU ¹	Total FU	Flow Rate (gal/min)	Flow Rate (L/s)
C-Store	Lavatory, 8.3LPM or less	1	2.0	2.0	-	-
	Water Closet w/ Flush Tank	1	2.2	2.2	-	-
	-	-	-	4.2	1.5	0.095
Carwash ²	-	-	-	-	35	2.208
Total Flow						2.303

Proposed

	Fixture	Count	FU ¹	Total FU	Flow Rate (gal/min)	Flow Rate (L/s)
C-Store	Lavatory, 8.3LPM or less	4	2.0	8.0	-	-
	Water Closet w/ Flush Tank	4	2.2	8.8	-	-
	Sink	4	4.0	16.0	-	-
	-	-	-	32.8	20	1.515
Carwash ²	-	-	-	-	35	2.208
Total Flow						3.723

Note 1 Fixture unit as per Table 7.6.3.2.-A of Ontario Building Code (2024)

Note 2 Water flow assumed based on historical data for similar type of car washes

Average Day Demand	Max. Daily Demand (1.5x avg. day)	Peak Hourly Demand (1.8 x avg. day)
l/s	l/s	l/s
2.07	3.10	3.72



Appendix B – Fire Flow Calculation



Project:		250358		
Date:		7-Jul-26		
Fire Flow Calculation - FUS method				
Coefficient	Ordinary construction (Brick and other Masonry walls)	C=	1	
Total Floor Area	C-store + Carwash	A=	366.20	sqm
Fire flow		F=	220 C √A	l/m
		=	4210.00	l/m
		≈	4000.00	l/m
Occupancy Hazard	Combustible	Surcharge	0.00	%
		F=	4000.00	l/m
Automatic Sprinkler System	No	Reduction	0.00	%
		F=	4000.00	l/m
Separation with adjacent buildings	10.1 to 20m	Surcharge	15.00	%
		F=	4600.00	l/m
Fire Flow		≈	5,000.00	l/m



Appendix C – Sanitary Flow Calculation



CITY OF OTTAWA
THEORETICAL SANITARY FLOW CALCULATION
6250 Hazeldean Rd

Existing

	Fixture	Count	FU ¹	Total FU	Flow Rate (gal/min)	Flow Rate (L/s)
C-Store	Lavatory, domestic type single	1	1.0	1	-	-
	Water Closet w/ Flush Tank	1	4.0	4	-	-
	-	-	-	5	21	1.325
Carwash ²	-	-	-	-	35	2.208
Total Flow						3.533

Proposed

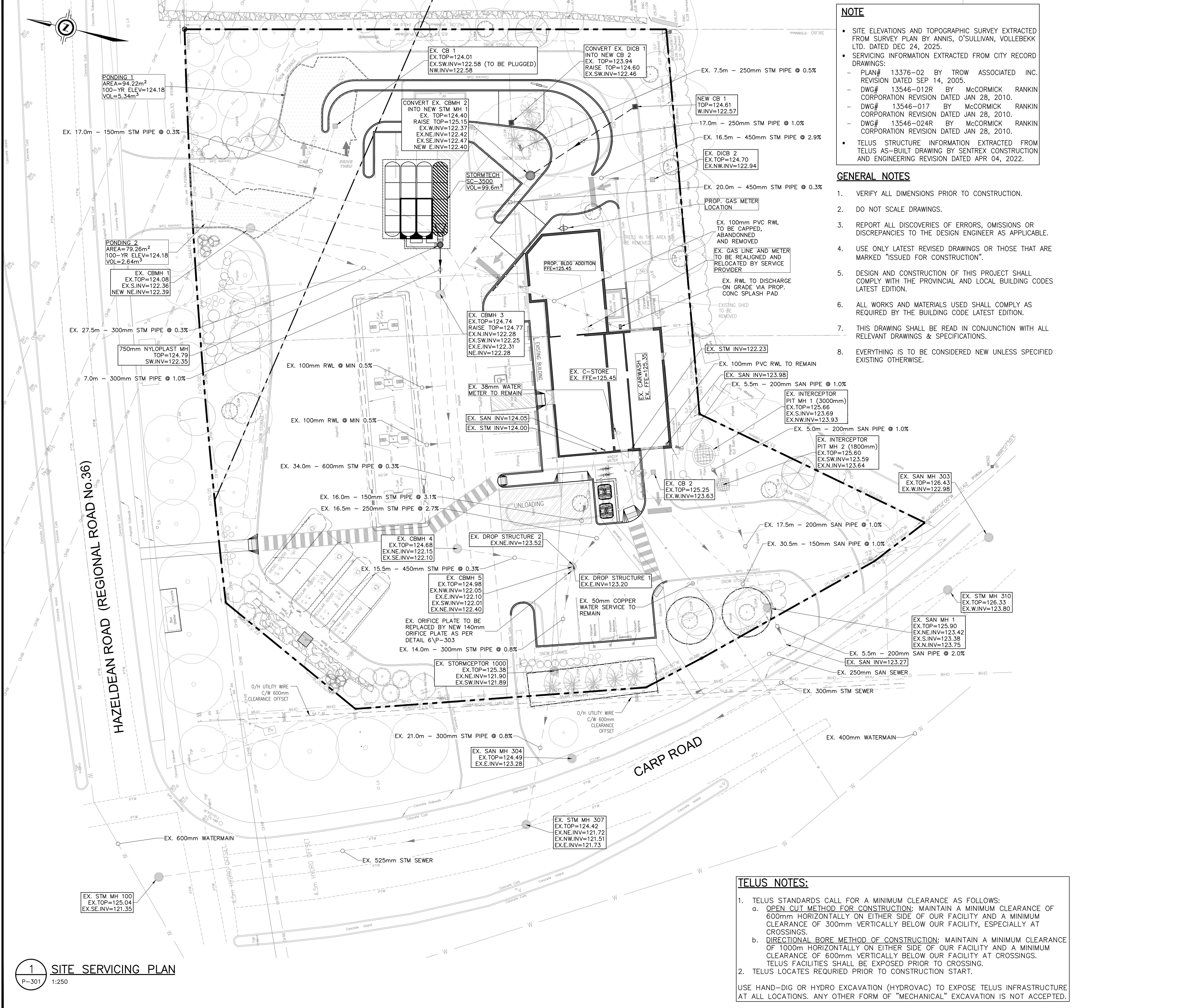
	Fixture	Count	FU ¹	Total FU	Flow Rate (gal/min)	Flow Rate (L/s)
C-Store	Lavatory, domestic type single	4	1.0	4	-	-
	Water Closet w/ Flush Tank	4	4.0	16	-	-
	Sink	3	1.5	5	-	-
	-	-	-	25	27	1.703
Carwash ²	-	-	-	-	35	2.208
Total Flow						3.911

Note 1 Fixture Unit as per Table 7.4.9.3. of Ontario Building Code (2024)

Note 2 Water flow assumed based on historical data for similar type of car washes



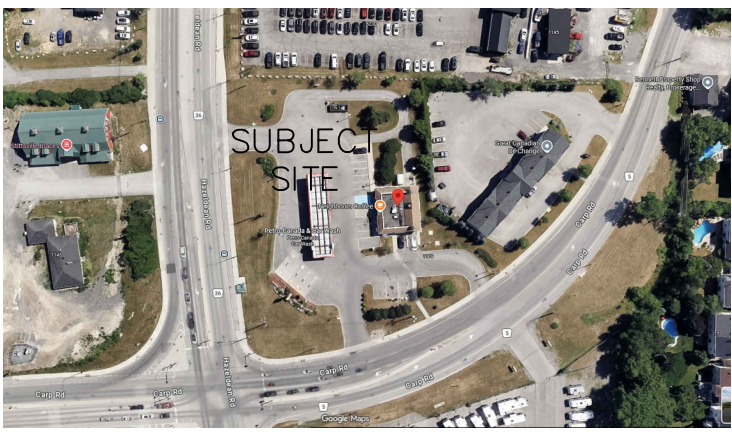
Appendix D – Site Servicing Plan



NOTE

- SITE ELEVATIONS AND TOPOGRAPHIC SURVEY EXTRACTED FROM SURVEY PLAN BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DATED DEC 24, 2025.
- SERVICING INFORMATION EXTRACTED FROM CITY RECORD DRAWINGS:
 - PLAN# 13376-02 BY TROW ASSOCIATED INC. REVISION DATED SEP 14, 2005.
 - DWG# 13546-012R BY MCCORMICK RANKIN CORPORATION REVISION DATED JAN 28, 2010.
 - DWG# 13546-017 BY MCCORMICK RANKIN CORPORATION REVISION DATED JAN 28, 2010.
 - DWG# 13546-024R BY MCCORMICK RANKIN CORPORATION REVISION DATED JAN 28, 2010.
- TELUS STRUCTURE INFORMATION EXTRACTED FROM TELUS AS-BUILT DRAWING BY SENTREX CONSTRUCTION AND ENGINEERING REVISION DATED APR 04, 2022.

- GENERAL NOTES**
- VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
 - DO NOT SCALE DRAWINGS.
 - REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGN ENGINEER AS APPLICABLE.
 - USE ONLY LATEST REVISED DRAWINGS OR THOSE THAT ARE MARKED "ISSUED FOR CONSTRUCTION".
 - DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL COMPLY WITH THE PROVINCIAL AND LOCAL BUILDING CODES LATEST EDITION.
 - ALL WORKS AND MATERIALS USED SHALL COMPLY AS REQUIRED BY THE BUILDING CODE LATEST EDITION.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS & SPECIFICATIONS.
 - EVERYTHING IS TO BE CONSIDERED NEW UNLESS SPECIFIED EXISTING OTHERWISE.



KEY PLAN
NTS

- GENERAL NOTES**
- VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
 - DO NOT SCALE DRAWINGS.
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 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS & SPECIFICATIONS.
 - EVERYTHING IS TO BE CONSIDERED NEW UNLESS SPECIFIED EXISTING OTHERWISE.

TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT 23 CONCESSION 12
GEOGRAPHIC TOWNSHIP OF GOULBOURN CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Underground Utility Services Marked on Surface (Paint) By a Third Party Located & Illustrated As Shown on This Plan

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, UTM Zone 18 (75° West Longitude) NAD-83 (CSRS) (2010).

For bearing comparisons, a rotation of 0°46'00" clockwise was applied to bearings on plan P1, P2 & P3.

- ELEVATION NOTES**
- Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from Benchmark No. 0011968U118 having an elevation of 126.180 metres.
 - It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

LEGEND

- EXISTING CATCHBASIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN MANHOLE
- NEW MANHOLE
- NEW CATCHBASIN
- EXISTING STORM LINE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING TELUS LINE
- PROPOSED STORM LINE
- PROPERTY LINE
- OVERLAND FLOW
- SURFACE PONDING AREA

REVISION TABLE		
REV.	DESCRIPTION	DRAWN / APP'D. DATE
1	REVISED AS PER COMMENTS	BL JS 10 MAR '26
2	REVISED AS PER COMMENTS	BL JS 31 AUG '26

ISSUE TABLE		
TO	FOR	DATE
SUNCOR	ISSUED FOR REVIEW	05 MAR '26
SUNCOR	ISSUED FOR REVIEW	10 MAR '26
SUNCOR	ISSUED FOR SPA	17 APR '26
SUNCOR	ISSUED FOR SPA	31 AUG '26

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES U.N.O. CONTRACTOR TO CHECK/VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF WORK. ALL DISCREPANCIES TO BE REPORTED TO THE PROJECT DESIGNER. DO NOT SCALE DRAWINGS.



CONSULTANT

J + B ENGINEERING INC.
TORONTO: 28 CENTENNIAL DR., SUITE 301, MARKHAM, ON L3R 9A8 416 229 2926
CALGARY: 636-11TH AVE. SW, SUITE 500, CALGARY, AB T2R 0E2 403 355 2265



DRAWING TITLE:

SITE SERVICING PLAN

PROJECT:		CAD INFO:	
6250 HAZELDEAN ROAD & CARP ROAD		SHEET SIZE D (559 x 864)	
STITTVILLE, ON		PETRO-CANADA	
DRAWN BY:	BL	DRAWING SCALE:	1:250
DATE DRAWN:	05 MAR '26	CONSULTANT	250358-P-301
CHECKED BY:	JS	PLOT SCALE	1:1
APPROVED BY:	JS	PLOT DATE	
STD No./OUTLET No.	65044	PLOT CONFIGURATION	
		SHEET No.	P301

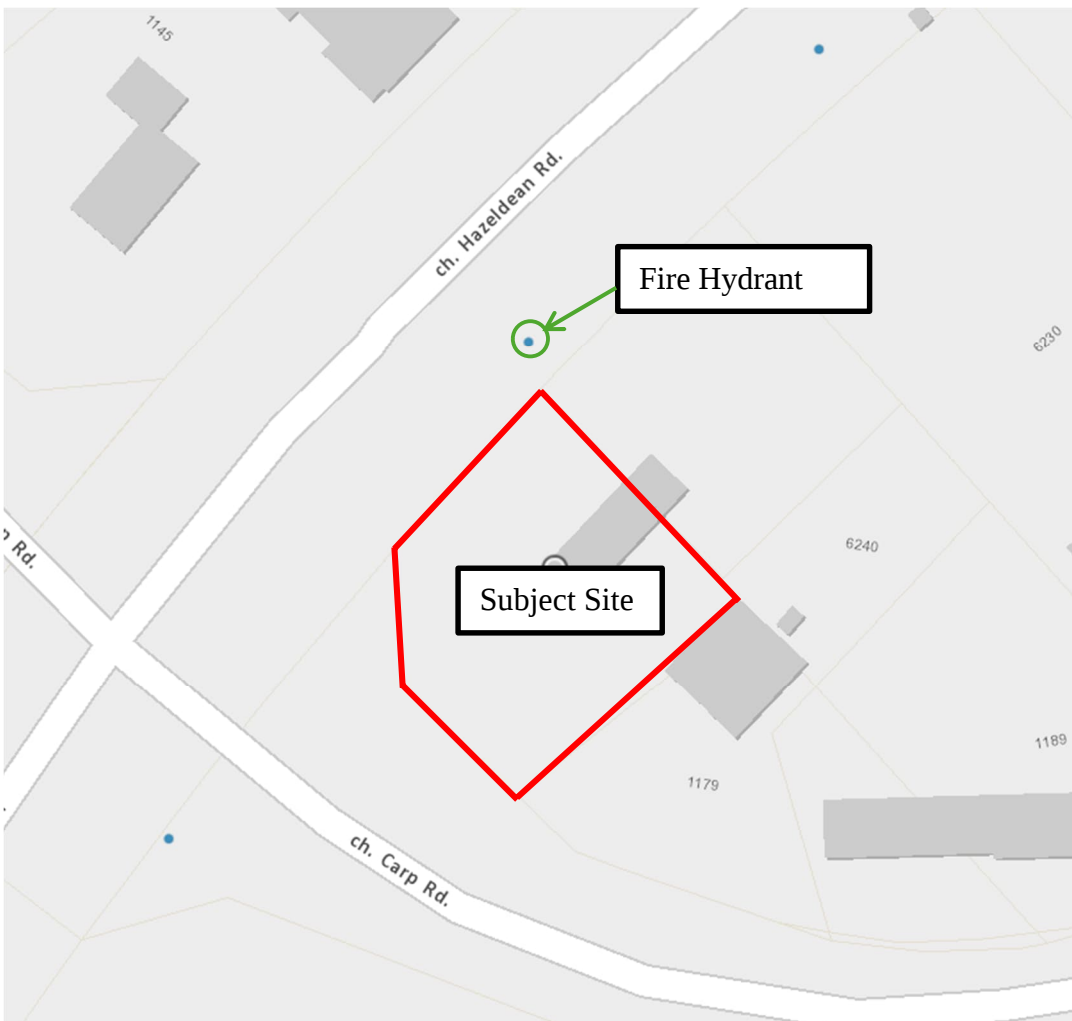
TELUS NOTES:

- TELUS STANDARDS CALL FOR A MINIMUM CLEARANCE AS FOLLOWS:
 - OPEN CUT METHOD FOR CONSTRUCTION: MAINTAIN A MINIMUM CLEARANCE OF 600mm HORIZONTALLY ON EITHER SIDE OF OUR FACILITY AND A MINIMUM CLEARANCE OF 300mm VERTICALLY BELOW OUR FACILITY, ESPECIALLY AT CROSSINGS.
 - DIRECTIONAL BORE METHOD OF CONSTRUCTION: MAINTAIN A MINIMUM CLEARANCE OF 1000mm HORIZONTALLY ON EITHER SIDE OF OUR FACILITY AND A MINIMUM CLEARANCE OF 600mm VERTICALLY BELOW OUR FACILITY AT CROSSINGS. TELUS FACILITIES SHALL BE EXPOSED PRIOR TO CROSSING.
- TELUS LOCATES REQUIRED PRIOR TO CONSTRUCTION START.

USE HAND-DIG OR HYDRO EXCAVATION (HYDROVAC) TO EXPOSE TELUS INFRASTRUCTURE AT ALL LOCATIONS. ANY OTHER FORM OF "MECHANICAL" EXCAVATION IS NOT ACCEPTED.



Appendix E – Fire Hydrant Location





Appendix F – Boundary Conditions and correspondence with the City



Ben Lo <b.lo@jandb-inc.com>

Water Boundary Conditions for 6250 Hazeldean

Adams, Reed <reed.adams@ottawa.ca>
To: Ben Lo <b.lo@jandb-inc.com>
Cc: "j.sam@jandb-inc.com" <j.sam@jandb-inc.com>

Wed, May 20, 2026 at 11:05 AM

Hi Ben,

Here are the completed water boundary conditions for your development. I'll include a comment in our comment response letter about confirming that water pressures meet our guidelines. Please include this correspondence in the appendix of your future report submissions.

Thanks,

Reed

From: Adams, Reed <reed.adams@ottawa.ca>
Sent: Wednesday, May 13, 2026 9:55 AM
To: Ben Lo <b.lo@jandb-inc.com>
Cc: j.sam@jandb-inc.com <j.sam@jandb-inc.com>
Subject: Re: Water Boundary Conditions for 6250 Hazeldean

Thanks Ben. I'll pass this along to the modelling group and pass on their results when they get back to me.

Reed

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: Ben Lo <b.lo@jandb-inc.com>
Sent: Wednesday, May 13, 2026 9:46 AM
To: Adams, Reed <reed.adams@ottawa.ca>
Cc: j.sam@jandb-inc.com <j.sam@jandb-inc.com>
Subject: Re: Water Boundary Conditions for 6250 Hazeldean

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

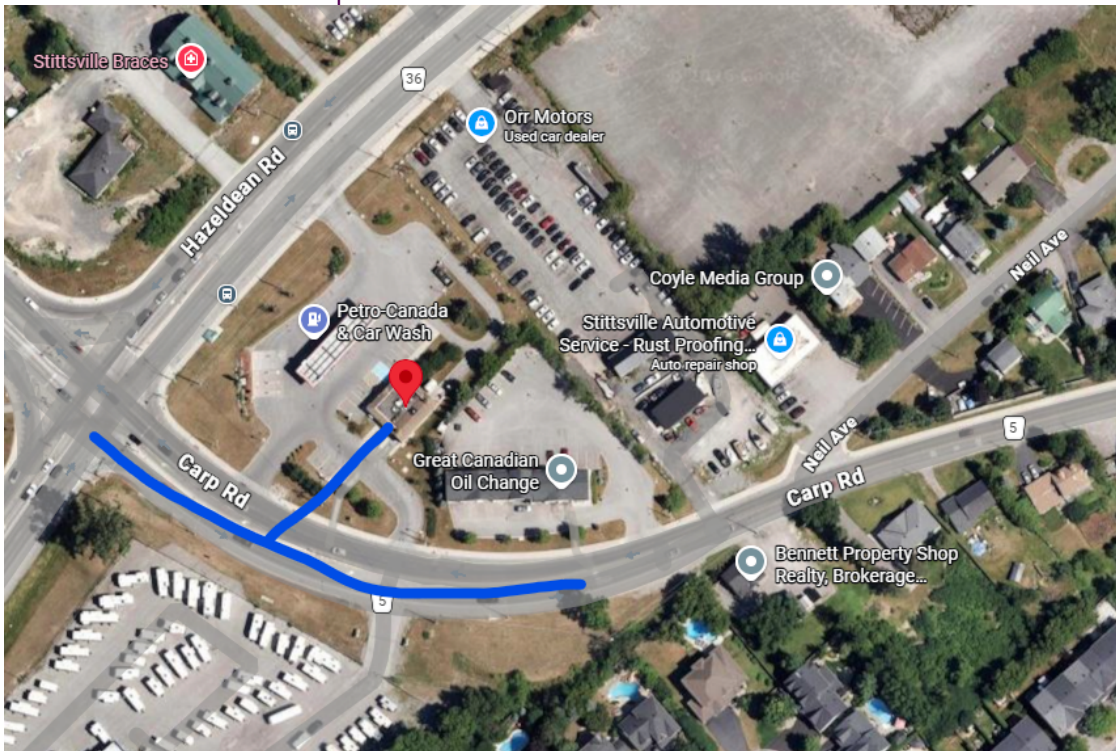
ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Reed,

Thank you for your email. Please find the calculated water demands for the proposed development below:

- Average Daily Demand: 2.07 L/s
- Maximum Daily Demand: 3.10 L/s
- Peak Hourly Demand: 3.72 L/s
- Fire Flow Demand: 4,000 L/min (66.67 L/s)

We propose installing a new 100mm water service connection to the existing 400mm watermain located along Carp Road. Please refer to the map below for reference.



Please let me know if you have any questions or need further information.

Kind regards,
Ben Lo | Civil Designer
J+B Engineering Inc.
25 Centurian Drive, Suite 201
Markham, ON L3R 5N8

O: 416.229.2636 x 236
F: 416.229.6965
E: b.lo@jandb-inc.com

On Wed, May 13, 2026 at 9:15 AM Adams, Reed <reed.adams@ottawa.ca> wrote:

Good morning, Ben and James,

I'm the infrastructure project manager reviewing the engineering documents for [6250 Hazeldean](#) and I wanted to let you know that prior to us sending you our full list of comments, you need to submit a water boundary conditions request for the development. This is so you can confirm that the water pressure during each of these conditions meets our guidelines.

In your response to this email, can you provide me with the average daily demand, maximum daily demand, peak hour, and fire flow demands, as well as a map showing your proposed connection to the city's system? I know that you provided these demands in the report, however, it's easier to have all of the demands and the map all in one email that I can send over to our water modelling group.

Thanks,

Reed Adams, P.Eng
Project Manager

Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest, Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 72497

Reed.adams@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

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 **6250 Hazeldean _Boundary Condition (13May2026).docx**
1244K

Boundary Conditions 6250 Hazeldean Rd – 2026

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	124.2	2.07
Maximum Daily Demand	186.0	3.10
Peak Hour	223.2	3.72
Fire Flow Demand #1	4,000.0	66.67

Location



Results

Connection 1 - Carp Rd

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	159.5	49.0
Peak Hour	155.6	43.5
Max Day plus Fire Flow #1	155.6	43.5

¹ Ground Elevation = 125.0 m

Notes

1. Any connection to a watermain 400 mm or larger should be approved by DWS as per the Water Design Guidelines Section 2.4 Review by Drinking Water Services.
2. This request does not respect the OWDG Tech Bulletin ISTB-2021 03 Section 4.3.1.
 - Industrial, commercial, institutional service areas with a basic day demand greater than 50 m³/day (0.58 L/s) and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area. Individual residential facilities with a basic day demand greater than 50 m³/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.
3. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
 - If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
 - Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.