

TECHNICAL MEMORANDUM

DATE: AUGUST 4, 2021
TO: GEORGE ELIAS
FROM: FRANÇOIS THAUVETTE
RE: ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
PROPOSED 6-STOREY MIXED-USE DEVELOPMENT
3437 & 3443 INNES ROAD
PROJECT: 117077 (NOVATECH REPORT REF. # R-2021-036)

Novatech has been retained by Mr. Elias to assess the adequacy of the existing public services related to the proposed zoning by-law amendment for the 3437 and 3443 Innes Road properties. The properties will be merged to accommodate the proposed 6-storey development consisting of a mixed-use building with ground floor commercial units and residential apartments above. The proposed site would likely have surface parking as well as a loading area for the commercial units, while the residential parking would be provided within an underground parking structure below the building. The purpose of this assessment is to demonstrate that the proposed development can be serviced by the existing municipal infrastructure surrounding the subject site.

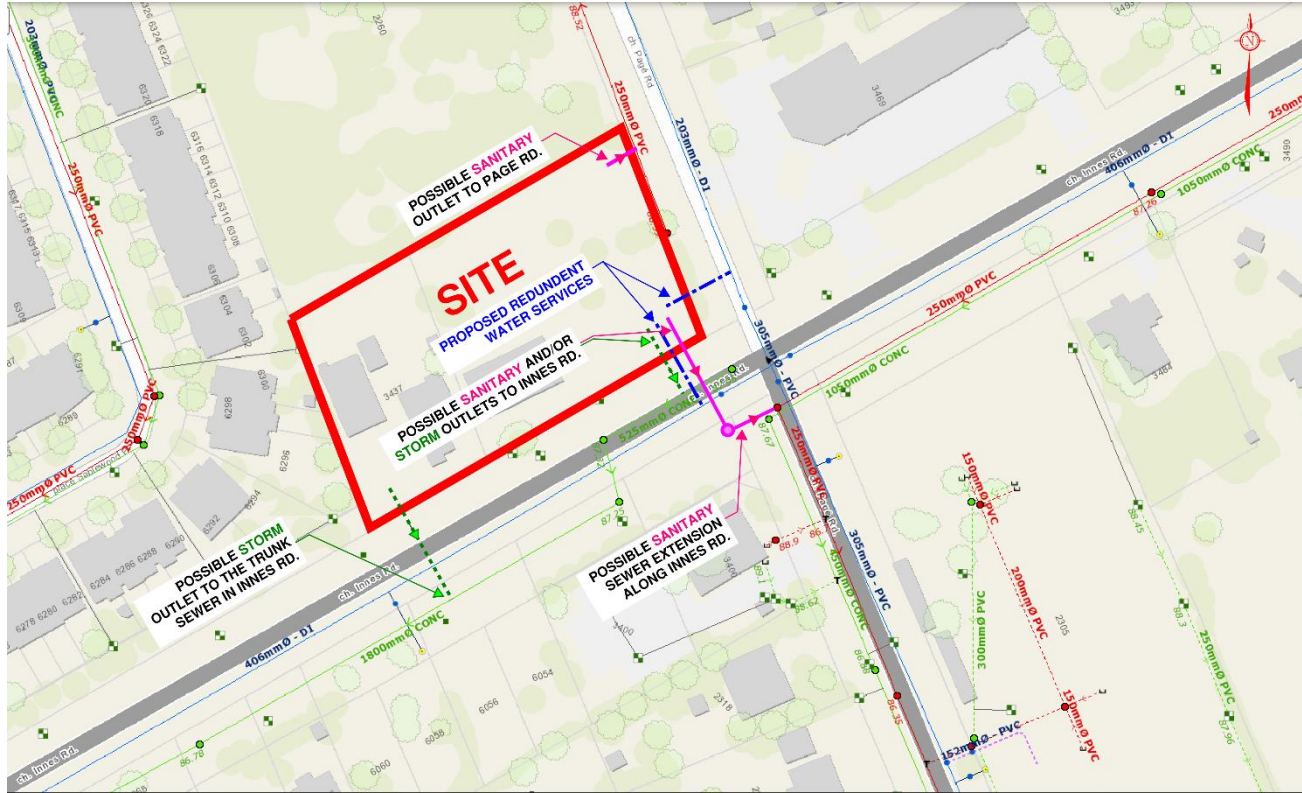
As indicated on **Figure 1**, the subject site covers a total area of approximately 0.51 hectares (0.18ha for the 3437 Innes Road property and 0.33ha for the 3443 Innes Road property). The site is bound by Innes Road to the south, Pagé Road to the east and residential properties to the north and west.

Figure 1: Aerial View of the Subject Site



A pre-consultation meeting was held with the City of Ottawa on May 7, 2020, at which time the client was advised of the general submission requirements. The Rideau Valley Conservation authority (RVCA) was also consulted. Refer to **Appendix A** for a copy of the correspondence received from the City and the RVCA.

Figure 2: Conceptual Servicing Options



Sanitary Servicing

Under pre-development conditions, the City record drawings indicate that there are two sanitary service laterals leaving the back of the on-site buildings and flow north (then east), likely discharging into the 250mm dia. sanitary sewer in the west boulevard of Pagé Road.

Under post-development conditions, the proposed development could potentially be serviced by the existing 250mm dia. municipal sanitary sewer in Pagé Road (flowing north), like current conditions. However, being at the upstream end of the system, this sewer is quite shallow and may not be able to accommodate a gravity outlet from the site. Alternatively, it may be possible to service the subject site by extending a new municipal sanitary sewer along Innes Road from the 250mm dia. municipal sanitary sewer at the intersection of Pagé and Innes Roads (flowing south in Pagé Road). In this configuration, a service connection across Innes Road would be required. Refer to **Figure 2** above showing the possible servicing options for the site.

Based on a review of the City as-built plan and profiles and on correspondence received from the City of Ottawa, both the existing sanitary sewer in Pagé Road (flowing north) and at the intersection of Pagé and Innes Roads (flowing south) could be possible outlets with advantages/disadvantages:

- The traffic in Pagé Road (north of Innes) is assumed to be significantly less than along Innes Road, which would facilitate a sewer connection at this location. Unfortunately, this sewer is

quite shallow. The existing manhole in front of the subject site has an invert elevation of approximately 89.0m+/- and the pipe only has approximately 2.1m of cover. Consequently, this sewer may not be adequate to service the proposed development by gravity. Flows from the underground parking level will certainly have to be pumped. Depending on the elevation of the building, sanitary flows from the ground floor may also need to be pumped if the outlet is to the Pagé Road sanitary sewer.

- The 250mm dia. sanitary sewer at the intersection of Pagé and Innes Roads (flowing south) is significantly deeper with an approximate invert elevation of 86.7m+/-, which represents a depth of cover of approximately 4.4m. The proposed development could be serviced by gravity, however the extension of a new sewer along Innes Road would be required. This option would be more costly and disruptive.

Based on criteria in Section 4 of the City of Ottawa Sewer Design Guidelines, the total theoretical peak sanitary flow from the proposed development would be approximately 4.44 L/s and is based on a total design population of 372 residents within 120 residential units and approximately 2,787m² of commercial space. The sanitary sewage flows are summarized in the table below and detailed calculations are provided in **Appendix B** for reference.

Proposed Use	Unit Count / Floor Area / Site Area	Design Population	Average Flow	Peak Sewage Flow (L/s)
Residential Apartments	120 x 3-Bedroom Units	372	280 L/pers/day	4.13 L/s
Commercial	2,787 m ²	-	28,000 L/ha/day	0.14 L/s
Infiltration	0.51 ha	-	0.33 L/s/ha	0.17 L/s
Totals	-	372	-	4.44 L/s*

Refer to **Figure 2** above showing the possible sanitary servicing options for the site. The servicing options will have to be reviewed at the detailed design stage to determine which option best suits the proposed development. An updated analysis will need to be provided as part of the Site Plan Control application to the City of Ottawa.

Water for Domestic Use and Firefighting

Under pre-development conditions, the City record drawings indicate that there are two 19mm dia. water services connected directly to the existing 400mm dia. watermain in Innes Road to the south.

Under post-development conditions, the daily water demands are anticipated to be greater than 50m³/day (0.58 L/s), therefore two (2) water supplies will be required for redundancy purposes. The proposed development could be serviced by the 200mm dia. D.I. watermain in Pagé Road and by the 400mm dia. D.I. feedermain in Innes Road (although this is not typically allowed by the City). Refer to **Figure 2** above showing the proposed water servicing for the site.

Preliminary water demand and fire flow calculations have been prepared for the proposed development based on criteria in Section 4 of the City of Ottawa Design Guidelines for Water Distribution Systems. Domestic demands are based on a total residential design population of 372 residents within 120 residential units (floors 2 to 6) and approximately 2,787m² of ground floor commercial space. The fire flows are calculated using the Fire Underwriters Survey (FUS) method, based on general assumptions including a fire-resistive construction method, general use and the

building being fully sprinklered. Preliminary water demands and fire flows are summarized in the table below. Detailed calculations are provided in **Appendix C** for reference.

Proposed Use	Avg. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	FUS Fire Flow (L/s)
Residential Apartments	1.51 L/s	3.77 L/s	8.29 L/s	200 L/s
Commercial	0.09 L/s	0.14 L/s	0.24 L/s	
Totals	1.6 L/s	3.9 L/s	8.53 L/s	200 L/s

The following design criteria were taken from Section 4.2.2 – ‘Watermain Pressure and Demand Objectives’ of the City of Ottawa Design Guidelines for Water Distribution:

- Normal operating pressures are to range between 345 kPa (50 psi) and 483 kPa (70 psi) under Max Day demands
- Minimum system pressures are to be 276 kPa (40 psi) under Peak Hour demands
- Minimum system pressures are to be 140 kPa (20 psi) under Max Day + Fire Flow demands

The following tables summarize preliminary hydraulic analysis results based on municipal watermain boundary conditions provided by the City of Ottawa.

Municipal Watermain Boundary Condition for Connection #1 – Innes Rd	Boundary Condition Head of Water (m)	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
Minimum HGL (Peak Hour Demand)	127.2 m	40 psi (min.)	~ 51.0 psi
Maximum HGL (Max Day Demand)	130.9 m	50-70 psi	~ 56.3 psi
HGL (Max Day + Fire Flow)	127.4 m**	20 psi (min.)	~ 51.3 psi

*Based on an average ground elevation of 91.3m.

**A multi-hydrant approach to firefighting will be necessary.

Municipal Watermain Boundary Condition for Connection #2 – Pagé Rd	Boundary Condition Head of Water (m)	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
Minimum HGL (Peak Hour Demand)	127.2 m	40 psi (min.)	~ 51.3 psi
Maximum HGL (Max Day Demand)	130.9 m	50-70 psi	~ 56.6 psi
HGL (Max Day + Fire Flow)	120.7 m**	20 psi (min.)	~ 42.1 psi

*Based on an average ground elevation of 91.1m.

**A multi-hydrant approach to firefighting will be necessary.

Based on preliminary calculations and correspondence received from the City of Ottawa, it is anticipated that the pressure within the municipal watermain will be within the normal operating pressure ranges and should provide adequate water during Max Day + Fire Flow Conditions. Given the height of the proposed building, it is anticipated that a booster pump(s) will be required to provide adequate water pressure to the upper floors.

A multi-hydrant approach to firefighting will be required to supply the fire flow calculated above. This approach is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02. Based on a review of the geoOttawa website, there appear to be three (3) blue bonnet municipal fire hydrants within 75m of the subject site and one (1) additional blue bonnet fire hydrant within 150m of the subject site. Refer to **Appendix C** for preliminary domestic water demand, FUS fire flow calculations and correspondence with the City of Ottawa. An updated analysis will need to be provided as part of the Site Plan Control application to the City of Ottawa.

Storm Drainage and Stormwater Management

Stormwater from the proposed development will be directed to the nearby municipal storm sewer in Innes Road, which outlets into the West Bilberry Creek approximately 1.7 km to the northwest. This creek eventually spills into the Ottawa River. Under pre-development conditions, the City record drawings indicate that there are two storm service (house) laterals connected directly to the existing 1800mm dia. storm sewer in Innes Road. The existing 100mm dia. storm services are above the 100-yr Hydraulic Grade Line (HGL) of the storm sewer system in Innes Road which is approximately 89.0m at this location.

Under post-development conditions, the proposed development will be serviced by the municipal storm sewer in Innes Road. Based on a review of the City record drawings and on correspondence received from the City of Ottawa, there are a couple of sewer/servicing options, each with advantages/disadvantages:

- The site could be serviced by providing a new connection directly to the 525mm dia. sewer in Innes Road. The existing 525mm dia. sewer in Innes Road has an invert elevation of approximately 87.9m+/-, which represents approximately 2.9m of cover. Consequently, a new service installed above the HGL (approximately 89.3m at this location) would have minimal

cover on-site (approximately 1.5m). The proposed site grading should be raised, if possible, to provide adequate cover above the new storm sewer/service.

- A second (less desirable) option would be to connect into the 1800mm dia. storm sewer in Innes Road, however this would be more costly, as it would require crossing the entire width of Innes Road to make the connection. The existing 1800mm dia. sewer in the south boulevard of Innes Road has an invert elevation of approximately 87.1m+/- and the pipe has approximately 2.1m of cover, however, the 100-yr HGL would also dictate the elevation of any service connection to this pipe.
- The traffic on Innes Road is assumed to pose a significant challenge to the installation of the new storm sewer/service and an appropriate traffic management plan will need to be established if the proposed service is to be extended to Innes Road.

Refer to **Figure 2** above showing the possible servicing options for the site. The proposed storm outlet pipe would convey controlled flows from the site, including surface parking lots, landscaped areas, and the building roof.

The on-site management (SWM) design will be required to meet the requirements of the City of Ottawa and Rideau Valley Conservation Authority (RVCA). The SWM criteria, including both stormwater quantity and stormwater quality control requirements, have been provided during pre-consultation meetings with the City of Ottawa and the RVCA. Based on correspondence from the City of Ottawa the allowable release rate from the site will be calculated using the Rational Method, with a maximum allowable runoff coefficient equivalent to existing conditions, but in no case greater than $C=0.5$, a time of concentration no less than 20 minutes and a 5-year rainfall intensity from City of Ottawa IDF curves. The City has advised that the on-site drainage and SWM design will need to include both major and minor system, will need to ensure building openings are protected and will need to consider the 100-year HGL of the municipal storm sewer system, due to the downstream ICD. Based on an anticipated weighted runoff coefficient of approximately 0.80 to 0.85 for the portion of the developed site to be controlled, the proposed development could provide adequate stormwater storage through the use of control flow roof drains, inlet control devices (ICD) within the on-site storm sewer system, and/or an internal SWM storage tank(s) as required to meet the City of Ottawa quantity control requirements.

The subject site is located within the jurisdiction of the RVCA and is ultimately tributary to the Rideau River. An 'Enhanced' Level of Protection, equivalent to a long-term average removal of 80% Total Suspended Solids (TSS), with at least 90% of the total rainfall being captured and treated, will be required for the on-site access roads and surface parking areas. Rainwater runoff from rooftop drainage and landscaped areas are typically considered clean for the purpose of protecting water quality for aquatic habitat.

Refer to **Appendix A** for a copy of the correspondence from the City of Ottawa and RVCA. A complete SWM analysis will need to be provided as part of the Site Plan Control application to the City of Ottawa.

Conclusion

Based on a review of the information available and preliminary feedback from the City of Ottawa, the existing municipal watermain, sanitary sewer and storm sewer systems should have enough capacity to service the proposed development. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa and the Rideau Valley Conservation Authority (RVCA). Further details will need to be provided as part of the Site Plan Control application.

NOVATECH

Prepared by:



Stephen Matthews, B.A. (Env.)
Senior Design Technologist

Reviewed by:



François Thauvette, P. Eng.
Senior Project Manager

APPENDIX A

Correspondence from City of Ottawa and RVCA

Steve Matthews

From: Curry, William <William.Curry@ottawa.ca>
Sent: Friday, May 29, 2020 8:45 AM
To: Francois Thauvette
Cc: Murray Chown; Murshid, Shoma
Subject: Re: 3437 Innes Road - Pre-Consultation follow-up

Francois,

I just realized McIntosh Perry previously worked on this site so I have to assume you have a new client and are developing the entire site.

Your sanitary connection is off Page to the existing infrastructure. If the sanitary is too shallow then you have to extend the Innes Road sanitary sewer to the front face of the property whereby you could then connect. The front face of the property is considered to be not sanitary serviceable from Innes Road unless you extend the sanitary sewer to the front face of the property parcel. Only then could you connect on Innes Road.

Your watermain connection is on Page to the 203 mm Ø watermain.

Connect the Storm sewer on Innes Road. You have an existing Storm DI that connects to the Storm MH on Innes and likely is too shallow as a connection point but could be lowered and used as your storm connection point or removed and a new location selected along Innes Road to any existing storm sewers in front of the parcel.

SWM criteria:

Pre TC is 20 and Post TC is 10. use .5 C Provide a 5-year release rate.

Attenuate all storms up to and including the City of Ottawa 100-year design event on site. Runoff entering the minor system is controlled via inlet control devices.

The maximum 100-year depth is 350 mm. Any building openings or garage ramp (top) elevations must be 300 mm above the 100-year ponding elevation for protection.

Major overland flow has be routed by grading, to spill once the 100-year elevation occurs towards the ROW.

Feel free to contact me should you need to.
Thanks

Will

From: Francois Thauvette <f.thauvette@novatech-eng.com>

Sent: Thursday, May 28, 2020 3:23 PM

To: Curry, William <William.Curry@ottawa.ca>

Cc: Murray Chown <m.Chown@novatech-eng.com>

Subject: RE: 3437 Innes Road - Pre-Consultation follow-up

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Hi Will,

We are considering our servicing options for the subject properties (3437 & 3443 Innes Road) and require clarification from the City of Ottawa.

Based on a review of geoOttawa, the nearby municipal infrastructure (potentially available) includes the following (see attached screen shot for details):

Innes Road

- 400mm dia. WM
- 525mm & 1800mm dia. STM

Pagé Road

- 200mm dia. WM
- 250mm dia. SAN (shallow sewer flowing north)
- 250mm dia. SAN (flowing south)

We assume that a connection to the 400mm dia. WM is not allowed, however a connection to the 200mm dia. WM in Pagé Road would be OK?

In the event that the sanitary sewer (flowing north) in Pagé Road is too shallow to service the proposed development (invert appears to be approximately 2m below grade), would the City allow a connection to the sanitary sewer flowing south (assuming we can make all the crossings work within Innes Road)?

Will we be allowed to connect into the 525mm dia. storm sewer in Innes Road? It drains into an oversized 1800mm dia. pipe (which we assume is required for SWM purposes), which in turn flows into a 600mm dia. sewer further west. Please also confirm the SWM criteria for the subject properties (3437 & 3443 Innes Road).

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Murshid, Shoma <Shoma.Murshid@ottawa.ca>

Sent: Monday, May 11, 2020 2:44 PM

To: Murray Chown <m.Chown@novatech-eng.com>

Cc: Curry, William <William.Curry@ottawa.ca>; Wang, Randolph <Randolph.Wang@ottawa.ca>; McEwen, Jeff <Jeff.McEwen@ottawa.ca>; Taylor West <t.west@novatech-eng.com>; George Elias <elias.george@gmail.com>

Subject: 3437 Innes Road - Pre-Consultation follow-up

Good afternoon Murray,

We ended up having a pre-consultation for this site without a concept plan or description of a proposal. As such, I will frame this rezoning discussion based on certain assumptions, such as these lands are to be combined with the development proposal at 3443 Innes Road. I am assuming that these lands will not be developed or serviced independently of 3443 Innes Road so a discussion of servicing this land from the right of way in order to secure its City Services independently is not necessary. As you know, the sanitary service to 3437 Innes Road is currently running through the northern portion of 3443 Innes Road. If the assumptions are incorrect, then another pre-consultation should be set. You will not have to pay for another pre-consult, as long as it is for the same landowner and prior to the submission of the zoning amendment application for these lands.

I am assuming these lands are to be combined with the active proposal at 3443 Innes Road and you are seeking to rezone 3437 Innes Road to the same zone and exception. The City should have no problems supporting the uses envisioned/permitted at 3443 Innes Road. However, the massing currently permitted at 3443 Innes Road is not the massing the City finds appropriate for 3437 Innes Road. Any development proposal that takes place at 3437 Innes has to be stepped down from the height currently permitted at 3443 Innes Road. 2 ½ to 3 storeys is probably most appropriate within this area. However, as stated during our on-line pre-consult meeting, a massing and concept plan, in conjunction with a Design Brief (please see attached) and Planning Rationale will need to be submitted to support your request for rezoning at this parcel. You may wish to incorporate the Design Brief within the Planning Rationale. It may be similar in zoning and intent to the zone at 3443 Innes Road. However, whatever way you wish to present your request for the rezoning, the main part of the rezoning at 3437 Innes Road needs to emphasize its transition towards the existing low rise residential properties that back onto these lands. Sensitivity to their enjoyment of their properties (including backyards), privacy, etc. need to be factored into the request. Randolph Wang has spelled out how to formulate the transition massing discussion piece for this site within the attached Design Brief TOR attachment and in another e-mail, which I have also attached within this e-mail for ease of discussion and illustration.

I am assuming this zoning amendment will encapsulate not only 3437 Innes Road but also include 3443 Innes Road for simplicity of administration's sake. If that is the case, then please be cognizant of the fact that Councillor Blais had pulled delegated authority for the site plan control and Councillor Dudas, the incoming Councillor for this ward, has not given PIED back this delegated authority. She wishes to remain at the helm of the redesign talks for 3443 Innes Road. A technical note that I need to add is that if the building at 3443 Innes Road is being extended onto 3437 Innes Road under Site Plan Control, then a Re-Circulation Fee and new Circulation will need to be had in order to notify all that the boundaries of the site plan are changing.

With that being said, 3437 Innes Road's rezoning triggers a Major Zoning By-law Amendment with a planning submission fee of \$16,960.99, plus an initial Conservation Authority Fee of \$370.00. Along with the submission fee, the other submission items required to deem the application for Zoning Amendment Complete shall be a filled-out application form as well as the following Plans and Reports (all in PDF format):

Planning Rationale, with Design Brief

Concept Plan/Site Plan

Servicing Brief

Phase 1 ESA

Prior to the official submission for this rezoning, please reach out to me again and I will send you the latest protocol for how to submit the application.

Further plans and studies may be requested after the submission for Zoning Amendment has been made and it is within its first circulation.

Also, please do not hesitate to reach out again if you would like to discuss or seek clarifications on any matter further.

Regards,

Shoma Murshid, MCIP, RPP

File Lead, Planner II

Responsable de dossier, urbaniste II

City of Ottawa/ Ville d'Ottawa

Development Review (Suburban Services, East)/ Examen des projets d'aménagement (Services suburbains Est)

Planning, Infrastructure, and Economic Development Department/ Service de la planification, de l'infrastructure et du développement économique

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e-mail/ courriel : shoma.murshid@ottawa.ca

www.ottawa.ca

Steve Matthews

From: Murshid, Shoma <Shoma.Murshid@ottawa.ca>
Sent: Monday, May 11, 2020 2:44 PM
To: Murray Chown
Cc: Curry, William; Wang, Randolph; McEwen, Jeff; Taylor West; George Elias
Subject: 3437 Innes Road - Pre-Consultation follow-up
Attachments: DesignBrief_TOR_3437 Innes.pdf; RE: Pre-Consultation for 3437 Innes Road Zoning Amendment + amendment to site plan control that is linked to 3443 Innes Road discussion

Good afternoon Murray,

We ended up having a pre-consultation for this site without a concept plan or description of a proposal. As such, I will frame this rezoning discussion based on certain assumptions, such as these lands are to be combined with the development proposal at 3443 Innes Road. I am assuming that these lands will not be developed or serviced independently of 3443 Innes Road so a discussion of servicing this land from the right of way in order to secure its City Services independently is not necessary. As you know, the sanitary service to 3437 Innes Road is currently running through the northern portion of 3443 Innes Road. If the assumptions are incorrect, then another pre-consultation should be set. You will not have to pay for another pre-consult, as long as it is for the same landowner and prior to the submission of the zoning amendment application for these lands.

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I am assuming this zoning amendment will encapsulate not only 3437 Innes Road but also include 3443 Innes Road for simplicity of administration's sake. If that is the case, then please be cognizant of the fact that Councillor Blais had pulled delegated authority for the site plan control and Councillor Dudas, the incoming Councillor for this ward, has not given PIED back this delegated authority. She wishes to remain at the helm of the redesign talks for 3443 Innes Road. A technical note that I need to add is that if the building at 3443 Innes Road is being extended onto 3437 Innes Road under Site Plan Control, then a Re-Circulation Fee and new Circulation will need to be had in order to notify all that the boundaries of the site plan are changing.

With that being said, 3437 Innes Road's rezoning triggers a Major Zoning By-law Amendment with a planning submission fee of \$16,960.99, plus an initial Conservation Authority Fee of \$370.00. Along with the submission fee, the other submission items required to deem the application for Zoning Amendment Complete shall be a filled-out application form as well as the following Plans and Reports (all in PDF format):

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Concept Plan/Site Plan
Servicing Brief
Phase 1 ESA

Prior to the official submission for this rezoning, please reach out to me again and I will send you the latest protocol for how to submit the application.

Further plans and studies may be requested after the submission for Zoning Amendment has been made and it is within its first circulation.

Also, please do not hesitate to reach out again if you would like to discuss or seek clarifications on any matter further.

Regards,

Shoma Murshid, MCIP, RPP
File Lead, Planner II
Responsable de dossier, urbaniste II

City of Ottawa/ Ville d'Ottawa
Development Review (Suburban Services, East)/ Examen des projets d'aménagement (Services suburbains Est)
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Steve Matthews

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: Monday, March 22, 2021 9:19 PM
To: Francois Thauvette
Cc: Steve Matthews
Subject: RE: 3437 & 3443 Innes Road Re-development - Request for Stormwater Quality Control Criteria

Hi Francois,

The distance to the downstream outlet of a watercourse is less than 2 km. Therefore the Conservation Authority would look for a water quality objective of 80% TSS removal. We would also encourage you to look at the opportunity to incorporate LID measures in the stormwater management plan.

Jamie Batchelor, MCIP, RPP
Planner, ext. 1191
jamie.batchelor@rvca.ca



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From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, March 18, 2021 9:16 AM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 3437 & 3443 Innes Road Re-development - Request for Stormwater Quality Control Criteria

Hi Jamie,

I wanted to clarify that we are only at the 're-zoning' phase of the project and it is for this reason that the client does not have a Site plan. We simply want to understand the stormwater quality control criteria, so that we may state them in our Assessment of Adequacy of Public Services Report. The detailed SWM design will be completed at the Site Plan Control phase of the project.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
Please note that I am working from home. Email or MS Teams are the best ways to contact me.

From: Francois Thauvette
Sent: Tuesday, March 16, 2021 10:31 AM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 3437 & 3443 Innes Road Re-development - Request for Stormwater Quality Control Criteria

No, not yet.

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects

Please note that I am working from home. Email or MS Teams are the best ways to contact me.

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: Tuesday, March 16, 2021 10:23 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 3437 & 3443 Innes Road Re-development - Request for Stormwater Quality Control Criteria

Hi Francois,

Do you have a site plan I can reference?

Jamie Batchelor, MCIP, RPP
Planner, ext. 1191
Jamie.batchelor@rvca.ca



3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504 F 613-692-0831 | www.rvca.ca

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From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Tuesday, March 16, 2021 9:43 AM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: 3437 & 3443 Innes Road Re-development - Request for Stormwater Quality Control Criteria

Hi Jamie,

We are working on a proposed mixed-use development at 3437 & 3443 Innes Road (commercial on the ground floor with residential above). The properties would be merged to accommodate the proposed 6-storey building and associated surface and UG parking. Please review and confirm the stormwater quality control criteria for this project.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

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APPENDIX B

Sanitary Sewage Calculations

3437 & 3443 Innes Road: 6-Storey Mixed-Use Development

THEORETICAL SANITARY FLOWS

Residential Apartments	Post-Development	
Number of 1 Bedroom/Studio Units	0	
Number of Persons per 1-Bdrm/Studio Apartment	1.4	
Number of 2 Bedroom Units	0	
Number of Persons per 2-Bdrm Apartment	2.1	
Number of 3 Bedroom Units	120	
Number of Persons per 3-Bdrm Apartment	3.1	
Total Number of Units	120	
Design Population	372	
Average Daily Flow per resident	280	L/c/day
Peaking Factor (Harmon Formula)	3.4	
Peak Residential Flow	4.13	L/s
Commercial Space		
Ground Floor Area	2,787	m ²
Average Commercial Daily Demand	28,000	L/ha/day
Peaking Factor	1.5	
Peak Commercial Flows	0.14	L/s
Extraneous Flow		
Site Area	0.51	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	0.17	L/s
Total Peak Sanitary Flow	4.44	L/s

APPENDIX C

Preliminary Domestic Water Demand, FUS Fire Flow Calculations
and WM Boundary Conditions provided by the City of Ottawa

3437 & 3443 Innes Road: 6-Storey Mixed-Use Development

THEORETICAL WATER DEMANDS

DOMESTIC DEMANDS

Residential Apartments	Post-Development	
Number of 1-Bdrm/Bachelor Units	0	
Number of Persons per 1-Bdrm/Studio Apartment	1.4	
Number of 2-Bdrm Units	0	
Number of Persons per 2-Bdrm Apartment	2.1	
Number of 3-Bdrm Units	120	
Number of Persons per 3-Bdrm Apartment	3.1	
Design Population	372	
Average Daily Flow per resident	350	L/c/day
Average Day Demand	1.51	L/s
Maximum Day Demand (2.5 x avg. day)	3.77	L/s
Peak Hour Demand (2.2 x max. day)	8.29	L/s
Commercial Space		
Ground Floor Area	2,787	m ²
Average Commercial Daily Demand	2.8	L/m ² /day
Average Day Demand	0.09	L/s
Maximum Day Demand (1.5 x avg. day)	0.14	L/s
Peak Hour Demand (1.8 x max. day)	0.24	L/s
TOTALS		
Average Day Demand	1.60	L/s
Maximum Day Demand	3.90	L/s
Peak Hour Demand	8.53	L/s

BOUNDARY CONDITIONS (Values provided by the City of Ottawa)

Maximum HGL = 130.9 m
 Minimum HGL = 127.2 m

PRESSURE TESTS

Average Roadway Elevation 91.3 m

High Pressure Test = (Max HGL - Avg. Ground Elev.) x 1.42197 PSI/m < 80 PSI
 56.3 psi

Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42197 PSI/m > 40 PSI
 51.0 psi

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 117077

Project Name: 3437 & 3443 Innes Road

Date: 3/15/2021

Input By: S.Matthews

Reviewed By: F.Thauvette

Legend

Input by User

No Information or Input Required

Building Description: 6-Storey Mixed-Use Development

Fire Resistive Construction

Step		Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow					
1	Construction Material		Multiplier		0.6
	Coefficient related to type of construction C	Wood frame		1.5	
		Ordinary construction		1	
		Non-combustible construction		0.8	
		Modified Fire resistive construction (2 hrs)	Yes	0.6	
		Fire resistive construction (> 3 hrs)		0.6	
2	Floor Area				14,000
	A	Building Footprint (m ²)	2787		
		Number of Floors/Storeys	6		
		Protected Openings (1 hr)	No		
		Area of structure considered (m ²)		11,148	
	F	Base fire flow without reductions $F = 220 C (A)^{0.5}$			
Reductions or Surcharges					
3	Occupancy hazard reduction or surcharge		Reduction/Surcharge		11,900
	(1)	Non-combustible		-25%	
		Limited combustible	Yes	-15%	
		Combustible		0%	
		Free burning		15%	
		Rapid burning		25%	
4	Sprinkler Reduction		Reduction		-4,760
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	
		Standard Water Supply	Yes	-10%	
		Fully Supervised System	No	-10%	
			Cumulative Total		
5	Exposure Surcharge (cumulative %)		Surcharge		4,760
	(3)	North Side	3.1 - 10 m	20%	
		East Side	30.1 - 45 m	5%	
		South Side	> 45.1m	0%	
		West Side	10.1 - 20 m	15%	
			Cumulative Total		
Results					
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min		L/min	12,000
		(2,000 L/min < Fire Flow < 45,000 L/min)	or	L/s	200
			or	USGPM	3,170
7	Storage Volume	Required Duration of Fire Flow (hours)		Hours	2.5
		Required Volume of Fire Flow (m ³)		m ³	1800

Steve Matthews

From: Curry, William <William.Curry@ottawa.ca>
Sent: Friday, April 16, 2021 9:27 AM
To: Francois Thauvette
Cc: Steve Matthews; Murray Chown
Subject: 3437 & 3443 Innes Road - Request for WM boundary conditions
Attachments: 3437 & 3443 Innes Road_09April2021.docx

Please find BC info attached as requested.

The Cities model is based on nodes/junction and does not provide hydrant assessment flow.

A multi-hydrant approach to firefighting seems appropriate. It is not our process to tell you existing hydrants will provide the necessary fire flow.

Services

Only one sanitary and one storm service per parcel.

Storm may connect to the 525mm Ø on Innes.

If you connect the sanitary on Innes Road you need to extend the sanitary sewer to the front of the site to a point where you will connect.

Watermain connections are allowed on both streets. More costly on Innes of course.

Design Criteria

Storm Pre to post, C of .5, Pre tc 20; post tc 10

Onsite, 2-year pipe minimum and store up to 100-year on site. No 2-year ponding on site.

Permissible ponding of 350mm for 100-year. No spilling to adjacent sites.

At 100-year ponding elevation you must spill to City ROW

100-year Spill elevation must be 300mm lower than any building opening including ramps.

thanks

Will Curry, C.E.T.

Planning, Infrastructure and Economic Development /
Planification, d'infrastructure et de développement économique
City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 16214
110 Laurier Ave., 4th Fl East;
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William.Curry@Ottawa.ca

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Boundary Conditions 3437 & 3443 Innes Road

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	96	1.60
Maximum Daily Demand	234	3.90
Peak Hour	512	8.53
Fire Flow Demand #1	12,000	200.00

Location



Results

Connection 1 – Innes Rd.

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	130.9	56.3
Peak Hour	127.2	51.1
Max Day plus Fire 1	127.4	51.4

Ground Elevation = 91.3 m

Connection 2 – Pagé Rd.

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	130.9	56.6
Peak Hour	127.2	51.4
Max Day plus Fire 1	120.7	42.0

Ground Elevation = 91.1m

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.