

**58 FLORENCE STREET
3 STOREY APPARTMENT BUILDING**

**DEVELOPMENT SERVICING AND
STORMWATER MANAGEMENT REPORT**

Prepared by:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario
K2M 1P6

July 18, 2019

Ref: R-2019-103
Novatech File No. 119051

July 18, 2019

City of Ottawa
Planning and Growth Management Department
Infrastructure Approvals Division
110 Laurier Avenue West, 4th Floor
Ottawa, Ontario
K1P 1J1

Attention: Mr. Shawn Wessel

Dear Sir:

**Re: Development Servicing and Stormwater Management Report
58 Florence Street
Ottawa, Ontario
Our File No.: 119051**

Enclosed herein is the 'Development Servicing and Stormwater Management Report' for the proposed 3-storey apartment building development at 58 Florence Street, in the City of Ottawa. This report addresses the approach to site servicing and stormwater management for the subject property and is submitted in support of the site plan approval application.

Should you have any questions or require additional information, please contact the undersigned.

Yours truly,

NOVATECH



Miroslav Savic, P. Eng.
Project Manager

MS/sm

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- Appendix G: Engineering Drawings

LIST OF DRAWINGS

- Grading, Servicing and Erosion & Sediment Control Plan (119051-GS)
- Stormwater Management Plan (119051-SWM)

1.0 INTRODUCTION

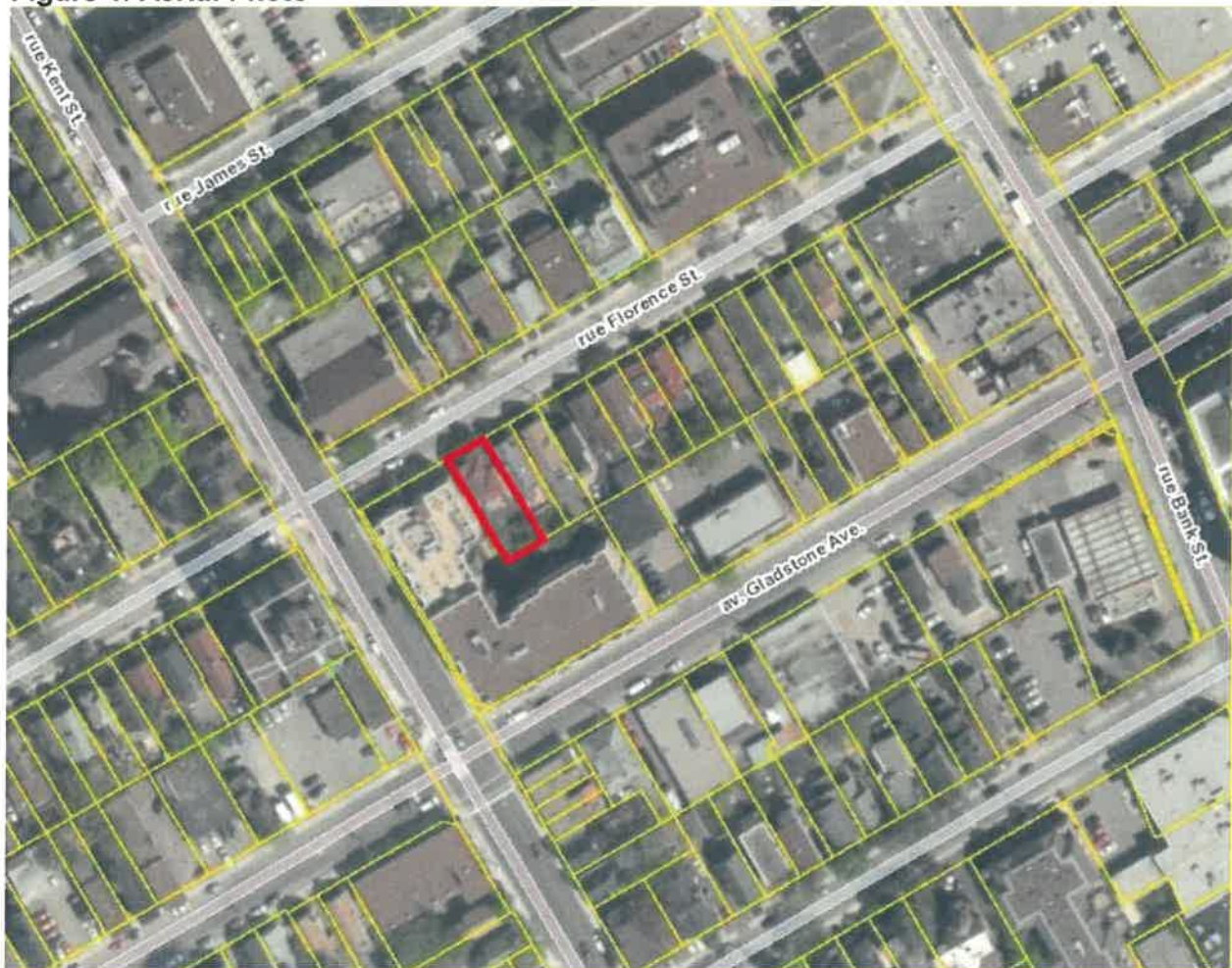
Novatech has been retained to prepare the site servicing, grading and stormwater management design in support of a Site Plan Control application for the proposed 3-storey apartment building at 58 Florence Street in the City of Ottawa.

This report outlines the servicing aspects of the proposed development with respect to water, sanitary and storm drainage and addresses the approach to stormwater management. This report is being submitted in support of the site plan application for the subject property.

1.1 Location and Site Description

The subject site is currently occupied by a two and a half storey single family dwelling. An aerial photo of the subject site is shown in **Figure 1** below.

Figure 1: Aerial Photo



1.2 Consultation and Reference Material

A pre-consultation meeting was held with the City of Ottawa March 6, 2019, at which time the owner was advised of the general submission requirements. It is anticipated that an Environmental Compliance Approval (ECA) will be required from the MOECP. Refer to **Appendix A** for e-mail correspondence with the City of Ottawa.

Reference Material:

- Geotechnical Investigation Proposed Multi-Unit Residential Building, prepared by Kollaard Associates Engineers, dated June 5, 2019.

2.0 PROPOSED DEVELOPMENT

The proposed development is a 3 storey 9-unit apartment building with associated landscaped areas. A copy of the site plan is included in **Appendix B**.

3.0 SITE SERVICING

The objective of the site servicing design is to conform to the requirements of the City of Ottawa servicing design guidelines by providing a suitable domestic water supply, proper sewage outlets and ensuring that appropriate fire protection is provided.

The servicing criteria expected sewage flows and water demands for the site have been established using the City of Ottawa municipal design guidelines for sewer and water distribution. The City of Ottawa Servicing Study Guidelines for Development Applications requires a Development Servicing Study Checklist to confirm that each applicable item is deemed complete and ready for review by City of Ottawa Infrastructure Approvals. A completed checklist is enclosed in **Appendix F**.

3.1 Water

The site is currently serviced by an existing water service connected to the 203mm diameter municipal watermain in Florence Street. The existing water service is likely 19mm in diameter typical for a single house and it will be replaced with a new 50mm diameter service. Fire protection for the site is provided from the existing municipal fire hydrant located at the southwest corner of Florence Street and Kent Street intersection.

The water demands for the proposed development were calculated and provided to the City of Ottawa to obtain boundary conditions to confirm serviceability. The domestic water demand calculations are based on a theoretical population for the proposed apartment units based on criteria provided in the City of Ottawa Design Guidelines – Water Distribution.

The required fire flow was calculated using the Fire Underwriter's Survey method and is based on 3-storey above ground wood frame construction.

The water demand calculations, boundary conditions and watermain analysis calculations for the existing public infrastructure are provided in **Appendix C**.

The results of the hydraulic analysis are summarized below in **Table 3.1**.

Table 3.1: Water Analysis Results Summary

Condition	Water Demand	Min/Max Allowable Operating Pressures	Limits of Design Operating Pressures
High Pressure	0.06 L/s	80 psi (Max)	62.1 psi
Peak Hour	0.31 L/s	40 psi (Min)	50.5 psi
Max Day + Fire Flow	183.14 L/s	20 psi (Min)	44.8 psi

The results of the water analysis show there is adequate flow and pressure in the existing 203mm watermain in Florence Street to meet the required domestic and fire flow demands for the proposed development.

3.2 Sanitary Sewer

The proposed building will be serviced by a new 150mm diameter sanitary service connected to the existing 900mm x 750mm combined sewer in Florence Street.

The calculated peak sanitary flow from the proposed development, including infiltration, is 0.17 L/s. The flow has been calculated as per the City of Ottawa Sewer Design Guidelines. Refer to **Appendix C** for detailed calculations.

The City of Ottawa Water Resources Department has advised that the existing combined sewer in Florence Street surcharges during large storm event. Refer to **Appendix A** for e-mail correspondence with the City of Ottawa. The existing 1:100 year hydraulic grade line (HGL) is approximately at the street level. Therefore, the sanitary sewer lateral will be equipped with backflow prevention device in accordance with the City of Ottawa standards.

3.3 Stormwater Management

The proposed development will be serviced by a new 200mm diameter storm service connected to the existing 900mm x 750mm combined sewer in Florence Street.

The stormwater management design for the proposed development will include on-site water quantity control prior to releasing flows from the site. Stormwater management will be provided by a storage tank. Further details on the sub catchment drainage areas are explained in subsequent sections of the report. See the Stormwater Management Plan (11905-SWM) included in **Appendix G**, for catchment locations, areas, and runoff coefficients.

3.3.1 Existing Conditions

The subject site is presently occupied by a single two storey house. The existing site drainage is split in two directions. Approximately the front half of the site drains towards the municipal catch basins in Florence Street, while the existing backyard sheet drains towards the back property line.

3.3.2 Stormwater Management Objectives

The proposed stormwater management design is based on the latest City of Ottawa Sewer Design Guidelines and are as follows:

- Control 1:100 year post-development flow from the site to the maximum 1:2 year allowable release rate and calculated using a runoff coefficient of 0.4. Post-development runoff in excess of the allowable release rate will be stored and controlled on site prior to being released into the municipal storm sewer system.
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

3.3.3 Storm Drainage Areas

The proposed site has been subdivided into four distinct storm drainage areas for the post-development condition. The size and location of the catchment areas are based on the proposed

site plan and grading design for the site. The runoff coefficients for each catchment area were calculated for the proposed conditions and the catchment areas are shown on the Stormwater Management Plan (119051-SWM). A brief description of the subcatchment areas are as follows:

- Runoff from the landscaped Area A1 will sheet drain towards Florence Street.
- Runoff from the concrete ramp down to basement (Area A2) will drain towards the proposed trench drain that will be connected to a sump in the basement and pumped to the proposed building storm service.
- Runoff from the building roof and the landscaped front yard (Areas 3) will be directed to the proposed stormwater management tank where it will be stored and controlled prior to being released to the municipal combined sewer in Florence Street.
- Runoff from the landscaped backyard will sheet drain towards the back of the property maintaining the existing drainage pattern.

3.3.4 Allowable Release Rate

The allowable release rate for the 0.035 ha site was calculated using the Rational Method to be 3.0 L/s. This release rate was based on a runoff coefficient of $C=0.4$ and a 1:2 year rainfall intensity of 76.81 mm/hr, based on City of Ottawa IDF Curves using a time of concentration (t_c) of 10 minutes. Refer to **Appendix A** for correspondence from the City of Ottawa.

3.3.5 Post-Development Conditions

In order to mitigate the stormwater related impacts due to the proposed development, post-development flows will have to be controlled and stored on site via storage tank prior to the runoff entering the municipal combined sewer. Refer to **Appendix D** for uncontrolled runoff calculations for the sub catchments areas for the site.

Areas A1 –Uncontrolled Landscaped Area

The post-development runoff from sub-catchment A1 was calculated using the Rational Method to be 0.1 L/s and 0.2 L/s for the 1:5 year and 1:100 year design events respectively. Refer to **Appendix D** for Rational Method tables and calculations.

Areas A2 –Uncontrolled Concrete Ramp

The post-development runoff from sub-catchment A2 was calculated using the Rational Method to be 0.8 L/s and 1.5 L/s for the 1:5 year and 1:100 year design events respectively. Refer to **Appendix D** for Rational Method tables and calculations.

The runoff from this area will be directed to the proposed trench drain and connected to a sump in the basement of the building. This flow will be pumped to the proposed building service. As mentioned previously the existing combined sewer in Florence street surcharges during large storm events. In order to prevent water backups in case of backflow preventer failure, the pump will be designed to pump the water above the 1:100year HGL of the receiving sewer as shown on Sump Pump Outlet Detail on Grading, Servicing and Erosion & Sediment Control Plan (119051-GS) included in **Appendix G**.

Areas A3 –Controlled Building Roof and Landscaped Area

The post-development flows from sub-catchment Areas A3 will be attenuated by the use of a Hydrovex Vortex ICD installed within the outlet pipe of the proposed stormwater storage tank (CBMH 1). Stormwater runoff from this drainage area will be temporarily stored within the tank prior to being discharged into the municipal combined sewer system.

The Modified Rational Method was used to determine the storage volume required for this catchment area. Refer to **Appendix D** for detailed tables and calculations.

Table 3.2 summarizes the post-development design flows, the type of ICD, and storage volumes required, and storage volume provided for both the 1:5 year and the 1:100 year design events.

Table 3.2: Area A3 Design Flow and ICD Information

Design Event	Post-Development Flow			
	ICD Type	Design Flow (L/s)	Storage Volume Required (m³)	Volume Provided (m³)
1:5 Year	Hydrovex 40 SVHV-1	1.1 L/s	2.8 m³	6.7 m³
1:100 Year	Hydrovex 50 VHV-1	1.3 L/s	6.7 m³	6.7 m³

Refer to **Appendix D** for Modified Rational Method calculations and **Appendix E** for Hydrovex Vortex ICD Information.

Areas A4 –Uncontrolled Landscaped Backyard

The post-development runoff from the landscaped backyard (sub-catchment Area A4) was calculated using the Rational Method to be 0.8 L/s and 1.7 L/s for the 1:5 year and 1:100 year design events respectively. Refer to **Appendix D** for Rational Method tables and calculations.

The runoff from the backyard will sheet drain towards the back property line maintaining the existing drainage pattern. Due to larger building footprint, the backyard area will be reduced and therefore the post-development runoff from this area will be much less than the pre-development runoff.

Summary of Post-Development Flows

Table 3.3: Post-Development Stormwater Flow Table

Post - Development Flows						
Area	Description	Post-Development Flow (L/s)		Storage Required (m³)		Provided (m³)
		5 year	100 year	5 year	100 year	
A1	Uncontrolled Landscaped Area	0.1	0.2	N/A	N/A	N/A
A2	Uncontrolled Concrete Ramp	1.5	1.5	N/A	N/A	N/A

A3	Controlled Building Roof and Landscaped Area	1.1	1.3	2.8	6.7	6.7
A4	Uncontrolled Landscaped Backyard	0.8	1.7	1.4	3.3	4.4
Total Flow to Florence Street Combined Sewer =		2.7	3.0			
Total Flow Towards Back Property Line =		0.8	1.7			

As indicated in **Table 3.3** the total post-development flow from the sub-catchment areas will be released from the proposed development to the Florence Street combined sewer at a maximum rate of 3.0 L/s during the 1:100 year design event and 2.7 L/s during the 1:5 year design event; neither of which exceeds the allowable flow for the site of 3.0 L/s.

4.0 SITE GRADING

The intent of the grading design was to propose the building finished floor elevation to best tie into the elevations along the existing adjacent roadways and surrounding property lines. The proposed grading design provides positive drainage away from the building. Refer to the enclosed Servicing, Grading and Erosion & Sediment Control Plan (119051-GS) for details.

4.1 Major System Overland Flow Route

In the case of a major rainfall event exceeding the design storms provided for, the stormwater located within the front yard landscaped areas will overflow towards Florence Street. Stormwater from the landscaped backyard will overflow towards the adjacent property to the south as per the existing conditions.

4.2 Erosion and Sediment Control

Erosion and sediment control measures will be implemented during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987). Details are provided on the Grading and Erosion & Sediment Control Plan (113023-GR).

- All erosion and sediment control measures are to be installed to the satisfaction of the engineer, the municipality and the conservation authority prior to undertaking any site alterations (filling, grading, removal of vegetation, etc.) and remain present during all phases of site preparation and construction.
- A qualified inspector should conduct regular visits during construction to ensure that the contractor is working in accord with the design drawings and that mitigation measures are being implemented as specified.
 - A light duty silt fence is to be installed as per OPSS 577 and OPSD 219.110 along the surrounding construction limits.
 - Filter cloth is to be placed under the grates of all proposed and existing catchbasins structures.
 - Street sweeping and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site.

- The contractor shall immediately report to the engineer or inspector any accidental discharges of sediment material into any ditch or sewer system. Appropriate response measures shall be carried out by the contractor without delay.

The proposed temporary erosion and sediment control measures will be implemented prior to construction and will remain in place during all phases of construction.

5.0 GEOTECHNICAL INVESTIGATIONS

A geotechnical investigation report has been prepared for the proposed site. Refer to 'Geotechnical Investigation Proposed Multi-Unit Residential Building', prepared by Kollaard Associates Engineers, dated June 5, 2019 for the existing subsurface conditions, construction recommendations and geotechnical inspection requirements for the proposed development.

6.0 SUMMARY AND CONCLUSIONS

This report has been prepared in support of the site plan application for the proposed development located at 58 Florence Street, in the City of Ottawa.

The conclusions are as follows:

- The proposed apartment building will be serviced by connecting to the existing watermain and combined sewer in Florence Street.
- The proposed building will not be sprinklered. The fire protection will be provided from the existing municipal fire hydrant in Florence Street near the proposed building.
- The total post-development flow from the site outletting to the Florence Street combined sewer will be controlled to a maximum of 3.0 L/s during the 1:100 year design event and to 2.7 L/s during the 1:5 year design event. Neither of which exceed the maximum allowable release rate of 3.0 L/s required by the City of Ottawa.
- Temporary erosion and sediment controls are to be provided during construction.

Servicing assessments discussed in the preceding sections show that there are no major obstacles to servicing the proposed development. It is recommended that the proposed site servicing and stormwater management design be approved for implementation.

NOVATECH

Prepared by:



Miroslav Savic, P. Eng.
Senior Project Manager | Land Development

Reviewed by:

A handwritten signature in black ink, appearing to read 'LS' or 'Lee Sheets', written in a cursive style.

Lee Sheets, C.E.T.
Director | Land Development & Public Sector Infrastructure

APPENDIX A
Correspondence

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.

A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer to:

<http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans>

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	5	1. Site Servicing Plan	2. Assessment of Adequacy of Public Services / Site Servicing Study / Brief	S	3
S	5	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S	3
		5. Composite Utility Plan	6. Groundwater Impact Study		
		7. Servicing Options Report	8. Wellhead Protection Study		
		9. Community Transportation Study and / or Transportation Impact Study / Brief	10. Erosion and Sediment Control Plan / Brief	S	5
S	3	11. Storm water Management Report / Brief	12. Hydro geological and Terrain Analysis		
		13. Hydraulic Water main Analysis	14. Noise / Vibration Study	S	3
		15. Roadway Modification Design Plan	16. Confederation Line Proximity Study		

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
		17. Draft Plan of Subdivision	18. Plan Showing Layout of Parking Garage		
		19. Draft Plan of Condominium	20. Planning Rationale	S	3
S	5	21. Site Plan	22. Minimum Distance Separation (MDS)		
		23. Concept Plan Showing Proposed Land Uses and Landscaping	24. Agrology and Soil Capability Study		
		25. Concept Plan Showing Ultimate Use of Land	26. Cultural Heritage Impact Statement		
S	5	27. Landscape Plan	28. Archaeological Resource Assessment Requirements: S (site plan) A (subdivision, condo)		
S	2	29. Survey Plan	30. Shadow Analysis		
S	5	31. Architectural Building Elevation Drawings (dimensioned)	32. Design Brief (includes the Design Review Panel Submission Requirements)	S	Available online
		33. Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	3	34. Phase 1 Environmental Site Assessment	35. Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		
A	3	36. Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37. Assessment of Landform Features		
		38. Record of Site Condition	39. Mineral Resource Impact Assessment		
		40. Tree Conservation Report	41. Environmental Impact Statement / Impact Assessment of Endangered Species		
		42. Mine Hazard Study / Abandoned Pit or Quarry Study	43. Integrated Environmental Review (Draft, as part of Planning Rationale)		

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
		44.	45.		

Meeting Date: March 6, 2019

Application Type: Site Plan Control, Manager Approval with Public Consultation

File Lead (Assigned Planner): Jenny Kluge

Infrastructure Approvals Project Manager: Shawn Wessel

Site Address (Municipal Address): 58 Florence Street

*Preliminary Assessment: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that proposal appears to meet the City's key land use policies and guidelines. **This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the Planning, Infrastructure and Economic Development Department will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the Planning, Infrastructure and Economic Development Department.

Miro Savic

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Wednesday, July 10, 2019 1:36 PM
To: Miro Savic
Cc: Lee Sheets; Murray Chown; Danna SeeHar
Subject: RE: Pre-consult follow up - 58 Florence Street

Good afternoon Mr. Savic.

Further to your inquiry, the City's Water Resources Dept. had the following comments:

This area is part of the O'Connor Street flood study. HGLs are high in this area, which is why we are implementing flood control measures, but we are still years away from completion. The existing 100 HGL is basically at surface level. In the future it will be 2.5 m below surface (once all measures are implemented).

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l'infrastructure et du développement économique

City of Ottawa | Ville d'Ottawa

110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1

(613) 580 2424 Ext. | Poste 33017

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shawn.wessel@ottawa.ca



Please consider the environment before printing this email

From: Miro Savic <m.savic@novatech-eng.com>

Sent: July 10, 2019 8:42 AM

To: Wessel, Shawn <shawn.wessel@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Danna SeeHar

<d.seehar@novatech-eng.com>

Subject: RE: Pre-consult follow up - 58 Florence Street

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Thank you Shawn.

I was expecting that we would be provided with the 100 year HGL for the 900mmx750mm combined sewer in Florence Street. Can this be provided to us?

A concrete ramp is being proposed down to basement for garbage pick up where we would need to install a drain and connect to the city sewer. We are concerned with the city sewer surcharging and backing up into the basement of the building.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>

Sent: Thursday, July 04, 2019 10:54 AM

To: Miro Savic <m.savic@novatech-eng.com>

Subject: RE: Pre-consult follow up - 58 Florence Street

Good morning Mr. Savic.

Please see the response from our Water Resources Dept. in regard to SWM criteria and sanitary HGL info below:

No issues for Sanitary.

As for storm, Owner(s) will have to control the 100 year to the 2 year. They can assume C= existing in this case.

For this site the following apply to this site and any development within a combined sewer area:

- Total (San & Stm) allowable release rate will be 2 year pre-development rate.
- Coefficient (C) of runoff will need to be determined **as per existing conditions** but in no case more than 0.4 (see comment above in this case)
- TC = 20 minutes or can be calculated
TC should be not be less than 10 minutes, since IDF curves become unrealistic at less than 10 min.

- Any storm events greater than 2 year, up to 100 year, and including 100 year storm event must be detained on site.
- Two separate sewer laterals (one for sanitary and other for storm) will be required.

1. An MECP ECA will be required.

Please have applicant provide one copy of the following for our review:

- MECP ECA Application Form - Direct Submission tied to SPC
- Fees - Certified Cheque made out to Ministry of Finance
- Proof of Applicant's Identification (if no Certificate of Incorporation)
- Certificate of Incorporation (if Applicable)
- NAICS Code (If Applicable)
- Plan & Profile
- Grading and Servicing Plans
- Survey Plan
- Pipe Data Form
- Draft ECA (City of Ottawa Expanded Works Form)
- Source Protection Policy Screening & Significant Threat Report
- Sewer Drainage Area Plan
- SWM Report
- Services Report
- Geotechnical Report & any other supportive documentation
- Correspondence: City of Ottawa including ROW, Water Resources Dept., ISD etc., MNR, Conservation Authority & MECP.

Please note that once the review has been completed and the Sr. Engineer is satisfied and ready to sign off on the application, after the PM recommendations 4 final bound copies including 4 CD Rom disks will be required to accompany the applications with MECP and for City of Ottawa records.

Footer of ECA Application should have reference #: 8551E (2019/05)

Re RVCA:

Applicant to contact Rideau Valley Conservation Authority (RVCA) for possible restrictions due to quality control. Provide correspondence in Report.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l’examen des projets d’aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l’infrastructure et du développement économique
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(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

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From: Miro Savic <m.savic@novatech-eng.com>
Sent: July 03, 2019 3:20 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Subject: RE: Pre-consult follow up - 58 Florence Street

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Thank you Shawn, your follow up is much appreciated.

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Wednesday, July 03, 2019 2:06 PM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Danna SeeHar <d.seehar@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>
Subject: RE: Pre-consult follow up - 58 Florence Street

Good afternoon Mr. Savic

I have re-requested this information from our Water Resources Dept. on your behalf and will follow up tomorrow if needed.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
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shawn.wessel@ottawa.ca

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From: Miro Savic <m.savic@novatech-eng.com>

Sent: July 03, 2019 1:23 PM

To: Wessel, Shawn <shawn.wessel@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Danna SeeHar <d.seehar@novatech-eng.com>; Murray Chown
<m.Chown@novatech-eng.com>

Subject: RE: Pre-consult follow up - 58 Florence Street

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Hi Shawn,

I'm following up on the sewer modeling and capacity information for the 58 Florence. Please advice when we can expect to receive the information.

We are aiming to file the site plan application in a couple of week and would need the information as soon as possible.

Thank you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867

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From: Wessel, Shawn <shawn.wessel@ottawa.ca>

Sent: Monday, June 10, 2019 9:07 AM

To: Miro Savic <m.savic@novatech-eng.com>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Danna SeeHar <d.seehar@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>

Subject: RE: Pre-consult follow up - 58 Florence Street

Good morning Mr. Savic

I have sent the request and description of the applicant's proposal to our Water Resources Dept. for comment on capacity etc.

Once I have their comments, I will pass them along to you.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l'infrastructure et du développement économique

City of Ottawa | Ville d'Ottawa

110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1

(613) 580 2424 Ext. | Poste 33017

Int. Mail Code | Code de Courrier Interne 01-14

shawn.wessel@ottawa.ca

 Please consider the environment before printing this email

From: Miro Savic <m.savic@novatech-eng.com>

Sent: June 07, 2019 10:32 AM

To: Wessel, Shawn <shawn.wessel@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Danna SeeHar <d.seehar@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>

Subject: FW: Pre-consult follow up - 58 Florence Street

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Shawn,

As per the notes from the pre-consultation meeting (highlighted in green below) I understated that the City will model the sewer system and provide the capacity information to us.

Please confirm and let us the process to obtain the information.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867

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From: Danna SeeHar

Sent: Friday, May 31, 2019 1:30 PM

To: Miro Savic <m.savic@novatech-eng.com>

Subject: FW: Pre-consult follow up - 58 Florence Street

Miro, Please see attached and below for pre-consultation follow up comments. Thanks.

Danna See-Har, M.P.L., Planner

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 296

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

From: Sam Falsetto <falsettohomes@rogers.com>

Sent: Monday, March 25, 2019 10:06 AM

To: Danna SeeHar <d.seehar@novatech-eng.com>

Subject: Fwd: Pre-consult follow up - 58 Florence Street

Sent from my iPhone

Begin forwarded message:

From: Chris Jalkotzy <cjalk52@gmail.com>

Date: March 16, 2019 at 9:35:53 AM EDT

To: Sam Falsetto <falsettohomes@rogers.com>

Subject: Fwd: Pre-consult follow up - 58 Florence Street

----- Forwarded message -----

From: Kluge, Jenny <jennifer.kluge@ottawa.ca>

Date: Fri, 15 Mar 2019 at 15:47

Subject: Pre-consult follow up - 58 Florence Street

To: Chris Jalkotzy <cjalk52@gmail.com>

Cc: Maloney, David <David.Maloney@ottawa.ca>, Wessel, Shawn <shawn.wessel@ottawa.ca>

Hi Chris,

Further to our meeting on March 6, 2019 regarding the proposal to construct a three-storey, 14-unit apartment building at 58 Florence Street, please find below a summary of what was discussed.

Planning (Jenny Kluge)

- The property is zoned R4S [479], which permits a low-rise apartment building.
- The property is designated as General Urban in the Official Plan
- The property is within the Centretown Secondary Plan area.
- A Streetscape Character Analysis will be required, as the property is within the Mature Neighbourhoods Overlay
- It is understood that variances are required for lot width and lot area, as well as parking if 14 units are provided. When you have more refined plans, please send them to us for further review. We want to see that the proposed development is meeting all other zoning provisions, particularly amenity area requirements. The proposed units should be livable and the desired density may not be possible on this size of a property and within the building mass permitted by zoning.

Heritage (David Maloney)

- The property is located within the Centretown Heritage Conservation District
- As a designated property (under Part V of the *Ontario Heritage Act*), the applicant will be required to apply for a heritage permit to alter the property.
 - The application will address the demolition of the existing building, as well as the construction of a new building.
 - As discussed, the application for heritage permit could be submitted about a month after the site plan application is submitted, so that the timing of the site plan, heritage, and minor variance applications are coordinated.
 - The application for heritage permit must include, a site plan, detailed elevations, a streetscape elevation, and colour renderings of the proposed building within its existing context.

- The property has been evaluated as a Grade 2 building, and typically heritage staff would not support demolition.
 - Staff is however aware of extensive structural damage to the house, that may be attributed to the construction of a building on the adjacent property to the west/south.
 - Please submit evidence of the condition of the building (structural engineering report, etc.) that will inform our assessment of the demolition proposal.

- Given the lot dimensions, and streetscape context, it is advised that the setbacks, and height provisions be respected, in order to allow the proposed building to fit the context of the streetscape, which is dominated by two-and-a-half storey detached houses red brick houses.
 - Given the adjacency to the contemporary four storey building to the west, there is an opportunity to design a building that transitions appropriately between the contemporary structure at the corner of Kent and Florence, and the two-and-a-half storey red brick house to the east.

- The front entrance of the building should face the street, either at grade, or elevated by two to four steps to a porch.

- Red brick is a preferred building material for new construction in the HCD

Key guidelines from the Centretown HCD Plan:

VII.5.6 Residential Infill

1. All infill should be of contemporary design, distinguishable as being of its own time. However, it must be sympathetic to the heritage character of the area, and designed to enhance these existing properties rather than calling attention to itself.

2. The form of the new infill should reflect the character of existing buildings on adjoining and facing properties. The buildings should normally be three or four storeys in height, with massing and setbacks matching earlier rather than later patterns still evident in the immediate area.

3. Single family homes, rowhouses, and townhouses developments should reflect the rhythm of early lot development, with gables, balconies, or other features providing an appropriate scale. Small multiple-unit residential developments should reflect the U-shaped and H-shaped patterns of earlier examples, with emphasis on the entrances.

4. Brick veneer should be the primary finish material in most areas, to maintain continuity with existing buildings. Trim materials would commonly be wood or metal; the details at cornices, eaves, and entrances should be substantial and well detailed. Colours should be rich and sympathetic to existing patterns. Lighting should be discreet and can be used to highlight architectural features.

Please also note that the requirement of a *Cultural Heritage Impact Statement* will be determined after a preliminary design is submitted to heritage staff. As per Official Plan policy, a CHIS is required when a develop has the potential to negatively impact cultural heritage values of designated properties or districts.

Please find the application for heritage permit, and the heritage and evaluation survey form, attached. Let me know if you have any questions.

Engineering (Shawn Wessel)

- Provide property survey that illustrates existing grades on this, and if possible neighbouring properties, in conjunction with property lines, Lot #s & Parts and Property Report that was provided.
- Infrastructure:

750 mm dia. Brick Combined Sewer Main is available on Florence St., which connects to the Rideau River Trunk Collector and then to the Interceptor Sewer at Stanley Ave.

Modeling is required! City Dept. to provide capacity information to applicant.

- The following apply to this site and any development within a combined sewer area:
- Total (San & Stm) allowable release rate will be 2 year pre-development rate.
- Coefficient (C) of runoff will need to be determined as per existing conditions but in no case more than 0.4
- TC = 20 minutes or can be calculated

TC should be not be less than 10 minutes, since IDF curves become unrealistic at less than 10 min.

- Any storm events greater than 2 year, up to 100 year, and including 100 year storm event must be detained on site.
- Two separate sewer laterals (one for sanitary and other for storm) will be required.

*Please note:

Foundation drains are to be independently connected to sewermain (separated or combined) unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.

- Roof drains are to be connected downstream of any incorporated ICD within the SWM system.
- Due to combined sewer connection, an MECP Environmental Compliance Approval (ECA) is required, Direct Submission.
- For MECP ECA:

Please provide one copy of the following:

MECP ECA Application Form - Direct Sub tied to SPC Application.

Fees - Certified Cheque made out to "Minister of Finance" – generated from application.

Proof of Applicant's Identification (Copy of Passport or Drivers Lic. (Both Sides – in colour)

Certificate of Incorporation (if Applicable)

NAICS Code (If Applicable)

Plan & Profile

Grading and Servicing Plans

Survey Plan

Pipe Data Form

Draft ECA (City of Ottawa Expanded Works Form)

Source Protection Policy Screening & Significant Threat Report

Sewer Drainage Area Plan

SWM Report

Services Report

Geotechnical Report & any other supportive documentation

Correspondence: City of Ottawa including ROW, Water Resources Dept., ISD etc., MNR, Conservation Authority (RCVA) & MECP.

Please note that once the review has been completed 3 final copies including 3 CD Rom disks will be required to accompany the applications with MECP and for City of Ottawa records.

203 mm dia. PVC watermain is available on Florence St.

Please note: When average daily demand meets or exceeds 50 m³ (0.58 l/s – avg. day) a second water service is required for redundancy and in the event both services are on the same street, will need to be separated by an inline water valve chamber for isolation.

Boundary Conditions will be provided at request of consultant after providing Average Daily Demands, Peak Hour Demands & Max Day + Fire Flow Demands

- Other:

Traffic Noise Study required due to within 100m proximity of Kent and Bank Sts. and within 500 m of Hwy #417.

Stationary Noise Study – consultant to speak to this in their report as per City NCG and NPC 300 Guidelines.

Underground storage and surface ponding:

Show all ponding for 5 and 100 year events

Note - There must be at least 15cm of vertical clearance between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

- Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.
- Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2 and 100 year event storage requirements.

- In regards to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.
- Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, upon request.
- Rideau Valley Conservation Authority (RVCA) to be contacted by applicant to ensure there are no restrictions due to quality control requirements and if so, to comply accordingly. Please provide all correspondence with RVCA.
- FYI:

A gas blow-off station is required now for buildings that exceed 12 units. Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans.

Feel free to contact Shawn Wessel at Shawn.Wessel@ottawa.ca or ext. 33017 for follow-up questions.

Transportation (Wally Dubyk)

- A Transportation Impact Assessment is not required for the proposed development.

Feel free to contact Wally Dubyk at Wally.Dubyk@ottawa.ca or ext. 13783 for follow-up questions.

Community representative comments (Centretown Community Association)

- They would like to see two bedroom units and affordable units

- Sustainability measures would be ideal
- The design of the building is important and should respect the character of the surrounding neighbourhood
- Respect the front setback along Florence Street.

Development Applications Required

To move forward with this proposal, a Site Plan Control, Manager Approval, Public Consultation Application will be required. Please review the fees associated with this here.

Attached is the *Applicant's Study and Plan Identification List*, which identifies the required studies and plans to support your application. For additional information on preparing studies and plans, please click on the following hyperlink: Guide to Preparing Studies and Plans.

As you may know, the property is in Ward 14-Somerset, with Councillor Catherine McKenney. It is in your best interest to initiate contact with close neighbours as well as the Councillor and Registered Community Groups. In addition, it may be beneficial to contact key technical agencies that may be involved in this file to discuss the proposal before submitting an application.

The above pre-consultation comments are valid for one year. If you submit a development application after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

Please do not hesitate to contact me if you have any questions.

Jenny Kluge MCIP, RPP

Planner

Development Review – Central Branch

Planning, Infrastructure and Economic Development Department

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West, Ottawa, ON K1P 1J1

613.580.2424 ext./poste 27184

E-mail: jenny.kluke@ottawa.ca

ottawa.ca/planning / ottawa.ca/urbanisme

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--
Chris Jalkotzy LEED AP
Planning By People
City Villages
www.cityvillages.org
1 613 869 4965

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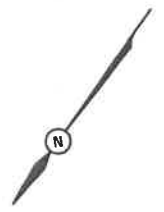
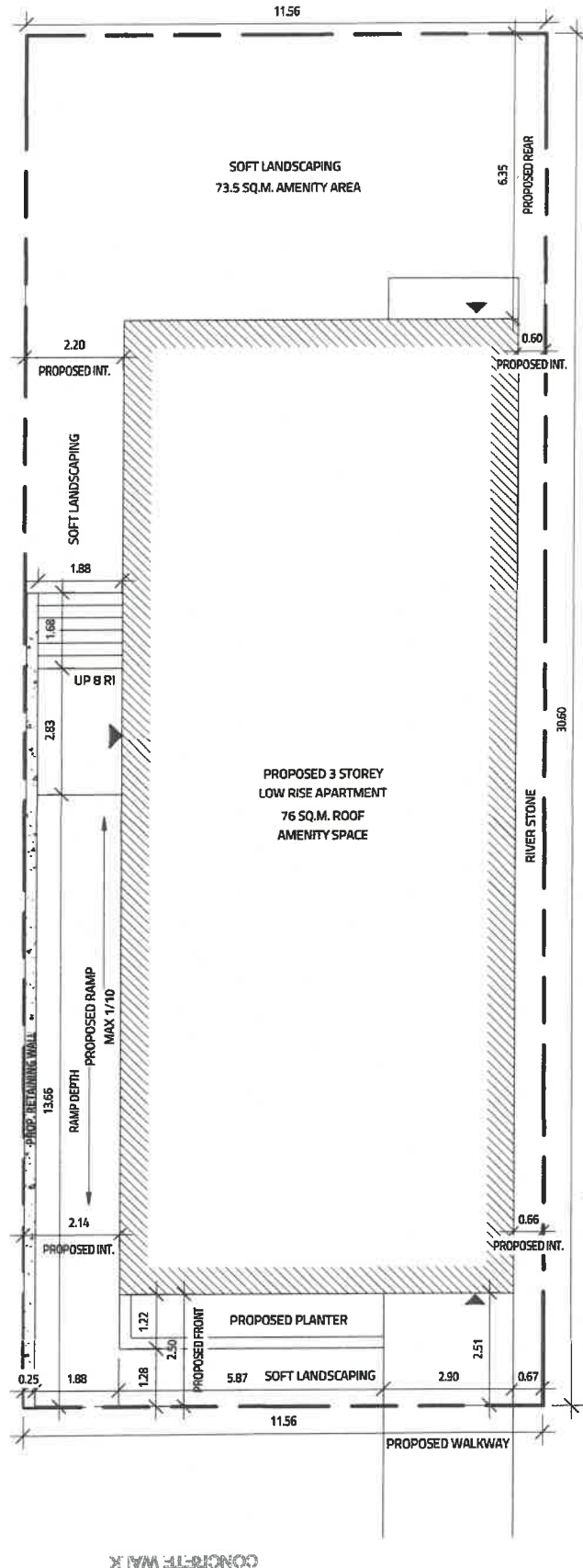
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APPENDIX B

Site Plan

58 FLORENCE

LOW RISE APARTMENT



1

Site

SCALE: 1 : 100

MAY 14, 2019

ALL HOUSE RENDERINGS ARE ARTIST CONCEPTIONS. ALL FLOOR PLANS
ARE APPROXIMATE DIMENSIONS. ACTUAL USABLE FLOOR SPACE MAY
VARY FROM THE STATED AREA. E & DE



Evolution
DESIGN & DRAFTING

613-884-7068 /// 613-8087185

APPENDIX C

Sanitary Sewer, Watermain and Fire Flow Calculations

58 FLORENCE STREET

SANITARY FLOW

PROPOSED 3-STOREY APPARTNET BUILDING

Number of 2 Bedroom Units	2
Persons per 1bdr Unit	2.1
Number of 1 Bedroom Units	7
Persons per 1bdr Unit	1.4
Total Population	14
Average Daily Flow	280 L/c/day
Peak Factor (Harmon Formula)	3.52
Peak Sanitary Flow	0.16 L/s
Site Area	0.04 ha
Infiltration Allowance	0.33 L/s/ha
Peak Extraneous Flows	0.01 L/s
Total Peak Sanitary Flow	0.17 L/s

Miro Savic

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Friday, July 12, 2019 10:58 AM
To: Miro Savic
Cc: Danna SeeHar
Subject: RE: 58 Florence Street - Boundary Conditions
Attachments: 58 Florence June 2019.pdf

Good morning Mr. Savic.

Please find the following boundary conditions for this site as requested below:

The following are boundary conditions, HGL, for hydraulic analysis at 58 Florence (zone 1W) assumed to be connected to the 203mm on Florence (see attached PDF for location).

Minimum HGL = 107.0m

Maximum HGL = 115.2m

MaxDay + Fireflow (183 L/s) = 103.0m

These are for current conditions and are based on computer model simulation.

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.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l'infrastructure et du développement économique

City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

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From: Miro Savic <m.savic@novatech-eng.com>
Sent: July 12, 2019 9:26 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Danna SeeHar <d.seehar@novatech-eng.com>
Subject: RE: 58 Florence Street - Boundary Conditions

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Shawn,

I'm following up on the boundary condition for 58 Florence.. I don't recall receiving them.

Thank you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867

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From: Miro Savic
Sent: Tuesday, June 18, 2019 1:27 PM
To: 'Wessel, Shawn' <shawn.wessel@ottawa.ca>
Cc: Danna SeeHar <d.seehar@novatech-eng.com>
Subject: 58 Florence Street - Boundary Conditions

Shawn,

Please provide boundary conditions for the proposed 3-storey apartment building at 58 Florence Street.

The water demands are calculated as follows:

Average Day Demand = 0.06 L/s

Maximum Day Demand = 0.14 L/s

Peak Hour Demand = 0.31 L/s

Fire Flow Demand (calculated using the FUS) = 183 L/s (11,000 L/min)

The proposed building will be serviced by connected to the existing 203mm watermain in Florence Street. The fire protection will be provided from the existing fire hydrant located at the southeast corner of Florence Street and Kent Street.

Regards,

Please contact me should you have any questions.

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265 | Fax: 613.254.5867

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,

Boundary Condition for 58 Florence



Legend
Pipe Ownership
— Private
— Public

58 FLORENCE STREET

WATER ANALYSIS

WATER DEMND

Number of 2 Bedroom Units	2
Persons per 1bdr Unit	2.1
Number of 1 Bedroom Units	7
Persons per 1bdr Unit	1.4
Total Population	14
Average Day Demand	350 L/c/day
Average Day Demand	0.06 L/s
Maximum Day Demand (2.5 x avg. day)	0.14 L/s
Peak Hour Demand (2.2 x avg. day)	0.31 L/s

BOUNDAY CONDITIONS

Maximum HGL =	115.2 m
Minimum HGL =	107 m
Max Day + Fire Flow =	103 m

PRESSURE TESTS

AVERAGE GROUND ELEVATION 71.5 m

HIGH PRESSURE TEST = MAX HGL - AVG GROUND ELEV x 1.42197 PSI/m < 80 PSI
HIGH PRESSURE = **62.1 PSI**

LOW PRESSURE TEST = MIN HGL - AVG GROUND ELEV x 1.42197 PSI/m > 40 PSI
LOW PRESSURE = **50.5 PSI**

MAX DAY + FIRE FLOW TEST = MAX DAY + FIRE - AVG GROUND ELEV x 1.42197 PSI/m > 20 PSI
MAX DAY + FIRE PRESSURE = **44.8 PSI**

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 119051

Project Name: 58 Florence Street

Date: 4/18/2019

Input By: Miroslav Savic

Reviewed By:

Legend

Input by User

No Information or Input Required

Building Description: 3-Storey Apartment Building
Wood frame

Step			Input		Value Used	Total Fire Flow (L/min)	
Base Fire Flow							
1	Construction Material			Multiplier		1.5	
	Coefficient related to type of construction C	Wood frame	Yes	1.5	1.5		
		Ordinary construction		1			
		Non-combustible construction		0.8			
		Modified Fire resistive construction (2 hrs)		0.6			
		Fire resistive construction (> 3 hrs)		0.6			
2	Floor Area					8,000	
	A	Building Footprint (m ²)	190				
		Number of Floors/Storeys	3				
		Area of structure considered (m ²)	570				
	F	Base fire flow without reductions					
		$F = 220 C (A)^{0.5}$					
Reductions or Surcharges							
3	Occupancy hazard reduction or surcharge			Reduction/Surcharge		6,800	
	(1)	Non-combustible		-25%	-15%		
		Limited combustible	Yes	-15%			
		Combustible		0%			
		Free burning		15%			
		Rapid burning		25%			
4	Sprinkler Reduction			Reduction		0	
	(2)	Adequately Designed System (NFPA 13)	No	-30%			
		Standard Water Supply	No	-10%			
		Fully Supervised System	No	-10%			
		Cumulative Total			0%		
5	Exposure Surcharge (cumulative %)			Surcharge		4,080	
	(3)	North Side	20.1 - 30 m	10%			
		East Side	2Hr Fire Wall	10%			
		South Side	10.1 - 20 m	15%			
		West Side	0 - 3 m	25%			
		Cumulative Total			60%		
Results							
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min			L/min	11,000	
		(2,000 L/min < Fire Flow < 45,000 L/min)			L/s	183	
					USGPM	2,906	
7	Storage Volume	Required Duration of Fire Flow (hours)			Hours	2	
		Required Volume of Fire Flow (m ³)			m³	1320	

APPENDIX D

Stormwater Management Calculations

Proposed 3 - Storey Apartment Building 58 Florence Street

Allowable Flow				
Description	A (ha)	C	5 year (L/s)	100 year (L/s)
Site Area	0.035	0.40	3.0	3.0

Post - Development : Total Uncontrolled Site Flows									
Area	Description	A (ha)	A imp (ha) C=0.9	A perv (ha) C=0.2	C ₅	C ₁₀₀	Uncontrolled Flow (L/s)		
A1	Uncontrolled Landscaped Area	0.001	0.0002	0.0008	0.34	0.40	5 year	100 year	
A2	Uncontrolled Concrete Ramp	0.003	0.003	0.000	0.90	1.00	0.1	0.2	
A3	Controlled Building Roof and Landscaped Area	0.021	0.019	0.002	0.83	0.93	0.8	1.5	
A4	Uncontrolled Landscaped Backyard	0.010	0.001	0.009	0.27	0.33	5.1	9.7	
Summed Area Check: 0.035							0.8	1.7	
t _c =10mins									

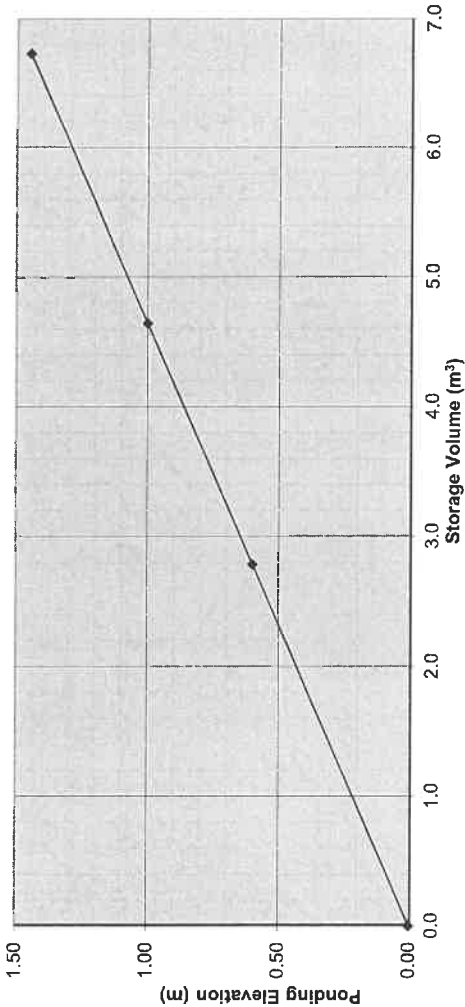
Post - Development : Total Flows for Controlled Site									
Area	Description	Flow (L/s)			Storage Required (m ³)			Provided (m ³)	
		5 year	100 year		5 year	100 year		5 year	100 year
A1	Uncontrolled Landscaped Area	0.1	0.2		N/A	N/A		N/A	N/A
A2	Uncontrolled Concrete Ramp	0.8	1.5		N/A	N/A		N/A	N/A
A3	Controlled Building Roof and Landscaped Area	1.1	1.3		2.8	6.7		8.0	
A4	Uncontrolled Landscaped Backyard	0.8	1.7		N/A	N/A		N/A	N/A
Totals =		2.8	4.7		2.8	6.7		8.0	
Over-Controlled by:		0.2	-1.7						

50 FLORENCE STREET 3-STORY APARTMENT BUILDING REQUIRED STORAGE - 1.5 YEAR EVENT AREA A3 Controlled Roof & Landscaped Area									
OTTAWA IDF CURVE									
Area = 0.021 ha		ha		Qallow =		1.10 L/s		m3	
C = 0.83				Vol(max) =		2.8			
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)					
5	141.18	6.87	5.77	1.73					
10	104.19	5.07	3.97	2.38					
15	83.56	4.07	2.97	2.67					
20	70.25	3.42	2.32	2.78					
25	60.90	2.96	1.86	2.79					
30	53.93	2.62	1.52	2.74					
35	48.52	2.36	1.26	2.65					
40	44.18	2.15	1.05	2.52					
45	40.63	1.98	0.88	2.37					
50	37.65	1.83	0.73	2.20					
55	35.12	1.71	0.61	2.01					
60	32.94	1.60	0.50	1.81					
65	31.04	1.51	0.41	1.60					
70	29.37	1.43	0.33	1.38					
75	27.89	1.36	0.26	1.16					
90	24.29	1.18	0.08	0.44					
105	21.58	1.05	-0.05	-0.32					
120	19.47	0.95	-0.15	-1.10					

Hydrovex Flow Regulator					40 SVHV-1	
Design Event	Total Flow (L/s)	Head (m)	Storage (m ³)		Required	Provided
1:5 Year	1.10	0.3			2.8	4.6
1:100 Year	1.30	0.7			6.7	4.6

CBMH 1			
Elevation	Area A3	Total Volume	
m	m ²	m ³	
0.00	0	0	
0.60	4.64	2.8	
1.00	4.64	4.6	
1.45	4.64	6.7	

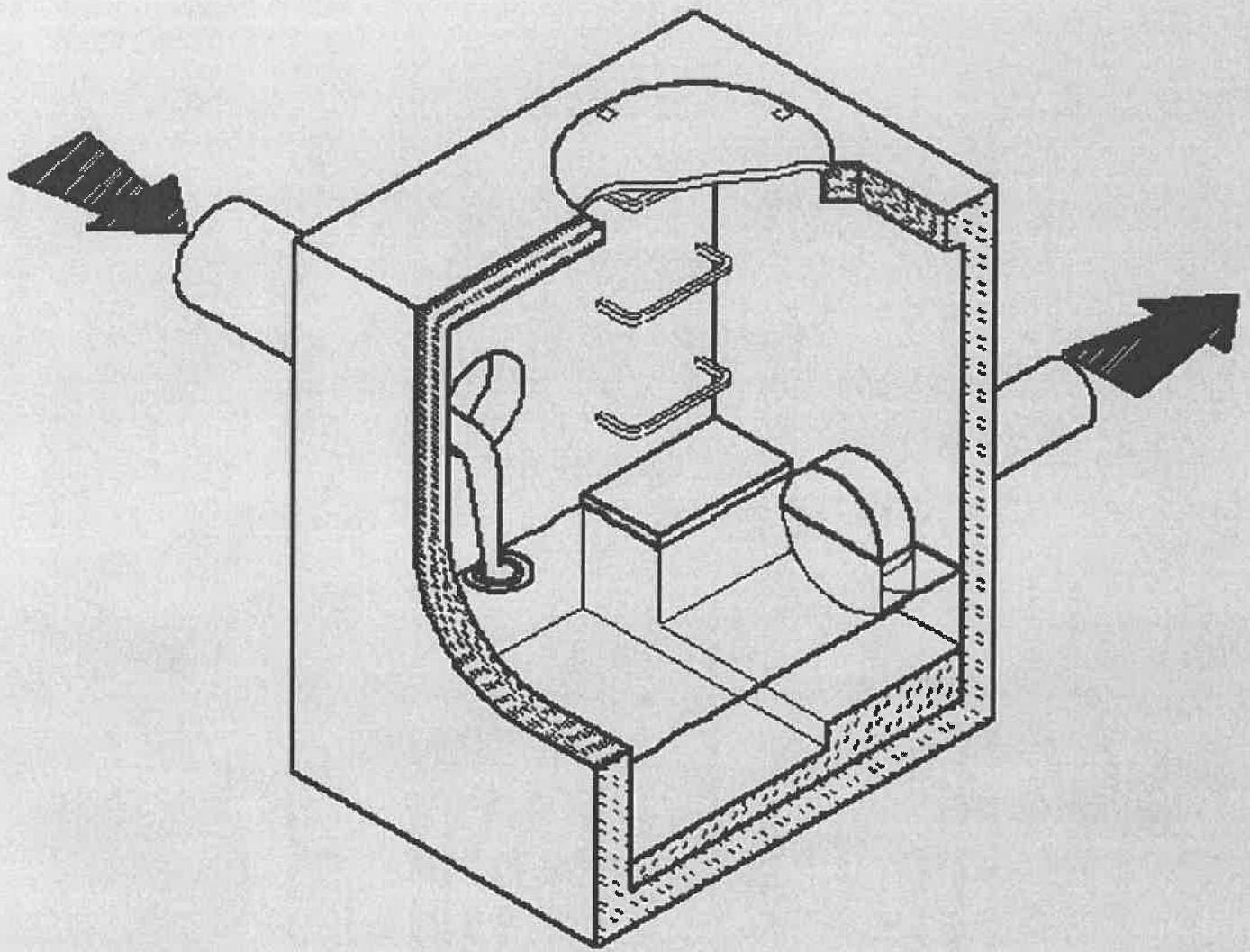
Stage Storage Curve: Area A3
Controlled Landscaped Area



50 FLORENCE STREET 3-STORY APARTMENT BUILDING REQUIRED STORAGE - 1:100 YEAR EVENT AREA A3 Controlled Roof & Landscaped Area									
OTTAWA IDF CURVE									
Area = 0.021 ha		ha		Qallow =		1.30 L/s			
C = 0.93				Vol(max) =		6.7 m³			
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m³)					
5	242.70	13.16	11.86	3.56					
10	178.56	9.68	8.38	5.03					
15	142.89	7.75	6.45	5.80					
20	119.95	6.50	5.20	6.24					
25	103.85	5.63	4.33	6.49					
30	91.87	4.98	3.68	6.62					
35	82.58	4.48	3.18	6.67					
40	75.15	4.07	2.77	6.66					
45	69.05	3.74	2.44	6.60					
50	63.95	3.47	2.17	6.50					
55	59.62	3.23	1.93	6.38					
60	55.89	3.03	1.73	6.23					
65	52.65	2.85	1.55	6.06					
70	49.79	2.70	1.40	5.88					
75	47.26	2.56	1.26	5.68					
90	41.11	2.23	0.93	5.01					
105	36.50	1.98	0.68	4.27					
120	32.89	1.78	0.48	3.48					

APPENDIX E

Hydrovex Vortex Flow Regulator



HYDROVEX® VHV/SVHV
Vertical Vortex Flow Regulator
CSO, SSO, Stormwater Management

WATER TECHNOLOGIES

HYDROVEX® VHV / SVHV Vertical Vortex Flow Regulator

Application

One of the major problems of urban wet weather flow management is the runoff generated by heavy rainfall. During a storm event, uncontrolled flows may overload the drainage system and cause flooding. Wear and deterioration on the network are increased dramatically as a result of increased flow velocities. In a combined sewer system, the wastewater treatment plant will experience a significant increase in flows during storms, thereby losing its treatment efficiency. A simple means of managing excessive storm water runoff is to control the flows at their point of origin, the manhole.

The HYDROVEX® VHV / SVHV line of vortex flow regulators is ideal for point source control of low to medium stormwater flows in manholes, catch basins and other retention structures. The HYDROVEX® VHV / SVHV design is based on the fluid mechanics principle of the forced vortex. The discharge is controlled by an air-filled vortex which reduces the effective water passage area without physically reducing orifice size. This effect grants precise flow regulation without the use of moving parts or electricity, and allows for larger inlet and outlet openings compared to the basic orifice. Although the concept is quite simple, many years of research and testing have been invested to optimize the performance of our vortex technology.

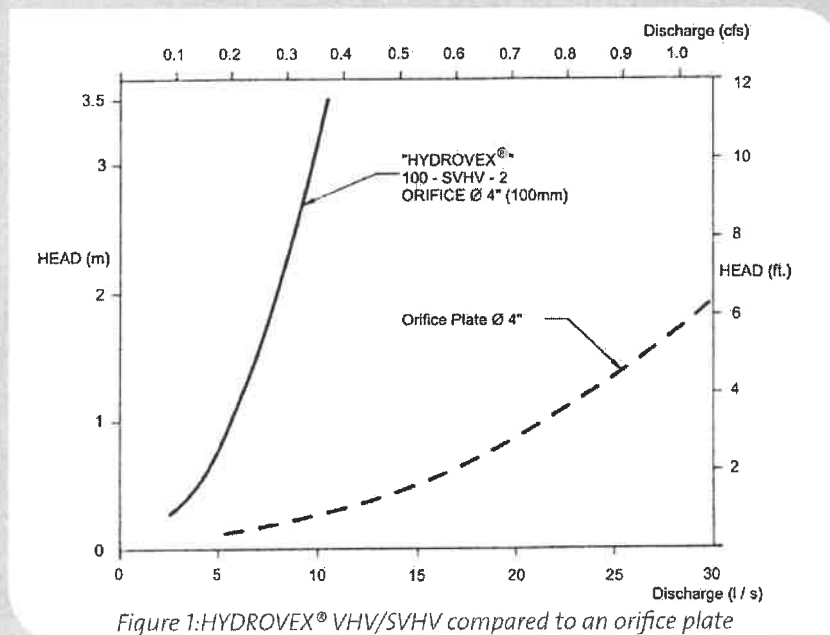


Figure 1: HYDROVEX® VHV/SVHV compared to an orifice plate

Vortex valves have openings typically 4 to 6 times larger than an orifice plate for the same design. Larger opening sizes decrease the chance of blockage caused by sediments and debris found in storm water flows. Figure 1 shows

the discharge curve of a vortex regulator compared to an equally sized orifice plate. For an identical opening size, the flow is approximately four times smaller than the orifice plate for the same upstream water pressure.

Advantages

- Large inlet/outlet openings reduce the chance of clogging
- Openings typically 4-6 times larger than the basic orifice (Figure 1)
- Outlet orifice always equal or larger than inlet
- Ideal for precise control of low to medium stormwater flow applications
- Submerged inlet for floatables control
- No moving parts or electricity required
- Durable and robust stainless steel construction
- Minimal maintenance
- Easy to install

Selection

Selecting a VHV/SVHV regulator is easily achieved using Figure 3. Each selection is made using the maximum allowable flow rate and the maximum allowable upstream water pressure (head). The area in which the design point falls will designate the required model. The maximum design head is defined

as the difference between the maximum upstream water level and the invert of the outlet pipe. All selections should be verified by a John Meunier Inc. representative prior to fabrication.

Design example:

- Maximum discharge: 6 L/s (0.2 cfs)*
- Maximum design head 2m (6.56 ft.)**
- Using Figure 3, model 75 VHV-1 is selected

**The selection chart provided assumes free flowing downstream conditions. Should the outlet pipe be >80% full at design flow, a larger pipe diameter should be used. In the above example, the minimum outlet pipe diameter and slope would be 150mm (6in), 0.3%.*

***The design head is defined as the difference between the maximum upstream water level and the outlet pipe invert.*

The HYDROVEX® VHV / SVHV vortex flow regulators can be installed in circular or square manholes. The table below lists the minimum dimensions and clearances required for each

regulator model. It is imperative to respect the minimum clearances shown to ensure ease of installation and proper functioning of the regulator.

Model	Regulator Diameter A (mm) [in]	CIRCULAR Minimum Manhole Diameter B (mm) [in]	SQUARE Minimum Chamber Width B (mm) [in]	Minimum Outlet Pipe Diameter C (mm) [in]	Minimum Clearance H (mm) [in]
25 SVHV-1	125 [5]	600 [24]	600 [24]	150 [6]	150 [6]
32 SVHV-1	150 [6]	600 [24]	600 [24]	150 [6]	150 [6]
40 SVHV-1	200 [8]	600 [24]	600 [24]	150 [6]	150 [6]
50 VHV-1	150 [6]	600 [24]	600 [24]	150 [6]	150 [6]
75 VHV-1	250 [10]	600 [24]	600 [24]	150 [6]	150 [6]
100 VHV-1	325 [13]	900 [36]	600 [24]	150 [6]	200 [8]
125 VHV-2	275 [11]	900 [36]	600 [24]	150 [6]	200 [8]
150 VHV-2	350 [14]	900 [36]	600 [24]	150 [6]	225 [9]
200 VHV-2	450 [18]	1200 [48]	900 [36]	200 [8]	300 [12]
250 VHV-2	575 [23]	1200 [48]	900 [36]	250 [10]	350 [14]
300 VHV-2	675 [27]	1600 [64]	1200 [48]	250 [10]	400 [16]
350 VHV-2	800 [32]	1800 [72]	1200 [48]	300 [12]	500 [20]

Figure 2a: Minimum dimensions and clearances, circular manhole

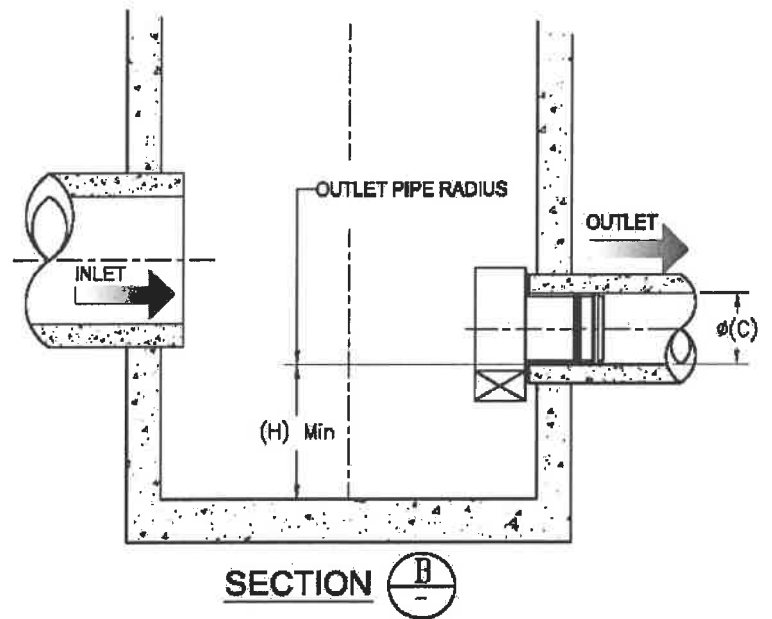
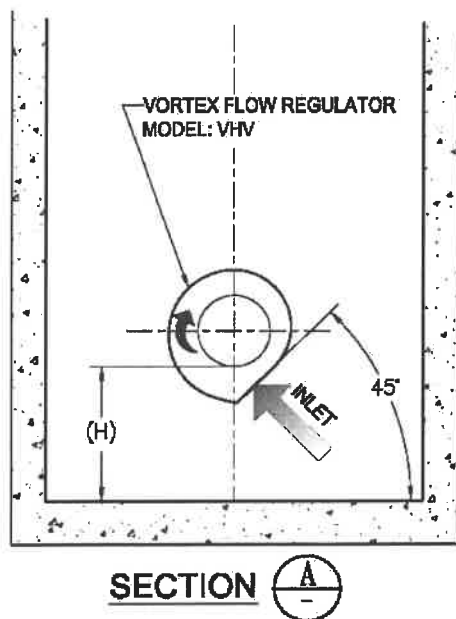
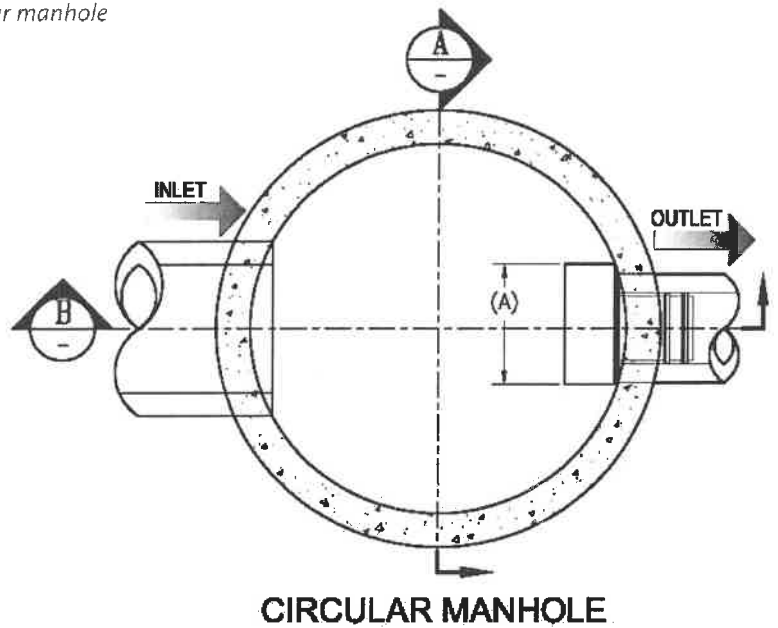
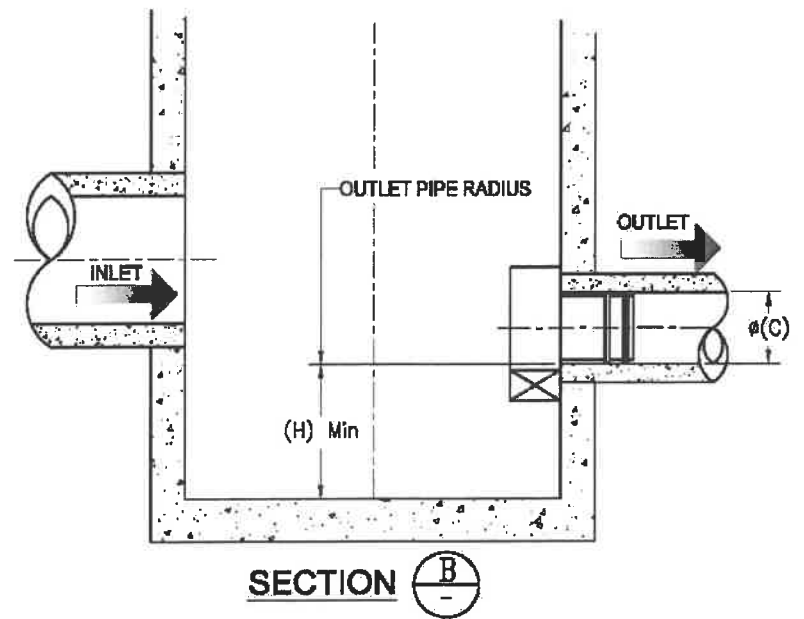
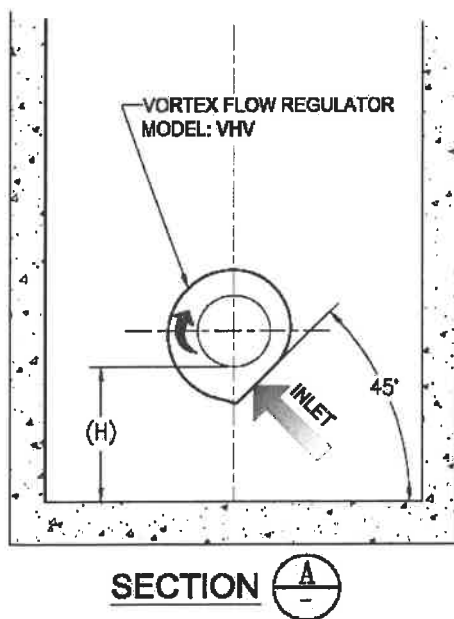
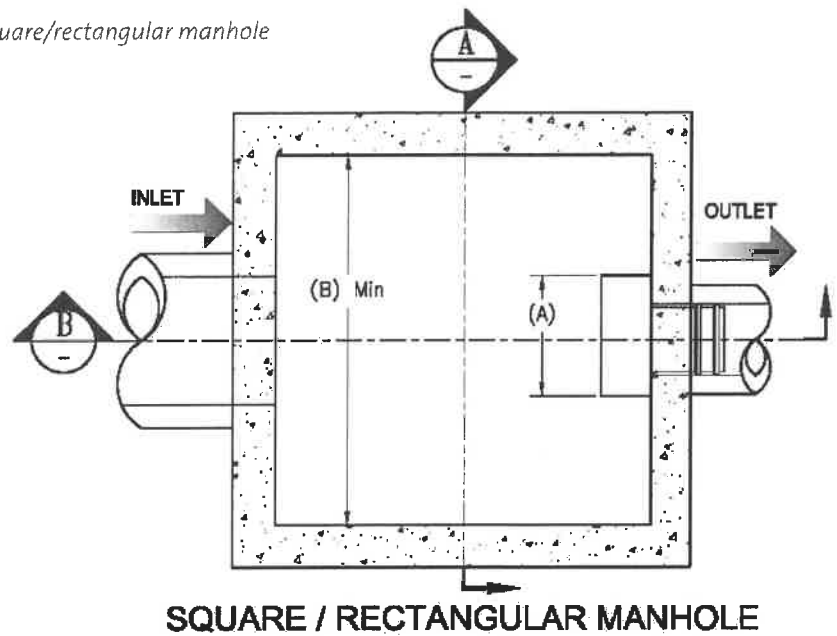


Figure 2b: Minimum dimensions and clearances, square/rectangular manhole



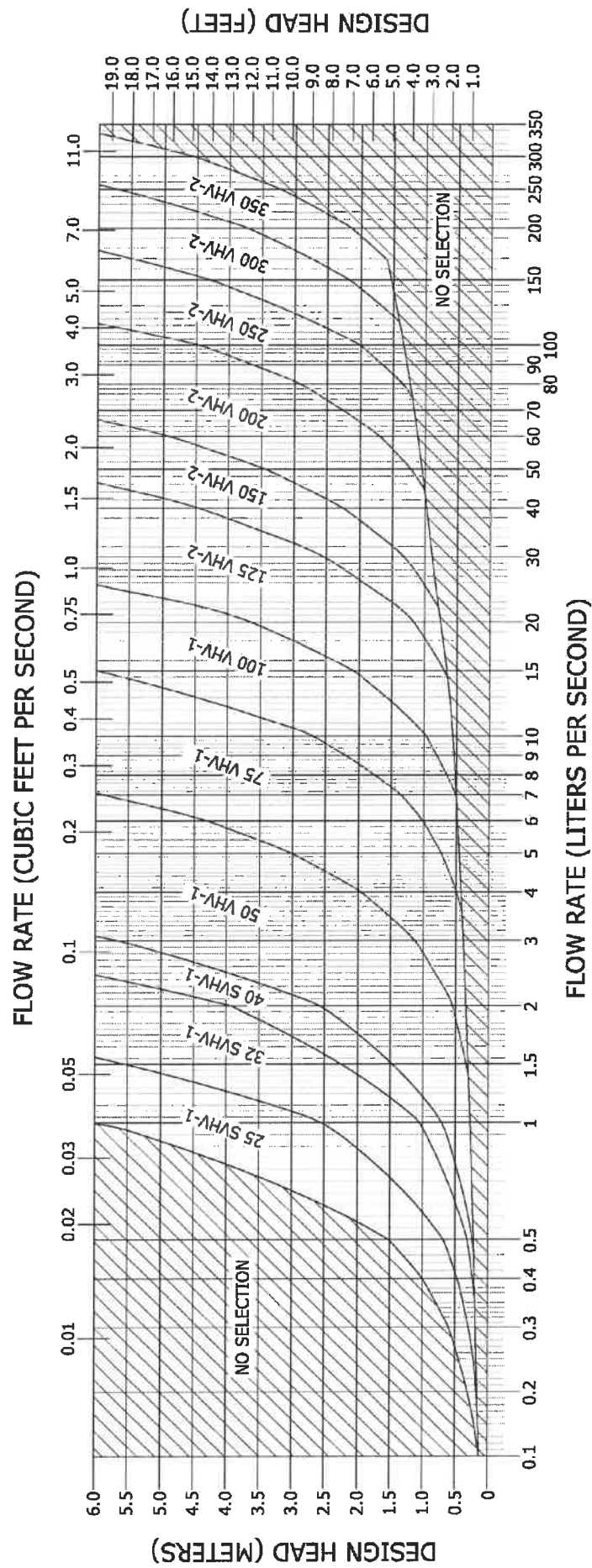


Figure 3 : HYDROVEX® VHV/SVHV Selection Chart

Options

A variety of options are available for the HYDROVEX® VHV / SVHV vortex flow regulators, including:

- Type O: extended inlet for odor control
- FV-VHV: sliding plate mounted
- Gooseneck: for shallow or no sump installations
- Vent: for low slope applications

DT: roof drainage applications

Specifications

In order to specify a HYDROVEX® VHV/SVHV flow regulator, the following parameters must be clearly indicated:

- Model number, ex: 75-VHV-1
- Outlet pipe diameter and type, ex: \varnothing 150mm [6"], SDR 35
- Design discharge rate, ex: 6.0 L/s [0.21 CFS]
- Design head, ex: 2.0 m [6.56 ft] *
- Manhole diameter, ex: \varnothing 900 mm [\varnothing 36"]
- Minimum clearance "H", ex: 150 mm [6 in]
- Construction material type (304 stainless steel standard)

**The design head is defined as the difference between the maximum upstream water level and the outlet pipe invert.*

Installation

The installation of a HYDROVEX® VHV/SVHV flow regulator can be accomplished quickly and does not require any special tools. The sleeve of the vortex flow regulator is simply inserted into the outlet pipe of the manhole and the unit is then secured to the concrete wall using the supplied anchor.

Maintenance

HYDROVEX® regulators are designed to minimize maintenance requirements. We recommend a periodic visual inspection in order to ensure that the unit is free of debris. The manhole sump beneath the unit should be inspected and cleaned with a vacuum truck periodically to remove accumulated sediments.

Guaranty

The HYDROVEX® line of VHV / SVHV regulators are guaranteed against both design and manufacturing defects for a period of 5 years after sale. The unit will be modified or replaced should it be found to be defective within the guarantee period.

APPENDIX F

Development Servicing Study Checklist

**58 FLORENCE STREET, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST**

4.1 General Content	Addressed (Y/N/NA)	Comments
Executive Summary (for larger reports only).	N/A	
Date and revision number of the report.	Y	
Location map and plan showing municipal address, boundary, and layout of proposed development.	Y	
Plan showing the site and location of all existing services.	Y	
Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	N	
Summary of Pre-consultation Meetings with City and other approval agencies.	Y	
Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria.	N/A	
Statement of objectives and servicing criteria.	Y	
Identification of existing and proposed infrastructure available in the immediate area.	Y	
Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A	
Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighboring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	N/A	

4.1 General Content	Addressed (Y/N/NA)	Comments
Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A	
Proposed phasing of the development, if applicable.	N/A	
Reference to geotechnical studies and recommendations concerning servicing.	Y	
All preliminary and formal site plan submissions should have the following information:		
Metric scale	Y	
North arrow (including construction North)	Y	
Key plan	Y	
Name and contact information of applicant and property owner	Y	
Property limits including bearings and dimensions	Y	

**58 FLORENCE STREET, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST**

Existing and proposed structures and parking areas	Y	
Easements, road widening and rights-of-way	Y	
Adjacent street names	Y	

4.2 Water	Addressed (Y/N/NA)	Comments
Confirm consistency with Master Servicing Study, if available.	N/A	
Availability of public infrastructure to service proposed development.	Y	
Identification of system constraints.	N/A	
Identify boundary conditions.	Y	Provided by City of Ottawa
Confirmation of adequate domestic supply and pressure.	Y	
Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Y	
Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Y	
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design.	N/A	
Address reliability requirements such as appropriate location of shut-off valves.	Y	
Check on the necessity of a pressure zone boundary modification.	N/A	
Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Y	
Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Y	
Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A	
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Y	
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A	

58 FLORENCE STREET, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST

4.3 Wastewater	Addressed (Y/N/NA)	Comments
Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed	Y	
Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A	
Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A	
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Y	
Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	N/A	
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Y	
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Y	
Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A	
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A	
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A	
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A	
Special considerations such as contamination, corrosive environment etc.	N/A	

58 FLORENCE STREET, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST

4.4 Stormwater	Addressed (Y/N/NA)	Comments
Description of drainage outlets and downstream constraints including legality of outlet (i.e. municipal drain, right-of-way, watercourse, or private property).	Y	
Analysis of the available capacity in existing public infrastructure.	N/A	The allowable flow was provided by the City of Ottawa.
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns and proposed drainage patterns.	Y	
Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Y	
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	N/A	
Description of stormwater management concept with facility locations and descriptions with references and supporting information.	Y	
Set-back from private sewage disposal systems.	N/A	
Watercourse and hazard lands setbacks.	N/A	
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A	
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A	
Storage requirements (complete with calcs) and conveyance capacity for 5 yr and 100 yr events.	Y	
Identification of watercourse within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A	
Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Y	
Any proposed diversion of drainage catchment areas from one outlet to another.	N/A	
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and SWM facilities.	Y	
If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A	

**58 FLORENCE STREET, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST**

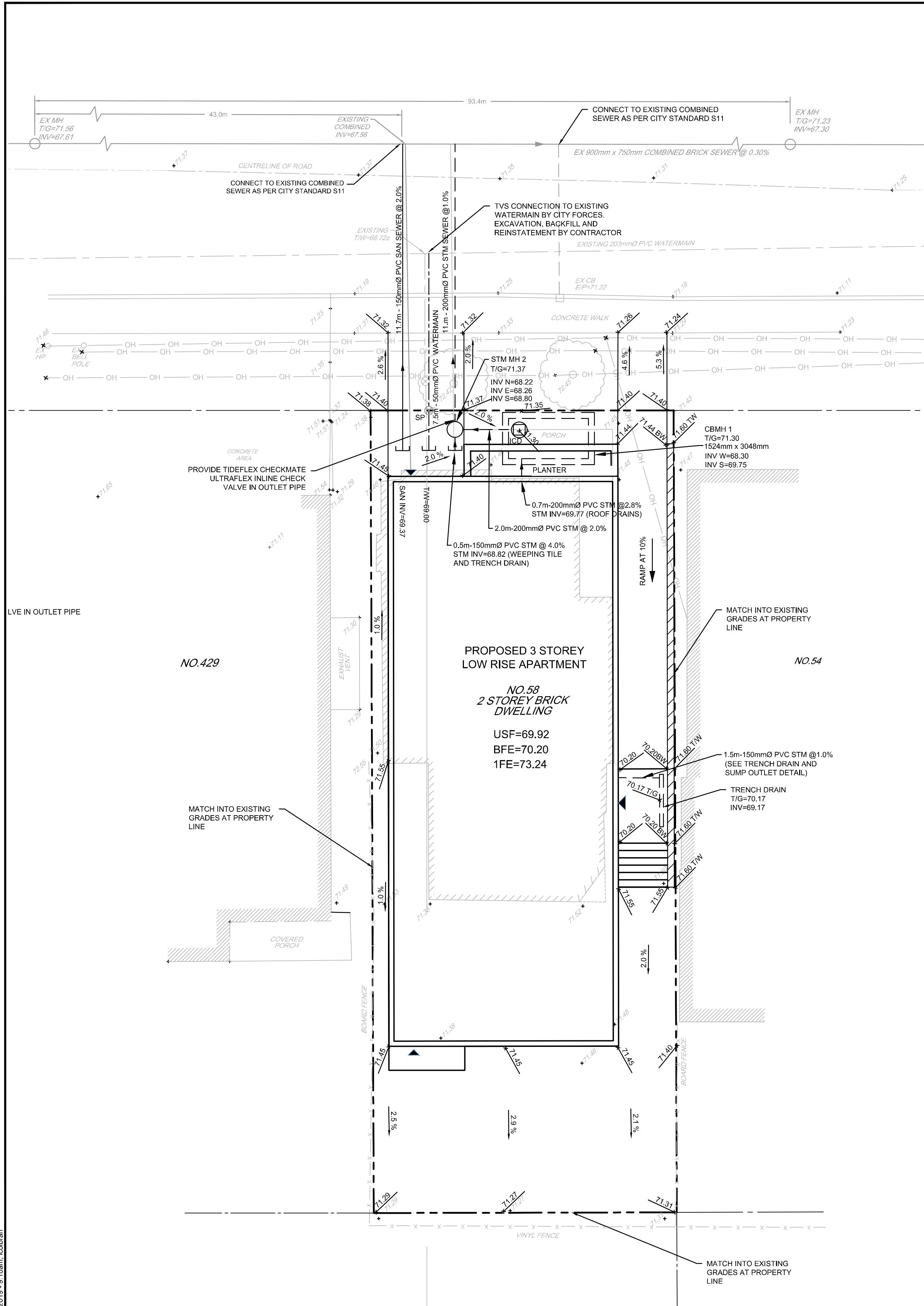
4.4 Stormwater	Addressed (Y/N/NA)	Comments
Identification of municipal drains and related approval requirements.	N/A	
Description of how the conveyance and storage capacity will be achieved for the development.	Y	
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	N/A	
Inclusion of hydraulic analysis including HGL elevations.	N/A	
Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Y	
Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A	
Identification of fill constraints related to floodplain and geotechnical investigation.	N/A	

4.5 Approval and Permit Requirements	Addressed (Y/N/NA)	Comments
Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A	
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A	
Changes to Municipal Drains.	N/A	
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A	

4.6 Conclusion	Addressed (Y/N/NA)	Comments
Clearly stated conclusions and recommendations.	Y	
Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	N	TBD
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	

APPENDIX G

Engineering Drawings



GENERAL NOTES:

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00, INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL ELEVATIONS ARE GEODETIC.
- REFER TO GEOTECHNICAL REPORT (#190196, DATED JUNE 05, 2019), PREPARED BY KOLLARD ASSOCIATES FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS, THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
- REFER TO STORMWATER MANAGEMENT REPORT (R-2019-777) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE/PARKING PAINTING.

SEWER NOTES:

- SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
SEWER TRENCH	S6	CITY OF OTTAWA
100mmØ STORM SERVICE	PVC DR 28	
135mmØ SANITARY SERVICE	PVC DR 28	
- ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.1 OR S14.2.
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.5m COVER WITH H140 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL), THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.

WATERMAIN NOTES:

- SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS, EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS, SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OF OTTAWA FORCES.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
INSULATION ADJACENT TO OPEN STRUCTURES	W23	CITY OF OTTAWA
19mmØ WATER SERVICE COPPER TYPE K	W26	CITY OF OTTAWA
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.
- PROPOSED WATER SERVICES ARE TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

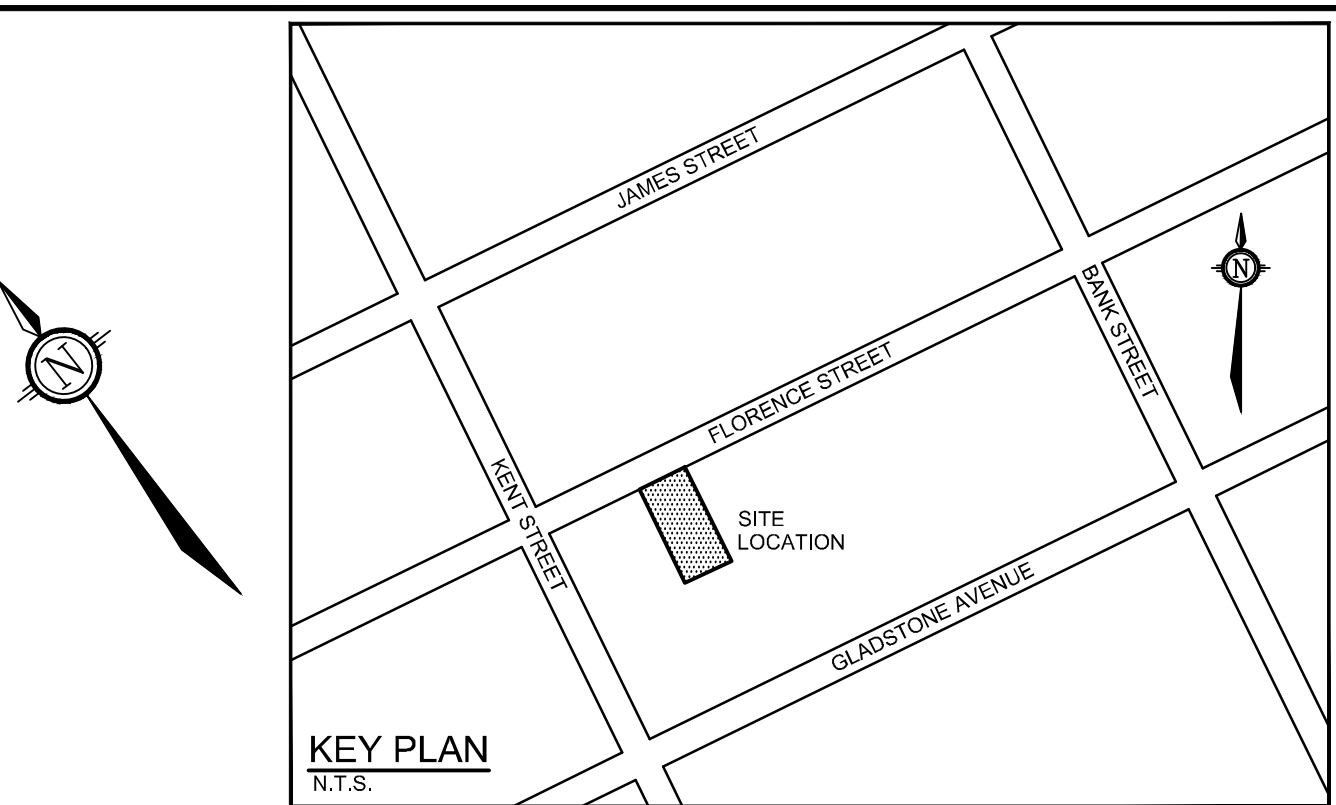
GRADING NOTES:

- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
- EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
- ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
- MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
- MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
- ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
- ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
- REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES:

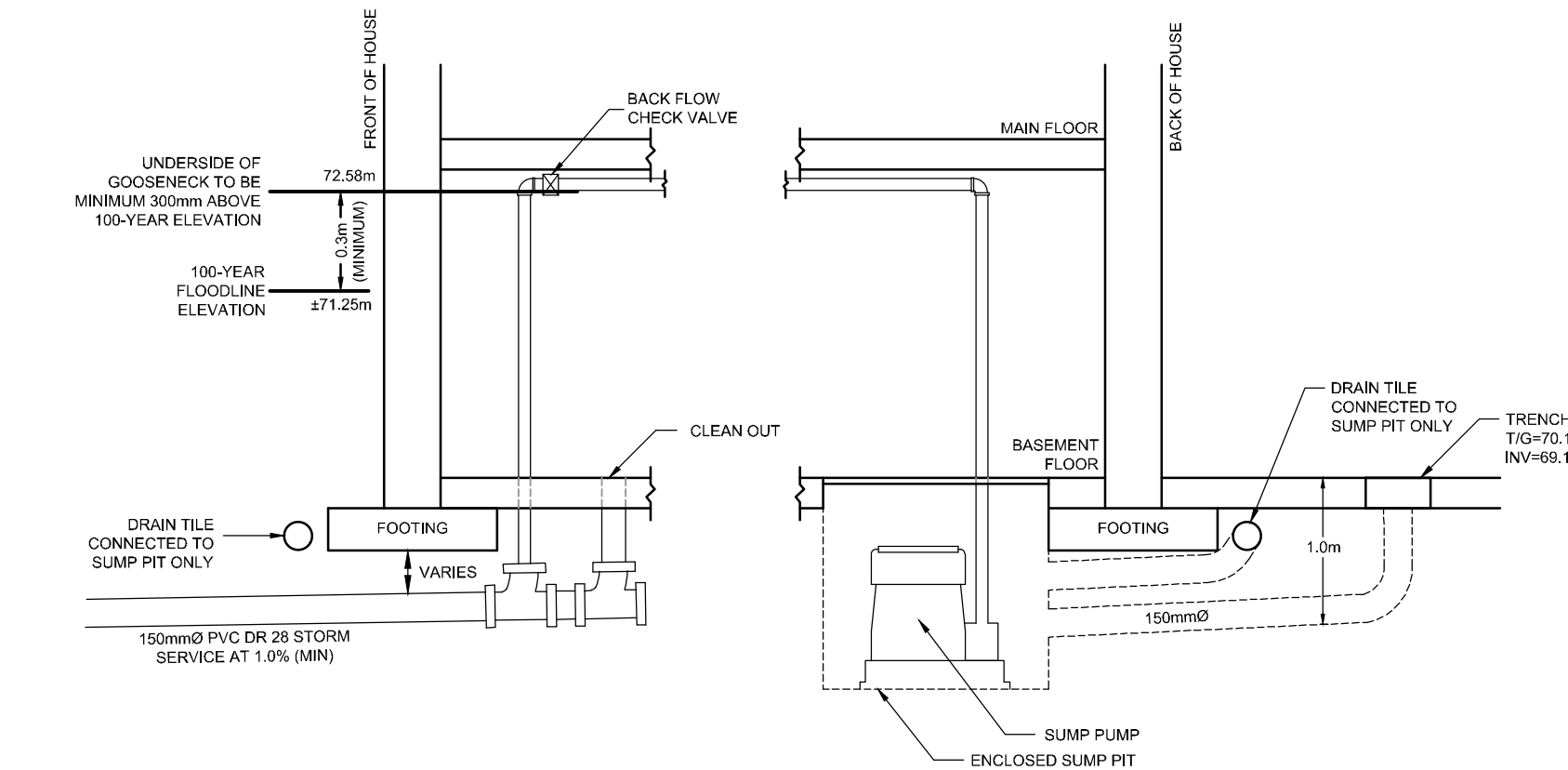
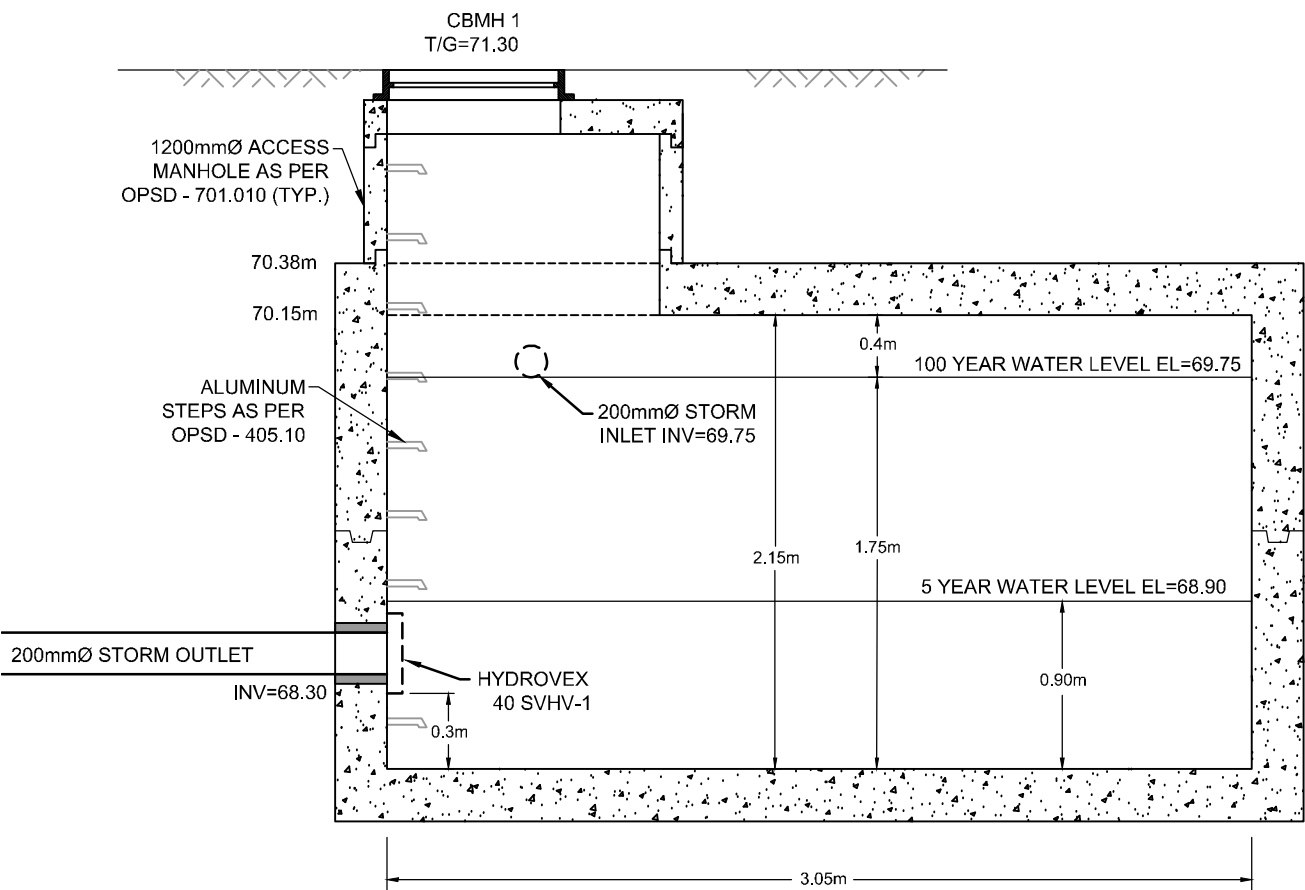
- THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
- THE CONTRACTOR SHALL PLACE FILTER CLOTH UNDER THE CATCHBASIN AND MANHOLE GRATES FOR THE DURATION OF CONSTRUCTION AND WILL REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION.
- SILT FENCING FOR ENTIRE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION.
- THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

INLET CONTROL DEVICE DATA - CBMH 1					
DESIGN EVENT	ICD TYPE (VORTEX MODEL)	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	DESIGN HEAD (m)	STORAGE VOLUME (m³)
1.5-YR	HYDROVEX 40 SVHV-1	200	1.1	0.6	2.8
1:100 YR	HYDROVEX 40 SVHV-1	200	1.3	1.45	6.7



LEGEND

- | | |
|-------------------------------------|------------------------------------|
| PROPERTY LINE | DIRECTION OF MAJOR OVERLAND FLOW |
| PROPOSED SANITARY SERVICE | EXISTING OVERHEAD WIRES |
| PROPOSED STORM SERVICE | EXISTING CONCRETE CURB |
| PROPOSED WATER SERVICE | EXISTING SANITARY MANHOLE & SEWER |
| PROPOSED STANDPOST | EXISTING STORM MANHOLE & SEWER |
| PROPOSED WATER METER & REMOTE METER | EXISTING CATCHBASIN CW |
| PROPOSED RETAINING WALL | EXISTING CATCHBASIN LEAD |
| PROPOSED ELEVATION | EXISTING HYDRANT & VALVE |
| EXISTING ELEVATION | EXISTING TREES / VEGETATION |
| PROPOSED TOP OF WALL ELEVATION | EXISTING UTILITY POLE CW GUY WIRES |
| PROPOSED BOTTOM OF WALL ELEVATION | EXISTING FENCE |
| GRADE AND DIRECTION | EXISTING WATERMAIN |
| | EXISTING HYDRANT CW VALVE & LEAD |



NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

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No.	REVISION	mm/dd/yy	BY

DESIGN	
LSC/MS	
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DRAWN	LSC
CHECKED	MS
APPROVED	MS

FOR REVIEW ONLY



NOVATECH

Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
58 FLORENCE STREET

DRAWING NAME

GRADING, SERVICING AND EROSION
& SEDIMENT CONTROL PLAN

PROJECT No.

119051

REV

REV 1

DRAWING No.

119051-GS

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1	ISSUED FOR SITE PLAN APPLICATION	JULY 18/19	MS	
No.	REVISION	nm/dd/yy	BY	

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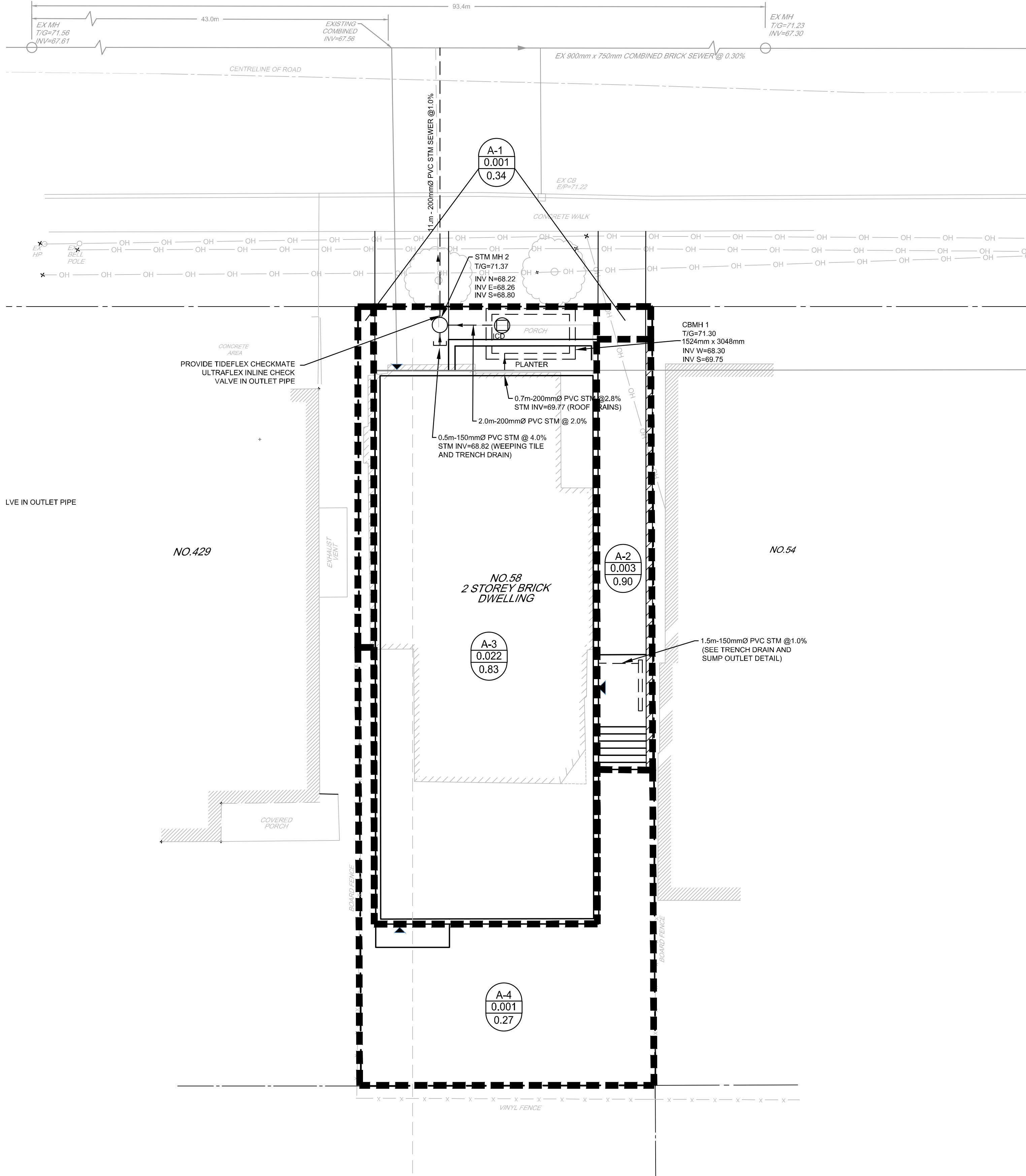
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FOR REVIEW ONLY

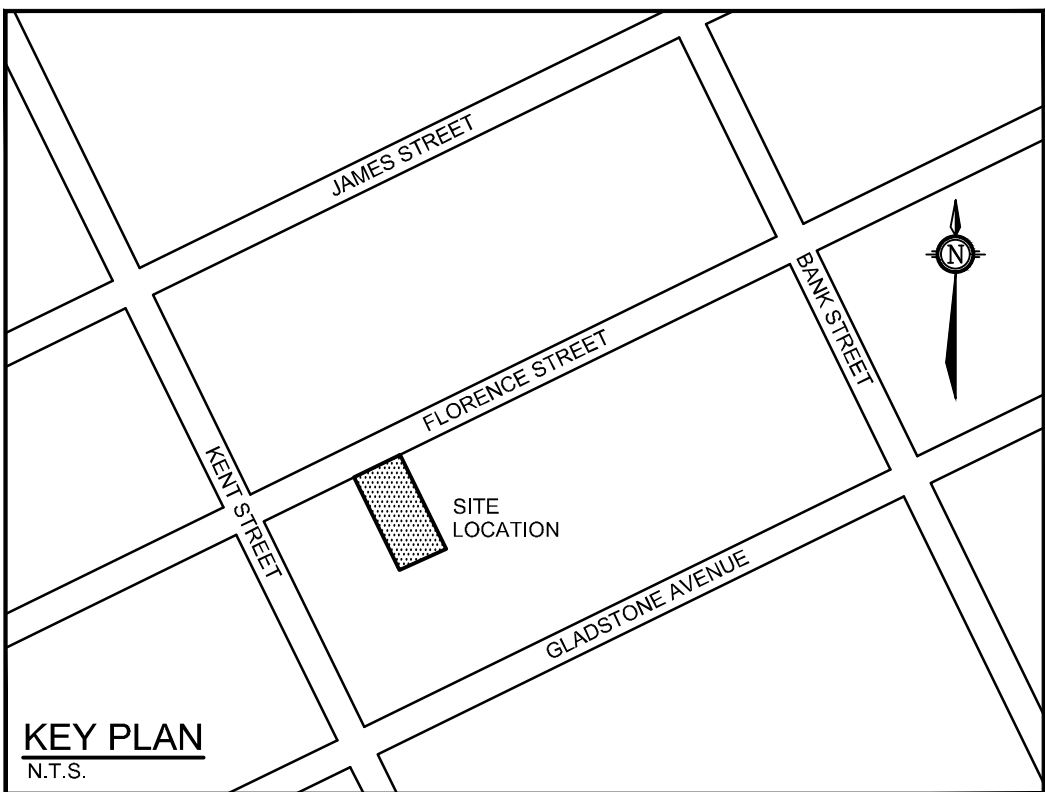
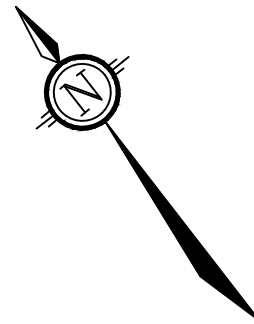


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LOCATION CITY OF OTTAWA 58 FLORENCE STREET	PROJECT No. 119051
DRAWING NAME STORMWATER MANAGEMENT PLAN	REV REV 1
	DRAWING No. 119051-SWM



INLET CONTROL DEVICE DATA - CBMH 1					
DESIGN EVENT	ICD TYPE (VORTEX MODEL)	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	DESIGN HEAD (m)	STORAGE VOLUME (m³)
1:5 YR	HYDROVEX 40 SVHV-1	200	1.1	0.6	2.8
1:100 YR	HYDROVEX 40 SVHV-1	200	1.3	1.45	6.7



LEGEND

- PROPERTY LINE
- PROPOSED STORM SERVICE
- PROPOSED RETAINING WALL
- DIRECTION OF MAJOR OVERLAND FLOW
- EXISTING OVERHEAD WIRES
- EXISTING CONCRETE CURB
- EXISTING SANITARY MANHOLE & SEWER
- EXISTING STORM MANHOLE & SEWER
- EXISTING CATCHBASIN C/W CATCHBASIN LEAD
- EXISTING HYDRANT & VALVE
- EXISTING TREES / VEGETATION
- EXISTING UTILITY POLE C/W GUY WIRES
- EXISTING FENCE
- PROPOSED DRAINAGE AREA
- CATCHMENT I.D.
DRAINAGE AREA IN HECTARES
C VALUE