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90 Champagne Avenue South Development Servicing and Stormwater Management Report



Engineering excellence. Planning precision. Inspired landscapes.

90 CHAMPAGNE AVENUE SOUTH

**DEVELOPMENT SERVICING AND
STORMWATER MANAGEMENT REPORT**

Prepared by:

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

March 22, 2019

Ref: R-2019-050
Novatech File No. 119013

March 22, 2019

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

Attention: Mr. John Wu

Dear Sir:

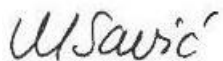
**Re: Development Servicing and Stormwater Management Report
90 Champagne Avenue South
Ottawa, Ontario
Our File No.: 119013**

Enclosed herein is the 'Development Servicing and Stormwater Management Report' for the proposed development located at 90 Champagne Avenue South, 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

cc: Robert Verch (Roderick Lahey Architect Inc.)

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- Appendix C: Sanitary Sewer, Watermain and Fire Flow Calculations
- Appendix D: Stormwater Management Calculations
- Appendix E: Excerpt from D. B. Grey Engineering Inc. Servicing Brief and Stormwater Management Report
- Appendix F: Development Servicing Study Checklist
- Appendix G: Engineering Drawings

LIST OF DRAWINGS

- Grading and Erosion & Sediment Control Plan (119013-GR)
- General Plan of Services (119013-GP)
- Stormwater Management Plan (119013-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 development at 90 Champagne Avenue South in the City of Ottawa.

The subject site is currently occupied by a parking lot serving the existing residential building immediately to the west (285 Loretta Avenue). The site has recently been severed from the 285 Loretta Avenue property. An aerial photo of the subject site is shown in Figure 1.1 below.

Figure 1.1: Aerial Plan provides an aerial view of the site.



1.1 Consultation and Reference Material

A pre-consultation meeting was held with the City of Ottawa at which time the owner was advised of the general submission requirements. Further discussions were held with the City of Ottawa

regarding the approach to stormwater management for the site. Refer to **Appendix A** for a summary of the e-mail correspondence with the City of Ottawa.

The following reference material was reviewed. Relevant report excerpt and plans are provided in **Appendix E**.

- Servicing Brief and Stormwater Management Report, 285 Loretta Avenue South, prepared by D.B. Gray Engineering Inc., dated July 26, 2017.
- Site Servicing Plan, Property Severance 285 Loretta Avenue South, prepared by D.B. Gray Engineering Ltd., November 6, 2017
- Grading Plan & Notes, Property Severance 285 Loretta Avenue South, prepared by D.B. Gray Engineering Ltd., November 6, 2017

2.0 PROPOSED DEVELOPMENT

The proposed development is a 14-storey residential building containing 236 dwellings and ground-floor amenity space for residents. A total of 100 parking spaces within a two-level underground parking garage have been proposed to serve the development.

The site will have two accesses off Champagne Avenue South, one near the north property line and one near the south property line. The northerly access will exclusively serve the parking garage for the proposed development. The southerly access will exclusively serve the parking garage of the existing residential building immediately west of the subject site (285 Loretta Avenue South). 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**.

As mentioned previously, the subject site has been recently severed from the 285 Loretta Avenue South property. The 285 Loretta Avenue South services (storm, sanitary, hydro, telephone and cable) crossing the existing parking lot have been disconnected and new services are constructed within the proposed southerly access driveway connecting the 285 Loreta Avenue South parking garage with Champagne Avenue South.

The design of the new 285 Loretta Avenue services as well as the grading design for the southerly access driveway has been completed by D.B. Gray Engineering Inc. An excerpt from 'Servicing Brief and Stormwater Management Report', 'Site Servicing Plan', and 'Grading Plan & Notes', prepared by D.B. Gray are enclosed in **Appendix E**.

3.1 Water

The proposed development will be serviced by a 200mm dia. water service connected to the existing 200mm dia. watermain in Champagne Avenue South.

The proposed building will be sprinklered. The fire protection will be provided from the existing municipal fire hydrant in Champagne Avenue South near the southeast corner of the property. The hydrant is located within a 45m unobstructed path from the proposed fire department siamese connection.

The theoretical water demand for the proposed development, calculated as per the Ottawa Design Guidelines – Water Distribution is summarized in **Table 3.2**. Detailed calculations are shown in **Appendix C**.

Table 3.2.1: Water Demand

Average Day Demand	Maximum Day Demand	Peak Hour Demand
1.49 L/s	3.74 L/s	8.22 L/s

The Fire Underwriter's Survey (FUS) was used to estimate fire flow demands for the proposed building. The calculated fire flow demand is 100 L/s (6000 L/min). Refer to **Appendix C** for detailed calculations.

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 1**.

Table1: Water Analysis Results Summary

Condition	Water Demand	Min/Max Allowable Operating Pressures	Limits of Design Operating Pressures
High Pressure	1.49 L/s	80 psi (Max)	70.7 psi
Max Day + Fire Flow	103.74 L/s	20 psi (Min)	49.1 psi
Peak Hour	8.22 L/s	40 psi (Min)	60.0 psi

The results of the water analysis show there is adequate flow and pressure in the existing 200mm watermain in Champagne Avenue South to meet the required domestic and fire flow demands.

3.2 Sanitary Sewer

The proposed development will be serviced by connecting a 200 mm dia. sanitary service to the existing 1050mm diameter sanitary sewer in Champagne Avenue South. The proposed 200 mm dia. sanitary service will be a gravity pipe at a minimum slope of 1.0% with a full flow conveyance capacity of at least 34.2 L/s. The existing 1050mm diameter sanitary sewer in Champagne Avenue south at 0.20% slope has a full flow capacity of approximately 1274 L/s.

The calculated peak sanitary flow from the site, including infiltration, is 3.95 L/s. The flow has been calculated as per the City of Ottawa Sewer Design Guidelines. Refer to **Appendix C** for detailed calculations. The proposed 200mm diameter sanitary service has sufficient capacity to convey anticipated sanitary flows generated from the proposed development.

3.3 Stormwater Management

The stormwater management design for the proposed development will include on-site water quantity control prior to releasing flows from the site. The proposed development will be serviced by connecting to the existing 1050mm diameter storm sewer in Champagne Avenue South.

Stormwater management will be provided by an underground storage tank. Further details on the sub catchment drainage areas are explained in subsequent sections of the report. See the Stormwater Management Plan (119013-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 paved parking lot serving the 285 Loretta Avenue South residential building. The existing parking lot drains towards the on-site catch basins that are connected to the 1050mm diameter storm sewer in Champagne Avenue South.

The storm service from 285 Loretta Avenue that crosses the existing parking lot has been recently disconnected and a new 300mm diameter storm sewer has been constructed within the proposed southerly access driveway to service 285 Loreta Avenue.

The design of the new 300mm diameter storm sewer as well as the grading and drainage design of the southerly access driveway connecting 285 Lorretta Avenue with Champagne Avenue South has been completed by D.B. Gray Engineering Inc. Refer excerpt for from 'Servicing Brief and Stormwater Management Report', 'Site Servicing Plan', and 'Grading Plan & Notes', prepared by D.B. Grey enclosed in **Appendix E**.

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:

- Provide a dual drainage system (i.e. minor and major system flows).
- Control 1:100 year post-development flow from the site to the maximum 1:5 year allowable release rate as specified by the City of Ottawa. Post-development runoff in excess of the allowable release rate will be stored and controlled on site prior to being release into the municipal storm sewer system in Champagne Avenue South.
- 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 two distinct storm drainage areas for the post-development condition. The size and location of the catchment areas are based on the proposed 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 (119013-SWM). A brief description of the subcatchment areas are as follows:

- Runoff from the landscaped area in front of the building will sheet drain towards catchbasins in Champagne Avenue South (Area A-1).
- Runoff from the building roof and landscaped areas at the back of the building (Area A-2) will be controlled and stored in the proposed underground stormwater management tank.

3.3.4 Allowable Release Rate

The allowable release rate for the 0.235 ha site was calculated using the Rational Method to be 34.0 L/s. This release rate was based on an the runoff coefficient of $C=0.5$ and a 1:5 year rainfall intensity of 104.2 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

Under post-development conditions, the imperviousness of the site will increase. 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 a storage tank prior to the runoff entering the existing municipal storm sewers in Champagne Avenue South. Refer to **Appendix D** for uncontrolled runoff calculations for the sub catchments areas for the site.

Area A-1 – Uncontrolled Landscaped Area

The post-development runoff from subcatchment area A-1 (uncontrolled runoff) was calculated using the Rational Method to be 1.8 L/s for the 1:5 year design event and 3.8 L/s for the 1:100 year design event (refer to **Appendix D** for detailed calculations).

Area A-2 – Controlled Building Roof and Landscaped Area

Stormwater runoff from this sub-catchment area will be captured by roof drains, deck drains and landscaped drains (within the rear yard amenity space) and by a trench drain at the bottom of the ramp to the underground parking level and directed to an internal stormwater storage tank.

Stormwater collected within the storage tank will be pumped up to the proposed storm service and released into the existing storm sewer in Champagne Avenue South. A pump (designed by the mechanical consultant) is required to control flow from the tank to a maximum rate of 30.0 L/s (475 USGPM), which corresponds to the maximum allowable flow for this catchment area. It is anticipated that a “stand-by” pump will be provided for emergency and/or maintenance purposes. An emergency power supply will also likely be provided. The storm service will be equipped with a backflow prevention device to protect the building from any potential sewer back-ups into the tank.

Table 2.3 summarizes the post-development design flows and storage volumes from area A-2 for both the 1:5-year and 1:100-year design events.

Table 2.3: Internal Stormwater Storage Tank and Pumped Flow

Design Event	Post-Development Conditions		
	Design Flow (L/s)	Volume Required (m ³)	Volume Provided (m ³)
1:5 Year	30.0 L/s	11.8 m ³	>42 m ³
1:100 Year	30.0 L/s	41.4 m ³	>42 m ³

Summary of Post-Development Flows

Table 3.4: Post-Development Stormwater Flow Table

Post - Development Flows						
Area	Description	Post-Development Flow (L/s)		Storage Required (m ³)		Provided (m ³)
		5 year	100 year	5 year	100 year	
A-1	Uncontrolled Landscaped Area	1.8	3.8	N/A	N/A	N/A
A-2	Controlled Building Roof and Landscaped Area	30.0	30.0	11.8	41.4	>42
Total Flow =		31.8	33.8			

As indicated in **Table 3.4** the total post-development flow from the sub-catchment areas will be released from the proposed development at a combined maximum rate of 33.8 L/s during the 1:100 year design event and 31.8 L/s during the 1:5 year design event; neither of which exceeds the allowable flow for the site of 34.0 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 roadway and surrounding property lines. The proposed grading design provides positive drainage away from the building and towards the on-site stormwater drainage structures. Refer to the enclosed Grading and Erosion & Sediment Control Plan (119013-GR) for details.

4.1 Major System Overflow Route

In the case of a major rainfall event exceeding the design storms provided for, the stormwater located within the rear yard landscaped area and amenity space will overflow towards Champagne Avenue South at the south side of the building. The major system overflow route is shown on the enclosed Grading and Erosion & Sediment Control Plan (119013-GR).

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 daily 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 and catchbasin manhole drainage 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.
 - After complete build-out, all sewers are to be inspected and cleaned and all sediment and construction fencing is to be removed.
- 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 the Pinchin 'Geotechnical Investigation – Proposed Residential Development' (Report. No. 235750.001), dated March 20, 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 90 Champagne Avenue South, in the City of Ottawa.

The conclusions are as follows:

- The proposed development will be serviced by connecting to the existing municipal sanitary and storm sewer systems and the existing municipal watermain within the Champagne Avenue South Right-Of-Way.
- The proposed building will be sprinklered. The fire protection will be provided from the existing municipal fire hydrant in Champagne Avenue South located within 45m unobstructed path from the proposed fire department siamese connection.
- The site flows from sub-catchment areas A-1 uncontrolled. The flows from sub-catchment area A-2 will be stored in an internal storage tank and controlled by mechanical pumps.
- The total post-development flow from the will be controlled to a maximum of 33.8 L/s during the 1:100 year design event and to 31.8 L/s during the 1:5 year design event. Neither of which exceed the maximum allowable release rate of 34.0 L/s as calculated to meet the City of Ottawa stormwater quantity requirements.
- 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 "L. Sheets".

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

APPENDIX A

Correspondence

Miro Savic

Subject: FW: 1809 - 90 Champagne Avenue South - Submission List
Attachments: Submission list.pdf

From: Jaime Posen <posen@fotenn.com>
Sent: January-16-19 2:03 PM
To: Robert Verch <rverch@rlaarchitecture.ca>
Subject: FW: 90 Champagne Avenue South - Submission List

Hi Rob,

Per your email a moment ago, we received the attached submission list for this application. No specific comments were received.

Hope that's helpful,

Jaime Posen, MCIP RPP
Senior Planner
T 613.730.5709 ext. 236

From: Jaime Posen
Sent: January 2, 2019 3:27 PM
To: Roderick Lahey <rlahey@rlaarchitecture.ca>; kelly@districtrealty.com; Jason Shinder <Jason@districtrealty.com>
Cc: Ghada Zaki <Zaki@fotenn.com>
Subject: 90 Champagne Avenue South - Submission List

Hello team,

Happy new year to all. Please see the attached Submission List for 90 Champagne Avenue South, as provided by Steve Gauthier.

We will continue to prepare our Planning Rationale for the Site Plan application.

Cheers,

Jaime Posen, MCIP RPP
Senior Planner

FOTENN
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T 613.730.5709 ext. 236
fotenn.com

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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	15	1. Site Servicing Plan	2. Site Servicing Study / Brief	S	3
S	15	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		
S	7	9. Transportation Impact Study / Brief	10.Erosion and Sediment Control Plan / Brief	S	3
S	3	11.Storm water Management Report / Brief	12.Hydro geological and Terrain Analysis		
		13.Hydraulic Water main Analysis	14.Noise / Vibration Study (If on-site stationary noise source)		
		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	15	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	15	27.Landscape Plan (showing existing trees)	28.Archaeological Resource Assessment Requirements: S (site plan) A (subdivision, condo)		
S	2	29.Survey Plan	30.Shadow Analysis	S	3
S	3	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	3
S	3	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/Formal Landfill Site		
		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			

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
		43.	44.		

Meeting Date: December 17, 2018

Application Type: Site Plan Control

File Lead (Assigned Planner): Steve Gauthier

Infrastructure Approvals Project Manager: John Wu

Site Address (Municipal Address): 90 Champagne Avenue

*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 and Growth Management 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 and Growth Management Department.

Miro Savic

From: Wu, John <John.Wu@ottawa.ca>
Sent: Thursday, March 07, 2019 2:27 PM
To: Miro Savic
Subject: RE: 90 Champagne Ave S - SWM Criteria

C 0.5, 5 year's storm

From: Miro Savic <m.savic@novatech-eng.com>
Sent: March 7, 2019 2:16 PM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Cara Ruddle <c.ruddle@novatech-eng.com>
Subject: 90 Champagne Ave S - SWM Criteria

Hi John,

Could you please provide the stormwater management criteria for the 90 Champagne Avenue South project.

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

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

,

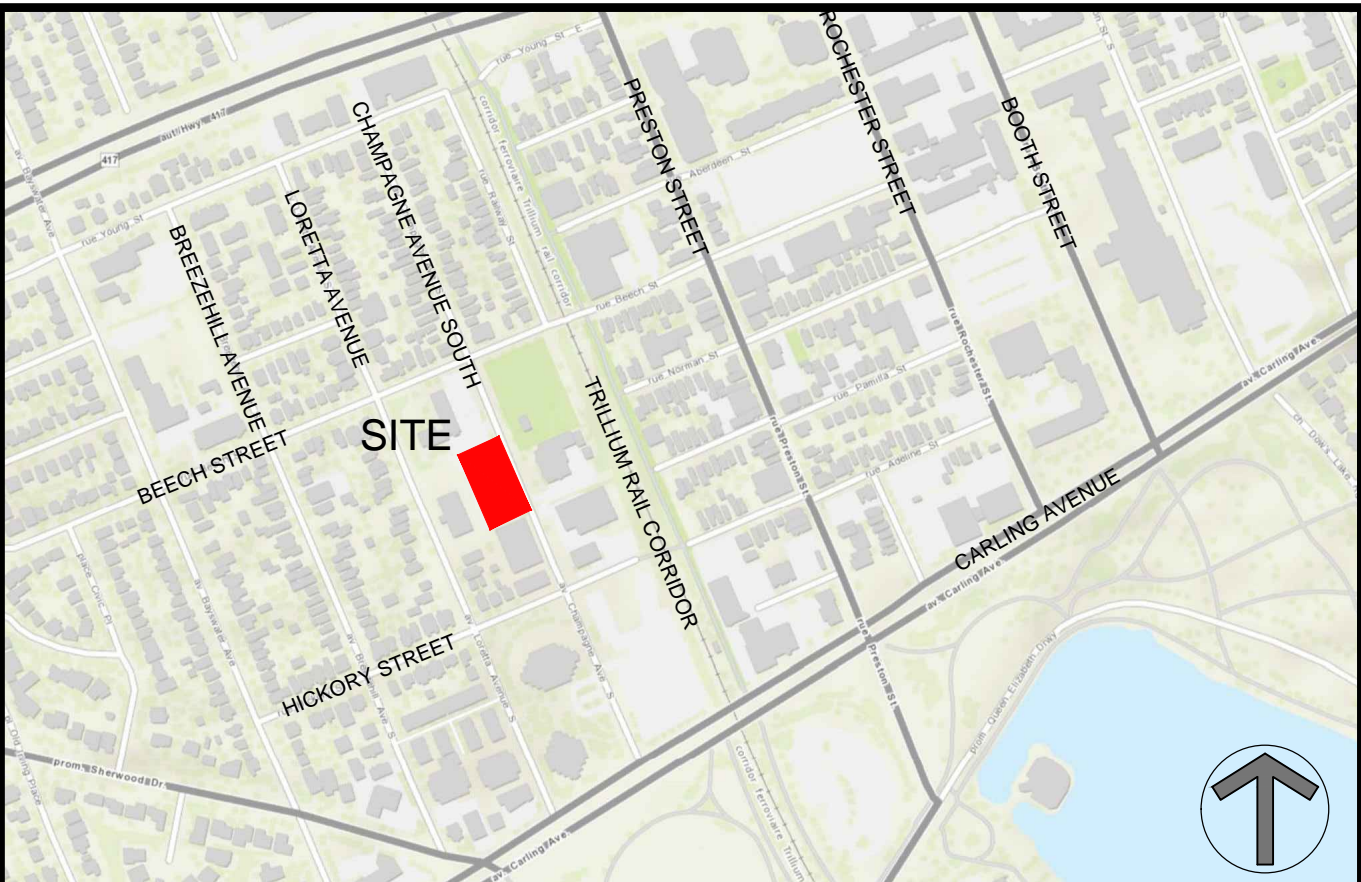
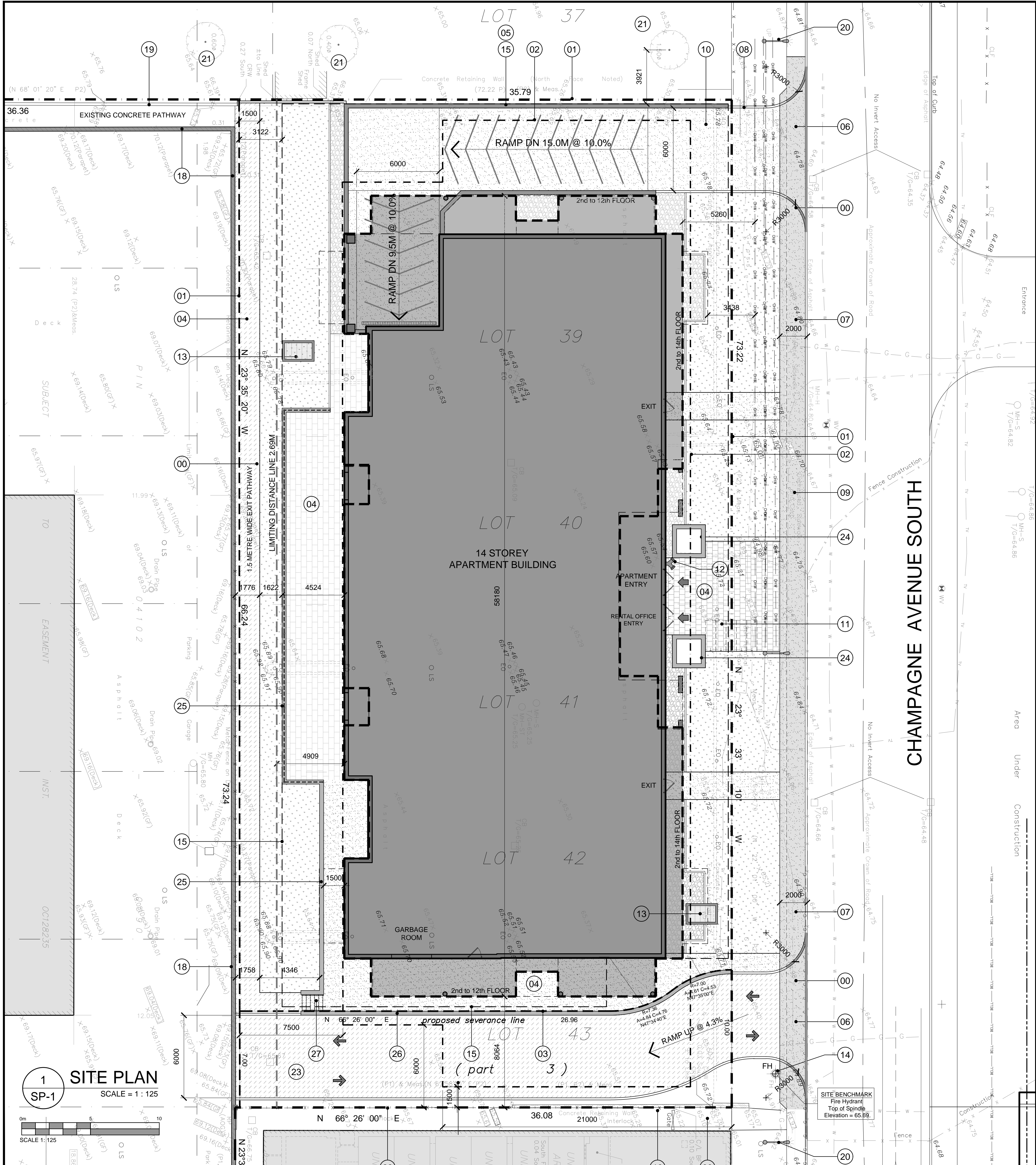
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,

APPENDIX B

Site Plan



- DRAWING NOTES**
- PROPERTY LINE
 - BUILDING SETBACKS
 - EASEMENT LINE
 - HARD SURFACE PAVING, SEE LANDSCAPE PLAN FOR PATTERN AND TYPE
 - PARKING GARAGE ENTRY DRIVEWAY / RAMP WITH TRENCH DRAIN AND RETAINING WALLS AS REQUIRED
 - DEPRESSED CURB & SIDEWALK TO CITY STANDARDS
 - 2.0 M WIDE SIDEWALK & CURB TO CITY STANDARDS
 - 150mm BARRIER CURB
 - REPLACE EXISTING DEPRESSED CURB WITH BARRIER CURB, TO CITY STANDARDS
 - STORM WATER TANK (P1 LEVEL) - SEE CIVIL PLAN
 - BICYCLE PARKING SPACE
 - SIAMSE CONNECTION
 - AIR INTAKE / EXHAUST GRILL
 - EXISTING FIRE HYDRANT
 - OUTLINE OF UNDERGROUND PARKING LEVELS
 - PROPOSED LOCATION OF UNDERGROUND UTILITIES
 - GAS REGULATOR / METER EQUIPMENT AREA
 - EXISTING 1 STOREY COVERED PARKING LEVEL WITH EXPOSED SIDES
 - EXISTING RETAINING WALL & WALK TO REMAIN
 - EXISTING CITY STREET LIGHTING
 - EXISTING TREE
 - EXISTING METAL PICKETS FENCE
 - ASPHALT DRIVE WAY WITH 150 BARRIER CURBS
 - LOW PLANTER WALL WITH SEASONAL PLANTS
 - CONCRETE UNIT LANDSCAPE RETAINING WALL
 - CAST IN PLACE CONCRETE RETAINING WALL WITH CAR BARRIER
 - CONCRETE STEPS WITH HAND RAILINGS AS REQUIRED
- SITE PLAN SYMBOLS**
- CONCRETE UNIT PAVERS SURFACE ±
 - CITY SIDEWALK
 - CONCRETE SURFACE
 - ASPHALT WALK / DRIVEWAY
 - SOFT LANDSCAPING
 - RIVER STONE
 - BIKE RACK
 - TWO WAY VEHICLE CIRCULATION
 - MAIN ENTRANCE
 - COMMERCIAL DOOR / FIRE EXIT
 - PROPERTY LINE
 - CITY STREET LIGHTING

SURVEYOR
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Tel: (819) 775-6705
Email: kallaladesign@xplornet.com

PROJECT INFORMATION	
ZONING	R5B H(42)
SITE AREA	2,619.15 sq. m. (26,192 sq. ft.)
FRONT YARD SETBACK	3.0 M
INTERIOR SIDE YARD SETBACK	1.5 & 6.0 M
REAR YARD SETBACK	7.5 M
LANDSCAPE AREA 30% MINIMUM	1.5 & 6.0
AMENITY SPACE - PER UNIT	6.0 sq. m.

PROJECT STATISTICS	
BUILDING HEIGHT	42.0 M
AVERAGE MEAN GRADE	(GEO. ELEV.) 64.90

GROSS BUILDING - AREAS	
(CITY OF OTTAWA'S DEFINITION)	
PARKING LEVELS (2)	0.0 sq. m. 0.0 sq. ft.
GROUND FLOOR	334.6 sq. m. 3,602 sq. ft.
2nd to 12th FLOOR	11 x 1,108.5 sq. m. 11 x 11,832 sq. ft.
13th & 14th FLOOR	2 x 1,015.1 sq. m. 2 x 10,822 sq. ft.
MECHANICAL LEVEL	0.0 sq. m. 0.0 sq. ft.
TOTAL AREA ABOVE GRADE	14,558.5 sq. m. 156,706 sq. ft.

UNIT STATISTICS	
STUDIO UNIT	22
1 BEDROOM UNIT	146
2 BEDROOM UNIT	63
3 BEDROOM UNIT	5
TOTAL	236

CAR PARKING	
REQUIRED by ZONING BY-LAW	
RESIDENCE	- NOT REQUIRED
VISITOR	- 0.1 PER DWELLING UNIT (AFTER 12 UNITS)
TOTAL	22
PROVIDED	
RESIDENCE	69
VISITOR	22
TOTAL	91

BICYCLE PARKING	
REQUIRED	
RESIDENCE	- 0.5 PER UNIT (236 UNITS)
TOTAL	118
PROVIDED	
BASEMENT LEVEL	132
EXTERIOR	6
TOTAL	138

LOT COVERAGE	
PAVED SURFACE =	482.6 sq. m. 19.3%
BUILDING FOOTPRINT =	1,160.9 sq. m. 46.5%
LANDSCAPE OPEN SPACE =	853.5 sq. m. 34.2%
TOTAL =	2,497 sq. m. 100.0%

AMENITY SPACE	
PRIVATE BALCONIES =	951.0 sq. m.
1st FLOOR COMMUNAL INTERIOR =	317.0 sq. m.
AT GRADE COMMUNAL EXTERIOR =	500.0 sq. m.
TOTAL =	1,768.0 sq. m.
TOTAL COMMUNAL =	817.0 sq. m.
REQUIRED - 6.0M ² PER UNIT (236) =	1,416.0 sq. m.
REQUIRED COMMUNAL @ 50% =	708.0 sq. m.

BUILDING FOOTPRINT AREAS	
(CONSTRUCTION AREA)	
P2 PARKING LEVEL	2,095.2 sq. m. 0.0 sq. ft.
P1 PARKING LEVEL	2,095.2 sq. m. 0.0 sq. ft.
GROUND FLOOR	1,162.4 sq. m. 0.0 sq. ft.
2nd to 12th FLOOR	11 x 1,301.1 sq. m. 11 x 13,883 sq. ft.
13th & 14th FLOOR	2 x 1,197.8 sq. m. 2 x 12,864 sq. ft.
MECHANICAL LEVEL	370.7 sq. m. 0.0 sq. ft.
TOTAL AREA ABOVE GRADE	17,373.4 sq. m. 187,006 sq. ft.

LEGAL DESCRIPTION	
PLAN OF SURVEY OF LOTS 38 to 43 (Inclusive), LOTS 53 to 59 (Inclusive) And PART OF THE ADJACENT LANE (As Closed by Judge's Order, Inst. CR227792) REGISTERED PLAN 131037 CITY OF OTTAWA Surveyed by Annis, O'Sullivan, Vollebakk Ltd.	

PROJECT DEVELOPER	
District Realty 50 Bayswater Ave. Ottawa, Ontario K1Y 2E9 Tel: (613) 759-8383 Fax: (613) 759-8448 Email: kellykerrigan@districtrealty.com	

NOTATION SYMBOLS:	
(00)	INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
(00)	INDICATES ASSEMBLY TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
(00)	INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A500 SERIES.
(000)	INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A500 SERIES.
(000)	DETAIL NUMBER
(000)	TITLE
(000)	DETAIL REFERENCE PAGE
(000)	DETAIL CROSS REFERENCE PAGE

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.	
ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.	
THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.	
DO NOT SCALE DRAWINGS.	
COPYRIGHT RESERVED.	

ISSUED FOR SITE PLAN CONTROL		Mar 22, 19
ISSUED FOR PRE CONSULTATION		Dec 17, 18
No.	DESCRIPTION	DATE
REVISIONS:		
ARCHITECT SEAL:		NORTH ARROW:
ARCHITECT:		CLIENT:
ARCHITECT:		PROJECT TITLE:
ARCHITECT:		90 CHAMPAGNE AVENUE SOUTH
ARCHITECT:		OTTAWA ONTARIO
ARCHITECT:		SHEET TITLE:
ARCHITECT:		SITE PLAN
DRAWN:		CHECKED:
R.V.		R.V.
SCALE:		SHEET No.
1:125		SP-1
PROJECT No.		1809

APPENDIX C

Sanitary Sewer, Watermain and Fire Flow Calculations

90 CHAMPAGNE AVENUE SOUTH

SANITARY FLOW

Number of 1 bdr Units	182
Persons per 1bdr Unit	1.4
Number of 2 bdr Apartment Units	54
Persons per 2 bdr Apprtment Unit	2.1
Total Population	369
Average Daily Flow	280 L/c/day
Peak Factor (Harmon Formula)	3.23
Peak Sanitary Flow	3.86 L/s
Site Area	0.26 ha
Infiltration Allowance	0.33 L/s/ha
Peak Extraneous Flows	0.09 L/s
Total Peak Sanitary Flow	3.95 L/s

Miro Savic

From: Wu, John <John.Wu@ottawa.ca>
Sent: Friday, March 15, 2019 9:28 AM
To: Miro Savic
Subject: RE: 90 Champagne - Water Boundary Conditions
Attachments: 90 Champagne March 2019.pdf

Here it is:

The following are boundary conditions, HGL, for hydraulic analysis at 90 Champagne (zone 1W) assumed to be connected to the 203mm on Champagne (see attached PDF for location).

Minimum HGL = 107.2m

Maximum HGL = 114.7m

Max Day + Fire Flow (100 L/s) = 99.5m

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.

John

From: Miro Savic <m.savic@novatech-eng.com>
Sent: March 12, 2019 11:04 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Cara Ruddle <c.ruddle@novatech-eng.com>
Subject: 90 Champagne - Water Boundary Conditions

John,

Please provide water boundary conditions for the 90 Champagne Avenue South project.

The water service will be connected to the existing 203mm diameter watermain in Champagne Avenue South at approximate location shown on the attached sketch. Fire protection for the building will be provide from the existing municipal fire hydrant located near the southeast corner of the site.

The water demands are calculated as follows:

Average Day Demand = 1.49 L/s

Maximum Day Demand = 3.74 L/s

Peak Hour Demand = 8.22 L/s

The fire flow demand estimated using the Fire Underwrites Survey (FUS) = 100 L/s (6,000 L/min).

The FUS and the water demand calculations are attached for reference.

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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,

Boundary Condition for 90 Champagne

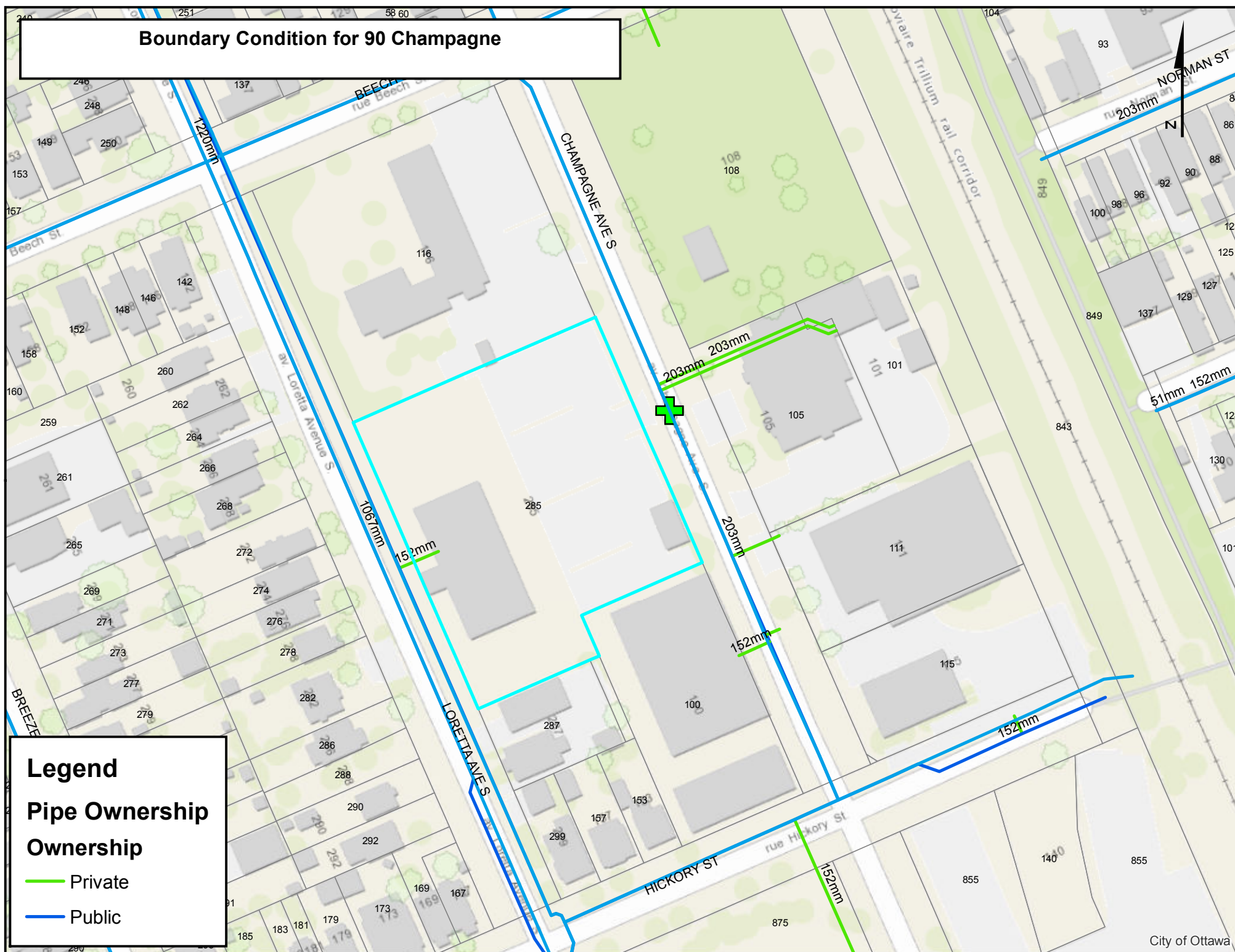
Legend

Pipe Ownership

Ownership

Private

— Public



90 CHAMPAGNE AVENUE SOUTH

WATER ANALYSIS

WATER DEMND

Number of 1 bdr Units	182
Persons per 1bdr Unit	1.4
Number of 2 bdr Units	54
Persons per 2 bdr Unit	2.1
Total Population	369
Average Day Demand	350 L/c/day

Average Day Demand	1.49 L/s
Maximum Day Demand (2.5 x avg. day)	3.74 L/s
Peak Hour Demand (2.2 x avg. day)	8.22 L/s

BOUNDAY CONDITIONS

Maximum HGL =	114.7 m
Minimum HGL =	107.2 m
Max Day + Fire Flow =	99.5 m

PRESSURE TESTS

AVERAGE GROUND ELEVATION 65.0 m

HIGH PRESSURE TEST = MAX HGL - AVG GROUND ELEV x 1.42197 PSI/m < 80 PSI
HIGH PRESSURE = **70.7** PSI

LOW PRESSURE TEST = MIN HGL - AVG GROUND ELEV x 1.42197 PSI/m > 40 PSI
LOW PRESSURE = **60.0** PSI

MAX DAY + FIRE FLOW TEST = MAX DAY + FIRE - AVG GROUND ELEV x 1.42197 PSI/m > 20 PSI
MAX DAY + FIRE PRESSURE = **49.1** PSI

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 119013

Project Name: 90 Champagne Avenue South

Date: 3/11/2019

Input By: Miroslav Savic

Reviewed By:

Legend

Input by User

No Information or Input Required

Building Description: 14-Storey Residential Tower

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				6,000
	A	Building Footprint (m ²)	1301		
		Number of Floors/Storeys	14		
		Protected Openings (1 hr)	Yes		
		Area of structure considered (m ²)		1,952	
	F	Base fire flow without reductions			
		$F = 220 C (A)^{0.5}$			
Reductions or Surcharges					
3	Occupancy hazard reduction or surcharge		Reduction/Surcharge		5,100
	(1)	Non-combustible		-25%	
		Limited combustible	Yes	-15%	
		Combustible		0%	
		Free burning		15%	
		Rapid burning		25%	
4	Sprinkler Reduction		Reduction		-2,040
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	
		Standard Water Supply	Yes	-10%	
		Fully Supervised System	No	-10%	
		Cumulative Total		-40%	
5	Exposure Surcharge (cumulative %)		Surcharge		3,060
	(3)	North Side	3.1 - 10 m	20%	
		East Side	30.1 - 45 m	5%	
		South Side	3.1 - 10 m	20%	
		West Side	10.1 - 20 m	15%	
		Cumulative Total		60%	
Results					
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min		L/min	6,000
		(2,000 L/min < Fire Flow < 45,000 L/min)		L/s	100
				USGPM	1,585
7	Storage Volume	Required Duration of Fire Flow (hours)		Hours	2
		Required Volume of Fire Flow (m ³)		m ³	720

APPENDIX D
Stormwater Management Calculations

Proposed Development 90 Champagne Avenue South

Allowable Flow					
Description	A (ha)	C ₅	C ₁₀₀	5 year (L/s)	100 year (L/s)
Site Area	0.235	0.50	0.50	34.0	34.0

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)	
							5 year	100 year
A-1	Uncontrolled Landscaped Area	0.021	0.003	0.018	0.30	0.36	1.8	3.8
A-2	Controlled Building Roof and Landscaped Area	0.214	0.184	0.029	0.80	0.89	49.7	95.0

Summed Area Check: 0.235

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	
A-1	Uncontrolled Landscaped Area	1.8	3.8	N/A	N/A	N/A
A-2	Controlled Building Roof and Landscaped Area	30.0	30.0	11.8	41.4	> 39.3
	Totals =	31.8	33.8	11.8	41.4	> 39.4

Over-Controlled by: 2.2 0.2

90 Champagne Avenue South**Project No. 119013****REQUIRED STORAGE - 1:5 YEAR EVENT****AREA A-2 Controlled Flow Storage Tank****OTTAWA IDF CURVE**

Area = 0.214 ha Qallow = 30.00 L/s
C = 0.80 Vol(max) = 11.8 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	67.27	37.27	11.18
10	104.19	49.65	19.65	11.79
15	83.56	39.81	9.81	8.83
20	70.25	33.47	3.47	4.17
25	60.90	29.02	-0.98	-1.48
30	53.93	25.70	-4.30	-7.75
35	48.52	23.12	-6.88	-14.45
40	44.18	21.05	-8.95	-21.47
45	40.63	19.36	-10.64	-28.73
50	37.65	17.94	-12.06	-36.18
55	35.12	16.74	-13.26	-43.77
60	32.94	15.70	-14.30	-51.49
65	31.04	14.79	-15.21	-59.31
70	29.37	14.00	-16.00	-67.22
75	27.89	13.29	-16.71	-75.20
90	24.29	11.57	-18.43	-99.50
105	21.58	10.28	-19.72	-124.21
120	19.47	9.28	-20.72	-149.21

90 Champagne Avenue South**Project No. 119013****REQUIRED STORAGE - 1:100 YEAR EVENT****AREA A-2 Controlled Flow Storage Tank****OTTAWA IDF CURVE**

Area = 0.214 ha Qallow = 30.00 L/s
C = 0.89 Vol(max) = 41.4 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	129.04	99.04	29.71
10	178.56	94.94	64.94	38.96
15	142.89	75.97	45.97	41.38
20	119.95	63.77	33.77	40.53
25	103.85	55.21	25.21	37.82
30	91.87	48.84	18.84	33.92
35	82.58	43.90	13.90	29.20
40	75.15	39.95	9.95	23.89
45	69.05	36.71	6.71	18.12
50	63.95	34.00	4.00	12.01
55	59.62	31.70	1.70	5.61
60	55.89	29.72	-0.28	-1.02
65	52.65	27.99	-2.01	-7.84
70	49.79	26.47	-3.53	-14.82
75	47.26	25.12	-4.88	-21.94
90	41.11	21.86	-8.14	-43.97
105	36.50	19.40	-10.60	-66.75
120	32.89	17.49	-12.51	-90.08

APPENDIX E

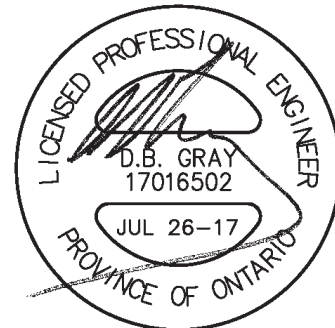
Excerpt from D. B. Grey Engineering Inc. Servicing Brief and Stormwater Management Report

SERVICING BRIEF & STORMWATER MANAGEMENT REPORT

285 LORETTA AVENUE SOUTH
Ottawa, Ontario

Report No. 16088

June 27, 2017
Revised July 26, 2017



NOT VALID UNLESS
SIGNED & DATED

D. B. GRAY ENGINEERING INC.

Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains

700 Long Point Circle
Ottawa, Ontario K1T 4E9

613-425-8044
dbgray@rogers.com

SERVICING BRIEF & STORMWATER MANAGEMENT REPORT

285 LORETTA AVENUE SOUTH
Ottawa, Ontario

This Servicing Brief & Stormwater Management Report is a description of the proposed required changes to the services for an existing 15-storey apartment building as result of conditions set out in the Decision of the Committee of Adjustment for a proposed severance. The retained lands, 3,104 sq.m. in area, are fronting on Loretta Avenue South and it includes the 15-storey apartment building. This report also addresses the stormwater management requirements of the retained lands. The severed lands, (2,619 sq.m.) are fronting on Champagne Avenue South and is currently a parking lot. The severed lands are expected to be developed in the future and will be required to submit to the site plan control approval process. At that time the servicing and the stormwater management of the severed lands will be addressed.

Condition 1 of the Decision of the Committee of Adjustment states that proof is required that *“each parcel can have its own independent storm (if applicable), sanitary & water services [that] are connected directly to City Infrastructure. These services should not cross the proposed severed property. If they do cross or they are not independent then the owner will be required to relocate or construct new services from the city sewers / watermain at his costs.”* The Decision of the Committee of Adjustment also states a *“Right of Way over [the severed lands] for the benefit of the Owner of [the retained lands] for access to the [apartment building] parking garage and grant an Easement over [the severed lands] for Hydro Ottawa for facilities to service the existing apartment building”* Servicing of the existing apartment building has been discussed with City of Ottawa Infrastructure Approvals staff and they have agreed that the storm and sanitary services can also be located in the right of way and easement (the water service does not need to be relocated).

Refer to drawing C-1 to C-3 also prepared by D. B. Gray Engineering Inc.

WATER SUPPLY FOR FIRE FIGHTING:

There is an existing fire hydrant in the Loretta Avenue South municipal right-of-way directly in front of the apartment building approximately 15m unobstructed distance from the main entrance. The proposed severance and changes will not affect the water supply for firefighting.

We understand that Loretta Avenue South will be re-constructed in the near future. Preliminary drawings indicate that the existing fire hydrant will be removed and a new hydrant located near the south-west corner of the subject property approximately 47m unobstructed distance from the main entrance. Also the existing 150mm watermain will

be abandoned and new 200mm watermain will be constructed; as result the available water supply is expected to increase.

WATER SERVICE:

The existing 150mm water service connects to an existing 150mm municipal watermain in Loretta Avenue South. The existing water service does not cross the severed lands; the proposed changes do not affect the water service; and there have been no issues with the water pressure in the building; as such the existing water service will remain.

As previously mentioned Loretta Avenue South will be re-constructed, with the existing 150mm watermain abandoned and new 200mm watermain constructed. As result the water pressure is expected to increase.

SANITARY SERVICE:

The existing 150mm sanitary service for the apartment building crosses the proposed severed lands and connects to 1050mm sanitary trunk sewer in Champagne Avenue South. The existing sanitary service will be abandoned to the property line. The existing sanitary service connection in the Champagne Avenue South R.O.W. from the property line to the point of connection to the trunk sewer will remain to serve the future development. A new 150mm / 200mm sanitary service is proposed to be located in a 7.0m wide right of way and easement located at the south end of the severed property.

The existing 15-storey apartment building consists of 88 one-bedroom and bachelor units and 56 two-bedroom units. Based on the City of Ottawa Sewer Design Guidelines for a residential property (1.4 persons per one-bedroom unit & 2.1 persons per two-bedroom unit – 350 l/person/day – 4.0 peaking factor and a 0.28 l/s/ha infiltration flow) the post development flow is calculated to be 4.0 l/s. This flow will be adequately handled by the proposed sanitary sewer service having a minimum capacity of 16.3 l/s.

There are no proposed changes to the number or type of units to the existing apartment therefore there will be no increase to sanitary flows contributing to the existing 1050mm sanitary trunk sewer and as such the severance will have no impact on the trunk sewer until the severed lands are developed. The nature of the future development on the severed lands is not known at this time. When the severed lands are being proposed to be developed a servicing study will be submitted as part of site plan control that will determine the impact on the trunk sewer.

STORM SEWER SERVICE:

The existing 150mm / 200mm storm service for the apartment building crosses the proposed severed lands and connects to 1050mm storm trunk sewer in Champagne

Avenue South. The existing storm service will be abandoned to the property line. The existing storm service connection in the Champagne Avenue South R.O.W. from the property line to the point of connection to the trunk sewer will remain to serve the future development. There is also an existing storm sewer system for the parking lot on the severed lands which will remain in place until the severed lands are developed at which time they will be abandoned. A new 300mm storm sewer service is proposed to be located in a 7.0m wide right of way and easement located at the south end of the severed property.

The flowrate resulting from one in five year storm event will produce a peak flow of 78.9 l/s which will be adequately handled by a proposed storm sewer service (300mm @ 1.00% - 100.9 l/s capacity).

There are no proposed changes to the retained or severed lands that will increase to storm flows contributing to the existing 1050mm storm trunk sewer and as such the severance will have no impact on the trunk sewer.

STORMWATER MANAGEMENT:

Water Quality:

There are no existing quality control measures on the subject lands and no permanent on-site quality control measures are proposed.

An erosion and sediment control plan has been developed to be implemented during construction, (see notes 2.1 to 2.5 on drawing C-2). In summary: to filter out construction sediment capture filter sock inserts will be installed in all existing catch basins adjacent to the site and all new catch basins as they are installed; and geotextile fabric mud mats will be install at all points of egress to public roads.

Water Quantity:

There are no existing quantity control measures on the subject lands and none are proposed on the retained lands. The nature of the future development on the severed lands is not known at this time. When the severed lands are being proposed to be developed a stormwater management design will be submitted as part of the site plan control that I expect will demonstrate that the future development will have no negative impact on the trunk sewer, especially since the severed lands are currently all hard surfaces and the stormwater currently flows uncontrolled to the trunk sewer.

CONCLUSIONS:

1. The proposed severance and changes will not affect the water supply for firefighting.
2. The existing water service does not cross the severed lands; the proposed changes do not affect the water service; and there have been no issues with the water pressure in the building; as such the existing water service will remain
3. The existing sanitary service for the apartment building crosses the proposed severed lands and will be abandoned.
4. A new sanitary sewer service is proposed to be located in a 7.0m wide right of way and easement located at the south end of the severed property.
5. There are no proposed changes to the number or type of units to the existing apartment therefore there will be no proposed increase to sanitary flows contributing to the existing 1050mm sanitary trunk sewer and as such the severance will have no impact until the severed lands are developed. When the severed lands are being proposed to be developed a servicing study will be submitted as part of the site plan control that will determine the impact on the trunk sewer.
6. The existing storm sewer service for the apartment building crosses the proposed severed lands and will be abandoned.
7. A new storm sewer service is proposed to be located in a 7.0m wide right of way and easement located at the south end of the severed property.
8. There are no proposed changes to the retained lands that will increase the storm flows contributing to the existing 1050mm storm trunk sewer and future development on the severed lands will require a stormwater management plan and as such the severance will have no negative impact on the trunk sewer.

Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain

613-425-8044
dbgray@rogers.com

PROJECT: 285 Loretta Avenue South

Designed By: DBG

Date: 27-Jun-17

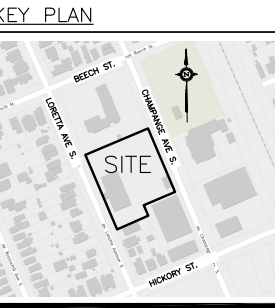
Page: 1 of 1



ALL INFRASTRUCTURE LABELED "TO BE ABANDONED" OR "TO BE REMOVED" SHALL BE ABANDONED OR REMOVED IN THE FUTURE WHEN THE SEVERED LANDS ARE DEVELOPED UNTIL SUCH TIME THE INFRASTRUCTURE SHALL REMAIN IN PLACE.

DRAWING LEGEND

- CB CATCH BASIN
- MH MANHOLE
- CB/MH CATCH BASIN/MANHOLE
- WS / WM WATER SERVICE / WATERMAIN
- SAN SANITARY SEWER
- ST STORM SEWER
- VB VALVE & VALVE BOX
- FH FIRE HYDRANT
- UP UTILITY POLE
- EXISTING GRADE ELEVATION
- + 93.79 PROPOSED GRADE ELEVATION
- HEAVY DUTY PAVEMENT
- 0.5% SLOPE OF GRADE
- I.O.S. TOP OF SLOPE
- B.O.S. BOTTOM OF SLOPE
- EMERGENCY OVERLAND FLOW ROUTE
- PROPERTY LINE
- H HYDRO
- P U/G POWER
- TEL BELL TELEPHONE
- CAB ROGERS CABLE
- G GAS



11	NOV 6-17	ISSUED FOR TENDER
10	AUG 8-17	RE-LOCATED FH LEAD REVISED RE-ISSUED FOR APPROVAL
9	AUG 3-17	RE-LOCATED FH REVISED RE-ISSUED FOR APPROVAL
8	JUL 27-17	RE-ISSUED FOR APPROVAL
7	JUL 26-17	RE-ISSUED FOR APPROVAL
6	JUN 27-17	STORM SEWERS RE-SIZED
5	MAY 15-17	UTILITIES ADDED IN ROAD R.O.W. EXISTING U/G POWER ADDED
4	APR 12-17	RE-ISSUED FOR APPROVAL
3	APR 10-17	ISSUED FOR JOB SHOWING
2	APR 3-17	ISSUED FOR APPROVAL
1	MAR 31-17	ISSUED TO CLIENT FOR REVIEW
No.	Date	REVISION

D.B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain
700 Long Point Circle Tel: 613-425-8044
Ottawa, Ontario K1T 4E9 dbgray@rogers.com

PROPERTY SEVERANCE
285 LORETTA AVENUE SOUTH
OTTAWA, ONTARIO

SITE SERVICING PLAN

Engineer's Seal

NOT VALID UNLESS SIGNED & DATED

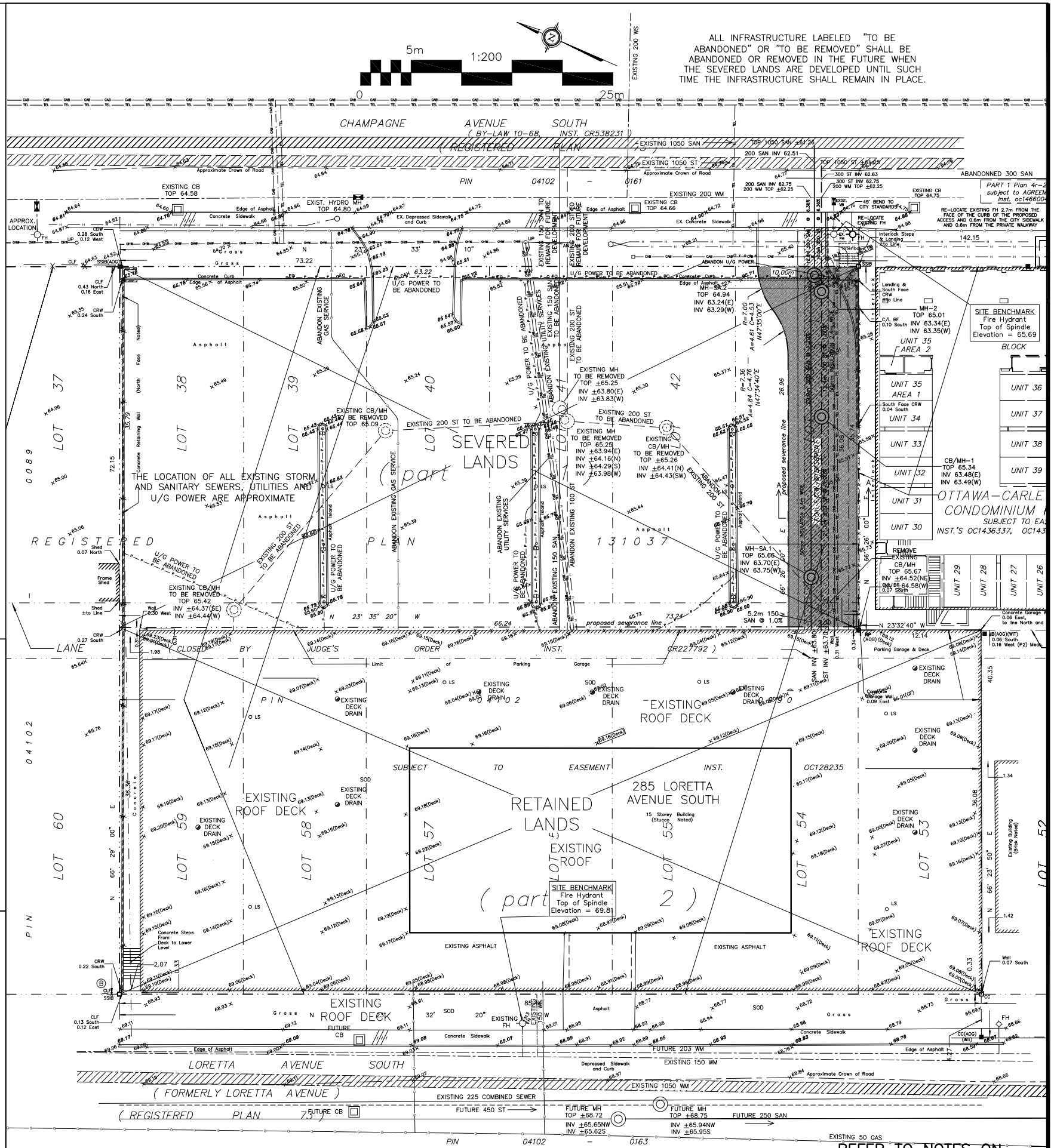
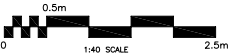
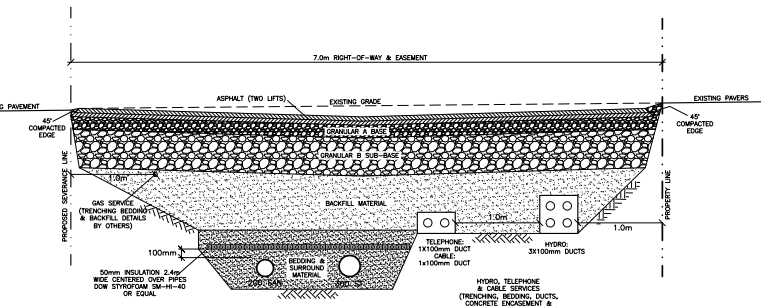
Drawn D.B.G.
Hor. Scale AS NOTED
Vert. Scale
Date MAR 27-17
Job No. 16088

Drawing No.
C-1
of 3

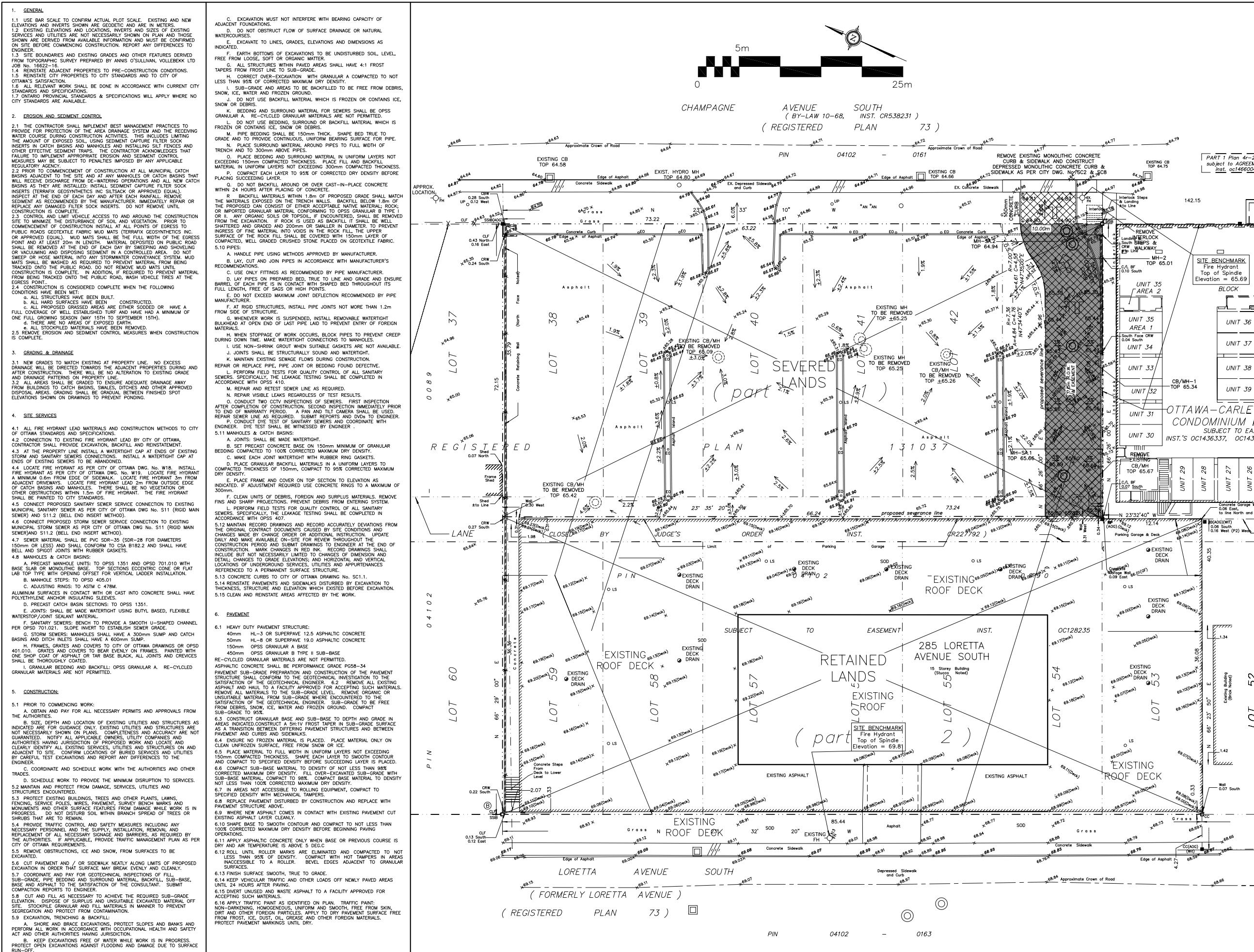
CATCHBASIN & MANHOLE SCHEDULE

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB/MH-1	65.34	1200mm	PRE-CAST CONCRETE CATCH BASIN/MANHOLE	63.49(W)	63.48(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAMES & COVERS CITY DWG No. S25 & S28.1 OR OPSD 401.010
MH-2	65.01	1200mm	PRE-CAST CONCRETE MANHOLE	63.35(W)	63.34(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAMES & COVERS CITY DWG No. S25 & S24.1 OR OPSD 401.010
SANITARY SEWER						
MH-SA-1	65.66	1200mm	PRE-CAST CONCRETE MANHOLE	63.75(W)	63.70(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAMES & COVERS CITY DWG No. S25 & S24 OR OPSD 401.010
MH-SA-2	64.94	1200mm	PRE-CAST CONCRETE MANHOLE	63.29(W)	63.24(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAMES & COVERS CITY DWG No. S25 & S24 OR OPSD 401.010

SECTION 'A-A'
(TYPICAL)



REFER TO NOTES ON
DRAWING C-2



DRAWING LEGEND

CB

CATCH BASIN

MH

MANHOLE

CB/MH

CATCH BASIN/MANHOLE

WS / WW

WATER SERVICE / WATERMAIN

SAN

SANITARY SEWER

ST

STORM SEWER

VB

VALVE & VALVE BOX

FH

FIRE HYDRANT

UP

UTILITY POLE

EXISTING GRADE ELEVATION

+ 93.79 PROPOSED GRADE ELEVATION

0.5%

SLOPE OF GRADE

I.O.S.

TOP OF SLOPE

B.O.S.

BOTTOM OF SLOPE

EMERGENCY OVERLAND FLOW ROUTE

PROPERTY LINE

H

HYDRO

P

U/G POWER

TEL

BELL TELEPHONE

CAB

ROGERS CABLE

G

GAS

KEY PLAN

BEACH ST.

LORETTA AVE.

CHAMPAGNE AVE.

HICKORY ST.

SITE

No.	Date	REVISION
7	NOV 6-17	ISSUED FOR TENDER
6	AUG 8-17	FH NOTES (4.1 & 4.2) REVISED RE-ISSUED FOR APPROVAL
5	JUL 26-17	RE-ISSUED FOR APPROVAL
4	APR 12-17	RE-ISSUED FOR APPROVAL
3	APR 10-17	ISSUED FOR JOB SHOWING
2	APR 3-17	ISSUED FOR APPROVAL
1	MAR 31-17	ISSUED TO CLIENT FOR REVIEW

D.B. GRAY ENGINEERING INC.

Stormwater Management • Grading & Drainage • Storm & Sanitary Sewers • Watermain

700 Long Point Circle
Ottawa, Ontario K1T 4E9

Tel: 613-425-8044
dgray@rogers.com

Project

PROPERTY SEVERANCE
285 LORETTA AVENUE SOUTH
OTTAWA, ONTARIO

Drawing Title

GRADING PLAN
& NOTES

Engineer's Seal

PROFESSIONAL ENGINEER

D.B. GRAY

17016502

NOV 6-17

PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED & DATED

Drawn

D.B.G.

Hor. Scale

1:200

Vert. Scale

As Shown

Date

MAR 27-17

Job No.

16088

Drawing No.

C-2
of 3

APPENDIX F
Development Servicing Study Checklist

**90 CHAMPAGNE AVENUE SOUTH, 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	Refer to Site Plan
Summary of Pre-consultation Meetings with City and other approval agencies.	N	
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	
Existing and proposed structures and parking areas	Y	
Easements, road widening and rights-of-way	Y	
Adjacent street names	Y	

**90 CHAMPAGNE AVENUE SOUTH, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST**

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	

**90 CHAMPAGNE AVENUE SOUTH, 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	
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	

**90 CHAMPAGNE AVENUE SOUTH, 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	Allowable release rate provide by 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	N	
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	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	

**90 CHAMPAGNE AVENUE SOUTH, OTTAWA
DEVELOPMENT SERVICING STUDY CHECKLIST**

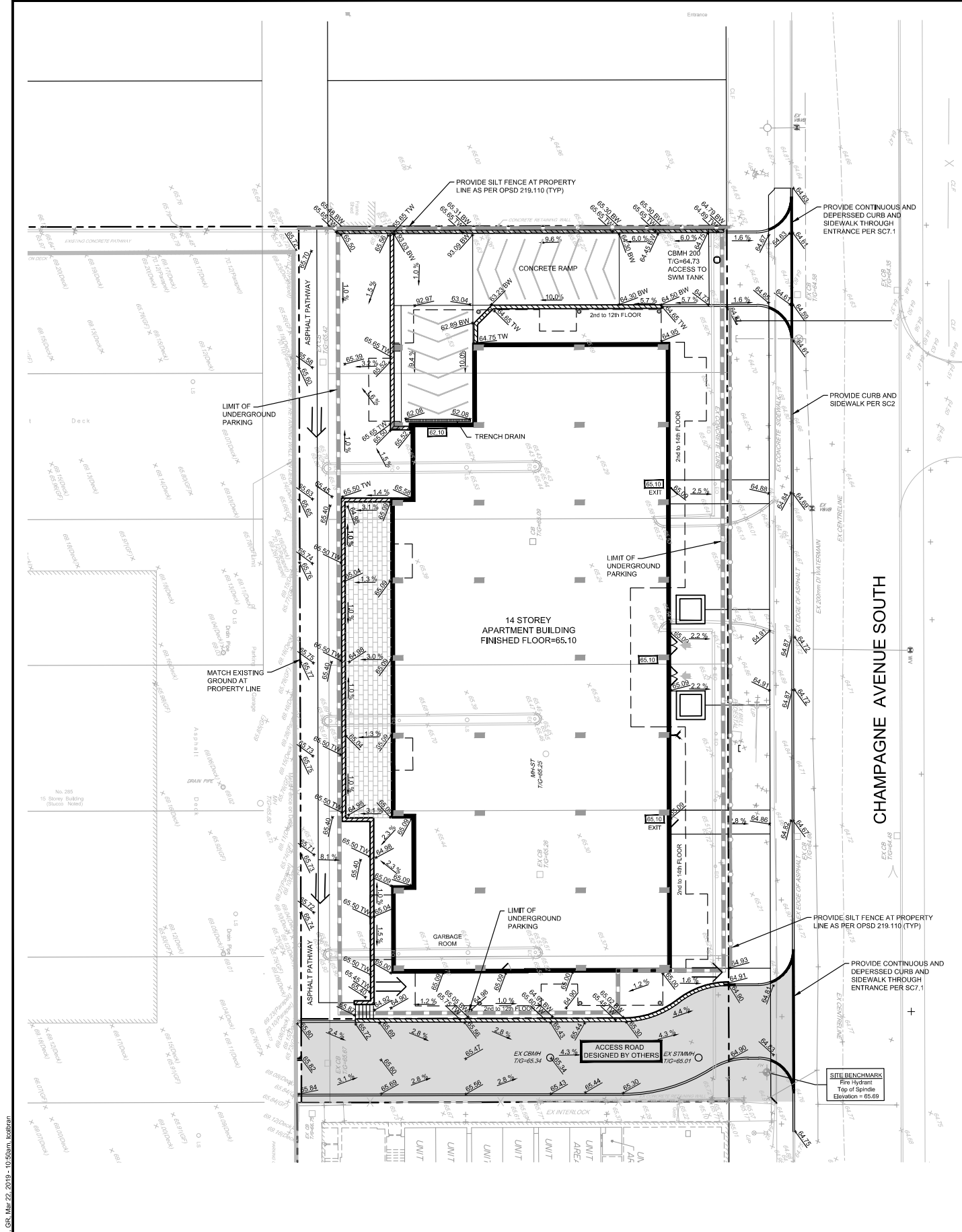
4.4 Stormwater	Addressed (Y/N/NA)	Comments
Identification of municipal drains and related approval requirements.	N/A	
Description of how the conveyance and storage capacity will be achieved for the development.	Y	
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Y	
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.	Y	T.B.D.
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	

APPENDIX G

Engineering Drawings



LEGEND

- PROPERTY LINE
PROPOSED ELEVATION
EXISTING ELEVATION
PROPOSED TOP OF WALL ELEVATION
PROPOSED BOTTOM OF WALL ELEVATION
PROPOSED FLOOR ELEVATION
GRADE AND DIRECTION
DIRECTION OF MAJOR OVERLAND FLOW
PROPOSED 1200mmØ CATCHBASIN MANHOLE (ACCESS TO SWM STORAGE TANK)
PROPOSED DECK DRAIN
PROPOSED LANDSCAPE DRAIN
PROPOSED BARRIER CURB
- DC
PROPOSED DEPRESSED CURB
PROPOSED RETAINING WALL
OH
EXISTING OVERHEAD WIRES
EXISTING CONCRETE CURB
SANMH
EXISTING SANITARY MANHOLE
CBMH
EXISTING CATCHBASIN MANHOLE
STAMMH
EXISTING STORM MANHOLE
CB
EXISTING CATCHBASIN
HYD
EXISTING HYDRANT & VALVE
EX UP
EXISTING UTILITY POLE C/W GUY WIRES
EXISTING FENCE
EXISTING LIGHT STANDARD

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 (235750.001, DATED MAR 20, 2019), PREPARED BY PINCHIN LTD. 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 ARCHITECTS DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
- REFER TO STORMWATER MANAGEMENT REPORT (R-XXXX-XXX) 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.

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 (R10.1).
- 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 CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA. THEY ARE TO BE 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. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
- 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), THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEETING ALL REGULATORY AGENCY REQUIREMENTS.
- TO PREVENT SURFACE EROSION FROM ENTERING ANY STORM SEWER SYSTEM DURING CONSTRUCTION, FILTER CLOTH WILL BE PLACED UNDER GRATES OF NEARBY CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
- TO LIMIT EROSION, MINIMIZE THE AMOUNT OF EXPOSED SOILS AT ANY GIVEN TIME, RE-VEGETATE EXPOSED AREAS AND SLOPES AS SOON AS POSSIBLE AND PROTECT EXPOSED SLOPES WITH NATURAL OR SYNTHETIC MULCHES.
- FOR MATERIAL STOCKPILING, MINIMIZE THE AMOUNT OF EXPOSED MATERIALS AT ANY GIVEN TIME, APPLY TEMPORARY SEEDING, TAPPS, COMPACTION AND/OR SURFACE ROUGHENING AS REQUIRED TO STABILIZE STOCKPILED MATERIALS THAT WILL NOT BE USED WITHIN 14 DAYS.
- THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED, NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
- THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY STORM SEWER SYSTEM. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
- THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- ROADWAYS ARE TO BE SWEEP AS REQUIRED OR AS DIRECTED BY THE ENGINEER AND/OR THE MUNICIPALITY.
- THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS. MONITOR DUST LEVELS DURING SITE PREPARATION/EXCAVATION, AND CONSTRUCTION ACTIVITIES, AND WHEN DUST LEVELS BECOME VISUALLY APPARENT SPRAY WATER TO MINIMIZE THE RELEASE OF DUST FROM GRAVEL, PAVED AREAS AND EXPOSED SOILS. USE CHEMICAL DUST SUPPRESSANTS ONLY WHERE NECESSARY ON PROBLEM AREAS.

Erosion and Sediment Control Responsibilities:

ESC Measure	Symbol	Specification	During Construction		After Construction Prior to Final Acceptance		After Final Acceptance
			Installation Responsibility	Inspection/Maintenance Responsibility	Approval to Remove	Removal Responsibility	Inspection/Maintenance Responsibility
Silt Fence		OPSD 219.110	Developer's Contractor	Developer's Contractor	Consultant	Developer's Contractor	N/A
Filter Fabric		Location as Indicated On Plans	Developer's Contractor	Developer's Contractor	Consultant	Developer's Contractor	N/A
Mud Mat		Drawing Details	Developer's Contractor	Developer's Contractor	Developer's Contractor	Developer's Contractor	N/A
Dust Control		Location as Required Around Site	Developer's Contractor	Developer's Contractor	Consultant	Developer's Contractor	N/A
Stabilized Material Stockpiling		Location as Required by Contractor	Developer's Contractor	Developer's Contractor	Developer's Contractor	Developer's Contractor	N/A
Sediment Basin (for flows being pumped out of excavations)		Location as Required by Contractor	Developer's Contractor	Developer's Contractor	After Every Rainstorm	Developer's Contractor	N/A

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.

2	ISSUED FOR SITE PLAN APPLICATION	MAR 22/19	MS		
1	ISSUED FOR COORDINATION	MAR 19/19	MS		
No.	REVISION	mm/dd/yy	BY		

SCALE	DESIGN
1:200	MS / LSC
	CHECKED MS
	DRAWN LSC
	CHECKED JLS
	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
CHAMPAGNE AVENUE SOUTH

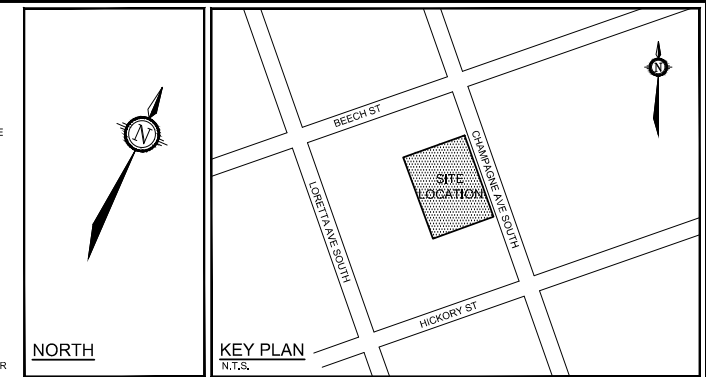
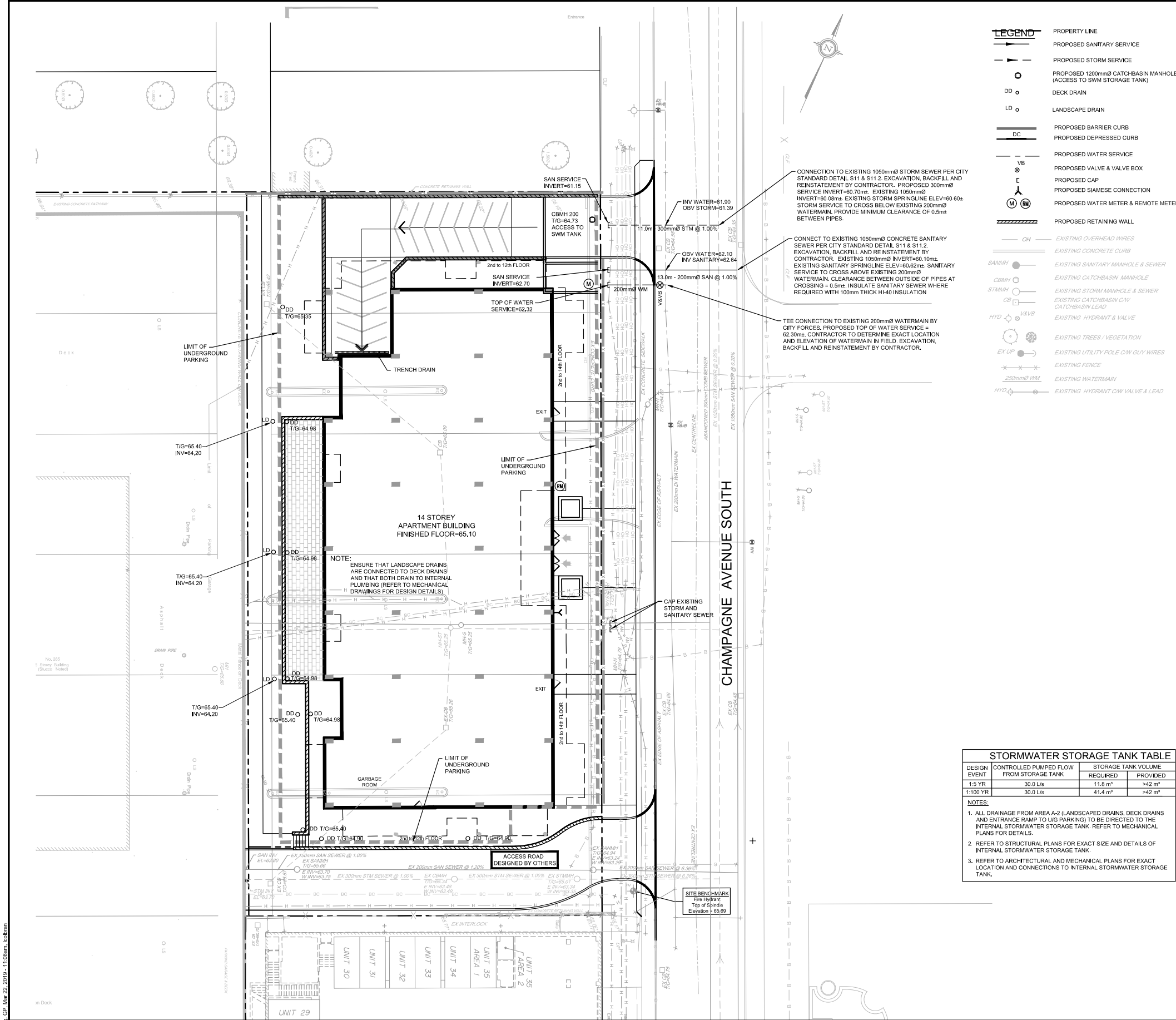
DRAWING NAME

GRADING AND EROSION & SEDIMENT CONTROL PLAN

PROJECT No.
119013

REV
REV-2

DRAWING No.
119013-GR



GENERAL NOTES:

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- 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 (235750.001, DATED MAR 20, 2019), PREPARED BY PINCHIN LTD. 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 ARCHITECTS' AND LANDSCAPE ARCHITECTS' DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
- REFER TO STORMWATER MANAGEMENT REPORT (R-2018-158) 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
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200mmØ)	701.010	OPSD
CB, FRAME & COVER	400.020	OPSD
STORM / SANITARY MH FRAME & COVER	401.010	OPSD
SEWER TRENCH	S6	CITY OF OTTAWA
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
- ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.2.
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.0m COVER WITH HI-40 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 OPS6 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.
- ALL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED. ALL CATCHBASINS ARE TO HAVE 600mm SUMPS UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.

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
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN	PVC DR 18	
- 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.

STORMWATER STORAGE TANK TABLE			
DESIGN EVENT	CONTROLLED PUMPED FLOW FROM STORAGE TANK	STORAGE TANK VOLUME	
		REQUIRED	PROVIDED
1.5 YR	30.0 L/s	11.8 m³	>42 m³
1:100 YR	30.0 L/s	41.4 m³	>42 m³

NOTES:

- ALL DRAINAGE FROM AREA A-2 (LANDSCAPED DRAINS, DECK DRAINS AND ENTRANCE RAMP TO U/G PARKING) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE TANK. REFER TO MECHANICAL PLANS FOR DETAILS.
- REFER TO STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE TANK.
- REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR EXACT LOCATION AND CONNECTIONS TO INTERNAL STORMWATER STORAGE TANK.

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.

No.	REVISION	mm/dd/yy	BY
2	ISSUED FOR SITE PLAN APPLICATION	MAR 22/19	MS
1	ISSUED FOR COORDINATION	MAR 21/19	MS

SCALE

1:200

0 2 4 6 8

DESIGN

MS / LSC

CHECKED

MS

DRAWN

LSC

CHECKED

JLS

APPROVED

MS

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER

M. SAVIC

100102651

Mar 27/19

PROVINCE OF ONTARIO

NOVATECH

Engineers, Planners & Landscape Architects

Suite 200, 240 Michael Cowpland Drive

Ottawa, Ontario, Canada K2M 1P6

Telephone 613 254-9643

Facsimile (613) 254-9667

Website www.novatech-eng.com

LOCATION

CITY OF OTTAWA

CHAMPAGNE AVENUE SOUTH

DRAWING NAME

GENERAL PLAN OF SERVICES

PROJECT No.

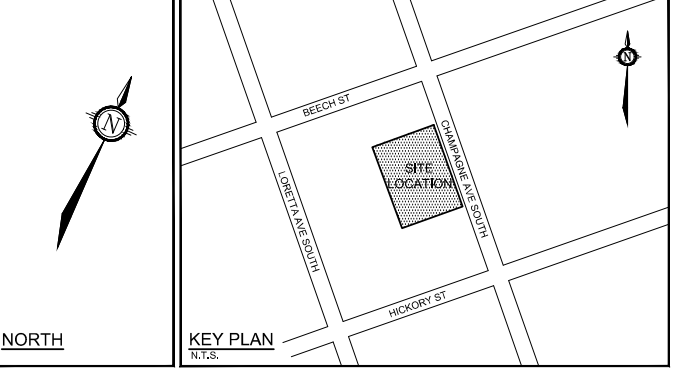
119013

REV

REV-2

DRAWING No.

119013-GP



- | STORMWATER STORAGE TANK TABLE | | | |
|-------------------------------|--|---------------------|--------------------|
| DESIGN EVENT | CONTROLLED PUMPED FLOW FROM STORAGE TANK | STORAGE TANK VOLUME | |
| | | REQUIRED | PROVIDED |
| 1.5-YR | 30.0 L/s | 11.8 m ³ | >42 m ³ |
| 1.100-YR | 30.0 L/s | 41.4 m ³ | >42 m ³ |
- NOTES:**
- ALL DRAINAGE FROM AREA A-2 (LANDSCAPED DRAINS, DECK DRAINS AND ENTRANCE RAMP TO U/G PARKING) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE TANK. REFER TO MECHANICAL PLANS FOR DETAILS.
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