Proposed High-Rise Residential Development
1200 Maritime Way

Serviceability and Stormwater Management Report

Prepared for:

Claridge Homes

Prepared By:

NOVATECH
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January 25, 2021
Amended November 3, 2021
Revised May 31, 2022
Revised October 11, 2022
Revised April 28, 2023

Novatech File: 120144
Ref No. R-2021-012

NOVATECH
Engineers, Planners & Landscape Architects

April 28, 2022

City of Ottawa
Planning, Infrastructure and Economic Development Department
Planning and Infrastructure Approvals Branch
110 Laurier Avenue West, 4th Floor
Ottawa ON, K1P 1J1

Attention: Ms. Laurel McCreight, MCIP, RPP

Dear Laurel:

Reference: 1200 Maritime Way - Claridge Development (D07-12-21-0017)
Serviceability and Stormwater Management Report

Enclosed is the Serviceability and Stormwater Management Report for the proposed 1200 Maritime Way development located along the Highway 417, Kanata Avenue and Maritime Way in the City of Ottawa. This report is submitted in support of the site plan application and outlines how the site will be serviced with public infrastructure.

Trusting this report is adequate for your purposes. Should you have any questions, or require additional information, please contact me.

Yours truly,

NOVATECH

Greg MacDonald, P. Eng.
Director, Land Development and Public Sector Infrastructure

cc: Vincent, Denomme, Claridge Homes

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1.0 INTRODUCTION

Novatech has been retained by Claridge Homes to prepare a Servicing and Stormwater Management Report for the proposed residential development located 1200 Maritime Way within the City of Ottawa. The site is located between Maritime Way and Highway 417 and is part of the Kanata Town Centre – Central Business District (KTC-CBD). The purpose of this report is to support the site plan application for the subject development. **Figure 1** Key Plan shows the site location.

2.0 EXISTING CONDITIONS

The subject site has an approximate area of 1.24 hectares and is currently undeveloped. The site is bound by Maritime Way and Townplace Suites to the north, Vacant Land to the East, Highway 417 to the south and Timberwalk Retirement Home to the West. The site is generally flat with a gradual slope from the south to the north. The site currently contains a number of fill piles ranging in 1-2m in height in the southern portion of the site from previous development activities within the Business District. It should be noted that the Northern portion of the site also once contained a stormwater management pond which has since been filled in. **Figure 2** depicts the existing site conditions.

The Subject site is part of the Kanata Town Centre, Central Business District which was designed by JL. Richards and design information is provided in the following reports:

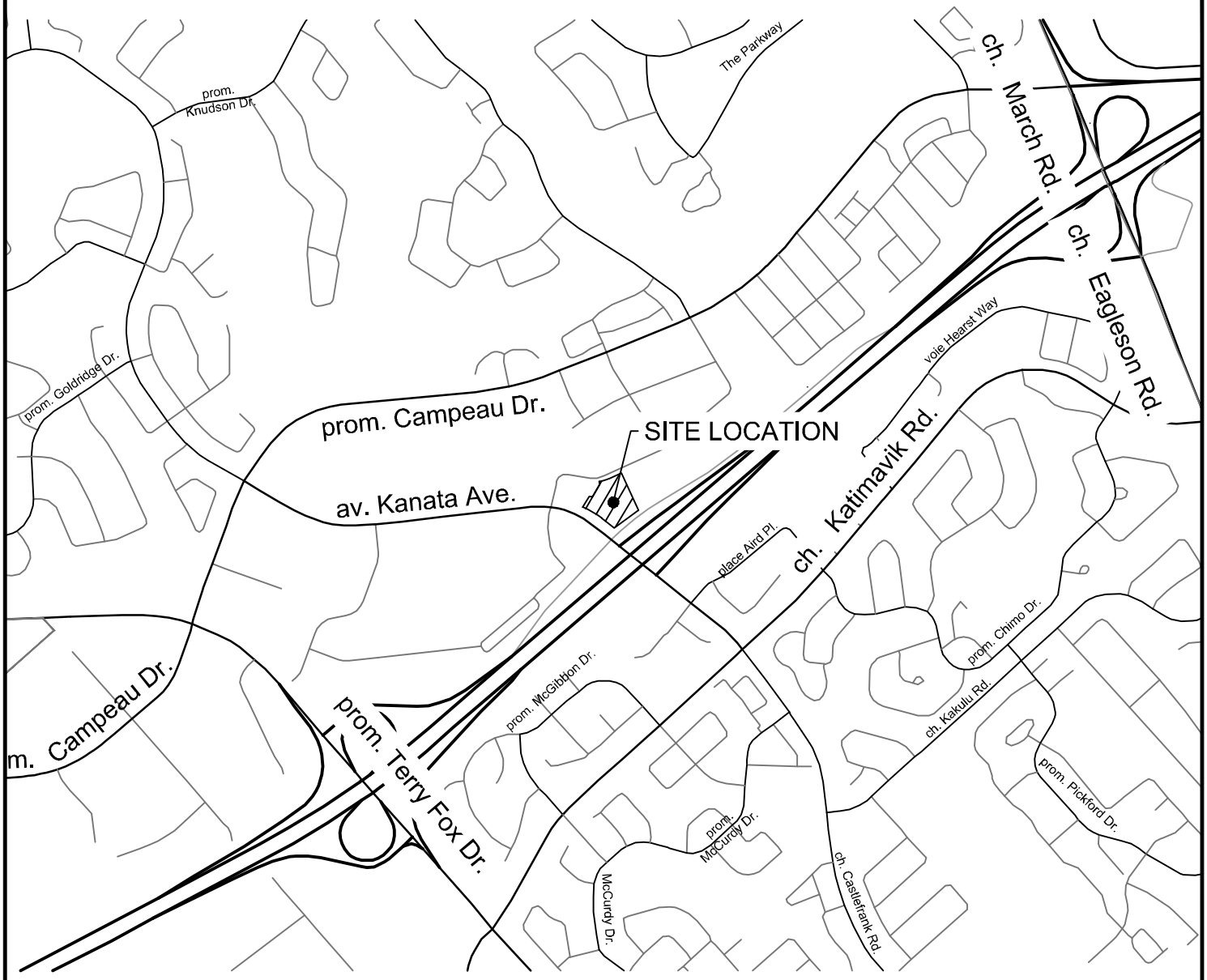
- Kanata Town Centre, Central Business District, Stormwater Management Report, J.L. Richards, January 1999 (Referenced as JLR Report)
- Servicing Brief (Revised) – Kanata Town Centre Central Business District Subdivision, Technical Memorandum, J.L. Richards, June 13, 2012
- Kanata Town Centre Central Business District Master Design Sheet Update – Sanitary Peak Flows Block 4, Block 5 and Block west of Block 9 (Zone 122), J.L. Richards, August 18,2017 (Referenced as JLR Memo).

3.0 PROPOSED DEVELOPMENT

The proposed development will include two (2) apartment buildings interconnected by a central access and a joint underground parking structure. The proposed buildings will be referred to the East Tower and West Tower for the remainder of the report. It is proposed to develop the site in two (2) phases with Phase 1 including the West Tower, central entrance, and the parking structure outside the footprint of the East Tower, and Phase 2 including the East tower and the parking structure below.

The West Tower will be a total of thirty (30) storeys, complete with a seven (7) storey podium, and a total of 313 units. The East Tower will be a total of twenty-eight (28) storeys, complete with a seven (7) storey podium with a total of 302 units, and 400m^2 of commercial area. The overall development will provide 634 parking spaces. **Figure 3** shows the proposed development.

Access to the site will be provided from the proposed central entrance from Maritime Way.



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1200 MARITIME WAY
CITY OF OTTAWA

KEYPLAN

SCALE		
N.T.S.		
DATE	JOB	FIGURE
MAY 2022	120144	1

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SHT8X11.DWG - 216mmx279mm

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1200 MARITIME WAY
CITY OF OTTAWA

EXISTING CONDITIONS PLAN

SCALE 1 : 750 (0 10 20 30)

DATE MAY 2022 | JOB 120144 | FIGURE 2

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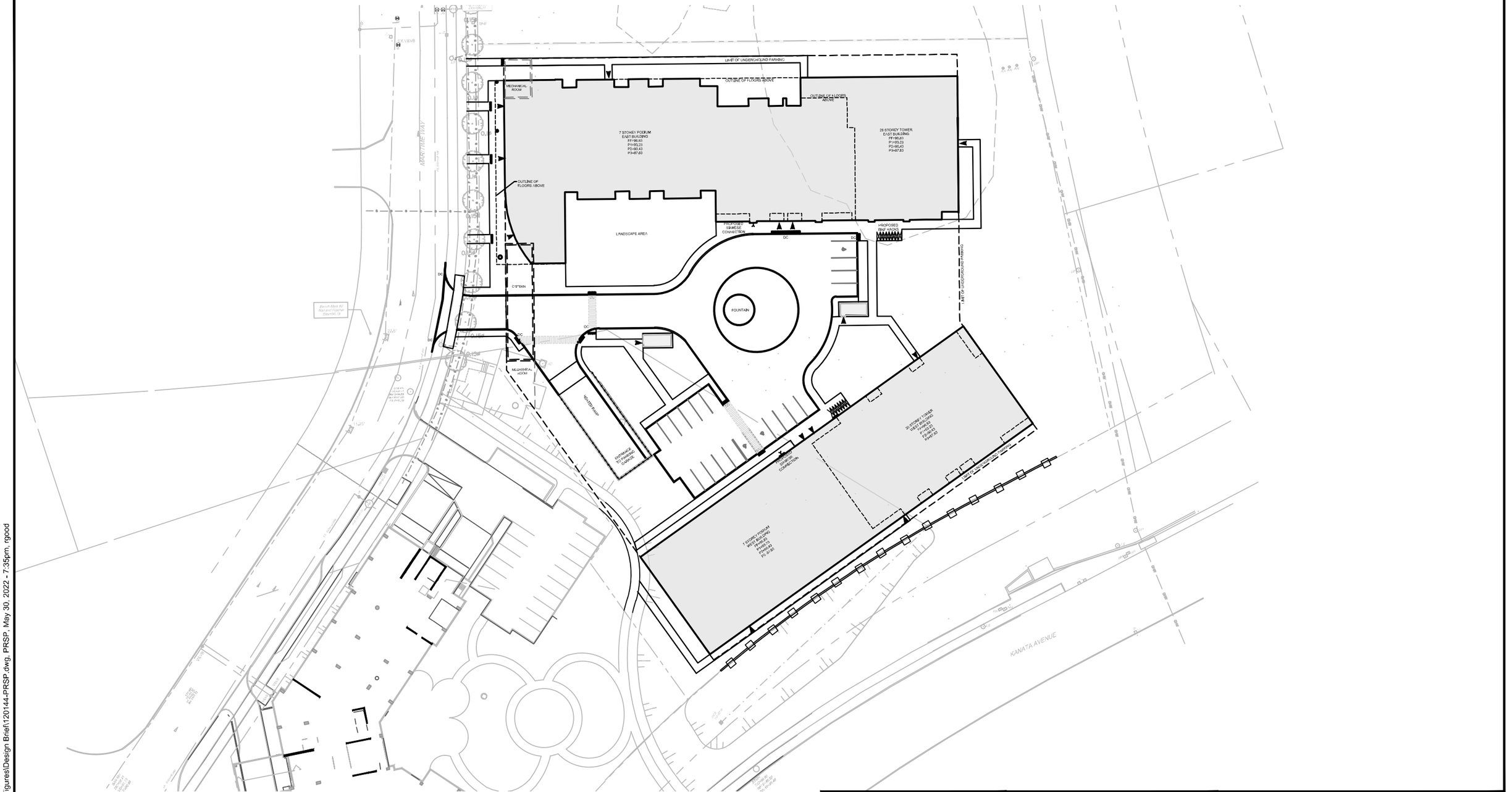

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1200 MARITIME WAY
CITY OF OTTAWA

PROPOSED SITE PLAN

SCALE 1 : 750 (0, 10, 20, 30)

DATE APRIL 2023 | JOB 120144 | FIGURE 3

SHT11X17.DWG - 279mmX432mm

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4.0 SITE CONSTRAINTS

A geotechnical investigation was completed by Paterson Group Inc. and a report prepared entitled 'Geotechnical Investigation, Proposed High-Rise Development', Report PG5281-1, dated July 16, 2020. The report included the following recommendations:

- Inferred bedrock surface was encountered at depths ranging from approximately 3.7 m at the west end of the site, descending to depths of approximately 16.2 m on the east end of the site.

- The long-term groundwater table can be expected at approximately 4 to 5 m below ground surface. It should also be noted that groundwater levels are subject to seasonal fluctuations. Therefore, the groundwater level could vary at the time of construction.

- Due to the presence of the silty clay deposit, a permissible grade raise restriction of 2 m is recommended for grading at the subject site. If higher than permissible grade raises are required, preloading with or without a surcharge, lightweight fill, and/or other measures should be investigated to reduce the risks of unacceptable long-term post construction total and differential settlements.

- The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be excavated at 1H:1V or shallower. The shallower slope is required for excavation below groundwater level. The subsurface soils are considered to be a Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects.

- A temporary Ministry of Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required if more than 400,000 L/day of ground and/or surface water are to be pumped during the construction phase. At least 4 to 5 months should be allowed for completion of the application and issuance of the permit by the MECP.

- For typical ground or surface water volumes being pumped during the construction phase, typically between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MECP review of the PTTW application.

5.0 SANITARY SEWER

There is an existing 825mm diameter sanitary sewer within the Martime Way right-of-way along the frontage of the proposed development. It is proposed to service the East and West towers with individual 200mm services. The East Tower service will connect directly to the existing sewer within the Maritime Way right-of-way. The West tower will be serviced by connecting to the existing private service for the neighboring Timberwalk Retirement Home, which ultimately discharges to the Maritime Way sewer.

Sanitary flows for the proposed development were calculated using criteria from Section 4 of the City of Ottawa Sewer Design Guidelines as follows:

- Residential Average Flow = 280 L/capita/day
- 1 Bed apartment = 1.4 Person/unit
- 2 Bed apartment = 2.1 Person/unit
- Commercial flow = 125 L/seat/day
- Residential Peaking Factor = Harmon Equation (max peaking factor = 4.0)
- Commercial Peaking Factor = 1.0
- Peak Extraneous Flows (Infiltration) = 0.33L/s/ha

The peak sanitary flow including infiltration for the proposed development was calculated to be 11.83 L/s with 6.03 L/s for the West Tower, and 5.80L/s for the East Tower. Detailed sanitary flow calculations are provided in **Appendix B** for reference.

The existing 825 mm diameter sanitary trunk sewer on Maritime Way was designed by J.L. Richards in 1998 to accommodate the development of the KTC-CBD subdivision and upstream lands. At the time of the original design of the trunk sewer, the land parcels were designated for commercial use and the sanitary flows were estimated using 50,000 L/ha/day per Ministry guidelines. Subsequently, land uses for various blocks have changed to include residential use.

The original sanitary sewer design sheet for the 825mm diameter trunk sewer has been revised by J.L. Richards within the JLR Memo and is included in **Appendix C** for reference. The JLR Memo included a change in land use for Block 122 (Claridge lands at 1250 Maritime Way) as well as Blocks 4 and 5 east of Maritime Way and north of the stormwater management facility. J.L. Richards noted an increase in the theoretical design flows at the junction of Teron Road and Campeau Drive from 475.94 L/sec to 480.24 L/sec, with a potential capacity of 838.6 L/s.

The proposed site was designated as part of Block 9 in the above analysis and was assumed to be a commercial site with a flow of 50,000L/ha/day. With an area of 1.23ha which equates to an assumed peaked flow of 1.07L/s. Thus, the proposed development will result in an increase of 10.76L/s when compared to the previous design.

In addition to the proposed development, other developments have since been constructed that will impact the capacity of the downstream system. As such we preformed a review of the downstream system, utilizing the available reports and aerial mapping data under two (2) scenarios. The first scenario utilized the same design criteria as the original JLR design. The second scenario was preformed using the current City of Ottawa Guidelines listed above.

The first analysis using the original design guidelines indicates that several downstream pipes would be surcharging with a maximum of 109% of the available pipe capacity. Although the original design parameters were highly conservative which is why the City of Ottawa has since revised the standards.

Utilizing the current design guidelines indicates that all pipes in the downstream system will have capacity with the worst pipe having a flow of 93% of the pipe capacity. It should be noted that even the current design standards are conservative and are not representative of the real-world flow values.

As, such we do not anticipate any negative impacts due to the proposed development. Refer to **Appendix C** for detailed calculations.

6.0 STORM SEWER AND STORMWATER MANAGEMENT

There is an existing 1650mm diameter storm sewer within the Maritime Way right-of-way fronting the proposed development. There is also an existing 375mm diameter private storm sewer on the adjacent Timber walk Retirement home property to the west, which ultimately discharges to the 1650mm sewer in Maritime Way. It is proposed to service the subject development with connections to both the existing 1650mm Storm Sewer and the private 375mm sewer. In total there are four (4) proposed connections; one (1) connection to the private 375mm sewer and three (3) connections to the existing 1650mm sewer. The connection to the private sewer will be an uncontrolled 300mm diameter foundation drainage connection for the West Tower. The three (3) connections to the 1650mm sewer include: a 300mm diameter foundation drain connection for the East Tower, a controlled 375mm diameter rear yard drainage system, and a controlled 450mm diameter cistern outlet. Refer to the General Plan of Services (120144-GP) for details.

Through correspondence with the City of Ottawa it is understood that the existing hydraulic Grade line (HGL) within the storm sewer fronting the site varies in elevation from 94.30-94.40m. As such it is proposed to place the service connection inverts at or above the existing HGL at the proposed building connections to mitigate potential backflow issues. It is also proposed to provide a pump within the proposed Cistern maximize the available storage while avoiding potential tailwater issues. Refer to **Appendix C** for details.

6.1 Storm Water Management Criteria

Stormwater management (SWM) design criteria for the proposed development were established by the City of Ottawa Sewer Design Guidelines (October 2012), and the JLR Report. The SWM design criteria are as follows:

- Control post-development peak flows up-to and including the 100-year storm event to the allowable release rate. Provide on-site water quantity control for all flow in excess of the allowable release rate. The allowable release rate is to be determined by applying the following parameters to the site area:
    - A runoff coefficient of 0.8 (refer to Dwg 15712-STM in **Appendix C**)
    - A time of concentration of 20 minutes
    - A 5-year intensity using the City of Ottawa Intensity-Duration-Frequency (IDF) curves
- Minimize the impact on the downstream receiving watercourses by minimizing the potential erosion and volume of sediment entering the watercourses both on a temporary basis (during construction) and on a permanent basis.
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

6.2 Existing Site Drainage

As mentioned previously the site is currently undeveloped and contains several fill piles ranging 1-2m in height in the southern portion of the site. The site generally drains towards Maritime Way, with a small amount of drainage directed towards the highway 416 corridor due to obstructions caused by the fill piles.

6.3 Quantity Control

The allowable release rate for the 1.24 ha site was calculated to be 193.4 L/s based on the SWM criteria provided within the JLR report.

Design Storms

The design storms are based on City of Ottawa design storms. Design storms were used for the 5 and 100-year return periods (i.e. storm events).

Model Parameters

Post-development catchments were modelled based on the proposed site plan and grading as shown on **Drawing 120144-SWM,** within **Appendix C**. All the sub-catchments over proposed underground parking areas are assumed to be 100% impervious. The building roofs were assumed to have no depression storage.

The site has been divided into six (6) drainage areas for the post development condition. The drainage areas are as follows:

Area A-01, R-01, R-02

- Flows from the proposed central access, West Tower Roof and East Tower Roof will be conveyed to the existing storm sewer in Maritime Way. These flows will be captured by area drains, and roof drains which will be conveyed to a proposed cistern under the main entrance within the P1 level of underground parking garage. Flows from the cistern to the existing sewer in Maritime Way will be pumped to the proposed service, where the flows will drain by gravity to the existing sewer system. The pump (to be designed by the mechanical consultant) is required to convey flow at 133 L/s. A “stand-by”pump will be provided for emergency and/or maintenance purposes. An emergency back-up power supply will also be provided. The storm service will be equipped with a backflow prevention device to protect the building from any potential sewer back-ups. Storage will be provided for storms up to and including the 100-year event within the cistern. Flows in excess of the 100-year event will overflow through a proposed 150mm overflow pipe, and a vented lid will be provided on the tank for emergencies which will convey flows directly to the Maritime Way right-of-way.

Area A-02:

- Flows from the proposed landscaped area on the southern portion of the property will be captured by a proposed storm system consisting of landscape drains, and catchbasin manholes which will convey flows to the existing Maritime Way sewer system. The proposed system will include a 152mm orifice and will store flows within the underground pipe system. Flows in excess of the 100-year event will overflow though the catch basin lids and be conveyed through the swale system to Maritime Way Right-of-way.

Area D-01:

- The drainage along the frontage of the property will flow uncontrolled to the Maritime Way Right of way

Area D-02:

- A small portion of the landscaped area at the rear of the East Tower will drain uncontrolled to the Highway 416 corridor.

Table **6.1 below** summarizes the flow, storage required, and storage provided for each of the site drainage areas.

Table 6.1 Stormwater Management Summary

Area ID	Area (ha)	1:5 Year Weighted Cw	Orifice Size & Type	5 Year Storm Event			100 Year Storm Event		
				Flow (L/s)	Req Vol (cu.m)	Max. Vol. Provided (cu.m.)	Flow (L/s)	Req Vol (cu.m)	Max. Vol. Provided (cu.m.)
D-01	0.029	0.57	N/A	4.8	N/A	N/A	9.2	N/A	N/A
D-02	0.008	0.20	N/A	0.50	N/A	N/A	1.0	N/A	N/A
A-02	0.290	0.38	152mm Plate	32.0	9.65	27.91	49.6	23.81	27.91
A-01, R-01, R-02	0.910	0.90	Pump	133.0	62.57	294.41	133.0	205.72	294.4
Post-Development Release Rate				**170.3**			**192.8**		
Allowable Release Rate				**193.4**			**193.4**		

Refer to **Appendix C** for Rational and Modified Method calculations, and **Drawing STM** Post Development Drainage Area Plan.

6.4 Water Quality Control

The proposed site is tributary to the downstream SWM facility which has been designed to provide quantity and quality control for the proposed development as detailed within the JLR Report. Refer to **Appendix C** for excerpts.

6.5 Major Overland Flow Route

A major overland flow route will be provided for storms greater than the 100-year storm event. Stormwater will be directed to the Maritime Way right-of-way. The major overland system is shown on the Grading Plan (drawing 120144-GR).

7.0 WATERMAIN

There is an existing 600mm watermain, and a 200mm local watermain within the Maritime Way right-of-way fronting the development. It is proposed to provide servicing to the proposed development by connecting to the existing 200mm local watermain. Each tower will have its own individual twined services separated by an isolation valve to provide redundancy resulting in a total of four (4) proposed watermain connections.

The proposed water services will be sized to provide both the required domestic water demand and fire flow. Shut-off valves will be located on the proposed services at the property line and a water meter and remote water meter will be provided for each tower. The proposed buildings are to be sprinklered and will be equipped with Siamese connections located near the front entrance of each building, within 45m of a fire hydrant. Refer to the General Plan of Services drawing (120144-GP) for servicing details.

Water demand calculations have been calculated using criteria from Section 4 of the City of Ottawa Water Distribution Guidelines and the Ontario Building Code. The required fire demand was calculated using the Fire Underwriters Survey (FUS) Guidelines. The water demand and fire flow calculations are provided in **Appendix D** for reference. A summary of the water demand and fire flows are provided in **Table 7.1**.

Table 7.1: Domestic Water Demand Summary

Building	Population	Commercial Area (m^2)	Ave. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
West Tower	528	0	1.71	4.28	9.41	100
East Tower	504	400	1.78	4.30	9.37	117
Total Domestic Demands	**1032**	**400**	**3.49**	**8.58**	**18.78**	

Detailed calculations are included in **Appendix D.**

The above water demand information was submitted to the City for boundary conditions from the City's water model. These boundary conditions were used for analyzing the performance of the proposed and existing watermain systems for three theoretical conditions:

1) High Pressure check under Average Day conditions
2) Peak Hour demand
3) Maximum Day + Fire Flow demand.

Refer to **Table 7.2** for a summary of the proposed boundary conditions and hydraulic analysis.

Table 7.2: Water Boundary Conditions and Hydraulic Analysis Summary

Criteria	Head (m)	Pressure[1] (psi)	Pressure Requirements (psi)
Connection 1- West Tower (200mm dia. Maritime Way)			
Max HGL	161.3	94.9	< 80psi
Min HGL	156.1	87.5	> 40psi
Max Day + Fire Flow	148.6	76.8	> 20psi
Connection 2- East Tower (200mm dia. Maritime Way)			
Max HGL	161.3	95.3	< 80psi
Min HGL	156.1	87.9	> 40psi
Max Day + Fire Flow	142.8	69.0	> 20psi

[1]Pressure based on service entry elevation of 94.58m for connection #1 and 94.25m for Connection #2

The hydraulic analysis indicates that the system can provide adequate pressures and flow to meet the domestic and fire flow requirements for the site. As the above pressure are above 80 psi pressure reducing valves will be required for the site. Refer to **Appendix D** for detailed water demand calculations, and City of Ottawa boundary conditions.

8.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures will be implemented on-site during construction in accordance with the Best Management Practices for Erosion and Sediment Control. This includes the following temporary measures:

- Filter socks (catchbasin inserts) will be placed in existing and proposed catchbasins and catchbasin manholes, and will remain in place until vegetation has been established and construction is completed;
- Silt fencing will be placed along the surrounding construction limits;
- Mud mats will be installed at the site entrances;
- Strawbale or rock check dams will be installed in swales and ditches;
- The contractor will be required to perform regular street sweeping and cleaning as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site;

Erosion and sediment control measures should be inspected daily and after every rain event to determine maintenance, repair or replacement requirements. Sediments or granulars that enter site sewers shall be removed immediately by the contractor. These measures will be implemented prior to the commencement of construction and maintained in good order until vegetation has been established. Refer to the Erosion and Sediment Control Plan (drawing 120144-ESC) for additional information.

9.0 CONCLUSIONS

Watermain

The analysis of the existing and proposed watermain network confirms the following:

- The four (4) proposed 200mm dia. watermain services which connect to the existing 200mm dia. watermain in Maritime Way will service the proposed development.
- There are adequate pressures in the existing watermain infrastructure to meet the required domestic demands for the development, and pressure reducing valves will be required.
- There is adequate flow to service the proposed fire protections system.

Sanitary Servicing

The analysis of the existing and proposed sanitary system confirms the following:

- It is anticipated that there is adequate capacity within the existing sanitary infrastructure to service the proposed development based on the information provided in the existing JLR Memo, and the available mapping data.

Stormwater Management

The following provides a summary of the storm sewer and stormwater management system:

- The proposed storm sewer system is to connect to the existing 1650mm diameter storm sewer in Maritime Way.
- Underground storage is be provided within the storm sewer system and underground Cistern.
- Inlet control devices and underground storage have been designed to ensure no static ponding is achieved in the 2-year event.
- Storm flows will be attenuated through the implementation of inlet control devices.
- Parking lots have been graded to ensure that static ponding depths do not exceed 0.30m.
- As per existing conditions a major overland flow route is provided to Maritime Way.
- Quality control of stormwater will be provided in the downstream SWM facility.

Erosion and Sediment control

- Erosion and sediment control measures (i.e. filter fabric, catchbasin inserts, silt fences, etc.) will be implemented prior to construction and are to remain in place until vegetation is established.

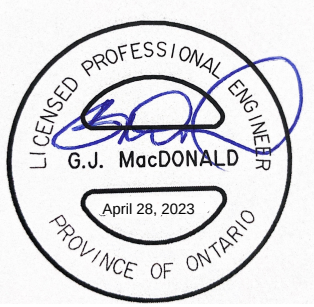
Please contact the undersigned should you have questions or require additional information.

NOVATECH

Prepared by:

Anthony Mestwarp, P.Eng
Project Engineer | Land Development

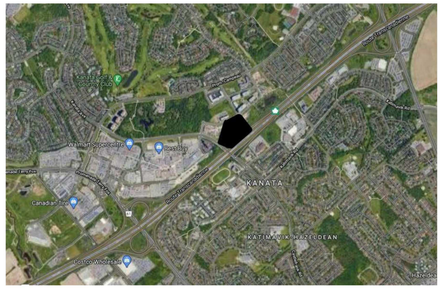
Reviewed by:



Greg MacDonald, P.Eng.
Director | Land Development and Public Sector Infrastructure

APPENDIX A

Site Plan



KEY PLAN

ZONE AM10

PROVISION	REQUIRED	PROVIDED
Min Lot Width	no minimum	+/- 69.65 m
Min Lot Area	no minimum	+/- 12 808 m²
Max Building Height	67m	+/- 93.5 m
Min Front Yard Setback	no minimum	7.50 m / 3.09 m
Min Corner Side Yard Setback	no minimum	5.24 m
Min FSI	2	+/- 4.53
Min Interior Side Yard Setback	no minimum	15.40 m / 15.13 m

SITE AREA :		**+/- 12 808 m² (To be confirmed by surveyor)**
SITE COVERAGE :		+/- 2 489 m² (East Tower)
		+/- 1 968 m² (West Tower)
	Total =	+/- 4 457 m² = **34.8 %**
GROUND PARKING AREA :		+/- 1 702 m² = **13.3%**
LANDSCAPED AREA (EXCLUDING PARKING) :		+/- 6 649 m² = **51.9 %**

RENTAL - EAST TOWER

PROPOSED GROSS FLOOR AREA :	**+/- 22 475 m²**
BASEMENT G.F.A. :	**+/- 1 507 m²**
GROUND FLOOR G.F.A. :	**+/- 1 122 m²**
RENTAL FLOORS G.F.A. (2nd to 28th floor) :	**+/- 19 845 m²**
PRIVATE AMENITY AREA (G.F.A.) :	**+/- 1 997 m²**
COMMUNAL AMENITY AREA :	**+ /- 1 197 m²**
NUMBER OF FLOORS AND BUILDING HEIGHT :	**28 FLOORS + MECH. / +/- 87.50m**
DWELLING UNITS :	**302**
PARKING STALLS :	**303** (288 INSIDE / 4 VIS. OUTSIDE + 11 VIS. INSIDE)
PROVIDED BICYCLE STALLS :	**151** (143 INSIDE / 8 OUTSIDE)

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE :
302 UNITS = **45 UNITS** HAVE TO BE BARRIER-FREE
THEY WILL BE DISTRIBUTED BETWEEN THE 28 FLOORS

RENTAL - WEST TOWER

PROPOSED GROSS FLOOR AREA :	**+/- 25 617 m²**
BASEMENT G.F.A. :	**+/- 631 m²**
GROUND FLOOR G.F.A. :	**+/- 437 m²**
RENTAL FLOORS G.F.A. (2nd to 28th floor) :	**+/- 24 548 m²**
PRIVATE AMENITY AREA (G.F.A.) :	**+/- 1 232 m²**
COMMUNAL AMENITY AREA :	**+ /- 1 054 m²**
NUMBER OF FLOORS AND BUILDING HEIGHT :	**30 FLOORS + MECH. / +/- 93.50m**
DWELLING UNITS :	**313**
PARKING STALLS :	**314** (299 INSIDE / 14 VIS. OUTSIDE + 1 VIS. INSIDE)
PROVIDED BICYCLE STALLS :	**157** (150 INSIDE / 7 OUTSIDE)

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE :
313 UNITS = **47 UNITS** HAVE TO BE BARRIER-FREE
THEY WILL BE DISTRIBUTED BETWEEN THE 30 FLOORS

- FOR EXISTING SITE CONDITIONS, SEE SURVEY PLAN BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD., SUBMITTED SEPARATELY;
- FOR NEW GRADES AND SITE SERVICES, SEE CIVIL ENGINEERING PLAN BY NOVATECH ENGINEERING CONSULTANTS, SUBMITTED SEPARATELY;
- FOR PROPOSED VEGETATION AND LANDSCAPE INFORMATION, SEE LANDSCAPE PLAN BY JAMES B. LENNOX & ASSOCIATES, SUBMITTED SEPARATELY.

NOTES GÉNÉRALES General Notes

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SCEAU / Seal

ONTARIO ASSOCIATION OF ARCHITECTS
LUCIEN HAMAD
LICENCE
8286

NEUF
ARCHITECT(E)S
NEUF ARCHITECTES SENCRL

CLIENT Client

CLARIDGE HOMES

OUVRAGE Project

1200 MARITIME WAY (KANATA RENTAL)

EMPLACEMENT Location
OTTAWA

NO PROJET No.
12371.00

NO	RÉVISION	DATE (aa-mm-jj)
A	FOR COMMENTS	2020.05.28
B	FOR COMMENTS	2020.06.05
C	FOR COMMENTS	2020.07.23
D	IN PROGRESS	2020.09.16
E	SITE PLAN COORDINATION	2020.12.08
F	SITE PLAN COORDINATION	2020.12.16
G	SITE PLAN COORDINATION	2021.02.22
H	PER TRANSPORTATION COMMENTS	2021.05.18
I	PER CITY COMMENTS	2021.05.27
J	PER CITY COMMENTS	2021.11.11
K	REVISED SITE PLAN	2022.03.28
L	REVISED SITE PLAN - COORDINATION	2022.04.07
M	PER CITY COMMENTS	2022.06.03
N	FOR COMMENTS	2023.04.13
O	FOR COMMENTS	2023.04.17
P	SITE PLAN APPROVAL	2023.04.27

DESSINÉ PAR Drawn by
PV

VÉRIFIÉ PAR Checked
LH

DATE (aa.mm.jj)
05/28/20

ÉCHELLE Scale
1 : 300

TITRE DU DESSIN Drawing Title

SITE PLAN AT GROUND FLOOR LEVEL

RÉVISION Revision
P

NO. DESSIN Dwg Number
A203

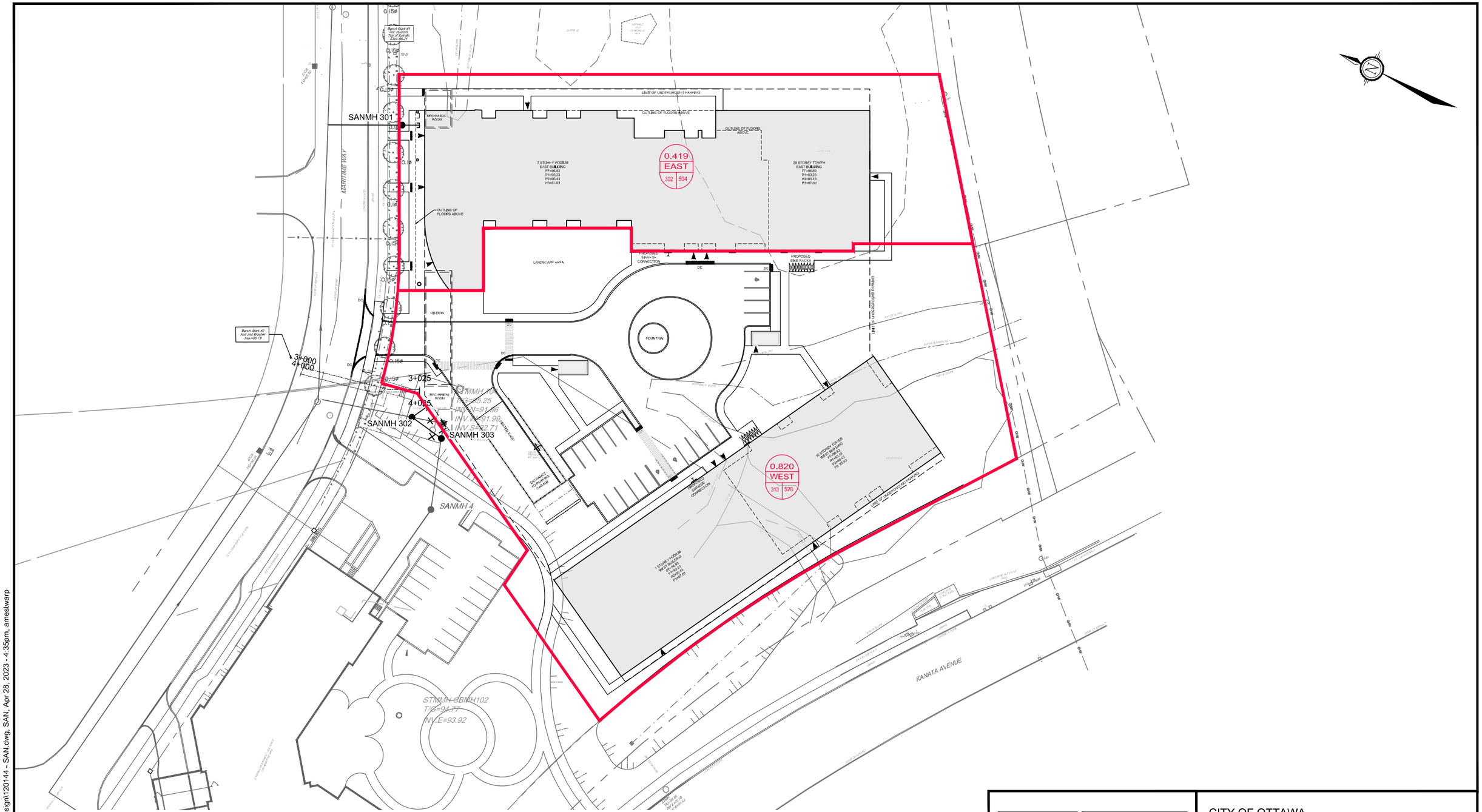
#18348

D07-12-21-0017

C:\Fichiers Revit Locaux\12371_ARCH_OPTION 9_R20_pascalvendette.rvt

APPENDIX B

Sanitary Sewer Servicing Information



LEGEND

DRAINAGE AREA (ha)
DRAINAGE AREA ID
NO. OF UNITS / TOTAL POPULATION

SANITARY DRAINAGE AREA BOUNDARY

PROPOSED SANITARY SEWER C/W MANHOLE

SAN MH *EXISTING SANITARY MANHOLE & SEWER*

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

CITY OF OTTAWA
1200 MARITIME WAY

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 750 (0 10 20 30)
DATE APRIL 2023
JOB 120144
FIGURE SAN

SHT11X17.DWG - 279mmX432mm

\\novatech2018\nova2\2020\120144\CADD\Design\120144 - SAN.dwg, SAN, Apr 28, 2023 - 4:35pm, amestwarp

SANITARY SEWER DESIGN SHEET

Novatech Project #: 120144
Project Name: 1200 Martime Way
Date Prepared: 5/30/2022
Date Revised: 4/28/2023
Input By: Anthony Mestwarp
Reviewed By: Greg Macdonald
Drawing Reference: 120144-SAN

Legend:
PROJECT SPECIFIC INFO
USER DESIGN INPUT
CUMULATIVE CELL
CALCULATED DESIGN CELL OUTPUT

NOVATECH
Engineers, Planners & Landscape Architects

LOCATION			DEMAND																DESIGN CAPACITY							
			RESIDENTIAL FLOW							COMMERCIAL FLOW					EXTRANEOUS FLOW				PROPOSED SEWER PIPE SIZING / DESIGN							
AREA	FROM MH	TO MH	1 Bed Apartment	2 Bed Apartment	POPULATION (in 1000's)	CUMULATIVE POPULATION (in 1000's)	PEAK FACTOR M	AVG POPULATION FLOW (L/s)	PEAKED DESIGN POP FLOW (L/s)	COMMERICAL AREA (m^2)	CUMULATIVE COMMERICAL AREA (m^2)	DESIGN COMMERICAL FLOW (L/s)	COMMERICAL PEAK FACTOR	PEAKED COMMERCIAL FLOW	Total Area (ha.)	Accum. Area (ha.)	DESIGN EXTRAN. FLOW (L/s)	TOTAL DESIGN FLOW (L/s)	PIPE LENGTH (m)	PIPE SIZE (mm) AND MATERIAL	PIPE ID ACTUAL (m)	ROUGH. (n)	DESIGN GRADE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	Qpeak Design / Qcap
CROISSANT FRANCOISE (SANMH 202)																										
WEST	STUB	302	185	128	0.528	0.528	3.37	1.71	5.76	0.000	0.000	0.00	1.00	0.00	0.82	0.82	0.27	6.03	3.7	200 PVC	0.203	0.013	2.00	48.4	1.49	12.5%
CROISSANT FRANCOISE (SANMH 205)																										
EAST	STUB	301	186	116	0.504	0.504	3.38	1.63	5.52	400.000	400.000	0.14	1.00	0.14	0.42	0.42	0.14	5.80	3.6	200 PVC	0.203	0.013	1.00	34.2	1.06	17.0%
EAST	301	MAIN			0.000	0.504	3.38	1.63	5.52		400.000	0.14	1.00	0.14	0.00	0.42	0.14	5.80	15.4	200 PVC	0.203	0.013	1.00	34.2	1.06	17.0%
TOTAL			371	244	1.032	1.032				400.000	400.000				1.24											

Design Parameters:

1. Residential Flows
   - -1 Bed Apartment 1.4 Person/ Unit
   - -2 Bed Apartment 2.1 Person/ Unit
2. Commercial Flow
   - -Office 125 L/seat^3/day (Assume 1 seat/4m^2)
3. q Avg capita flow 280 L/per/day
4. M = Harmon Formula (maximum of 4.0)
5. K = 0.8
6. Commercial Peak Factor
   - -area > 20% of development 1.5
   - -area < 20% of development 1.0
8. Extraneous Flows = 0.33 L/sec/ha

CAPACITY EQUATION

Q full= (1/n) A R^(2/3)So^(1/2)

Where : Q full = Capacity (L/s)

n = Manning coefficient of roughness (0.013)
A = Flow area (m^2)
R = Wetter perimenter (m)
So = Pipe Slope/gradient

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

LOCATION			RESIDENTIAL													COMMERCIAL/INSTITUTIONAL			PLUGGED FLOW		R + C		PROPOSED SEWER					
			NUMBER OF UNITS								INDIVIDUAL		CUMULATIVE															
			Houses			Extended Care		Hotel/Apt																				
STREET	FROM MH	TO MH	Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop	POPUL. People	AREA ha	POPUL. People	AREA ha	PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW l/s	PEAK DESIGN FLOW L/S	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
Robinson - 1996	Upstream	7A									2588	28.38	2588	28.38	3.496	36.65	20.370	20.370	17.68	162.69	162.69	14.02	231.04						
1250 Maritime Way	Blk 122	7A									377	0.89	377	0.89	4.000	6.11	0.005	0.005	0.004	0.83	0.83	0.25	7.19						
1200 Maritime Way	**Blk 126**	**7A**																				**0.000**	**0.00**						
Maritime Way	7A	507											2965	29.27	3.447	41.40		20.375	17.687		163.520	14.266	236.87	81.9	825	0.14	537.091	1.00	44%
Maritime Way	507	506						125	225	174	174	1.02	3139	30.29	3.426	43.56	4.910	25.285	21.949		163.520	15.92	244.95	119.3	825	0.12	497.249	0.93	49%
Cordillera Street	534	533						125	207	207	207	0.58	207	0.58	4.000	3.35	0.550	0.550	0.477			0.32	4.16	66.6	200	1.65	42.130	1.36	10%
Can. Shield Avenue	533	532											207	0.58	4.000	3.35		0.550	0.477			0.32	4.16	69.9	200	1.20	35.929	1.16	12%
Can. Shield Avenue	532	531										0.33	207	0.91	4.000	3.35		0.550	0.477			0.41	4.24	69.9	200	1.20	35.929	1.16	12%
Great Lakes Avenue	536	531						100	180	139	139	0.78	139	0.78	4.000	2.25	0.040	0.040	0.035	0.300	0.300	0.23	2.82	60.0	200	2.40	50.811	1.63	6%
Great Lakes Avenue	531	530											346	1.69	4.000	5.61		0.590	0.512		0.300	0.644	7.06	80.8	200	3.75	63.514	2.04	11%
Great Lakes Avenue	530	506A											346	1.69	4.000	5.61		0.590	0.512		0.300	0.644	7.06	85.2	200	1.40	38.808	1.25	18%
Great Lakes Avenue	506A	506										0.38	346	2.07	4.000	5.61		0.590	0.512		0.300	0.740	7.16	4.9	200	1.40	38.808	1.25	18%
Maritime Way	506	505						176	316.8	269	269	0.57	3754	32.93	3.358	51.06		25.875	22.461		163.820	16.818	254.16	111.0	825	0.12	497.249	0.94	51%
Maritime Way	505	504						146	262.8	230	230	0.56	3984	33.49	3.335	53.82	1.750	27.625	23.980		163.820	17.479	259.10	114.4	825	0.11	476.080	0.90	54%
Maritime Way	504	501										0.27	3984	33.76	3.335	53.82		27.625	23.980		163.820	17.556	259.18	29.9	825	0.11	476.080	0.90	54%
Can. Shield Avenue	542	541						176	316.8	269	269	0.74	269	0.74	4.000	4.36						0.212	4.57	71.3	200	2.20	48.648	1.56	9%
Can. Shield Avenue	541	540						154	272.2	232	232	0.51	501	1.25	3.974	8.06	1.360	1.360	1.181			0.731	9.98	77.7	200	0.90	31.115	1.00	32%
	Block 3	540				208	333			428	428	1.02	428	1.02	4.000	6.94						0.286	7.22	12.0	200	0.60	25.406	0.82	28%
Can. Shield Avenue	540	512										0.3	929	2.57	3.820	14.38		1.360	1.181			1.100	16.66	82.6	200	0.71	27.636	0.89	60%
Maritime Way	514	513																						51.2	200	2.14	47.980	1.54	0%
Maritime Way (Blk 4)	513	512						144	271	271	271	1.12	271	1.12	4.000	4.39						0.314	4.70	51.9	200	2.28	49.525	1.59	9%
Maritime Way	512	511								58	58	0.73	1258	4.42	3.734	19.03		1.360	1.181			1.618	21.83	49.3	200	3.12	57.934	1.86	38%
	Block 5	511						154	301	301	301	0.92	301	0.92	4.000	4.88						0.258	5.13	12.2	200	2.00	46.384	1.49	11%
Maritime Way	511	510											1559	5.34	3.667	23.16		1.360	1.181			1.876	26.22	38.4	200	1.70	42.764	1.38	61%
Maritime Way	510	501											1559	5.34	3.667	23.16		1.360	1.181			1.876	26.22	11.3	200	2.28	49.525	1.59	53%
Trunk Easement	501	500											5543	39.1	3.203	71.93		28.985	25.161		163.820	19.425	280.33	129.0	825	0.10	453.925	0.86	62%
Trunk Easement	500	94											5543	39.1	3.203	71.93		28.985	25.161		163.820	19.425	280.33						
A	90	92			35						95	0.80	95	0.80	4.000	1.54						0.228	1.77	120.0	250	0.60	46.063	0.95	4%
	92	94			12						32	1.19	127	1.99	4.000	2.06						0.568	2.63	103.0	250	2.20	88.205	1.82	3%
	94	95											5670	41.09	3.194	73.36		28.985	25.161		163.820	19.992	282.33	17.5	825	0.12	497.249	0.94	57%
	95	89			10						27	0.52	5697	41.61	3.192	73.67		28.985	25.161		163.820	20.141	282.79	66.6	825	0.12	497.249	0.94	57%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

LOCATION			RESIDENTIAL														COMMERCIAL/INSTITUTIONAL			PLUGGED FLOW		R + C		PROPOSED SEWER					
STREET	FROM MH	TO MH	NUMBER OF UNITS								INDIVIDUAL		CUMULATIVE		PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW	PEAK DESIGN FLOW	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
			Houses			Extended Care		Hotel/Apt			POPUL. People	AREA ha	POPUL. People	AREA ha								l/s	L/S						
			Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop																			
B	85	87	19								65	1.19	65	1.19	4.000	1.05						0.340	1.39	116.9	250	0.40	37.611	0.77	4%
	87	89			24						65	0.82	130	2.01	4.000	2.11						0.573	2.68	116.7	250	1.41	70.614	1.45	4%
A	89	84			12						32	0.35	5859	43.97	3.181	75.49		28.985	25.161		163.820	20.792	285.26	79.0	825	0.12	497.249	0.94	57%
C	80	82	19								65	1.08	65	1.08	4.000	1.05						0.308	1.36	120.0	250	0.40	37.611	0.77	4%
	82	84			25						67	0.83	132	1.91	4.000	2.14						0.544	2.68	118.5	250	1.20	65.143	1.34	4%
A	84	79			14						38	0.54	6029	46.42	3.169	77.39		28.985	25.161		163.820	21.490	287.86	79.0	825	0.12	497.249	0.94	58%
D	75	76			17						46	0.37	46	0.37	4.000	0.75						0.105	0.85	57.0	250	0.40	37.611	0.77	2%
	76	77			20						54	0.29	100	0.66	4.000	1.62						0.188	1.81	78.4	250	0.40	37.611	0.77	5%
	77	79			13						35	0.63	135	1.29	4.000	2.19						0.368	2.56	117.7	250	0.81	53.521	1.10	5%
Park Easement	79	67										0.98	6164	48.69	3.160	78.89		28.985	25.161		163.820	22.099	289.97	55.0	825	0.12	497.249	0.94	58%
	67	66			6						16	0.33	6180	49.02	3.159	79.07		28.985	25.161		163.820	22.192	290.25	70.0	825	0.12	497.249	0.94	58%
BELLROCK DRIVE	70	73		12	14						70	2.56	70	2.56	4.000	1.13						0.728	1.86	87.2	250	0.40	37.611	0.77	5%
	73	74			12						32	0.54	102	3.1	4.000	1.65						0.882	2.53	80.3	250	0.40	37.611	0.77	7%
EASEMENT	74	62										0.31	102	3.41	4.000	1.65						0.970	2.62	39.9	250	0.40	37.611	0.77	7%
CAMBRAY LANE	62	66			25						68	0.48	170	3.89	4.000	2.75						1.107	3.86	100.5	250	0.40	37.611	0.77	10%
BISHOPS MILLS WAY	66	65			9						24	0.53	6374	53.44	3.146	81.22		28.985	25.161		163.820	23.450	293.65	62.0	825	0.12	497.249	0.94	59%
SOUTH OF HWY 7	EX.	65									7792	191.6	7792	191.6	3.061	96.63				37.720	37.720	53.648	188.00	50.2	900	0.11	600.412	0.95	31%
BISHOPS MILLS WAY	65	64			2						5		14171	245.04	2.803	160.91		28.985	25.161		201.540	77.083	464.70	17.0	900	0.11	600.412	0.95	77%
EDENVALE DRIVE	59	60			8						22	0.50	22	0.50	4.000	0.36						0.141	0.50	77.0	200	1.40	38.808	1.25	1%
KETTLEBY STREET	60	61			22						59	0.62	81	1.12	4.000	1.31						0.315	1.63	103.6	250	0.40	37.611	0.77	4%
CAMBRAY LANE	58	61			5						14	0.41	14	0.41	4.000	0.23						0.115	0.34	74.5	200	0.70	27.441	0.88	1%
KETTLEBY STREET	61	64			25						68	0.42	163	1.95	4.000	2.64						0.549	3.19	105.0	250	0.90	56.416	1.16	6%
BISHOPS MILLS WAY	64	63			3						8		14342	246.99	2.798	162.55		28.985	25.161		201.540	77.632	466.88	13.0	900	0.11	600.412	0.95	78%
	63	57			10						27	0.68	14369	247.67	2.797	162.81		28.985	25.161		201.540	77.823	467.33	64.9	900	0.11	600.412	0.95	78%
TER. BUNGALOW Ph. 2	51	53		48							130	0.94	130	0.94	4.000	2.11						0.264	2.37	122.3	200	0.70	27.441	0.88	9%
	53	54		4							11		141	0.94	4.000	2.28						0.264	2.55	13.6	200	0.70	27.441	0.88	9%
	54	55										0.27	141	1.21	4.000	2.28						0.340	2.63	36.7	200	0.70	27.441	0.88	10%
BISHOPS MILLS WAY	55	56	11								37	0.81	178	2.02	4.000	2.88						0.568	3.45	107.1	250	0.40	37.611	0.77	9%
	56	57	7		12						56	0.65	234	2.67	4.000	3.79						0.751	4.54	101.5	250	0.60	46.063	0.95	10%
PARK	57	34			1						3	0.37	14606	250.71	2.790	165.07		28.985	25.161		201.540	78.678	470.45	53.5	900	0.11	600.412	0.95	78%
	34	33			3						8		14614	250.71	2.790	165.15		28.985	25.161		201.540	78.678	470.53	50.3	900	0.11	600.412	0.95	78%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

LOCATION			RESIDENTIAL														COMMERCIAL/INSTITUTIONAL			PLUGGED FLOW		R + C		PROPOSED SEWER					
STREET	FROM MH	TO MH	NUMBER OF UNITS								INDIVIDUAL		CUMULATIVE		PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW	PEAK DESIGN FLOW	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
			Houses			Extended Care		Hotel/Apt			POPUL. People	AREA ha	POPUL. People	AREA ha								l/s	L/S						
			Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop																			
HAWSTONE	43	44		22							59	1.19	59	1.19	4.000	0.96						0.335	1.29	51.0	250	1.00	59.468	1.22	2%
	44	45		8							22	0.09	81	1.28	4.000	1.31						0.360	1.67	29.0	250	0.50	42.050	0.87	4%
EDENVALE	45	35										0.06	81	1.34	4.000	1.31						0.377	1.69	39.8	250	0.50	42.050	0.87	4%
BIRKENDALE DRIVE	35	36	7								24	1.18	105	2.52	4.000	1.70						0.709	2.41	93.2	250	0.37	36.173	0.74	7%
	36	37	13								44	0.79	149	3.31	4.000	2.41						0.931	3.35	77.1	250	0.37	36.173	0.74	9%
	37	33	2		3						15		164	3.31	4.000	2.66						0.931	3.59	17.9	250	0.40	37.611	0.77	10%
BIRKENDALE DRIVE	33	32			10						27	0.56	14805	254.58	2.784	166.96		28.985	25.161		201.540	79.767	473.43	72.7	900	0.11	600.412	0.95	79%
TEESWATER STREET	30	31			16						43	0.66	43	0.66	4.000	0.70						0.186	0.88	75.1	250	0.40	37.611	0.77	2%
	31	32			19						51	0.41	94	1.07	4.000	1.52						0.301	1.82	77.9	250	0.40	37.611	0.77	5%
BIRKENDALE STREET	32	18			6						16	0.37	14915	256.02	2.781	168.01		28.985	25.161		201.540	80.172	474.88	44.4	900	0.11	600.412	0.95	79%
	18	16			4						11		14926	256.02	2.780	168.11		28.985	25.161		201.540	80.172	474.99	44.4	900	0.11	600.412	0.95	79%
COMMERCIAL PLAZA	19	17													4.000	0.00	0.520	0.520	0.451			0.146	0.60	26.5	150	0.90	14.448	0.83	4%
COLCHESTER SQUARE	17	16										0.10		0.10	4.000	0.00		0.520	0.451			0.174	0.63	33.2	250	0.40	37.611	0.77	2%
COLCHESTER SQUARE	16	15			10						27	0.56	14953	256.68	2.780	168.37		29.505	25.612		201.540	80.504	476.03	66.0	900	0.11	600.412	0.95	79%
	15	14A			2						5		14958	256.68	2.779	168.42		29.505	25.612		201.540	80.504	476.07	25.8	900	0.11	600.412	0.95	79%
ELSINORE LANE	39	28		32							86	0.53	86	0.53	4.000	1.39						0.149	1.54	56.7	250	1.00	59.468	1.22	3%
	28	24		18							49	1.47	135	2.00	4.000	2.19						0.563	2.75	43.0	250	0.40	37.611	0.77	7%
	24	23		12							32	0.14	167	2.14	4.000	2.71						0.602	3.31	34.0	250	0.40	37.611	0.77	9%
ELSINORE LANE	23	306		8							22	0.24	189	2.38	4.000	3.06						0.669	3.73	48.8	250	0.44	39.446	0.81	9%
ENDENVALE DRIVE	306	14-A										0.45	189	2.83	4.000	3.06						0.796	3.86	46.4	250	0.49	41.627	0.86	9%
COLCHESTER SQUARE	14-A	14											15147	259.51	2.774	170.21		29.505	25.612		201.540	81.300	478.66	14.7	900	0.11	600.412	0.95	80%
	Church	14															0.520	0.520	0.451			0.146	0.60	35.0	150	1.00	15.229	0.87	4%
COLCHESTER SQUARE	14	11		4							11	0.16	15158	259.67	2.774	170.31		30.025	26.063		201.540	81.491	479.41	72.6	900	0.11	600.412	0.95	80%
TERON	11	10											15158	259.67	2.774	170.31		30.025	26.063		201.540	81.491	479.41	29.6	900	0.11	600.412	0.95	80%
	10	EX.										0.25	15158	259.92	2.774	170.31		30.025	26.063		201.540	81.562	479.48	72.3	900	0.11	600.412	0.95	80%
TERON	0.P.P.	EX.																		0.780	0.780		0.78	100 FORCEMAIN					
TERON	EX.	EX. 2											15158	259.92	2.774	170.31		30.025	26.063		202.320	81.562	480.26	9.400	680.000	0.960	839.974	2.34	57%

Notes:

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS
JOB# 120144

LOCATION			RESIDENTIAL												COMMERCIAL/INSTITUTIONAL			PLUGGED FLOW		R + C		PROPOSED SEWER					
STREET	FROM MH	TO MH	NUMBER OF UNITS							INDIVIDUAL		CUMULATIVE		PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW	PEAK DESIGN FLOW	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
			Houses			Extended Care		Hotel/Apt		POPUL. People	AREA ha	POPUL. People	AREA ha								l/s	L/S						
			Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop																		

1) As per Kanata Town Centre Sanitary Trunk Sewer Study revised March 27, 1996 by Robinson Consultants Inc.
2) Park or open space area.
3) Equivalent population base on 208 rooms and 20 staff members.
4) Allowance for an ultimate flow of 188 l/s to provide flexibility in future development as per Kanata Town Centre Sanitary Trunk Study.
5) Additional flow associated with hotel amendities including swimming pool with bathrooms and laudry as per design calculations for Block 1 provided by WSP (October 2016).
6) Additional flow associated with overall amenities including beauty salon, staff, dining and laundry as per design calculations for 1250 Maritime Way (Timberwalk Retirement Home) provided by Novatech (July 31, 2017).

Design Parameters:

1) Q(p) = (PxqxM/86,400)
2) Q(d) = Q(p) + Q(e)

Definitions:

P = Population
q = Average per capita flow = 350 L/person/day
M = Residential Peaking Factor (Harmon Formula from section 4.4.1 of the City Sewer Design Guidelines):
M = 1+[14/(4+Pop/1000)^1/2]*1 - (Maximum of 4.0)

Q(d) = Design Flow (L/sec)
Q(p) = Population Flow (L/sec)
Q(r) = Commercial Flow (L/sec)
Q(e) = Extraneous Flow (L/sec) 0.28 l/s/ha

Units		
Single	**3.4**	pers/unit
Town	**2.7**	pers/unit
Hotel/ Apartmentt	**1.8**	pers/unit
Retirement Home	**1.6**	pers/unit
Commercial Flow	**50000**	L/ha/day
Commercial Peak Factor	1.5	

1200 Maritime Way
SANITARY SEWER DESIGN SHEET

Date	January 27, 2021				
Design	GMAC				
Job No.		**wg. Referenc**	**Checked and Stamped:**		
120144		120144-SAN	--		

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS - OLD STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

LOCATION			RESIDENTIAL														COMMERCIAL/INSTITUTIONAL			PLUGGED FLOW		R + C		PROPOSED SEWER						
			NUMBER OF UNITS								INDIVIDUAL		CUMULATIVE		PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW	PEAK DESIGN FLOW	LENGTH (m)	PIPE SIZE (mm)	ACTUAL PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
STREET	FROM MH	TO MH	Houses			Extended Care		Hotel/Apt			POPUL. People	AREA ha	POPUL. People	AREA ha								l/s	L/S							
			Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop																				
Robinson - 1996	Upstream	7A									2588	28.38	2588	28.38	3.496	36.65	20.370	20.370	17.68	162.69	162.69	13.65	230.67							
1250 Maritime Way	Blk 122	7A									377	0.89	377	0.89	4.000	6.11	0.005	0.005	0.004	0.83	0.83	0.25	7.19							
1200 Maritime Way	**Blk 126**	**7A**						**633**		**1058**	**1058**	**1.28**	**1058**	**1.28**	3.784	16.22	**0.040**	**0.040**	**0.010**			0.37	**16.60**							
Maritime Way	7A	507											4023	30.55	3.331	54.29		20.415	17.721		163.520	14.27	249.80	81.9	825	838	0.14	560.313	1.02	45%
Maritime Way	507	506						125	225	174	174	1.02	4197	31.57	3.315	56.35	3.680	24.095	20.916		163.520	15.59	256.38	119.3	825	838	0.12	518.749	0.94	49%
Cordillera Street	534	533						125	207	207	207	0.58	207	0.58	4.000	3.35	0.550	0.550	0.477			0.32	4.15	66.6	200	203	1.65	43.952	1.37	9%
Can. Shield Avenue	533	532											207	0.58	4.000	3.35		0.550	0.477			0.32	4.15	69.9	200	203	1.20	37.482	1.17	11%
Can. Shield Avenue	532	531										0.33	207	0.91	4.000	3.35		0.550	0.477			0.41	4.24	69.9	200	203	1.20	37.482	1.17	11%
Great Lakes Avenue	536	531						100	180	139	139	0.78	139	0.78	4.000	2.25	0.040	0.040	0.035	0.300	0.300	0.23	2.82	60.0	200	203	2.40	53.008	1.65	5%
Great Lakes Avenue	531	530											346	1.69	4.000	5.61		0.590	0.512		0.300	0.64	7.06	80.8	200	203	3.75	66.260	2.06	11%
Great Lakes Avenue	530	506A											346	1.69	4.000	5.61		0.590	0.512		0.300	0.64	7.06	85.2	200	203	1.40	40.486	1.26	17%
Great Lakes Avenue	506A	506										0.38	346	2.07	4.000	5.61		0.590	0.512		0.300	0.74	7.16	4.9	200	203	1.40	40.486	1.26	18%
Maritime Way	506	505						176	316.8	269	269	0.57	4812	34.21	3.260	63.55		24.685	21.428		163.820	16.49	265.29	111.0	825	838	0.12	518.749	0.95	51%
Maritime Way	505	504						146	262.8	230	230	0.56	5042	34.77	3.242	66.21	1.750	26.435	22.947		163.820	17.14	270.11	114.4	825	838	0.11	496.665	0.91	54%
Maritime Way	504	501										0.27	5042	35.04	3.242	66.21		26.435	22.947		163.820	17.21	270.19	29.9	825	838	0.11	496.665	0.91	54%
Can. Shield Avenue	542	541						176	316.8	269	269	0.74	269	0.74	4.000	4.36						0.21	4.57	71.3	200	203	2.20	50.751	1.58	9%
Can. Shield Avenue	541	540						154	272.2	232	232	0.51	501	1.25	3.974	8.06	1.360	1.360	1.181			0.73	9.98	77.7	200	203	0.90	32.461	1.01	31%
	Block 3	540				208	333			428	428	1.02	428	1.02	4.000	6.94						0.29	7.22	12.0	200	203	0.60	26.504	0.83	27%
Can. Shield Avenue	540	512										0.3	929	2.57	3.820	14.38		1.360	1.181			1.10	16.66	82.6	200	203	0.71	28.831	0.90	58%
Maritime Way	514	513																						51.2	200	203	2.14	50.055	1.56	0%
Maritime Way (Blk 4)	513	512						144	271	271	271	1.12	271	1.12	4.000	4.39						0.31	4.70	51.9	200	203	2.28	51.666	1.61	9%
Maritime Way	512	511								58	58	0.73	1258	4.42	3.734	19.03		1.360	1.181			1.62	21.83	49.3	200	203	3.12	60.439	1.88	36%
	Block 5	511						154	301	301	301	0.92	301	0.92	4.000	4.88						0.26	5.13	12.2	200	203	2.00	48.390	1.51	11%
Maritime Way	511	510											1559	5.34	3.667	23.16		1.360	1.181			1.88	26.22	38.4	200	203	1.70	44.613	1.39	59%
Maritime Way	510	501											1559	5.34	3.667	23.16		1.360	1.181			1.88	26.22	11.3	200	203	2.28	51.666	1.61	51%
Trunk Easement	501	500											6601	40.38	3.131	83.73		27.795	24.128		163.820	19.09	290.76	129.0	825	838	0.10	473.551	0.87	61%
Trunk Easement	500	94											6601	40.38	3.131	83.73		27.795	24.128		163.820	19.09	290.76							
A	90	92			35						95	0.80	95	0.80	4.000	1.54						0.22	1.76	120.0	250	254	0.60	48.055	0.96	4%
	92	94			12						32	1.19	127	1.99	4.000	2.06						0.56	2.62	103.0	250	254	2.20	92.018	1.84	3%
	94	95											6728	42.37	3.123	85.12		27.795	24.128		163.820	19.65	292.72	17.5	825	838	0.12	518.749	0.95	56%
	95	89			10						27	0.52	6755	42.89	3.122	85.42		27.795	24.128		163.820	19.79	293.16	66.6	825	838	0.12	518.749	0.95	57%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS - OLD STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

B	85	87	19								65	1.19	65	1.19	4.000	1.05						0.33	1.39	116.9	250	254	0.40	39.237	0.78	4%
	87	89			24						65	0.82	130	2.01	4.000	2.11						0.56	2.67	116.7	250	254	1.41	73.667	1.47	4%
A	89	84			12						32	0.35	6917	45.25	3.112	87.19		27.795	24.128		163.820	20.45	295.59	79.0	825	838	0.12	518.749	0.95	57%
C	80	82	19								65	1.08	65	1.08	4.000	1.05						0.30	1.36	120.0	250	254	0.40	39.237	0.78	3%
	82	84			25						67	0.83	132	1.91	4.000	2.14						0.53	2.67	118.5	250	254	1.20	67.960	1.36	4%
A	84	79			14						38	0.54	7087	47.70	3.101	89.04		27.795	24.128		163.820	21.14	298.12	79.0	825	838	0.12	518.749	0.95	57%
D	75	76			17						46	0.37	46	0.37	4.000	0.75						0.10	0.85	57.0	250	254	0.40	39.237	0.78	2%
	76	77			20						54	0.29	100	0.66	4.000	1.62						0.18	1.81	78.4	250	254	0.40	39.237	0.78	5%
	77	79			13						35	0.63	135	1.29	4.000	2.19						0.36	2.55	117.7	250	254	0.81	55.835	1.11	5%
Park Easement	79	67										0.98	7222	49.97	3.093	90.50		27.795	24.128		163.820	21.77	300.22	55.0	825	838	0.12	518.749	0.95	58%
	67	66			6						16	0.33	7238	50.30	3.093	90.68		27.795	24.128		163.820	21.87	300.49	70.0	825	838	0.12	518.749	0.95	58%
BELLROCK DRIVE	70	73		12	14						70	2.56	70	2.56	4.000	1.13						0.72	1.85	87.2	250	254	0.40	39.237	0.78	5%
	73	74			12						32	0.54	102	3.1	4.000	1.65						0.87	2.52	80.3	250	254	0.40	39.237	0.78	6%
EASEMENT	74	62										0.31	102	3.41	4.000	1.65						0.95	2.61	39.9	250	254	0.40	39.237	0.78	7%
CAMBRAY LANE	62	66			25						68	0.48	170	3.89	4.000	2.75						1.09	3.84	100.5	250	254	0.40	39.237	0.78	10%
BISHOPS MILLS WAY	66	65			9						24	0.53	7432	54.72	3.081	92.77		27.795	24.128		163.820	23.10	303.82	62.0	825	838	0.12	518.749	0.95	59%
SOUTH OF HWY 7	EX.	65									7792	191.6	7792	191.6	3.061	96.63				37.720	37.720	53.65	188.00	50.2	900	914	0.11	626.373	0.96	30%
BISHOPS MILLS WAY	65	64			2						5		15229	246.32	2.772	170.98		27.795	24.128		201.540	76.75	473.40	17.0	900	914	0.11	626.373	0.96	76%
EDENVALE DRIVE	59	60			8						22	0.50	22	0.50	4.000	0.36						0.14	0.50	77.0	200	203	1.40	40.486	1.26	1%
KETTLEBY STREET	60	61			22						59	0.62	81	1.12	4.000	1.31						0.31	1.63	103.6	250	254	0.40	39.237	0.78	4%
CAMBRAY LANE	58	61			5						14	0.41	14	0.41	4.000	0.23						0.11	0.34	74.5	200	203	0.70	28.628	0.89	1%
KETTLEBY STREET	61	64			25						68	0.42	163	1.95	4.000	2.64						0.55	3.19	105.0	250	254	0.90	58.855	1.17	5%
BISHOPS MILLS WAY	64	63			3						8		15400	248.27	2.767	172.60		27.795	24.128		201.540	77.30	475.57	13.0	900	914	0.11	626.373	0.96	76%
	63	57			10						27	0.68	15427	248.95	2.766	172.85		27.795	24.128		201.540	77.49	476.01	64.9	900	914	0.11	626.373	0.96	76%
TER. BUNGALOW Ph. 2	51	53		48							130	0.94	130	0.94	4.000	2.11						0.26	2.37	122.3	200	203	0.70	28.628	0.89	8%
	53	54		4							11		141	0.94	4.000	2.28						0.26	2.55	13.6	200	203	0.70	28.628	0.89	9%
	54	55										0.27	141	1.21	4.000	2.28						0.34	2.62	36.7	200	203	0.70	28.628	0.89	9%
BISHOPS MILLS WAY	55	56	11								37	0.81	178	2.02	4.000	2.88						0.57	3.45	107.1	250	254	0.40	39.237	0.78	9%
	56	57	7		12						56	0.65	234	2.67	4.000	3.79						0.75	4.54	101.5	250	254	0.60	48.055	0.96	9%
PARK	57	34			1						3	0.37	15664	251.99	2.759	175.09		27.795	24.128		201.540	78.34	479.09	53.5	900	914	0.11	626.373	0.96	76%
	34	33			3						8		15672	251.99	2.759	175.16		27.795	24.128		201.540	78.34	479.17	50.3	900	914	0.11	626.373	0.96	76%
HAWSTONE	43	44		22							59	1.19	59	1.19	4.000	0.96						0.33	1.29	51.0	250	254	1.00	62.039	1.24	2%
	44	45		8							22	0.09	81	1.28	4.000	1.31						0.36	1.67	29.0	250	254	0.50	43.868	0.87	4%
EDENVALE	45	35										0.06	81	1.34	4.000	1.31						0.38	1.69	39.8	250	254	0.50	43.868	0.87	4%
BIRKENDALE DRIVE	35	36	7								24	1.18	105	2.52	4.000	1.70						0.71	2.41	93.2	250	254	0.37	37.737	0.75	6%
	36	37	13								44	0.79	149	3.31	4.000	2.41						0.93	3.34	77.1	250	254	0.37	37.737	0.75	9%
	37	33	2		3						15		164	3.31	4.000	2.66						0.93	3.58	17.9	250	254	0.40	39.237	0.78	9%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS - OLD STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

BIRKENDALE DRIVE	33	32			10						27	0.56	15863	255.86	2.754	176.96		27.795	24.128		201.540	79.42	482.05	72.7	900	914	0.11	626.373	0.96	77%
TEESWATER STREET	30	31			16						43	0.66	43	0.66	4.000	0.70						0.18	0.88	75.1	250	254	0.40	39.237	0.78	2%
	31	32			19						51	0.41	94	1.07	4.000	1.52						0.30	1.82	77.9	250	254	0.40	39.237	0.78	5%
																										0			
BIRKENDALE STREET	32	18			6						16	0.37	15973	257.30	2.751	177.99		27.795	24.128		201.540	79.83	483.48	44.4	900	914	0.11	626.373	0.96	77%
	18	16			4						11		15984	257.30	2.750	178.09		27.795	24.128		201.540	79.83	483.59	44.4	900	914	0.11	626.373	0.96	77%
COMMERCIAL PLAZA	19	17													4.000	0.00	0.520	0.520	0.451			0.15	0.60	26.5	150	152	0.90	15.073	0.84	4%
COLCHESTER SQUARE	17	16										0.10		0.10	4.000	0.00		0.520	0.451			0.17	0.62	33.2	250	254	0.40	39.237	0.78	2%
COLCHESTER SQUARE	16	15			10						27	0.56	16011	257.96	2.750	178.34		28.315	24.579		201.540	80.16	484.62	66.0	900	914	0.11	626.373	0.96	77%
	15	14A			2						5		16016	257.96	2.750	178.39		28.315	24.579		201.540	80.16	484.67	25.8	900	914	0.11	626.373	0.96	77%
ELSINORE LANE	39	28		32							86	0.53	86	0.53	4.000	1.39						0.15	1.54	56.7	250	254	1.00	62.039	1.24	2%
	28	24		18							49	1.47	135	2.00	4.000	2.19						0.56	2.75	43.0	250	254	0.40	39.237	0.78	7%
	24	23		12							32	0.14	167	2.14	4.000	2.71						0.60	3.31	34.0	250	254	0.40	39.237	0.78	8%
ELSINORE LANE	23	306		8							22	0.24	189	2.38	4.000	3.06						0.67	3.73	48.8	250	254	0.44	41.152	0.82	9%
ENDENVALE DRIVE	306	14-A										0.45	189	2.83	4.000	3.06						0.79	3.85	46.4	250	254	0.49	43.427	0.87	9%
COLCHESTER SQUARE	14-A	14											16205	260.79	2.744	180.16		28.315	24.579		201.540	80.95	487.23	14.7	900	914	0.11	626.373	0.96	78%
	Church	14													4.000	0.00	0.520	0.520	0.451			0.15	0.60	35.0	150	152	1.00	15.888	0.88	4%
COLCHESTER SQUARE	14	11		4							11	0.16	16216	260.95	2.744	180.26		28.835	25.030		201.540	81.14	487.97	72.6	900	914	0.11	626.373	0.96	78%
TERON	11	10											16216	260.95	2.744	180.26		28.835	25.030		201.540	81.14	487.97	29.6	900	914	0.11	626.373	0.96	78%
	10	EX.										0.25	16216	261.20	2.744	180.26		28.835	25.030		201.540	81.21	488.04	72.3	900	914	0.11	626.373	0.96	78%
TERON	0.P.P.	EX.													4.000					0.780	0.780	0.00	0.78	100 FORCEMAIN						
CAMPEAU / TERRON	11833	EX.2	4								14	7.5	14	7.5	4.000	0.23	19.20	19.200	16.667	0.000	0.000	7.48	24.37	94.7	250	254	1.84	84.153	1.68	29%
TERON	EX.	EX. 2											16230	268.70	2.744	180.39		48.035	41.697		202.320	88.69	513.10	9.4	675	686	0.46	594.765	1.63	86%
	EX.2	***											16230	268.70	2.744	180.39		48.035	41.697		202.320	88.69	513.10	42.8	675	686	0.77	769.506	2.11	67%
	***	11837											16230	268.70	2.744	180.39		48.035	41.697		202.320	88.69	513.10	40.7	675	686	0.57	662.070	1.81	77%
	11837	11859						194	349	349	349	2.19	16579	270.89	2.734	183.65		50.225	43.598		202.320	89.91	519.48	89.9	675	686	0.39	547.645	1.50	95%
TERRON (SE)	11841	11859						42	76	76	76	1.12	76	1.12	4.000	1.23						0.31	1.54	50.7	250	254	0.410	39.724	0.79	4%
SALTER CRES.	11859	11839											16655	272.01	2.732	184.35		50.225	43.598		202.320	90.23	520.50	50.0	675	686	4.86	1933.235	5.29	27%
	11839	11840											16655	272.01	2.732	184.35		50.225	43.598		202.320	90.23	520.50	40.3	675	686	0.40	554.621	1.52	94%
	11840	11844			105						284	1.78	16938	273.79	2.725	186.98		50.225	43.598		202.320	90.72	523.63	70.5	675	686	0.40	554.621	1.52	94%
PENFIELD DR.	11844	11838			14						38	0.46	16976	274.25	2.724	187.33		50.225	43.598		202.320	90.85	524.10	48.7	675	686	0.33	503.760	1.38	104%
CHECK	11838	20755			4						11	0.21	16987	274.46	2.724	187.43		50.225	43.598		202.320	90.91	524.26	33.5	675	686	0.30	480.316	1.31	109%
	20755	11860			52						140	4.45	17127	278.91	2.720	188.73		50.225	43.598		202.320	92.16	526.81	14.0	675	686	0.36	526.160	1.44	100%
	11860	11861			8						22	0.32	17149	279.23	2.720	188.93		50.225	43.598		202.320	92.25	527.10	46.4	675	686	0.35	518.801	1.42	102%
	11861	11862			7						19	0.36	17168	279.59	2.719	189.11		50.225	43.598		202.320	92.35	527.37	57.7	675	686	0.66	712.424	1.95	74%
	11862	11863	3		6						26	0.60	17194	280.19	2.719	189.35		50.225	43.598		202.320	92.52	527.79	63.2	675	686	0.40	554.621	1.52	95%
	11863	11864	3		6						26	0.71	17221	280.90	2.718	189.59		50.225	43.598		202.320	92.72	528.23	73.4	675	686	0.40	554.621	1.52	95%
BANTING CRES	11856	11864	54					122			403	6.2	403	6.2	4.000	6.53	0.850	0.850	0.738			1.97	9.25	94.1	250	254	0.51	44.305	0.88	21%
PENFIELD DR	11864	11865			7						19	0.47	17643	287.57	2.707	193.49		51.075	44.336		202.320	94.82	534.96	91.7	675	686	0.40	554.621	1.52	96%
	11865	12091			6						11	0.39	17643	287.96	2.707	193.49	2.09	53.165	46.150		202.320	95.52	537.47	95.7	675	686	0.65	707.006	1.93	76%
	12091	910	18		5						75	1.76	17645	289.72	2.707	193.50		53.165	46.150		202.320	96.01	537.98	56.8	675	686	0.72	744.102	2.04	72%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS - OLD STANDARDS
JOB# 120144

PENFIELD DR	911	910	1514		1359			118	212		9029	188	9029	188	2.999	109.68	11.23	11.230	9.748			55.78	175.21	64.8	600	610	0.14	239.676	0.83	73%
																												0.000		
TRUNK	910	909											26674	477.72	2.528	273.12		64.395	55.898		202.320	151.79	683.13	56.4	600	610	1.02	646.934	2.24	106%
	909	908											26674	477.72	2.528	273.12		64.395	55.898		202.320	151.79	683.13	26.5	900	914	0.75	1635.562	2.52	42%
	908	907											26674	477.72	2.528	273.12	16.52	80.915	70.239		202.320	156.42	702.10	41.4	900	914	0.46	1280.900	1.97	55%

Notes:
1) As per Kanata Town Centre Sanitary Trunk Sewer Study revised March 27, 1996 by Robinson Consultants Inc.
2) Park or open space area.
3) Equivalent population base on 208 rooms and 20 staff members.
4) Allowance for an ultimate flow of 188 l/s to provide flexibility in future development as per Kanata Town Centre Sanitary Trunk Study.
5) Additional flow associated with hotel amendities including swimming pool with bathrooms and laudry as per design calculations for Block 1 provided by WSP (October 2016).
6) Additional flow associated with overall amenities including beauty salon, staff, dining and laundry as per design calculations for 1250 Maritime Way (Timberwalk Retirement Home) provided by Novatech (July 31, 2017).
7) JLR Spreadsheet up-dated to include development flows from 1200 Maritime Way. Reference Appendix A of Serviceability Report for 1250 Maritime Way attached in Appendix of 1200 Maritime Way Serviceability Report (Novatech January 28, 2021)..

Design Parameters:

1) Q(p) = (PxqxM/86,400)
2) Q(d) = Q(p) + Q(e)

Definitions:
P = Population
q = Average per capita flow = 350 L/person/day
M = Residential Peaking Factor (Harmon Formula from section 4.4.1 of the City Sewer Design Guidelines):
M = 1+[14/(4+Pop/1000)^1/2]*1 - (Maximum of 4.0)

Q(d) = Design Flow (L/sec)
Q(p) = Population Flow (L/sec)
Q(r) = Commercial Flow (L/sec)
Q(e) = Extraneous Flow (L/sec) 0.28 l/s/ha

Units		
Single	**3.4**	pers/unit
Town	**2.7**	pers/unit
Hotel/ Apartmentt	**1.8**	pers/unit
Retirement Home	**1.6**	pers/unit
Commercial Flow	**50000**	L/ha/day
Commercial Peak Factor	1.5	

1200 Maritime Way
SANITARY SEWER DESIGN SHEET

Date	March 25, 2022				
Design	GMAC				
Job No.		**wg. Referenc**	**Checked and Stamped:**		
120144		120144-SAN	--		

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS -CURRENT STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD

LOCATION			RESIDENTIAL														COMMERCIAL/INSTITUTIONAL				PLUGGED FLOW		R + C		PROPOSED SEWER						
STREET	FROM MH	TO MH	NUMBER OF UNITS								INDIVIDUAL		CUMULATIVE		PEAK FACTOR (M)	POPUL. FLOW L/S	ACTUAL AREA ha	CUMM AREA ha	COMM PEAK FACTOR	COMM FLOW l/s	FLOW l/s	COMM FLOW l/s	PEAK EXTR. FLOW	PEAK DESIGN FLOW	LENGTH (m)	PIPE SIZE (mm)	ACTUAL PIPE SIZE (mm)	SLOPE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	RATIO (Q/Qfull)
			Houses			Extended Care		Hotel/Apt			POPUL. People	AREA ha	POPUL. People	AREA ha									l/s	L/S							
			Singles	Stacks	Towns	No. Units	Act Pop	No. Units	Act. Pop	Equ. Pop																					
Robinson - 1996	Upstream	7A									2588	28.38	2588	28.38	2.797	23.46	20.370	20.370	1.500	9.90	162.69	162.69	16.09	212.14							
1250 Maritime Way	Blk 122	7A									377	0.89	377	0.89	3.227	3.94	0.005	0.005	1.000	0.002	0.83	0.83	0.30	5.07							
1200 Maritime Way	**Blk 126**	**7A**									**1032**	**1.24**	**1032**	**1.24**	**3.380**	**3.34**	**0.004**	**0.004**	**1.000**	**0.140**			**0.410**	**11.83**							
Maritime Way	7A	507											3997	30.51	2.667	34.54		20.379	1.500	9.906		163.520	16.79	224.76	81.9	825	838	0.14	560.313	1.02	40%
Maritime Way	507	506						125	225	174	174	1.02	4171	31.53	2.654	35.87	3.680	24.059	1.500	11.695		163.520	18.34	229.43	119.3	825	838	0.12	518.749	0.94	44%
Cordillera Street	534	533						125	207	207	207	0.58	207	0.58	3.314	2.22	0.550	0.550	1.500	0.267			0.37	2.86	66.6	200	203	1.65	43.952	1.37	7%
Can. Shield Avenue	533	532											207	0.58	3.314	2.22		0.550	1.500	0.267			0.37	2.86	69.9	200	203	1.20	37.482	1.17	8%
Can. Shield Avenue	532	531										0.33	207	0.91	3.314	2.22		0.550	1.500	0.267			0.48	2.97	69.9	200	203	1.20	37.482	1.17	8%
Great Lakes Avenue	536	531						100	180	139	139	0.78	139	0.78	3.361	1.51	0.040	0.040	1.000	0.013	0.300	0.300	0.27	2.10	60.0	200	203	2.40	53.008	1.65	4%
Great Lakes Avenue	531	530											346	1.69	3.241	3.63		0.590	1.500	0.287		0.300	0.75	4.97	80.8	200	203	3.75	66.260	2.06	8%
Great Lakes Avenue	530	506A											346	1.69	3.241	3.63		0.590	1.500	0.287		0.300	0.75	4.97	85.2	200	203	1.40	40.486	1.26	12%
Great Lakes Avenue	506A	506										0.38	346	2.07	3.241	3.63		0.590	1.500	0.287		0.300	0.88	5.10	4.9	200	203	1.40	40.486	1.26	13%
Maritime Way	506	505						176	316.8	269	269	0.57	4786	34.17	2.610	40.48		24.649	1.500	11.982		163.820	19.41	235.69	111.0	825	838	0.12	518.749	0.95	45%
Maritime Way	505	504						146	262.8	230	230	0.56	5016	34.73	2.595	42.18	1.750	26.399	1.500	12.833		163.820	20.17	239.01	114.4	825	838	0.11	496.665	0.91	48%
Maritime Way	504	501										0.27	5016	35	2.595	42.18		26.399	1.500	12.833		163.820	20.26	239.10	29.9	825	838	0.11	496.665	0.91	48%
Can. Shield Avenue	542	541						176	316.8	269	269	0.74	269	0.74	3.279	2.86				0.000			0.24	3.10	71.3	200	203	2.20	50.751	1.58	6%
Can. Shield Avenue	541	540						154	272.2	232	232	0.51	501	1.25	3.179	5.16	1.360	1.360	1.500	0.661			0.86	6.68	77.7	200	203	0.90	32.461	1.01	21%
	Block 3	540				208	333			428	428	1.02	428	1.02	3.206	4.45			1.000	0.000			0.34	4.78	12.0	200	203	0.60	26.504	0.83	18%
Can. Shield Avenue	540	512										0.3	929	2.57	3.056	9.20		1.360	1.500	0.661			1.30	11.16	82.6	200	203	0.71	28.831	0.90	39%
Maritime Way	514	513																							51.2	200	203	2.14	50.055	1.56	0%
Maritime Way (Blk 4)	513	512						144	271	271	271	1.12	271	1.12	3.278	2.88			1.000	0.000			0.37	3.25	51.9	200	203	2.28	51.666	1.61	6%
Maritime Way	512	511								58	58	0.73	1258	4.42	2.987	12.18		1.360	1.500	0.661			1.91	14.75	49.3	200	203	3.12	60.439	1.88	24%
	Block 5	511						154	301	301	301	0.92	301	0.92	3.262	3.18			1.000	0.000			0.30	3.49	12.2	200	203	2.00	48.390	1.51	7%
Maritime Way	511	510											1559	5.34	2.934	14.82		1.360	1.500	0.661			2.21	17.70	38.4	200	203	1.70	44.613	1.39	40%
Maritime Way	510	501											1559	5.34	2.934	14.82		1.360	1.500	0.661			2.21	17.70	11.3	200	203	2.28	51.666	1.61	34%
Trunk Easement	501	500											6575	40.34	2.506	53.40		27.759	1.500	13.494		163.820	22.47	253.19	129.0	825	838	0.10	473.551	0.87	53%
Trunk Easement	500	94											6575	40.34	2.506	53.40		27.759	1.500	13.494		163.820	22.47	253.19							
A	90	92			35						95	0.80	95	0.80	3.400	1.05			1.000	0.000			0.26	1.31	120.0	250	254	0.60	48.055	0.96	3%
	92	94			12						32	1.19	127	1.99	3.371	1.39			1.000	0.000			0.66	2.04	103.0	250	254	2.20	92.018	1.84	2%
	94	95											6702	42.33	2.500	54.30		27.759	1.500	13.494		163.820	23.13	254.74	17.5	825	838	0.12	518.749	0.95	49%
	95	89			10						27	0.52	6729	42.85	2.499	54.48		27.759	1.500	13.494		163.820	23.30	255.10	66.6	825	838	0.12	518.749	0.95	49%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS -CURRENT STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

B	85	87	19								65	1.19	65	1.19	3.432	0.72			1.000	0.000			0.39	1.12	116.9	250	254	0.40	39.237	0.78	3%
	87	89			24						65	0.82	130	2.01	3.368	1.42			1.000	0.000			0.66	2.08	116.7	250	254	1.41	73.667	1.47	3%
A	89	84			12						32	0.35	6891	45.21	2.491	55.62		27.759	1.500	13.494		163.820	24.08	257.01	79.0	825	838	0.12	518.749	0.95	50%
C	80	82	19								65	1.08	65	1.08	3.432	0.72			1.000	0.000			0.36	1.08	120.0	250	254	0.40	39.237	0.78	3%
	82	84			25						67	0.83	132	1.91	3.367	1.44			1.000	0.000			0.63	2.07	118.5	250	254	1.20	67.960	1.36	3%
A	84	79			14						38	0.54	7061	47.66	2.482	56.80		27.759	1.500	13.494		163.820	24.89	259.01	79.0	825	838	0.12	518.749	0.95	50%
																				0.000										
D	75	76			17						46	0.37	46	0.37	3.458	0.52			1.000	0.000			0.12	0.64	57.0	250	254	0.40	39.237	0.78	2%
	76	77			20						54	0.29	100	0.66	3.395	1.10			1.000	0.000			0.22	1.32	78.4	250	254	0.40	39.237	0.78	3%
	77	79			13						35	0.63	135	1.29	3.364	1.47			1.000	0.000			0.43	1.90	117.7	250	254	0.81	55.835	1.11	3%
Park Easement	79	67										0.98	7196	49.93	2.476	57.74		27.759	1.500	13.494		163.820	25.64	260.69	55.0	825	838	0.12	518.749	0.95	50%
	67	66			6						16	0.33	7212	50.26	2.475	57.85		27.759	1.500	13.494		163.820	25.75	260.91	70.0	825	838	0.12	518.749	0.95	50%
BELLROCK DRIVE	70	73		12	14						70	2.56	70	2.56	3.426	0.78			1.000	0.000			0.84	1.62	87.2	250	254	0.40	39.237	0.78	4%
	73	74			12						32	0.54	102	3.1	3.393	1.12			1.000	0.000			1.02	2.14	80.3	250	254	0.40	39.237	0.78	5%
EASEMENT	74	62										0.31	102	3.41	3.393	1.12			1.000	0.000			1.13	2.25	39.9	250	254	0.40	39.237	0.78	6%
CAMBRAY LANE	62	66			25						68	0.48	170	3.89	3.338	1.84			1.000	0.000			1.28	3.12	100.5	250	254	0.40	39.237	0.78	8%
BISHOPS MILLS WAY	66	65			9						24	0.53	7406	54.68	2.466	59.19		27.759	1.500	13.494		163.820	27.20	263.71	62.0	825	838	0.12	518.749	0.95	51%
SOUTH OF HWY 7	EX.	65									7792	191.6	7792	191.6	2.449	61.85			1.000	0.000	37.720	37.720	63.23	162.79	50.2	900	914	0.11	626.373	0.96	26%
BISHOPS MILLS WAY	65	64			2						5		15203	246.28	2.218	109.27		27.759	1.000	8.996		201.540	90.43	410.24	17.0	900	914	0.11	626.373	0.96	65%
EDENVALE DRIVE	59	60			8						22	0.50	22	0.50	3.500	0.25			1.000	0.000			0.17	0.41	77.0	200	203	1.40	40.486	1.26	1%
KETTLEBY STREET	60	61			22						59	0.62	81	1.12	3.414	0.90			1.000	0.000			0.37	1.27	103.6	250	254	0.40	39.237	0.78	3%
CAMBRAY LANE	58	61			5						14	0.41	14	0.41	3.520	0.16			1.000	0.000			0.14	0.29	74.5	200	203	0.70	28.628	0.89	1%
KETTLEBY STREET	61	64			25						68	0.42	163	1.95	3.343	1.77			1.000	0.000			0.64	2.41	105.0	250	254	0.90	58.855	1.17	4%
BISHOPS MILLS WAY	64	63			3						8		15374	248.23	2.214	110.31		27.759	1.000	8.996		201.540	91.08	411.92	13.0	900	914	0.11	626.373	0.96	66%
	63	57			10						27	0.68	15401	248.91	2.213	110.47		27.759	1.000	8.996		201.540	91.30	412.31	64.9	900	914	0.11	626.373	0.96	66%
TER. BUNGALOW Ph. 2	51	53		48							130	0.94	130	0.94	3.368	1.42			1.000	0.000			0.31	1.73	122.3	200	203	0.70	28.628	0.89	6%
	53	54		4							11		141	0.94	3.360	1.54			1.000	0.000			0.31	1.85	13.6	200	203	0.70	28.628	0.89	6%
	54	55										0.27	141	1.21	3.360	1.54			1.000	0.000			0.40	1.93	36.7	200	203	0.70	28.628	0.89	7%
BISHOPS MILLS WAY	55	56	11								37	0.81	178	2.02	3.333	1.92			1.000	0.000			0.67	2.59	107.1	250	254	0.40	39.237	0.78	7%
	56	57	7		12						56	0.65	234	2.67	3.298	2.50			1.000	0.000			0.88	3.38	101.5	250	254	0.60	48.055	0.96	7%
PARK	57	34			1						3	0.37	15638	251.95	2.208	111.90		27.759	1.000	8.996		201.540	92.30	414.74	53.5	900	914	0.11	626.373	0.96	66%
	34	33			3						8		15646	251.95	2.208	111.95		27.759	1.000	8.996		201.540	92.30	414.79	50.3	900	914	0.11	626.373	0.96	66%
HAWSTONE	43	44		22							59	1.19	59	1.19	3.440	0.66			1.000	0.000			0.39	1.05	51.0	250	254	1.00	62.039	1.24	2%
	44	45		8							22	0.09	81	1.28	3.414	0.90			1.000	0.000			0.42	1.32	29.0	250	254	0.50	43.868	0.87	3%
EDENVALE	45	35										0.06	81	1.34	3.414	0.90			1.000	0.000			0.44	1.34	39.8	250	254	0.50	43.868	0.87	3%
BIRKENDALE DRIVE	35	36	7								24	1.18	105	2.52	3.390	1.15			1.000	0.000			0.83	1.99	93.2	250	254	0.37	37.737	0.75	5%
	36	37	13								44	0.79	149	3.31	3.354	1.62			1.000	0.000			1.09	2.71	77.1	250	254	0.37	37.737	0.75	7%
	37	33	2		3						15		164	3.31	3.343	1.78			1.000	0.000			1.09	2.87	17.9	250	254	0.40	39.237	0.78	7%
BIRKENDALE DRIVE	33	32			10						27	0.56	15837	255.82	2.204	113.10		27.759	1.000	8.996		201.540	93.58	417.21	72.7	900	914	0.11	626.373	0.96	67%
TEESWATER STREET	30	31			16						43	0.66	43	0.66	3.462	0.48			1.000	0.000			0.22	0.70	75.1	250	254	0.40	39.237	0.78	2%
	31	32			19						51	0.41	94	1.07	3.401	1.04			1.000	0.000			0.35	1.39	77.9	250	254	0.40	39.237	0.78	4%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS -CURRENT STANDARDS
JOB# 120144

NOVATECH ENGINEERING CONSULTANTS LTD.

BIRKENDALE STREET	32	18			6						16	0.37	15947	257.26	2.201	113.76		27.759	1.000	8.996		201.540	94.06	418.35	44.4	900	914	0.11	626.373	0.96	67%
	18	16			4						11		15958	257.26	2.201	113.82		27.759	1.000	8.996		201.540	94.06	418.41	44.4	900	914	0.11	626.373	0.96	67%
COMMERCIAL PLAZA	19	17															0.520	0.520	1.500	0.253			0.17	0.42	26.5	150	152	0.90	15.073	0.84	3%
COLCHESTER SQUARE	17	16										0.10		0.10				0.520	1.500	0.253			0.20	0.46	33.2	250	254	0.40	39.237	0.78	1%
COLCHESTER SQUARE	16	15			10						27	0.56	15985	257.92	2.200	113.98		28.279	1.000	9.164		201.540	94.45	419.13	66.0	900	914	0.11	626.373	0.96	67%
	15	14A			2						5		15990	257.92	2.200	114.01		28.279	1.000	9.164		201.540	94.45	419.16	25.8	900	914	0.11	626.373	0.96	67%
ELSINORE LANE	39	28		32							86	0.53	86	0.53	3.409	0.95			1.000	0.000			0.17	1.12	56.7	250	254	1.00	62.039	1.24	2%
	28	24		18							49	1.47	135	2.00	3.364	1.47			1.000	0.000			0.66	2.13	43.0	250	254	0.40	39.237	0.78	5%
	24	23		12							32	0.14	167	2.14	3.340	1.81			1.000	0.000			0.71	2.51	34.0	250	254	0.40	39.237	0.78	6%
ELSINORE LANE	23	306		8							22	0.24	189	2.38	3.326	2.04			1.000	0.000			0.79	2.82	48.8	250	254	0.44	41.152	0.82	7%
ENDENVALE DRIVE	306	14-A										0.45	189	2.83	3.326	2.04			1.000	0.000			0.93	2.97	46.4	250	254	0.49	43.427	0.87	7%
COLCHESTER SQUARE	14-A	14											16179	260.75	2.196	115.15		28.279	1.000	9.164		201.540	95.38	421.23	14.7	900	914	0.11	626.373	0.96	67%
	Church	14															0.520	0.520	1.500	0.253			0.17	0.42	35.0	150	152	1.00	15.888	0.88	3%
COLCHESTER SQUARE	14	11		4							11	0.16	16190	260.91	2.196	115.21		28.799	1.000	9.333		201.540	95.60	421.69	72.6	900	914	0.11	626.373	0.96	67%
TERON	11	10											16190	260.91	2.196	115.21		28.799	1.000	9.333		201.540	95.60	421.69	29.6	900	914	0.11	626.373	0.96	67%
	10	EX.										0.25	16190	261.16	2.196	115.21		28.799	1.000	9.333		201.540	95.69	421.77	72.3	900	914	0.11	626.373	0.96	67%
TERON	0.P.P.	EX.																	1.500	0.000	0.780	0.780		0.78	100 FORCEMAIN						
CAMPEAU / TERRON	11833	EX.2	4								14	7.5	14	7.5	3.520	0.16	19.20	19.200	1.500	9.333	0.000	0.000	8.81	18.30	94.7	250	254	1.84	84.153	1.68	22%
TERON	EX.	EX. 2											16204	268.66	2.196	115.30		47.999	1.000	15.555		202.320	104.50	437.67	9.4	675	686	0.46	594.765	1.63	74%
	EX.2	***											16204	268.66	2.196	115.30		47.999	1.000	15.555		202.320	104.50	437.67	42.8	675	686	0.77	769.506	2.11	57%
	***	11837											16204	268.66	2.196	115.30		47.999	1.000	15.555		202.320	104.50	437.67	40.7	675	686	0.57	662.070	1.81	66%
	11837	11859						194	349	349	349	2.19	16553	270.85	2.188	117.38		50.189	1.000	16.265		202.320	105.94	441.91	89.9	675	686	0.39	547.645	1.50	81%
TERRON (SE)	11841	11859						42	76	76	76	1.12	76	1.12	3.420	0.84			1.00	0.000			0.37	1.21	50.7	250	254	0.410	39.724	0.79	3%
SALTER CRES.	11859	11839											16629	271.97	2.187	117.83		50.189	1.000	16.265		202.320	106.31	442.73	50.0	675	686	4.86	1933.235	5.29	23%
	11839	11840											16629	271.97	2.187	117.83		50.189	1.000	16.265		202.320	106.31	442.73	40.3	675	686	0.40	554.621	1.52	80%
	11840	11844			105						284	1.78	16912	273.75	2.181	119.51		50.189	1.000	16.265		202.320	106.90	445.00	70.5	675	686	0.40	554.621	1.52	80%
PENFIELD DR.	11844	11838			14						38	0.46	16950	274.21	2.180	119.74		50.189	1.000	16.265		202.320	107.05	445.38	48.7	675	686	0.33	503.760	1.38	88%
CHECK	11838	20755			4						11	0.21	16961	274.42	2.180	119.80		50.189	1.000	16.265		202.320	107.12	445.51	33.5	675	686	0.30	480.316	1.31	93%
	20755	11860			52						140	4.45	17101	278.87	2.177	120.63		50.189	1.000	16.265		202.320	108.59	447.81	14.0	675	686	0.36	526.160	1.44	85%
	11860	11861			8						22	0.32	17123	279.19	2.176	120.76		50.189	1.000	16.265		202.320	108.70	448.04	46.4	675	686	0.35	518.801	1.42	86%
	11861	11862			7						19	0.36	17142	279.55	2.176	120.87		50.189	1.000	16.265		202.320	108.81	448.27	57.7	675	686	0.66	712.424	1.95	63%
	11862	11863	3		6						26	0.60	17168	280.15	2.175	121.03		50.189	1.000	16.265		202.320	109.01	448.63	63.2	675	686	0.40	554.621	1.52	81%
	11863	11864	3		6						26	0.71	17195	280.86	2.175	121.19		50.189	1.000	16.265		202.320	109.25	449.02	73.4	675	686	0.40	554.621	1.52	81%
BANTING CRES	11856	11864	54					122			403	6.2	403	6.2	3.216	4.20	0.850	0.850	1.000	0.275			2.33	6.80	94.1	250	254	0.51	44.305	0.88	15%
PENFIELD DR	11864	11865			7						19	0.47	17617	287.53	2.166	123.68		51.039	1.000	16.540		202.320	111.73	454.27	91.7	675	686	0.40	554.621	1.52	82%
	11865	12091			6						11	0.39	17617	287.92	2.166	123.68	2.09	53.129	1.000	17.218		202.320	112.55	455.76	95.7	675	686	0.65	707.006	1.93	64%
	12091	910	18		5						75	1.76	17619	289.68	2.166	123.69		53.129	1.000	17.218		202.320	113.13	456.35	56.8	675	686	0.72	744.102	2.04	61%

1200 Maritime Way
SANITARY SEWER DESIGN SHEET OF DOWNSTREAM SEWERS -CURRENT STANDARDS
JOB# 120144

PENFIELD DR	911	910	1514		1359			118	212		9029	188	9029	188	2.399	70.20	11.23	11.230	1.000	3.639			65.75	139.58	64.8	600	610	0.14	239.676	0.83	58%
																													0.000		
TRUNK	910	909											26648	477.68	2.022	174.66		64.359	1.000	20.857		202.320	178.87	576.71	56.4	600	610	1.02	646.934	2.24	89%
	909	908											26648	477.68	2.022	174.66		64.359	1.000	20.857		202.320	178.87	576.71	26.5	900	914	0.75	1635.562	2.52	35%
	908	907											26648	477.68	2.022	174.66	16.52	80.879	1.000	26.211		202.320	184.32	587.51	41.4	900	914	0.46	1280.900	1.97	46%

Notes:
1) As per Kanata Town Centre Sanitary Trunk Sewer Study revised March 27, 1996 by Robinson Consultants Inc.
2) Park or open space area.
3) Equivalent population base on 208 rooms and 20 staff members.
4) Allowance for an ultimate flow of 188 l/s to provide flexibility in future development as per Kanata Town Centre Sanitary Trunk Study.
5) Additional flow associated with hotel amendities including swimming pool with bathrooms and laudry as per design calculations for Block 1 provided by WSP (October 2016).
6) Additional flow associated with overall amenities including beauty salon, staff, dining and laundry as per design calculations for 1250 Maritime Way (Timberwalk Retirement Home) provided by Novatech (July 31, 2017).
7) JLR Spreadsheet up-dated to include development flows from 1200 Maritime Way. Reference Appendix A of Serviceability Report for 1250 Maritime Way attached in Appendix of 1200 Maritime Way Serviceability Report (Novatech January 28, 2021)..

Design Parameters:

1) Q(p) = (PxqxM/86,400)
2) Q(d) = Q(p) + Q(e)

Definitions:
P = Population
q = Average per capita flow = 280 L/person/day
M = Residential Peaking Factor (Harmon Formula from section 4.4.1 of the City Sewer Design Guidelines):
M = 1+[14/(4+Pop/1000)^1/2]*0.8 - (Maximum of 4.0)

Q(d) = Design Flow (L/sec)
Q(p) = Population Flow (L/sec)
Q(r) = Commercial Flow (L/sec)
Q(e) = Extraneous Flow (L/sec) 0.33 l/s/ha

Units		
Single	**3.4**	pers/unit
Town	**2.7**	pers/unit
Hotel/ Apartmentt	**1.8**	pers/unit
Retirement Home	**1.6**	pers/unit
Commercial Flow	**28000**	L/ha/day
Commercial Peak Factor	1.5	if <20% of area
	1.0	if >20% of area

1200 Maritime Way
SANITARY SEWER DESIGN SHEET

Date	March 25, 2022					
Design	GMAC					
Job No.			**wg. Referenc**	**Checked and Stamped:**		
120144			120144-SAN	--		

MEMORANDUM

J.L. Richards
& Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

To: Greg MacDonald, P.Eng.
Novatech Engineering Consultants Ltd.

Date: August 18, 2017

Job No.: 15712-015.1

CC: Lucie Dalrymple, P.Eng.
J.L. Richards & Associates Ltd.

From: Karla Ferrey, P.Eng.

Re: Kanata Town Centre Central Business District
Master Design Sheet Update - Sanitary Peak Flows
Block 4, Block 5 and Block west of Block 9 (Zone 122)

We understand that the City is requesting an update to the Master Sanitary Sewer Design Sheet for the Kanata Town Centre Central Business District (KTC-CBD) from JL Richards such to incorporate the proposed peak flow revision from Block 4, Block 5, and the parcel west of Block 9 (previously Robinson'96 - Zone 122). Refer to attached JLR Sanitary Drainage Plan and Robinson Consultants Figure 7.1 for locations of Block 4, Block 5 and Zone 122.

We understand that the City will ultimately decide (as the owner of the existing sewers within the KTC-CBD and downstream system) whether the proposed peak flow increase is acceptable and that if accepted, it will not require a reduction of the allowable peak flows for the remaining future development in the KTC-CBD.

As requested, we have incorporated the proposed sanitary peak flow increase associated with your following developments:

a) **Proposed Block 4 - Residential development**
The proposed development will result in a theoretical increase in peak flow from 3.88 L/s to 4.71 L/s at MH 513 where the Block 4 development outlets to Maritime Way. This represents a theoretical peak flow increase of 0.83 L/s from the anticipated 2012 land use (i.e., hotel use, based on 270 L/pers/day).

b) **Proposed Block 5 - Residential development**
The proposed development will result in a theoretical increase in peak flow from 3.52 L/s to 5.13 L/s at MH 511 where the Block 5 development outlets to Maritime Way. This represents a theoretical peak flow increase of 1.61 L/s from the anticipated 2012 land use (i.e., hotel use, based on 270 L/pers/day).

c) **Proposed parcel west of Block 9 (previously identified in the 1996 Robinson KTC Sanitary Design as Zone 122) – Retirement Home – Claridge Homes**
The proposed development will result in a theoretical increase in peak flow from 2.84 L/s to 7.19 L/s at MH 7A where Claridge Homes development outlets to Maritime Way. This represents a theoretical peak flow increase of 3.57 L/s from the anticipated 2012 land use (i.e., Commercial use based on 2787m2 office space and Infiltration based 1.5ha). Theoretical flows for Zone 122 were taken from Robinson Consultants Sanitary Trunk Information from Table 4.7 and Figure 7.1, see attached copies.

At the most downstream MH at the intersection of Teron Rd and Campeau Dr (MH Ex. 2) shown on the attached Sanitary Sewer Design Sheet for the Kanata Village Green subdivision (prepared in 1998 by JLR), the proposed 3 developments would result in a theoretical increase in peak flow from 475.94 L/s to 480.24 L/s which corresponds to a 4.3 L/s (0.9%) peak flow increase.

Based on the available theoretical residual capacities noted in the attached updated Master Sanitary Sewer Design Sheet, the existing sanitary sewer system from the intersection of Rock Mountain Gate and Maritime Way to the intersection of Campeau Dr and Teron Rd has the capacity to accommodate the additional theoretical peak flows of Block 4, Block 5 and Zone 122. Downstream of the Campeau Drive intersection, JLR does not have on record design sheets for the City's existing downstream sanitary sewer system.

Should you have any questions or require anything further, please do not hesitate to call.

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Karla Ferrey, P.Eng.

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room
Manning's Coefficient (n) =	0.013	

MASTER SANITARY SEWER DESIGN SHEET
Designed: L.D.

2017 Update by: KF
2017 Check by: LD

Date: August 15, 2017

2017 Updates to Block 4,5, West of 9 Peak Flows

STREET	M.H. #		RESIDENTIAL														COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA					CAPACITY	
			NUMBER OF UNITS									CUMMULATIVE		PEAKING	POPUL.														
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	Actual AREA	CUMM. AREA	COMM. FLOW	FLOW	CUMM. FLOW	PEAK EXTR. FLOW	PEAK DES. FLOW	DIA. mm	SLOPE %	CAPAC. l/s	VEL. m/s	LENGTH m	Residual	% Full
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s						(L/s)	
Robinson - 1996	Upstream	7A									(1) 2588	(1) 28.38	2588	28.38	3.50	36.65	(1) **20.37**	20.37	**17.68**	(1) 162.69	162.69	**14.01**	**231.04**							
Claridge	Block 122 (per Robinson'96)	7A									**377**	**0.89**	**377**	**0.89**	**4.00**	**6.11**	**0.005**	**0.005**	**0.004**	(6) **0.83**	**0.83**	**0.25**	**7.19**							
MARITIME WAY	7A	507											2965	29.27	3.45	41.40		20.38	**17.69**		163.52	**14.26**	**236.87**	825	0.14	529.34	0.99	81.90	292.47	45%
MARITIME WAY	507	506						125	225	174	174	1.02	3139	30.29	3.43	43.56	4.91	25.29	21.95		163.52	15.92	244.95	825	0.12	500.32	0.94	119.30	255.37	49%
CORDILLERA ST.	534	533						125	207	207	207	0.58	207	0.58	4.00	3.35	0.55	0.55	0.48			0.32	4.15	200	1.65	42.13	1.34	66.60	37.98	10%
CANADIAN SHIELD AV.	533	532											207	0.58	4.00	3.35		0.55	0.48			0.32	4.15	200	1.20	35.93	1.14	69.60	31.78	12%
CANADIAN SHIELD AV.	532	531										0.33	207	0.91	4.00	3.35		0.55	0.48			0.41	4.24	200	1.20	35.93	1.14	69.60	31.69	12%
GREAT LAKES AV.	536	531						100	180	139	139	0.78	139	0.78	4.00	2.25	0.04	0.04	0.03	(5) 0.30	0.30	0.23	2.81	200	2.40	50.81	1.62	60.00	48.00	6%
GREAT LAKES AV.	531	530											346	1.69	4.00	5.61		0.59	0.51		0.30	0.64	7.05	200	3.75	63.51	2.02	80.80	56.46	11%
GREAT LAKES AV.	530	506A											346	1.69	4.00	5.61		0.59	0.51		0.30	0.64	7.05	200	1.40	38.80	1.24	85.20	31.75	18%
GREAT LAKES AV.	506A	506										0.38	346	2.07	4.00	5.61		0.59	0.51		0.30	0.74	7.16	200	1.40	38.80	1.24	4.90	31.65	18%
MARITIME WAY	506	505						176	316.8	269	269	0.57	3754	32.93	3.36	51.06		25.87	22.46		163.82	16.82	254.17	825	0.12	486.76	0.91	111.00	232.59	52%
MARITIME WAY	505	504						146	262.8	230	230	0.56	3984	33.49	3.33	53.82	1.75	27.62	23.98		163.82	17.47	259.09	825	0.11	484.63	0.91	114.40	225.55	53%
MARITIME WAY	504	501										0.27	3984	33.76	3.33	53.82		27.62	23.98		163.82	17.55	259.16	825	0.11	476.06	0.89	29.90	216.89	54%
CANADIAN SHIELD AV.	542	541						176	316.8	269	269	0.74	269	0.74	4.00	4.36						0.21	4.57	200	2.20	48.64	1.55	71.30	44.08	9%
CANADIAN SHIELD AV.	541	540						154	277.2	232	232	0.51	501	1.25	3.97	8.06	1.36	1.36	1.18			0.73	9.98	200	0.90	31.13	0.99	77.70	21.15	32%
	Block 3	540				208	333			428	428	1.02	428	1.02	4.00	6.93						0.29	7.22	200	0.60	25.40	0.81	12.00	18.18	28%
CANADIAN SHIELD AV.	540	512										0.30	929	2.57	3.82	14.38		1.36	1.18			1.10	16.66	200	0.71	27.65	0.88	82.60	11.00	60%
MARITIME WAY	514	513													4.00									200	2.14	47.96	1.53	51.20	47.96	
MARITIME WAY (Block 4)	513	512						**144**	**271**	**271**	**271**	**1.12**	**271**	**1.12**	**4.00**	**4.39**						**0.31**	**4.71**	200	2.28	49.52	1.58	51.90	44.81	10%
MARITIME WAY	512	511								58	58	(2) 0.73	1258	4.42	3.73	19.02		1.36	1.18			1.62	21.82	200	3.12	57.95	1.84	49.30	36.12	38%
	Block 5	511						**154**	**301**	**301**	**301**	**0.92**	**301**	**0.92**	**4.00**	**4.88**						**0.26**	**5.13**	200	2.00	46.38	1.48	12.20	41.25	11%
MARITIME WAY	511	510											1559	5.34	3.67	23.16		1.36	1.18			1.87	26.21	200	1.70	42.76	1.36	38.40	16.54	61%
MARITIME WAY	510	501											1559	5.34	3.67	23.16		1.36	1.18			1.87	26.21	200	2.28	49.52	1.58	11.30	23.30	53%
TRUNK EASEMENT	501	500											5543	39.09	3.20	71.92		28.98	25.16		163.82	19.42	280.32	825	0.10	462.89	0.87	129.00	182.57	61%
TRUNK EASEMENT	500	94											5543	39.09	3.20	71.92		28.98	25.16		163.82	19.42	280.32							
A	90	92			35						95	0.80	95	0.80	4.00	1.53						0.22	1.76	250	0.60	46.06	0.94	120.0	44.30	4%
	92	94			12						32	1.19	127	1.99	4.00	2.06						0.56	2.61	250	2.20	88.20	1.80	103.0	85.58	3%
	94	95											5670	41.08	3.19	73.36		28.98	25.16		163.82	19.98	282.31	825	0.12	497.22	0.93	17.5	214.91	57%
	95	89			10						27	0.52	5697	41.60	3.19	73.66		28.98	25.16		163.82	20.12	282.76	825	0.12	497.22	0.93	66.6	214.46	57%
B	85	87	19								65	1.19	65	1.19	4.00	1.05						0.33	1.38	250	0.40	37.61	0.77	116.9	36.23	4%
	87	89			24						65	0.82	129	2.01	4.00	2.10						0.56	2.66	250	1.41	70.70	1.44	116.7	68.04	4%
A	89	84			12						32	0.35	5859	43.96	3.18	75.48		28.98	25.16		163.82	20.78	285.24	825	0.12	497.22	0.93	79.0	211.98	57%
C	80	82	19								65	1.08	65	1.08	4.00	1.05						0.30	1.35	250	0.40	37.61	0.77	120.0	36.26	4%
	82	84			25						68	0.83	132	1.91	4.00	2.14						0.53	2.68	250	1.20	65.18	1.33	118.5	62.51	4%
A	84	79			14						38	0.54	6028	46.41	3.17	77.38		28.98	25.16		163.82	21.47	287.83	825	0.12	497.22	0.93	79.0	209.39	58%
D	75	76			17						46	0.37	46	0.37	4.00	0.74						0.10	0.85	250	0.40	37.61	0.77	57.0	36.76	2%
	76	77			20						54	0.29	100	0.66	4.00	1.62						0.18	1.80	250	0.40	37.61	0.77	78.4	35.80	5%
	77	79			13						35	0.63	135	1.29	4.00	2.19						0.36	2.55	250	0.81	53.66	1.09	117.7	51.12	5%
PARK EASEMENT	79	67										0.98	6163	48.68	3.16	78.89		28.98	25.16		163.82	22.11	289.97	825	0.12	497.22	0.93	55.0	207.25	58%
	67	66			6						16	0.33	6180	49.01	3.16	79.07		28.98	25.16		163.82	22.20	290.25	825	0.12	497.22	0.93	70.0	206.98	58%

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KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room

Manning's Coefficient (n) = 0.013

MASTER SANITARY SEWER DESIGN SHEET
Designed: L.D.

2017 Update by: KF
2017 Check by: LD

Date: August 15, 2017

2017 Updates to Block 4,5, West of 9 Peak Flows

STREET	M.H. #		RESIDENTIAL														COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA					CAPACITY	
			NUMBER OF UNITS										CUMMULATIVE		PEAKING	POPUL.	Actual	CUMM.	COMM.		CUMM.	PEAK EXTR.	PEAK DES.						
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	AREA	AREA	FLOW	FLOW	FLOW	FLOW	FLOW	DIA. mm	SLOPE %	CAPAC. l/s	VEL. m/s	LENGTH m	Residual	% Full
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s						(L/s)	
BELLROCK DRIVE	70	73		12	14						70	2.56	70	2.56	4.00	1.14						0.72	1.85	250	0.40	37.61	0.77	87.2	35.75	5%
	73	74			12						32	0.54	103	3.10	4.00	1.66						0.87	2.53	250	0.40	37.61	0.77	60.3	35.08	7%
EASEMENT	74	62										0.31	103	3.41	4.00	1.66						0.95	2.62	250	0.40	37.61	0.77	39.9	34.99	7%
CAMBRAY LANE	62	66			25						68	0.48	170	3.89	4.00	2.76						1.09	3.85	250	0.77	52.18	1.06	100.5	48.33	7%
BISHOPS MILLS WAY	66	65			9						24	0.53	6374	53.43	3.15	81.22		28.98	25.16		163.82	23.44	293.64	825	0.12	497.22	0.93	62.0	203.59	59%
SOUTH of HWY 417	EX.	65									(1) 7792	(1) 191.60	7792	191.60	3.06	96.63				(4) 37.72	37.72	53.65	188.00	900	0.11	600.38	0.94	50.2	412.38	31%
BISHOPS MILLS WAY	65	64			2						5		14171	245.03	2.80	160.92		28.98	25.16		201.54	77.08	464.70	900	0.11	600.38	0.94	17.0	135.69	77%
EDENVALE DRIVE	59	60			8						22	0.50	22	0.50	4.00	0.35						0.14	0.49	200	1.40	38.80	1.24	77.0	38.31	1%
KETTLEBY STREET	60	61			22						59	0.62	81	1.12	4.00	1.31						0.31	1.63	250	0.40	37.61	0.77	103.6	35.98	4%
CAMBRAY LANE	58	61			5						14	0.41	14	0.41	4.00	0.22						0.11	0.33	200	0.70	27.44	0.87	74.5	27.10	1%
KETTLEBY STREET	61	64			25						68	0.42	162	1.95	4.00	2.63						0.55	3.17	250	0.90	56.41	1.15	105.0	53.24	6%
BISHOPS MILLS WAY	64	63			3						8		14342	246.98	2.80	162.55		28.98	25.16		201.54	77.63	466.87	900	0.11	600.38	0.94	13.0	133.51	78%
	63	57			10						27	0.68	14369	247.66	2.80	162.80		28.98	25.16		201.54	77.82	467.32	900	0.11	600.38	0.94	64.9	133.06	78%
TER. BUNGALOW Ph.2	51	53		48							130	0.94	130	0.94	4.00	2.10						0.26	2.36	200	0.70	27.44	0.87	122.3	25.08	9%
	53	54		4							11		140	0.94	4.00	2.28						0.26	2.54	200	0.70	27.44	0.87	13.6	24.90	9%
	54	55										0.27	140	1.21	4.00	2.28						0.34	2.61	200	0.70	27.44	0.87	36.7	24.82	10%
BISHOPS MILLS WAY	55	56	11								37	0.81	178	2.02	4.00	2.88						0.57	3.45	250	0.40	37.61	0.77	107.1	34.16	9%
	56	57	7		12						56	0.65	234	2.67	4.00	3.79						0.75	4.54	250	0.60	46.06	0.94	101.5	41.52	10%
PARK	57	34			1						3	0.37	14605	250.70	2.79	165.06		28.98	25.16		201.54	78.67	470.43	900	0.11	600.38	0.94	53.5	129.95	78%
	34	33			3						8		14613	250.70	2.79	165.14		28.98	25.16		201.54	78.67	470.51	900	0.11	600.38	0.94	50.3	129.87	78%
HAWKSTONE	43	44		22							59	1.19	59	1.19	4.00	0.96						0.33	1.30	250	1.00	59.46	1.21	51.0	58.17	2%
	44	45		8							22	0.09	81	1.28	4.00	1.31						0.36	1.67	250	0.50	42.05	0.86	29.0	40.38	4%
ENDENVALE	45	35										0.08	81	1.36	4.00	1.31						0.38	1.69	250	0.50	42.05	0.86	39.8	40.35	4%
BIRKENDALE DRIVE	35	36	7								24	1.18	105	2.54	4.00	1.70						0.71	2.41	250	0.37	36.18	0.74	93.2	33.77	7%
	36	37	13								44	0.79	149	3.33	4.00	2.41						0.93	3.35	250	0.37	36.09	0.74	77.1	32.74	9%
	37	33	2		3						15		164	3.33	4.00	2.66						0.93	3.59	250	0.40	37.61	0.77	17.9	34.02	10%
BIRKENDALE DRIVE	33	32			10						27	0.56	14804	254.59	2.78	166.96		28.98	25.16		201.54	79.76	473.42	900	0.11	600.38	0.94	72.7	126.97	79%
TEESWATER STREET	30	31			16						43	0.66	43	0.66	4.00	0.70						0.18	0.88	250	0.40	37.61	0.77	75.1	36.72	2%
	31	32			19						51	0.41	95	1.07	4.00	1.53						0.30	1.83	250	0.40	37.61	0.77	77.9	35.78	5%
BIRKENDALE STREET	32	18			6						16	0.37	14915	256.03	2.78	168.01		28.98	25.16		201.54	80.16	474.87	900	0.11	600.38	0.94	44.4	125.51	79%
	18	16			4						11		14926	256.03	2.78	168.11		28.982	25.16		201.54	80.16	474.97	900	0.11	600.38	0.94	44.4	125.41	79%
COMMERCIAL PLAZA	19	17													4.00		0.52	0.52	0.45			0.15	0.60	150	0.90	14.45	0.82	26.5	13.85	4%
COLCHESTER SQUARE	17	16										0.10		0.10	4.00			0.52	0.45			0.17	0.62	250	0.40	37.61	0.77	33.2	36.98	2%
COLCHESTER SQUARE	16	15			10						27	0.56	14953	256.69	2.78	168.37		29.50	25.61		201.54	80.49	476.01	900	0.11	600.38	0.94	66.0	124.37	79%
	15	14 A			2						5		14958	256.69	2.78	168.42		29.50	25.61		201.54	80.49	476.06	900	0.11	600.38	0.94	25.8	124.32	79%
ELSINORE LANE	39	28		32							86	0.53	86	0.53	4.00	1.40						0.15	1.55	250	1.00	59.46	1.21	56.7	57.91	3%
	28	24		18							49	1.47	135	2.00	4.00	2.19						0.56	2.75	250	0.40	37.61	0.77	43.0	34.86	7%
	24	23		12							32	0.14	167	2.14	4.00	2.71						0.60	3.31	250	0.40	37.61	0.77	34.0	34.30	9%
ELSINORE LANE	23	306		8							22	0.24	189	2.38	4.00	3.06						0.67	3.73	250	0.44	39.41	0.80	48.8	35.68	9%
ENDENVALE DRIVE	306	14 A										0.45	189	2.83	4.00	3.06						0.79	3.85	250	0.49	41.68	0.85	46.4	37.83	9%
COLCHESTER SQUARE	14 A	14											15147	259.52	2.77	170.21		29.50	25.61		201.54	81.29	478.65	900	0.11	600.38	0.94	14.7	121.74	80%
	Church	14													4.00		0.52	0.52	0.45			0.15	0.60	150	1.00	15.23	0.86	35.0	14.63	4%

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CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room
Manning's Coefficient (n) =	0.013	

MASTER SANITARY SEWER DESIGN SHEET
Designed: L.D.

2017 Update by: KF
2017 Check by: LD

Date: August 15, 2017

2017 Updates to Block 4,5, West of 9 Peak Flows

STREET	M.H. #		RESIDENTIAL														COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA					CAPACITY	
			NUMBER OF UNITS									CUMMULATIVE		PEAKING	POPUL.		Actual	CUMM.	COMM.										
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	AREA	AREA	FLOW	FLOW	CUMM. FLOW	PEAK EXTR. FLOW	PEAK DES. FLOW	DIA. mm	SLOPE %	CAPAC. l/s	VEL. m/s	LENGTH m	Residual (L/s)	% Full
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s							
COLCHESTER SQUARE	14	11		4							11	0.16	15158	259.68	2.77	170.31		30.02	26.06		201.54	81.48	479.39	900	0.11	600.38	0.94	72.6	120.99	80%
TERON	11	10											15158	259.68	2.77	170.31		30.02	26.06		201.54	81.48	479.39	900	0.11	600.38	0.94	29.6	120.99	80%
	10	EX.										0.25	15158	259.93	2.77	170.31		30.02	26.06		201.54	81.55	479.46	900	0.11	600.38	0.94	72.3	120.92	80%
TERON	O.P.P.	EX.													4.00					0.78	0.78		0.78	100	Forcemain					
TERON	EX.	EX. 2											15158	259.93	2.77	170.31		30.02	26.06		202.32	81.55	480.24	680	0.96	838.61	2.31	9.4	358.37	57%

(1) As per Kanata Town Centre Sanitary Trunk Sewer Study, revised March 27, 1996, by Robinson Consultants Inc.

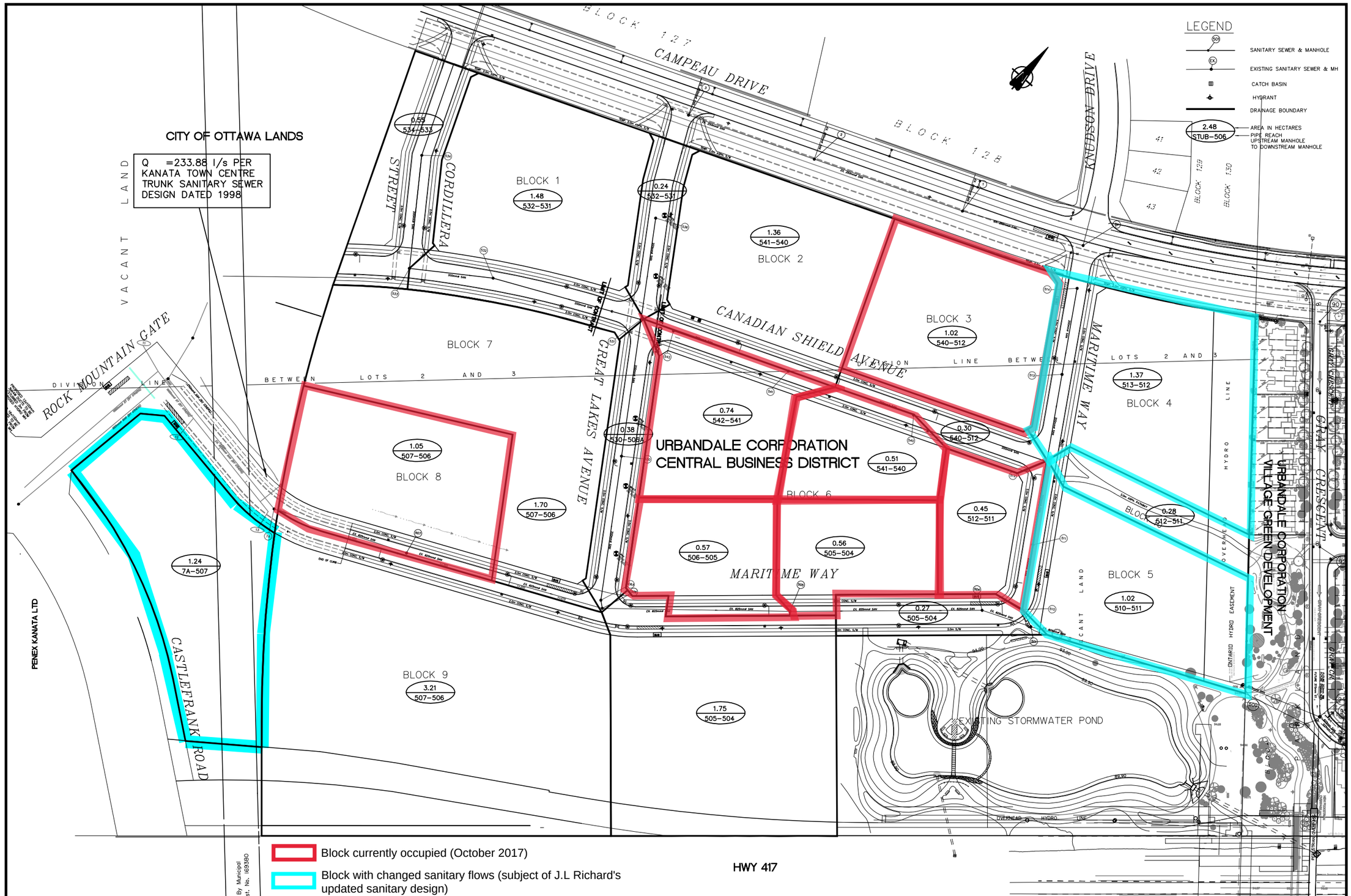
(2) Park or open space area.

(3) Equivalent population base on 208 rooms and 20 staff members.

(4) Allowance for an ultimate flow of 188 l/s to provide flexibility in future development as per Kanata Town Centre Sanitary Trunk Study.

(5) Additional flow associated with hotel ammenities including swimming pool with bathrooms and laundry as per design calculations for Block 1 provided by WSP (October 2016)

(6) Additional flow associated with overall ammenities including beauty salon, staff, dining and laundry as per design calculations for 1250 Maritime Way (Timberwalk Retirement Home) provided by Novatech (July 31,2017)



NO.	DATE	REVISIONS	BY
9	12/06/12	REVISED CBD DRAINAGE	JLP
8	24/07/07	REVISED AS PER CITY COMMENTS	CSB
7	25/05/07	PHASE 2 ISSUED FOR CITY REVIEW	CSB
6	08/03/07	ISSUED FOR TENDER	CSB
5	02/11/06	PER CITY COMMENTS	CSB
4	13/09/06	ISSUED TO CITY FOR REVIEW	LND
3	21/07/06	ISSUED TO CITY FOR REVIEW (STREET 'A' NORTH-SOUTH LEG)	LND
2	05/11/98	REVISED PER RMOC	LND
1	08/06/98	ISSUED FOR MOE APPROVAL (SAN)	LND

SCALE
0 10m 20m 30m 40m
HORIZONTAL 1:1000

V:\15712-NAD83\LD\15712 C SAN-NAD83.DWG

J.L. Richards & Associates Limited
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DESIGN	C.B.
CHECKED	L.N.D.
DRAWN	T.S.
CHECKED	
APPROVED	

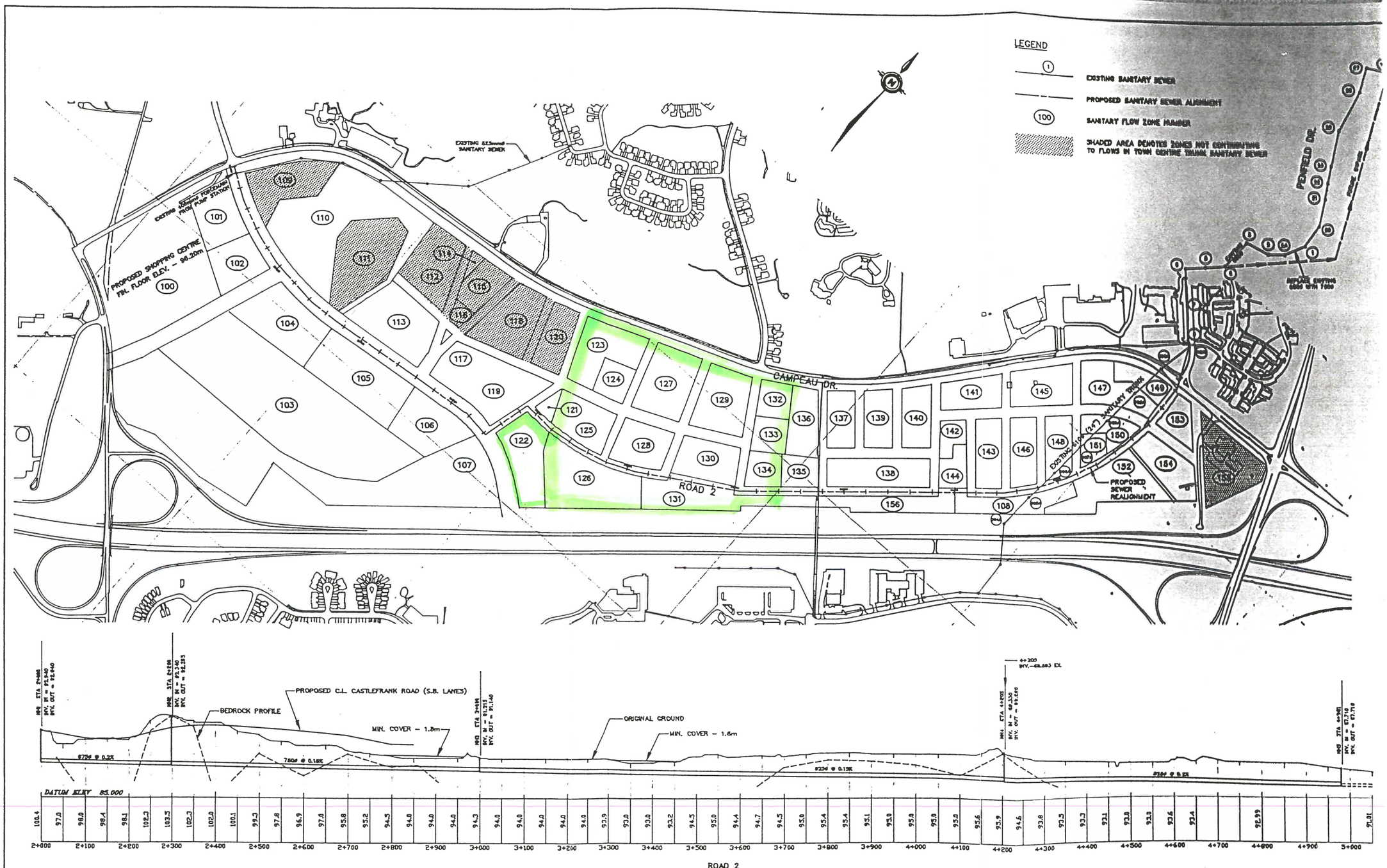
Ottawa

URBANDALE CORPORATION

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
SANITARY DRAINAGE PLAN

PROJECT No.	15712-NAD 83
STARTED	JUNE 1998
DWG. No.	15712-SAN

By Municipal Inst. No. 69380



NOTE: THIS PLAN WAS PRODUCED ON AN AUTOCAD® DRAFTING SYSTEM							
No.	DATE	REVISION	BY	No.	DATE	REVISION	BY
1	05.10.94	REVISED PROFILE	F.G.				
2	06.28.94	GENERAL REVISIONS AND ADDITIONS	F.G.				
3	07.11.94	GENERAL REVISIONS	F.G.				
4	07.28.95	PIPE SIZE PENFIELD DR. AND LOGO	A.J.R.				

SCALES
1:4000 HORIZONTAL
1:400 VERTICAL

Robinson Consultants
CONSULTING ENGINEERS
136, Michael Cowpland Dr.
Kanata, Ontario, K2M 2E9
Telephone (613) 592-6060

DESIGN P.G.
CHECKED A.J.R.
DRAWN I.D.M.
CHECKED
APPROVED A.J.R.

CITY OF KANATA
DEPARTMENT OF ENGINEERING AND PUBLIC WORKS

Figure 7.1
KANATA TOWN CENTRE
Trunk Sanitary Sewer Functional Design

PROJECT No. 93055
CONTRACT No. —
DATED OCT. 93
DWG. No. 93055-C

Table 4.7 - Revised as per RMOC Letter Dated March 27, 1996

KANATA TOWN CENTRE SANITARY TRUNK SEWER STUDY

Ultimate Development Flows Worksheet
Revised March, 1996
Project 93055

SR Pump Stn. Qp= 163 l/s

q (res)=	4.1E-03 l/cap x s	0.35	cu. m/capita/day
q (ret)=	5.8E-05 l/s x m2	5000	l/1000m2 x day
q (com)=	5.8E-05 l/s x m2	5000	l/1000m2 x day
q (hot)=	2.6E-03 l/s x bed	225	l/bed x day
Peaking factor for ret & off & hot=		1.5	

Flow Scenario - III

2 beds/room
I= 0.28 l/s/ha

3.8 persons/dwelling (low & med density)
2.2 persons/dwelling (high density)

Zone	Area	Residential Units			Retail		Office		Special Gen.		Peaking	Qp	Qi	Qtot	Cummul.
		Low	Med	High	GLA (m2)	Emp.	Area (m2)	Emp.	Hotel Rooms	Emp.	Factor	(l/s)	(l/s)	(l/s)	Qtot (l/s)
			0												
112	1.6		100		2230	47	5574	200							
111	2.2														
109	2.2	200	33						200	88					
115	0.8						1394	50							
116	0.20														
114	0.10														
118	1.7			50			9755	350							
120	1.1		87												
100	7.40				16908	386					4.00	1.47	2.07	3.54	166.62
101	1.30				4041	87					4.00	0.35	0.36	0.71	167.34
102	0.80				1579	34					4.00	0.14	0.22	0.36	167.70
104	1.50			168	10080	217					4.00	6.86	0.42	7.28	174.98
110	8.20		300								3.68	16.98	2.30	19.28	193.78
103	13.30				74459	1603					3.68	6.46	3.72	10.19	203.97
105	2.10			90	8826	190					3.64	3.68	0.59	4.27	208.00
106	1.50				3298	71					3.64	0.29	0.42	0.71	208.70
117	0.04										3.64	0.00	0.01	0.01	208.72
119	2.60			100	2230	47	34838	1250			3.60	6.42	0.73	7.15	215.59
107	9.10								100	88	3.60	0.78	2.55	3.33	218.53
113	2.10			300	2230	47	16722	600			3.50	10.99	0.59	11.58	229.31
121	0.10						19509	700			3.50	1.69	0.03	1.72	231.04
122	1.50						27870	1000			3.50	2.42	0.42	2.84	233.88
123	1.70		72	50			1394	50			3.45	5.48	0.48	5.95	239.30
124	0.60										3.45	0.00	0.17	0.17	239.47
125	1.40										3.45	0.00	0.39	0.39	239.86
126	2.80										3.45	0.00	0.78	0.78	240.64
127	1.80		80				4181	150			3.41	4.56	0.50	5.07	245.27
128	1.20		36				4181	150			3.39	2.24	0.34	2.58	247.65
129	1.70		70				6968	250			3.37	4.23	0.48	4.71	251.96
130	1.10						11148	400			3.37	0.97	0.31	1.28	253.24
131	2.00										3.37	0.00	0.56	0.56	253.80
132	0.60		40								3.35	2.06	0.17	2.23	255.80
133	0.60										3.35	0.00	0.17	0.17	255.97
134	0.70						4181	150			3.35	0.36	0.20	0.56	256.52
135	0.60		36								3.34	1.85	0.17	2.02	258.33
136	1.00		18								3.33	0.92	0.28	1.20	259.43
137	0.80	10	18								3.32	1.43	0.22	1.65	260.92
138	1.50		93								3.29	4.71	0.42	5.13	265.50
139	0.80	18	8								3.28	1.31	0.22	1.54	266.88
156	1.10		37								3.27	1.86	0.31	2.17	268.82
140	0.90	8	27								3.26	1.75	0.25	2.01	270.62
141	1.00		59								3.24	2.94	0.28	3.22	273.48
142	0.50										3.24	0.00	0.14	0.14	273.62
144	0.60		34								3.23	1.69	0.17	1.86	275.27
143	1.10	10	30								3.22	1.98	0.31	2.29	277.31
145	1.30		92								3.19	4.52	0.36	4.88	281.63
146	1.00	16	19								3.18	1.71	0.28	1.99	283.41
108	1.20		34								3.17	1.66	0.34	2.00	285.19
148	1.00	8	18								3.17	1.27	0.28	1.55	286.58
150	0.70		11								3.16	0.54	0.20	0.73	287.24
151	0.30										3.16	0.00	0.08	0.08	287.32
152	2.00										3.16	0.00	0.56	0.56	287.88
154	1.20		66								3.15	3.20	0.34	3.53	291.00
155	1.80						3177	114			3.15	0.28	0.50	0.78	291.78
147	1.30		49								3.13	2.36	0.36	2.73	294.20
153	0.80			100							3.12	2.78	0.22	3.00	296.84
149	0.60				1858	39					3.12	0.16	0.17	0.33	297.17
Totals	90.84	70	1247	808	125509	2768	134169	5414	100	176					
Total Town Centre Population					6782.2										
Average Persons per Dwelling Unit					3.19				Combined Down Stream Flow		425.64				

q (res) = 350 l/cap/day
q (com) = 50,000 l/ha/day
q (inst) = 50,000 l/ha/day

I = 0.280 l/s/ha

Singles, Townhouses, Ter. Bungalows = 3.8 pers / unit (low & medium density)

Stacked Townhouses / Apartments = 2.2 pers / unit (high density)
Stacked Townhouses / Apartments = 80 units / ha (high density)

CITY OF KANATA

KANATA TOWN CENTRE
(RESIDENTIAL)
URBANDALE CORPORATION

SANITARY SEWER DESIGN SHEET

Designed by: L.N.D.

Checked by: M.F.S.

STREET	M.H. #		No. of UNITS		AREA	CUMMULATIVE		Peaking	POPUL.	INFIL.	PEAK	SEWER DATA				
			Singles &	Stacked		POPUL.	AREA	Factor	FLOW	FLOW	FLOW	DIA	Slope	CAPAC.	VEL.	LENGTH
	FROM	TO	Townhouses	Townhouses	ha	peop.	ha		l/s	l/s	l/s	mm	%	l/s	m/s	m
A	90	92	37		0.80	141	0.80	4.00	2.28	0.22	2.50	250	0.60	46.06	0.94	120.0
	92	94	13		1.19	190	1.99	4.00	3.08	0.56	3.64	250	2.20	88.20	1.80	103.0
	94	95			66.80	4831	68.79	3.26	63.77	19.26	270.61	825	0.12	497.22	0.93	17.5
	95	89	10		0.52	4869	69.31	3.26	64.21	19.41	271.20	825	0.12	497.22	0.93	66.6
B	85	87	19		1.19	72	1.19	4.00	1.17	0.33	1.50	250	0.40	37.61	0.77	116.9
	87	89	26		0.82	171	2.01	4.00	2.77	0.56	3.33	250	1.41	70.70	1.44	116.7
A	89	84	12		0.35	5085	71.67	3.24	66.71	20.07	274.35	825	0.12	497.22	0.93	79.0
C	80	82	20		1.08	76	1.08	4.00	1.23	0.30	1.53	250	0.40	37.61	0.77	120.0
	82	84	28		0.83	182	1.91	4.00	2.96	0.53	3.49	250	1.20	65.18	1.33	118.5
A	84	79	14		0.54	5321	74.12	3.22	69.40	20.75	277.74	825	0.12	497.22	0.93	79.0
D	75	76	19		0.37	72	0.37	4.00	1.17	0.10	1.27	250	0.40	37.61	0.77	57.0
	76	77	20		0.29	148	0.66	4.00	2.40	0.18	2.59	250	0.40	37.61	0.77	78.4
	77	79	14		0.63	201	1.29	4.00	3.26	0.36	3.62	250	0.81	53.66	1.09	117.7
PARK EASEMENT	79	67			0.98	5522	76.39	3.20	71.69	21.39	280.66	825	0.12	497.22	0.93	55.0
	67	66	6		0.33	5545	76.72	3.20	71.95	21.48	281.01	825	0.12	497.22	0.93	70.0
BELLROCK DRIVE	70	73	26		2.56	99	2.56	4.00	1.60	0.72	2.32	250	0.40	37.61	0.77	87.2
	73	74	10		0.54	137	3.10	4.00	2.22	0.87	3.08	250	0.40	37.61	0.77	60.3
EASEMENT	74	62			0.31	137	3.41	4.00	2.22	0.95	3.17	250	0.40	37.61	0.77	39.9
CAMBRAY LANE	62	66	25		0.48	232	3.89	4.00	3.76	1.09	4.85	250	0.77	52.18	1.06	100.5
BISHOPS MILLS WAY	66	65	9		0.53	5811	81.14	3.18	74.95	22.72	285.25	825	0.12	497.22	0.93	62.0
SOUTH of HWY 417	EX.	65			191.60	7792	191.60	3.06	96.63	53.65	188.16	900	0.11	600.38	0.94	50.2
BISHOPS MILLS WAY	65	64	2			13610	272.74	2.82	155.52	76.37	457.35	900	0.11	600.38	0.94	17.0
EDENVALE DRIVE	59	60	8		0.50	30	0.50	4.00	0.49	0.14	0.63	200	1.40	38.80	1.24	77.0
KETTLEBY STREET	60	61	24		0.62	122	1.12	4.00	1.97	0.31	2.28	250	0.40	37.61	0.77	103.6
CAMBRAY LANE	58	61	8		0.41	30	0.41	4.00	0.49	0.11	0.61	200	0.70	27.44	0.87	74.5
KETTLEBY STREET	61	64	25		0.42	247	1.95	4.00	4.00	0.55	4.55	250	0.90	56.41	1.15	105.0
BISHOPS MILLS WAY	64	63	3			13869	274.69	2.81	158.01	76.91	460.38	900	0.11	600.38	0.94	13.0
	63	57	10		0.68	13907	275.37	2.81	158.38	77.10	460.94	900	0.11	600.38	0.94	64.9
TER. BUNGALOW Ph.2	51	53	48		0.94	182	0.94	4.00	2.96	0.26	3.22	200	0.70	27.44	0.87	122.3
	53	54	4			198	0.94	4.00	3.20	0.26	3.47	200	0.70	27.44	0.87	13.6
	54	55			0.27	198	1.21	4.00	3.20	0.34	3.54	200	0.70	27.44	0.87	36.7
BISHOPS MILLS WAY	55	56	11		0.81	239	2.02	4.00	3.88	0.57	4.44	250	0.40	37.61	0.77	107.1
	56	57	19		0.65	312	2.67	4.00	5.05	0.75	5.80	250	0.60	46.06	0.94	101.5
PARK	57	34	1		0.37	14222	278.41	2.80	161.40	77.95	464.82	900	0.11	600.38	0.94	53.5
	34	33	3		0.00	14234	278.41	2.80	161.51	77.95	464.93	900	0.11	600.38	0.94	50.3
HAWKSTONE	43	44	16		1.19	61	1.19	4.00	0.99	0.33	1.32	250	1.00	59.46	1.21	51.0
	44	45	8		0.09	91	1.28	4.00	1.48	0.36	1.84	250	0.50	42.05	0.85	29.0
ENDENVALE	45	35			0.08	91	1.36	4.00	1.48	0.38	1.86	250	0.50	42.05	0.86	39.8
BIRKENDALE DRIVE	35	36	7		1.18	118	2.54	4.00	1.91	0.71	2.62	250	0.37	36.18	0.74	93.2
	36	37	13		0.79	167	3.33	4.00	2.71	0.93	3.64	250	0.37	36.09	0.74	77.1
	37	33	2		0.00	175	3.33	4.00	2.83	0.93	3.76	250	0.40	37.61	0.77	17.9
BIRKENDALE DRIVE	33	32	13		0.56	14458	282.30	2.79	163.66	79.04	468.16	900	0.11	600.38	0.94	72.7
TEESWATER STREET	30	31	18		0.66	68	0.66	4.00	1.11	0.18	1.29	250	0.40	37.61	0.77	75.1
	31	32	19		0.41	141	1.07	4.00	2.28	0.30	2.58	250	0.40	37.61	0.77	77.9
BIRKENDALE STREET	32	18	4		0.37	14614	283.74	2.79	165.14	79.45	470.05	900	0.11	600.38	0.94	44.4
	18	16	6			14636	283.74	2.79	165.36	79.45	470.27	900	0.11	600.38	0.94	44.4
COMMERCIAL PLAZA	19	17			0.52	0	0.52	1.50	0.45	0.15	0.60	150	0.90	14.45	0.82	26.5
COLCHESTER SQUARE	17	16			0.10	0	0.62	4.00	0.45	0.17	0.62	250	0.40	37.61	0.77	33.2
COLCHESTER SQUARE	16	15	10		0.56	14674	284.92	2.79	166.17	79.78	471.41	900	0.11	600.38	0.94	66.0
	15	14 A	2			14682	284.92	2.79	166.25	79.78	471.48	900	0.11	600.38	0.94	25.8
ELSINORE LANE	39	28	22		0.53	84	0.53	4.00	1.35	0.15	1.50	250	1.00	59.46	1.21	56.7
	28	24	14		1.47	137	2.00	4.00	2.22	0.56	2.78	250	0.40	37.61	0.77	43.0
	24	23	12		0.14	182	2.14	4.00	2.96	0.60	3.55	250	0.40	37.61	0.77	34.0
ELSINORE LANE	23	306	8		0.24	213	2.38	4.00	3.45	0.67	4.11	250	0.44	39.41	0.80	48.8
ENDENVALE DRIVE	306	14 A			0.45	213	2.83	4.00	3.45	0.79	4.24	250	0.49	41.68	0.85	46.4
COLCHESTER SQUARE	14 A	14				14895	287.75	2.78	167.82	80.57	473.85	900	0.11	600.38	0.91	14.7
	Church	14			0.52	0	0.52	1.50	0.45	0.15	0.60	150	1.00	15.23	0.86	35.0
COLCHESTER SQUARE	14	11	4		0.16	14910	288.43	2.78	168.87	80.76	475.09	900	0.11	600.38	0.94	72.6
TERON	11	10				14910	288.43	2.78	168.87	80.76	475.09	900	0.11	600.38	0.94	29.6
	10	EX.			0.25	14910	288.68	2.78	168.87	80.83	475.16	900	0.11	600.38	0.94	72.3
TERON	O P P.	EX.									0.78	100	Forcemain			
TERON	EX.	EX.									475.94	680	0.96	838.61	2.31	9.4

PROFESSIONAL ENGINEER
LICENSE
M. N. L. DALRYMPLE
PROVINCE OF ONTARIO

Karla Ferrey

From: Lucie Dalrymple
Sent: August 1, 2017 9:43 AM
To: Karla Ferrey
Subject: FW: Kanata Town Centre - Sanitary Flows
Attachments: 1088 San Drainage.pdf; 1136 San Drainage.pdf

…here it is

Lucie Dalrymple, P.Eng.
Associate
Senior Civil Engineer

J.L. Richards & Associates Limited
864 Lady Ellen Place, Ottawa, ON K1Z 5M2
Tel: 613-728-3571 Fax: 613-728-6012

From: Matthew Hrehoriak [mailto:m.hrehoriak@novatech-eng.com]
Sent: July 31, 2017 10:16 AM
To: Lucie Dalrymple
Subject: RE: Kanata Town Centre - Sanitary Flows

Hi Lucie,

The sanitary info for the block 4 and 5 developments are as follows:

1088 Maritime Way (Block 4)

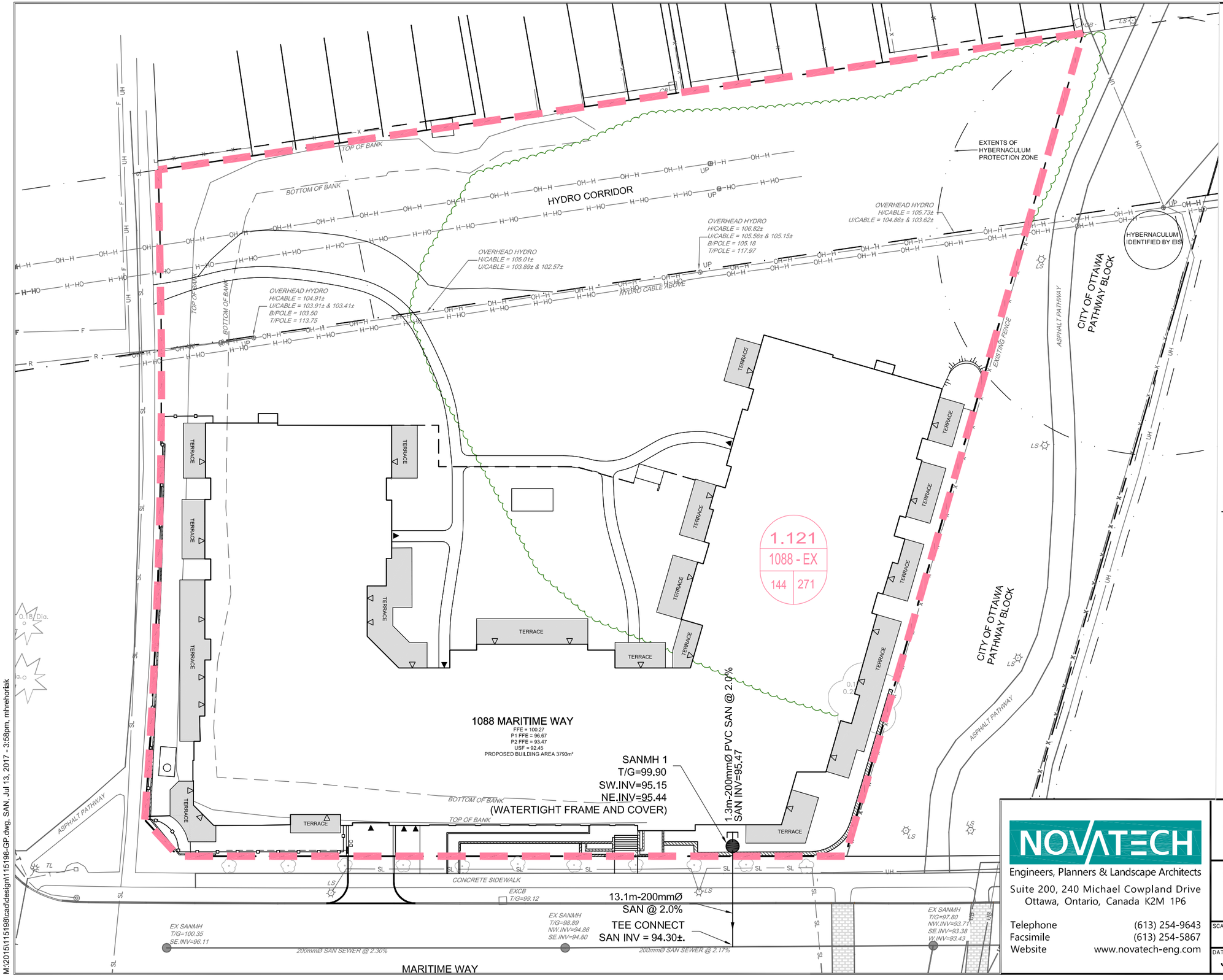
San service connection between SANMH 512-513
San Drainage Area = 1.121 ha
No. Units = 144
Population = 271

1136 Maritime Way (Block 5)

San service connection between SANMH 510-511
San Drainage Area = 0.915 ha
No. Units = 154
Population = 301

Regards,

Matthew Hrehoriak, B.Eng., EIT
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.



LEGEND

1.121 / 1088 - EX / 144 | 271	SANITARY DRAINAGE AREA (ha) / LOCATION / UNITS / POPULATION
SANMH	SANITARY MANHOLE
	SANITARY SERVICE WITH FLOW DIRECTION

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

1088 MARITIME WAY

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 500 (0 5 10 15 20)
DATE JULY 2017
JOB 115198
FIGURE A3

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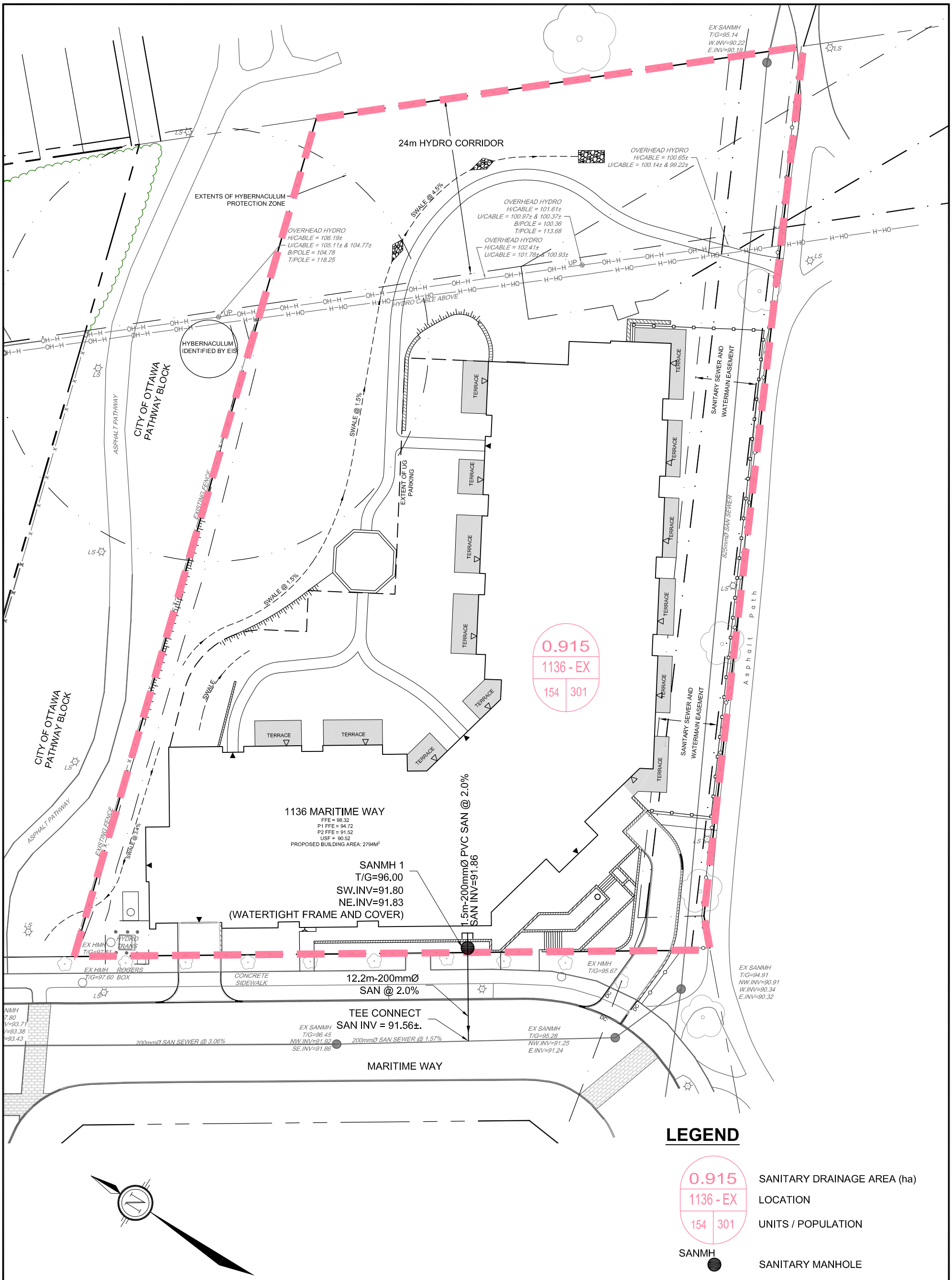

LEGEND

0.915 / 1136 - EX / 154 301	SANITARY DRAINAGE AREA (ha) / LOCATION / UNITS / POPULATION
SANMH	SANITARY MANHOLE
	SANITARY SERVICE WITH FLOW DIRECTION

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

1136 MARITIME WAY

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 500 (0 5 10 15 20)

DATE JULY 2017 | JOB 115199 | FIGURE A3

SHT11X17.DWG - 279mmX432mm

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SANITARY SEWER DESIGN SHEET

1250 Maritime Way

Timberwalk Retirement Home

Developer: Claridge Homes

Date: 31-Jul-17

Designed: CMS
Checked: GJM

Location			RESIDENTIAL							INSTITUTIONAL				COMMECIAL			OTHER												INFILTRATION		Total Flow (L/s)	PIPE					
			1 Bedroom		2 Bedroom		Total (Residential)			Assisted Care				Convenience Store			Staff			Beauty Salon			Laundry			Dining											
ID	From	To	Units	Pop.	Units	Pop.	Pop.	Peak Factor	Flow (L/s)	Units / Bed	Pop.	Peak Factor	Flow (L/s)	Area (m2)	Peak Factor	Flow (L/s)	Pop.	Peak Factor	Flow (L/s)	Stations	Peak Factor	Flow (L/s)	Machines	Peak Factor	Flow (L/s)	Seats	Peak Factor	Flow (L/s)	Total Area (ha)	Infilt. Flow (L/s)		Size (mm)	Slope (%)	Length (m)	Capacity (l/s)	Full Flow Vel. (m/s)	Q/Q_{full} (%)
Part A (current application)	BLD-1	MH101	92	129.0	8	17.0	146.0	4.0	2.37	54	60.0	1.5	0.47	50	1.5	0.004	20	1.5	0.10	2	1.5	0.02	6	1.5	0.13	55	1.5	0.11	0.48	0.13	3.33	200	2.00	2.5	48.4	1.49	6.9%
Part A (current application)	MH101	TEE-1	0	0.0	0	0.0	146.0	4.0	2.37	0	0.0	1.5	0.47	0	1.5	0.004	0	1.5	0.10	0	1.5	0.02	0	1.5	0.13	0	1.5	0.11	0.00	0.13	3.33	200	2.00	13.4	48.4	1.49	6.9%
Part B (future application)	BLD-2	MH103	0	0.0	110	231.0	231.0	4.0	3.74	0	0.0	1.5	0.00	0	1.5	0.000	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0.41	0.11	3.86	200	2.00	2.5	48.4	1.49	8.0%
Part B (future application)	MH103	TEE-2	0	0.0	0	0.0	231.0	4.0	3.74	0	0.0	1.5	0.00	0	1.5	0.000	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0.00	0.11	3.86	200	2.00	13.4	48.4	1.49	8.0%
TOTAL (Parts A + B)	**-**	**-**	**92**	**129.0**	**118**	**248.0**	**377.0**	**4.0**	**6.11**	**54**	**60.0**	**1.5**	**0.47**	**50**	**1.5**	**0.004**	**20**	**1.5**	**0.10**	**2**	**1.5**	**0.02**	**6**	**1.5**	**0.13**	**55**	**1.5**	**0.11**	**0.89**	**0.25**	**7.18**	**200**	**2.00**	**2.5**	**48.4**	**1.49**	**14.8%**

Design Parameters:

Residential	350	L/cap/day
Institutional	450	L/bed/day
Commercial	5	L/m^2 per day
Staff	275	L/cap/day
Beauty Salon	650	L/day per station
Laundy	1200	L/day per machine
Dining	115	L/seat/day
Infiltration	0.28	L/s/ha

Peaking Factor:

Residential	Harmon Equation (max 4, min 2)
Institutional	1.5
Commercial	1.5
Other	1.5

People/Unit:

1.10	Assisted Care
1.40	1 Bedroom
2.10	2 Bedroom
1.00	Studio

Notes:

1. The harmon peaking factor calculated for section 507 to 7A is 3.5 per JLR Design Sheet dated October 12th, 2016
2. Residential flows were used for senior apartments (350 L/cap/day, Harmon Peaking Factor)
3. Institutional flow used for assisted care units (450 L/bed/day, Peaking Factor = 1.5)
4. Future building assumed to be a 10 storey building comprised of 110 2 bedroom units

END OF J.L RICHARDS MEMORANDUM

Matthew Linton

From: Mike Traub <mike.traub@claridgehomes.com>
Sent: July-13-17 1:12 PM
To: Matthew Linton
Cc: Pascal Vendette; Conrad Stang
Subject: Re: FW: 1250 Maritime Way - Sanitary

Hi Matt,

There will be two stations in the hair salon and about 55 seats in the main dining room.

Let me know if you have any further questions.

Thanks,

Mike

On Wed, Jul 12, 2017 at 4:40 PM, Matthew Linton <m.linton@novatech-eng.com> wrote:

> Pascal/Mike,
>
> Could we obtain some clarifications on the following below? This is for city comments as they are stating our assumed values seem low.
>
> Thanks,

Matthew Linton, CAD Technologist

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 207 | Fax: 613.254.5867

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

From: Conrad Stang
Sent: July-12-17 3:55 PM

Matthew Linton

From: Pascal Vendette <pascal@neufarchitectes.com>
Sent: May-01-17 1:39 PM
To: Matthew Linton
Subject: RE: Unit Counts - Timberwalk (Maritime Way)

2nd floor : 28 assisted care units
3rd floor : 26 assisted care units
4th to 7th floor : 25 units
6 suites
17 1br
2 br

NEUF
ARCHITECT(E)S

PASCAL VENDETTE
Technologue senior en architecture
Senior Architectural Technologist
T 514 847 1117 #269 F 514 847 2287 C 514 833 6005
630, boul. René-Lévesque O. 32e étage, Montréal (QC) H3B 1S6
47 Clarence Street, suite 406, Ottawa (ON) K1N 9K1
NEUF ARCHITECTES SENCRL

Politiques de transmission et de confidentialité de NEUF architect(e)s
NEUF architect(e)s transmission and confidentiality policy

De : Matthew Linton [mailto:m.linton@novatech-eng.com]
Envoyé : 1 mai 2017 11:21
À : Pascal Vendette <pascal@neufarchitectes.com>
Objet : Unit Counts - Timberwalk (Maritime Way)

Pascal,

Can you please send us over either the calculated dwelling units (I see you have the dwelling units on drawing A050 however we need to know 1 bedroom, 2 bedroom, etc.) or floor plans for each of the floors for the retirement home?

Thanks,

Matthew Linton, CAD Technologist
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 207 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

Matthew Linton

From: Pascal Vendette <pascal@neufarchitectes.com>
Sent: July-13-17 9:49 AM
To: Matthew Linton
Cc: mike.traub@claridgehomes.com; Conrad Stang
Subject: RE: 1250 Maritime Way - Sanitary

Follow Up Flag: Follow up
Flag Status: Completed

Hi Matthew.
Sorry for the dealy ... it's crazy here.

Here is my response to item #1.
There are commercial washers-dryers in the basement ...

- 2 gas heater tumble dryers 75 lbs
- 1 high-performance washer extractor 65 lbs
- 1 cabinet hardmount washer extractor 20 lbs

... and residential type washer-dryer (one of each) on floors 4 to 7

Mike can you please take care of items #2 & #3.

Best regards,

NEUF
ARCHITECT(E)S

PASCAL VENDETTE
Technologue senior en architecture
Senior Architectural Technologist
T 514 847 1117 #269 F 514 847 2287 C 514 833 6005
630, boul. René-Lévesque O. 32e étage, Montréal (QC) H3B 1S6
47 Clarence Street, suite 406, Ottawa (ON) K1N 9K1
NEUF ARCHITECTES SENCRL

Politiques de transmission et de confidentialité de NEUF architect(e)s
NEUF architect(e)s transmission and confidentiality policy

De : Matthew Linton [mailto:m.linton@novatech-eng.com]
Envoyé : 13 juillet 2017 09:38
À : Pascal Vendette <pascal@neufarchitectes.com>
Cc : mike.traub@claridgehomes.com; Conrad Stang <c.stang@novatech-eng.com>
Objet : RE: 1250 Maritime Way - Sanitary

Pascal,

Can we have some clarification on this?

SANITARY SEWER DESIGN SHEET
1250 Maritime Way
Timberwalk Retirement Home
Developer: Claridge Homes

Date: 30-Nov-17

Designed: CMS
Revised: JDM
Checked: GJM

Location			RESIDENTIAL							INSTITUTIONAL				COMMECIAL			OTHER												INFILTRATION		Total Flow (L/s)	PIPE					
			1 Bedroom		2 Bedroom		Total (Residential)			Assisted Care				Convenience Store			Staff			Beauty Salon			Laundry			Dining											
ID	From	To	Units	Pop.	Units	Pop.	Pop.	Peak Factor	Flow (L/s)	Units / Bed	Pop.	Peak Factor	Flow (L/s)	Area (m2)	Peak Factor	Flow (L/s)	Pop.	Peak Factor	Flow (L/s)	Stations	Peak Factor	Flow (L/s)	Machines	Peak Factor	Flow (L/s)	Seats	Peak Factor	Flow (L/s)	Total Area (ha)	Infilt. Flow (L/s)		Size (mm)	Slope (%)	Length (m)	Capacity (l/s)	Full Flow Vel. (m/s)	Q/Q_{full} (%)
Part A (current application)	BLD1	MH4	92	129.0	8	17.0	146.0	4.0	2.37	54	60.0	1.5	0.47	100	1.5	0.009	20	1.5	0.10	2	1.5	0.02	6	1.5	0.13	55	1.5	0.11	0.48	0.13	3.33	200	2.66	9.6	55.8	1.72	6.0%
Part A (current application)	MH4	MH2	0	0.0	0	0.0	146.0	4.0	2.37	0	0.0	1.5	0.47	0	1.5	0.009	0	1.5	0.10	0	1.5	0.02	0	1.5	0.13	0	1.5	0.11	0.00	0.13	3.33	200	2.70	27.8	56.2	1.73	5.9%
Part B (future application)	FUT-BLD2	MH2	0	0.0	110	231.0	231.0	4.0	3.74	0	0.0	1.5	0.00	0	1.5	0.000	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0	1.5	0.00	0.41	0.11	3.86	200	2.00	2.5	48.4	1.49	8.0%
TOTAL (Parts A + B)	**MH2**	**EX MH**	**92**	**129.0**	**118**	**248.0**	**377.0**	**4.0**	**6.11**	**54**	**60.0**	**1.5**	**0.47**	**100**	**1.5**	**0.009**	**20**	**1.5**	**0.10**	**2**	**1.5**	**0.02**	**6**	**1.5**	**0.13**	**55**	**1.5**	**0.11**	**0.89**	**0.25**	**7.19**	**200**	**1.50**	**13.8**	**41.9**	**1.29**	**17.2%**

Design Parameters:

Residential	350	L/cap/day
Institutional	450	L/bed/day
Commercial	5	L/m^2 per day
Staff	275	L/cap/day
Beauty Salon	650	L/day per station
Laundy	1200	L/day per machine
Dining	115	L/seat/day
Infiltration	0.28	L/s/ha

Peaking Factor:

Residential	Harmon Equation (max 4, min 2)
Institutional	1.5
Commercial	1.5
Other	1.5

People/Unit:

1.10	Assisted Care
1.40	1 Bedroom
2.10	2 Bedroom
1.00	Studio

Notes:
1. The harmon peaking factor calculated for section 507 to 7A is 3.5 per JLR Design Sheet dated October 12th, 2016
2. Residential flows were used for senior apartments (350 L/cap/day, Harmon Peaking Factor)
3. Institutional flow used for assisted care units (450 L/bed/day, Peaking Factor = 1.5)
4. Future building assumed to be a 10 storey building comprised of 110 2 bedroom units

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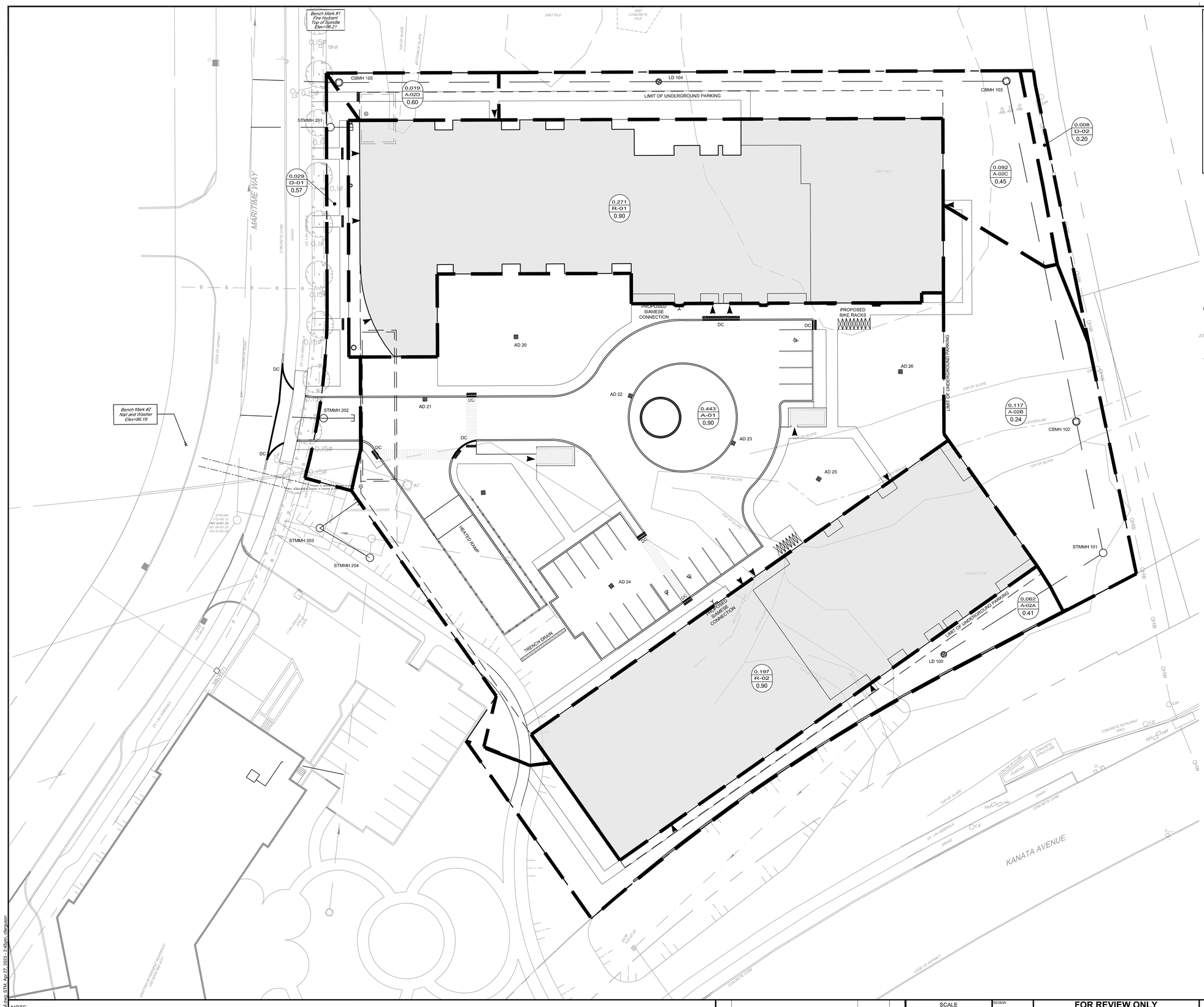
APPENDIX C

Stormwater Management Calculations



LEGEND

- PROPERTY LINE
- PROPOSED CURB
- DC — PROPOSED DEPRESSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CAP
- PROPOSED STORM SEWER C/W MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED LANDSCAPE DRAIN
- PROPOSED AREA DRAIN
- PROPOSED INLET CONTROL DEVICE
- PROPOSED BUILDING ENTRANCE
- DIRECTION OF FLOW
- PROPOSED RETAINING WALL C/W GUARD RAIL
- PROPOSED SWALE
- PROPOSED TERRACING
- *EXISTING STORM MANHOLE & SEWER*
- *EXISTING CATCHBASIN*
- *EXISTING OVERHEAD WIRES*
- *EXISTING STREETLIGHT*
- DRAINAGE AREA LIMITS
- 0.085 / A-16 / 0.78 — DRAINAGE AREA (ha) / DRAINAGE AREA ID / RUNOFF COEFFICIENT

STORMWATER MANAGEMENT NOTES:

1. REFER TO 'SERVICEABILITY AND STORMWATER MANAGEMENT REPORT' PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
2. NO ROOF TOP CONTROL ALLOWED.
3. TOTAL AREA: 1.24 ha

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.

CLARIDGE HOMES

CLARIDGE HOMES
505 PRESTON STREET,
OTTAWA , ONTARIO
K1S 4N7.

No.	REVISION	DATE	BY
5.	ISSUED FOR SPA	APR 28/23	GJM
4.	REVISED PER CITY COMMENTS	MAY 31/22	GJM
3.	ISSUED FOR COORDINATION BASED ON URDP	OCT20/21	JAG
2.	ISSUED FOR CITY COMMENTS	JUL07/21	JAG
1.	SUBMITTED WITH ZONING/SITE PLAN APPLICATIONS	JAN25/21	JAG

SCALE 1:250 (1:250, 0 2 4 6 8 10)

DESIGN JAG
CHECKED GJM
DRAWN CJF
CHECKED JAG
APPROVED GJM

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
MARITIME WAY - KANATA RENTAL

DRAWING NAME
STORM WATER MANAGEMENT PLAN

PROJECT No. 120144
REV REV # 5
DRAWING No. 120144-SWM

City File D07-12-21-0017
City Plan #18348

M:\2020\01\20144\CAD\Design\120144-STM.dwg, STM, Apr 27, 2023 - 2:45pm, dlangson

PROJECT #: 120144
PROJECT NAME: 1200 MARITIME WAY
LOCATION: CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: May 27, 2022

TABLE 1A: Allowable Runoff Coefficient "C"

Area	"C"
Total	0.80
1.238	

TABLE 1B: Allowable Flows

Outlet Options	Area (ha)	"C"	Tc (min)	$Q_{5\ Year}$ (L/s)	Q_{ALLOW} (L/s)
	1.238	0.80	20	**193.4**	**193.4**

Time of Concentration	Tc=	20	min
Intensity (2 Year Event)	I_2=	52.03	mm/hr
Intensity (5 Year Event)	I_5=	70.25	mm/hr
Intensity (100 Year Event)	I_{100}=	119.95	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014) $^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053) $^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

Equations:
Flow Equation
Q = 2.78 x C x I x A
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

PROJECT #: 120144
PROJECT NAME: 1200 MARITIME WAY
LOCATION: CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: May 27, 2022

TABLE 2A: Post-Development Runoff Coefficient "C" - D1

Area	Surface	Ha	"C"	C_{avg}	*C_{100}
Total	Hard	0.015	0.90	0.57	0.65
0.029	Soft	0.013	0.20		

Runoff Coefficient Equation

$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

TABLE 2B: Post-Development D1 Flows

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)
	0.029	0.57	10	**3.5**	**4.8**	**9.2**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014) $^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053) $^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

Equations:
Flow Equation
Q = 2.78 x C x I x A
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

PROJECT #: 120144
PROJECT NAME: 1200 MARITIME WAY
LOCATION: CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: May 27, 2022

TABLE 3A: Post-Development Runoff Coefficient "C" - D2

Area	Surface	Ha	"C"	C_{avg}	*C_{100}
Total	Hard	0.000	0.90	0.20	0.25
0.008	Soft	0.008	0.20		

Runoff Coefficient Equation

$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

TABLE 3B: Post-Development D2 Flows

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)
	0.008	0.20	10	**0.3**	**0.5**	**1.0**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014) $^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053) $^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

Equations:
Flow Equation
Q = 2.78 x C x I x A
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

TABLE 4A: Post-Development Runoff Coefficient "C" - A-02

			5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.075	0.90	0.38	1.00	0.44
0.290	Roof	0.000	0.90		1.00	
	Soft	0.215	0.20		0.25	

TABLE 4B: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-02

0.290 =Area (ha)
0.38 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)*	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
5 YEAR	0	230.48	70.95	16.000	54.95	0.00
	5	141.18	43.46	16.000	27.46	8.24
	10	**104.19**	**32.08**	**16.000**	**16.08**	**9.65**
	15	83.56	25.72	16.000	9.72	8.75
	20	70.25	21.63	16.000	5.63	6.75

TABLE 4C: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-02

0.290 =Area (ha)
0.44 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)*	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
100 YEAR	5	242.70	87.05	24.80	62.25	18.67
	10	178.56	64.04	24.80	39.24	23.55
	15	**142.89**	**51.25**	**24.80**	**26.45**	**23.81**
	20	119.95	43.02	24.80	18.22	21.87
	25	103.85	37.25	24.80	12.45	18.67

TABLE 4E: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-02

0.290 =Area (ha)
0.44 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)*	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
100 YEAR + 20	5	291.24	104.46	29.7	74.76	22.43
	10	214.27	76.85	29.7	47.15	28.29
	15	**171.47**	**61.50**	**29.7**	**31.80**	**28.62**
	20	143.94	51.63	29.7	21.93	26.31
	25	124.62	44.69	29.7	14.99	22.49

Equations:

Flow Equation

$Q = 2.78 \times C \times I \times A$

Where:

C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{Tot}$

* Allowable run-off is 50% of the actual flow to estimate the required volume as per city of Ottawa Guidelines for underground storage

PROJECT #: 120144
PROJECT NAME: 1200 MARITIME WAY
LOCATION: CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: May 27, 2022

TABLE 5D: Structure information

Structures	Size Dia.(mm)	Area (m^2)	T/G	Inv IN	Inv OUT
CBMH 105	1200	1.13	95.50	94.36	94.35
CBMH 103	1200	1.13	96.15	94.80	94.74
CBMH 102	1200	1.13	96.20	95.00	94.99
STMMH 101	1200	1.13	96.50	95.13	95.07

TABLE 5D: Landscape drain information

Structures	Size Dia.(mm)	Area (m^2)	T/G	Top of pipe
LD 104	300	0.07	96.10	94.93
LD 100	300	0.07	96.30	95.61

TABLE 5E: Pipe information

Structures	Size Dia.(mm)	Length	Inv UP	Inv DOWN
LD 104 -CBMH 105	375	50.0	94.54	94.36
CBMH 103 - LD 104	375	54.4	94.74	94.55
CBMH 102 - CBMH 103	375	53.8	94.99	94.80
STMMH 101 - CBMH 102	375	20.0	95.07	95.00
LD 100 - STMMH 101	375	29.3	95.23	95.13

TABLE 5F: Storage Provided

Storage Table

Elevation (m)	System Depth (m)	CBMH 105 Volume (m^3)	CBMH 103 Volume (m^3)	CBMH 102 Volume (m^3)	STMMH 101 Volume (m^3)	LD 104 Volume (m^3)	LD 100 Volume (m^3)	Pipe Storage Volume (m^3)	Underground Volume (m^3)*	Ponding Volume (m^3)	**Total Volume (m^3)**
94.350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
94.360	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	**0.01**
94.740	0.39	0.44	0.00	0.00	0.00	0.00	0.00	5.95	6.39	0.00	**6.39**
94.990	0.64	0.72	0.28	0.00	0.00	0.00	0.00	13.65	14.66	0.00	**14.66**
95.070	0.72	0.81	0.37	0.09	0.00	0.01	0.00	16.11	17.40	0.00	**17.40**
95.500	1.15	1.30	0.86	0.58	0.49	0.04	0.00	22.12	25.38	0.00	**25.38**
95.610	1.26	1.43	0.98	0.70	0.61	0.05	0.00	23.66	27.42	0.28	**27.70**
95.640	1.29	1.46	1.02	0.74	0.64	0.05	0.00	-	27.56	0.35	**27.91**
95.700	1.35	-	1.09	0.80	0.71	0.05	0.01	-	27.78	0.35	**28.13**
95.800	1.45	-	1.20	0.92	0.83	0.06	0.01	-	28.13	0.35	**28.48**
95.900	1.55	-	1.31	1.03	0.94	0.07	0.02	-	28.48	0.35	**28.83**

TABLE 2G: Orifice Sizing information - A-1

Control Device
Round Plate Orifice 152 mm

Design Event	Flow (L/S)	Head (m)	Elev (m)	Outlet dia. (mm)	Volume (m^3)	Area (m^2)	Dia. (mm)
1:5 Year	32.0	0.41	94.84	375.00	9.65	0.0181	152.0
1:100 Year	49.6	0.99	95.42	375.00	23.81	0.0182	152.0
1:100 + 20 Year	59.4	1.41	95.84	375.00	28.62	0.0182	152.0

The design Head is calculated based on the centre of the orifice at the bottom of the pipe

Numbers in red are above the system spill elevation

Orifice Control Sizing
Q = 0.62 x A x (2gh) x 0.5
Q is the release rate in m^3/s
A is the orifice area in m^2
g is the acceleration due to gravity, 9.81 m/s^2
h is the head of water above the orifice centre in m
d is the diameter of the orifice in m

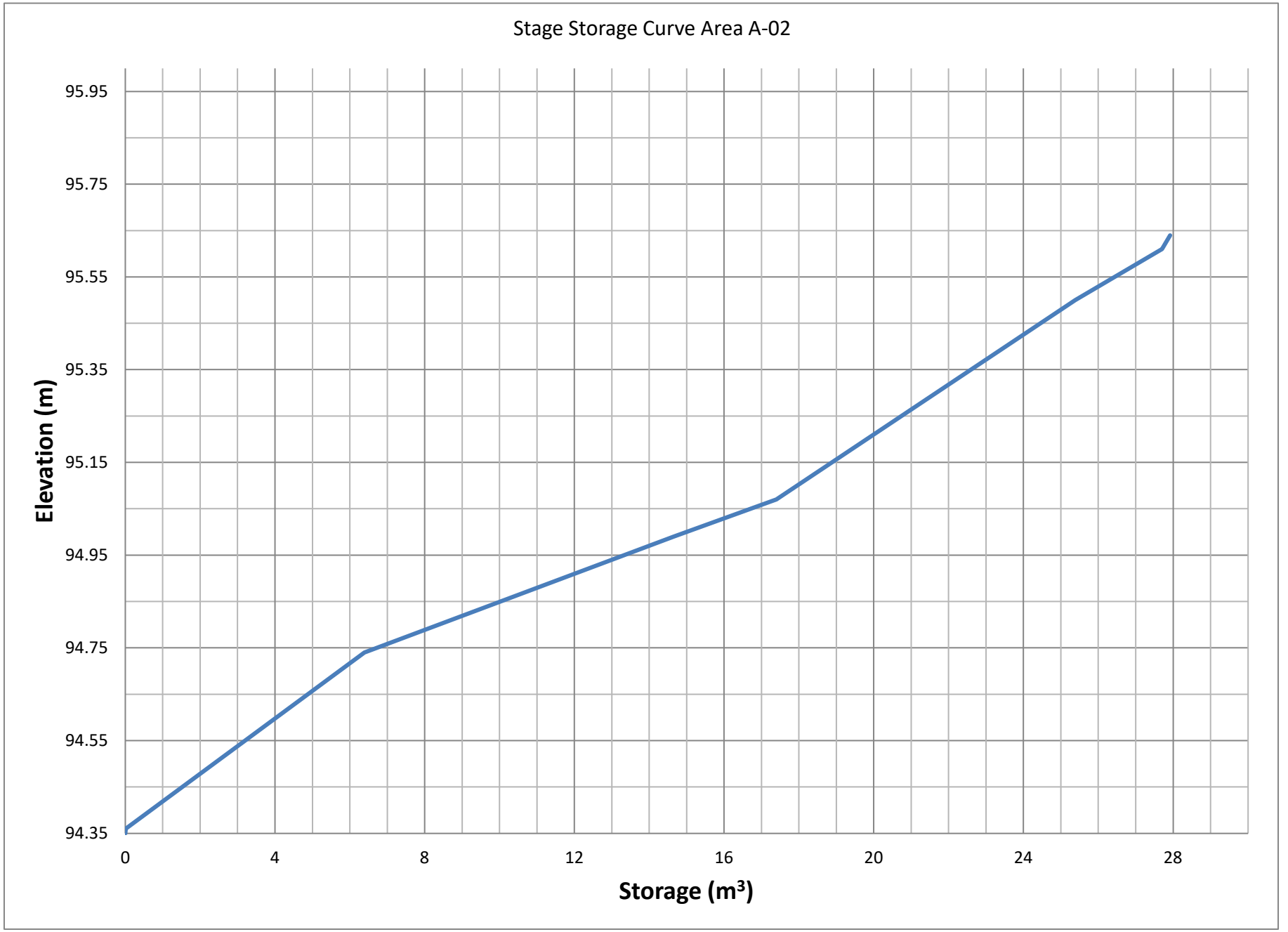

Stage Storage Curve Area A-02
95.95
95.75
95.55
95.35
95.15
94.95
94.75
94.55
94.35
Elevation (m)
0
4
8
12
16
20
24
28
Storage (m³)

TABLE 6A: Post-Development Runoff Coefficient "C" - A-01,R-01,R-02

			5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.443	0.90		1.00	
0.910	Roof	0.468	0.90	0.90	1.00	1.00
	Soft	0.000	0.20		0.25	

TABLE 6B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01,R-02

0.910 =Area (ha)
0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
2 YEAR	-5	632.75	1441.00	133.0	1308.00	-392.40
	0	167.22	380.83	133.0	247.83	0.00
	5	103.57	**235.87**	**133.0**	**102.87**	**30.86**
	10	76.81	174.91	133.0	41.91	25.15
	15	61.77	140.67	133.0	7.67	6.90

TABLE 6C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01,R-02

0.910 =Area (ha)
0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
5 YEAR	0	230.48	524.89	133.0	391.89	0.00
	5	141.18	321.52	133.0	188.52	56.55
	10	**104.19**	**237.29**	**133.0**	**104.29**	**62.57**
	15	83.56	190.29	133.0	57.29	51.56
	20	70.25	159.99	133.0	26.99	32.39

TABLE 6D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01,R-02

0.910 =Area (ha)
1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
100 YEAR	5	242.70	614.14	133.0	481.14	144.34
	10	178.56	451.83	133.0	318.83	191.30
	15	**142.89**	**361.58**	**133.0**	**228.58**	**205.72**
	20	119.95	303.52	133.0	170.52	204.63
	25	103.85	262.78	133.0	129.78	194.66

TABLE 6E: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01,R-02

0.910 =Area (ha)
1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
100 YEAR + 20	10	214.27	542.19	133.0	409.19	245.52
	15	171.47	433.90	133.0	300.90	270.81
	20	**143.94**	**364.23**	**133.0**	**231.23**	**277.47**
	25	124.62	315.33	133.0	182.33	273.50
	30	110.24	278.96	133.0	145.96	262.72

Equations:
Flow Equation
$Q = 2.78 \times C \times I \times A$
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

Runoff Coefficient Equation
$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$
$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{Tot}$

TABLE 6F: Structure information - A-01,R-01,R-02

Structures	Size Dia.(mm)	Area (m^2)	T/G	Bottom of Tank
Tank	-	118.83	96.45	93.23

TABLE 6G: Storage Provided - A-01,R-01,R-02

Storage Table			
Elevation (m)	System Depth (m)	Tank Volume (m^3)	
93.23	0.00	0.00	
93.330	0.10	11.88	
93.430	0.20	23.77	
93.530	0.30	35.65	
93.630	0.40	47.53	
93.730	0.50	59.41	
93.830	0.60	71.30	
93.930	0.70	83.18	
94.030	0.80	95.06	
94.130	0.90	106.95	
94.230	1.00	118.83	
94.330	1.10	130.71	
94.430	1.20	142.60	
94.530	1.30	154.48	
94.630	1.40	166.36	
94.730	1.50	178.24	
94.830	1.60	190.13	
94.930	1.70	202.01	
95.030	1.80	213.89	
95.130	1.90	225.78	
95.230	2.00	237.66	
95.330	2.10	249.54	
95.430	2.20	261.43	
95.530	2.30	273.31	
95.630	2.40	285.19	
95.700	**2.47**	**293.51**	**Top of Tank**
95.800	2.57	293.62	
95.900	2.67	293.74	
96.000	2.77	293.85	
96.100	2.87	293.96	
96.200	2.97	294.08	
96.300	3.07	294.19	
96.400	3.17	294.30	
96.500	3.27	294.41	**Top of Grate**

TABLE 6H: Orifice Sizing Information - A-01,R-01,R-02

Control Device					
	Pump				
Design Event	Flow	Volume Required	Depth	Elevation	Outlet Dia. (mm)
1:2 year	133.00	30.86	0.25	93.48	300
1:5 Year	133.00	62.57	0.53	93.76	300
1:100 Year	133.00	205.72	1.73	94.96	300
1:100 + 20% Year	133.00	277.47	2.33	95.57	300

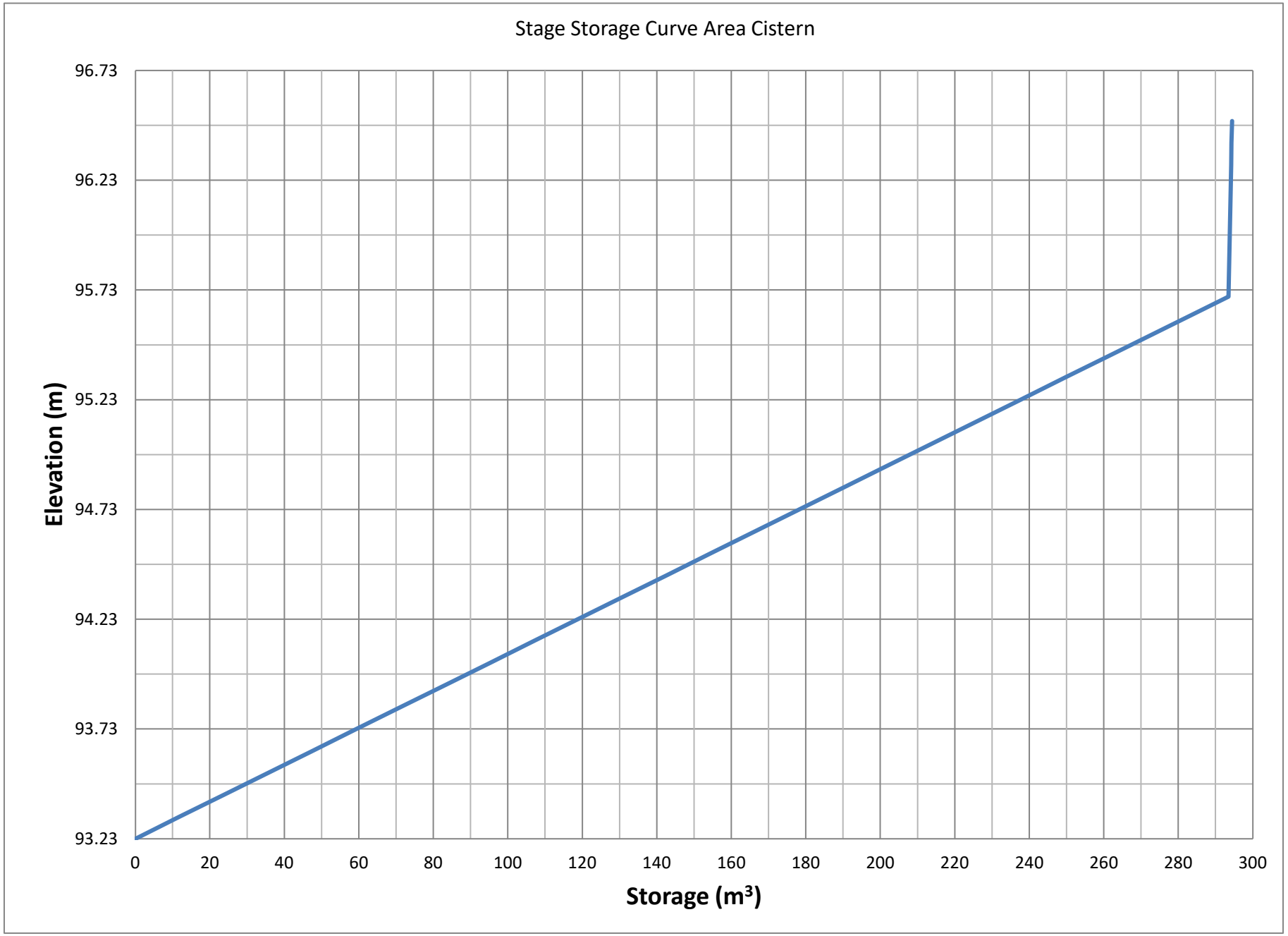

Stage Storage Curve Area Cistern
96.73
96.23
95.73
95.23
94.73
94.23
93.73
93.23
Elevation (m)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Storage (m³)

Table 15: Post-Development Stormwater Management Summary

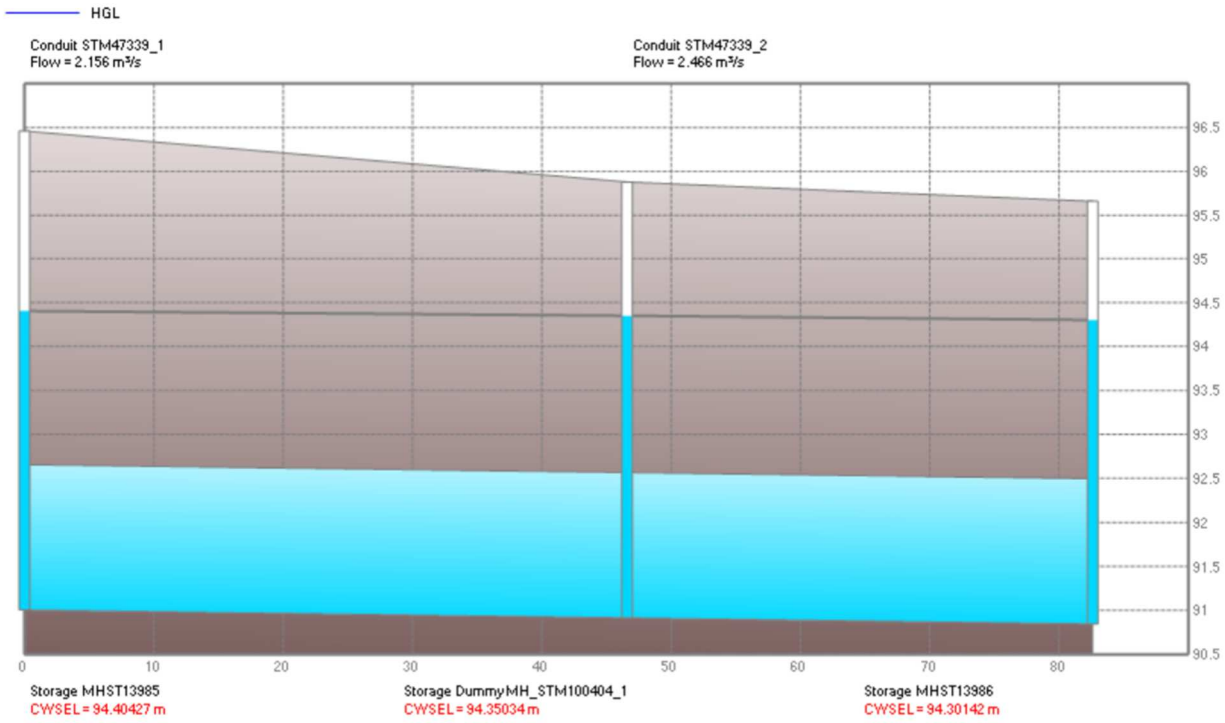
Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Control Device	Outlet Location	5 Year Storm Event				100 Year Storm Event			
						Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)
D-01	0.029	0.57	0.65	N/A	Maritime Way	4.8	N/A	N/A	N/A	9.2	N/A	N/A	N/A
D-02	0.008	0.20	0.25	N/A	Highway 417	0.5	N/A	N/A	N/A	1.0	N/A	N/A	N/A
A-02	0.290	0.38	0.44	152	Maritime Way	32.0	0.414	9.65	27.91	49.6	0.989	23.81	27.91
A-01,R-01,R-02	0.910	0.90	1.00	Pump	Maritime Way	133.0	0.526	62.57	294.41	133.0	1.730	205.72	294.41
Post-Devlopment Flow						**170.3**	**-**	**72.2**	**322.3**	**192.8**	**-**	**229.5**	**322.3**
Total Allowable Release Rate						**193.4**				**193.4**			

From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: Friday, May 20, 2022 9:42 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: D07-12-21-0017 - 1200 Maritime

Hi Anthony,

Following are the HGL data received from our water resources group for your use.

The 100 year HGL on Maritime from MHST13985- 13986 is: 94.40 to 94.30



Thanks,
Santhosh

From: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Sent: May 16, 2022 2:58 PM
To: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Subject: D07-12-21-0017 - 1200 Maritime

I am reviewing the SWM requirements for the 1200 Maritime site and would like to confirm the HGL within the STM sewer fronting the site.

Based on the design drawings for Maritime way the HGL varies 94.30-94.15 across the site frontage (refer to the attached). City Manhole numbers : MHST13985- 13986. Can you please confirm that this is still the case?

Thanks,

Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
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2.0 STORMWATER MANAGEMENT - MINOR/MAJOR SYSTEM DESIGN

2.1 General

Traditionally, urban drainage systems were designed considering only the "minor system". A more recent trend however is to design the drainage system according to the dual drainage concept which considers both, the "minor" and the "major" systems. The "minor" drainage system is comprised mainly of street gutters, inlet catch basins, storm sewers and manholes. This system is designed to capture and convey runoff during frequent storm events with return periods up to 1:5 year. The major system is formed by swales/ditches, streets, open channels, stormwater management facilities and will accommodate runoff during storms exceeding 1:5 year up to 1:100 year.

Stormwater servicing for all lands included in the Central Business District of the Kanata Town Centre will be designed using the dual drainage concept, also know as the minor/major drainage system. Furthermore, the minor system on Urbandale's lands (and other lands such as the Penex Kanata Ltd. lands) will also be designed allowing the use of inlet control devices (ICD). With the use of ICD's, flows captured by catch basins can be limited to the conveyance capacity of the storm sewers and therefore minimizing the risk of unacceptable surcharges. With the use of ICD's in catch basin inlets, a higher level of protection (1:100 year) against flooding of basements having foundation drains connected to storm sewers is provided.

2.2 Minor System Design

Storm sewers for Urbandale's lands in the Central Business District of the Kanata Town Centre were sized using the Rational Method. An inlet time of 20 minutes and runoff coefficients ranging from 0.2 (parks) to 0.9 (high density commercial) as presented in Table 1.0 were used.

Table 1.0 - Urban Runoff Coefficients

Land Use	Runoff Coefficient
Park	0.20
Residential: - low	0.40
- medium	0.45
- high	0.50 and 0.60
Commercial	0.80 and 0.90

Rainfall intensities required by the Rational Method were taken from the City of Kanata's Intensity-Duration-Curve (IDF). A time of concentration was calculated based on an inlet time of 20 minutes and the 5 year rainfall intensity was extracted using this information. The storm sewer layout (for Street 'A'), drainage area limits and respective runoff coefficients are presented on Drawings 15712-STM (attached in pocket). Plan and profiles for the future Street 'A' are presented on Drawings 15712-01, 15712-02 and 15712-03. The Rational Method storm sewer design sheet for Urbandale's lands (Street 'A') located in the Central Business District is provided in Appendix 'B'.

2.3 Major System Design

A properly designed, constructed and maintained minor/major drainage system is the keystone to good urban drainage. The purpose of the major system is to convey excess runoff generated from severe events which are not captured by the sewer system without causing any damages. With the combination of a properly designed major system and ICD's installed on the minor system, the risk of property damage due to surcharged storm sewer is essentially eliminated, provided that the storm sewer is properly operated and maintained.

Basements in Urbandale's lands in the Central Business District of the Kanata Town Centre will be protected against flooding resulting from a surcharged storm sewer system by setting basement floors 0.3 m above the 1:100 year hydraulic grade line. To achieve this, Scepter Type 'A' ICD's (with a capture of 20 L/s for a head = 1.22 m) will be used in street catch basins to limit the minor system's carrying capacity. Since the road grades for the internal roads have not been designed at this stage, the location of the proposed catch basins have not

been determined. During the detailed design of the internal road grades, the use of Scepter Type 'A' ICD's will be specified. The number of contributing catch basins will be limited to the carrying capacity of the minor system. Furthermore, all storm sewer manholes should be provided with solid covers to limit sources of water which were not accounted for during the design of the minor system.

Overall grading plans will be prepared for Urbandale's lands located in the Central Business District to ensure that the minor/major drainage concept is properly implemented. Overland flow corridors will be carefully selected for these lands. Once the detailed design of these lands is completed, detailed plan and profiles and grading plans will be included in the submission package for a Certificate of Approval by the MOE.

2.4 On-Site Controls

The 1993 Master Drainage Study discussed and recommended the use of the following on-site controls in addition to end of pipe control (stormwater management facility):

1. Rooftop storage on flat roofs and parking lot storage in the commercial area, where feasible, to detain post-development flows.

2. Use of catch basin equipped with ICD's to control the rate of inflow to the storm sewer system.

3. Direction of the building roof downspouts, where possible, to grassed areas to minimize the runoff from hard surfaces and increase the recharge of the groundwater table.

4. Provision of grassed swales along the rear of lots (in residential development) at minimum slope to retard runoff and provide opportunity for infiltration.

5. Use of perforated leads to connect rear yard catch basins to increase groundwater recharge, where soils conditions are favourable.

The above measures should be investigated and evaluated site-specifically during the detailed design of each subdivision. The investigation and evaluation should be incorporated in the individual Stormwater Site Management Plan.

11.0 SUMMARY

i) This Stormwater Management Report has been prepared to address a number of draft plan conditions for Urbandale's Kanata Town Centre Lands - Central Business District.

ii) A detailed design for a Stormwater Management Facility, as recommended in the "Kanata Town Centre - Master Drainage Study for Watts Creek" (Cumming Cockburn Limited, May 1993), is presented.

Final approvals are required prior to construction.

Shows that the minor system be designed to 5-year and 100-year can safely be conveyed on the roadway.

iii) Stormwater servicing for the tributary areas to the SWMF will be designed using the dual drainage concept. The storm sewer system (on Street 'A') has been sized to capture and convey a 1:5 year flow. The surface drainage, grading, and overland flow corridors will be designed to accommodate the flows in excess of 1:5 year up to 1:100 year.

iv) Basements in future residential development will be protected against flooding during a 1:100 year event by installing Scepter Type 'A' ICD's in catch basins located within the streets and by setting the basement floor elevations 0.3 m above the 1:100 year HGL. As an additional precautionary measure, all lateral storm sewer services will be provided with a backwater valve.

v) To maintain the integrity of the performance of the storm sewer, storm sewer manholes will be provided with solid manhole covers.

vi) Building roof downspouts will be discharged onto grassed areas wherever possible, to reduce the volume and velocity of runoff as well as peak flows. This will also improve water quality slightly but, more importantly, will increase groundwater recharge.

SWMF provides quality control for the entire upstream drainage area, therefore no site-specific quality control is required.

vii) A SWMF will be constructed in the southeast corner of the lands. This facility will incorporate a permanent pool storage of 5949 m^3 (between elevations 88.90 m to 89.90 m), an extended detention storage of 2758 m^3 (between elevations 89.90 m to 90.20 m) and a water quantity storage of 36491 m^3 (between elevations 90.20 m to 93.25 m).

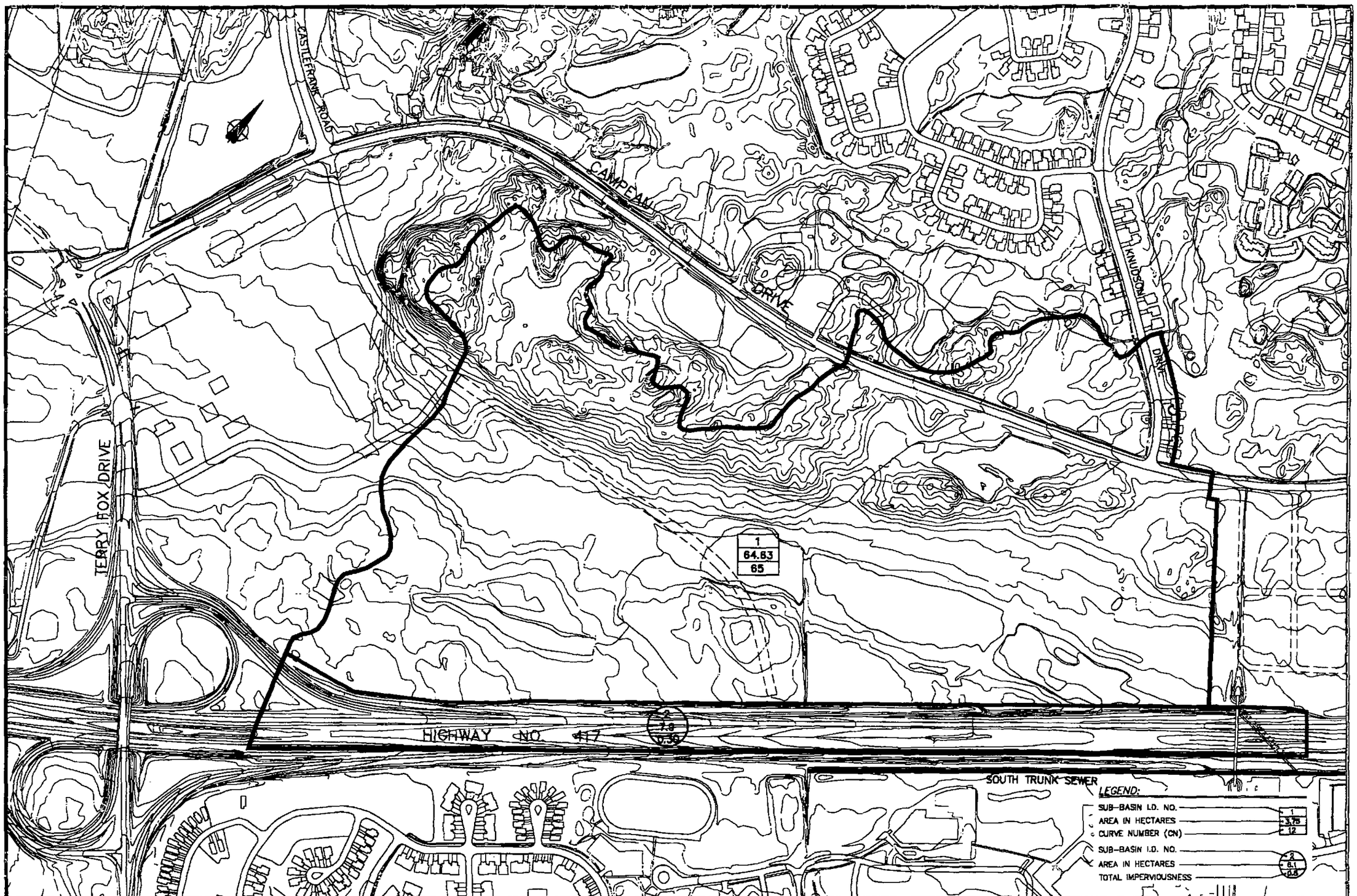
viii) Landscaping will be incorporated into the pond design to provide a natural appearance and to improve overall performance.

ix) A monitoring and maintenance program is proposed to demonstrate and ensure long-term acceptable performance. The parameters to be analyzed include total suspended solids (>70% TSS removal), dissolved oxygen, total and dissolved phosphorous, nitrates, nitrites, TKN, ammonia, chlorides, sodium and pH.

x) Appropriate erosion and sediment control measures during construction will be implemented to trap sediments on-site.

Prepared by: _____
Guy Forget, P.Eng.

Reviewed by: _____
Maria F. Schouten, P.Eng.



NO.	DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY

SCALE

J.L. Richards & Associates Limited
Consulting Engineers, Architect & Planners
OTTAWA, KINGSTON, SUDBURY, CANADA

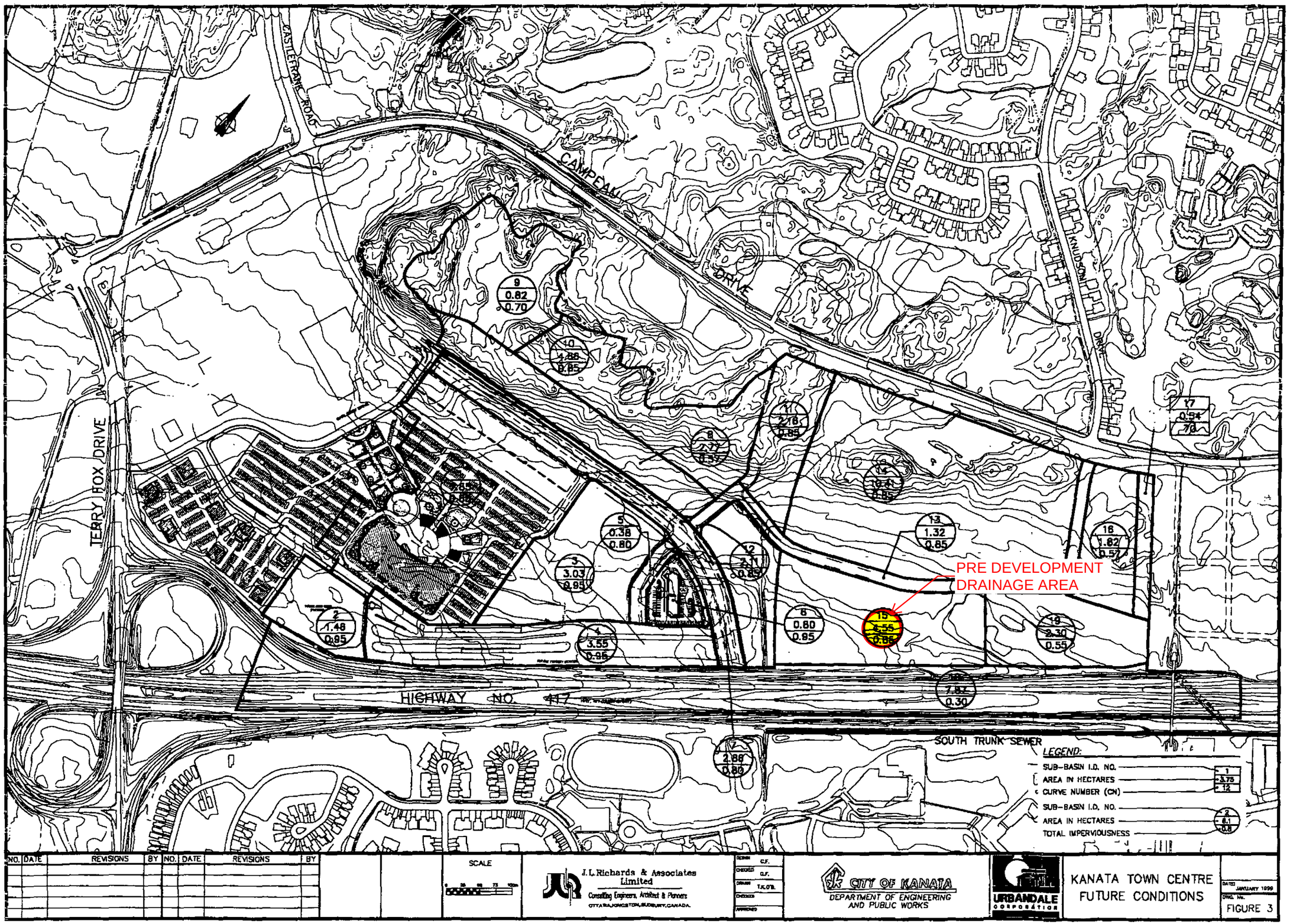
DESIGN	G.F.
CHECKED	G.F.
DRAWN	T.K.O'B.
CHECKED	
APPROVED	

CITY OF KANATA
DEPARTMENT OF ENGINEERING AND PUBLIC WORKS

URBANDALE CORPORATION

KANATA TOWN CENTRE EXISTING CONDITIONS

DATED JANUARY 1989
DWG. No.
FIGURE 2



NO.	DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY

SCALE

J.L. Richards & Associates Limited
Consulting Engineers, Architect & Planners
OTTAWA, KINGSTON, SUDBURY, CANADA.

DESIGN C.F.
CHECKED C.F.
DRAWN T.K.O'B.
CHECKED
APPROVED

CITY OF KANATA
DEPARTMENT OF ENGINEERING AND PUBLIC WORKS

URBANDALE CORPORATION

KANATA TOWN CENTRE FUTURE CONDITIONS

DATE JANUARY 1999
DWG. No.
FIGURE 3

LEGEND

- CATCH BASIN
- INTERCONNECTED ROADWAY CB C/W ONE 19.8L/S IPEX TYPE 'A' ICD OR CITY APPROVED EQUIVALENT
- CATCH BASIN WITH INDIVIDUAL 19.8 L/S IPEX TYPE 'A' ICD OR CITY APPROVED EQUIVALENT
- HYDRANT
- STORM SEWER & MANHOLE
- LOT NUMBER
- DRAINAGE BOUNDARY
- AREA IN HECTARES
- 0.72 | 0.8 — RUNOFF COEFFICIENT
  611–610 — PIPE REACH, UPSTREAM MANHOLE TO DOWNSTREAM MANHOLE

NOTE:
MINOR SYSTEM CAPTURED RATE (Q_5), FOR ALL PRIVATE & PUBLIC DEVELOPMENT, NOT TO EXCEED 1:5 YEAR PEAK FLOW AT THE GIVEN RUNOFF COEFFICIENT (REFER TO DWG 15712–STM) USING AN INLET TIME OF Tc=20min, IN ACCORDANCE WITH THE KTC–CBD STORMWATER MANAGEMENT REPORT PREPARED BY J.L.RICHARDS, JUNE 1999.

CITY OF OTTAWA LANDS

URBANDALE CORPORATION
CENTRAL BUSINESS DISTRICT

URBANDALE CORPORATION
VILLAGE GREEN DEVELOPMENT

CAMPEAU DRIVE
KNUDSON DRIVE
CORDILLERA STREET
GREAT LAKES AVENUE
CANADIAN SHIELD AVENUE
MARITIME WAY
GRAY CRESCENT
ROCK MOUNTAIN GATE
CASTLEFRANK ROAD
PENEX
VACANT
HWY 417
EXISTING STORMWATER POND
OVERHEAD HYDRO LINE
DIVISION LINE BETWEEN LOTS 2 AND 3

BLOCK 1, BLOCK 2, BLOCK 3, BLOCK 4, BLOCK 5, BLOCK 6, BLOCK 7, BLOCK 8, BLOCK 9, BLOCK 125, BLOCK 126, BLOCK 127, BLOCK 129, BLOCK 130

0.17 | 0.8 — 634–633
0.29 | 0.8 — 634–633
1.16 | 0.8 — 632–631
0.23 | 0.8 — 636–631
0.08 | 0.8 — 633A–633
0.31 | 0.8 — 632–631
1.10 | 0.8 — 641–640
0.13 | 0.8 — 642–641
1.02 | 0.8 — 640–612
0.12 | 0.8 — 614–613
0.16 | 0.8 — 612–611
0.14 | 0.8 — 641–640
0.14 | 0.8 — 613–612
0.14 | 0.8 — 642–641
1.12 | 0.6 — 613–612
2.58 | 0.8 — 607–606
0.36 | 0.2 — 630–606A
1.33 | 0.8 — 605–604
0.43 | 0.8 — 630–606A
0.72 | 0.8 — 611–601
0.16 | 0.8 — 611–601
0.27 | 0.2 — 612–611
0.16 | 0.8 — 13–607
0.23 | 0.8 — 607–606
0.35 | 0.8 — 606–605
0.25 | 0.8 — 605–604
0.07 | 0.6 — 604–603
0.90 | 0.6 — 611–601
3.02 | 0.8 — 606–605
1.61 | 0.8 — 605–604
2.78 AR= 65.23 PER CCL

	DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY
				5	02/11/06	PER CITY COMMENTS	CB
				4	13/09/06	ISSUED TO CITY FOR REVIEW	LND
8	24/07/07	REVISED AS PER CITY COMMENTS	CSB	3	21/07/06	ISSUED TO CITY FOR REVIEW (STREET 'A' NORTH–SOUTH LEG)	LND
7	25/05/07	PHASE 2 ISSUED TO CITY FOR REVIEW	CB	2	05/11/98	REVISED PER RMOC	MFS
6	08/03/07	ISSUED FOR TENDER	CB	1	09/10/98	ISSUED FOR MOE APPROVAL (ST&WM)	MFS

Surveyed By Municipal Instl. No. 169380

LICENSED PROFESSIONAL ENGINEER — J.S.C. BOUGIE — 100010090 — July 23, 07 — PROVINCE OF ONTARIO

SCALE
0 10m 20m 30m 40m
HORIZONTAL 1:1000

V:\15712-NAD83\LD\15712 C STM-NAD83.dwg

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J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS

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DESIGN	S.D.
CHECKED	M.F.S.
DRAWN	T.S.
CHECKED	
APPROVED	

Ottawa

URBANDALE CORPORATION

URBANDALE CORPORATION
KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
STORM DRAINAGE PLAN

PROJECT No.	15712–NAD 83
STARTED	JUNE 1998
DWG. No.	15712–STM

13813

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

STORM SEWER DESIGN SHEET
IDF CURVE 1: 5

Designed by: C.B.
Checked by: D.L.

5 YEAR IDF CURVE
Manning's Coefficient (n) = 0.013

LEGEND
DENOTES EXISTING SEWERS

Date: May 25, 2007

MANHOLE NUMBER		DRAINAGE AREAS										1:5 YR PEAK FLOW GENERATION					ACTUAL SEWER DATA							UPSTREAM							DOWNSTREAM							
From	To	0.20	0.30	0.40	0.50	0.60	0.80	0.80	0.90	area (ha)	cumm area (ha)	2.78AR	2.78AR CUMM	Time min	Intens. mm/hr	Peak Flow L/s	Dia (mm)	Dia (mm)	Slope %	Q full (l/s)	V full (m/s)	Length (m)	Flow Time (min)	Ex. Ground	Pr. Center Line	Obvert Drop	Obvert	Invert	Cover	Ex. Ground	Pr. Center Line	Obvert Drop	Forced Drop	Obvert	Invert	Cover	Dstream Bend
13	607	0.75				4.01		15.53	9.57	29.86	29.86	65.59	65.59	28.52	55.80	3659.80	1676.4	1650	0.19	4155.57	1.88	83.20	0.74		96.32		92.656	91.006	3.66		95.47		-0.15	92.497	90.847	2.97	
607	606						5.60	0.23		5.83	35.69	12.97	78.55	29.26	54.85	4308.72	1828.8	1800	0.21	5495.32	2.09	119.10	0.95		95.47		92.647	90.847	2.82		94.80		0.33	92.397	90.597	2.40	15.00
														30.21																						
635	634													20.00	70.25		304.8	300	2.90	171.80	2.35	51.50	0.36		103.38		97.681	97.381	5.70		102.56			96.187	95.887	6.37	13.00
634	633						0.17	0.29		0.46	0.46	1.02	1.02	20.36	69.46	71.06	304.8	300	1.60	127.61	1.75	64.00	0.61		102.56		96.187	95.887	6.37		101.67			95.163	94.863	6.51	90.00
														20.97																						
633A	633							0.08		0.08	0.08	0.18	0.18	20.00	70.25	12.50	304.8	300	0.87	94.10	1.29	35.10	0.45		101.49		95.122	94.822	6.37				0.30	94.816	94.516	-94.82	
														20.45																						
633	632										0.46		1.20	20.97	68.18	81.88	381	375	1.00	182.91	1.60	64.70	0.67		101.67		95.163	94.788	6.51		101.29			94.516	94.141	6.77	13.00
632	631						1.16	0.31		1.47	1.93	3.27	4.47	21.65	66.83	298.76	533.4	525	1.00	448.66	2.01	74.80	0.62		101.29		94.516	93.991	6.77		97.55			93.768	93.243	3.78	80.00
														22.27																						
636	631							0.25		0.25	0.25	0.56	0.56	20.00	70.25	39.06	304.8	300	2.23	150.65	2.06	93.30	0.75		102.26		95.849	95.549	6.41		97.55			93.768	93.468	3.78	
														20.75																						
631	630										2.18		5.03	22.27	65.64	329.91	533.4	525	3.85	880.33	3.94	81.10	0.34		100.65		96.921	96.396	3.73		97.55		0.03	93.798	93.273	3.75	
630	606A	0.36						0.41		0.77	0.77	1.11	6.14	22.61	65.00	398.97	533.4	525	1.35	521.29	2.33	88.90	0.64		97.55		93.768	93.243	3.78		94.64		0.03	92.568	92.043	2.07	18.00
606A	606										0.77		6.14	23.25	63.85	391.91	533.4	525	1.35	521.29	2.33	4.90	0.04		94.64		92.538	92.013	2.10		94.80		0.41	92.472	91.947	2.33	81.00
														23.28																						
606	605							0.35		0.35	36.61	0.78	85.47	30.21	53.68	4587.99	(1) 1828.8	(1) 1800	0.25	6049.60	2.30	110.40	0.80		94.80		92.065	90.590	2.74		94.69		0.02	91.784	90.309	2.91	
605	604						2.94	0.25		3.19	40.00	7.09	92.57	31.00	52.73	4881.44	(1) 1828.8	(1) 1800	0.24	5911.34	2.25	67.40	0.50		94.69		91.765	90.290	2.93		94.50	0.06	-0.02	91.601	90.126	2.90	90.00
														31.50																						
642	641							0.13		0.13	0.13	0.29	0.29	20.00	70.25	20.31	381	375	1.85	248.79	2.18	71.30	0.54		100.26		97.259	96.884	3.00		98.94			95.940	95.565	3.00	
641	640						1.10	0.14		1.24	1.37	2.76	3.05	20.54	69.08	210.47	457.2	450	0.80	266.03	1.62	77.70	0.80		98.94		95.940	95.490	3.00		98.33			95.318	94.868	3.01	
														21.34																						
640	612						1.02	0.14		1.16	2.53	2.58	5.63	21.34	67.43	379.43	609.6	600	0.66	520.98	1.79	82.30	0.77		98.33		95.318	94.718	3.01		97.86		-0.04	94.774	94.174	3.09	80.00
														22.11																						
614	613							0.12		0.12	0.12	0.27	0.27	20.00	70.25	18.75	304.8	300	2.16	148.20	2.03	51.20	0.42		100.07		96.938	96.638	3.13		98.96			95.833	95.533	3.13	
613	612					1.12		0.14		1.26	1.38	2.18	2.45	20.42	69.34	169.64	381	375	1.98	257.25	2.26	51.60	0.38		98.96		95.833	95.458	3.13		97.86			94.813	94.438	3.05	
														20.80																						
612	611	0.27						0.16		0.43	4.34	0.51	8.58	22.11	65.93	565.64	685.8	675	3.12	1548.97	4.19	49.60	0.20		97.86		94.813	94.138	3.05		96.45		0.03	93.265	92.590	3.18	
611	601					0.90	0.72	0.16		1.78	6.12	3.46	12.04	22.31	65.56	789.16	685.8	675	1.60	1109.24	3.00	44.10	0.24		96.45		93.235	92.560	3.21		94.93	0.06		92.530	91.855	2.40	80.00
601	604							0.07		0.07	6.19	0.16	12.19	22.55	65.10	793.79	685.8	675	1.42	1044.99	2.83	67.50	0.40		94.93		92.470	91.795	2.46		94.50		-0.05	91.511	90.836	2.99	90.00
														22.95																						
604	Chamber										46.19		104.76	31.50	52.16	5464.60	(1) 1828.8	(1) 1800	0.21	5495.32	2.09	14.40	0.11		94.50		91.556	90.081	2.94		94.00		-0.01	91.526	90.051	2.47	
														31.62																						
Chamber	Pond										46.19		104.76	31.62	52.03	5451.05	1524	2x1500	0.33	8472.67	2.32	11.50	0.08		94.50		91.539	90.039	2.96		94.00			91.501	90.001	2.50	
														31.70																						

(1) The equivalent size of a round pipe is shown to simplify spreadsheet calculations. The actual existing pipe is a horizontal elliptical 1475 x 2310 HE III.

LICENSED PROFESSIONAL ENGINEER
J.S.C. BOUGIE
100010090
May 29, 07
PROVINCE OF ONTARIO

T E C H N I C A L
M E M O R A N D U M

J.L. Richards
& Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

TO: Urbandale Corporation
c/o Mary Jarvis, MCIP, RPP
Director of Planning

DATE: June 13, 2012

JOB NO.: 15712-10

FROM: Jonathan Párraga, P.Eng.

CC: J.L. Richards & Associates Limited
Attention: Lucie Dalrymple, P.Eng.

RE: Servicing Brief (Revised)
Kanata Town Centre
Central Business District Subdivision

PURPOSE OF UNDERTAKING

This Servicing Brief was prepared, in support of Urbandale Corporation's re-zoning application for the Kanata Town Centre - Central Business District (KTC-CBD) Subdivision. The following confirms that water, sanitary and storm sewer services are readily available to accommodate this subdivision.

DESCRIPTION OF PROPERTY

The subject lands encompass an area of approximately 18.8 hectares within the KTC-CBD, in the City of Ottawa (former City of Kanata). The lands are bounded to the north by Campeau Drive, to the west by a partial of land fronting Castlefrank Drive, south by Hwy. 417 and to the east by the Hydro One corridor (refer to Figure 1 attached). This subdivision is comprised of residential and commercial developments. Civil infrastructure (i.e., local watermains, storm and sanitary sewers) within the ROWs are all existing and in service. The trunk storm sewer, sanitary sewer, and watermain along the south leg of Maritime Way were constructed by Urbandale Corporation in 1998 and the remaining local infrastructure in 2007-2008. The 900 mm dia. feedermain on Great Lakes Avenue was constructed for the City of Ottawa in 2008-2009.

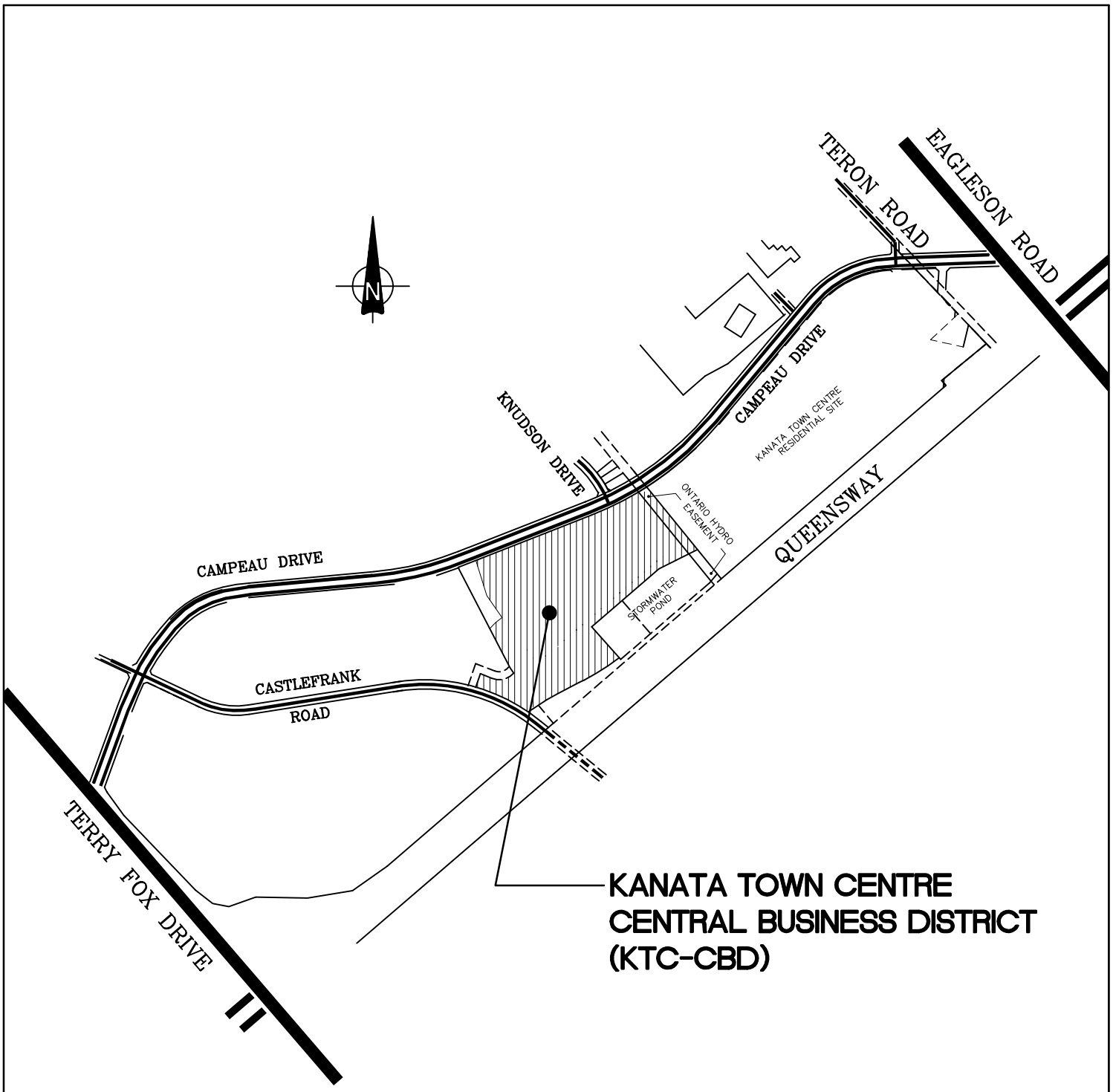
STORM SEWER SERVICING

Outlet:

The KTC-CBD lands are tributary to the KTC-CBD Stormwater Management Facility (SWMF) located in the southeast corner of the subdivision (refer to Figure 1 for Pond location), which subsequently drains to Watts Creek. This SWMF was designed, and subsequently constructed, to accommodate the development of the KTC-CBD subdivision and provides quantity as well as quality control for the stormwater flows. Details of the SWMF can be found in the Stormwater Management Report, Kanata Town Centre, Central Business District, dated January 1999 and prepared by J.L. Richards & Associates Limited.

Minor/Major System:

The KTC-CBD storm drainage system has been designed using the dual drainage concept, consisting of a minor and a major system. The minor system conveys storm runoff generated during frequent storm events (i.e., 1:5 year or less) via a local storm sewer collection system outletting to the KTC-CBD



URBANDALE CORPORATION

Ottawa

PROJECT: KTC–CBD URBANDALE CORPORATION CITY OF OTTAWA	DRAWING: KEY PLAN

J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS
J.L. Richards
& Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

DESIGN:	DRAWN: T.S.	DRAWING No.: FIG. 1
DATE: OCT. 2006		
SCALE: N.T.S.		JOB No.: 15712

SWMF where, as noted, water quality and quantity treatment is provided. In accordance with the noted SWMF Design Report, the following runoff coefficients were used at detailed design of the local storm sewers

Residential - Low Density	C=0.40
Residential - Medium Density	C=0.45
Residential - High Density	C=0.50 and 0.60
Commercial Area	C=0.80 and 0.90
Parkland	C=0.20

An excerpt from the noted 1999 Stormwater Management Report, indicating assigned runoff coefficients 'C', allowable capture rates, and required on-site storage volumes for the specific land parcels is included in Attachment 1. The servicing design for each Block in the KTC-CBD shall adhere to these SWM design requirements.

The major system was established at the detailed design stage to convey excess runoff generated during severe events which would not be captured in the minor system. The excess runoff will be conveyed via overland routes to the KTC-CBD SWMF. The grading plans of the KTC-CBD lands have been developed with roadway sags. Local Blocks of land are expected to incorporate parking lot, cistern and roof top storage (or a combination thereof) at Site Plan Control, to ensure that the minor / major drainage concept, as specified in the Attachment 1 Table, is properly implemented.

A Hydraulic Grade Line (HGL) Analysis was carried out during detailed design to verify the anticipated amount of freeboard provided between the maximum storm sewer HGL elevations and the building underside of footing elevations. At detailed design of each Block, and as required at Site Plan Control, the on-site HGL clearance will require confirmation. The analysis was based on the estimated maximum water elevations of the KTC-CBD SWMF.

WATER SERVICING

The local network of water servicing for the KTC-CBD Subdivision was originally developed based on the existing 610 mm and 406 mm diameter watermains on Maritime Way. Water servicing specifics for the subdivision were addressed in detail in the Hydraulic Network Analysis (HNA) Report, which was prepared and submitted to the City in conjunction with the detailed servicing design of this project. The HNA Report for KTC-CBD demonstrated that the proposed (now existing) watermain sizing satisfied the water demand during the maximum hourly and fire flow conditions, as per the City of Ottawa Design Guidelines. Furthermore, the analysis included an assessment of pressures during low demand conditions (i.e., high pressure check) ensuring that the system pressures do not exceed the maximum pressure requirements set by the Ontario Building Code (OBC).

Since then a 900 mm diameter feedermain was constructed in 2008-2009 on Great Lakes Avenue, linking the existing 610 mm diameter feedermain on Maritime Way to the existing 900 mm diameter feedermain on Campeau Drive. At detailed design of each Block, and as required at Site Plan Control, the designer will have to obtain boundary conditions from the City of Ottawa and carry out an HNA for their respective Block.

SANITARY SEWER SERVICING

There is an existing 825 mm diameter trunk sanitary sewer along the south leg of Maritime Way and extends easterly along a service easement to Gray Crescent in Village Green. This sanitary trunk sewer was designed by JLR (1998) to accommodate the development of the KTC-CBD subdivision and upstream lands. Local sanitary sewers were subsequently designed by JLR (2007) and constructed. At the time of the original design of the trunk sewer the land parcels were designated for commercial use and the sanitary flows were estimated using 50,000 L/ha/d (MOE guidelines for sanitary flow for commercial zones). Subsequently, the land use was revised to include residential use, as well as commercial use. As such, in 2007, JLR revised the original sanitary flow estimate according to the projected land use to design the local sewers. Currently, Blocks 3, 6 and 8 have been sold and either developed or partially developed. As such, the estimated sanitary flows generated by the local Blocks have currently been updated to reflect exiting conditions and projected development of local Blocks. Table 1 provides a summary of the existing and anticipated land uses.

Table 1 - Kanata Town Centre Existing and Anticipated Land Uses

Block No.	Land Use Description	Number of Units/Rooms	Population	Daily Sewage Flow	Area
1	Hotel Suites	167	301	270 L/pp/d*	1.48
2	Commercial			50,000 L/pp/d	1.36
3	Retirement Home	208	333		1.02
4	Apartments	120	216	350 L/pp/d	1.37
5	Apartments	120	216	350 L/pp/d	1.02
6	Apartments with Community Centre			350 L/pp/d**	2.83
7	Commercial	N/A		50,000 L/pp/d	1.70
8	Hotel	125	225	270 L/pp/d*	1.02
9	Commercial	N/A	N/A	50,000 L/pp/d	4.96
10	Walkway Easement	N/A	N/A	N/A	0.28

Note: * Additional flow of dining room and staff accounted for in design
** Additional flow from Community Centre pool 40 L/pp/d accounted for in design

The current peak flow estimate has been revised in accordance with the land uses presented in Table 1. A comparison of the original peak flow estimate (1998) and the current peak flow estimate is presented in Table 2. The revised peak flow estimate, based on the current land use projections and existing land uses, creates an increase of estimated flow of 4.05 L/s (274.66 L/s – 270.61 L/s) at the Trunk easement. This flow, however, with a reduction in the downstream peaking factor due to the increase in residential units in the CBD, normalizes close to the original (1998) estimated flow and actually estimates a small reduction of 0.15 L/s (475.94 L/s - 475.79L/s) at the end of the residential subdivision at the intersection of Campeau Drive and Teron Road. The original peak flow design estimate (1998) and the updated detailed design spreadsheet, as well as the sanitary drainage boundary plan, can be found in Attachment 2.

Table 2 - Kanata Town Centre Estimated Sanitary Peak Flow

Location	Tributary Area	Up MH	Down MH	Original Assigned Flow Estimate (1998)	Current Flow Estimate (2012)
Trunk Easement	Upstream + KTC-CBD	500	94	**270.61**	**274.66**
Total Flow at end of Residential	Upstream + KTC-CBD + Residential to Teron Road	Ex.	Ex. 2	**475.94**	**475.79**

SUMMARY

The existing trunk (1998) and local (2007-2008) infrastructure servicing the subject lands, which are referred to as KTC-CBD, have capacity to service the local Blocks, with regards to stormwater and wastewater; based on the SWM design parameters provided in Attachment 1 and wastewater based on the revised existing and proposed land uses as per Table 1 of this report.. Domestic water is available along the frontage of each Block with the understanding that a site specific HNA is to be carried out at Site Plan Control to demonstrate conformance with the City Guidelines

Revised by:

J.L. RICHARDS & ASSOCIATES LIMITED

Jonathan Párraga, P.Eng.

JP:jd
Attach.

ATTACHMENT 1

Kanata Town Centre - Central Business District

Stormwater Design Criteria - Tributary Areas to SWMF

DRAINAGE AREA No.	Description	Area (ha)	TIMP (%)	C factor	Allowable Capture Rate	On-Site Storage	Required on-site Storage Volume
1	AMC Site	7.85	85	0.80	1:5 year	Yes	up to 100 yr
2	Park & Ride	1.46	95	0.87	1:5 year	No	
3	Phase IV	3.03	95	0.87	1:5 year	Yes	up to 100 yr
4	Transitway	3.55	95	0.87	1:5 year	No	
5	Hotel Road	0.38	80	0.76	1:5 year	No	
6	Hotel Site	0.80	95	0.87	1:5 year	Yes	up to 100 yr
7	Castlefrank Road	2.84	80	0.76	1:10 year	No	
8	Adjacent Lands	2.77	57	0.60	1:10 year	No	
9	Exist Pond **	0.82	---	0.20	1:10 year	Yes	up to 100 yr
10	Kanata North	4.66	85	0.80	1:5 year	No	
11	Adj Lands (east)	2.16	85	0.80	1:5 year	No	
12	Adj Lands (south-east)	2.11	85	0.80	1:5 year	Yes	up to 100 yr
13	Street "A"	1.32	85	0.80	1:5 year	Limited	up to 10 yr
14	Urbandale North	10.41	85	0.80	1:5 year	Limited	up to 10 yr
15	Urbandale South	4.48	85	0.80	1:5 year	Yes	up to 100 yr
16	Urbandale East	1.82	57	0.60	1:5 year	Limited	up to 10 yr
17	Urbandale East (park)	0.54	---	0.20	1:5 year	No	
18	Queensway	7.87	30	0.41	1:100 year	No	
19	SWMF	0.95	52	0.56	1:100 year	No	

CASTLEFRANK ROAD

CAMPEAU DRIVE

KNUDSON DRIVE

TERRY FOX DRIVE

HIGHWAY NO. 417

SOUTH TRUNK SEWER

1	3.75	0.82	0.70
2	1.46		0.95
3	3.03		0.95
4	3.55		0.95
5	0.38		0.80
6	0.80		0.95
7	2.86		0.80
8	2.77		0.57
9	0.82		0.70
10	4.66		0.85
11	2.16		0.85
12	2.11		0.85
13	1.32		0.85
14	10.41		0.85
15	4.55		0.85
16	1.82		0.57
17	0.54		70
18	7.87		0.30
19	2.30		0.55

LEGEND:

SUB-BASIN I.D. NO. — 1
AREA IN HECTARES — 3.75
CURVE NUMBER (CN) — 12

SUB-BASIN I.D. NO. — 2
AREA IN HECTARES — 6.1
TOTAL IMPERVIOUSNESS — 0.8

NO.	DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY

SCALE 0 25 50 75 100m

J.L. Richards & Associates Limited
Consulting Engineers, Architects & Planners
OTTAWA, KINGSTON, SUDBURY, CANADA

DESIGN	G.F.
CHECKED	G.F.
DRAWN	E.K.O'B.
CHECKED	
APPROVED	

CITY OF KANATA
DEPARTMENT OF ENGINEERING AND PUBLIC WORKS

URBANDALE CORPORATION

KANATA TOWN CENTRE FUTURE CONDITIONS

DATED JANUARY 1990
DWG. NO. FIGURE 3

ATTACHMENT 2

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room

SANITARY SEWER DESIGN SHEET
Designed: C.B.
Revised by: J.L.P.
Checked By: D.L.
Date: May 28, 2012

Manning's Coefficient (n) = 0.013

STREET	M.H. #		RESIDENTIAL														COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA				
			NUMBER OF UNITS									CUMMULATIVE		PEAKING	POPUL.												
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	AREA	CUMM. AREA	COMM. FLOW	FLOW	CUMM. FLOW	PEAK EXTR. FLOW	PEAK DES. FLOW	DIA.	SLOPE %	CAPAC.	VEL.	LENGTH m
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s	mm		l/s	m/s	
MARITIME WAY	7A	507									(1) 2588	(1) 28.38	2588	28.38	3.50	36.65	(1) 23.16	23.16	20.10	(1) 162.69	162.69	14.43	233.88	825	0.14	529.34	0.99	81.90
MARITIME WAY	507	506						125	225	174	174	1.02	2762	29.40	3.47	38.85	4.91	28.07	24.37		162.69	16.09	242.00	825	0.12	500.32	0.94	119.30
CORDILLERA ST.	534	533													4.00		0.55	0.55						200	1.65	42.13	1.34	66.60
CANADIAN SHIELD AV.	533	532													4.00			0.55						200	1.20	35.93	1.14	69.60
CANADIAN SHIELD AV.	532	531						167	301	234	234	1.48	234	1.48	4.00	3.79		0.55	0.48			0.57	4.84	200	1.20	35.93	1.14	69.60
GREAT LAKES AV.	536	531										0.24		0.24	4.00									200	2.40	50.81	1.62	60.00
GREAT LAKES AV.	531	530											234	1.72	4.00	3.79		0.55	0.48			0.64	4.90	200	3.75	63.51	2.02	80.80
GREAT LAKES AV.	530	506A											234	1.72	4.00	3.79		0.55	0.48			0.64	4.90	200	1.40	38.80	1.24	85.20
GREAT LAKES AV.	506A	506										0.38	234	2.10	4.00	3.79		0.55	0.48			0.74	5.01	200	1.40	38.80	1.24	4.90
MARITIME WAY	506	505						176	316.8	269	269	0.57	3265	32.07	3.41	45.11		28.62	24.84		162.69	16.99	249.64	825	0.12	486.76	0.91	111.00
MARITIME WAY	505	504						146	262.8	230	230	0.56	3495	32.63	3.39	47.93	1.75	30.37	26.36		162.69	17.64	254.62	825	0.11	484.63	0.91	114.40
MARITIME WAY	504	501										0.27	3495	32.90	3.39	47.93		30.37	26.36		162.69	17.72	254.70	825	0.11	476.06	0.89	29.90
CANADIAN SHIELD AV.	542	541						176	316.8	269	269	0.74	269	0.74	4.00	4.36						0.21	4.57	200	2.20	48.64	1.55	71.30
CANADIAN SHIELD AV.	541	540						154	277.2	232	232	0.51	501	1.25	3.97	8.06	1.36	1.36	1.18			0.73	9.98	200	0.90	31.13	0.99	77.70
	Block 3	540				208	333			428	428	1.02	428	1.02	4.00	6.93						0.29	7.22	200	0.60	25.40	0.81	12.00
CANADIAN SHIELD AV.	540	512										0.30	929	2.57	3.82	14.38		1.36	1.18			1.10	16.66	200	0.71	27.65	0.88	82.60
MARITIME WAY	514	513													4.00									200	2.14	47.96	1.53	51.20
MARITIME WAY	513	512						120	216	216	216	1.37	216	1.37	4.00	3.50						0.38	3.88	200	2.28	49.52	1.58	51.90
MARITIME WAY	512	511								58	58	(2) 0.73	1203	4.67	3.75	18.26		1.36	1.18			1.69	21.13	200	3.12	57.95	1.84	49.30
MARITIME WAY	511	510						120	216	216	216	1.02	1419	5.69	3.70	21.25		1.36	1.18			1.97	24.40	200	1.70	42.76	1.36	38.40
MARITIME WAY	510	501											1419	5.69	3.70	21.25		1.36	1.18			1.97	24.40	200	2.28	49.52	1.58	11.30
TRUNK EASEMENT	501	500											4914	38.59	3.25	64.73		31.73	27.54		162.69	19.69	274.66	825	0.10	462.89	0.87	129.00
TRUNK EASEMENT	500	94											4914	38.59	3.25	64.73		31.73	27.54		162.69	19.69	274.66					
A	90	92			35						95	0.80	95	0.80	4.00	1.53						0.22	1.76	250	0.60	46.06	0.94	120.0
	92	94			12						32	1.19	127	1.99	4.00	2.06						0.56	2.61	250	2.20	88.20	1.80	103.0
	94	95											5041	40.58	3.24	66.20		31.73	27.54		162.69	20.25	276.67	825	0.12	497.22	0.93	17.5
	95	89			10						27	0.52	5068	41.10	3.24	66.51		31.73	27.54		162.69	20.39	277.13	825	0.12	497.22	0.93	66.6
B	85	87	19								65	1.19	65	1.19	4.00	1.05						0.33	1.38	250	0.40	37.61	0.77	116.9
	87	89			24						65	0.82	129	2.01	4.00	2.10						0.56	2.66	250	1.41	70.70	1.44	116.7
A	89	84			12						32	0.35	5230	43.46	3.23	68.36		31.73	27.54		162.69	21.05	279.65	825	0.12	497.22	0.93	79.0
C	80	82	19								65	1.08	65	1.08	4.00	1.05						0.30	1.35	250	0.40	37.61	0.77	120.0
	82	84			25						68	0.83	132	1.91	4.00	2.14						0.53	2.68	250	1.20	65.18	1.33	118.5
A	84	79			14						38	0.54	5399	45.91	3.21	70.30		31.73	27.54		162.69	21.74	282.27	825	0.12	497.22	0.93	79.0

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room

SANITARY SEWER DESIGN SHEET
Designed: C.B.
Revised by: J.L.P.
Checked By: D.L.
Date: May 28, 2012

Manning's Coefficient (n) = 0.013

STREET	M.H. #		RESIDENTIAL														COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA				
			NUMBER OF UNITS										CUMMULATIVE		PEAKING	POPUL.											
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	AREA	CUMM. AREA	COMM. FLOW	FLOW	CUMM. FLOW	PEAK EXTR. FLOW	PEAK DES. FLOW	DIA.	SLOPE %	CAPAC.	VEL.	LENGTH m
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s	mm		l/s	m/s	
D	75	76			17						46	0.37	46	0.37	4.00	0.74						0.10	0.85	250	0.40	37.61	0.77	57.0
	76	77			20						54	0.29	100	0.66	4.00	1.62						0.18	1.80	250	0.40	37.61	0.77	78.4
	77	79			13						35	0.63	135	1.29	4.00	2.19						0.36	2.55	250	0.81	53.66	1.09	117.7
PARK EASEMENT	79	67										0.98	5534	48.18	3.20	71.83		31.73	27.54		162.69	22.37	284.44	825	0.12	497.22	0.93	55.0
	67	66			6						16	0.33	5551	48.51	3.20	72.01		31.73	27.54		162.69	22.47	284.71	825	0.12	497.22	0.93	70.0
BELLROCK DRIVE	70	73		12	14						70	2.56	70	2.56	4.00	1.14						0.72	1.85	250	0.40	37.61	0.77	87.2
	73	74			12						32	0.54	103	3.10	4.00	1.66						0.87	2.53	250	0.40	37.61	0.77	60.3
EASEMENT	74	62										0.31	103	3.41	4.00	1.66						0.95	2.62	250	0.40	37.61	0.77	39.9
CAMBRAY LANE	62	66			25						68	0.48	170	3.89	4.00	2.76						1.09	3.85	250	0.77	52.18	1.06	100.5
BISHOPS MILLS WAY	66	65			9						24	0.53	5745	52.93	3.19	74.21		31.73	27.54		162.69	23.70	288.14	825	0.12	497.22	0.93	62.0
SOUTH of HWY 417	EX.	65									(1) 7792	(1) 191.60	7792	191.60	3.06	96.63				(4) 37.72	37.72	53.65	188.00	900	0.11	600.38	0.94	50.2
BISHOPS MILLS WAY	65	64			2						5		13542	244.53	2.82	154.86		31.73	27.54		200.41	77.35	460.17	900	0.11	600.38	0.94	17.0
EDENVALE DRIVE	59	60			8						22	0.50	22	0.50	4.00	0.35						0.14	0.49	200	1.40	38.80	1.24	77.0
KETTLEBY STREET	60	61			22						59	0.62	81	1.12	4.00	1.31						0.31	1.63	250	0.40	37.61	0.77	103.6
CAMBRAY LANE	58	61			5						14	0.41	14	0.41	4.00	0.22						0.11	0.33	200	0.70	27.44	0.87	74.5
KETTLEBY STREET	61	64			25						68	0.42	162	1.95	4.00	2.63						0.55	3.17	250	0.90	56.41	1.15	105.0
BISHOPS MILLS WAY	64	63			3						8		13713	246.48	2.82	156.51		31.73	27.54		200.41	77.90	462.36	900	0.11	600.38	0.94	13.0
	63	57			10						27	0.68	13740	247.16	2.82	156.77		31.73	27.54		200.41	78.09	462.81	900	0.11	600.38	0.94	64.9
TER. BUNGALOW Ph.2	51	53		48							130	0.94	130	0.94	4.00	2.10						0.26	2.36	200	0.70	27.44	0.87	122.3
	53	54		4							11		140	0.94	4.00	2.28						0.26	2.54	200	0.70	27.44	0.87	13.6
	54	55										0.27	140	1.21	4.00	2.28						0.34	2.61	200	0.70	27.44	0.87	36.7
BISHOPS MILLS WAY	55	56	11								37	0.81	178	2.02	4.00	2.88						0.57	3.45	250	0.40	37.61	0.77	107.1
	56	57	7		12						56	0.65	234	2.67	4.00	3.79						0.75	4.54	250	0.60	46.06	0.94	101.5
PARK	57	34			1						3	0.37	13976	250.20	2.81	159.04		31.73	27.54		200.41	78.94	465.94	900	0.11	600.38	0.94	53.5
	34	33			3						8		13984	250.20	2.81	159.12		31.73	27.54		200.41	78.94	466.01	900	0.11	600.38	0.94	50.3
HAWKSTONE	43	44		22							59	1.19	59	1.19	4.00	0.96						0.33	1.30	250	1.00	59.46	1.21	51.0
	44	45		8							22	0.09	81	1.28	4.00	1.31						0.36	1.67	250	0.50	42.05	0.86	29.0
ENDENVALE	45	35										0.08	81	1.36	4.00	1.31						0.38	1.69	250	0.50	42.05	0.86	39.8
BIRKENDALE DRIVE	35	36	7								24	1.18	105	2.54	4.00	1.70						0.71	2.41	250	0.37	36.18	0.74	93.2
	36	37	13								44	0.79	149	3.33	4.00	2.41						0.93	3.35	250	0.37	36.09	0.74	77.1
	37	33	2		3						15		164	3.33	4.00	2.66						0.93	3.59	250	0.40	37.61	0.77	17.9
BIRKENDALE DRIVE	33	32			10						27	0.56	14175	254.09	2.80	160.95		31.73	27.54		200.41	80.03	468.93	900	0.11	600.38	0.94	72.7
TEESWATER STREET	30	31			16						43	0.66	43	0.66	4.00	0.70						0.18	0.88	250	0.40	37.61	0.77	75.1
	31	32			19						51	0.41	95	1.07	4.00	1.53						0.30	1.83	250	0.40	37.61	0.77	77.9
BIRKENDALE STREET	32	18			6						16	0.37	14286	255.53	2.80	162.01		31.73	27.54		200.41	80.43	470.40	900	0.11	600.38	0.94	44.4

J.L.Richards
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CITY OF OTTAWA

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION
JLR PROJECT NO.: 15712

Commercial Flow =	50000	L/ha/d
q residential=	350	l/cap/d
q hotel =	270	l/cap/d
q retirement homes =	450	l/cap/d
i =	0.28	l/s/ha
SING. HOUSING	3.4	pers/hse
MULT. HOUSING	2.7	pers/hse
Hotel/Appartments	1.8	pers/room
Retirement Homes	1.6	pers/room

SANITARY SEWER DESIGN SHEET
Designed: C.B.
Revised by: J.L.P.
Checked By: D.L.
Date: May 28, 2012

Manning's Coefficient (n) = 0.013

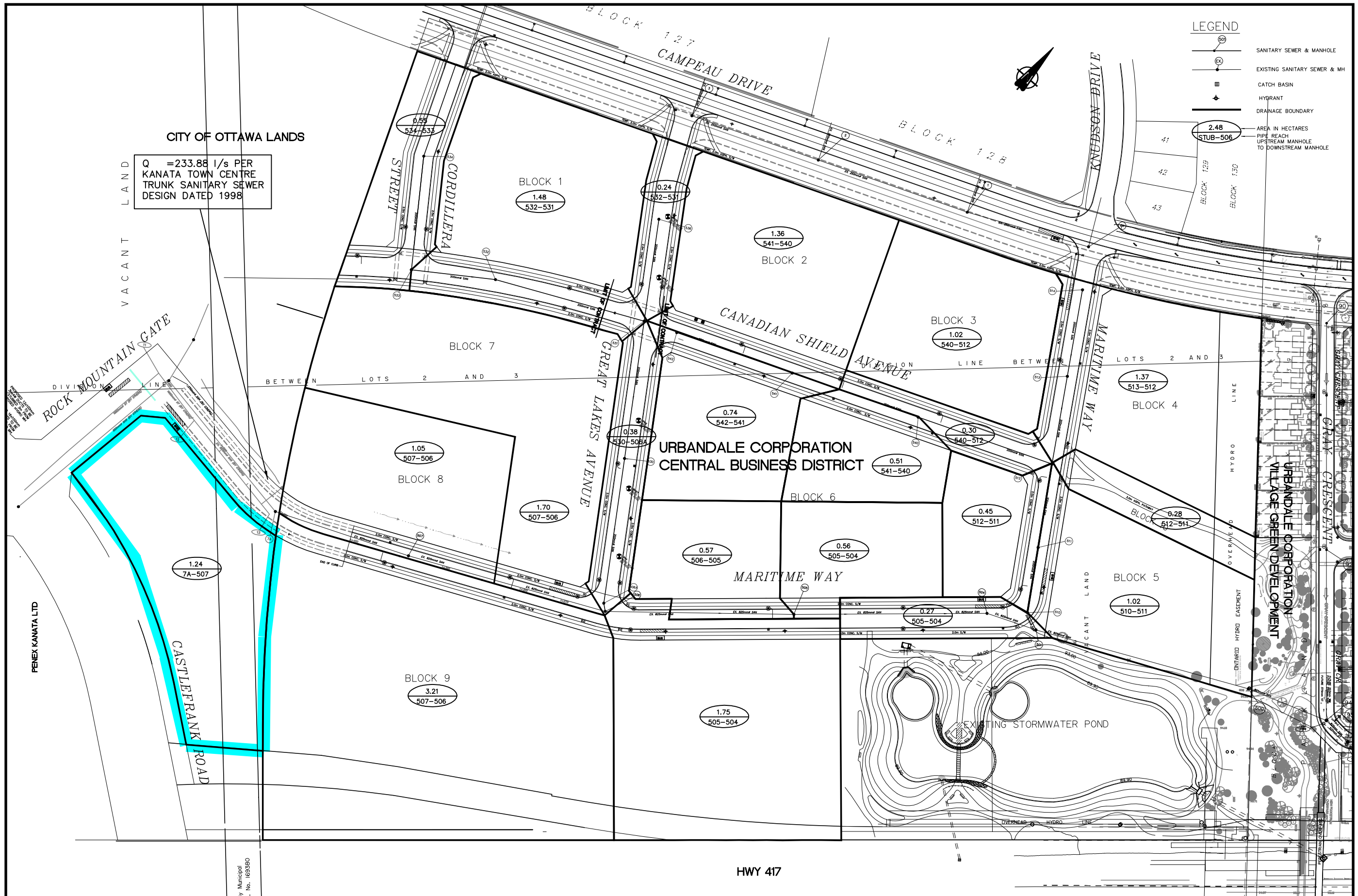
STREET	M.H. #		RESIDENTIAL													COMMERCIAL / INSTITUTIONAL			PLUGGED FLOW		R+C		SEWER DATA				
			NUMBER OF UNITS										CUMMULATIVE		PEAKING	POPUL.											
			SING.	Stacks	Towns	Ext. Care		Hotel/Apart.			POPUL.	AREA	POPUL.	AREA	FACTOR	FLOW	AREA	CUMM. AREA	COMM. FLOW	FLOW	CUMM. FLOW	PEAK EXTR. FLOW	PEAK DES. FLOW	DIA.	SLOPE %	CAPAC.	VEL.	LENGTH m
	FROM	TO				No units	Act. pop	No units	Act. pop.	Equ. pop.	people	ha	people	ha		l/s	ha	ha	l/s	l/s	l/s	l/s	l/s	mm		l/s	m/s	
	18	16			4						11		14297	255.53	2.80	162.12		31.73	27.54		200.41	80.43	470.50	900	0.11	600.38	0.94	44.4
COMMERCIAL PLAZA	19	17													4.00		0.52	0.52	0.45			0.15	0.60	150	0.90	14.45	0.82	26.5
COLCHESTER SQUARE	17	16										0.10		0.10	4.00			0.52	0.45			0.17	0.62	250	0.40	37.61	0.77	33.2
COLCHESTER SQUARE	16	15			10						27	0.56	14324	256.19	2.80	162.38		32.25	27.99		200.41	80.76	471.54	900	0.11	600.38	0.94	66.0
	15	14 A			2						5		14329	256.19	2.80	162.43		32.25	27.99		200.41	80.76	471.59	900	0.11	600.38	0.94	25.8
ELSINORE LANE	39	28		32							86	0.53	86	0.53	4.00	1.40						0.15	1.55	250	1.00	59.46	1.21	56.7
	28	24		18							49	1.47	135	2.00	4.00	2.19						0.56	2.75	250	0.40	37.61	0.77	43.0
	24	23		12							32	0.14	167	2.14	4.00	2.71						0.60	3.31	250	0.40	37.61	0.77	34.0
ELSINORE LANE	23	306		8							22	0.24	189	2.38	4.00	3.06						0.67	3.73	250	0.44	39.41	0.80	48.8
ENDENVALE DRIVE	306	14 A										0.45	189	2.83	4.00	3.06						0.79	3.85	250	0.49	41.68	0.85	46.4
COLCHESTER SQUARE	14 A	14											14518	259.02	2.79	164.23		32.25	27.99		200.41	81.56	474.19	900	0.11	600.38	0.94	14.7
	Church	14													4.00		0.52	0.52	0.45			0.15	0.60	150	1.00	15.23	0.86	35.0
COLCHESTER SQUARE	14	11		4							11	0.16	14529	259.18	2.79	164.34		32.77	28.45		200.41	81.75	474.94	900	0.11	600.38	0.94	72.6
TERON	11	10											14529	259.18	2.79	164.34		32.77	28.45		200.41	81.75	474.94	900	0.11	600.38	0.94	29.6
	10	EX.										0.25	14529	259.43	2.79	164.34		32.77	28.45		200.41	81.82	475.01	900	0.11	600.38	0.94	72.3
TERON	O.P.P.	EX.													4.00					0.78	0.78		0.78	100	Forcemain			
TERON	EX.	EX. 2											14529	259.43	2.79	164.34		32.77	28.45		201.19	81.82	475.79	680	0.96	838.61	2.31	9.4

(1) As per Kanata Town Centre Sanitary Trunk Sewer Study, revised March 27, 1996, by Robinson Consultants Inc.

(2) Park or open space area.

(3) Equivalent population base on 208 rooms and 20 staff members.

(4) Allowance for an ultimate flow of 188 l/s to provide flexibility in future development as per Kanata Town Centre Sanitary Trunk Study.



	DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY
				5	02/11/06	PER CITY COMMENTS	CSB
9	12/06/12	REVISED CBD DRAINAGE	JLP	4	13/09/06	ISSUED TO CITY FOR REVIEW	LND
8	24/07/07	REVISED AS PER CITY COMMENTS	CSB	3	21/07/06	ISSUED TO CITY FOR REVIEW (STREET 'A' NORTH-SOUTH LEG)	LND
7	25/05/07	PHASE 2 ISSUED FOR CITY REVIEW	CSB	2	05/11/98	REVISED PER RMOC	LND
6	08/03/07	ISSUED FOR TENDER	CSB	1	08/06/98	ISSUED FOR MOE APPROVAL (SAN)	LND

SCALE
0 10m 20m 30m 40m
HORIZONTAL 1:1000

V:\15712-NAD83\LD\15712 C SAN-NAD83.DWG

J.L.Richards
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DESIGN	C.B.
CHECKED	L.N.D.
DRAWN	T.S.
CHECKED	
APPROVED	

Ottawa

URBANDALE CORPORATION

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
SANITARY DRAINAGE PLAN

PROJECT No.	15712-NAD 83
STARTED	JUNE 1998
DWG. No.	15712-SAN

CITY OF KANATA

SANITARY SEWER DESIGN SHEET

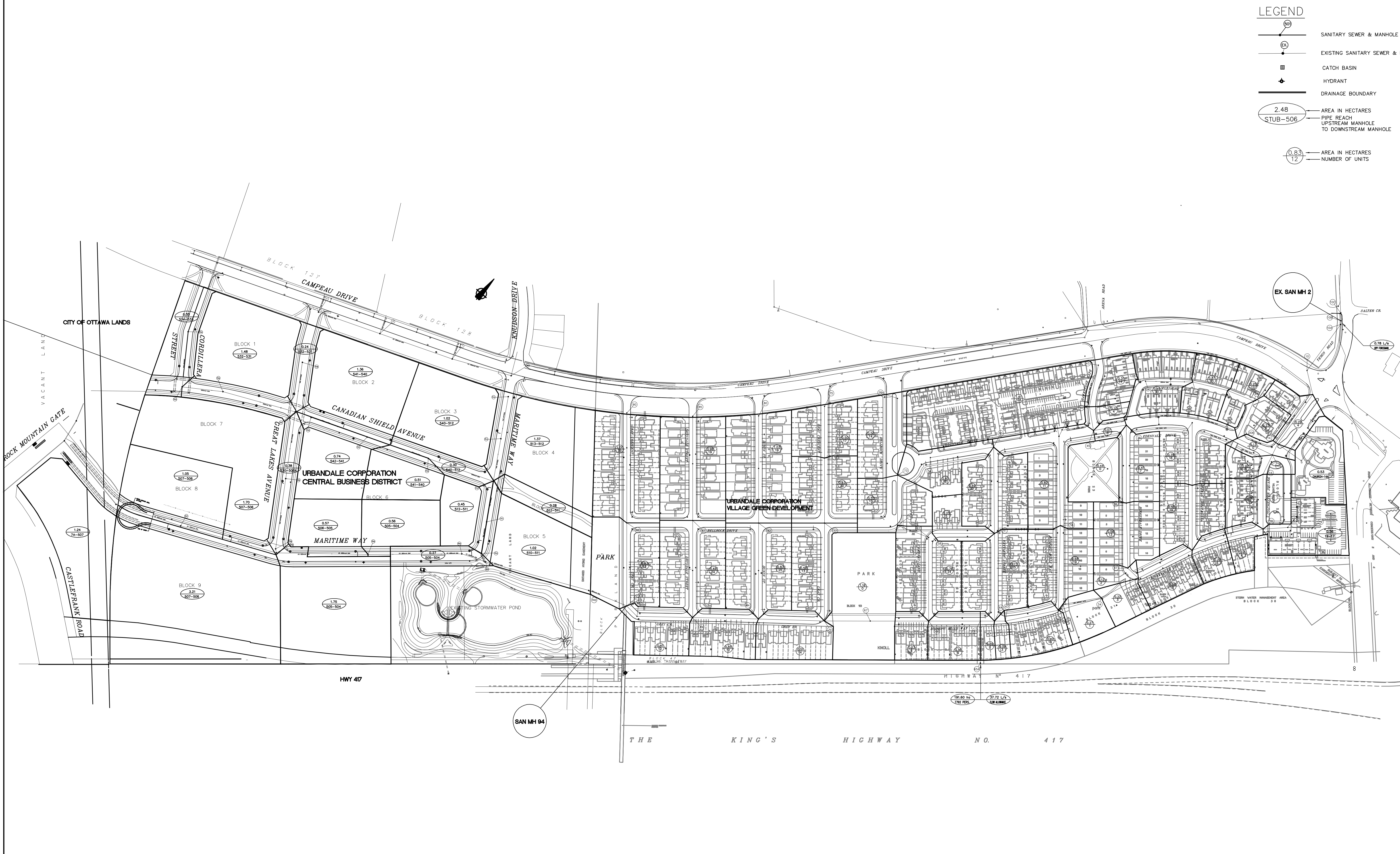
KANATA TOWN CENTRE
(RESIDENTIAL)
URBANDALE CORPORATION

Designed by: L.N.D.

Checked by: M.F.S.

q (res) =	350	l/cap/day	
q (com) =	50,000	l/ha/day	
q (inst) =	50,000	l/ha/day	
I =	0.280	l/s/ha	
Singles, Townhouses, Ter. Bungalows =	3.8	pers / unit	(low & medium density)
Stacked Townhouses / Apartments =	2.2	pers / unit	(high density)
Stacked Townhouses / Apartments =	80	units / ha	(high density)

STREET	M.H. #		No. of UNITS		AREA	CUMMULATIVE		Peaking	POPUL.	INFIL.	PEAK	SEWER DATA				
			Singles &	Stacked		POPUL.	AREA	Factor	FLOW	FLOW	FLOW	DIA.	Slope	CAPAC.	VEL.	LENGTH
	FROM	TO	Townhouses	Townhouses	ha	peop.	ha		l/s	l/s	l/s	mm	%	l/s	m/s	m
A	90	92	37		0.80	141	0.80	4.00	2.28	0.22	2.50	250	0.60	46.06	0.94	120.0
	92	94	13		1.19	190	1.99	4.00	3.08	0.56	3.64	250	2.20	88.20	1.80	103.0
	94	95			66.80	4831	68.79	3.26	63.77	19.26	270.61	825	0.12	497.22	0.93	17.5
	95	89	10		0.52	4869	69.31	3.26	64.21	19.41	271.20	825	0.12	497.22	0.93	66.6
B	85	87	19		1.19	72	1.19	4.00	1.17	0.33	1.50	250	0.40	37.61	0.77	116.9
	87	89	26		0.82	171	2.01	4.00	2.77	0.56	3.33	250	1.41	70.70	1.44	116.7
A	89	84	12		0.35	5085	71.67	3.24	66.71	20.07	274.35	825	0.12	497.22	0.93	79.0
C	80	82	20		1.08	76	1.08	4.00	1.23	0.30	1.53	250	0.40	37.61	0.77	120.0
	82	84	28		0.83	182	1.91	4.00	2.96	0.53	3.49	250	1.20	65.18	1.33	118.5
A	84	79	14		0.54	5321	74.12	3.22	69.40	20.75	277.74	825	0.12	497.22	0.93	79.0
D	75	76	19		0.37	72	0.37	4.00	1.17	0.10	1.27	250	0.40	37.61	0.77	57.0
	76	77	20		0.29	148	0.66	4.00	2.40	0.18	2.59	250	0.40	37.61	0.77	78.4
	77	79	14		0.63	201	1.29	4.00	3.26	0.36	3.62	250	0.81	53.66	1.09	117.7
PARK EASEMENT	79	67			0.98	5522	76.39	3.20	71.69	21.39	280.66	825	0.12	497.22	0.93	55.0
	67	66	6		0.33	5545	76.72	3.20	71.95	21.48	281.01	825	0.12	497.22	0.93	70.0
BELLROCK DRIVE	70	73	26		2.56	99	2.56	4.00	1.60	0.72	2.32	250	0.40	37.61	0.77	87.2
	73	74	10		0.54	137	3.10	4.00	2.22	0.87	3.08	250	0.40	37.61	0.77	60.3
EASEMENT	74	62			0.31	137	3.41	4.00	2.22	0.95	3.17	250	0.40	37.61	0.77	39.9
CAMBRAY LANE	62	66	25		0.48	232	3.89	4.00	3.76	1.09	4.85	250	0.77	52.18	1.06	100.5
BISHOPS MILLS WAY	66	65	9		0.53	5811	81.14	3.18	74.95	22.72	285.25	825	0.12	497.22	0.93	62.0
SOUTH of HWY 417	EX.	65			191.60	7792	191.60	3.06	96.63	53.65	188.16	900	0.11	600.38	0.94	50.2
BISHOPS MILLS WAY	65	64	2			13610	272.74	2.82	155.52	76.37	457.35	900	0.11	600.38	0.94	17.0
EDENVALE DRIVE	59	60	8		0.50	30	0.50	4.00	0.49	0.14	0.63	200	1.40	38.80	1.24	77.0
KETTLEBY STREET	60	61	24		0.62	122	1.12	4.00	1.97	0.31	2.28	250	0.40	37.61	0.77	103.6
CAMBRAY LANE	58	61	8		0.41	30	0.41	4.00	0.49	0.11	0.61	200	0.70	27.44	0.87	74.5
KETTLEBY STREET	61	64	25		0.42	247	1.95	4.00	4.00	0.55	4.55	250	0.90	56.41	1.15	105.0
BISHOPS MILLS WAY	64	63	3			13869	274.69	2.81	158.01	76.91	460.38	900	0.11	600.38	0.94	13.0
	63	57	10		0.68	13907	275.37	2.81	158.38	77.10	460.94	900	0.11	600.38	0.94	64.9
TER. BUNGALOW Ph.2	51	53	48		0.94	182	0.94	4.00	2.96	0.26	3.22	200	0.70	27.44	0.87	122.3
	53	54	4			198	0.94	4.00	3.20	0.26	3.47	200	0.70	27.44	0.87	13.6
	54	55			0.27	198	1.21	4.00	3.20	0.34	3.54	200	0.70	27.44	0.87	36.7
BISHOPS MILLS WAY	55	56	11		0.81	239	2.02	4.00	3.88	0.57	4.44	250	0.40	37.61	0.77	107.1
	56	57	19		0.65	312	2.67	4.00	5.05	0.75	5.80	250	0.60	46.06	0.94	101.5
PARK	57	34	1		0.37	14222	278.41	2.80	161.40	77.95	464.82	900	0.11	600.38	0.94	53.5
	34	33	3		0.00	14234	278.41	2.80	161.51	77.95	464.93	900	0.11	600.38	0.94	50.3
HAWKSTONE	43	44	16		1.19	61	1.19	4.00	0.99	0.33	1.32	250	1.00	59.46	1.21	51.0
	44	45	8		0.09	91	1.28	4.00	1.48	0.36	1.84	250	0.50	42.05	0.85	29.0
ENDENVALE	45	35			0.08	91	1.36	4.00	1.48	0.38	1.86	250	0.50	42.05	0.86	39.8
BIRKENDALE DRIVE	35	36	7		1.18	118	2.54	4.00	1.91	0.71	2.62	250	0.37	36.18	0.74	93.2
	36	37	13		0.79	167	3.33	4.00	2.71	0.93	3.64	250	0.37	36.09	0.74	77.1
	37	33	2		0.00	175	3.33	4.00	2.83	0.93	3.76	250	0.40	37.61	0.77	17.9
BIRKENDALE DRIVE	33	32	13		0.56	14458	282.30	2.79	163.66	79.04	468.16	900	0.11	600.38	0.94	72.7
TEESWATER STREET	30	31	18		0.66	68	0.66	4.00	1.11	0.18	1.29	250	0.40	37.61	0.77	75.1
	31	32	19		0.41	141	1.07	4.00	2.28	0.30	2.58	250	0.40	37.61	0.77	77.9
BIRKENDALE STREET	32	18	4		0.37	14614	283.74	2.79	165.14	79.45	470.05	900	0.11	600.38	0.94	44.4
	18	16	6			14636	283.74	2.79	165.36	79.45	470.27	900	0.11	600.38	0.94	44.4
COMMERCIAL PLAZA	19	17			0.52	0	0.52	1.50	0.45	0.15	0.60	150	0.90	14.45	0.82	26.5
COLCHESTER SQUARE	17	16			0.10	0	0.62	4.00	0.45	0.17	0.62	250	0.40	37.61	0.77	33.2
COLCHESTER SQUARE	16	15	10		0.56	14674	284.92	2.79	166.17	79.78	471.41	900	0.11	600.38	0.94	66.0
	15	14 A	2			14682	284.92	2.79	166.25	79.78	471.48	900	0.11	600.38	0.94	25.8
ELSINORE LANE	39	28	22		0.53	84	0.53	4.00	1.35	0.15	1.50	250	1.00	59.46	1.21	56.7
	28	24	14		1.47	137	2.00	4.00	2.22	0.56	2.78	250	0.40	37.61	0.77	43.0
	24	23	12		0.14	182	2.14	4.00	2.96	0.60	3.55	250	0.40	37.61	0.77	34.0
ELSINORE LANE	23	306	8		0.24	213	2.38	4.00	3.45	0.67	4.11	250	0.44	39.41	0.80	48.8
ENDENVALE DRIVE	306	14 A			0.45	213	2.83	4.00	3.45	0.79	4.24	250	0.49	41.68	0.85	46.4
COLCHESTER SQUARE	14 A	14				14895	287.75	2.78	167.82	80.57	473.85	900	0.11	600.38	0.94	14.7
	Church	14			0.52	0	0.52	1.50	0.45	0.15	0.60	150	1.00	15.23	0.86	35.0
COLCHESTER SQUARE	14	11	4		0.16	14910	288.43	2.78	168.87	80.76	475.09	900	0.11	600.38	0.94	72.6
TERON	11	10				14910	288.43	2.78	168.87	80.76	475.09	900	0.11	600.38	0.94	29.6
	10	EX.			0.25	14910	288.68	2.78	168.87	80.83	475.16	900	0.11	600.38	0.94	72.3
TERON	O.P.P.	EX.									0.78	100	Forcemain			
TERON	EX.	EX.									475.94	680	0.96	838.61	2.31	9.4


LEGEND
SANITARY SEWER & MANHOLE
EXISTING SANITARY SEWER & MH
CATCH BASIN
HYDRANT
DRAINAGE BOUNDARY
AREA IN HECTARES
PIPE REACH UPSTREAM MANHOLE TO DOWNSTREAM MANHOLE
AREA IN HECTARES
NUMBER OF UNITS
CITY OF OTTAWA LANDS
CAMPEAU DRIVE
KNUDSON DRIVE
CORDILLERA STREET
CANADIAN SHIELD AVENUE
GREAT LAKES AVENUE
MARITIME WAY
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
URBANDALE CORPORATION CENTRAL BUSINESS DISTRICT
URBANDALE CORPORATION VILLAGE GREEN DEVELOPMENT
EXISTING STORMWATER POND
PARK
KNOLL
ROCK MOUNTAIN GATE
CASTLEFRANK ROAD
HWY 417
SAN MH 94
EX. SAN MH 2
THE KING'S HIGHWAY NO. 417

DATE	REVISIONS	BY	NO.	DATE	REVISIONS	BY
			2	12/06/12	REVISED CBD DRAINAGE	JP
			1	18/01/08	ISSUED TO CITY FOR REVIEW	CB

SCALE
HORIZONTAL 1:2000

V:\15712-NAD83.LD\15712 C OVSAN-NAD83.DWG

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CHECKED	
APPROVED	

Ottawa

URBANDALE CORPORATION

KANATA TOWN CENTRE
CENTRAL BUSINESS DISTRICT
OVERALL SANITARY DRAINAGE PLAN

PROJECT No.	15712-NAD 83
STARTED	DEC. 2007
DWG. No.	15712-OVSAN

APPENDIX D

Water Servicing Information

TYPE OF UNITS / FLOOR EAST TOWER		
TYPE OF UNIT	**UNITS / FLOOR**	**UNITS / TOTAL**
GROUND FLOOR		
1BR	8	8
2BR	2	2
		10
2nd FLOOR		
1BR	13	13
2BR	6	6
		19
3rd FLOOR		
1BR	16	16
2BR	5	5
		21
4th to 7th FLOOR		
1BR	16	64
2BR	5	20
		84
8th FLOOR		
1BR	5	5
2BR	3	3
		8
9th to 20th FLOOR		
1BR	4	48
2BR	4	48
		96
21st to 28th FLOOR		
1BR	4	32
2BR	4	32
		64
TOTAL		302

UNITS SCHEDULE EAST TOWER_NBR		
TYPE OF UNITS	**NBR OF UNITS**	**%**
1BR	186	62%
2BR	116	38%
	302	

UNITS SCHEDULE / FLOOR_EAST TOWER			
TYPE OF UNIT	**NBR OF UNIT**	**AREA / UNIT (ft²)**	**AREA / UNIT (m²)**
GROUND FLOOR			
1BR	1	965 ft²	90 m²
1BR	1	782 ft²	73 m²
1BR	1	654 ft²	61 m²
1BR	1	811 ft²	75 m²
1BR	1	542 ft²	50 m²
1BR	1	780 ft²	72 m²
1BR	1	794 ft²	74 m²
1BR	1	799 ft²	74 m²
2BR	1	962 ft²	89 m²
2BR	1	1 217 ft²	113 m²
	10		
2nd FLOOR			
1BR	1	542 ft²	50 m²
1BR	1	778 ft²	72 m²
1BR	1	592 ft²	55 m²
1BR	1	592 ft²	55 m²
1BR	1	754 ft²	70 m²
1BR	1	845 ft²	78 m²
1BR	1	824 ft²	77 m²
1BR	1	812 ft²	75 m²
1BR	1	654 ft²	61 m²
1BR	1	784 ft²	73 m²
1BR	1	801 ft²	74 m²
1BR	1	794 ft²	74 m²
1BR	1	768 ft²	71 m²
2BR	1	959 ft²	89 m²
2BR	1	943 ft²	88 m²
2BR	1	1 046 ft²	97 m²
2BR	1	1 303 ft²	121 m²
2BR	1	1 285 ft²	119 m²
2BR	1	1 221 ft²	113 m²
	19		
3rd FLOOR			
1BR	1	542 ft²	50 m²
1BR	1	613 ft²	57 m²
1BR	1	778 ft²	72 m²
1BR	1	592 ft²	55 m²
1BR	1	592 ft²	55 m²
1BR	1	754 ft²	70 m²
1BR	1	845 ft²	78 m²
1BR	1	824 ft²	77 m²
1BR	1	757 ft²	70 m²
1BR	1	812 ft²	75 m²
1BR	1	654 ft²	61 m²
1BR	1	784 ft²	73 m²
1BR	1	801 ft²	74 m²
1BR	1	794 ft²	74 m²
1BR	1	768 ft²	71 m²
1BR	1	885 ft²	82 m²
2BR	1	943 ft²	88 m²
2BR	1	1 206 ft²	112 m²
2BR	1	1 239 ft²	115 m²
2BR	1	996 ft²	93 m²
2BR	1	1 199 ft²	111 m²
	21		

UNITS SCHEDULE / FLOOR_EAST TOWER			
TYPE OF UNIT	**NBR OF UNIT**	**AREA / UNIT (ft²)**	**AREA / UNIT (m²)**
4th to 7th FLOOR			
1BR	4	542 ft²	50 m²
1BR	4	613 ft²	57 m²
1BR	4	778 ft²	72 m²
1BR	4	592 ft²	55 m²
1BR	4	592 ft²	55 m²
1BR	4	754 ft²	70 m²
1BR	4	845 ft²	78 m²
1BR	4	824 ft²	77 m²
1BR	4	757 ft²	70 m²
1BR	4	812 ft²	75 m²
1BR	4	654 ft²	61 m²
1BR	4	784 ft²	73 m²
1BR	4	801 ft²	74 m²
1BR	4	794 ft²	74 m²
1BR	4	768 ft²	71 m²
1BR	4	885 ft²	82 m²
2BR	4	943 ft²	88 m²
2BR	4	1 206 ft²	112 m²
2BR	4	1 239 ft²	115 m²
2BR	4	996 ft²	92 m²
2BR	4	1 198 ft²	111 m²
	84		
8th FLOOR			
1BR	1	629 ft²	58 m²
1BR	1	614 ft²	57 m²
1BR	1	609 ft²	57 m²
1BR	1	592 ft²	55 m²
1BR	1	593 ft²	55 m²
2BR	1	835 ft²	78 m²
2BR	1	924 ft²	86 m²
2BR	1	865 ft²	80 m²
	8		
9th to 20th FLOOR			
1BR	12	614 ft²	57 m²
1BR	12	609 ft²	57 m²
1BR	12	592 ft²	55 m²
1BR	12	593 ft²	55 m²
2BR	12	827 ft²	77 m²
2BR	12	835 ft²	78 m²
2BR	12	924 ft²	86 m²
2BR	12	865 ft²	80 m²
	96		
21st to 28th FLOOR			
1BR	8	614 ft²	57 m²
1BR	8	609 ft²	57 m²
1BR	8	592 ft²	55 m²
1BR	8	593 ft²	55 m²
2BR	8	827 ft²	77 m²
2BR	8	835 ft²	78 m²
2BR	8	924 ft²	86 m²
2BR	8	865 ft²	80 m²
	64		
	302		

GROSS FLOOR AREA_EAST TOWER					
FLOOR	**NBR OF FLOORS**	**AREA / FLOOR (ft²)**	**AREA / FLOOR (m²)**	**AREA TOTAL (ft²)**	**AREA TOTAL (m²)**
U-PARKING 3	1	7 776 ft²	722 m²	7 776 ft²	722 m²
U-PARKING 2	1	5 856 ft²	544 m²	5 856 ft²	544 m²
U-PARKING 1	1	2 595 ft²	241 m²	2 595 ft²	241 m²
GROUND FLOOR	1	12 079 ft²	1 122 m²	12 079 ft²	1 122 m²
2nd FLOOR	1	15 566 ft²	1 446 m²	15 566 ft²	1 446 m²
3rd FLOOR	1	16 523 ft²	1 535 m²	16 523 ft²	1 535 m²
4th to 7th FLOOR	4	16 523 ft²	1 535 m²	66 094 ft²	6 140 m²
8th FLOOR	1	5 321 ft²	494 m²	5 321 ft²	494 m²
9th to 20th FLOOR	12	5 505 ft²	511 m²	66 062 ft²	6 137 m²
21st to 28th FLOOR	8	5 505 ft²	511 m²	44 041 ft²	4 092 m²
TOTAL		93 251 ft²	8 663 m²	241 914 ft²	22 475 m²

GROSS CONSTRUCTION AREA_EAST TOWER					
FLOOR	**NBR OF FLOORS**	**AREA / FLOOR (ft²)**	**AREA / FLOOR (m²)**	**AREA TOTAL (ft²)**	**AREA TOTAL (m²)**
GROUND FLOOR	1	19 021 ft²	1 767 m²	19 021 ft²	1 767 m²
2nd FLOOR	1	19 645 ft²	1 825 m²	19 645 ft²	1 825 m²
3rd FLOOR	1	20 241 ft²	1 880 m²	20 241 ft²	1 880 m²
4th to 7th FLOOR	4	20 240 ft²	1 880 m²	80 960 ft²	7 521 m²
8th FLOOR	1	7 375 ft²	685 m²	7 375 ft²	685 m²
9th to 20th FLOOR	12	6 977 ft²	648 m²	83 726 ft²	7 778 m²
21st to 28th FLOOR	8	6 977 ft²	648 m²	55 817 ft²	5 186 m²
MECHANICAL PENTHOUSE	1	2 139 ft²	199 m²	2 139 ft²	199 m²
TOTAL		102 615 ft²	9 533 m²	288 923 ft²	26 842 m²

RENTABLE AREA_EAST TOWER					
FLOOR	**NBR OF FLOORS**	**AREA / FLOOR (ft²)**	**AREA / FLOOR (m²)**	**AREA TOTAL (ft²)**	**AREA TOTAL (m²)**
GROUND FLOOR	1	8 305 ft²	772 m²	8 305 ft²	772 m²
2nd FLOOR	1	16 299 ft²	1 514 m²	16 299 ft²	1 514 m²
3rd FLOOR	1	17 379 ft²	1 615 m²	17 379 ft²	1 615 m²
4th to 7th FLOOR	4	17 379 ft²	1 615 m²	69 515 ft²	6 458 m²
8th FLOOR	1	5 661 ft²	526 m²	5 661 ft²	526 m²
9th to 20th FLOOR	12	5 859 ft²	544 m²	70 312 ft²	6 532 m²
21st to 28th FLOOR	8	5 859 ft²	544 m²	46 875 ft²	4 355 m²
TOTAL		76 742 ft²	7 130 m²	234 347 ft²	21 772 m²

COMMERCIAL SPACE AREA_EAST TOWER		
	AREA (ft²)	**AREA (m²)**
COMMERCIAL	4 310 ft²	400 m²

GROSS CONSTRUCTION AREA SUMMARY_EAST TOWER						
FLOOR	**USAGE**	**NBR OF FLOORS**	**AREA / FLOOR (ft²)**	**AREA / FLOOR (m²)**	**AREA TOTAL (ft²)**	**AREA TOTAL (m²)**
GROUND FLOOR	CIRCULATION	1	760 ft²	71 m²	760 ft²	71 m²
GROUND FLOOR	COMMERCIAL	1	4 310 ft²	400 m²	4 310 ft²	400 m²
GROUND FLOOR	COMMON AREA	1	3 499 ft²	325 m²	3 499 ft²	325 m²
GROUND FLOOR	RESIDENTIAL	1	8 305 ft²	772 m²	8 305 ft²	772 m²
GROUND FLOOR	SERVICES	1	330 ft²	31 m²	330 ft²	31 m²
GROUND FLOOR	VERTICAL CIRCULATION	1	1 817 ft²	169 m²	1 817 ft²	169 m²
			19 021 ft²	1 767 m²	19 021 ft²	1 767 m²
2nd FLOOR	CIRCULATION	1	1 930 ft²	179 m²	1 930 ft²	179 m²
2nd FLOOR	RESIDENTIAL	1	16 299 ft²	1 514 m²	16 299 ft²	1 514 m²
2nd FLOOR	SERVICES	1	257 ft²	24 m²	257 ft²	24 m²
2nd FLOOR	VERTICAL CIRCULATION	1	1 160 ft²	108 m²	1 160 ft²	108 m²
			19 645 ft²	1 825 m²	19 645 ft²	1 825 m²
3rd FLOOR	CIRCULATION	1	1 613 ft²	150 m²	1 613 ft²	150 m²
3rd FLOOR	RESIDENTIAL	1	17 379 ft²	1 615 m²	17 379 ft²	1 615 m²
3rd FLOOR	SERVICES	1	257 ft²	24 m²	257 ft²	24 m²
3rd FLOOR	VERTICAL CIRCULATION	1	991 ft²	92 m²	991 ft²	92 m²
			20 241 ft²	1 880 m²	20 241 ft²	1 880 m²
4th to 7th FLOOR	CIRCULATION	4	1 613 ft²	150 m²	6 454 ft²	600 m²
4th to 7th FLOOR	RESIDENTIAL	4	17 379 ft²	1 615 m²	69 515 ft²	6 458 m²
4th to 7th FLOOR	SERVICES	4	257 ft²	24 m²	1 027 ft²	95 m²
4th to 7th FLOOR	VERTICAL CIRCULATION	4	991 ft²	92 m²	3 965 ft²	368 m²
			20 240 ft²	1 880 m²	80 960 ft²	7 521 m²
8th FLOOR	CIRCULATION	1	738 ft²	69 m²	738 ft²	69 m²
8th FLOOR	RESIDENTIAL	1	5 661 ft²	526 m²	5 661 ft²	526 m²
8th FLOOR	SERVICES	1	82 ft²	8 m²	82 ft²	8 m²
8th FLOOR	VERTICAL CIRCULATION	1	893 ft²	83 m²	893 ft²	83 m²
			7 375 ft²	685 m²	7 375 ft²	685 m²
9th to 20th FLOOR	CIRCULATION	12	566 ft²	53 m²	6 791 ft²	631 m²
9th to 20th FLOOR	RESIDENTIAL	12	5 859 ft²	544 m²	70 312 ft²	6 532 m²
9th to 20th FLOOR	SERVICES	12	56 ft²	5 m²	676 ft²	63 m²
9th to 20th FLOOR	VERTICAL CIRCULATION	12	495 ft²	46 m²	5 946 ft²	552 m²
			6 977 ft²	648 m²	83 726 ft²	7 778 m²
21st to 28th FLOOR	CIRCULATION	8	566 ft²	53 m²	4 527 ft²	421 m²
21st to 28th FLOOR	RESIDENTIAL	8	5 859 ft²	544 m²	46 875 ft²	4 355 m²
21st to 28th FLOOR	SERVICES	8	56 ft²	5 m²	451 ft²	42 m²
21st to 28th FLOOR	VERTICAL CIRCULATION	8	495 ft²	46 m²	3 964 ft²	368 m²
			6 977 ft²	648 m²	55 817 ft²	5 186 m²
MECHANICAL PENTHOUSE	TECHNICAL	1	2 139 ft²	199 m²	2 139 ft²	199 m²
			2 139 ft²	199 m²	2 139 ft²	199 m²
			102 615 ft²	9 533 m²	288 923 ft²	26 842 m²

AMENITIES REQUIREMENT_EAST TOWER		
NBR OF UNITS	**AMENITIES (6m² / UNIT)**	**MIN. 50% COMMUNAL**
302	1 812 m²	906 m²

PROVIDED AMENITIES_EAST TOWER	
TYPE OF AMENITIES	**AREA TOTAL (m²)**
COMMUNAL AMENITIES	1 197 m²
PERSONAL AMENITIES	1 997 m²

PARKING REQUIREMENT_EAST TOWER	
NBR OF UNITS	**PARKING RATIO (1 / UNIT)**
302	302

BIKE RACKS REQUIREMENT_EAST TOWER	
NBR OF UNITS	**BIKE RACKS RATIO (0.5 / UNIT)**
302	151

NOTES GÉNÉRALES General Notes

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CLIENT Client

CLARIDGE HOMES

OUVRAGE Project

1200 MARITIME WAY (KANATA RENTAL)

EMPLACEMENT Location
OTTAWA

NO PROJET No.
12371.00

NO	RÉVISION	DATE (aa-mm-jj)

DESSINÉ PAR Drawn by
Auteur

VÉRIFIÉ PAR Checked
Vérificateur

DATE (aa.mm.jj)
NOV 2018

ÉCHELLE Scale

TITRE DU DESSIN Drawing Title

STATISTICS - EAST TOWER

RÉVISION Revision

NO. DESSIN Dwg Number
A102

C:\Fichiers Revit Locaux\12371_ARCH_OPTION 9_R20_pascalvendette.rvt

TYPE OF UNITS / FLOOR WEST TOWER

TYPE OF UNIT	UNITS / FLOOR	UNITS / TOTAL
GROUND FLOOR		
1BR	5	5
2BR	1	1
		6
2nd FLOOR		
1BR	14	14
2BR	6	6
		20
3rd FLOOR		
1BR	14	14
2BR	6	6
		20
4th to 7th FLOOR		
1BR	14	56
2BR	6	24
		80
8th FLOOR		
1BR	6	6
2BR	3	3
		9
9th to 20th FLOOR		
1BR	5	60
2BR	4	48
		108
21st to 30th FLOOR		
1BR	3	30
2BR	4	40
		70
TOTAL		313

UNITS SCHEDULE WEST TOWER_NBR

TYPE OF UNITS	NBR OF UNITS	%
1BR	185	59%
2BR	128	41%
	313	

UNITS SCHEDULE / FLOOR_WEST TOWER

TYPE OF UNIT	NBR OF UNIT	AREA / UNIT (ft²)	AREA / UNIT (m²)
GROUND FLOOR			
1BR	1	849 ft²	79 m²
1BR	1	759 ft²	71 m²
1BR	1	760 ft²	71 m²
1BR	1	673 ft²	63 m²
1BR	1	792 ft²	74 m²
2BR	1	1 100 ft²	102 m²
	6		
2nd FLOOR			
1BR	1	813 ft²	76 m²
1BR	1	674 ft²	63 m²
1BR	1	800 ft²	74 m²
1BR	1	704 ft²	65 m²
1BR	1	706 ft²	66 m²
1BR	1	793 ft²	74 m²
1BR	1	802 ft²	75 m²
1BR	1	795 ft²	74 m²
1BR	1	807 ft²	75 m²
1BR	1	634 ft²	59 m²
1BR	1	793 ft²	74 m²
1BR	1	795 ft²	74 m²
1BR	1	802 ft²	74 m²
1BR	1	795 ft²	74 m²
2BR	1	992 ft²	92 m²
2BR	1	1 243 ft²	115 m²
2BR	1	1 082 ft²	101 m²
2BR	1	1 170 ft²	109 m²
2BR	1	1 226 ft²	114 m²
2BR	1	1 050 ft²	98 m²
	20		
3rd FLOOR			
1BR	1	813 ft²	76 m²
1BR	1	674 ft²	63 m²
1BR	1	800 ft²	74 m²
1BR	1	704 ft²	65 m²
1BR	1	706 ft²	66 m²
1BR	1	793 ft²	74 m²
1BR	1	802 ft²	75 m²
1BR	1	795 ft²	74 m²
1BR	1	807 ft²	75 m²
1BR	1	634 ft²	59 m²
1BR	1	793 ft²	74 m²
1BR	1	795 ft²	74 m²
1BR	1	802 ft²	74 m²
1BR	1	795 ft²	74 m²
2BR	1	992 ft²	92 m²
2BR	1	1 243 ft²	115 m²
2BR	1	1 082 ft²	101 m²
2BR	1	1 170 ft²	109 m²
2BR	1	1 226 ft²	114 m²
2BR	1	1 050 ft²	98 m²
	20		

UNITS SCHEDULE / FLOOR_WEST TOWER

TYPE OF UNIT	NBR OF UNIT	AREA / UNIT (ft²)	AREA / UNIT (m²)
4th to 7th FLOOR			
1BR	4	813 ft²	76 m²
1BR	4	674 ft²	63 m²
1BR	4	800 ft²	74 m²
1BR	4	704 ft²	65 m²
1BR	4	706 ft²	66 m²
1BR	4	793 ft²	74 m²
1BR	4	802 ft²	75 m²
1BR	4	795 ft²	74 m²
1BR	4	807 ft²	75 m²
1BR	4	634 ft²	59 m²
1BR	4	793 ft²	74 m²
1BR	4	795 ft²	74 m²
1BR	4	802 ft²	74 m²
1BR	4	795 ft²	74 m²
2BR	4	992 ft²	92 m²
2BR	4	1 243 ft²	115 m²
2BR	4	1 082 ft²	101 m²
2BR	4	1 170 ft²	109 m²
2BR	4	1 226 ft²	114 m²
2BR	4	1 050 ft²	98 m²
	80		
8th FLOOR			
1BR	1	753 ft²	70 m²
1BR	1	813 ft²	76 m²
1BR	1	796 ft²	74 m²
1BR	1	802 ft²	74 m²
1BR	1	639 ft²	59 m²
1BR	1	879 ft²	82 m²
2BR	1	1 174 ft²	109 m²
2BR	1	1 083 ft²	101 m²
2BR	1	1 170 ft²	109 m²
	9		
9th to 20th FLOOR			
1BR	12	753 ft²	70 m²
1BR	12	813 ft²	76 m²
1BR	12	796 ft²	74 m²
1BR	12	802 ft²	74 m²
1BR	12	639 ft²	59 m²
2BR	12	1 174 ft²	109 m²
2BR	12	1 083 ft²	101 m²
2BR	12	1 170 ft²	109 m²
2BR	12	1 117 ft²	104 m²
	108		
21st to 30th FLOOR			
1BR	10	753 ft²	70 m²
1BR	10	802 ft²	74 m²
1BR	10	639 ft²	59 m²
2BR	10	1 174 ft²	109 m²
2BR	10	1 024 ft²	95 m²
2BR	10	1 233 ft²	115 m²
2BR	10	1 117 ft²	104 m²
	70		
	313		

GROSS FLOOR AREA_WEST TOWER

FLOOR	NBR OF FLOORS	AREA / FLOOR (ft²)	AREA / FLOOR (m²)	AREA TOTAL (ft²)	AREA TOTAL (m²)
U-PARKING 2	1	3 914 ft²	364 m²	3 914 ft²	364 m²
U-PARKING 1	1	2 879 ft²	267 m²	2 879 ft²	267 m²
GROUND FLOOR	1	4 705 ft²	437 m²	4 705 ft²	437 m²
2nd FLOOR	1	17 031 ft²	1 582 m²	17 031 ft²	1 582 m²
3rd FLOOR	1	16 558 ft²	1 538 m²	16 558 ft²	1 538 m²
4th to 7th FLOOR	4	16 558 ft²	1 538 m²	66 230 ft²	6 153 m²
8th FLOOR	1	7 610 ft²	707 m²	7 610 ft²	707 m²
9th to 20th FLOOR	12	7 824 ft²	727 m²	93 892 ft²	8 723 m²
21st to 30th FLOOR	10	6 292 ft²	585 m²	62 916 ft²	5 845 m²
TOTAL		83 370 ft²	7 745 m²	275 735 ft²	25 617 m²

GROSS CONSTRUCTION AREA_WEST TOWER

FLOOR	NBR OF FLOORS	AREA / FLOOR (ft²)	AREA / FLOOR (m²)	AREA TOTAL (ft²)	AREA TOTAL (m²)
GROUND FLOOR	1	9 837 ft²	914 m²	9 837 ft²	914 m²
2nd FLOOR	1	19 892 ft²	1 848 m²	19 892 ft²	1 848 m²
3rd FLOOR	1	19 892 ft²	1 848 m²	19 892 ft²	1 848 m²
4th to 7th FLOOR	4	19 892 ft²	1 848 m²	79 569 ft²	7 392 m²
8th FLOOR	1	9 785 ft²	909 m²	9 785 ft²	909 m²
9th to 20th FLOOR	12	9 595 ft²	891 m²	115 136 ft²	10 697 m²
21st to 30th FLOOR	10	8 002 ft²	743 m²	80 021 ft²	7 434 m²
MECHANICAL PENTHOUSE	1	2 139 ft²	199 m²	2 139 ft²	199 m²
TOTAL		99 035 ft²	9 201 m²	336 272 ft²	31 241 m²

RENTABLE AREA_WEST TOWER

FLOOR	NBR OF FLOORS	AREA / FLOOR (ft²)	AREA / FLOOR (m²)	AREA TOTAL (ft²)	AREA TOTAL (m²)
GROUND FLOOR	1	4 933 ft²	458 m²	4 933 ft²	458 m²
2nd FLOOR	1	17 476 ft²	1 624 m²	17 476 ft²	1 624 m²
3rd FLOOR	1	17 476 ft²	1 624 m²	17 476 ft²	1 624 m²
4th to 7th FLOOR	4	17 476 ft²	1 624 m²	69 903 ft²	6 494 m²
8th FLOOR	1	8 107 ft²	753 m²	8 107 ft²	753 m²
9th to 20th FLOOR	12	8 346 ft²	775 m²	100 149 ft²	9 304 m²
21st to 30th FLOOR	10	6 741 ft²	626 m²	67 412 ft²	6 263 m²
TOTAL		80 554 ft²	7 484 m²	285 455 ft²	26 520 m²

GROSS CONSTRUCTION AREA SUMMARY_WEST TOWER

FLOOR	USAGE	NBR OF FLOORS	AREA / FLOOR (ft²)	AREA / FLOOR (m²)	AREA TOTAL (ft²)	AREA TOTAL (m²)
GROUND FLOOR	CIRCULATION	1	1 293 ft²	120 m²	1 293 ft²	120 m²
GROUND FLOOR	COMMON AREA	1	2 328 ft²	216 m²	2 328 ft²	216 m²
GROUND FLOOR	RESIDENTIAL	1	4 933 ft²	458 m²	4 933 ft²	458 m²
GROUND FLOOR	SERVICES	1	26 ft²	2 m²	26 ft²	2 m²
GROUND FLOOR	VERTICAL CIRCULATION	1	1 257 ft²	117 m²	1 257 ft²	117 m²
			9 837 ft²	914 m²	9 837 ft²	914 m²
2nd FLOOR	CIRCULATION	1	1 465 ft²	136 m²	1 465 ft²	136 m²
2nd FLOOR	RESIDENTIAL	1	17 476 ft²	1 624 m²	17 476 ft²	1 624 m²
2nd FLOOR	SERVICES	1	60 ft²	6 m²	60 ft²	6 m²
2nd FLOOR	VERTICAL CIRCULATION	1	892 ft²	83 m²	892 ft²	83 m²
			19 892 ft²	1 848 m²	19 892 ft²	1 848 m²
3rd FLOOR	CIRCULATION	1	1 465 ft²	136 m²	1 465 ft²	136 m²
3rd FLOOR	RESIDENTIAL	1	17 476 ft²	1 624 m²	17 476 ft²	1 624 m²
3rd FLOOR	SERVICES	1	60 ft²	6 m²	60 ft²	6 m²
3rd FLOOR	VERTICAL CIRCULATION	1	892 ft²	83 m²	892 ft²	83 m²
			19 892 ft²	1 848 m²	19 892 ft²	1 848 m²
4th to 7th FLOOR	CIRCULATION	4	1 465 ft²	136 m²	5 860 ft²	544 m²
4th to 7th FLOOR	RESIDENTIAL	4	17 476 ft²	1 624 m²	69 903 ft²	6 494 m²
4th to 7th FLOOR	SERVICES	4	60 ft²	6 m²	240 ft²	22 m²
4th to 7th FLOOR	VERTICAL CIRCULATION	4	892 ft²	83 m²	3 567 ft²	331 m²
			19 892 ft²	1 848 m²	79 569 ft²	7 392 m²
8th FLOOR	CIRCULATION	1	716 ft²	67 m²	716 ft²	67 m²
8th FLOOR	RESIDENTIAL	1	8 107 ft²	753 m²	8 107 ft²	753 m²
8th FLOOR	SERVICES	1	204 ft²	19 m²	204 ft²	19 m²
8th FLOOR	VERTICAL CIRCULATION	1	759 ft²	70 m²	759 ft²	70 m²
			9 785 ft²	909 m²	9 785 ft²	909 m²
9th to 20th FLOOR	CIRCULATION	12	619 ft²	58 m²	7 428 ft²	690 m²
9th to 20th FLOOR	RESIDENTIAL	12	8 346 ft²	775 m²	100 149 ft²	9 304 m²
9th to 20th FLOOR	SERVICES	12	62 ft²	6 m²	744 ft²	69 m²
9th to 20th FLOOR	VERTICAL CIRCULATION	12	568 ft²	53 m²	6 816 ft²	633 m²
			9 595 ft²	891 m²	115 136 ft²	10 697 m²
21st to 30th FLOOR	CIRCULATION	10	631 ft²	59 m²	6 309 ft²	586 m²
21st to 30th FLOOR	RESIDENTIAL	10	6 741 ft²	626 m²	67 412 ft²	6 263 m²
21st to 30th FLOOR	SERVICES	10	62 ft²	6 m²	620 ft²	58 m²
21st to 30th FLOOR	VERTICAL CIRCULATION	10	568 ft²	53 m²	5 680 ft²	528 m²
			8 002 ft²	743 m²	80 021 ft²	7 434 m²
MECHANICAL PENTHOUSE	TECHNICAL	1	2 139 ft²	199 m²	2 139 ft²	199 m²
			2 139 ft²	199 m²	2 139 ft²	199 m²
			99 035 ft²	9 201 m²	336 272 ft²	31 241 m²

AMENITIES REQUIREMENT_WEST TOWER

NBR OF UNITS	AMENITIES (6m² / UNIT)	MIN. 50% COMMUNAL
313	1 878 m²	939 m²

PROVIDED AMENITIES_WEST TOWER

TYPE OF AMENITIES	AREA TOTAL (m²)
COMMUNAL AMENITIES	1 054 m²
PERSONAL AMENITIES	1 232 m²

PARKING REQUIREMENT_WEST TOWER

NBR OF UNITS	PARKING RATIO (1 / UNIT)
313	313

BIKE RACKS REQUIREMENT_WEST TOWER

NBR OF UNITS	BIKE RACKS RATIO (0.5 / UNIT)
313	157

NOTES GÉNÉRALES General Notes

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4. Les dimensions sur ces documents doivent être lues et non mesurées. / The dimensions on these documents must be read and not measured.

STRUCTURE Structural
Goodeve Structural Inc.
19-77, Auriga Drive, Ottawa ON K2E 7Z7
T 613 226 4558 goodevestructural.ca

ARCHITECTURE DE PAYSAGE Landscape Architect
James B. Lennox & Associates
3332, Carling Avenue, Ottawa ON K2H 5A8
T 613 722 5168 jbla.ca

CIVIL Civil
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240, Michael Cowpland Drive, Suite 200, Ottawa ON K2M 1P6
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630, boul. René-Lévesque O. 32e étage, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU / Seal

NEUF ARCHITECT(E)S
NEUF ARCHITECTES SENCRL

CLIENT Client

CLARIDGE HOMES

OUVRAGE Project

1200 MARITIME WAY (KANATA RENTAL)

EMPLACEMENT Location
OTTAWA

NO.PROJET No.
12371.00

NO	RÉVISION	DATE (aa-mm-jj)

DESSINÉ PAR Drawn by
Auteur

VÉRIFIÉ PAR Checked
Vérificateur

DATE (aa.mm.jj)
02/15/23

ÉCHELLE Scale

TITRE DU DESSIN Drawing Title

STATISTICS - WEST TOWER

RÉVISION Revision

NO. DESSIN Dwg Number
A103

C:\Fichiers Revit Locaux\12371_ARCH_OPTION 9_R20_pascalvendette.rvt

NOVATECH
Engineers, Planners & Landscape Architects

1200 MARITIME WAY
HYDRAULIC ANALYSIS

JOB NO. 120144
DATE PREPARED: APRIL 2023

Table 1
Water Demand

Occuupancy	Unit Type: Retail Area (Seats)	1 Bed Apartment	2 Bed Apartment	Total Units	Total Population	Total Demand (L/s): Avg Day	Max. Daily	Peak Hour
West Appartment (Phase 1)								
Residential		185	128	313	528	1.71	4.28	9.41
Commercial						0.00	0.00	0.00
Total		185	128			1.71	4.28	9.41
East Appartment (Phase 2)								
Residential		186	116	302	504	1.63	4.08	8.98
Commercial	100					0.14	0.22	0.39
Total		186	116			1.78	4.30	9.37
Total Development					**1032**	**3.49**	**8.58**	**18.79**

Design Parameters:

- 1 Bed Apartment **1.4 persons/unit**
- 2 Bed Apartment **2.1 persons/unit**

City of Ottawa Water Distribution Guidelines

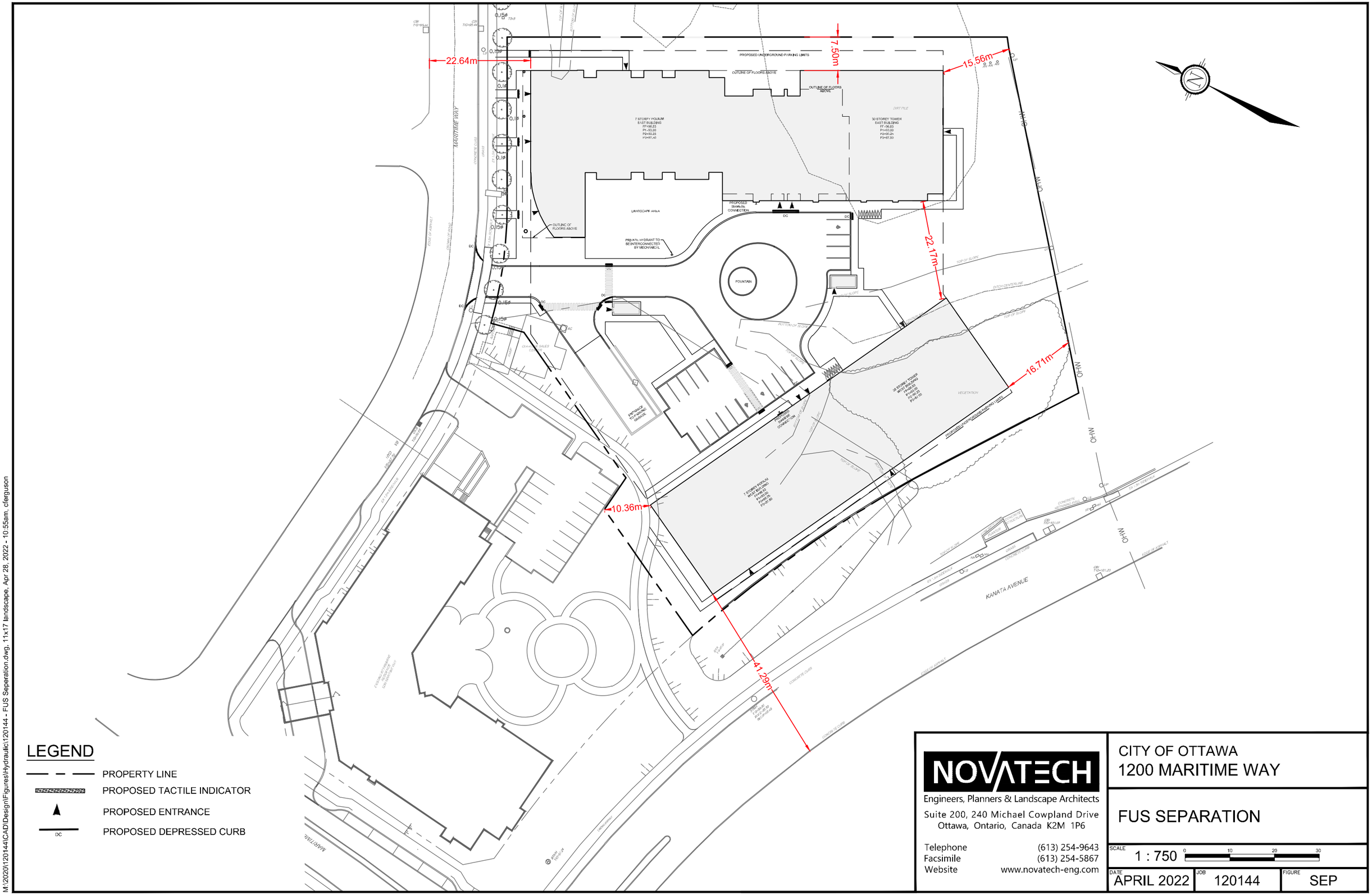
- Average Domestic Flow	280	L/c/day	L/person/day
- "Commerical Space A" Café	125	L/day/seat	(assume 1 seat/4m^2)
		Total:	399m2

Residential Peaking Factors City of Ottawa Water Distrubution Guidelines:

Conditions	Peaking Factor		Units
Maximum Day	2.5	x avg day	L/c/day
Peak Hour	2.2	x max day	L/c/day

Commercial Peaking Factors City of Ottawa Water Distribution Guidelines

Conditions	Peaking Factor		Units
Maximum Day	1.5	x avg day	L/c/day
Peak Hour	1.8	x max day	L/c/day



LEGEND

- PROPERTY LINE
- PROPOSED TACTILE INDICATOR
- PROPOSED ENTRANCE
- DC — PROPOSED DEPRESSED CURB

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

CITY OF OTTAWA
1200 MARITIME WAY

FUS SEPARATION

SCALE 1 : 750 (0, 10, 20, 30)
DATE APRIL 2022
JOB 120144
FIGURE SEP

SHT11X17.DWG - 279mmX432mm

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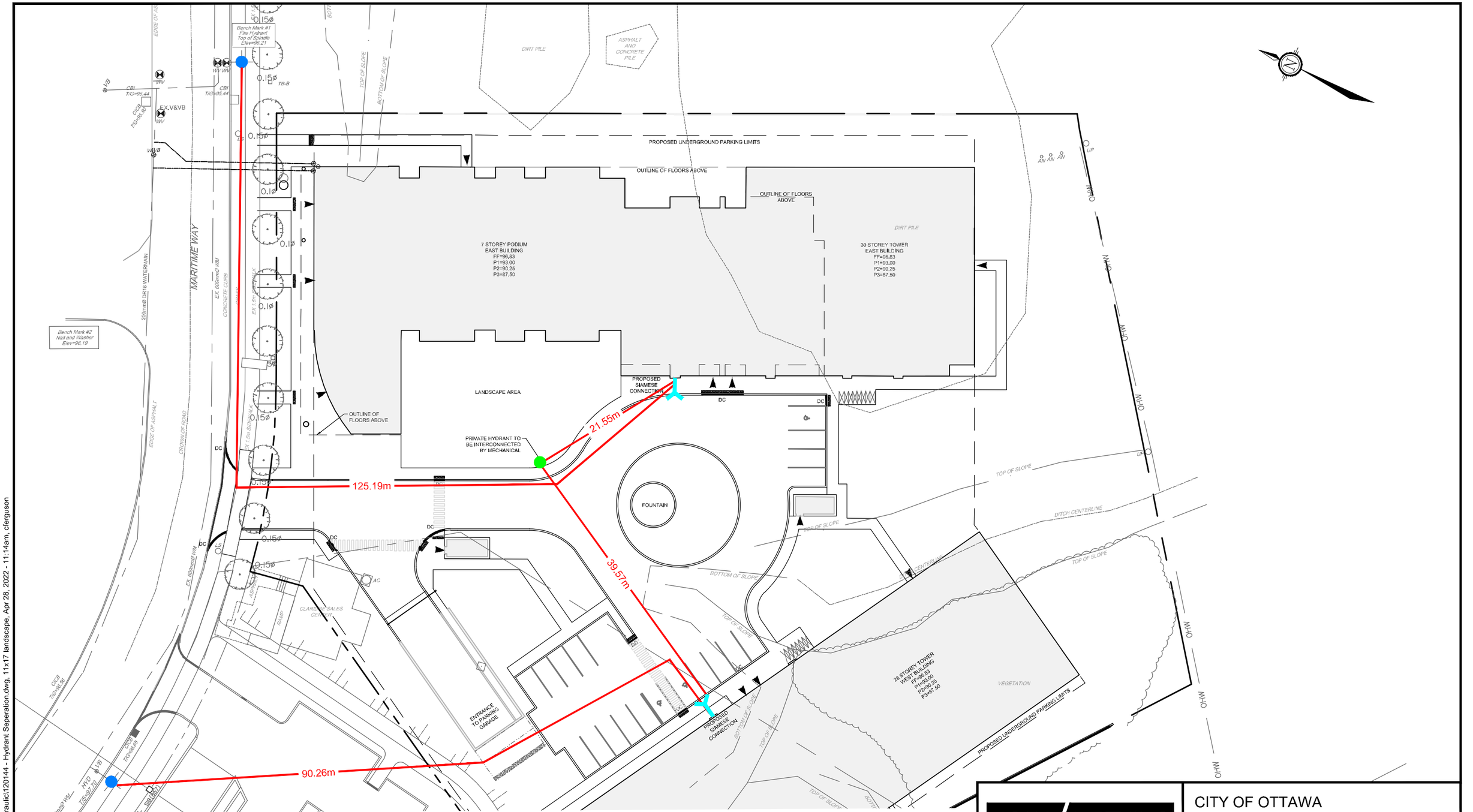

LEGEND

- PROPERTY LINE
- PROPOSED SIAMESE CONNECTION
- EXISTING CLASS AA HYDRANT
- PROPOSED PRIVATE HYDRANT
- DISTANCE FROM HYDRANT TO SIAMESE CONNECTION

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Website www.novatech-eng.com

CITY OF OTTAWA
1200 MARITIME WAY

COVERAGE PLAN

SCALE 1 : 500 (0, 5m, 10m, 20m)

DATE APRIL 2022 | JOB 120144 | FIGURE HYD

SHT11X17.DWG - 279mmX432mm

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FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 120144
Project Name: 1200 Maritime Way - East Tower
Date: 4/28/2023
Input By: Curtis Ferguson, E.I.T.
Reviewed By: Anthony Mestwarp. P.Eng

Legend: Input by User; No Information or Input Required

Building Description: 28 Storey Building with 7 Storey Podium
Type I - Fire resistive construction (2 hrs)

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction **C**	Type V - Wood frame		1.5	0.6	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)	Yes	0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	2490			
		Total Floors/Storeys (Podium)	7			
		Tower Footprint (m^2)	652			
		Total Floors/Storeys (Tower)	21			
		Protected Openings (1 hr)	Yes			
		Area of structure considered (m^2)			**3,735**	
	F	**Base fire flow without reductions**				**8,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**			**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**6,800**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction (100% sprinkler coverage of building used)**			**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-3,400**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Total	**-50%**	
5	**Exposure Surcharge (cumulative %, Maximum Exposure Adjustment Charge Used)**				**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**3,740**
		East Side	3.1 - 10 m		20%	
		South Side	10.1 - 20 m		15%	
		West Side	20.1 - 30 m		10%	
				Cumulative Total	**55%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**7,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**117**
				or	USGPM	1,849
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	840

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines

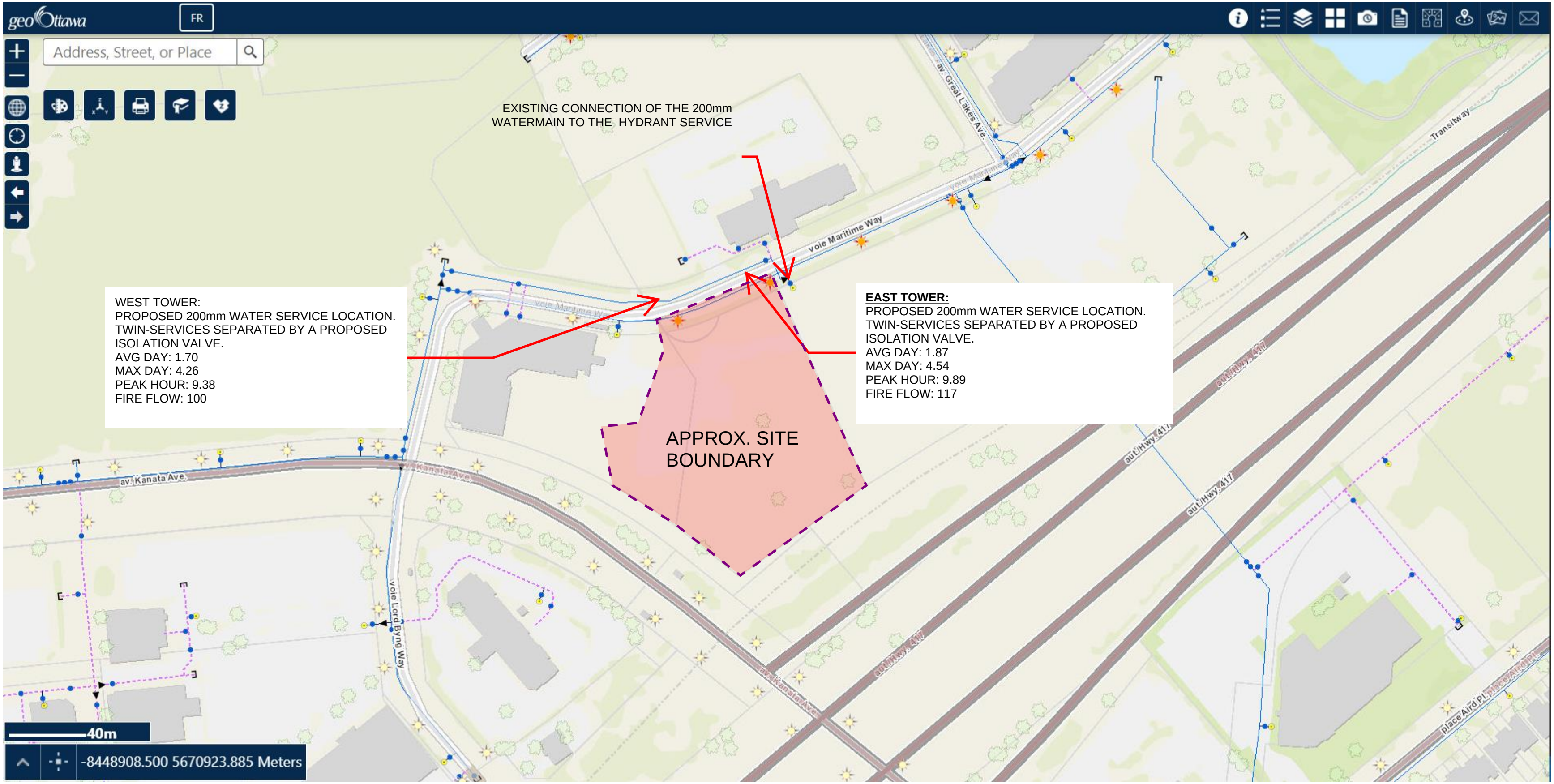
NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 120144
Project Name: 1200 Maritime Way - West Tower
Date: 4/28/2023
Input By: Curtis Ferguson, E.I.T.
Reviewed By: Anthony Mestwarp. P.Eng

Legend: Input by User; No Information or Input Required

Building Description: 30 Storey Building with 7 Storey Podium
Type I - Fire resistive construction (2 hrs)

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.6	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)	Yes	0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1969			
		Total Floors/Storeys (Podium)	7			
		Tower Footprint (m^2)	892			
		Total Floors/Storeys (Tower)	23			
		Protected Openings (1 hr)	Yes			
		Area of structure considered (m^2)			**2,954**	
	F	**Base fire flow without reductions**				**7,000**
		$F = 220\ C\ (A)^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**			**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**5,950**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction (100% sprinkler coverage of building used)**			**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,975**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Total	**-50%**	
5	**Exposure Surcharge (cumulative %, Maximum Exposure Adjustment Charge Used)**				**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**2,678**
		East Side	10.1 - 20 m		15%	
		South Side	30.1- 45 m		5%	
		West Side	10.1 - 20 m		15%	
				Cumulative Total	**45%**	
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)		or	L/s	**100**
				or	USGPM	1,585
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	720



geoOttawa
FR
Address, Street, or Place
EXISTING CONNECTION OF THE 200mm WATERMAIN TO THE HYDRANT SERVICE
WEST TOWER:
PROPOSED 200mm WATER SERVICE LOCATION. TWIN-SERVICES SEPARATED BY A PROPOSED ISOLATION VALVE.
AVG DAY: 1.70
MAX DAY: 4.26
PEAK HOUR: 9.38
FIRE FLOW: 100
EAST TOWER:
PROPOSED 200mm WATER SERVICE LOCATION. TWIN-SERVICES SEPARATED BY A PROPOSED ISOLATION VALVE.
AVG DAY: 1.87
MAX DAY: 4.54
PEAK HOUR: 9.89
FIRE FLOW: 117
APPROX. SITE BOUNDARY
voie Maritime Way
av. Kanata Ave.
voie Lord Byng Way
av. Great Lakes Ave.
aut./Hwy 417
Transitway
40m
-8448908.500 5670923.885 Meters

From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: Wednesday, August 17, 2022 8:56 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way (D07-12-21-0017)

Hi Anthony,

Please find attached the updated boundary conditions for the subject application.

Thanks,
Santhosh

From: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Sent: July 22, 2022 11:31 AM
To: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way (D07-12-21-0017)

The client has decided to revise the water servicing for the 1200 Maritime Way site to have separate servicing for the east and west towers per the attached.

Can you please provide updated boundary conditions per the following.

West Tower:
Avg Day – 1.70
Max Day – 4.26
Peak Hour – 9.38
Fire Flow 100

East Tower:
Avg Day – 1.87
Max Day – 4.54
Peak Hour – 9.89
Fire Flow - 117

Thanks,
Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: Wednesday, June 29, 2022 8:02 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way (D07-12-21-0017)

Hello Anthony,

Please find attached the water boundary conditions for the subject application for your use.

Thanks,
Santhosh

From: Kuruvilla, Santhosh
Sent: June 07, 2022 11:25 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way

Thanks Anthony.

I will send you a meeting invite soon.

Santhosh

From: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Sent: June 07, 2022 10:00 AM
To: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way

I am free after 2:00.

Regards,
Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: Tuesday, June 7, 2022 8:14 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way

Hi Anthony,

Are you available this afternoon between 1:00-3:00 for about 10-15 mins? I would like to ask you a clarification question.

Please let me know and I will send you a Teams meeting invite.

Thanks,
Santhosh

From: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Sent: May 17, 2022 2:22 PM
To: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: FW: 120144- Boundary Conditions Request - 1200 Maritime Way

As discussed please find the boundary condition request that was sent on April 28th for the 1200 Maritime Way project.

Please let me know if you require anything further.

Regards,
Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Anthony Mestwarp
Sent: Thursday, April 28, 2022 3:44 PM
To: justin.armstrong@ottawa.ca
Cc: Santhosh.Kuruvilla@ottawa.ca; Greg MacDonald <g.Macdonald@novatech-eng.com>; Curtis Ferguson <c.ferguson@novatech-eng.com>
Subject: FW: 120144- Boundary Conditions Request - 1200 Maritime Way

Hi Justin,

I see that Santhosh is out of the office, I hope he is back soon.
Can you please begin the process for the boundary condition request.

Thanks,
Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Anthony Mestwarp
Sent: Thursday, April 28, 2022 2:29 PM
To: Santhosh.Kuruvilla@ottawa.ca
Cc: Curtis Ferguson <c.ferguson@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way

Hi Santhosh,

Please find attached the supporting documents for the updated boundary conditions request for 1200 Maritime way.

The proposed site will have a total of 633 units (387 1-bed, & 246 2-bed), and 399m2 of commercial area.

Total demands and fire flows are summarized below;

- Average Daily Demand: 3.57 L/s
- Max Daily Demand: 8.79 L/s
- Peak Hour Demand: 19.25 L/s
- Fire Flow (FUS): 117 L/s

In response to the below the proposed development will have 2 water services connecting to the existing 200mm local watermain separated by an isolation valve. The local watermain was installed as part of the neighboring 1250 Maritime way site and covers the entire frontage of 1200 Maritime way, and is capable of providing redundancy for the site.

Please let us know if you have any questions.

Regards,
Anthony Mestwarp, **P.Eng.**, Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Greg MacDonald <g.Macdonald@novatech-eng.com>
Sent: Wednesday, February 16, 2022 7:51 AM
To: Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Subject: FW: 120144- Boundary Conditions Request - 1200 Maritime Way

See below

Greg MacDonald, P. Eng.
Director, Land Development and Public Sector Infrastructure
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x279 | Cell: 613.890.9705 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee

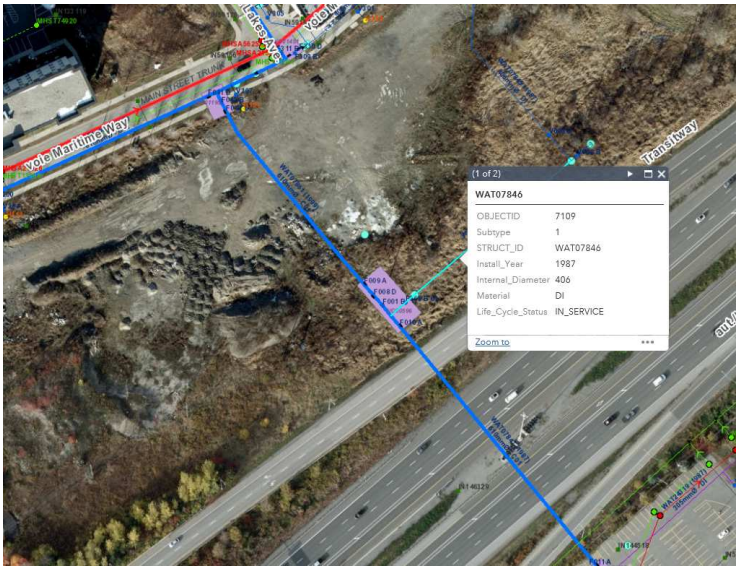
From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: Wednesday, February 16, 2022 6:58 AM
To: Curtis Ferguson <c.ferguson@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: 120144- Boundary Conditions Request - 1200 Maritime Way

Hi Curtis,

I would like to provide you the following information I received from our Infrastructure Planning unit regarding water service connections for this development

"Hi Santosh,

I will wait to receive the updated request. So far, their request only shows a map with service connection from the 200mm watermain on Maritime. They need to establish how they are getting the redundancy. Are they extending the Maritime way watermain further east upto Great lakes Ave and proposing 2 connections separated by a valve? Or is the second connection from the 406mm watermain that I highlighted below?



In the next submission Novatech should provide clarity how the redundancy is met. The request should include a siteplan, proposed watermain extensions (if any), and connection locations."

Santhosh

This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

Le présent courriel a été expédié par le système de courriels de la Ville d'Ottawa. Toute distribution, utilisation ou reproduction du courriel ou des renseignements qui s'y trouvent par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.'

Boundary Conditions
1200 Maritime Way

Provided Information

Connection 1 – West Tower	Demand	
	L/min	L/s
Average Daily Demand	102	1.70
Maximum Daily Demand	256	4.26
Peak Hour	563	9.38
Fire Flow Demand #1	6,000	100.00

Connection 2 – East Tower	Demand	
	L/min	L/s
Average Daily Demand	112	1.87
Maximum Daily Demand	272	4.54
Peak Hour	593	9.89
Fire Flow Demand #1	7,000	116.67

Location

Results

Connection 1 (West Tower) – Maritime Way.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.3	92.1
Peak Hour	156.1	84.8
Max Day plus Fire 1	148.6	74.1

Ground Elevation = 96.4 m

Connection 2 (East Tower) – Maritime Way.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.3	93.3
Peak Hour	156.1	86.0
Max Day plus Fire 1	142.8	67.1

Ground Elevation = 95.6 m

Notes

1. A second connection to the watermain, separated by an isolation valve, is required for each tower to decrease vulnerability of the water system in case of breaks.
2. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

Disclaimer

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

CALCULATED WATER DEMNADS:

West Tower

Average Day (Maximum HGL)=	1.70	L/s
Maximum Day =	4.26	L/s
Peak Hour (Minimum HGL) =	9.38	L/s
Max Day + Fire =	104.26	L/s

East Tower

Average Day (Maximum HGL)=	1.87	L/s
Maximum Day =	4.54	L/s
Peak Hour (Minimum HGL) =	9.89	L/s
Max Day + Fire =	121.54	L/s

City of Ottawa Boundary Conditions:

Bounday conditions based on connection to 203mm dia. Watermain in Maritime Way

Connection # 1 West Tower

Average Day (Maximum HGL)=	161.3	m
Peak Hour (Minimum HGL) =	156.1	m
Max Day + Fire =	148.6	m

Connection # 2 East Tower

Average Day (Maximum HGL)=	161.3	m
Peak Hour (Minimum HGL) =	156.1	m
Max Day + Fire =	142.8	m

Watermain Analysis (West Tower)

Water Service Elevation = 94.58 m

High Pressure Test = Max. HGL - Water Service Elevation x 1.42197 PSI/m < 80 PSI

High Pressure = 94.9 PSI

Low Pressure Test = Min. HGL - Water Service Elevation x 1.42197 PSI/m > 40 PSI

Low Pressure = 87.5 PSI

Max Day + Fire Test = Max Day + Fire Flow - Water Service Elevation x 1.42197 PSI/m > 20 PSI

Max Day + Fire (Connection #1) = 76.8 PSI

Watermain Analysis (East Tower)

Water Service Elevation = 94.25 m

High Pressure Test = Max. HGL - Water Service Elevation x 1.42197 PSI/m < 80 PSI

High Pressure = 95.3 PSI

Low Pressure Test = Min. HGL - Water Service Elevation x 1.42197 PSI/m > 40 PSI

Low Pressure = 87.9 PSI

Max Day + Fire Test = Max Day + Fire Flow - Water Service Elevation x 1.42197 PSI/m > 20 PSI

Max Day + Fire (Connection #1) = 69.0 PSI

APPENDIX E

Servicing Study Guidelines Checklist

Development Servicing Study Checklist

4.1 General Content	**Addressed (Y/N/NA)**	**Comments**
Executive Summary (for larger reports only).	NA	
Date and revision number of the report.	Y	
Location map and plan showing municipal address, boundary, and layout of proposed development.	Y	Refer to figure 1
Plan showing the site and location of all existing services.	Y	Refer to Grading and Servicing Plans
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.	Y	Refer to Site Plan
Summary of Pre-consultation Meetings with City and other approval agencies.	Y	Refer to Appendix F
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 defendable design criteria.	Y	
Statement of objectives and servicing criteria.	Y	Report Sections: 5.0 Sanitary sewer, 6.0 Storm Sewer and Stormwater Management, 7.0 Water Servicing
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).	NA	
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.	Y	Refer to Grading Plan and Stormwater Management Plan

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.	NA	
Proposed phasing of the development, if applicable.	Y	
Reference to geotechnical studies and recommendations concerning servicing.	Y	
All preliminary and formal site plan submissions should have the following information:		
Metric scale	Y	All Drawings
North arrow (including construction North)	Y	All Drawings
Key plan	Y	All Drawings
Name and contact information of applicant and property owner	Y	Drawings/Report
Property limits including bearings and dimensions	Y	Report
Existing and proposed structures and parking areas	Y	All Drawings
Easements, road widening and rights-of-way	Y	All Drawings
Adjacent street names	Y	All Drawings

4.2 Water	Addressed (Y/N/NA)	Comments
Confirm consistency with Master Servicing Study, if available.	NA	
Availability of public infrastructure to service proposed development.	Y	Report Sections: 5.0 Sanitary sewer, 6.0 Storm Sewer and Stormwater Management, 7.0 Water Servicing
Identification of system constraints.	NA	
Identify boundary conditions.	Y	
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.	NA	
Address reliability requirements such as appropriate location of shut-off valves.	Y	Refer to Grading and Servicing Plans
Check on the necessity of a pressure zone boundary modification.	NA	
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	Report Section 7.0 Water Servicing
Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	NA	
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Y	Report Section 7.0 Water Servicing
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	NA	

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 infrastructure).	Y	Refer to report section 5.0 Sanitary sewer
Confirm consistency with Master Servicing Study and/or justifications for deviations.	NA	
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.	NA	
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Y	Refer to report section 5.0 Sanitary sewer
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)	Y	Refer to Appendix B
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	NA	
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Y	Refer to report section 5.0 Sanitary sewer
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).	NA	
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	NA	
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	NA	
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	NA	
Special considerations such as contamination, corrosive environment etc.	NA	

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	Refer to report section 6.0 Storm Sewer and Stormwater Management
Analysis of the available capacity in existing public infrastructure.	NA	Stormwater release rates less than or equal to city allowabale release rate critera
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns and proposed drainage patterns.	Y	Refer to Stormwater Management Plan
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	Refer to report section 6.0 Storm Sewer and Stormwater Management
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Y	Refer to report section 6.0 Storm Sewer and Stormwater Management
Description of stormwater management concept with facility locations and descriptions with references and supporting information.	Y	Refer to report section 6.0 Storm Sewer and Stormwater Management
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	Refer to Appendix C
Identification of watercourse within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	NA	
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	Refer to Appendix C
Any proposed diversion of drainage catchment areas from one outlet to another.	NA	
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and SWM facilities.	N/A	

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	

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	Refer to report section 6.0 Storm Sewer and Stormwater Management
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	Report Section 8.0 Erosion and Sediment Control
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.	NA	
Identification of fill constrains related to floodplain and geotechnical investigation.	Y	Report section 4.0 Site Constraints

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.	NA	
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	NA	
Changes to Municipal Drains.	NA	
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	NA	

4.6 Conclusion	**Addressed (Y/N/NA)**	**Comments**
Clearly stated conclusions and recommendations.	Y	Report Section 9.0 Conclusions
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.	NA	
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	

APPENDIX F

PRE-CONSULTATION MEETING MINUTES

Please refer to the below regarding the Pre-Application meeting held on August 6, 2020 for the property at 1200 Maritime Way for a Site Plan Control Application and Zoning By-law Amendment for a residential development. I have also attached the required Plans & Study List for application submission. Despite the amount of hard copies identified in the list, they may not be required- please confirm with the Planner prior to submission.

Below are staff's preliminary comments based on the information available at the time of the pre-consultation meeting:

Planning / Urban Design

General:

- You are encouraged to contact the Ward Councillor, Councillor Jenna Sudds, regarding the proposal.
- Urban Design Review Panel review is required for the proposed increase in height and site plan control application.
    - A pre-consult with the UDRP is also recommended.
- Cash-in-Lieu of Parkland will be required if proof of payment cannot be provided.

Zoning By-law Amendment:

- Staff do not have a concern with the proposed increase in height provided it meets Official Plan and Secondary Planning requirements and policies.
- Please ensure that adequate tower separation and associated setbacks on-site and from abutting property lines is achieved in accordance with the high-rise design guidelines.
- A zoning schedule and or FSI should be considered as part of the Zoning By-law amendment to increase the height on the subject property.

Site Plan Control:

- Current proposal does not adequately address Maritime Way.
- Please ensure that adequate setbacks (11.5 metres for a tower) are provided from the eastern property line, and the length of a podium is not designed to directly face this property line.
- Please utilize a 6-storey podium in lieu of a 9 storey podium.
- Please consider that if the towers are the same height, they have the same floor plate (pairing) vs. the current proposal.
- If different floor plates are desired for the two towers, they should be different heights.
- Three towers are possible on-site, one at the desired 30 storeys and two at a lower height (ex. 15).
- Need to study massing as it relates to other properties, buildings, shadowing, wind etc.

- Proposal needs to work with grades along Kanata Avenue.
- Connections to the MUP to the south need to be considered.
- Ensure that adequate outdoor amenity space is provided.
- Group “back” of house and functional requirements.
- Reduce surface parking to the greatest extent possible.
- Provide grade related units.
- Please see attached illustration.
- A Design Brief is required.
    - A terms of reference is provided. All applicable elements of the Design Brief have been highlighted.
- Please review the Building Code to make sure the proposed development will meet the accessibility requirements.

Engineering

General:

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates. The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not encroach within the right-of-way.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided and all easements shall be shown on the engineering plans.
- Please provide an **Existing Conditions/Removals Plan** as part of the engineering drawing set. Any existing services are to be removed or abandoned in accordance with City standards.
- Please note that the proposed servicing design and site works shall be in accordance with the following documents:
    - Ottawa Sewer Design Guidelines (October 2012)
    - Technical Bulletin PIEDTB-2016-01
    - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
    - Ottawa Design Guidelines - Water Distribution (2010)
    - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
    - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
    - City of Ottawa Environmental Noise Control Guidelines (January 2016)
    - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
    - Ottawa Standard Tender Documents (latest version)
    - Ontario Provincial Standards for Roads & Public Works (2013)

- Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

Stormwater Management Criteria and Information:

- It appears the subject site is located within **the KTC SWM Pond (Phase 2)** catchment (see attached). The consultant should review the attached report and confirm SWM criteria, flow allowance to the existing storm system, design assumptions, etc. Consult Operations staff to determine how the existing facility is currently performing (i.e. ability to achieve targets, condition of infrastructure within the SWM block, etc.
- **Water Quality Control:** Please consult with the local conservation authority regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- Please note that foundation drain is to be independently connected to sewermain unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 2-year storm rainfall event**. Depending on the SWM strategy proposed underground or additional underground storage may be required to satisfy this requirement.
- **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.
- When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**
- In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

- Note that the above will added to upcoming revised Sewer Design Guidelines to account for underground storage, which is now widely used.
- Provide sufficient details and information on any proposed underground storage system. A cross-section of any underground storage system is to be provided with sufficient details and information. In case of a pump failure or blockage an overflow should be provided. Backup power supply is required if using a pump.
- Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.
- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- If rooftop control and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system.

Storm Sewer:

- Storm sewer monitoring maintenance holes are required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- As-built drawings of the existing services within the vicinity of the site shall be obtained and reviewed in order to determine proper servicing and SWM plan for the subject site(s).
- Storm service connections are to have backwater valves.

Sanitary Sewer:

- **An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided**. **The City can provide flows for existing areas and direction on how to estimate future flows for vacant areas within the sewer shed.**
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01.*

- Sanitary sewer monitoring maintenance holes are required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- Sanitary service connections are to have backwater valves.

Water:

- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.* The basic day demand for each site anticipated to exceed 50m^3/day therefore 2 water services will be required. There shall be primary water service and a secondary connection.
- Please review Technical Bulletin ISTB-2018-0, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection**.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
    - Type of Development and Units
    - Site Address
    - A plan showing the proposed water service connection locations.
    - **Average Daily Demand** (L/s)
    - **Maximum Daily Demand** (L/s)
    - **Peak Hour Demand** (L/s)
    - **Fire Flow** (L/min)
    - [*Fire flow demand requirements shall be based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection*
    - *1999*]
    - *Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).*
    - Hydrant capacity shall be assessed to demonstrate the RFF can be achieved. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.
- The subject site is located within the 1E Pressure Zone.

Snow Storage:

- Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

Permits and Approvals:

- The consultant shall determine if this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. It shall be determined if the exemptions set out under Ontario Regulation 525/98: *Approval Exemptions* are satisfied. All regulatory approvals shall be documented and discussed in the report.

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.
- Geotechnical Study shall be consistent with the **Geotechnical Investigation and Reporting Guidelines for Development Applications**.
- https://documents.ottawa.ca/sites/default/files/documents/cap137602.pdf

Exterior Site Lighting:

- Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and must result in minimal light

spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Site Lighting Plan, Photometric Plan and Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

Please contact Infrastructure Project Manager Ahmed Elsayed for follow-up questions.

Transportation

- Follow Traffic Impact Assessment Guidelines
  - A TIA is required. Please proceed to submit Scoping report.
  - Start this process asap. The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
  - Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
- TMP shows:
  - Future BRT along Hwy 417 (affordable network) and future LRT along Hwy 417 (ultimate network); and
  - Plans to widen Kanata Avenue from two to four lanes, between Highway 417 and Campeau Drive (Phase 2: 2020-2025).
- Drive aisle width should be 6.7m wide.
- Reduce number of conflict points as much as possible within internal roadways.
- Noise Impact Studies required for the following:
  - Road
  - Stationary (if there will be any exposed mechanical equipment due to the proximity to neighbouring noise sensitive land uses)
- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
  - Show clear throat length dimension on site plan.
  - Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
  - Turning movement diagrams required for internal movements (loading areas, garbage).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Show lane/aisle widths.
  - Sidewalk is to be continuous across access as per City Specification 7.1.
  - Grey out any area that will not be impacted by this application.
- AODA legislation is in effect for all organizations, please ensure that the design conforms to these standards.

Please contact Transportation Project Manager, Josiane Gervais for follow-up questions.

Other

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. 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.

These pre-consultation comments are valid for one year. If you submit a development application(s) 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.

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

Regards,
Laurel

Laurel McCreight MCIP, RPP
Planner
Development Review West
Urbaniste
Examen des demandes d'aménagement ouest

City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 16587
ottawa.ca/planning / ottawa.ca/urbanisme

DRAWINGS

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. 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.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. 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.
5. 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.
6. 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.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL REPORT (No. PG5281-1, DATED JUL 16TH, 2020), PREPARED BY PATERSON. 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.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
10. REFER TO STORMWATER MANAGEMENT REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD (20230428).
11. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
12. PROVIDE LINE/PARKING PAINTING.
13. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

SEWER NOTES:

1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
CB, FRAME & COVER	400.020	OPSD
STORM / SANITARY MH FRAME & COVER	401.010	OPSD
SEWER TRENCH - BEDDING (GRANULAR A) COVER (GRANULAR A OR GRANULAR B TYPE I, WITH MAXIMUM PARTICLE SIZE=25mm)	S6, S7, W17	CITY OF OTTAWA / OPSD
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
CATCHBASIN LEAD	PVC DR 35	
SEWER SERVICE CONNECTION - RIGID PIPE	S11	CITY OF OTTAWA
SEWER SERVICE ABANDONMENT	S11,4	CITY OF OTTAWA

2. INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.5m COVER WITH 50mmX1200mm HI-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
3. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
4. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
5. 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.
6. 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.
7. STORM MANHOLES AND CBMHS ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
8. CONTRACTOR TO TELEVISE (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.
9. FULL PORT BACKWATER VALUES ARE REQUIRED ON THE SANITARY SERVICES. INSTALLED AS PER THE MANUFACTURES RECOMMENDATIONS AND A BACKWATER VALVE IS REQUIRED ON THE STORM SERVICES / FOUNDATION DRAINS FOR EACH BUILDING; INSTALLED AS PER STD. DWGS14
10. REINSTATE ALL EXISTING PAVEMENT, CURB AND BOULEVARDS AS PER CITY OF OTTAWA R10.
11. ALL EXISTING SANITARY AND STORM SERVICES ARE TO BE CAPPED AT THE PROPERTY LINE TO THE SATISFACTION OF THE CITY OF OTTAWA'S SEWER OPERATION.
12. MONITORING TEST PORTS FOR BUILDING SERVICES TO BE INSTALLED IN PARKING GARAGE.

WATERMAIN NOTES:

1. SPECIFICATIONS:

ITEM	SPEC. NO.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
CONNECTION DETAIL FROM EXISTING TO NEW WM	W25.1	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W25	CITY OF OTTAWA
WATERMAIN CROSSING OVER SEWER	W25.2	CITY OF OTTAWA
THERMAL INSULATED AT OPEN STRUCTURE	W23	CITY OF OTTAWA
WATER SERVICE INSULATION AT SEWER CROSSING	W38	CITY OF OTTAWA

2. 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 AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD. DWGW22.
4. PROVIDE MINIMUM 0.50m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS WHEN WATERMIAN IS BELOW AND MINIMUM 0.25m CLEARANCE WHEN WATERMAIN IS ABOVE.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.
6. ALL EXISTING WATER SERVICES TO BE BLANKED AT MAIN BY CITY FORCES. EXCAVATION AND REINSTATEMENT BY CONTRACTOTR

GRADING NOTES:

1. 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.
2. 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.
3. 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.
4. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 99% 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.
5. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
6. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
7. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
8. ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
9. REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
10. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

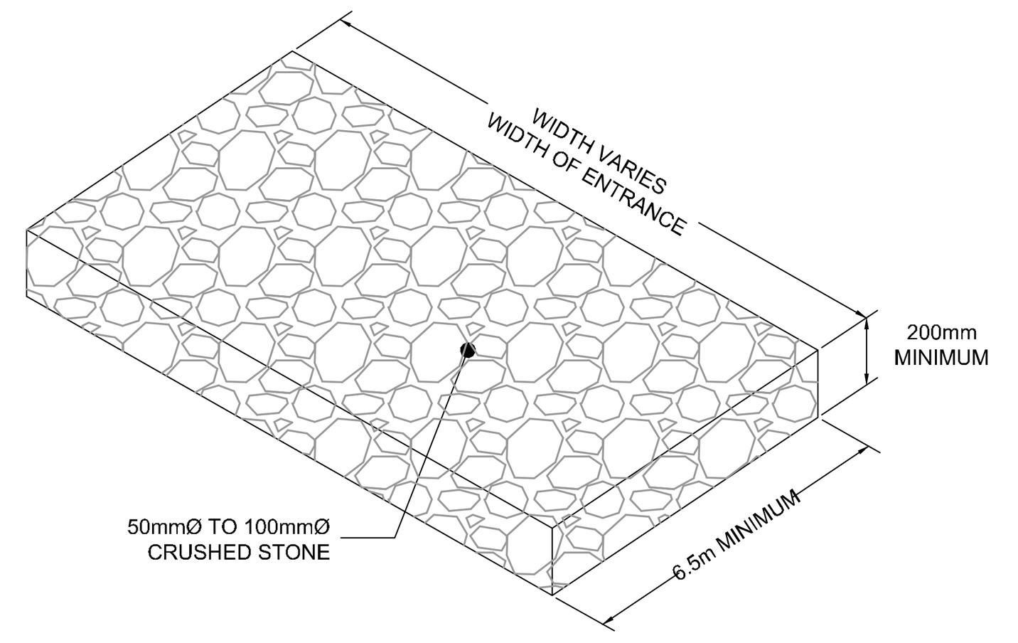
PAVEMENT STRUCTURE:

LIGHT DUTY
50mm HL3
150mm GRAN "A"
300mm GRAN "B" TYPE II

HEAVY DUTY
40mm HL3
50mm HL8
150mm GRAN "A"
450mm GRAN "B" TYPE II

EROSION AND SEDIMENT CONTROL NOTES :

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, CITY OF OTTAWA AND THE CONSERVATION AUTHORITY. THEY SHALL 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 SHALL 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.
2. TO PREVENT SURFACE EROSION FROM ENTERING THE DITCH OR STORM SYSTEM DURING CONSTRUCTION, FILTER SOCKS WILL BE PLACED UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED IN SELECTED LOCATIONS, AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
3. 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.
4. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY DITCH OR 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.
5. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
6. THE CONTRACTOR SHALL PROVIDE DUST CONTROL WITH THE APPLICATION OF WATER AND/OR CALCIUM CHLORIDE AS REQUIRED.



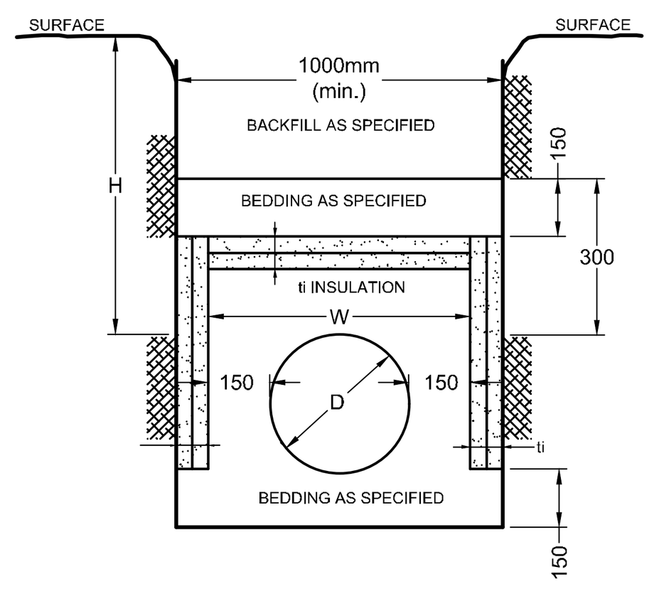
MUD MAT DETAIL
NOT TO SCALE

SEWER & WATERMAIN INSULATION NOTES:

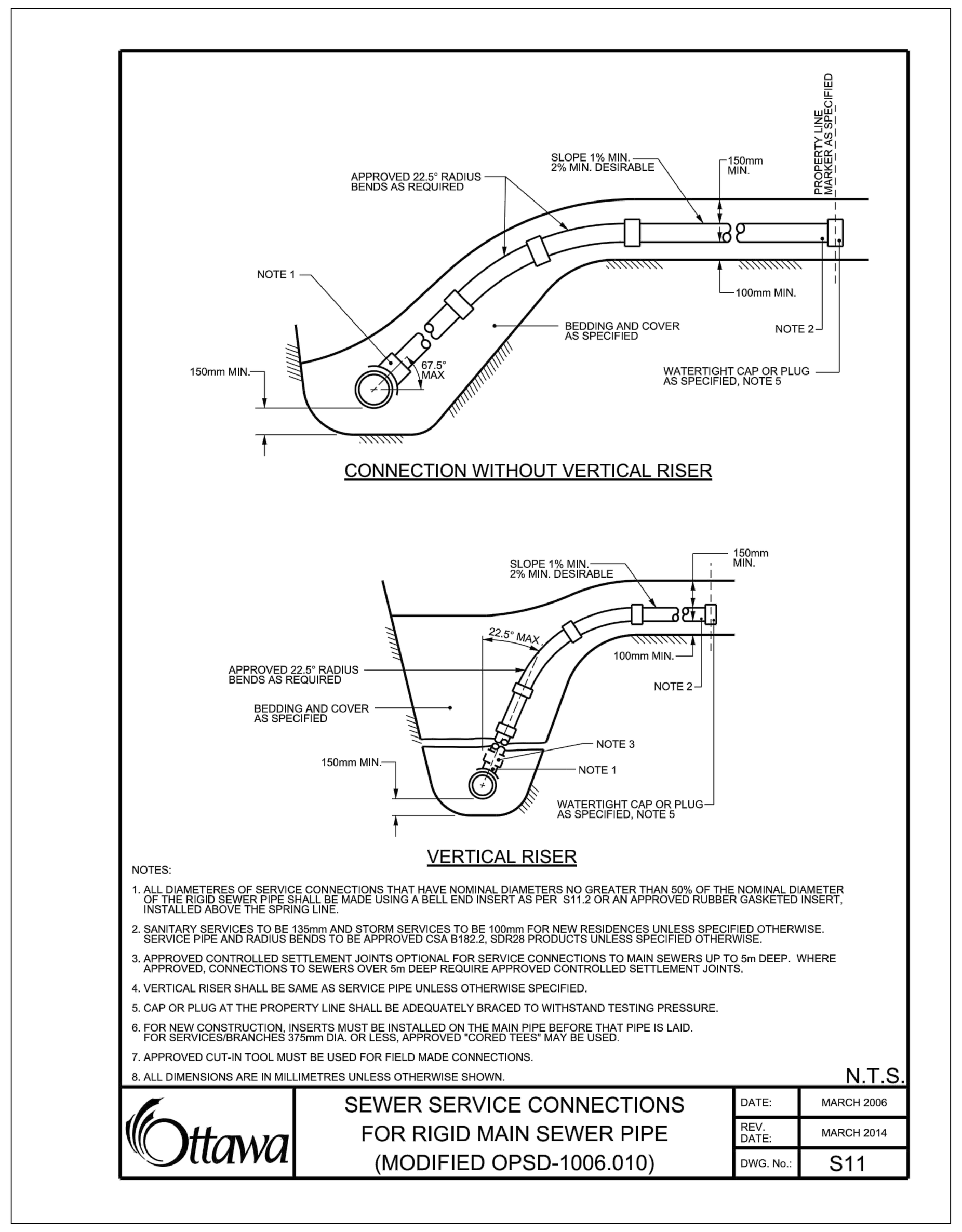
1. INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 2.0m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER OPSD 1109.030.
2. THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER WITH 50mm MINIMUM (SEE TABLE)

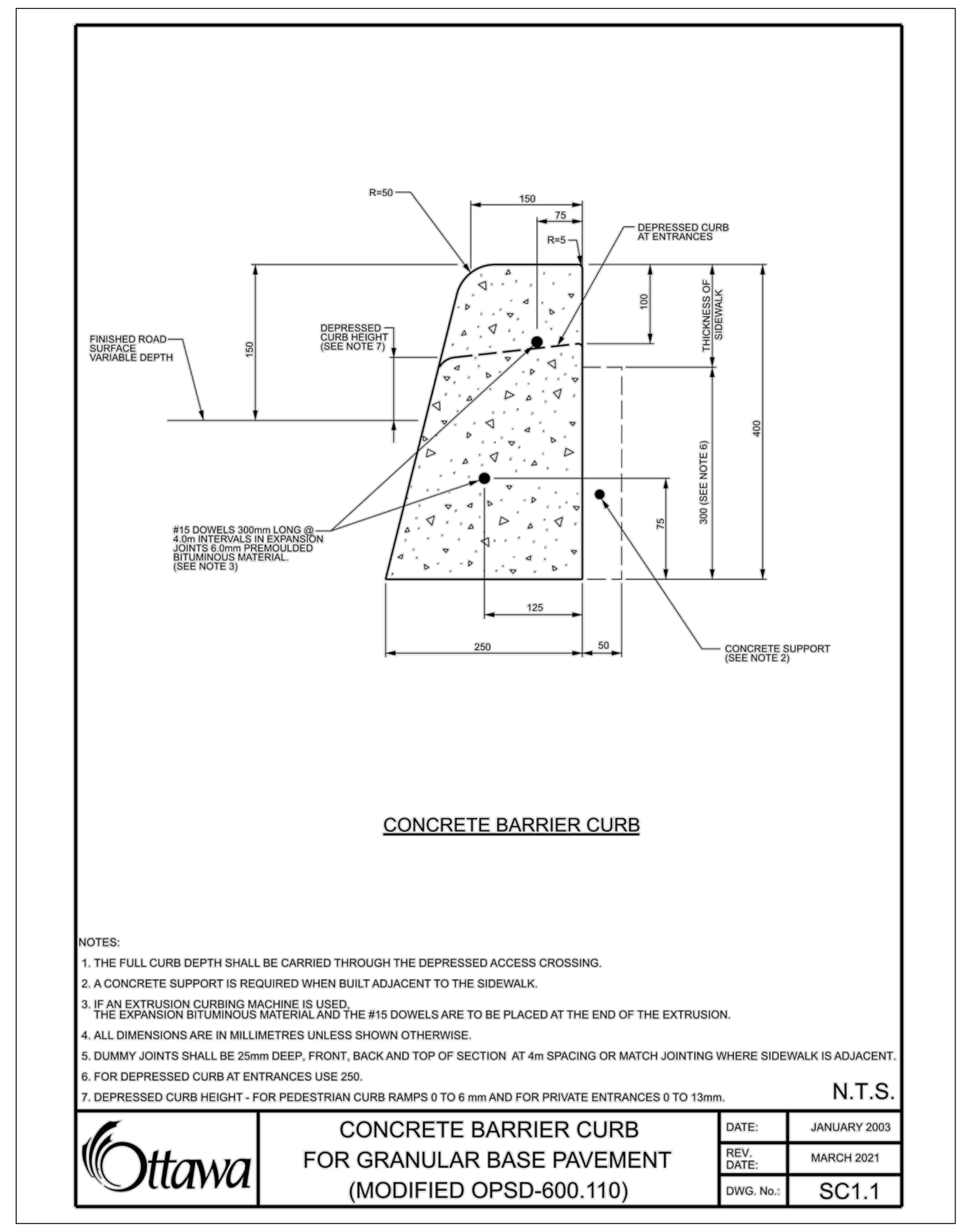
COVER SEWER / WATER (mm)	INSULATION THICKNESS (mm)
2000-1700 / 2400-2100	50
1700-1400 / 2100-1800	75
1400 - / 1800-1500	100

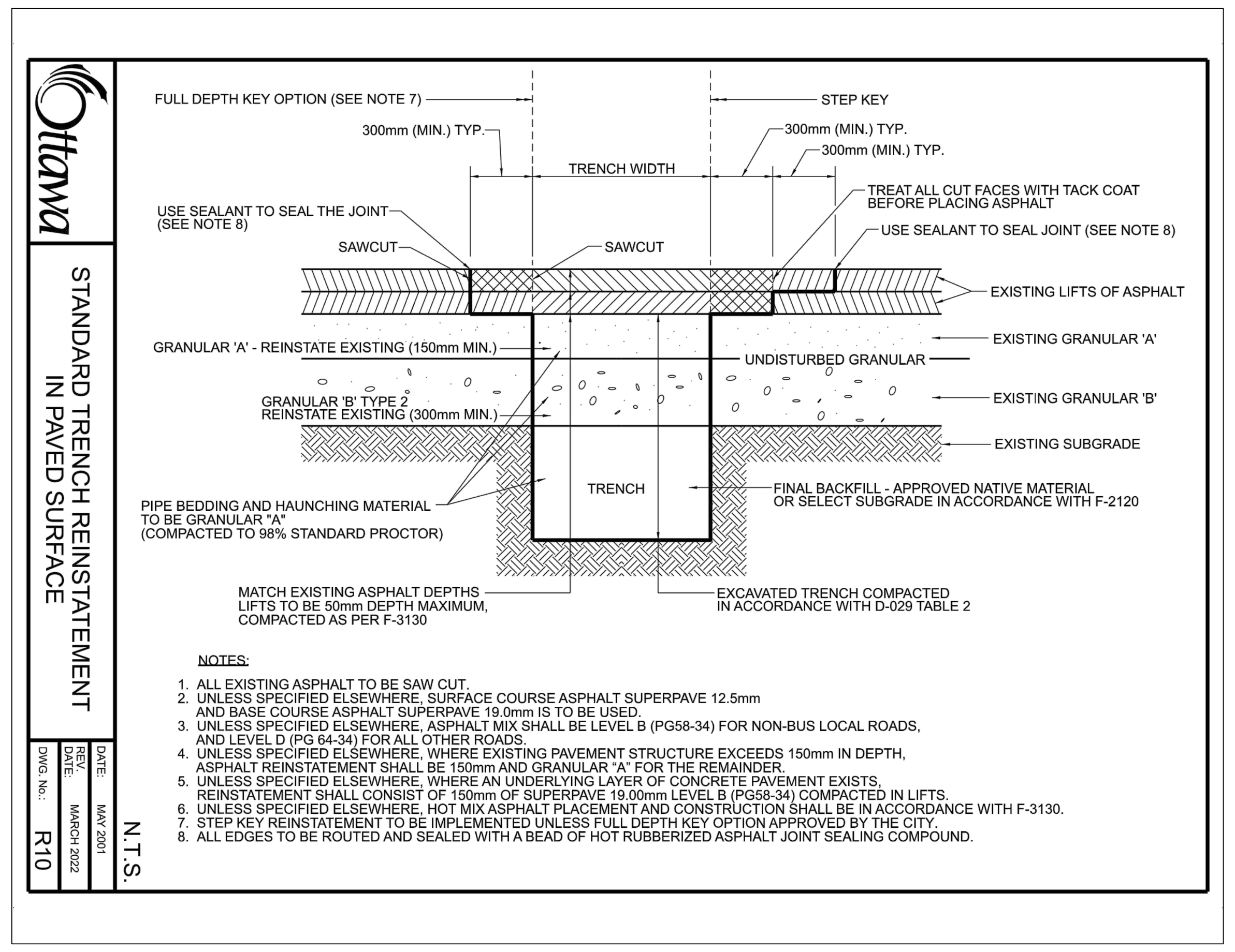
T = THICKNESS OF INSULATION (mm)
W = WIDTH OF INSULATION (mm)
W = D + 300 (1000 min.)
D = O.D OF PIPE (mm)

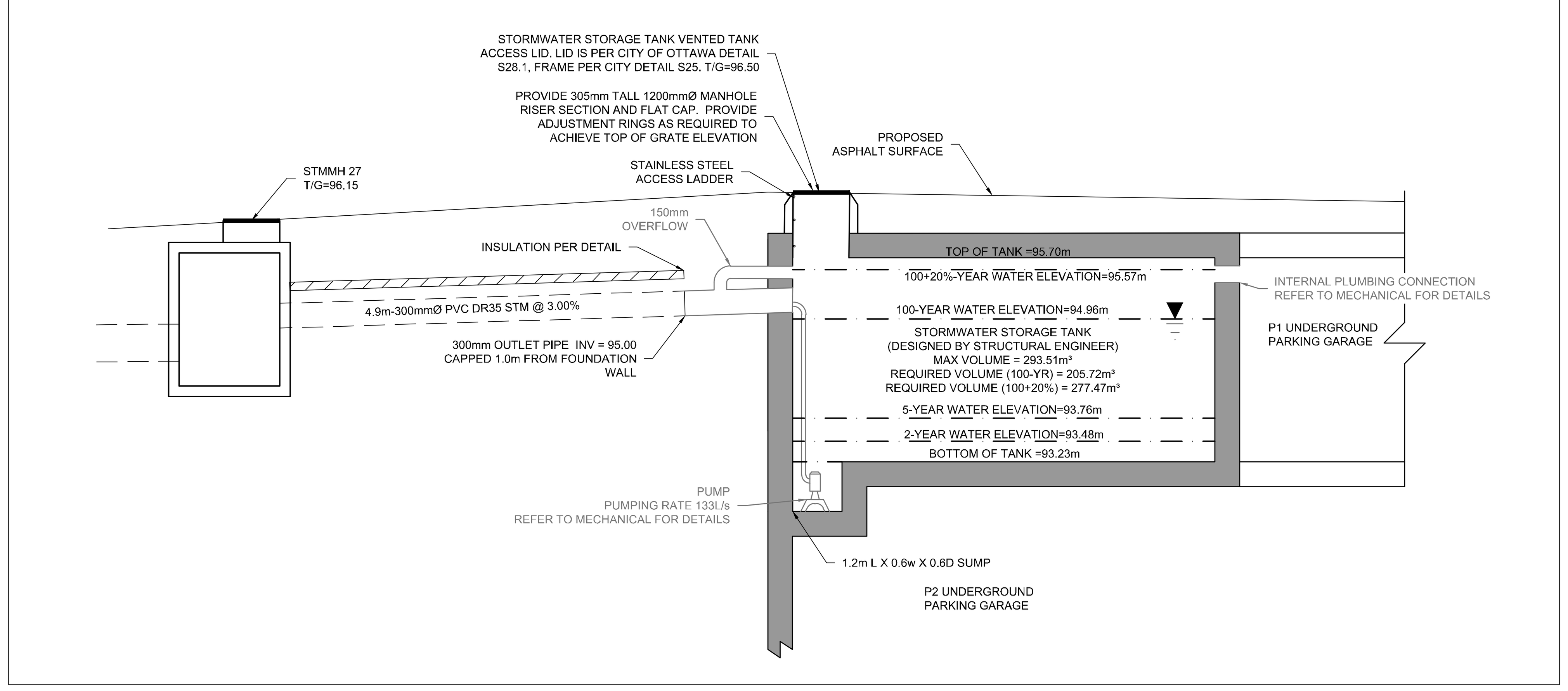


INSULATION DETAIL FOR SHALLOW SEWERS & WATERMAIN
N.T.S.









CISTERN SECTION
N.T.S

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.

NOT FOR CONSTRUCTION

CLARIDGE HOMES

CLARIDGE HOMES
505 PRESTON STREET,
OTTAWA , ONTARIO
K1S 4N7.

No.	REVISION	DATE	BY
3.	ISSUED FOR SPA	APR 28/23	GJM
2.	REVISED PER CITY COMMENTS	OCT 11/22	GJM
1.	REVISED PER CITY COMMENTS	MAY 31/22	GJM

SCALE: AS SHOWN

DESIGN: ARM/JAG
CHECKED: ARM/GJM
DRAWN: CJF
CHECKED: ARM/JAG
APPROVED: GJM

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER A.R. MESTWARP 100201604 APRIL 28/2023 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER G.J. MacDONALD April 28, 2023 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) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
1200 MARITIME WAY

DRAWING NAME
NOTES AND DETAILS

PROJECT No. 120144
REV: REV # 3
DRAWING No. 120144 - ND1

D07-12-21-0017

City Plan #18348

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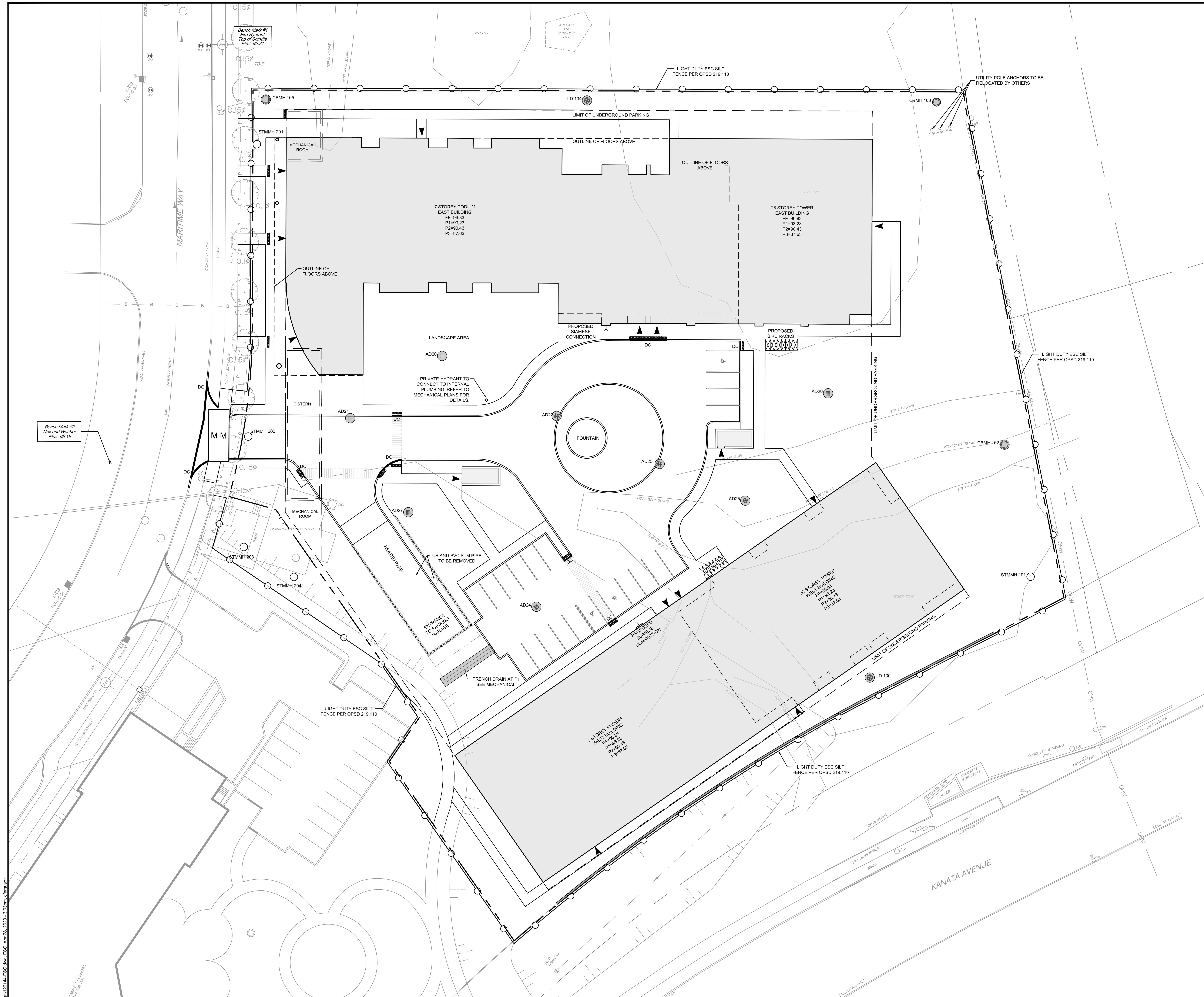
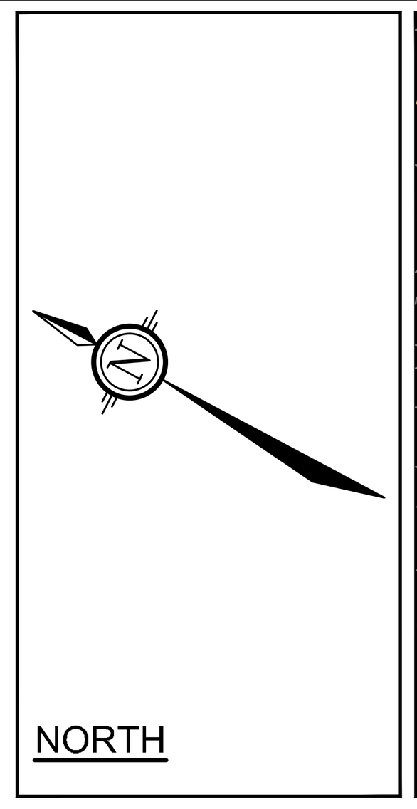
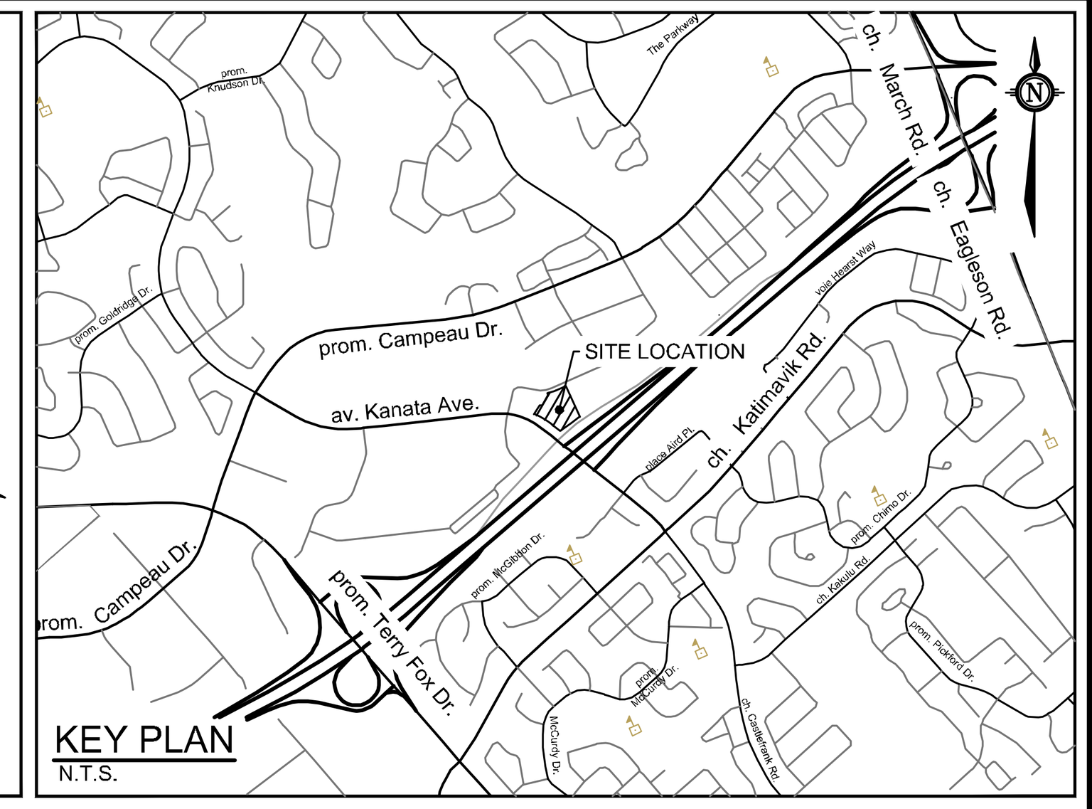




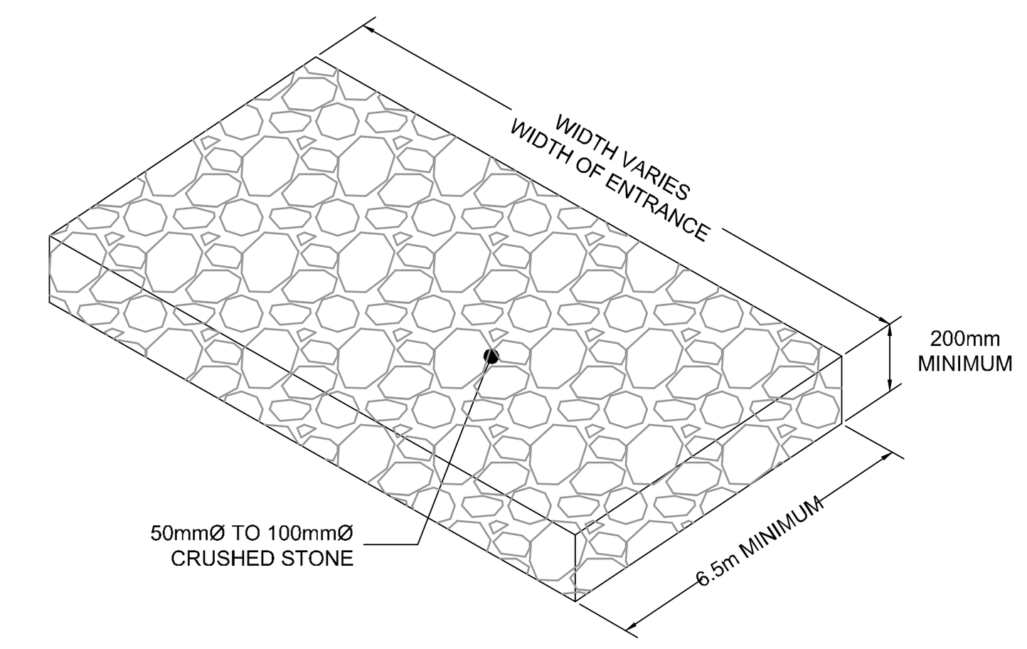


LEGEND

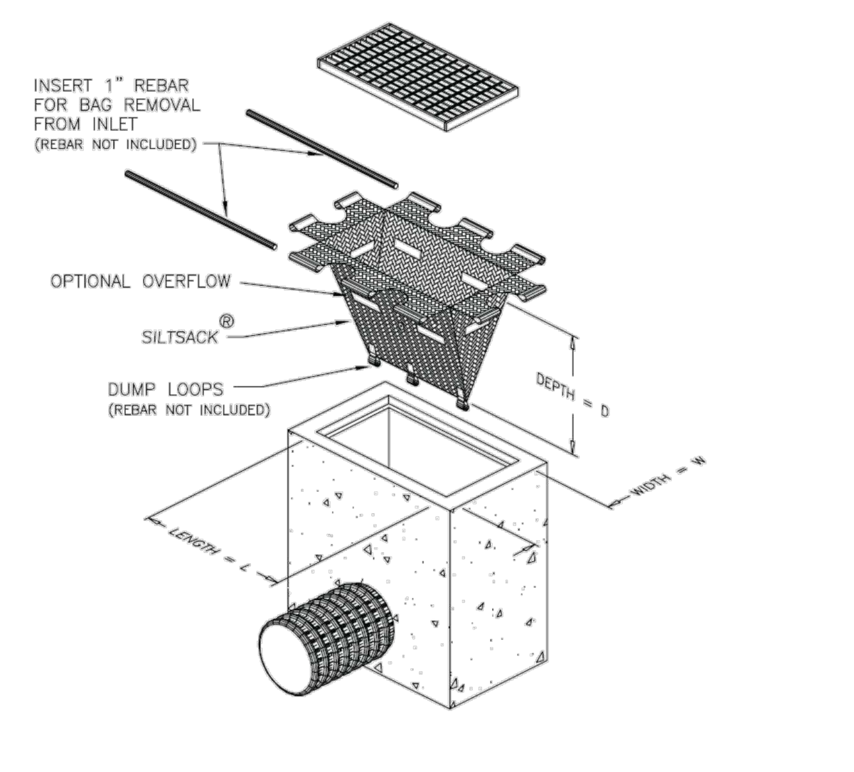
- PROPERTY LINE
- PROPOSED CURB
- DC — PROPOSED DEPRESSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED LANDSCAPE DRAIN
- PROPOSED AREA DRAIN
- M M — PROPOSED MUD MAT
- LIGHT DUTY SILT FENCE (OPSD 219.110)
- PROPOSED FILTER BAGS AT CATCHBASINS, CATCHBASIN MANHOLES AND TRENCHDRAINS
- PROPOSED TRENCH DRAIN
- PROPOSED BUILDING ENTRANCE
- DIRECTION OF FLOW
- PROPOSED RETAINING WALL C/W GUARD RAIL
- PIPE CROSSING
- PROPOSED SWALE
- PROPOSED TERRACING
- EXISTING UTILITY POLE C/W GUY WIRES
- WV — EXISTING WATERMAIN C/W WATER VALVE
- EXISTING HYDRANT C/W VALVE & LEAD
- SAN MH — EXISTING SANITARY MANHOLE & SEWER
- STM MH — EXISTING STORM MANHOLE & SEWER
- CB 1 — EXISTING CATCHBASIN
- OHW — EXISTING OVERHEAD WIRES
- LS — EXISTING STREETLIGHT

EROSION AND SEDIMENT CONTROL NOTES :

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, CITY OF OTTAWA AND THE CONSERVATION AUTHORITY. THEY SHALL 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 SHALL 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.
2. TO PREVENT SURFACE EROSION FROM ENTERING THE DITCH OR STORM SYSTEM DURING CONSTRUCTION, FILTER SOCKS WILL BE PLACED UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED IN SELECTED LOCATIONS, AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
3. 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.
4. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY DITCH OR 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.
5. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
6. THE CONTRACTOR SHALL PROVIDE DUST CONTROL WITH THE APPLICATION OF WATER AND/OR CALCIUM CHLORIDE AS REQUIRED.



MUD MAT DETAIL
NOT TO SCALE



TEMPORARY CATCHBASIN INSERT DETAIL - SILTSACK
BY TERRAFIX (OR APPROVED EQUIVALENT)
N.T.S.

REFER TO 120144-ND FOR ADDITIONAL NOTES& DETAILS

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.

NOT FOR CONSTRUCTION

CLARIDGE HOMES

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505 PRESTON STREET,
OTTAWA , ONTARIO
K1S 4N7.

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2.	REVISED PER CITY COMMENTS	OCT 11/22	GJM
1.	REVISED PER CITY COMMENTS	MAY 31/22	GJM

SCALE 1:250

DESIGN	ARM/CJF
CHECKED	ARM/JAG
DRAWN	CJF
CHECKED	ARM/JAG
APPROVED	GJM

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER A.R. MESTWARP 100201604 APRIL 28 2023 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER G.J. MacDONALD April 28, 2023 PROVINCE OF ONTARIO

NOVATECH
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Website www.novatech-eng.com

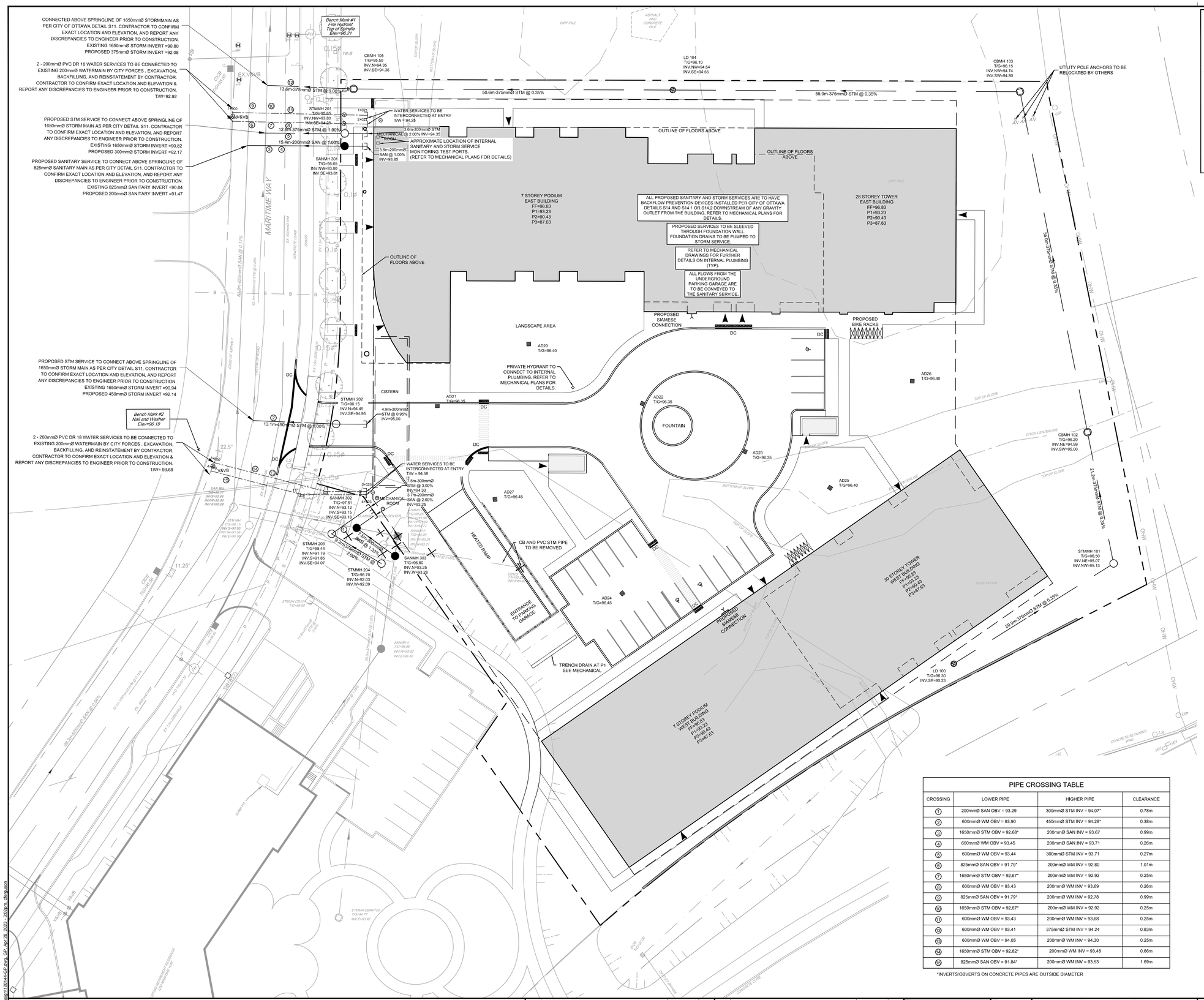
LOCATION
CITY OF OTTAWA
1200 MARITIME WAY

DRAWING NAME
EROSION AND SEDIMENT CONTROL PLAN

PROJECT No. 120144
REV: REV # 3
DRAWING No. 120144-ESC

City File D07-12-21-0017

City Plan #18348



CONNECTED ABOVE SPRINGLINE OF 1650mmØ STORMMAIN AS PER CITY OF OTTAWA DETAIL S11. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION, AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
EXISTING 1650mmØ STORM INVERT =90.80
PROPOSED 375mmØ STORM INVERT =92.08

2 - 200mmØ PVC DR 18 WATER SERVICES TO BE CONNECTED TO EXISTING 200mmØ WATERMAIN BY CITY FORCES . EXCAVATION, BACKFILLING, AND REINSTATEMENT BY CONTRACTOR. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION & REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
T/W=92.92

PROPOSED STM SERVICE TO CONNECT ABOVE SPRINGLINE OF 1650mmØ STORM MAIN AS PER CITY DETAIL S11. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION, AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
EXISTING 1650mmØ STORM INVERT =90.82
PROPOSED 300mmØ STORM INVERT =92.17

PROPOSED SANITARY SERVICE TO CONNECT ABOVE SPRINGLINE OF 825mmØ SANITARY MAIN AS PER CITY DETAIL S11. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION, AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
EXISTING 825mmØ SANITARY INVERT =90.84
PROPOSED 200mmØ SANITARY INVERT =91.47

PROPOSED STM SERVICE TO CONNECT ABOVE SPRINGLINE OF 1650mmØ STORM MAIN AS PER CITY DETAIL S11. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION, AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
EXISTING 1650mmØ STORM INVERT =90.94
PROPOSED 450mmØ STORM INVERT =92.14

2 - 200mmØ PVC DR 18 WATER SERVICES TO BE CONNECTED TO EXISTING 200mmØ WATERMAIN BY CITY FORCES . EXCAVATION, BACKFILLING, AND REINSTATEMENT BY CONTRACTOR. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION & REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
T/W= 93.68

NORTH

KEY PLAN
N.T.S.

LEGEND

- PROPERTY LINE
- PROPOSED CURB
- DC PROPOSED DEPRESSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPOSED CAP
- PROPOSED SANITARY SEWER C/W MANHOLE
- PROPOSED STORM SEWER C/W MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED LANDSCAPE DRAIN
- PROPOSED AREA DRAIN
- ICD PROPOSED INLET CONTROL DEVICE
- PROPOSED SIAMESE CONNECTION
- PROPOSED WATER MAIN
- PROPOSED HYDRANT c/w LEAD & VALVE
- V&VB ⊗ PROPOSED VALVE AND VALVE BOX
- Ⓜ PROPOSED WATER METER
- PROPOSED REMOTE WATER METER
- ✕ PROPOSED REMOVAL
- PROPOSED TRENCH DRAIN
- PROPOSED BUILDING ENTRANCE
- DIRECTION OF FLOW
- PROPOSED RETAINING WALL C/W GUARD RAIL
- ① PIPE CROSSING (REFER TO CROSSING TABLE)
- PROPOSED SWALE
- PROPOSED TERRACING
- *EXISTING UTILITY POLE C/W GUY WIRES*
- WV *EXISTING WATERMAIN C/W WATER VALVE*
- *EXISTING HYDRANT C/W VALVE & LEAD*
- SAN MH *EXISTING SANITARY MANHOLE & SEWER*
- STM MH *EXISTING STORM MANHOLE & SEWER*
- CB 1 *EXISTING CATCHBASIN*
- OHW *EXISTING OVERHEAD WIRES*
- ○ LS *EXISTING STREETLIGHT*

PROPOSED WATERMAIN (200mmØ DOMESTIC SERVICE TABLE)

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
1+000.0	95.31	*92.91	CONNECTION TO EXISTING 200mmØ WM
1+002.5	95.38	92.98	CROSS ABOVE 825mmØ SAN (0.99m CLEARANCE)
1+005.3	95.47	93.12	CROSS ABOVE 1650mmØ STM AS PER CITY OF OTTAWA STANDARD W25.2 (0.25m CLEARANCE)
1+008.3	95.40	93.88	CROSS ABOVE 600mmØ WM AS PER CITY OF OTTAWA STANDARD W25.2 (0.25m CLEARANCE)
1+017.7	95.37	92.97	200mmØ VALVE AND VALVE BOX
1+022.0	95.13	92.73	CAP

*TOP OF EXISTING WATERMAIN ASSUMED 2.4m BELOW EXISTING GROUND. CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

PROPOSED WATERMAIN (200mmØ DOMESTIC SERVICE TABLE)

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
2+000.0	95.33	92.93	CONNECTION TO EXISTING 200mmØ WM
2+002.5	95.40	93.00	CROSS ABOVE 825mmØ SAN (0.99m CLEARANCE)
2+005.4	95.47	93.12	CROSS ABOVE 1650mmØ STM AS PER CITY OF OTTAWA STANDARD W25.2 (0.25m CLEARANCE)
2+008.3	95.41	93.89	CROSS ABOVE 600mmØ WM (0.26m CLEARANCE)
2+017.7	95.38	92.25	200mmØ VALVE AND VALVE BOX
2+021.4	95.13	95.13	CAP

*TOP OF EXISTING WATERMAIN ASSUMED 2.4m BELOW EXISTING GROUND. CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

PROPOSED WATERMAIN (200mmØ DOMESTIC SERVICE TABLE)

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
3+000.0	96.08	93.68	CONNECTION TO EXISTING 200mmØ WM
3+003.6	96.11	93.71	CROSS ABOVE 825mmØ SAN (1.69m CLEARANCE)
3+006.3	96.08	93.68	CROSS ABOVE 1650mmØ STM AS PER CITY OF OTTAWA STANDARD W25.2 (0.66m CLEARANCE)
3+009.0	96.02	94.50	CROSS ABOVE 600mmØ WM (0.25m CLEARANCE)
3+018.2	96.45	94.05	11.25° HORIZONTAL BEND
3+023.7	96.93	94.53	200mm VALVE AND VALVE BOX
3+025.0	96.98	94.58	CAP

*TOP OF EXISTING WATERMAIN ASSUMED 2.4m BELOW EXISTING GROUND. CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

PROPOSED WATERMAIN (200mmØ DOMESTIC SERVICE TABLE)

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
4+000.0	96.09	*93.69	CONNECTION TO EXISTING 200mmØ WM
4+004.1	96.13	93.73	CROSS ABOVE 825mmØ SAN (1.69m CLEARANCE)
4+006.7	96.08	93.68	CROSS ABOVE 1650mmØ STM AS PER CITY OF OTTAWA STANDARD W25.2 (0.66m CLEARANCE)
4+009.3	96.02	94.50	CROSS ABOVE 600mmØ WM AS PER CITY OF OTTAWA STANDARD W25.2 (0.25m CLEARANCE)
4+012.7	96.17	93.77	11.25° HORIZONTAL BEND
4+024.3	96.93	94.53	200mmØ VALVE AND VALVE BOX
4+025.3	96.98	94.58	CAP

*TOP OF EXISTING WATERMAIN ASSUMED 2.4m BELOW EXISTING GROUND. CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

PIPE CROSSING TABLE

CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
①	200mmØ SAN OBV = 93.29	300mmØ STM INV = 94.07*	0.78m
②	600mmØ WM OBV = 93.90	450mmØ STM INV = 94.28*	0.38m
③	1650mmØ STM OBV = 92.68*	200mmØ SAN INV = 93.67	0.99m
④	600mmØ WM OBV = 93.45	200mmØ SAN INV = 93.71	0.26m
⑤	600mmØ WM OBV = 93.44	300mmØ STM INV = 93.71	0.27m
⑥	825mmØ SAN OBV = 91.79*	200mmØ WM INV = 92.80	1.01m
⑦	1650mmØ STM OBV = 92.67*	200mmØ WM INV = 92.92	0.25m
⑧	600mmØ WM OBV = 93.43	200mmØ WM INV = 93.69	0.26m
⑨	825mmØ SAN OBV = 91.79*	200mmØ WM INV = 92.78	0.99m
⑩	1650mmØ STM OBV = 92.67*	200mmØ WM INV = 92.92	0.25m
⑪	600mmØ WM OBV = 93.43	200mmØ WM INV = 93.68	0.25m
⑫	600mmØ WM OBV = 93.41	375mmØ STM INV = 94.24	0.83m
⑬	600mmØ WM OBV = 94.05	200mmØ WM INV = 94.30	0.25m
⑭	1650mmØ STM OBV = 92.82*	200mmØ WM INV = 93.48	0.66m
⑮	825mmØ SAN OBV = 91.84*	200mmØ WM INV = 93.53	1.69m

*INVERTS/OBVERTS ON CONCRETE PIPES ARE OUTSIDE DIAMETER

CONTROLS

LOCATION	MODEL NO. / ORFICE DIAMETER	5-YEAR FLOW (L/S)	5-YEAR HEAD (m)	100-YEAR FLOW (L/S)	100-YEAR HEAD (m)
CBMH 105	152mm PLATE	32.0	0.414	49.6	0.989
CISTERN	PUMP	133	0.53	133	1.73

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K1S 4N7.

CLARIDGE
H·O·M·E·S

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5.	ISSUED FOR CITY COMMENTS	JUL07/21	JAG
4.	ISSUED FOR COORDINATION	FEB17/21	JAG
3.	SUBMITTED WITH ZONING/SITE PLAN APPLICATIONS	JAN25/21	JAG
2.	RE-ISSUED FOR COORDINATION	JAN 22/21	JAG
1.	ISSUED FOR COORDINATION	JAN15/21	JAG

SCALE
1:250
1:250
0 2 4 6 8 10

DESIGN ARM/JAG
CHECKED ARM/GJM
DRAWN CJF
CHECKED ARM/JAG
APPROVED GJM

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
A.R. MESTWARP
100201604
APRIL 28 /2023
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
G.J. MacDONALD
April 28, 2023
PROVINCE OF ONTARIO

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Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
1200 MARITIME WAY

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 120144
REV REV # 10
DRAWING No. 120144 - GP

City File D07-12-21-0017
PLANB1.DWG - 1000mmx707mm
City Plan #18348

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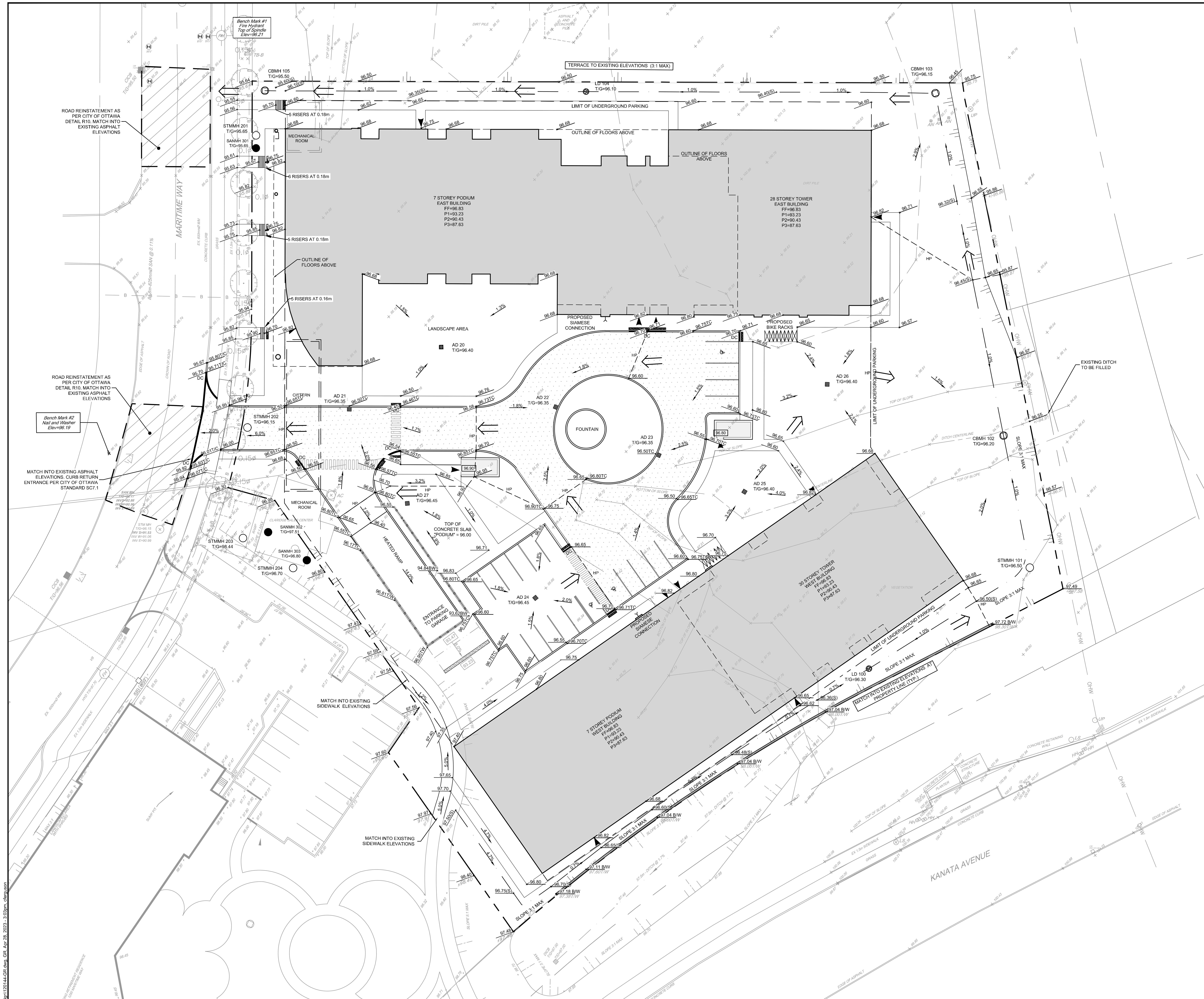

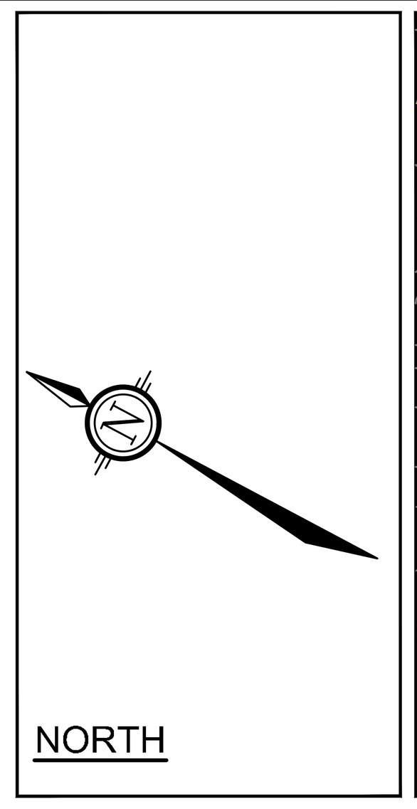

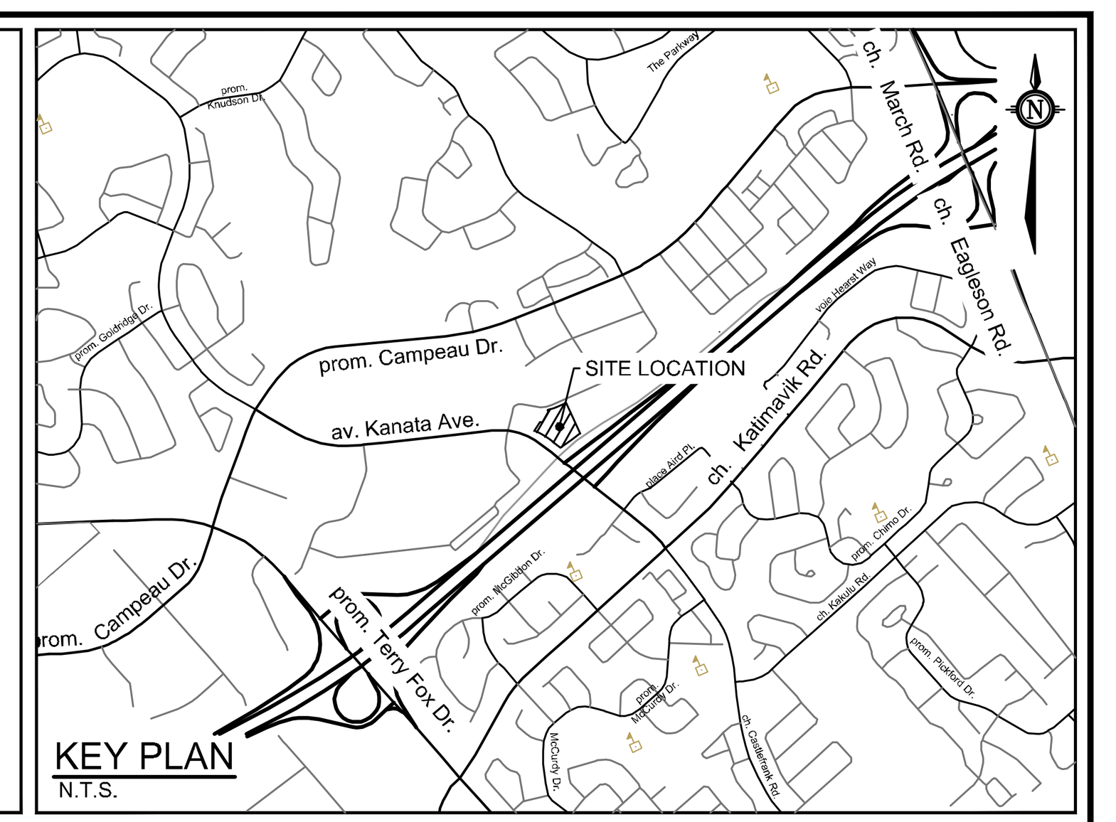

LEGEND

	PROPERTY LINE
	PROPOSED BARRIER CURB
DC	PROPOSED DEPRESSED CURB
	PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
98.40	PROPOSED ELEVATION
98.40	EXISTING ELEVATION
97.79(S)	PROPOSED SWALE ELEVATION
97.79TW	PROPOSED TOP OF WALL ELEVATION
97.79BW	PROPOSED BOTTOM OF WALL ELEVATION
97.88TC	PROPOSED TOP OF CURB ELEVATION
V&VB	PROPOSED VALVE AND VALVE BOX
FDSC	FIRE DEPARTMENT SIAMESE CONNECTION
	PROPOSED BUILDING ENTRANCE
H.P.	PROPOSED HIGH POINT
	SWALE c/w SUBDRAIN AND DIRECTION OF FLOW
	TERRACING 3:1 SLOPE MAX (UNLESS OTHERWISE INDICATED)
	PROPOSED RETAINING WALL C/W GUARD RAIL
2.0%	SLOPE AND DIRECTION
	DIRECTION OF MAJOR OVERLAND FLOW
	PROPOSED LANDSCAPE DRAIN
	PROPOSED CATCHBASIN MANHOLE
	PROPOSED CATCHBASIN
	PROPOSED TRENCH DRAIN
SAN MH	PROPOSED SANITARY MANHOLE
STM MH	PROPOSED STORM MANHOLE
	PROPOSED HYDRANT & VALVE
	PROPOSED VALVE AND VALVE BOX
	EXISTING VALVE & VALVE BOX
	EXISTING VALVE & LEAD
SAN MH	*EXISTING SANITARY MANHOLE*
STM MH	*EXISTING STORM MANHOLE*
CB 1	*EXISTING CATCHBASIN*
	EXISTING DITCH CENTERLINE
UP	*EXISTING UTILITY POLE*
AN	*EXISTING UTILITY POLE ANCHORS*
	EXISTING STREETLIGHT

PAVEMENT STRUCTURE:

LIGHT DUTY
50mm HL3
150mm GRAN "A"
300mm GRAN "B" TYPE II

HEAVY DUTY
40mm HL3
50mm HL8
150mm GRAN "A"
450mm GRAN "B" TYPE II

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DRAWING NAME
GRADING PLAN

PROJECT No. 120144
REV: REV # 9
DRAWING No. 120144-GR

City File D07-12-21-0017

PLANB1.DWG - 1000mmx707mm
City Plan #18348