

**FUNCTIONAL SERVICING AND
STORMWATER MANAGEMENT
REPORT**

FOR

**MATTAMY HOMES
WATERIDGE VILLAGE – BLOCK 22
1400 HEMLOCK ROAD**

CITY OF OTTAWA
FILE #: D07-12-20-0066

PROJECT NO.: 17-948

OCTOBER 2020 – REV 6

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Draft Plan of Condominium prepared by J.D. Barnes Ltd. dated September 8, 2020

Strata Plan of Survey prepared by J.D. Barnes Ltd. dated August 21, 2020

Ownership Structure Markup prepared by Mattamy Homes

Landscaping Plan Review – Block 22 – Wateridge Village Residential Development – Phase 1B – Block 22, PG5345-MEMO.01 prepared by Paterson Group dated October 6, 2020

Grading Plan Review – Wateridge Residential Development – Phase 1B – Block 22, PG5345-MEMO.02 prepared by Paterson Group dated October 6, 2020

Geotechnical Review of Site Servicing Drawings – Wateridge Residential Development – Phase 1B – Block 22, PG5345-MEMO.03 prepared by Paterson Group dated October 6, 2020

Geotechnical Recommendations – Review of Servicing – Installation Impact on Adjacent Building Foundations – Wateridge Residential Development – Phase 1B – Block 22, PG5345-MEMO.04 prepared by Paterson Group dated October 6, 2020

Appendix B Water Supply

City of Ottawa Water Supply Map

Water Demand Calculations dated May 7, 2020

FUS Calculations dated September 24, 2020

Boundary Conditions from City of Ottawa dated May 22, 2020

Hydraulic Capacity and Modelling Analysis – Wateridge Village Phase 1B – Block 22 prepared by GeoAdvice Engineering dated September 24, 2020

Hydrant Coverage Figure – Block 4 dated September, 2020

Hydrant Coverage Figure – Block 1 dated September, 2020

Appendix C Wastewater Collection

Sanitary Design Sheets prepared by IBI Group dated January 25, 2017

Sanitary Drainage Area Plan, Drawing No. 501A, Project No. 38298, prepared by IBI Group dated June 7, 2017

Sanitary Design Sheet for Previously Proposed Flows
dated August 8, 2017

Sanitary Design Sheet for Current Proposed flows
dated May 15, 2020

Sanitary Design Sheet for Proposed Sanitary Sewers
dated October 6, 2020

Sanitary Drainage Plan, Drawing 10 dated October 6,
2020

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Stormwater Management

Storm Design Sheets prepared by IBI Group dated
January 25, 2017

Storm Drainage Area Plan, Drawing No. 500A,
Project No. 38298, prepared by IBI Group dated June
7, 2017

LID Calculations dated October 2, 2020

Runoff Coefficient Calculations dated September 28,
2020

Storm Design Sheet for Proposed Storm Sewers
dated October 6, 2020

Storm Drainage Plan, Drawing 11 dated October 6,
2020

Wateridge Village Phase 1B – Proposed Block 22
Stormwater Management Design, prepared by J.F.
Sabourin and Associates dated October 5, 2020

Drawings/Figures

Site Plan

Plan 4M-1581

Draft Plan of Standard Condominium of Part of Block
22 Registered Plan 4M-1581

Block 22 Registered Plan 4M-1581

Block 22 Condo Corporation Structure

General Plan of Services, Drawing No. 100D, Project No. 38298, prepared by IBI Group, dated June 15, 2018.

Hemlock Road (STA. 1+960 to STA. 2+300), Drawing No. 130, Project No. 38298, prepared by IBI Group, dated August 2, 2017.

Hemlock Road (STA. 2-300 to Wanaki Road), Drawing No. 131, Project No. 38298, prepared by IBI Group, dated August 2, 2017.

Michael Stoqua Street (Mikinak Road to Hemlock Road), Drawing No. 133, Project No. 38298, prepared by IBI Group, dated June 15, 2018.

Squadron Crescent Moses Tennisco Street (STA. 0+400 to STA. 0+700), Drawing No. 135, Project No. 38298, prepared by IBI Group, dated June 15, 2018.

Moses Tennisco Street (STA. 0+700 to STA. 0+780), Drawing No. 136, Project No. 38298, prepared by IBI Group, dated August 2, 2017.

Grading Plan, Drawing No. 210, Project No. 38298, prepared by IBI Group, dated February 2, 2018.

Ponding Plan, Drawing No. 751, Project No. 38298, prepared by IBI Group, dated June 16, 2017.

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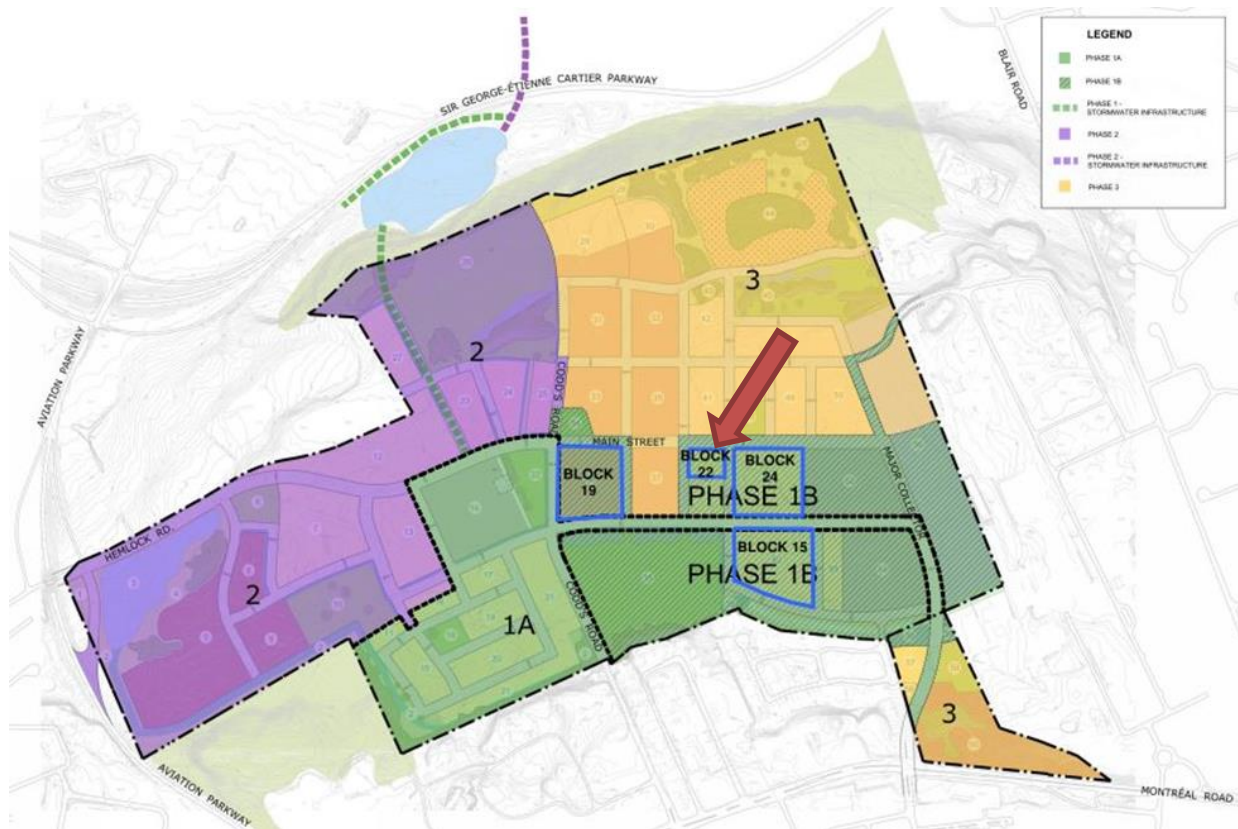
1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained to prepare a Functional Servicing and Stormwater Management report in support of the Site Plan Application for Block 22 of the former CFB Rockcliffe lands, which are currently under re-development by the Canada Lands Company. Block 22 is located at 1400 Hemlock Road within Wateridge Village at Rockcliffe Phase 1B as illustrated on **Figure 1**.

Site Plan Approval was previously obtained from the City of Ottawa, but a new site plan is being proposed with updated building types and unit counts. It should be noted that the servicing and grading strategy for the proposed development remain consistent with the City of Ottawa's previously approved design. However, the servicing and grading design have been updated to reflect the current site plan, the latest City of Ottawa guidelines and pre-consultation comments received from the City of Ottawa. Pre-consultation comments and responses are included in **Appendix A**.

The subject property is located within the City of Ottawa urban boundary, in the Rideau-Rockcliffe area. As illustrated in **Figure 1**, the subject property is encompassed by Hemlock Road, Michael Stoqua Street and Moses Tennisco Street, all of which are currently under construction. Comprised of a single parcel, it measures approximately **0.46 ha** and is zoned Residential Fifth Density Zone (R5Y[2312]). A copy of the registered 4M-Plan 4M-1581 is included in **Drawings/ Figures**.

Figure 1: Site Location



The proposed development by Mattamy Homes involves the construction of 18 Rear Lane Townhomes and 20 Stacked Townhomes. The development also includes surface parking for the Stacked Townhomes within the site. A copy of the site plan and site statistics is included in **Drawings/Figures**.

The objective of this report is to provide sufficient detail with respect to the availability of site services, to support the application for site plan control.

1.1 Existing Conditions

The existing lands are vacant, while the construction of the surrounding road network and underground services are currently underway at the time of this publication. Historically, the lands were part of the Canadian Forces Base Rockcliffe (CFB Rockcliffe).

A preliminary geotechnical investigation was completed by Paterson Group Inc. in August 2017. Per the geotechnical report, the subject site consists of a layer of existing fill from the previous land use underlain by stiff to very stiff brown silty clay. Practical refusal during borehole excavation was encountered at a maximum depth of 3.9 m below existing grade.

Supplemental information from Paterson Group Inc. was also received regarding the anticipated infiltration rates. An infiltration rate of 168 – 564 mm/day was estimated for Block 22.

The Canada Lands Company will be delivering the site to a pre-grade condition in accordance with Mattamy Homes requirements.

Hemlock Road

- 300 mm diameter PVC watermain
- 750 mm diameter storm sewer
- 250 mm diameter sanitary sewer

Michael Stoqua Street

- 200 mm diameter watermain
- 375 mm diameter storm sewer
- 250 mm diameter sanitary sewer

Moses Tennisco Street

- 200 mm diameter watermain
- 525 mm diameter storm sewer
- 250 mm diameter sanitary sewer

The infrastructure described above is based on as-built drawings. The as-built drawings are as per the Wateridge Village at Rockcliffe Phase 1B drawing set prepared by IBI Group dated June 15, 2018.

The servicing information received from IBI Group dated June 15, 2018 provides stubs to the proposed property and confirms storm and sanitary capacity within the external system at these new connection points.

The as-built drawings prepared by IBI Group detailing the services within Michael Stoqua Street and Moses Tennisco Street are included in the appendix ***Drawings/Figures***.

The existing services per ***Design Brief Phase 1B*** are considered “in service” as per correspondence with IBI Group included in ***Appendix A***. Refer to ***Drawing 2 – Existing Conditions*** for the Existing Conditions Plan.

1.2 Required Permits / Approvals

The proposed development is subject to the site plan control approval process. The City of Ottawa must approve the engineering design drawings and reports prior to the issuance of site plan control. Once site plan approval has been received, the site will go through Part Lot Control.

The site will have one Standard Condominium that includes the Stacked Townhomes, laneways, parking units, and landscaped areas per the draft plan of condominium. The Rear Lane Townhomes will be freehold, but will be tied to the Standard Condominium through a Joint Use and Maintenance Agreement, and will pay a portion of the condominium fees. There will be a vehicle access easement in favour of the Rear Lane Townhomes to access their units. A pedestrian access easement over the east to west pathway will be provided for public access. Refer to the legal plans and Block 22 Condo Corporation Structure markup included in **Appendix A**.

As the site will be severed into multiple ownerships through Part Lot Control, an ECA Approval will be required through the Ministry of the Environment, Conservation and Parks (MECP) as the development does not fall under the exemptions set out in O.Reg 525/98. It is anticipated that the ECA Approval will be coordinated with the City of Ottawa through the MECP's Transfer of Review program, which has recently been updated in view of the MECP's plan to move to a consolidated permissions approach. Subject to the written permission of the MECP Supervisor, the City of Ottawa may be allowed to review additional works currently not listed in Schedule A, including private works that may not be covered at the time of the application by an agreement pursuant to the Planning Act. Refer to Schedule A in **Appendix A**.

As per consultation with the RVCA, additional stormwater quality control is not required for the subject site as the water quality objectives are being achieved through the Eastern SWM Facility. Supporting correspondence is included in **Appendix A**.

The City of Ottawa reviews watermains on behalf of the MECP. The MECP "Form 1" is submitted to the City of Ottawa for approval of watermains.

1.3 Pre-consultation

Pre-consultation correspondence, along with the servicing guidelines checklist, is located in **Appendix A**.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

2.1 Existing Studies, Guidelines, and Reports

The following studies were utilized in the preparation of this report.

- Ottawa Sewer Design Guidelines,
City of Ottawa, *SDG002*, October 2012
(*City Standards*)
- Technical Bulletin PIEDTB-2016-01
City of Ottawa, September 6, 2016.
(PIEDTB-2016-01)
- Technical Bulletin ISTB-2018-01
City of Ottawa, March 21, 2018.
(ISTB-2018-01)
- Technical Bulletin ISTB-2018-04
City of Ottawa, June 27, 2018.
(ISTB-2018-04)
- Technical Bulletin ISTB-2019-02
City of Ottawa, July 8, 2019.
(ISTB-2019-02)
- Ottawa Design Guidelines – Water Distribution
City of Ottawa, July 2010.
(*Water Supply Guidelines*)
- Technical Bulletin ISD-2010-2
City of Ottawa, December 15, 2010.
(ISD-2010-2)
- Technical Bulletin ISDTB-2014-02
City of Ottawa, May 27, 2014.
(ISDTB-2014-02)
- Technical Bulletin ISTB-2018-02
City of Ottawa, March 21, 2018.
(ISTB-2018-02)
- Design Guidelines for Sewage Works,
Ministry of the Environment, 2008.
(*MOE Design Guidelines*)

- Stormwater Planning and Design Manual,
Ministry of the Environment, March 2003.
(*SWMP Design Manual*)
- Ontario Building Code Compendium
Ministry of Municipal Affairs and Housing Building Development Branch,
January 1, 2010 Update
(*OBC*)
- Water Supply for Public Fire Protection
Fire Underwriters Survey, 1999.
(*FUS*)
- Low Impact Development Stormwater Management Planning and Design Guide
Credit Valley Conservation & Toronto and Region Conservation, 2010.
(*LID Guide*)
- Former CFB Rockcliffe Master Servicing Study
IBI Group, August 2015
(*MSS*)
- Low Impact Development (LID) Demonstration Project
Aquafor Beech Ltd., August 2015
(*LID Demonstration Project*)
- Wateridge Phase 1B Developer's Checklist
Aquafor Beech Ltd., October 22, 2019
(*LID Checklist*)
- Design Brief Wateridge Village at Rockcliffe Phase 1A
IBI Group, April 2016
(*Design Brief Phase 1A*)
- Design Brief Wateridge Village at Rockcliffe Phase 1B
IBI Group, June 2017
(*Design Brief Phase 1B*)
- Geotechnical Investigation Proposed Residential Development Block 22
Paterson, September 10, 2020
(*Geotechnical Investigation*)
- Landscaping Plan Review – Block 22 – Wateridge Village Residential
Development – Phase 1B – Block 22
Paterson, October 6, 2020
(*PG5345-MEMO.01*)

- Grading Plan Review – Wateridge Residential Development – Phase 1B – Block 22
Paterson, October 6, 2020
(PG5345-MEMO.02)
- Geotechnical Review of Site Servicing Drawings – Wateridge Residential Development – Phase 1B – Block 22
Paterson, October 6, 2020
(PG5345-MEMO.03)
- Geotechnical Review of Lateral Support of Footings – Wateridge Residential Development – Phase 1B – Block 22
Paterson, October 6, 2020
(PG5345-MEMO.04)
- Hydraulic Capacity and Modelling Analysis – Wateridge Village Phase 1B – Block 22 Development
GeoAdvice, September 24, 2020
(Water Analysis)
- Wateridge Village Phase 1B – Proposed Block 22 Stormwater Management Design
J.F. Sabourin and Associates, October 5, 2020
(HGL Analysis)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa MONT pressure zone, as shown by the Pressure Zone map in **Appendix B**. Based on the design drawings for the Wateridge Phase 1B subdivision, a local 200 mm diameter watermain was constructed within the Michael Stoqua Street and Moses Tennisco Street right-of-ways to service the subject site.

The water servicing for the subject site was accounted for in the design of the water distribution system outlined in the **Design Brief Phase 1B**, water demand summarized below:

Table 1
Summary of Water Demand per *Design Brief Phase 1*

Design Parameter	Total Demand (L/min)
Average Daily Demand	25.5
Max Day	188.9
Max Day + Fire Flow	13,000 + 125.1

3.2 Water Supply Servicing Design

It is proposed to provide a connection to the 200 mm watermain within Michael Stoqua Street and a connection to the 200 mm watermain within Moses Tennisco Street. Block 4 Units 1A/B to 5A/B will be serviced by proposed connections to the existing 200 mm watermain on Michael Stoqua Street. The site is adequately serviced by surrounding fire hydrants on Hemlock Road, Michael Stoqua Street and Moses Tennisco Street.

The proposed development will have a perimeter meter in the vicinity of each proposed connection to the existing watermain system. The meters will not be located on City of Ottawa property.

Due to the width of the right-of-way and the proximity of the Rear Lane Townhomes, it is proposed to provide a watermain 2.5 m away from the proposed sanitary sewer. The water and sanitary sewers are designed in accordance with *Procedures to Govern Separation of Sewers and Watermains (Procedure F-6-1)* prepared by the Ministry of the Environment.

Table 2 summarizes the **Water Supply Guidelines** employed in the preparation of the water demand estimate for the proposed development.

Table 2
Water Supply Design Criteria

Design Parameter	Value
Townhouse	2.7 P/unit*
Residential Average Daily Demand	280 L/d/P
Residential Maximum Daily Demand	4.9 x avg. day**
Residential Peak Hour Demand	7.4 x max. day**
Residential Minimum Hour Demand	0.5 x avg. day
Contingency Factor	10%***
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
During normal operating conditions desired operating pressure is within	350 kPa and 480 kPa
During normal operating conditions pressure must not drop below	276 kPa
During normal operating conditions pressure must not exceed	552 kPa
During fire flow operating pressure must not drop below	140 kPa
<i>*Daily average based on Appendix 4-1 from Water Supply Guidelines</i> <i>** Residential Max. Daily and Peak Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.</i> <i>***10% Contingency Factor added to all demands to account for potential changes in occupancy</i> <i>-Table updated to reflect ISD-2010-2, ISDTB-2014-02 and ISTB 2018-02</i>	

Table 3 summarizes the anticipated water supply demand and proposed boundary conditions within the existing Montreal Road Pressure Zone. Future upgrades to the Montreal Road Pressure Zone are expected as described further in this section. **Table 4** summarizes the anticipated water supply demand and future boundary conditions within the future Montreal Road Pressure Zone.

Boundary conditions for the subject site were provided by the City of Ottawa for the nodes closest to the proposed connection points on Michael Stoqua Street and Moses Tennisco Street. For the Max Day + Fire Flow scenario, boundary conditions were only provided for the highest fire flow demand at the time as this will govern the design.

Table 3
Water Demand and Boundary Conditions
Proposed Conditions

Design Parameter	Anticipated Demand ¹ (L/min)	Boundary Condition ² Connection 1 (m H ₂ O)	Boundary Condition ² Connection 2 (m H ₂ O)
Average Daily Demand	22.0		
Peak Hour Demand	163.0	146.7 m	146.7 m
Minimum Hour Demand	11.0	147.0 m	147.0 m
Max Day + Fire Flow (1)	107.9 + 14,000		
Max Day + Fire Flow (2)	107.9 + 15,000	140.0 m	140.0 m
1) Water demand calculation per Water Supply Guidelines + 10% contingency. See Appendix B for detailed calculations. 2) Boundary conditions received from City of Ottawa on May 22, 2020.			

The above pressures are assuming the hydraulic grade line (HGL) under current conditions for the Montreal Road Pressure Zone.

Upgrades to the Montreal and Brittany pump stations are currently being planned by the City of Ottawa to support the overall CFB Rockcliffe development. The City plans to use a different pumping strategy that will try to maintain a constant HGL of 143.0 m, even during peak hour and / or fire flow conditions. On May 22, 2020, the City provided the future boundary conditions. The future boundary conditions are based on a proposed HGL target of 143.0 m at the Montreal Road pump station.

Table 4 summarizes the anticipated water supply demand and future boundary conditions, which are lower than under the current conditions for the Montreal Road Pressure Zone.

Boundary conditions for the subject site were provided by the City of Ottawa for the nodes closest to the proposed connection points on Michael Stoqua Street and Moses Tennisco Street. For the Max Day + Fire Flow scenario, boundary conditions were only provided for the highest fire flow demand at the time as this will govern the design.

Table 4
Water Demand and Boundary Conditions
Future Conditions

Design Parameter	Anticipated Demand ¹ (L/min)	Boundary Condition ² Connection 1 (m H ₂ O)	Boundary Condition ² Connection 2 (m H ₂ O)
Average Daily Demand	22.0		
Peak Hour Demand	163.0	143.0 m	143.0 m
Minimum Hour Demand	11.0	143.0 m	143.0 m
Max Day + Fire Flow (1)	107.9 + 14,000		
Max Day + Fire Flow (2)	107.9 + 15,000	136.0 m	136.0 m
3) Water demand calculation per Water Supply Guidelines + 10% contingency. See Appendix B for detailed calculations.			
4) Boundary conditions received from City of Ottawa on May 22, 2020.			

The above pressures are lower than under the current conditions for the Montreal Road Pressure Zone, which is also consistent with the **Design Brief Phase 1B**. Future development and upgrades to the existing Montreal Road Pressure Zone will reduce the HGL within the development compared to the current condition.

Refer to correspondence from the City of Ottawa and the **Watermain Analysis** located in **Appendix B** for reference.

A hydraulic analysis of the proposed watermain network has been prepared by GeoAdvice Engineering (**Watermain Analysis**, September 24, 2020) and is included in **Appendix B**.

A pressure check is recommended during installation to determine if pressure reducing valves are required.

Fire flow requirements were determined in accordance with City of Ottawa **Water Supply Guidelines**. The Water Supply Guidelines specific that fire flows are to be estimated

using the FUS in conjunction with the technical bulletin ISDTB-2014-02 and ISTB-2018-02.

The following assumptions were provided by Mattamy Homes for both Stacked Townhomes and Rear Lane Townhomes and were used in estimating the fire supply requirements:

- Type of construction – Wood Frame Construction
- Occupancy type – Limited Combustible
- Sprinkler Protection – None

The estimated fire flow ranges from **14,000 L/min** to **18,000 L/min**; see **Appendix B** for detailed FUS calculations. **Table 5** summarizes the fire flow requirement calculated for each block, per the above assumptions and the available fire flow per **Table 18.5.4.3** of **ISTB-2018-02**.

The maximum anticipated fire flow is **18,000 L/min** for Block 4 as can be seen in **Table 5**.

Table 5
Estimated Fire Flow Demand

Block, Townhome Type and Street	Estimated Fire Demand (L/min)	Fire Hydrants within 75 m	Fire Hydrants within 150 m	Available Fire Flow per Table 18.5.4.3 of ISTB-2018-02 (L/min)
Block 1 (Rear Lane) – Hemlock Road	15,000	2	2	18,926
Block 2 (Rear lane) – Hemlock Road	15,000	2	2	18,926
Block 3 (Rear Lane) – Moses Tennisco Street	14,000	2	2	18,926
Block 4 (Stacked) – Michael Stoqua Street	18,000	2	2	18,926

The property has four (4) adjacent hydrants used to calculate the available fire flow:

- Two (2) hydrants located along the south side of Hemlock Road, one at the northwest corner of the property and one across from Moses Tennisco Street;
- One (1) hydrant located along the east side of Michael Stoqua Street, at the southwest corner of the property; and
- One (1) hydrant located along the east side of Moses Tennisco Street, near the southeast corner of the property.

As can be seen in **Table 5**, the fire flow demand can be met by using existing fire hydrants for all of the proposed blocks within the development. Fire hydrant coverage plans for Block 1 and Block 4 (representing the two worst case scenarios) are included in **Appendix B**.

The **Design Brief Phase 1B** had contemplated a higher population than currently proposed. It is anticipated that the decrease in population will not have a significant impact on pressures within the Wateridge Village Development. A water distribution model was completed to ensure that the internal pipe network can adequately service the proposed development.

3.3 Watermain Modeling

As described in the **Watermain Analysis**, InfoWater (Innovyze), a GIS water distribution system modeling and management software application was utilized to determine pipe sizing and the availability of pressures throughout the system during Minimum Hour Demand, Peak Hour Demand and Max Day plus Fire Flow scenarios. The static model determines pressures based on the available head obtained from the boundary conditions obtained from the City of Ottawa, as indicated in **Table 3** and **Table 4**.

A summary of the resulting pressures at all nodes under current boundary conditions are summarized in **Table 6** below.

Table 6
Resulting Pressures Proposed Conditions

Node ID	Minimum Hour (kPa)	Peak Hour (kPa)
JCT-1	565.4	565.4
JCT-2	565.4	558.5
JCT-3	558.5	558.5
JCT-5	558.5	551.6

The minimum and maximum pressures shown in **Table 6** generally exceed the allowable pressures described in **Table 2** by less than 3%. As the pressures exceed the maximum allowable distribution pressure of 552 kPa, pressure reducing valves might be required.

A summary of the resulting pressures at all nodes under future boundary conditions are summarized in **Table 7** below.

Table 7
Resulting Pressures Future Conditions

Node ID	Minimum Hour (kPa)	Peak Hour (kPa)
JCT-1	530.9	530.9
JCT-2	524.0	524.0
JCT-3	524.0	524.0
JCT-5	517.1	517.1

The minimum and maximum pressures shown in **Table 7** do not exceed the maximum allowable distribution pressure of 552 kPa.

It should be noted that the Max Day + Fire Flow scenario was not included in the watermain modelling as fire flows would be drawn from existing fire hydrants and the existing watermain network within the ROW. Therefore, the pressure drops within the development are anticipated to be negligible in a fire flow scenario.

3.4 Water Supply Conclusion

It is proposed to service the development through two separate connections to the existing 200 mm diameter watermain within Michael Stoqua Street and Moses Tennisco Street. Block 4 Units 1A/B to 5A/B will be serviced by proposed connections to the existing 200 mm watermain on Michael Stoqua Street.

The anticipated water demand was submitted to the City of Ottawa for establishing boundary conditions.

The fire flow for the development ranges from **14,000 L/min** to **18,000 L/min** and the flow was analyzed through surrounding existing hydrants using values from **Table 18.5.4.3** of **ISTB-2018-02**. The fire flows could be met for all blocks per the **Water Supply Guidelines**.

Pressures during the Minimum Hour Demand and Peak Hour Demand scenarios with current boundary conditions are higher than allowable pressure in **Table 2**; thus, pressure reducing valves might be required. Pressures during the Minimum Hour Demand and Peak Hour Demand scenarios with future boundary conditions do not exceed the maximum allowable distribution pressure of 552 kPa.

The proposed water supply design conforms to all relevant City Guidelines and Policies.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

The sanitary flow from the subject property has been considered in the wastewater design for the Wateridge Subdivision, as outlined in the ***Design Brief Phase 1B***.

The total wastewater flow from Block 22 contemplated in the ***Design Brief Phase 1B*** is summarized in ***Table 8*** below.

Table 8
Wastewater Flow per Design Brief Phase 1B – Total Site Area

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.43
Estimated Peak Dry Weather Flow	1.70
Estimated Peak Wet Weather Flow	1.83

The total flow summarized in ***Table 8*** is for the total drainage area from Block 22, with a total contemplated population of 105 and based on previous ***City Standards*** per the ***Design Brief Phase 1B***, but it should be noted that the ***Design Brief Phase 1B*** contemplated splitting the sanitary flows between sanitary sewers on Michael Stoqua Street and Moses Tennisco Street. Refer to ***Appendix C*** for calculation sheets and reduced copies of the IBI sanitary design sheet and drainage area map.

4.2 Wastewater Design

It is proposed that the development will be serviced by an internal sanitary sewer network connecting to the 250 mm diameter sewer within the Michael Stoqua Street right-of-way, as the City of Ottawa has requested a singular connection to the existing sanitary sewer network.

Block 4 Units 1A/B to 5A/B will be serviced by proposed direct connections to the existing 250 mm sanitary sewer on Michael Stoqua Street.

Existing MH210A is proposed to be relocated south to provide 2.5 m clearance to the existing watermain and is referred to as proposed MH6A on the engineering drawings.

Table 9 summarizes the ***City Standards*** employed in the design of the proposed wastewater sewer system.

Table 9
Wastewater Design Criteria

Design Parameter	Value
Townhouse	2.7 P/unit
Average Daily Demand - Residential	280 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 3.8, Min 2.0 Harmon's Corrector Factor 0.8
Infiltration and Inflow Allowance	0.05 L/s/ha (Dry Weather) 0.28 L/s/ha (Wet Weather) 0.33 L/s/ha (Total)
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{\frac{2}{3}} S^{\frac{1}{2}}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s
<i>Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012. and ISTB-2018-01</i>	

Table 10 demonstrates the anticipated peak flow from the proposed development. See **Appendix C** for associated calculations.

Table 10
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.36
Estimated Peak Dry Weather Flow	1.23
Estimated Peak Wet Weather Flow	1.36

The estimated sanitary flow, based on the site plan provided in **Drawings/Figures**, anticipates a peak wet weather flow of **1.36 L/s**.

The anticipated peak wastewater flow generated from the proposed development is lower than the total flow contemplated in the **Design Brief Phase 1B** for Block 22 (based on previous guidelines), but more than the **0.96 L/s** contribution to the existing 250 mm sanitary sewer in Michael Stoqua Street contemplated in the **Design Brief Phase 1B**. With the increase in flows from Block 22, the existing 250 mm sanitary sewers from MH211A to MH166A on Michael Stoqua Street are shown to have 96% residual capacity. As such, the existing sanitary system can accommodate the flow from the proposed sanitary sewer system for Block 22.

A sanitary calculation sheet was prepared for the on-site sewers and existing downstream sewers on Mikinak Road to compare flows from the **Design Brief Phase 1B**. The analysis is further detailed in the **MSS Addendum** (DSEL, October 2020). See **Appendix C** for the calculation sheet, the IBI design sheet and drainage area map and **Drawing 10 – Sanitary Drainage Plan**.

4.3 Wastewater Servicing Conclusions

The sanitary flow from the subject property has been considered in the wastewater design for the Wateridge Subdivision, outlined in the ***Design Brief Phase 1B***.

Block 4 Units 1A/B to 5A/B will be serviced by proposed direct connections to the existing 250 mm sanitary sewer on Michael Stoqua Street.

Although the drainage from the site was revised to be entirely directed to the existing sanitary sewer within Michael Stoqua Street, the total anticipated peak wastewater flow generated from the proposed development is lower than contemplated in the ***Design Brief Phase 1B***. The downstream sanitary system can accommodate the flow from the proposed sanitary sewer system. The analysis is further detailed in the ***MSS Addendum*** (DSEL, October 2020).

The proposed wastewater design conforms to all relevant ***City Standards***.

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Minor and major flow from the subject site was accounted for in the Wateridge Subdivision. The subject site was contemplated in the **Design Brief Phase 1B** to be conveyed to the Eastern SWM Facility. Major flow is proposed to be directed to a dry pond to the south of Mikinak Road for quantity control and will eventually discharge through the minor system to the Eastern SWM Facility.

Refer to **Appendix D** for reduced copy of the storm design sheet and drainage area figures prepared by IBI for the Wateridge Subdivision.

Flows that influence the watershed in which the subject property is located are further reviewed by the principal authority. The subject property is located within the Ottawa River watershed, and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA).

5.2 Post-development Stormwater Management Target

Stormwater management requirements for the proposed development were reviewed with the City of Ottawa, where the proposed development is required to:

- Follow quantity and quality controls outlined in the **Design Brief Phase 1B**
- Incorporate Low Impact Development measures in accordance with the **Design Brief Phase 1B, LID Guide, LID Demonstration Project** and **LID Checklist**.

5.3 Proposed Stormwater Management System

It was previously contemplated in the **Design Brief Phase 1B** that minor system drainage from the site would be evenly split between storm sewers on Michael Stoqua Street and Moses Tennisco Street. However, the current proposal has all of the minor system drainage discharging to the existing 375 mm storm sewer within Michael Stoqua Street.

Based on current **City Guidelines**, the minor system discharge to the existing storm sewer system is restricted to the 5-year flow through the use of on-site controls in the form of Inlet Control Devices (ICDs) implemented within catch basins.

As discussed in **Section 5.1**, the quantity controls for major flow from Block 22 will be provided by the dry pond south of the subject site and through the Eastern SWM Facility outlined in the **Design Brief Phase 1B**.

The subject site was also accounted for in the design of the permanent pool of the Eastern SWM Facility which provides 80% TSS removal for the subdivision. No additional quality controls are required as confirmed by the RVCA in **Appendix A**.

Existing MH210 is proposed to be shifted south to provide adequate separation from the existing watermain and is referred to as proposed MH4 on the engineering drawings.

The tributary drainage area from the proposed development to existing MH210 is more than the **0.23 ha** contribution to the existing 375 mm storm sewer in Michael Stoqua Street contemplated in the **Design Brief Phase 1B**. There are also additional uncontrolled drainage areas to Michael Stoqua Street, Hemlock Road and Moses Tennisco Street, which require 100-year capture and were not accounted for in the **Design Brief Phase 1B**. These changes are further documented in the **MSS Addendum** (DSEL, October 2020).

With the increase in tributary area from Block 22, the existing 375 mm storm sewer from MH210 to MH211 on Michael Stoqua Street is shown to have 2% residual capacity. The existing downstream 600 mm storm sewers on Michael Stoqua Street from MH211 to MH166 are shown to have a minimum 9% residual capacity. All other existing storm sewers on Moses Tennisco Street, Hemlock Road and Mikinak Street are shown to have 5% residual capacity or more. As such, the existing storm system can accommodate the flow from the proposed storm sewer system for Block 22.

A storm design sheet was prepared to support the capacity of the internal and external storm sewer system. Refer to **Appendix D** for the calculation sheet and **Drawing 11 – Storm Drainage Plan** for the drainage area figure.

It should be noted that the actual 100-year flow to the existing minor system is much less than anticipated in the rational method based on PCSWMM modelling and the use of ICDs within catch basins. The 100-year flow to MH210 is 78.3 L/s as detailed in the **HGL Analysis**. This is less than the 87 L/s flow that was initially considered acceptable from the development as detailed in the correspondence from IBI Group, located in Appendix D of the **HGL Analysis**. The modelled 100-year flow of 78.3 L/s is much less than the anticipated 138 L/s from the rational method and therefore, the existing pipe will have sufficient capacity for the proposed flows.

The overall Runoff Coefficient from the site is 0.75, which is less than the 0.80 that was allocated in the **Design Brief Phase 1B** and therefore, no additional quantity or quality controls are required. Refer to **Appendix D** for detailed calculations supporting the Runoff Coefficient of 0.75.

5.4 Hydraulic Grade Line (HGL) Analysis & Overland Flow Depth

A detailed PCSWMM model was prepared for the internal minor and major system to determine the conveyance of the minor system and review major system their relation to the critical underside of footing (USF) and surrounding house grade (SHG). Refer to the *Wateridge Village Phase 1B – Proposed Block 22 Stormwater Management Design* by J.F. Sabourin and Associates (**HGL Analysis**) included in **Appendix D** for reference for the detailed analysis.

The **HGL Analysis** calculates the 100-year HGL based on the 100-year 3-hour Chicago Storm and the 24-hour SCS Type II Storm. The highest 100-year HGL resulted from the 100-year 3-hour Chicago Storm, which is the governing design storm for the site.

Table 11, below, summarizes the HGL in the 100-year and the 100-year + 20% storm events within the site and the USF elevation for Block 4, which is the only proposed building with basements. The storm sewer from MH1 to MH2 controls the design since the proposed foundation drains from Block 4 connect to this leg of sewer as can be seen on **Drawing 4**.

Table 11
HGL 100-Year and 100-Year + 20% Storms vs Underside of Footing

U/S MH	D/S MH	Critical Block ID	Critical USF (m)	100-Year HGL (m)*	Freeboard to Critical USF (m)*	100-Year + 20% HGL (m)**	Freeboard to Critical USF (m)**
MH1	MH2	Block 4	87.57	87.10	0.47	87.11	0.46
*Refer to Table C1-A in Appendix C of HGL Analysis **Refer to Table C1-F in Appendix C of HGL Analysis							

As per **Table 11**, above, there is a minimum 0.30 m freeboard between the 100-year HGL and the USF which does not extend to the footing during the 100-year + 20% events.

The depth of flow may extend adjacent to the right-of-way provided that the water level must not touch any part of the building envelope and must remain below the lowest building opening during the stress test event (100 year + 20%). There must be at least 15 cm of vertical clearance between the spill elevation on the street and the ground elevation at the nearest building envelope. The summary of the overland flow is summarized in **Table 12**, below.

Table 12
Overland Flow 100-Year and 100-Year + 20% Storms vs Surrounding House Grade

Subcatchment ID (per PCSWMM)	Critical Block ID	Critical SHG (m)	T/G (m)	Overland Flow Elev. 100-Year (m)*	Freeboard to Critical SHG (m)	Overland Flow Elev. 100-Year + 20% HGL (m)**	Freeboard to Critical SHG (m)
CB2B	Block 4	89.46	89.18	89.26	0.20	89.26	0.20
CB2A	Block 2	90.02	89.72	89.78	0.324	89.78	0.24
CB1C	Block 4	89.81	89.58	89.65	0.16	89.66	0.15
CB1B	Block 3	90.13	89.82	89.91	0.22	89.93	0.20
CB1A	Block 3	90.20	89.91	89.98	0.22	90.00	0.20
*Refer to Table 1 of HGL Analysis for depth (Overland Flow Elev. = T/G + Total Water Depth) **Refer to Table 2 of HGL Analysis for depth (Overland Flow Elev. = T/G + Total Water Depth)							

As shown in the table above, there is sufficient freeboard from the Surrounding House Grade compared to the overland flow elevations.

5.5 Low Impact Development (LID) Practices

LID measures are proposed in accordance with the ***Design Brief Phase 1B, LID Guide, LID Demonstration Project*** and ***LID Checklist***. It is proposed that flow from rooftops, sidewalks, landscaped areas and access lanes be directed to storage chambers in the form of oversized perforated pipes surrounded by granular material. Flow will enter the storage chambers through the network of catch basins proposed throughout the property. In order to meet the intent of the LID strategy per the ***LID Guide, LID Demonstration Project*** and ***LID Checklist***, it is insufficient to only capture roof drainage through the infiltration chambers and both roof drainage and parking areas are required to be directed to the infiltration chambers in order to meet the objectives.

The proposed LID measures are considered soakaways, trenches and chambers, which are acceptable for residential development per ***Table 4.1*** of the ***LID Checklist***, located in ***Appendix D***. Refer to ***Drawing 4 – Site Servicing Plan*** for perforated pipe locations and ***Drawing 7 – Details*** for storage chamber details.

The granular base below the overflow elevation has been sized in accordance with the ***LID Guide, LID Demonstration Project*** and ***LID Checklist*** and based on infiltration rates, to ensure a maximum drawdown time of 48 hours. Based on Section 4.4 of the ***Geotechnical Investigation***, an infiltration rate ranging from ***168 mm/day*** to ***564 mm/day*** was estimated for the soil in Block 22.

The storage chambers are designed with the perforated pipes underlain with 350 mm of 50 mm clear stone, with clear stone extending 150 mm to either side of the perforated pipe and another 75 mm layer of clear stone above the obvert of the pipe. The perforated pipe and clear stone are wrapped in a non-woven needle punched geotextile or woven monofilament geotextile.

The catch basins connecting to the storage chambers will be equipped with a 1 m extended sump pit and a goss trap will be installed at the connection of the storage chamber to the catch basins. These measures are proposed to provide an additional level of treatment prior to discharging to the storm sewer system. The extended sump pits in the catch basins are to be monitored and cleaned out when required.

Details of the storage chambers are shown on ***Drawing 7 – Details***, accompanying this report.

All LID measures are designed to infiltrate or detain an equivalent of the 4 mm event over the site area and each LID measure must treat the minimum of the 15 mm event. A total infiltration requirement of 4 mm or ***18.4 m³*** and a total treatment volume of the 15 mm event, or ***24.4 m³*** is required per the ***LID Guide, LID Demonstration Project*** and ***LID Checklist***. The filter media, clear stone and perforated pipe result in a treatment volume

of **25.4 m³**, exceeding the 15 mm volume described above. Calculations are included in **Appendix D**.

5.6 Stormwater Servicing Conclusions

Minor and major system flow from Block 22 was accounted for in the subdivision design. Quantity and quality controls are provided through a dry stormwater pond to the south and the Eastern SWM Facility to the north.

Changes to drainage areas to Michael Stoqua Street, Hemlock Road and Moses Tennisco Street, which require 100-year capture were analyzed and it was determined that there is sufficient capacity in the existing storm sewer system to accommodate the proposed flows from Block 22. These changes are further documented in the **MSS Addendum** (DSEL, October 2020).

The 100-year hydraulic grade line is contained within the proposed storm sewers and the USF for Block 4 is greater than 0.30 m above the HGL at all locations. The **HGL Analysis** confirms that the proposed underside of footing elevation is 0.30 m (or greater) above the 100-year hydraulic grade line and that the 100 year + 20% stress test hydraulic grade line does not reach the underside of footing. There is sufficient freeboard from the Surrounding House Grade compared to the overland flow elevations.

LID practices in the form of underground storage chambers consisting of oversized perforated pipes surrounded by granular material are proposed connecting to proposed catch basins to capture infiltration runoff from the site, in accordance with the **LID Guide**, **LID Demonstration Project** and **LID Checklist**. The catch basins connecting to the storage chambers will be equipped with a 1 m extended sump pit and a goss trap will be installed at the connection of the storage chamber to the catch basins.

The proposed stormwater design conforms to all relevant **City Standards** and Policies.

6.0 GEOTECHNICAL CONSIDERATIONS

A **Geotechnical Investigation** entitled **Proposed Residential Development Block 22** was prepared by Paterson Group, dated September 10, 2020, detailing geotechnical recommendations for the subject site.

Grade raise restrictions as outlined in the above-mentioned geotechnical report (2.0 m permissible) are not exceeded in the proposed development. As per the geotechnical memo **PG5345-MEMO.02**, prepared by Paterson Group, dated October 6, 2020, the proposed grading plan is supported and although engineered fill is required to protect against frost action for Blocks 1, 2 and 3, lightweight fill is not required. Geotechnical memo **PG5345-MEMO.02** is included in **Appendix A**.

The review of LID features and infiltration rates of the subsoils below the proposed infiltration systems was determined for Block 22. The theoretical infiltration rates of the subsoils range from **168 mm/day** to **564 mm/day** and are included in the **Geotechnical Investigation**. As per the geotechnical memo **PG5345-MEMO.03**, prepared by Paterson Group, dated October 6, 2020, the long-term seasonally high groundwater table is expected to range between 85.5 m and 86.5 m. However, 0.5 m of groundwater lowering is an anticipated post-development and the post-development long-term seasonally high groundwater table is expected to range between 85.0 m and 86.0 m. Geotechnical memo **PG5345-MEMO.03** confirms that the proposed LID measures are sufficiently above the expected groundwater table. Geotechnical memo **PG5345-MEMO.03** is included in **Appendix A**.

As the development proposes service connections from the back-to-back townhomes, directly to the services within Michael Stoqua Street, the existing road is to be reinstated to the extents shown on DSEL drawing, **Drawing 3 – Grading Plan**, accompanying this report, as per the pavement design outlined in the **Geotechnical Investigation**. The reinstated pavement structure, where it abuts the existing pavement that is not being replaced, is to be installed as per the structure outlined in the **Geotechnical Investigation**.

It is anticipated that bedrock removal will be required for the development of this site. Note that bedrock removal is to be completed in accordance with the **Geotechnical Investigation**.

The development proposes watermain and water meter boxes in the vicinity of proposed buildings. A review of the servicing installation impact of these pipes and structures to the adjacent footings and recommendations for foundation support is completed as summarized in geotechnical memo **PG5345-MEMO.04**, prepared by Paterson Group, dated October 6, 2020. It is recommended that a lightweight concrete infilled trench be installed under the footings for Blocks 1 and 2. Geotechnical recommendations for the footings are shown both on **Drawing 3 – Grading Plan** and **Drawing 8 – Cross Sections**. Geotechnical memo **PG5345-MEMO.04** is included in **Appendix A** for reference.

Proposed landscaping constraints and recommendations are presented in the landscaping plan review memo **PG5345-MEMO.01**, prepared by Paterson Group, dated October 6, 2020, included in **Appendix A** for reference.

7.0 EROSION AND SEDIMENT CONTROL

Soil erosion occurs naturally and is a function of soil type, climate and topography. During construction the extent of erosion losses is exaggerated due to the removal of vegetation and the top layer of soil becoming agitated.

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction.

Silt fence will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fence will remain in place until the working areas have been stabilized and re-vegetated.

Catch basins will have SILTSACKS or an approved equivalent installed under the grate during construction to protect from silt entering the storm sewer system.

A mud mat will be installed at the construction access in order to prevent mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents:

Limit extent of exposed soils at any given time;

Re-vegetate exposed areas as soon as possible;

Minimize the area to be cleared and grubbed;

Protect exposed slopes with plastic or synthetic mulches;

Install silt fence to prevent sediment from entering existing ditches;

No refueling or cleaning of equipment near existing watercourses;

Provide sediment traps and basins during dewatering;

Install filter cloth between catch basins and frames;

Plan construction at proper time to avoid flooding; and

Establish material stockpiles away from watercourses, so that barriers and filters may be installed.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

- Verification that water is not flowing under silt barriers; and

- Clean and change filter cloth at catch basins.

Refer to ***Drawing 9 – Erosion Control Plan.***

8.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained to prepare a Functional Servicing and Stormwater Management for the proposed development for Block 22 of the former CFB Rockcliffe lands, which are currently under re-development. The preceding report outlines the following:

- Based on boundary conditions for the current Montreal Road Pressure Zone from the City of Ottawa and a water distribution model completed for the site, sufficient pressure exists to support the development. Anticipated pressures under current boundary conditions slightly exceed the maximum allowable pressures stipulated by the City of Ottawa and pressure reducing valves might be required. Based on future upgrades for the Montreal Road Pressure Zone, anticipated pressures under future boundary conditions from the City of Ottawa do not exceed the maximum allowable distribution pressure of 552 kPa.
- Based on estimated fire flow per the **FUS**, there is sufficient capacity within the local fire hydrants to provide the required fire flow.
- Block 4 Units 1A/B to 5A/B will be serviced by proposed direct connections to the existing 200 mm watermain and existing 250 mm sanitary sewer on Michael Stoqua Street.
- The proposed development is anticipated to have a peak wet weather flow of **1.36 L/s**. Although the drainage from the site was revised to be entirely directed to the existing sanitary sewer within Michael Stoqua Street, the total anticipated peak wastewater flow generated from the proposed development is lower than contemplated in the **Design Brief Phase 1B**. The downstream sanitary system can accommodate the flow from the proposed sanitary sewer system. The analysis is further detailed in the **MSS Addendum** (DSEL, October 2020).
- The quantity and quality controls are provided for the site through a dry pond to the south of the site and the Eastern SWM Facility outlined in the **Design Brief Phase 1B**.
- Changes to storm drainage areas to Michael Stoqua Street, Hemlock Road and Moses Tennisco Street, were analyzed and it was determined that there is sufficient capacity in the existing storm sewer system to accommodate the proposed flows from Block 22. These changes are further documented in the **MSS Addendum** (DSEL, October 2020).
- The 100-year hydraulic grade line is contained within the proposed storm sewers and the USF for Block 4 is greater than 0.30 m above the HGL at all locations. The **HGL Analysis** confirms that the proposed underside of footing elevation is 0.30 m (or greater) above the 100-year hydraulic grade line and that the 100 year + 20% stress test hydraulic grade line does not reach the underside of footing. There is

sufficient freeboard from the Surrounding House Grade compared to the overland flow elevations.

- LID practices in the form of underground storage chambers consisting of oversized perforated pipes surrounded by granular material are proposed connecting to proposed catch basins to capture infiltration runoff from the site, in accordance with the **LID Guide**, **LID Demonstration Project** and **LID Checklist**. The catch basins connecting to the storage chambers will be equipped with a 1 m extended sump pit and a goss trap will be installed at the connection of the storage chamber to the catch basins.

Prepared by,
David Schaeffer Engineering Ltd.

Reviewed by,
David Schaeffer Engineering Ltd.



A handwritten signature in blue ink that reads "J. Ailey".

Per: Anthony Temelini, P.Eng.

Per: Jennifer Ailey, P.Eng.

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APPENDIX A

Pre-Consultation / Geotechnical Memos

DEVELOPMENT SERVICING STUDY CHECKLIST

17-948

25/05/2020

4.1 General Content

<input type="checkbox"/>	Executive Summary (for larger reports only).	N/A
<input checked="" type="checkbox"/>	Date and revision number of the report.	Report Cover Sheet
<input checked="" type="checkbox"/>	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
<input checked="" type="checkbox"/>	Plan showing the site and location of all existing services.	Figure 1, Drawing 1
<input checked="" type="checkbox"/>	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.0
<input checked="" type="checkbox"/>	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3
<input checked="" type="checkbox"/>	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria.	Section 2.1
<input checked="" type="checkbox"/>	Statement of objectives and servicing criteria.	Section 1.0
<input checked="" type="checkbox"/>	Identification of existing and proposed infrastructure available in the immediate area.	Sections 3.1, 4.1, 5.1
<input type="checkbox"/>	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A
<input checked="" type="checkbox"/>	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 neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	N/A
<input type="checkbox"/>	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
<input type="checkbox"/>	Proposed phasing of the development, if applicable.	N/A
<input checked="" type="checkbox"/>	Reference to geotechnical studies and recommendations concerning servicing.	Section 2.1
<input checked="" type="checkbox"/>	All preliminary and formal site plan submissions should have the following information: -Metric scale -North arrow (including construction North) -Key plan -Name and contact information of applicant and property owner -Property limits including bearings and dimensions -Existing and proposed structures and parking areas -Easements, road widening and rights-of-way -Adjacent street names	N/A

4.2 Development Servicing Report: Water

<input type="checkbox"/>	Confirm consistency with Master Servicing Study, if available	N/A
<input checked="" type="checkbox"/>	Availability of public infrastructure to service proposed development	Section 1.1
<input checked="" type="checkbox"/>	Identification of system constraints	Section 3.1
<input checked="" type="checkbox"/>	Identify boundary conditions	Section 3.1, 3.2
<input checked="" type="checkbox"/>	Confirmation of adequate domestic supply and pressure	Section 3.3

<input checked="" type="checkbox"/>	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.	Section 3.2
<input type="checkbox"/>	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.	N/A
<input type="checkbox"/>	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
<input type="checkbox"/>	Address reliability requirements such as appropriate location of shut-off valves	N/A
<input type="checkbox"/>	Check on the necessity of a pressure zone boundary modification	N/A
<input checked="" type="checkbox"/>	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	Section 3.2, 3.3
<input checked="" type="checkbox"/>	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.	Section 3.2
<input type="checkbox"/>	Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
<input checked="" type="checkbox"/>	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2
<input type="checkbox"/>	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

<input checked="" type="checkbox"/>	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).	Section 4.2
<input type="checkbox"/>	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
<input type="checkbox"/>	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A
<input checked="" type="checkbox"/>	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1
<input checked="" type="checkbox"/>	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)	Section 4.2
<input checked="" type="checkbox"/>	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 4.2, Appendix C
<input checked="" type="checkbox"/>	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2
<input type="checkbox"/>	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A

<input type="checkbox"/>	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
<input type="checkbox"/>	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
<input type="checkbox"/>	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
<input type="checkbox"/>	Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

<input checked="" type="checkbox"/>	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 5.1
<input checked="" type="checkbox"/>	Analysis of available capacity in existing public infrastructure.	Section 5.1, Appendix D
<input checked="" type="checkbox"/>	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
<input checked="" type="checkbox"/>	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.	Section 5.2
<input checked="" type="checkbox"/>	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 5.2
<input checked="" type="checkbox"/>	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.2, 5.3
<input type="checkbox"/>	Set-back from private sewage disposal systems.	N/A
<input type="checkbox"/>	Watercourse and hazard lands setbacks.	N/A
<input checked="" type="checkbox"/>	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Appendix A
<input type="checkbox"/>	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
<input checked="" type="checkbox"/>	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 5.2, 5.3
<input type="checkbox"/>	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
<input checked="" type="checkbox"/>	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.	Section 5.1, 5.3
<input type="checkbox"/>	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
<input checked="" type="checkbox"/>	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 5.2, 5.3, 5.4
<input checked="" type="checkbox"/>	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.	Section 5.2, 5.3
<input type="checkbox"/>	Identification of potential impacts to receiving watercourses	N/A
<input type="checkbox"/>	Identification of municipal drains and related approval requirements.	N/A

<input checked="" type="checkbox"/>	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.2, 5.3
<input checked="" type="checkbox"/>	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Section 5.4
<input type="checkbox"/>	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
<input checked="" type="checkbox"/>	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 6.0
<input type="checkbox"/>	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
<input type="checkbox"/>	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

<input checked="" type="checkbox"/>	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.	Section 1.2
<input type="checkbox"/>	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
<input type="checkbox"/>	Changes to Municipal Drains.	N/A
<input type="checkbox"/>	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

<input checked="" type="checkbox"/>	Clearly stated conclusions and recommendations	Section 7.0
<input checked="" type="checkbox"/>	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.	Appendix A
<input checked="" type="checkbox"/>	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

Pre-Application Consultation Meeting Notes

1400 Hemlock Road – D07-01-20-0072

March 23, 2020 – 10:00am

Teleconference

Attendees

City of Ottawa

- Jean-Charles Renaud
- Mark Fraser
- Christopher Moise
- Wally Dubyk

Applicant Team

- Mina Rassa
- Jillian Normand
- Daniel Potechin

Community Association

- Jane Thompson
- Lysanne Brault

Project overview

18 rear lane towns, 20 stacked towns. There is currently a Site Plan approval (D07-12-17-0111) on the site. Mattamy wishes to revise the plans. Part of the Wateridge subdivision.

Comments from staff

Transportation (Wally Dubyk)

- Private road to include asphalt that will sustain the weight of an emergency vehicle
- Signs at either end of the private connection to ensure members of the public are aware that Kizis Private is a private road.
- Are the sidewalks depressed?
 - Yes
- Is there still a mid-block MUP proposed?
 - No

Planning (Jean-Charles Renaud)

- Why is an urban development over parked? Removal of parking spaces would provide opportunities for additional amenity space and a secure bike parking location.
- Could the parking area be optimized by providing angled spaces?
- Why is there a need for parallel parking?
- Ensure that the Secondary Plan's minimum density targets are still being met. The site is at the edge of the designation, closer to a higher density designation, which means it should hold more, not less, density.
- If there are no longer any trees on the property a TCR will not be required.
- The environmental planner suggested that the provisions for landscaping include trees at least as proposed in the currently approved SPC, not less.

Engineering (Mark Fraser)

- **Additional comments are attached to the follow-up email**
- Updated plans and studies will be needed
- Updated site servicing report - demonstrate consistency with higher level study. Use block 15 as examples.
- Noise assessment - provide copy of 2017 study, with addendum
- Geotech report - memo stating that details have been reviewed and that the findings are still valid
- Will be requesting memos similar to block 15
- ESA - not required, but provide copy of RSC
- Plans - updated engineering plans will be required
- Comments - all units to be serviced interior to the site. Perimeter metering.
 - Question from applicant
 - Service connection to side roads ok?
 - If condo, all units to be serviced from interior
 - Expectation from the city is still to have servicing from internal to the site.
 - Tree plantings - building will meet zoning first.
 - This has proven to be problematic on other sites and will need to be
- Hydro transformers - bollards location to be adjusted

Urban Design (Christopher Moise)

- **Additional comments attached to the follow-up email**
- Is there no better location for hydro transformer?
- Appreciate massing and elevation information. Understand within the block.
- More details of surrounding context would be useful in order to better understand relationships
- Now have front door facing rear internal. Look at relationship.
- This proposal less suitable than previous
- Building only 1m from curb. Problematic?

- Unsure about the quality of amenity space, relationship with other buildings. Blank wall conditions nearby. Massing drawings would be helpful.
- Reallocating parking to remove parallel spaces. Confusing overall design. Parking area needs rethinking.

Comments from the Community

- Seen alot of revisions to this site plan. Now it is segmented. Not ideal to keep revising with less quality. Should be at least as good as previous plans.
- Agree with Christopher Moise RE: parking and relationship of units. Now is unbalanced with changes in types of units.
- Used to be trees. Lost alot of these. Now looking only at garages, no trees.
- What variances required?
 - No variances required
- Landscaped area less than 30%
 - Intent is to meet this requirement
- Landscaping not shown on plans right now.
- Landscaped strip along south now gone. Landscaping being eroded between revisions.
- Problems with Molok. People that do pickup can be difficult. Could provide info regarding this. Could pass along.
- This plan is inferior to before

From: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>

Sent: Thursday, April 2, 2020 3:58 PM

To: Mina Rassa <Mina.Rassa@mattamycorp.com>

Cc: Moise, Christopher <christopher.moise@ottawa.ca>; Fraser, Mark <Mark.Fraser@ottawa.ca>; jtarch@rogers.com;
Lysanne Brault <lbrault7@gmail.com>; Dubyk, Wally <Wally.Dubyk@ottawa.ca>

Subject: 1400 Hemlock - Preconsultation Followup

Good afternoon Mina,

Further to our meeting on March 23, 2020, regarding the proposal for development at 1400 Hemlock Road, please find attached the minutes of the meeting as well as the studies and plans list.

Below are some supplementary comments from various disciplines:

Planning

- Please ensure continued conformity with the [Secondary Plan](#), particularly as it relates to the density minimum targets. Include justification in support of the reduced density in this revised proposal.
- A Site Plan Control – Complex application will be required.

Urban Design

Comments:

- Please provide a massing drawing and elevations for information;
- More detail of the surrounding context would help determine streetscape relationships with adjacent built form (adjacent building footprints, etc.);
- The facing frontages of the stacked towns is lost from the previous approved plan. The new condition is a challenge because frontages now face the rear of the new townhouse building (which will be a dead space at grade), and the facing semi-private balconies of the towns will be one level above the public entrances across the parking lot which is a less compatible relationship than facing stacked towns;
- The private lane was previously a true lane with garages facing the sides of the stacked towns, which was a more compatible relationship;

Questions/Observations:

- Town house at the top of the south-west group is very close to the drive aisle (1m);
- Not sure what the quality of the amenity space in the south-east corner will be if the adjacent building is four storeys? More detail would be helpful to determine this, especially a section showing height of the building compared to the width of the amenity area. How will this adjacent wall be designed?
- Would removing the bottom one-way lane from the parking area allow for relocation of the parallel spaces?

- Perhaps alternatives to the parking layout will open up more opportunities for landscaping and a reduction in hard surface circulation;

Engineering

Comments:

- Updated engineering plans and studies are required to be submitted to support this project.
- Updated Site Servicing and Stormwater Management Report (SWM) to be provided. Highly recommend using the report prepared in support of Block 15 as a baseline example for the level of analysis and information required to support this project.
- **HGL Analysis** to be completed and included as part of the Site Servicing and SWM report if basements are being proposed.
- The proposed **site servicing and SWM design to be consistent with higher-level studies and plans**. Excerpts from relevant higher level studies and plans shall be discussed and provided in the Appendix of the report as supporting documentation. Any deviations will be required to be discussed and may require an update or addendum to the subdivision MSS to support the change(s) at the discretion of the City.
- **Low Impact Development (LID)** measures to be implemented as per the Wateridge Phase 1B Developer's Checklist, prepared by Aquafor Beech Ltd., dated October 22, 2019 and infiltration targets achieved.
- Consult with the Rideau Valley Conservation Authority regarding water quality criteria for the subject block prior to submission an 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 as supporting documentation.
- Include a copy of the previously approved 2017 transportation noise assessment report and provide a **transportation noise assessment addendum** similar to the addendum provided for Block 15 to update the analysis and recommendation for this site plan revision.
- Provide a copy of the geotechnical report and **a memorandum** stating that the details of this site plan have been reviewed from a geotechnical perspective and the findings and recommendations of the reports are valid for the site plan revision. Update report if determined to be necessary.
- Similar geotechnical memorandums that were required to support approval of Block 15 will be required for this project (ex. review of servicing installation impact of adjacent building foundations, infiltration rates specific to this site, landscaping plan review, grading plan review, etc.)
- Provide a **copy of the Record of Site Condition (RSC)** acknowledged by the Ministry for this site and **a memorandum** prepared by an environmental consultant confirming that no potential contaminating activities have taken place within the RSC area since the filling of the RSC.
- **Plan and Profile drawings** are required to be submitted as part of the engineering drawing package.
- All townhouse units are to be serviced internal to the site with only one storm and one sanitary sewer connection to the street.
- Site to be **perimeter metered** similar to Block 15.
- Request new boundary conditions to update hydraulic analysis.
- **All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils-2017 Guidelines are required to be satisfied if it is determined that clay soils are present in this area.** Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m

shall be achieved. A memorandum to be provided from geotechnical engineer similar to Block 15.

- The consultant shall determine if this project will be subject to an Environmental Compliance addressing 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. If the SWM works are servicing one parcel of land under one ownership an ECA would not be required however if the intention is to create POTL to a condominium corporation or multiple condominium corporations an ECA will be required prior to registration of any condominium proposal.
- 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.

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan
- Details Plan
- Pre-Development (Approved Drainage Patterns) Drainage Area Plan
- Post-Development Drainage Area/Stormwater Management Plan
- Legal Survey Plan
- Site Lighting Plan and Photometric Plan

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study
- Updated Noise Study
- Copy of the Record of Site Condition acknowledged by the Ministry and a Memorandum prepared by an environmental consultant confirming No Potential Contaminating Activities have taken place in the RSC area since filling the RSC.

Next Steps

- Applications for Site Plan Control, Complex will be required
- A list of required studies and plans is attached
- Please note that the preconsultation comments are valid for one year. If you submit a development application after this time you may be required to meet for another pre-consultation meeting and/or the submission requirements may change
- Prior to making a complete submission, I also encourage you to discuss the proposal with the area Councillor, Rawlson King, local community associations as well as immediate neighbours.

JC

Jean-Charles Renaud, MCIP/MICU, RPP/UPC

Planner II | Urbaniste II

Development Review, Central | *Examen des projets d'aménagement, Central*

Planning, Infrastructure and Economic Development Department | *Services de la planification, de l'infrastructure et du développement économique*

City of Ottawa | *Ville d'Ottawa*

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

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*****Please note that, while my work hours may be affected by the current situation, I still have access to email and telephone. Feel free to schedule telephone calls if you wish to discuss something with me over the telephone*****

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May 26, 2020

Jean-Charles Renaud
Planner II, Development Review Services
Planning, Infrastructure and Economic Development
City of Ottawa
110 Laurier Avenue West, 4th Floor
K1P 1J1

Re: **Wateridge Village Phase 1B: Block 22**
Fourth Submission for SPA (Municipal File No. D07-01-20-0072)

This submission is submitted to address the comments provided via email from the City of Ottawa on April 2, 2020, following a teleconference that was held on March 23, 2020. Meeting minutes from said teleconference were circulated in the e-mail with the comments from April 2.

The responses to the comments are as follows:

Meeting Minutes from March 23, 2020
Engineering Comments (Mark Fraser)

Comment 1: Additional comments are attached to the follow-up email.

Response: Noted.

Comment 2: Updated site servicing report - demonstrate consistency with higher level study. Use Block 15 as examples.

Response: The site servicing report has been updated to demonstrate consistency with higher level studies and follows the general format that was used in the reporting for Block 15.

Comment 3: Noise assessment - provide copy of 2017 study, with addendum.

Response: To be provided by others.

Comment 4: Geotech report - memo stating that details have been reviewed and that the findings are still valid.

Response: A revised geotechnical report dated April 24, 2020 has been prepared by Paterson Group. Geotechnical memos prepared by Paterson Group providing

recommendations and confirming the review of the proposed servicing and grading design are included with this submission.

Comment 5: Will be requesting memos similar to Block 15.

Response: See response to Comment 4.

Comment 6: ESA - not required, but provide copy of RSC.

Response: To be provided by others.

Comment 7: Plans - updated engineering plans will be required.

Response: Please refer to the engineering plans, Revision 10 dated May 26, 2020 included with this submission.

Comment 8: Comments - all units to be serviced interior to the site. Perimeter metering. If condo, all units to be serviced from interior. Expectation from the City is still to have servicing from internal to the site.

Response: Water, sanitary and storm servicing for the proposed development is all internal to the site as requested. Water perimeter meters are included in the vicinity of both connections to the existing 200 mm watermains, but located within the development.

Comment 9: (From applicant): Tree plantings - building will meet zoning first. (City): This has proven to be problematic on other sites and will need to be [reviewed].

Response: Refer to the landscape plan which has been incorporated into the Site Plan included with this submission.

Comment 10: Hydro transformers - bollards location to be adjusted

Response: The proposed Hydro transformer location will be adjusted through the CUP process, which will be initiated once the proposed servicing design has been advanced.

E-mail from Jean-Charles Renaud from April 2, 2020
Engineering Comments

Comment 1: Updated engineering plans and studies are required to be submitted to support this project.

Response: Please refer to the engineering plans, Revision 10 dated May 26, 2020 included with this submission.

Comment 2: Updated Site Servicing and Stormwater Management Report (SWM) to be provided. Highly recommend using the report prepared in support of Block 15 as a baseline example for the level of analysis and information required to support this project.

Response: The site servicing report has been updated to demonstrate consistency with higher level studies and follows the general format that was used in the reporting for Block 15.

Comment 3: HGL Analysis to be completed and included as part of the Site Servicing and SWM report if basements are being proposed.

Response: An HGL Analysis is currently underway and will be included as a follow up to this submission. As discussed in Section 5.4, at this time, the 100-year HGL is anticipated to be fully contained within the proposed storm sewers and is not anticipated to impact the underside of footing elevations for Block 4, which is the only block with basements.

Comment 4: The proposed **site servicing and SWM design to be consistent with higher-level studies and plans**. Excerpts from relevant higher-level studies and plans shall be discussed and provided in the Appendix of the report as supporting documentation. Any deviations will be required to be discussed and may require an update or addendum to the subdivision MSS to support the change(s) at the discretion of the City.

Response: The site servicing report has been updated to demonstrate consistency with higher level studies and follows the general format that was used in the reporting for Block 15. Excerpts from relevant higher-level studies and plans are included in the Appendix of the report.

Comment 5: Low Impact Development (LID) measures to be implemented as per the Wateridge Phase 1B Developer's Checklist, prepared by Aquafor Beech Ltd., dated October 22, 2019 and infiltration targets achieved.

Response: LID measures are included in the proposed design and consists of storage chambers in the form of over-sized perforated pipes surrounded by clear stone and geotextile material. Details for the proposed LID measures are provided on Drawing 7 and discussed in Section 5.6 of the site servicing report.

Comment 6: Consult with the Rideau Valley Conservation Authority regarding water quality criteria for the subject block prior to submission an 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 as supporting documentation.

Response: Correspondence with the RVCA is included in Appendix A of the site servicing report. Per the e-mail from Jamie Batchelor dated May 6, 2020, the proposed development does not require any additional quality control measures.

Comment 7: Include a copy of the previously approved 2017 transportation noise assessment report and provide a **transportation noise assessment addendum** similar to the addendum provided for Block 15 to update the analysis and recommendation for this site plan revision.

Response: To be provided by others.

Comment 8: Provide a copy of the geotechnical report and a **memorandum** stating that the details of this site plan have been reviewed from a geotechnical perspective and the findings and recommendations of the reports are valid for the site plan revision. Update report if determined to be necessary.

Response: A copy of the revised geotechnical report by Paterson Group dated April 24, 2020 is included with this submission. The geotechnical memos are referenced in the site servicing report and included in Appendix A of the report.

Comment 9: Similar geotechnical memorandums that were required to support approval of Block 15 will be required for this project (ex. review of servicing installation impact of adjacent building foundations, infiltration rates specific to this site, landscaping plan review, grading plan review, etc.).

Response: See response to Comment 8.

Comment 10: Provide a **copy of the Record of Site Condition (RSC)** acknowledged by the Ministry for this site and a **memorandum** prepared by an environmental consultant confirming that no potential contaminating activities have taken place within the RSC area since the filling of the RSC.

Response: To be provided by others.

Comment 11: Plan and Profile drawings are required to be submitted as part of the engineering drawing package.

Response: Plan and profile drawings for Kizis Private, the Parking Lot and Servicing Block are included with this submission. Refer to Drawings 4 and 5.

Comment 12: All townhouse units are to be serviced internal to the site with only one storm and one sanitary sewer connection to the street.

Response: All townhouse units are serviced internal to the site with only one storm and one sanitary connection to the existing servicing network on Michael Stoqua Street,

Comment 13: Site to be **perimeter metered** similar to Block 15.

Response: Water perimeter meters are included in the vicinity of both connections to the existing 200 mm watermains, but located within the development. Refer to Drawing 3.

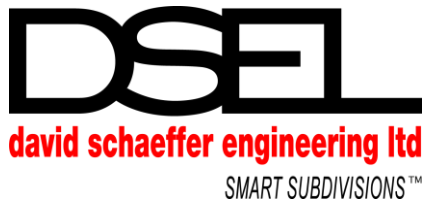
Comment 14: Request new boundary conditions to update hydraulic analysis.

Response: Boundary conditions were requested and provided by the City on May 15, 2020. The boundary conditions and the hydraulic analysis are included in Appendix B of the site servicing report.

Comment 15: All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils-2017 Guidelines are required to be satisfied if it is determined that clay soils are present in this area. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5 m shall be achieved. A memorandum to be provided from geotechnical engineer similar to Block 15.

Response: Refer to PG5345-MEMO.01 dated May 15, 2020 prepared by Paterson Group and included in Appendix A of the site servicing report.

Comment 16: The consultant shall determine if this project will be subject to an Environmental Compliance addressing 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. If the SWM works are servicing one parcel of land under one ownership an ECA



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would not be required however if the intention is to create POTL to a condominium corporation or multiple condominium corporations an ECA will be required prior to registration of any condominium proposal.

Response: Blocks 1, 2 and 3 will undergo separate Part Lot Control processes for individual ownership severances while Block 4, Kizis Private and the parking area will undergo a separate Part Lot Control Process to form a single ownership. As such, an ECA Approval will be required through the Ministry of the Environment, Conservation and Parks (MECP) through the Direct Submission process as the development does not fall under the exemptions set out in O.Reg 525/98.

Comment 17: 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.

Response: To be provided by others, once the electrical design has been advanced.

Best regards,
David Schaeffer Engineering Ltd.

Anthony Temelini, P.Eng.
Junior Project Manager
T: (613) 875-7862
E: atemelini@dsel.ca

Steve Merrick

From: David Gilbert <DGilbert@Patersongroup.ca>
Sent: Friday, September 22, 2017 2:30 PM
To: Steve Merrick
Subject: RE: Wateridge Village Phase 1B - Geotech Report

Hi Steve,

As discussed, the upper portion of the soils profile within Block 19 consists mainly of a silty clay. If this material were re-compacted across the other blocks, we estimate that the infiltration rate would be approximately 50 mm/day. To provide an accurate infiltration rate assessment, we could complete a series of pack permeameter tests once the material has been placed and re-compacted or in its presence state within Block 19.

Best regards,

David Gilbert, P.Eng.
Senior Geotechnical Engineer

patersongroup

Solution Oriented Engineering
60 years serving our clients

154 Colonnade Road South
Ottawa, Ontario
K2E 7J5
Tel: 613.226-7381 ext. 205

From: Steve Merrick [mailto:SMerrick@dsel.ca]
Sent: Thursday, September 21, 2017 9:21 AM
To: David Gilbert <DGilbert@Patersongroup.ca>
Subject: RE: Wateridge Village Phase 1B - Geotech Report

Hi Dave, same project but a different question. Can Paterson please provide an average infiltration rate for the Block 19? We are looking for this to size our LID systems understanding that the LID measures for Blocks 15, 22 and 24 will be within fill taken from Block 19.

I'll follow up with a phone call this morning to discuss.

Thanks!

Steve Merrick, P.Eng.
Project Manager / Intermediate Designer

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
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phone: (613) 836-0856 ext. 561
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email: smerrick@DSEL.ca

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From: Steve Merrick
Sent: Wednesday, September 20, 2017 4:03 PM
To: 'David Gilbert' <DGilbert@Patersongroup.ca>
Cc: 'Adam Fobert' <afobert@dsel.ca>
Subject: RE: Wateridge Village Phase 1B - Geotech Report

Thanks Dave, we are trying to get the feasibility of this option back to Mattamy quickly and your input would really help.

Thanks!

Steve Merrick, P.Eng.
Project Manager / Intermediate Designer

DSEL
david schaeffer engineering ltd.

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From: Steve Merrick
Sent: Wednesday, September 20, 2017 3:29 PM
To: David Gilbert <DGilbert@Patersongroup.ca>
Cc: 'Adam Fobert' <afobert@dsel.ca>
Subject: RE: Wateridge Village Phase 1B - Geotech Report

Hi Dave,

We are looking at some servicing options for Mattamy' blocks at Wateridge and wanted to input from Paterson on zone of influence and sewers in close proximity to the units. I have attached 3 sketches (very rough) showing some restrictive areas. Can you advise on the zone of influence from the footings and provide any other geotechnical recommendations or issues with the proposed sections?

Please refer to the servicing plans for locations of the 3 sections.

Thanks!

Steve Merrick, P.Eng.
Project Manager / Intermediate Designer

DSEL

david schaeffer engineering ltd.

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From: Jillian Normand [<mailto:Jillian.Normand@mattamycorp.com>]

Sent: Wednesday, August 9, 2017 5:21 PM

To: Adam Fobert <AFobert@dsel.ca>; Steve Merrick <SMerrick@dsel.ca>; Anne-Claude Schellenberg <ACSchellenberg@nak-design.com>; Sean Leogreen <sleogreen@nak-design.com>; Anita Bennell <abennell@nak-design.com>; Kevin Murphy <Kevin.Murphy@mattamycorp.com>; Jessica McLellan <Jessica.McLellan@mattamycorp.com>; Marco VanderMaas <MVanderMaas@g4architects.com>; Daniel Potechin <Daniel.Potechin@mattamycorp.com>

Subject: Wateridge Village Phase 1B - Geotech Report

Hi team,

Please see attached for the updated Geotech Report, for your reference.

Jillian



Jillian Normand

Land Development Manager

T (613) 831-5144 (direct). C (613) 415-7786. F (613) 831-9060

Jillian.Normand@mattamycorp.com

Ottawa Office: 50 Hines Road, Suite 100, Ottawa, ON Canada K2K 2M5

Notice: This email is intended for use of the party to whom it is addressed and may contain confidential information. If you have received this email in error, please inform me and delete it. Thank you.

Steve Merrick

From: Winston Yang <Winston.Yang@ibigroup.com>
Sent: Wednesday, August 16, 2017 11:50 AM
To: Adam Fobert; Jean Lachance
Cc: Jillian Normand; Jim Moffatt
Subject: RE: 918 Mattamy - Wateridge: IBI Servicing Review

Hi Adam and Jean,

I have reviewed the impact as per DSEL design for Block 15, 22 and 24.

Upon review of the proposed grading plans for Blocks 15, 22, and 24, we found the leave grades provided by DSEL to be reasonable.

We do not have a conceptual plan for Block 19 yet. The leave grades for that block seem low for a typical basement development. However they might be fine if underground parking is planned.

For the Servicing side, the storm and sanitary outlets location for each block were changed compared to the MSS and Design Brief.

Then we have implemented the changes DSEL made into our sewer design and have examined the capacity for each downstream sewers.

The result shows that the downstream sewers for storm and sanitary have the capacity to convey the flow for all new outlets for blocks, 15, 22 and 24.

In order to minimize the impact and cost, we are going to shift some manholes to accommodate the new outlets base on DSEL design.

For Block 22, MH210 and MH210A can be shifted to the south to replace the STM101 and SAN1 along Michael Stoqua Street.

For Block 24, MH213 and MH213A can be shifted to the south to replace the STM101 and SAN1 along Moses Tenisco Street. At the same time, MH212 and MH212A will be shifted to the south in order to reduce the length of the sewers.

For Block 15, there is no choice, the manhole STM101 and SAN1 are required for Squadron Crescent.

Since the typical 1200mm Dia. Manholes have been already ordered by the contractor.

We will contact the contractor to find out any further impacts will be caused by shifting the manholes.

For the storm section below. DSEL met the IBI criteria for the proposed lots.

In regards to Block 19, the drainage areas should be corresponded to IBI Lot141, Lot 167 in Phase 1A and Lot208B, Lot209 in Phase 1B.

And the IBI 100 year capture rate is 475l/s (283l/s+63l/s+46l/s+83l/s). Please considered in your design later on.

Should you have any questions please do not hesitate to contact either Jim or me.

Yours truly,

Winston Yang P.Eng.

email Winston.Yang@ibigroup.com web www.ibigroup.com

IBI GROUP

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Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 fax +1 613 225 9868



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NOTE: Ce courriel peut contenir de l'information privilégiée et confidentielle. Si vous avez reçu ce message par erreur, veuillez le mentionner immédiatement à l'expéditeur et effacer ce courriel.

From: Adam Fobert [mailto:AFobert@dsel.ca]
Sent: Tuesday, August 15, 2017 5:27 PM
To: Winston Yang <Winston.Yang@ibigroup.com>; Jim Moffatt <jmoffatt@IBIGroup.com>
Cc: Jean Lachance <JLachance@clc.ca>; Jillian Normand <Jillian.Normand@mattamycorp.com>
Subject: 918 Mattamy - Wateridge: IBI Servicing Review

Hello Jim and Winston,

How is your review of our site servicing is coming along? I have reviewed your Design Brief's for Phase 1A and 1B and have compared the analysis contained within to our proposed design.

I offer the following considerations based on my review:

General:

DSEL proposed one storm and one sanitary connection to each block. The City indicated that this was their expectation during our pre-consultation as it is their standard practice for multi-block parcels.

Block 15: The servicing brief shows three connections to Squadron Crescent. DSEL are proposing one connection downstream of the contemplated connections.

Block 22: The surrounding grades slope from east to west. The servicing brief shows a drainage divide mid-block, where half the site drains to Moses Tenisco and the other to Michael Stoqua. Moses Tenisco is 1.14m higher than Michael Stoqua at the proposed road connection points. As such, to avoid fighting grades DSEL proposed storm and sanitary connections to Michael Stoqua only.

Block 24: Moses Tenisco slopes from north to south 1.1m from Hemlock to Mikinak. The servicing brief shows a drainage divide mid-block with connections to Moses Tenisco and Mikinak. DSEL proposed a storm and sanitary outlet at the southern road connection on Moses Tenisco based on Mattamy's proposed site. This avoids fighting grades internally.

Wastewater:

Block 15:

IBI Servicing Brief = 487.3p

Mattamy Proposal = 335p

Proposed connections are downstream of IBI contemplated connections. Population is less than included in servicing brief. Therefore, we do not expect servicing issues with Block 15.

Block 22:

IBI Servicing Brief ~ 105p (note that I am interpolating since half of Block 22 is included in northern half of Block 24.)

Mattamy Proposal = 52p

IBI servicing brief assumed 52.5p tributary to Moses Tenisco. Therefore, we do not expect capacity issues.

Block 24:

IBI Servicing Brief ~284.4p (note that I am interpolating based on the population shown on phase 1A southern half of block 24).

Mattamy Proposal = 364p

DSEL reviewed the available capacity in the receiving sewers and did not see any capacity issues.

Note: Mattamy's proposed servicing eliminates the need for 63.8m of sanitary sewer on Moses Tennisco from MH213A to MH212A. Savings to CLC.

Stormwater:

I have reviewed Appendix E of the servicing briefs to compare our calculations to the assumptions used in the model.

Review of the Summary of DDSWMM Parameters

Block 15:

IBI Servicing brief: No storage assumed. 5 and 100 year capture 396L/s

Mattamy's proposal: 275m³ of storage provided. DSEL's estimated 5-year peak 357.4L/s

Block 19:

IBI Servicing brief: No storage assumed. 194 + 57 (note that Lot 209 and 208B are missing from chart).

Mattamy's proposal: TBD.

Block 22:

IBI Servicing brief: No storage assumed. 5 and 100 year (46 + 46) 92L/s

Mattamy's proposal: 46.5m³ of storage provided. DSEL's estimated 5-year peak 87L/s.

Block 24:

IBI Servicing brief: No Storage. 5 and 100 year capture (162 +162) 324L/s.

Mattamy's proposal: 27.3m³ of storage provided. DSEL's estimated 5-year peak 325.7L/s.

Let me know if you have any comments or questions. Thank you for your time.

Adam Fobert, P.Eng.
Manager of Site Plan Design

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

office: (613) 836-0856
direct: (613) 836-0626
cell: (613) 222-9493
email: afobert@DSEL.ca

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Genavieve Greenberg

From: Jim Moffatt <jmoffatt@IBIGroup.com>
Sent: Tuesday, October 1, 2019 11:26 AM
To: Genavieve Greenberg; Ed Ireland; Karlinda Hinds
Cc: Jillian Normand; Adam Fobert
Subject: RE: Wateridge at Rockcliffe Phase 1B Servicing Confirmation (Block 15)

All sewers and watermain in Wateridge Village Phase 1B, including those on Squadron Crescent and downstream, are in service. If you require any further confirmation of Phase 1B services or have other questions about this Phase, just call me.

From: Genavieve Greenberg [mailto:GGreenberg@dsel.ca]
Sent: Friday, September 27, 2019 11:00 AM
To: Jim Moffatt <jmoffatt@IBIGroup.com>; Ed Ireland <ed.ireland@IBIGroup.com>; Karlinda Hinds <Karlinda.Hinds@ibigroup.com>
Cc: Jillian Normand <Jillian.Normand@mattamycorp.com>; Adam Fobert <AFobert@dsel.ca>
Subject: RE: Wateridge at Rockcliffe Phase 1B Servicing Confirmation (Block 15)

Good morning Jim,

We are working on the servicing plan for this block currently.

We have been asked by the City just to obtain confirmation that the services within Squadron Crescent and the rest of Phase 1B are in fact "in service". Would it be possible to have that confirmed?

Thank you,

Genavieve Greenberg
Project Coordinator/ Junior Designer

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

phone: (613) 836-0856 ext. 569
email: ggreenberg@DSEL.ca

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From: Jim Moffatt <jmoffatt@IBIGroup.com>
Sent: Friday, September 27, 2019 10:17 AM
To: Ed Ireland <ed.ireland@IBIGroup.com>; Karlinda Hinds <Karlinda.Hinds@ibigroup.com>
Cc: Genavieve Greenberg <GGreenberg@dsel.ca>
Subject: RE: Wateridge at Rockcliffe Phase 1B Servicing Confirmation (Block 15)

Do we have a plan from Dsel showing the servicing requirements for Block 15. We provided sewer outlets near the north west portion of the site.

From: Ed Ireland
Sent: Friday, September 27, 2019 10:06 AM
To: Jim Moffatt <jmoffatt@IBIGroup.com>; Karlinda Hinds <Karlinda.Hinds@ibigroup.com>
Cc: GGreenberg@dsel.ca
Subject: FW: Wateridge at Rockcliffe Phase 1B Servicing Confirmation (Block 15)

Jim and Karlinda,

Can you email Genavieve the Wateridge files she needs and the construction group must have some correspondence with the City regarding service installation.

Ed

From: Genavieve Greenberg [<mailto:GGreenberg@dsel.ca>]
Sent: Friday, September 27, 2019 10:00 AM
To: Ed Ireland <ed.ireland@IBIGroup.com>
Subject: Wateridge at Rockcliffe Phase 1B Servicing Confirmation (Block 15)

Good morning Ed,

We have been requested by the City to obtain correspondence to confirm that the surrounding services for the proposed development are in service. Would you be able to provide confirmation that all of Wateridge Village at Rockcliffe Phase 1B are in service. Would you be able to confirm this for us?

I was also wondering if you might be able to send the most recent drawings for Phase 1B and if possible CAD for the Ponding Plan, Drawing No. 751.

I will give you a call this morning to discuss these items. If you have any questions at all please feel free to reach out to me.

Thank you,

Genavieve Greenberg
Project Coordinator/ Junior Designer

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

phone: (613) 836-0856 ext. 569
email: ggreenberg@DSEL.ca

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SCHEDULE A

SEWAGE WORKS ALLOWED UNDER THE TRANSFER OF REVIEW PROGRAM

Works allowed to be submitted under the TOR program by the Municipality are described in Sections 1 and 2 below. The works must also meet any requirements in the applicable section. Works that are not described in Section 1 or 2, do not meet any applicable requirements or to which Section 3 applies are not allowed to be submitted under the TOR program.

1. Standard Works Allowed

i) Allowed Sanitary Sewage Works

Unless specified in Section 3 of this Schedule, only ECA applications for the following sanitary sewage works are allowed to be submitted by the Municipality under the TOR Program:

- a. New or modified, municipal or private sanitary sewers, forcemains or siphons that:
 - i. are designed in accordance with the Ministry document *Design Guidelines for Sewage Works, 2008* (PIBS 6879) as amended from time to time;
 - ii. are not combined sewers; and
 - iii. do not discharge directly to a sewage treatment plant.
- b. New or modified, municipal or private sanitary sewage pumping stations that:
 - i. are designed in accordance with the Ministry document *Design Guidelines for Sewage Works, 2008* (PIBS 6879) as amended from time to time; and
 - ii. do not discharge directly to a sewage treatment plant.

For greater clarity, any sanitary sewage works that provide any treatment of sanitary sewage are not allowed to be submitted under the TOR program.

ii) Allowed Stormwater Works

Unless specified in Section 3 of this Schedule, only ECA applications for the following stormwater works are allowed to be submitted by the Municipality under the TOR Program:

- a. New or modified municipal or private storm sewers, ditches, culverts and grassed swales that:
 - i. are designed in accordance with the Ministry document *Stormwater Management Planning and Design Manual, 2003* (PIBS 4329e) as amended from time to time;
 - ii. are designed primarily for the collection and transmission of stormwater;
 - iii. discharge to existing storm sewers, other existing stormwater conveyance works, an approved stormwater management facility, or a Municipal Drain;
 - iv. for drainage works under the *Drainage Act*, approval of a petition for the modifications must be obtained under the *Drainage Act* prior to submitting an application for an ECA;
 - v. are not combined sewers or superpipes and does not connect to a combined sewer;
 - vi. are not located on industrial land or designed to service industrial land;
 - vii. do not propose to collect, store or discharge stormwater containing substances or pollutants (other than Total Suspended Solids, or oil and grease) detrimental to the environment or human health; and
 - viii. do not require the establishment and monitoring of effluent quality criteria.

SCHEDULE A
SEWAGE WORKS ALLOWED UNDER THE TRANSFER OF REVIEW PROGRAM

- b. New or modified, municipal or private oil/grit separators that:
- i. are designed in accordance with the Ministry document *Stormwater Management Planning and Design Manual, 2003* (PIBS 4329e) as amended from time to time;
 - ii. discharge to existing storm sewers, other existing stormwater conveyance, an approved stormwater management facility, or a Municipal Drain;
 - iii. for drainage works under the *Drainage Act*, approval of a petition for the modifications must be obtained under the *Drainage Act* prior to submitting an application for an ECA;
 - iv. are not located on industrial land or designed to service industrial land;
 - v. do not propose to collect, store or discharge stormwater containing substances or pollutants (other than Total Suspended Solids, or oil and grease) detrimental to the environment or human health; and
 - vi. do not require the establishment and monitoring of effluent quality criteria.

2. Additional Works Allowed

The Municipality may submit ECA applications for sanitary and/or stormwater works other than those allowed in Section 1 as described below and in accordance with any listed requirements.

The Municipality's TOR Program is expanded to include:

- a. Combined Sewers
- the rehabilitation of existing combined sewers where there is no increase in combined sewage overflow (CSO).
- b. Stormwater Management Facilities (wet ponds, wetlands, hybrid ponds, dry ponds)
- altering, modifying, adding, optimizing or expanding the retention capacity for existing approved stormwater management facilities, including stormwater outfalls, provided that:
 - if the proposed works are required to provide quality control, the works are designed to achieve Enhanced Level water quality control and erosion protection (i.e. 80% TSS removal); and
 - any attenuation design requirements are satisfied;
 - installing new stormwater management facilities, including stormwater outfalls, provided that:
 - if the proposed works are required to provide quality control, the works are designed to achieve Enhanced Level water quality control and erosion protection (i.e. 80% TSS removal); and
 - any attenuation design requirements are satisfied;
 - stormwater pumping stations.
- c. Lot Level and Conveyance Control (Low Impact Development) Measures
- altering, modifying, adding, optimizing or expanding the retention capacity for existing approved low impact development (LID) measures, including stormwater outfalls, provided that:

SCHEDULE A
SEWAGE WORKS ALLOWED UNDER THE TRANSFER OF REVIEW PROGRAM

- if the proposed works are required to provide quality control, the LID measures are designed to achieve Enhanced Level water quality control and erosion protection (i.e. 80% TSS removal); and
- any attenuation design requirements are satisfied;
- installing new LID measures, including stormwater outfalls, provided that:
 - if the proposed works are required to provide quality control, the LID measures are designed to achieve Enhanced Level water quality control and erosion protection (i.e. 80% TSS removal);
 - any attenuation design requirements are satisfied; and
 - the design considers corrective and remediation measures in the event of lack of performance of the LID measures;
- rooftop, surface and underground storage with inlet control devices or orifices.

For Works listed in 2a through 2c the following requirements must be met:

- the Works must be designed in accordance with the Ministry documents *Design Guidelines for Sewage Works, 2008* (PIBS 6879) and *Stormwater Management Planning and Design Manual, 2003* (PIBS 4329e), as amended from time to time;
- the Works must receive drainage only from non-industrial lands, where industrial lands are defined by *Ontario Regulation 525/98*;
- any stormwater management pond listed in 2b above shall not be used as a snowmelt facility;
- for Works that are designed to partially infiltrate or exfiltrate into the surrounding soils during high flow conditions:
 - based on the type of works, the vertical separation distance between the highest groundwater table (i.e. spring runoff) and the lowest elevation of the works shall adhere to Table 4.1 of the Ministry document *Stormwater Management Planning and Design Manual, 2003* (PIBS 4329e); and
 - groundwater must not be utilized as a potable water resource anywhere drainage is captured by the stormwater management works;
- infiltration or exfiltration stormwater works include:
 - pervious pipes and catch-basins;
 - filtering systems, and infiltration trenches, such as, soak away pits attached to pervious catch-basins and sand filter beds;
 - infiltration basins;
 - pervious pipes and catch-basins with infiltration trench systems, rainwater and snow melt into the surrounding soils during high flow conditions; and
 - open channels, ditches, swale drainage systems, bio-swales, tree pits, and infiltration trenches on public roads, or right-of-ways, designed to exfiltrate part or all of the stormwater runoff from the adjacent road into the surrounding soils. These types of works are to include vegetative surfaces;
- for stormwater pumping stations, high level alarm systems, appropriate response time during emergency conditions, and redundancy in pumping arrangement must be provided;

SCHEDULE A
SEWAGE WORKS ALLOWED UNDER THE TRANSFER OF REVIEW PROGRAM

- for the rehabilitation of existing combined sewers, the Works must conform to *Ministry Procedure F-5-5, Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems*, as amended from time to time;
- for drainage works under the *Drainage Act*, approval of a petition for the modifications must be obtained under the *Drainage Act* prior to submitting an application for an ECA;
- the description of the works for a new or replacement outfall will identify the receiving watercourse if it discharges into any of the provincially recognized critical receivers and/or their tributaries;
- the applicant has consulted with the local Conservation Authority and obtained necessary clearance as required, if the works discharge to a surface water body;
- as part of the Letter of Recommendation, the Municipality has clearly identified all of the works which fall under this Section of Schedule A;
- the Municipality has notified all applicants for works allowed in this Section that the ECA may contain conditions requiring the development of an operation and maintenance program, including a spill contingency plan for the works; the Municipality shall include in their Letter of Recommendation any other conditions related to operation and maintenance of the works if applicable; and
- the Municipality shall maintain a report with detailed records of all the stormwater management works constructed during the year.

The report and records noted above are to include, but not be limited to, the approval number, date of approval, location, description of the stormwater management works, information about what, how, when, why and who operates and maintains the works.

The report must also include a summary of the operation and maintenance program activities, any trouble shooting activities, reports of any flooding conditions and/or any complaints received from the public. The report must also include a statement concerning the potential for these stormwater management systems to impact groundwater quality, which will be based upon the available evidence from inspection and maintenance activities.

The Ministry may require the submission of this report upon request. Further instructions on where and to whom the report is to be submitted will be provided by the Ministry.

In most cases, private works included in this Section will be subject to the requirements under the Environmental Bill of Rights (EBR), which includes mandatory posting of the project proposal on the Environmental Registry for a minimum of forty-five (45) days prior to the issuance of the Environmental Compliance Approval. Ontario Regulation 681/94 under the EBR sets forth the types of ECAs that are classified as Class I or II proposals which require posting on the Environmental Registry. All private wastewater ECAs are subject to posting on the Environmental Registry unless they relate to a discharge point which is already subject to an ECA approval and the proposed ECA would not permit an increase in the discharge of any specific contaminant from the discharge point. In addition, as per section 30 of the EBR, a proposal may be exempt from EBR requirements if the proposal has been considered in a substantially equivalent process of public participation.

SCHEDULE A
SEWAGE WORKS ALLOWED UNDER THE TRANSFER OF REVIEW PROGRAM

3. Works Not Allowed To Be Submitted

Under no circumstances are the following applications for Works identified in either Section 1 or 2 to be submitted under the TOR program:

- a. applications that are identified by the local Ministry District Office as being proposed within the zone of influence of a landfill area;
- b. applications for sanitary sewage works that provide any treatment of sanitary sewage;
- c. applications for Regional Stormwater Control Facilities or Regional Flood Control Facilities consisting of storm water management ponds that are designed to provide quality control or contain floods **greater than** the 100 year flood event;
- d. applications that are for airports or airparks;
- e. applications that are for pumping stations that service combined sewer systems;
- f. applications for projects that have received a Part II Order request, until the request has been decided;
- g. applications for projects that have undertaken an individual Environmental Assessment; and
- h. applications that are likely to trigger the Duty to Consult.

In addition, if the Municipality determines that the works listed in an application have been constructed or are being constructed before an Environmental Compliance Approval has been issued, the Municipality shall:

- i. immediately notify the local Ministry District Office; and
- ii. confirm with the Supervisor, Transfer of Review Program (Supervisor) that the application must be submitted directly to the Ministry for review. Once this confirmation is obtained, the municipality shall return the application and all associated documents and fees to the applicant and advise them that the application will not be reviewed under the TOR program. With written permission from the Supervisor, the municipality may be allowed to proceed with the review of the application.

4. 2020 Program Update: Proposed Consolidated Linear Infrastructure Approach

In view of the Ministry's plan to move to a consolidated permissions approach to linear infrastructure in the near future and subject to the written permission of the Supervisor, the municipality may be allowed in the interim to review additional works currently not listed in this schedule (including private works that may not be covered at the time of the application by an agreement pursuant to the Planning Act under section 1 of this Agreement).

Anthony Temelini

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: May 6, 2020 1:24 PM
To: Anthony Temelini
Cc: Jennifer Ailey
Subject: RE: 948 - Wateridge Village - Phase 1B Block 22 Water Quality Requirements

Good Afternoon Anthony,

If the flows are still ultimately being directed to the Eastern SWM facility before being discharged to a watercourse (in keeping with the original intent in the overall drainage plan, then The RVCA would not require any further onsite water quality control measures save and accept LID's or best management practices where appropriate.

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



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From: Anthony Temelini <ATemelini@dsel.ca>
Sent: Tuesday, May 5, 2020 2:48 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: 948 - Wateridge Village - Phase 1B Block 22 Water Quality Requirements

Hi Jamie,

I'm writing to you regarding the proposed development known as Wateridge Village – Phase 1B Block 22, located at 1400 Hemlock Road, which proposes 20 back-to-back stacked townhomes, 18 rear lane townhomes and surface parking on 0.46 ha of land. Please see the attached map from GeoOttawa and the current site plan for your reference.

The subject property is located within the Ottawa River watershed and was contemplated in the overall design for Wateridge Village at Rockcliffe Phase 1B, prepared by IBI Group. The subject site was also accounted for in the design of the permanent pool of the Eastern SWM Facility which provides 80% TSS removal for the subdivision.

The drainage plan per the approved servicing report by IBI Group is attached and shows the subject lands with a runoff coefficient of 0.80 with flow directed to the Eastern SWM Facility. Please note that the approved drainage plan contemplated splitting storm flows from the site to Michael Stoqua Street and Moses Tennisco Street, but the current

storm strategy proposes sending all of the minor system drainage to Michael Stoqua Street as the City of Ottawa has requested a singular connection to the existing storm sewer system.

The current design for the development will direct minor system flow to the Eastern SWM Facility with major flow directed to the dry pond south of the site and ultimately to the Eastern SWM facility via the minor storm sewer system, which is generally consistent with the approved design by IBI Group. It should also be noted that the design for Block 22 will incorporate LID measures.

Based on this information, can you please confirm if any additional quality controls are required for Wateridge Village – Phase 1B Block 22?

Please feel free to contact me should you have any questions or if you would like to discuss.

Thank you,

Anthony Temelini, P.Eng.
Junior Project Manager

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

cell: (613) 875-7862
phone: (613) 836-0856 ext.524
email: atemelini@dsel.ca

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CHEMIN HEMLOCK ROAD (26.0m WIDE)

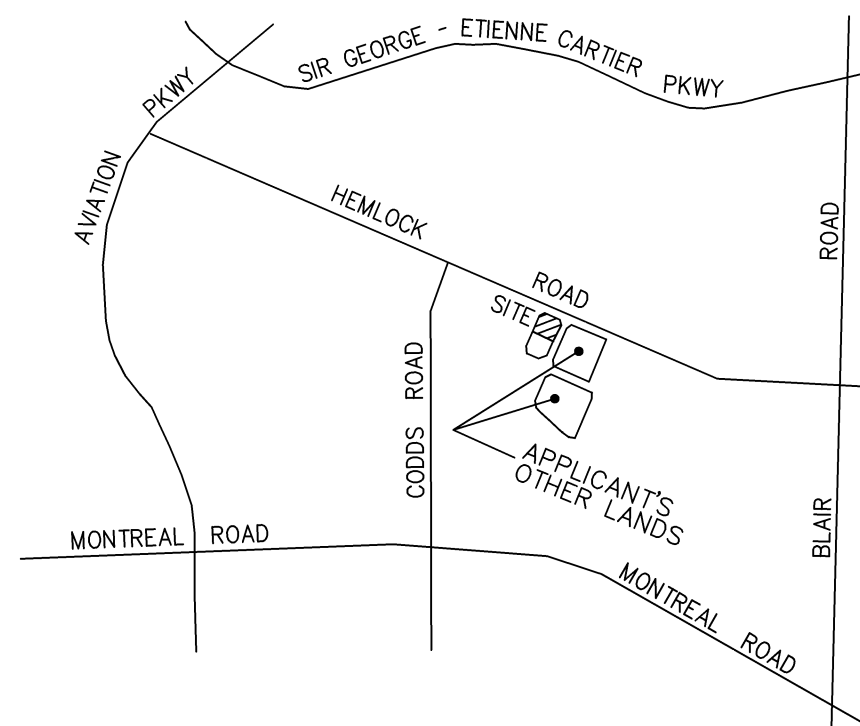
(DEDICATED BY REGISTERED PLAN 4M-1581)

PIN 04273-0627(LT)

SUBJECT TO EASEMENTS AS IN OC1755037, OC1755039, OC1771382 AND OC1874459

PLAN VIEW ILLUSTRATING CONFIGURATION OF
RESIDENTIAL UNITS 1 TO 20, INCLUSIVE, AND PARKING UNITS 21 TO 40, INCLUSIVE, ON LEVEL 1

SHEET 1 OF 1 SHEET



KEY PLAN NOT TO SCALE

1400 CHEMIN HEMLOCK ROAD

DRAFT PLAN OF STANDARD CONDOMINIUM OF
PART OF BLOCK 22
REGISTERED PLAN 4M-1581
CITY OF OTTAWA

J. D. BARNES LIMITED

SCALE 1 : 200



METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

ADDITIONAL INFORMATION REQUIRED UNDER
SECTION 51 (17) OF THE PLANNING ACT.

FOR A,B,C,E,F,G, AND J SEE DRAFT PLAN AND KEY PLAN

- D EACH UNIT IS SINGLE RESIDENTIAL. THE OWNER OF WHICH HAS OUTRIGHT OWNERSHIP. CERTAIN UNITS SHALL HAVE THE EXCLUSIVE USE OF PORTIONS OF THE COMMON ELEMENTS.
- H MUNICIPAL WATER IS AVAILABLE ON ADJACENT STREETS
- I CLAY LOAM
- K MUNICIPAL STORM AND SANITARY SEWERS ARE AVAILABLE ON ADJACENT STREETS.
- L ALL EASEMENTS AFFECTING THE SUBJECT SITE ARE SHOWN ON THE FACE OF THIS PLAN.

NOTES

BEARINGS HEREON ARE GRID. BEARINGS ARE REFERRED TO SPECIFIED CONTROL POINTS (SCPs). 019198434761 AND 0198434761, AND ARE REFERRED TO THE CENTRAL MERIDIAN 78°30' WEST LONGITUDE, ZONE 09, NAD83 (ORIGINAL). DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

INTEGRATION DATA

SPECIFIED CONTROL POINTS (SCPs): MTM ZONE 09, NAD83 (ORIGINAL).

COORDINATES TO AN URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
SCP 019198434761	372 436.11	5 036 178.12
SCP 01919680146	372 208.81	5 035 456.42

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

DEVELOPMENT STATISTICS

TOTAL NUMBER OF RESIDENTIAL UNITS = 20 STACKED TOWNHOUSES

SITE AREA = 4594.2 sq.m. (0.4594 ha.)

BUILDING COVERAGE = 1899.6 sq.m. (42%)

BUILDING HEIGHT = 3 STOREYS

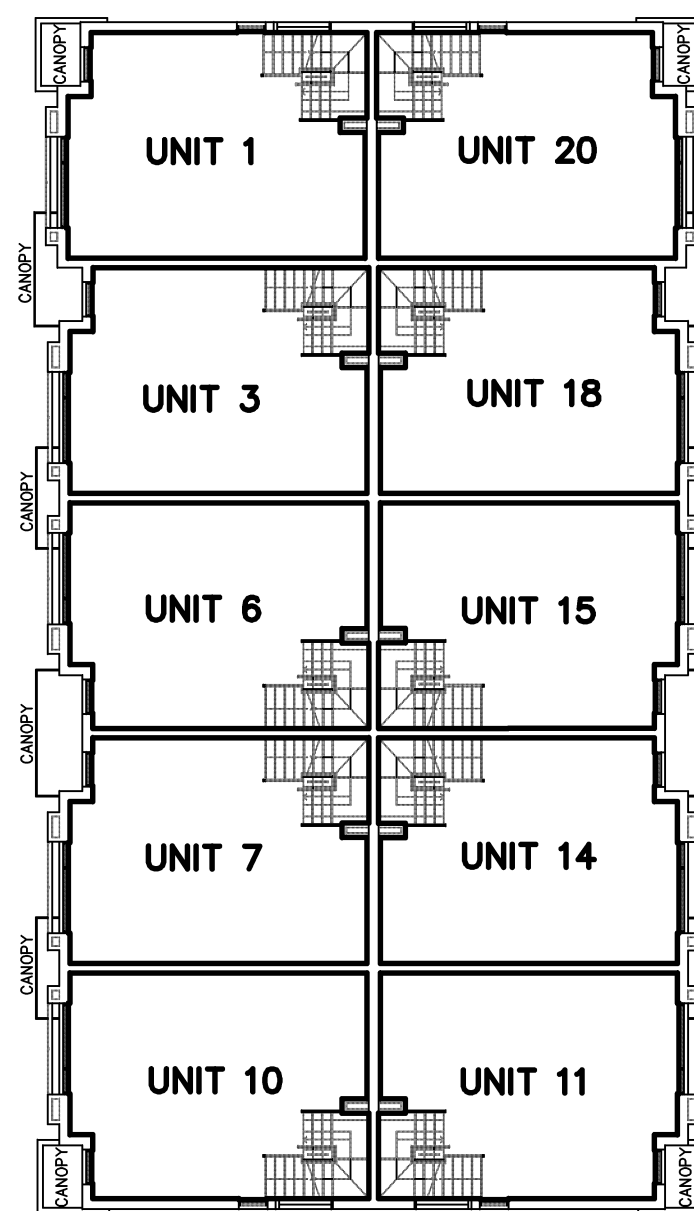
PARKING

RESIDENT PARKING UNITS = 20

VISITOR PARKING SPACES = 0

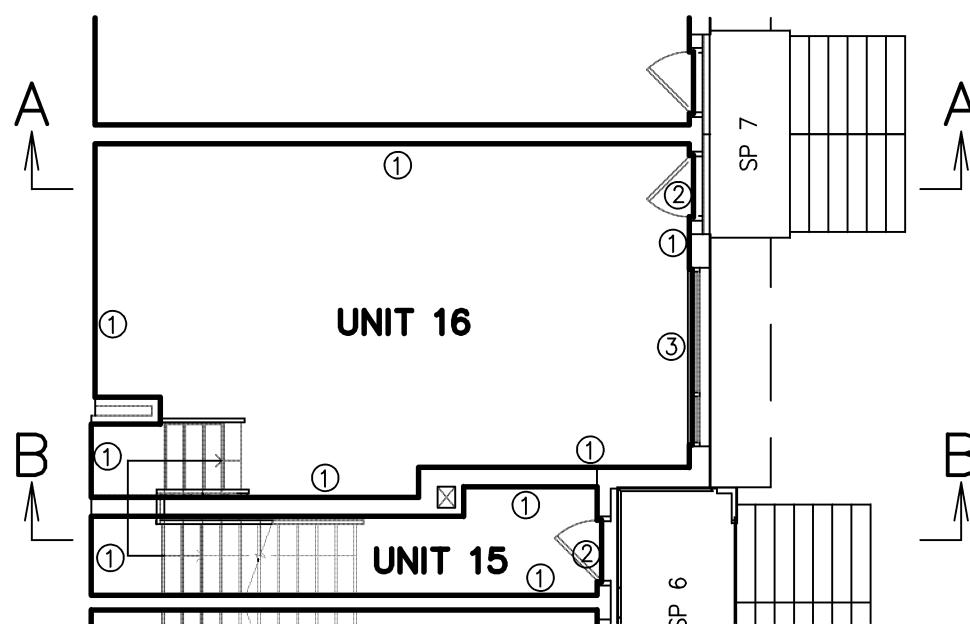
VISITOR BICYCLE RACKS = 9

PLAN VIEW ILLUSTRATING CONFIGURATION OF
RESIDENTIAL UNITS 1, 3, 6, 7, 10, 11, 14, 15, 18 AND
20, (SECOND STORY)

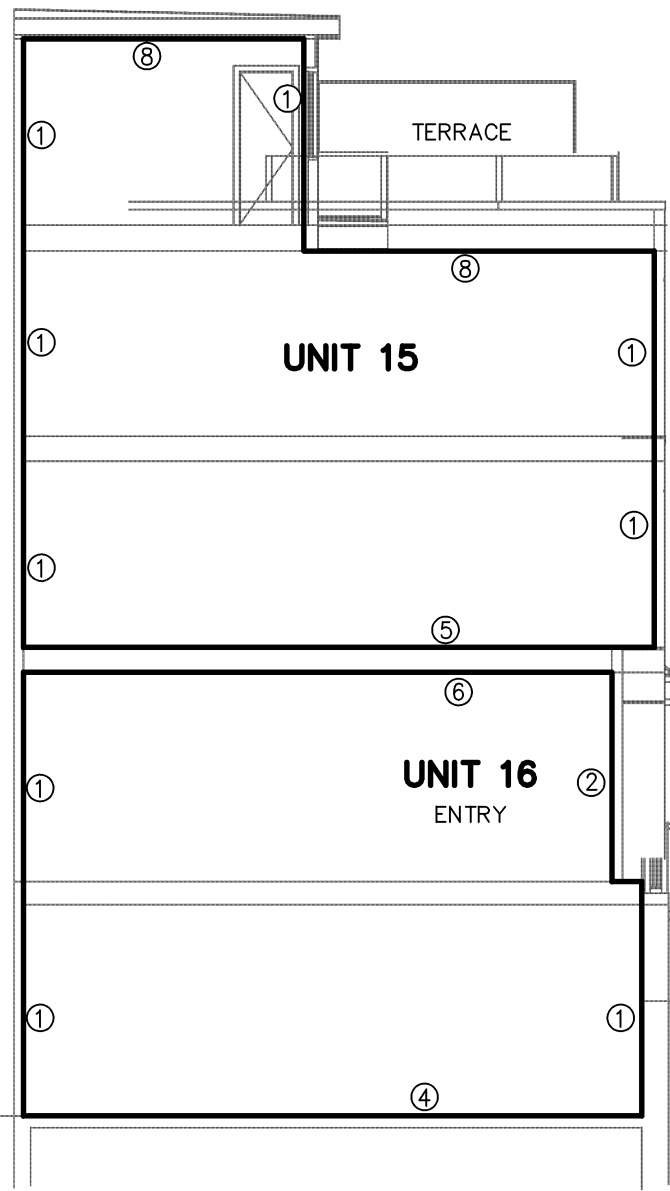


TYPICAL UNIT BOUNDARIES LEGEND

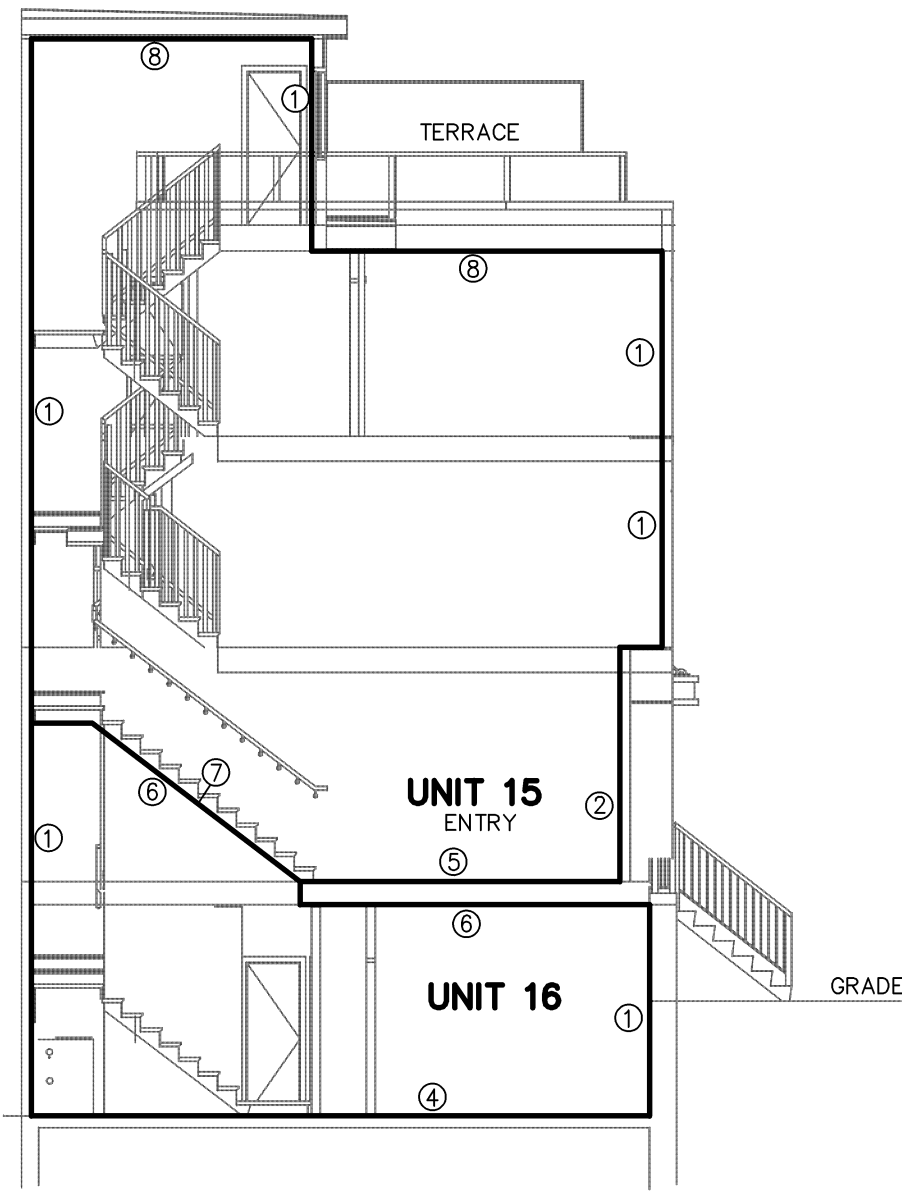
- ① DENOTES BACKSIDE OF DRYWALL SHEATHING
- ② DENOTES UNIT SIDE SURFACE OF DOOR AND FRAME
- ③ DENOTES UNIT SIDE SURFACE OF WINDOW AND FRAME
- ④ DENOTES UPPER SURFACE OF UNFINISHED CONCRETE FLOOR SLAB
- ⑤ DENOTES UPPER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY
- ⑥ DENOTES LOWER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY
- ⑦ DENOTES UPPER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY BENEATH STAIRS
- ⑧ DENOTES UPPER SURFACE OF DRYWALL CEILING IN UPPER MOST STOREY



PLAN VIEW ILLUSTRATING TYPICAL
UNIT BOUNDARIES ON LEVEL 1
(AT GRADE)
NOT TO SCALE



SECTION VIEW A-A ILLUSTRATING TYPICAL
VERTICAL RELATIONSHIP OF UPPER
AND LOWER UNITS ON LEVEL 1
NOT TO SCALE



SECTION VIEW B-B ILLUSTRATING TYPICAL
VERTICAL RELATIONSHIP OF UPPER
AND LOWER UNITS ON LEVEL 1
NOT TO SCALE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE DEVELOPED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE _____ PRELIMINARY
GEORGE ZERVOS
ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE

I HEREBY CONSENT TO THE SUBMISSION OF THIS PLAN FOR APPROVAL.

MATTAMY (ROCKCLIFFE) INC.

DATE _____

PARTS 1 AND 2 APPROVED AND PARTS 3 AND 4 EXEMPTED UNDER SECTION 9(3) OF THE CONDOMINIUM ACT R.S.O. 1998 AND SECTION 51 OF THE PLANNING ACT, R.S.O. 1993, THIS ____ DAY OF _____ 20__.

STEPHEN WILLIS, MOP, RPP
GENERAL MANAGER
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT
DEPARTMENT, CITY OF OTTAWA

ZONING: R5Y[2457]

J.D.BARNES SURVEYING
LIMITED MAPPING GIS
LAND INFORMATION SPECIALISTS
62 STACEE DRIVE, SUITE 103, KANATA, ON K2K 2A9
T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY: NS	CHECKED BY: GZ	REFERENCE NO.: 18-10-037-03
FILE: \$FILE\$	DATED: 9/8/2020	

SCHEDULE			
PARTS	BLOCK	PLAN	PIN
1	ALL OF 22	4M-1581	ALL OF 04273-0613 (LT)
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3			
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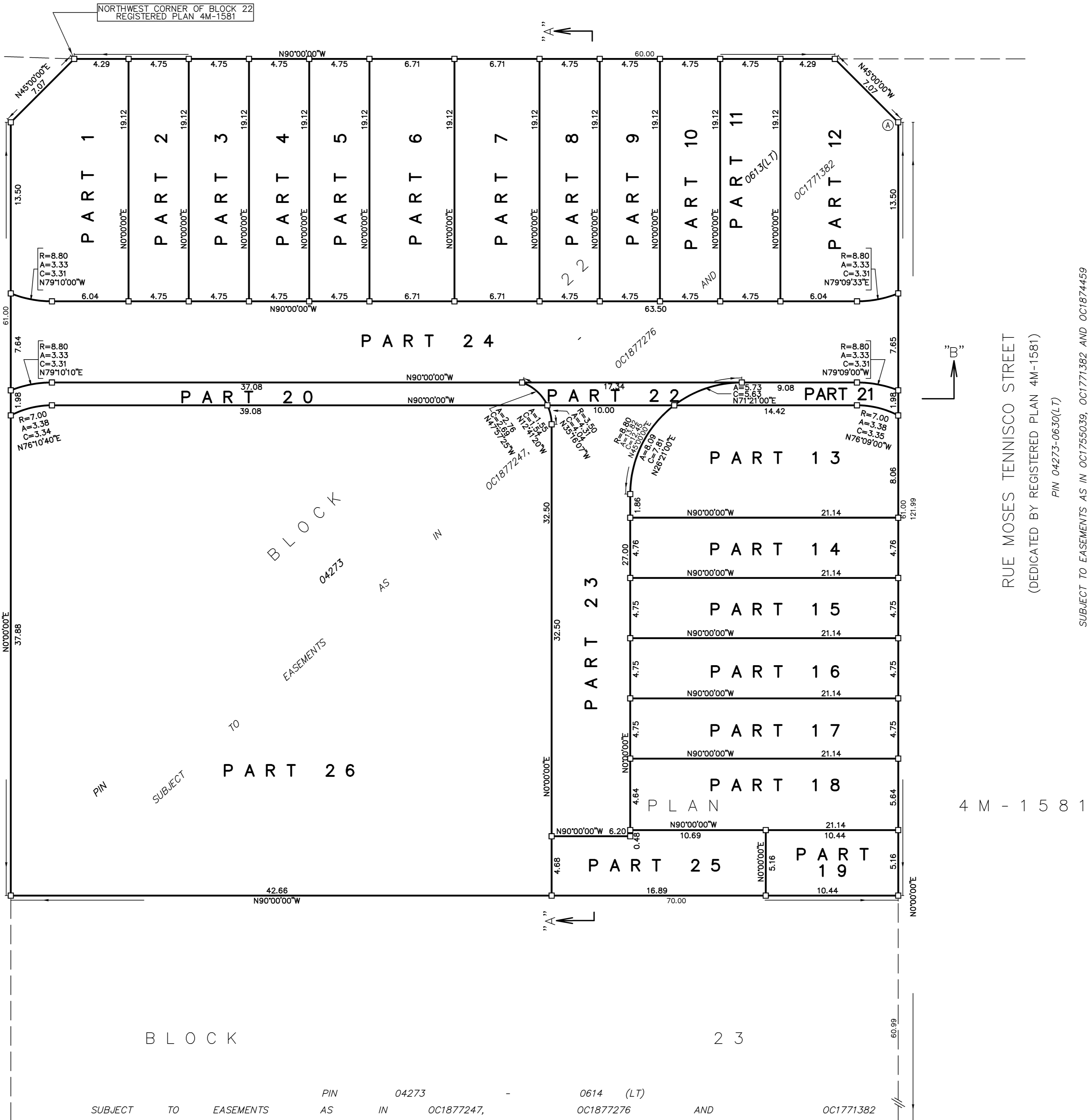
PARTS 1 TO 52 (BOTH INCLUSIVE), ARE SUBJECT TO EASEMENTS AS IN OC1877247 AND OC1877276
PARTS 27 TO 52 (BOTH INCLUSIVE), ARE SUBJECT TO EASEMENT AS IN OC1771382

PART	DIAGRAM No. SHOWING PLAN VIEWS OF PARTS	CROSS-SECTIONS SHOWING VERTICAL EXTENTS OF PARTS
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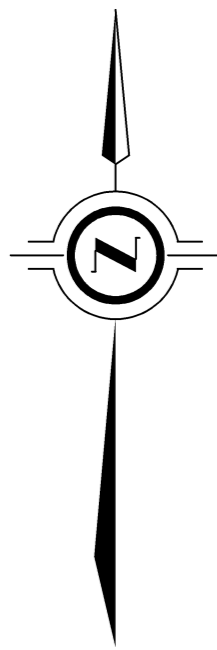
REGISTERED

RUE MICHEAL STOQUA STREET
(DEDICATED BY REGISTERED PLAN 4M-1581)

PIN 04273-0629(LT)
SUBJECT TO EASEMENTS AS IN OC1755039, OC1771382 AND OC1874459



SHEET 1 OF 2



STRATA PLAN OF SURVEY OF
BLOCK 22
REGISTERED PLAN 4M-1581
CITY OF OTTAWA

SCALE 1 : 200



THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:200

J.D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

ALL SET SURVEY MONUMENTS ARE PB'S UNLESS OTHERWISE NOTED.

PARTS 1 TO 26, (INCLUSIVE), ARE ABOVE THE HORIZONTAL PLANE AT THE ELEVATION OF 46.00m.

BEARINGS ARE MTM GRID, REFERRED TO OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD83 (ORIGINAL) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

INTEGRATION DATA		
OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 9, NAD83 (ORIGINAL) (2010.0), COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.		
POINT ID	EASTING	NORTHING
ORP (A)	372863.63	5035139.43
ORP (B)	372863.63	5035017.44
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.		

ELEVATION NOTE

ELEVATIONS ARE GEODETIC AND ARE ESTABLISHED USING GLOBAL POSITIONING SYSTEM (GPS) EQUIPMENT TO ESTABLISH ELLIPSOIDAL HEIGHTS. ELLIPSOIDAL HEIGHTS WERE TRANSFORMED TO CGVD-1928 DATUM (GEODETIC) USING THE FEDERAL HT2.0 HEIGHT TRANSFORMATION MODEL.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
PB	DENOTES	PLASTIC BAR
WT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED

ALL SET IB, SIB, SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

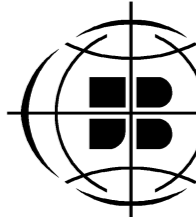
SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

- THIS SURVEY AND PLAN COMPRISING OF 2 SHEETS, ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
- THE SURVEY WAS COMPLETED ON , 2020.

DATE _____
PRELIMINARY
GEORGE ZERVOS
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER XXXXXXX



J.D.BARNES
LIMITED
LAND INFORMATION SPECIALISTS


63 STEACIE DRIVE, SUITE 103, KANATA, ON K2K 2A9

T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
NS	GZ	18-10-037-03

FILE: G:\18-10-037\03 - Block 22\PLAN\18-10-037-03_LPLAN.dgn DATED: 8/21/2020

SCALE 1 : 200



THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT
WHEN PLOTTED AT A SCALE OF 1:200

J.D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN
METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

ALL SET SURVEY MONUMENTS ARE PB'S UNLESS OTHERWISE NOTED.

PARTS 26 TO 52, (INCLUSIVE), ARE BELOW THE HORIZONTAL PLANE AT THE ELEVATION OF 46.00m.

BEARINGS ARE MTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY THE TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD83 (ORIGINAL) (2010).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

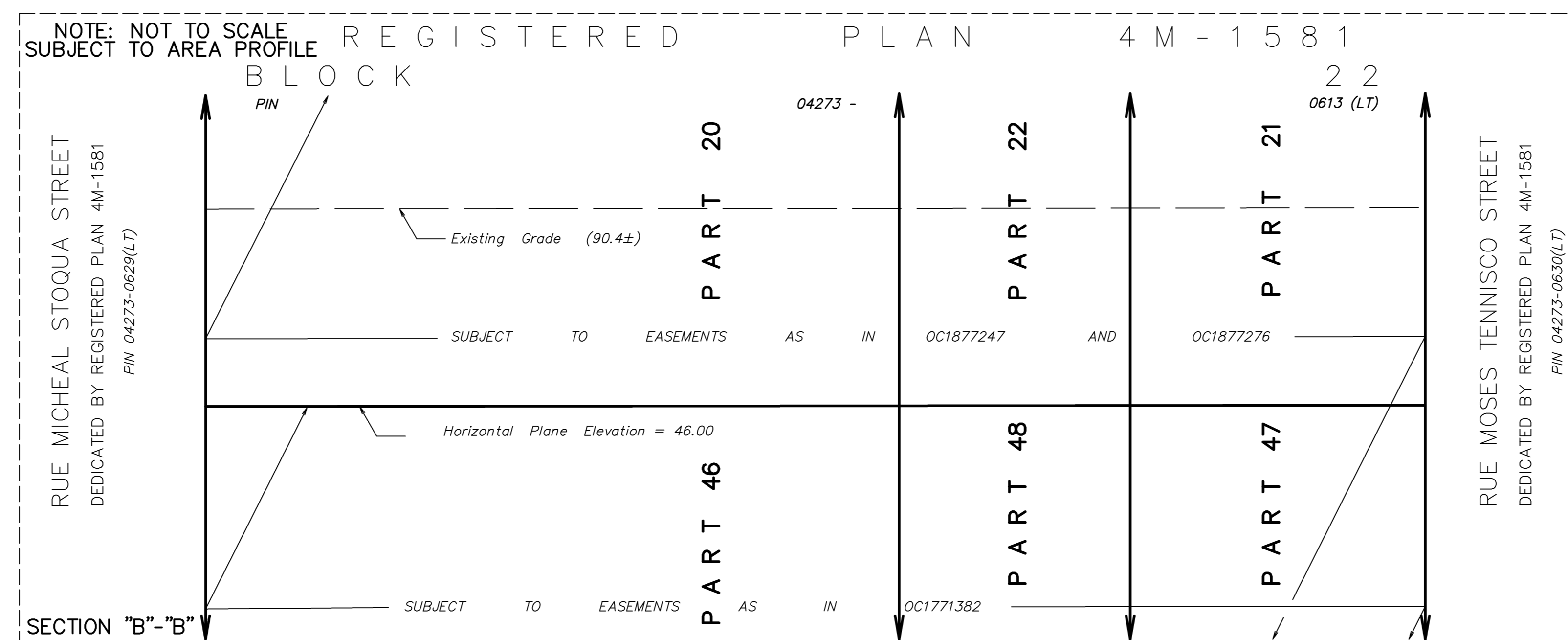
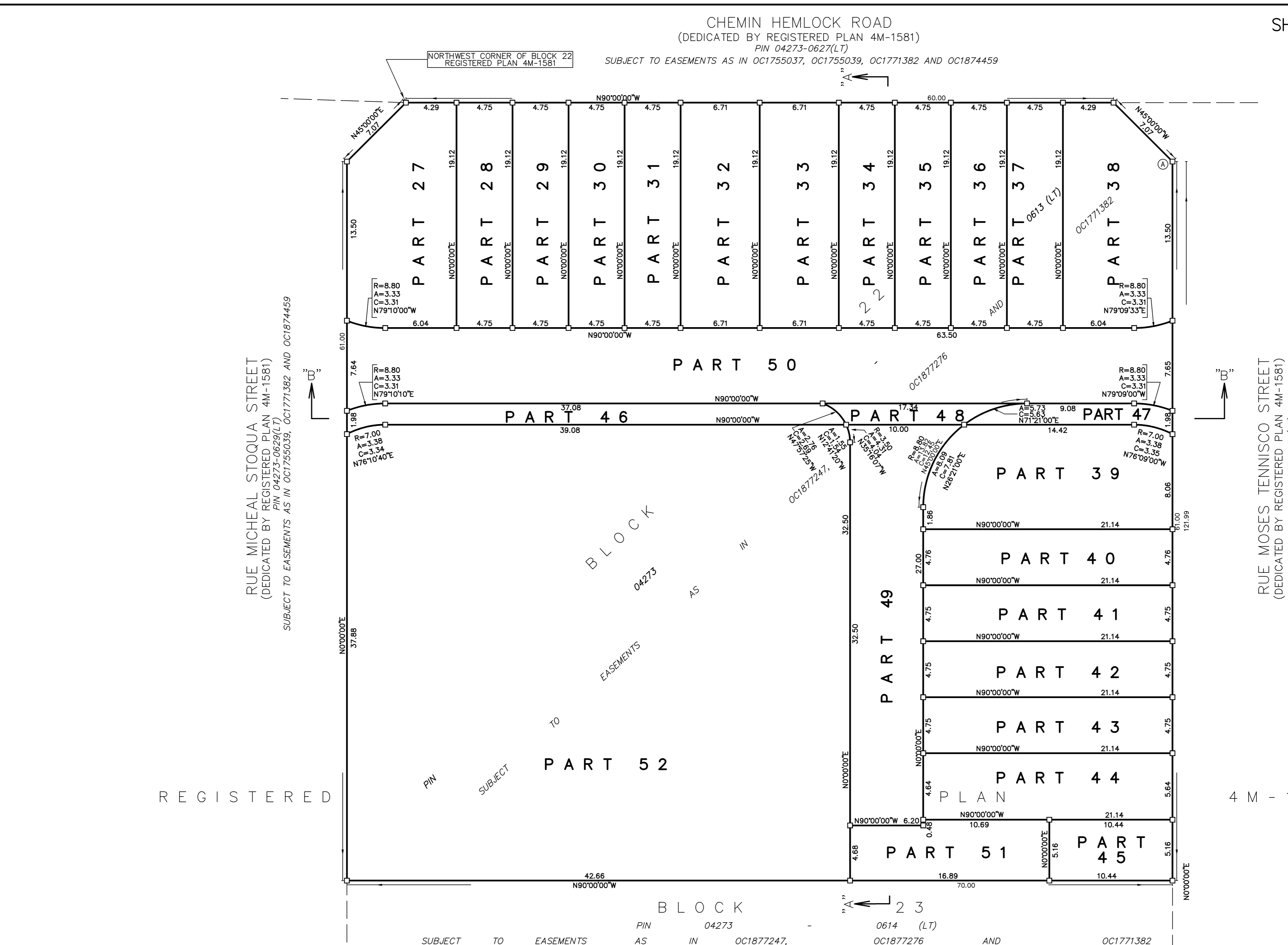
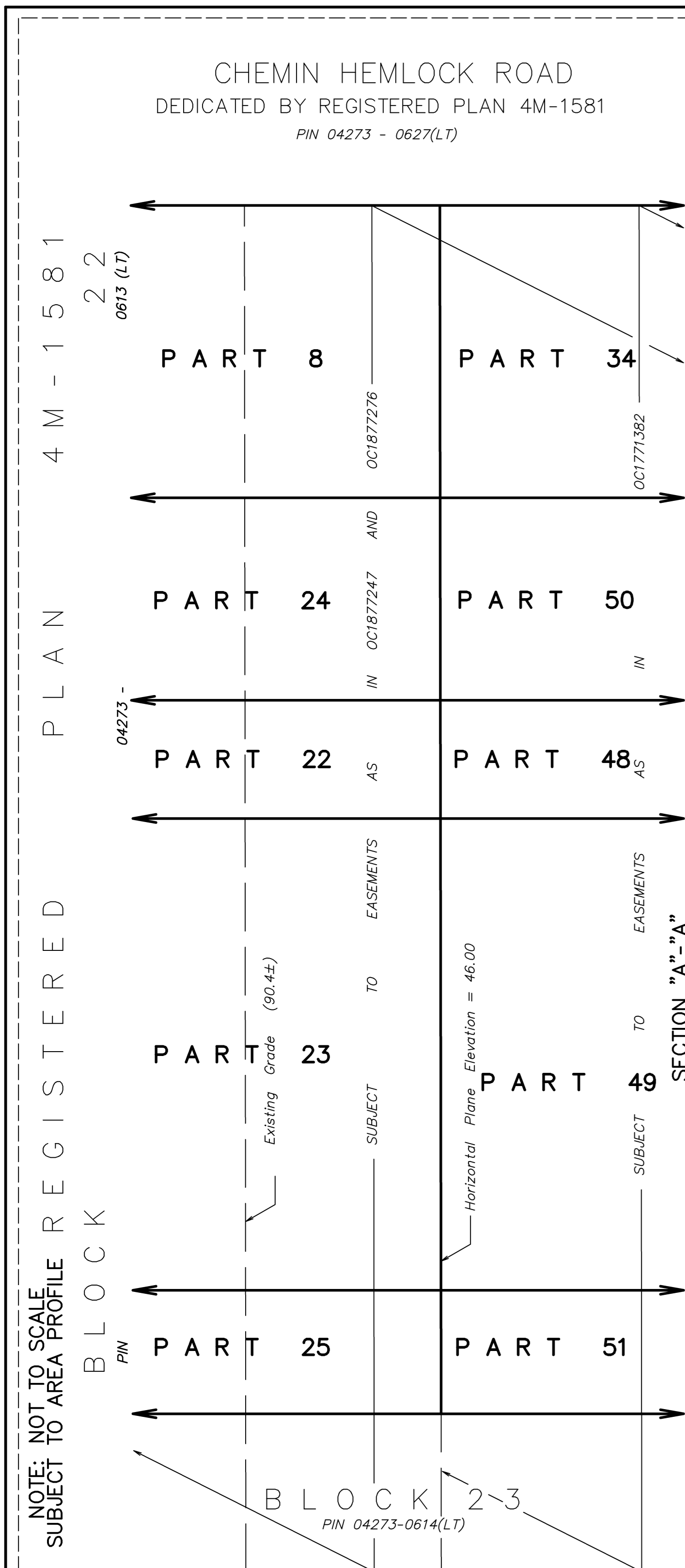
INTEGRATION DATA		
OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 9, NAD83 (ORIGINAL) (2010.0)		
COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF REG 216/10.		
POINT ID	EASTING	NORTHING
ORP (A)	372863.63	5035139.43
ORP (B)	372863.63	5035017.44
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS, OR BOUNDARIES SHOWN ON THIS PLAN.		

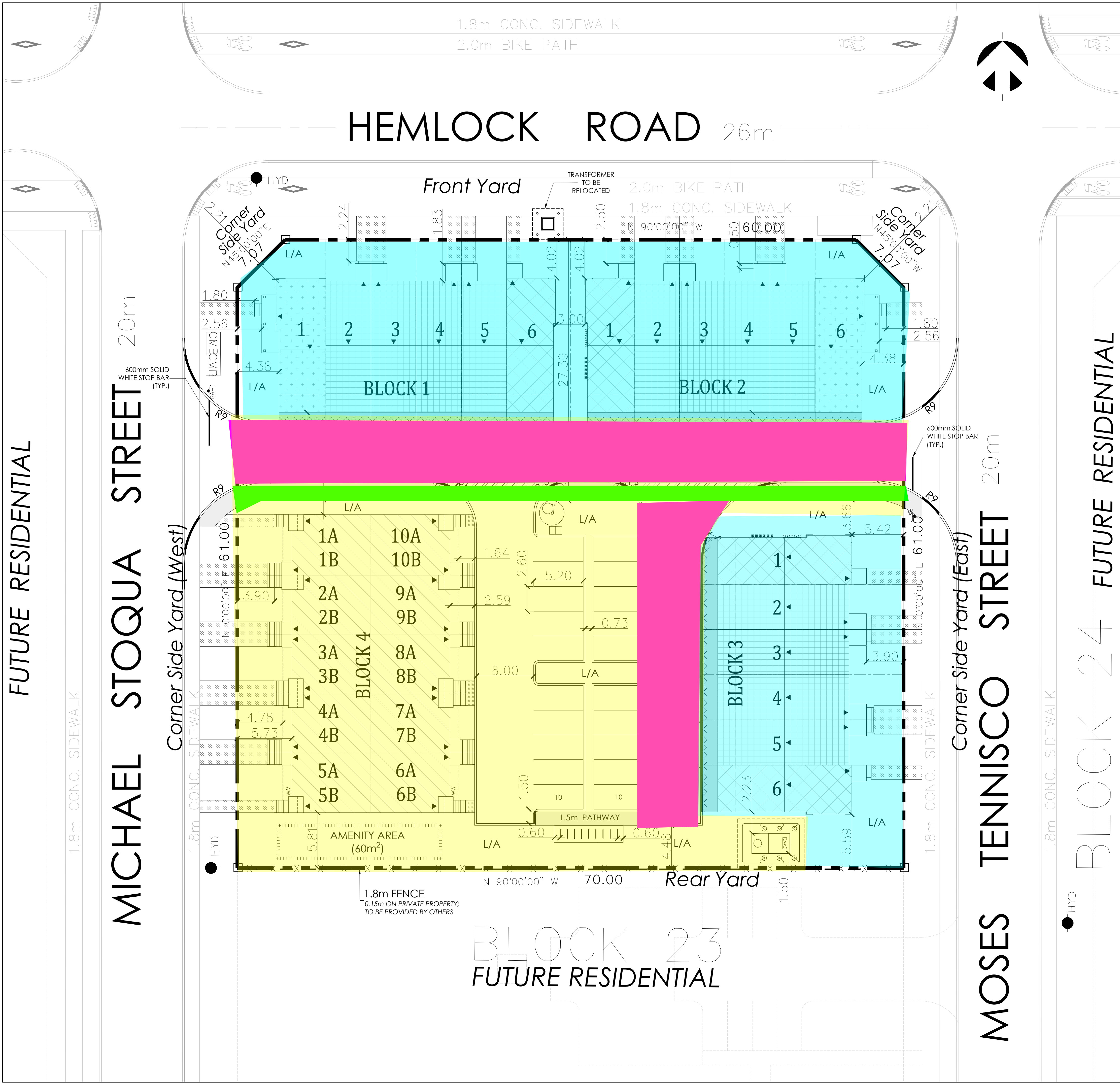
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WIT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED

ALL SET IB, SIB, SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

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62 STEADIE DRIVE, SUITE 103, KANATA, ON K2K 2A9
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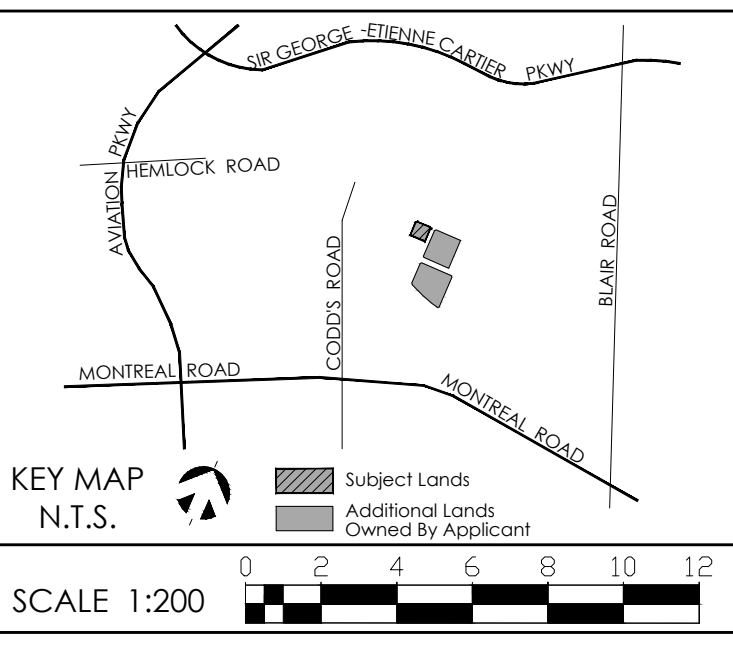
SITE STATISTICS AND DEVELOPMENT DATA		
SITE AREA	4,594.19 m ²	
PAVED AREA	1,304.28 m ² (28%)	
LANDSCAPED AREA	1,390.33 m ² (30%)	
TOTAL BUILDING COVERAGE	1,899.58 m ² (42%)	
TOTAL GROSS FLOOR AREA	5,981 m ²	
TYPE A TOWNHOUSE MODEL (4)	680 m ²	
TYPE B TOWNHOUSE MODEL (3)	447 m ²	
TYPE C TOWNHOUSE MODEL (2)	342 m ²	
TYPE D TOWNHOUSE MODEL (2)	332 m ²	
STACKED TOWNS UPPER MODEL (20)	2,340 m ²	
STACKED TOWNS LOWER MODEL (20)	1,840 m ²	
DENSITY (UPH)	82.6	
ZONE CATEGORY	R5Y[2457]	

DWELLING BLOCK	DWELLING TYPE	GROUND FLOOR AREA (m ²)	UNITS
BLOCK 1	REAR LANE TOWNS	402.49	6
BLOCK 2	REAR LANE TOWNS	402.49	6
BLOCK 3	REAR LANE TOWNS	401.88	6
BLOCK 4	STACKED TOWNS	500.72	20
		TOTAL	1,707.58
			38

SECTION	ZONE PROVISION - PLANNED UNIT DEVELOPMENT	REQUIRED	PROPOSED
164 (Table)	MIN. LOT WIDTH (m)	N/A	N/A
164 (Table)	MIN. LOT AREA (m ²)	1,400 m ²	4,594.19 m ²
164 (Table)	MAX. BUILDING HEIGHT (m)	11.00 m	10.63 m
2018-124	MIN. FRONT YARD SETBACK (m)	3.00 m	4.02 m
2018-124	MIN. CORNER SIDE YARD SETBACK (m)	East: 1.68 m West: 1.68 m	East: 2.21 m West: 2.21 m
164 (Table)	MIN. REAR YARD SETBACK (m)	5.00 m	5.59 m
164 (Table)	MIN. INTERIOR YARD SETBACK (m)	1.20 m	N/A
101 (Table)	RESIDENT PARKING - TYPE A (12 @ 0.75/unit) TYPE B (2 @ 0.75/unit) TYPE C (4 @ 0.75/unit) STACKED (20 @ 0.5/unit)	9 1.5 3 10 0	12 2 4 10 0
2018-124	VISITOR PARKING	6.00 m	6.00 m
131 (Table)(1)	MIN. WIDTH OF PRIVATE WAY (m)	1.00 m	1.00 m
2018-124	SETBACK OF ANY WALL OF A RES. BUILDING TO PRIVATE WAY (m)	1.00 m	1.00 m
2018-124	MIN. SETBACK OF GARAGE DOOR TO PRIVATE WAY (m)	1.00 m	1.00 m
111A (Table)	BICYCLE PARKING (STACKED TOWNS)	10 (0.5/unit)	9
137 (Table)(7)	MIN. STACKED TOTAL AMENITY AREA (6m ² per unit)	120m ²	60m ²

SECTION	ADDITIONAL PROVISIONS	REQUIRED	PROPOSED
65 (6)	PERMITTED PROJECTIONS INTO YARDS; COVERED OR UNCOVERED BALCONY, PORCH, DECK	2.00 m (MAX)	0.50 m
2018-124	FIRE ESCAPES, OPEN STAIRWAYS, STOOP	>1.0m to lot line	2.50 m
106 (1)(a)	MIN. PERPENDICULAR PARKING SPACE SIZE	>0.97m to lot line	1.80 m
2018-124	MIN. DRIVEWAY WIDTH TO PARKING LOT (m)	2.6 x 5.2 m	2.6 x 5.2 m
2018-124	MIN. AISLE WIDTH TO SPACES (m)	6.00 m	6.00 m
107 (2)	MIN. DRIVEWAY WIDTH TO GARAGE (m)	6.00 m	4.75 m
109 (3)(b)	MAX. WALKWAY WIDTH PERMITTED IN YARD (m)	1.80 m	1.50 m
110 (Table)	MIN. LANDSCAPE BUFFER WIDTH PARKING LOT TO LOT LINE	1.50 m	4.48 m
110 (3)(b)	MIN. WASTE COLLECTION SETBACK TO LOT LINE (m)	3.00 m	27.39 m
55 (3)(e)(i)	ACCESSORY STRUCTURE SETBACK (m)	0.60 m	1.50 m
55 (5)	PROJECTION HEIGHT (MAX) (m)	3.20 m	1.80 m
2018-124	UTILITY INSTALLATIONS SETBACK (m)	0.60 m	1.50 m
2018-124	MIN. SEPARATION DISTANCE BETWEEN BUILDINGS WITHIN A PLANNED UNIT DEVELOPMENT (m)	3.00 m	3.00 m
111B (TABLE)	MIN. BICYCLE PARKING SPACE DIMENSIONS (m)	Width: 0.6m Length: 1.8m	0.6m 1.8m
111 (9)	MIN. BICYCLE PARKING SPACE ACCESS WIDTH AISLE (m)	1.5m	1.5m

- Freehold RLT w access/servicing through Standard Condo
- Vehicle Access Easement/Servicing for RLT (owned by S.C)
- Pedestrian Access Easement/ Public Access (owned by S.C)
- Standard Condo Corporation



LEGEND	
	PATHWAY
	WALKWAY TO ENTRY
	CROSSWALK (PAVERS)
	ASPHALT DRIVEWAY
	MOUNTABLE CURB
	CURB (0.2m)
	DEPRESSED CURB
	PORCH
	WINDOW WELL
	PROJECTION (STAIRS)
	LANDSCAPED AREA
	TYPE A TOWNHOUSE (4.75m)
	TYPE B TOWNHOUSE (5.21m)
	TYPE C TOWNHOUSE (5.13m)
	STACKED DWELLING
	PROPOSED LOT BOUNDARY
	BLOCK BOUNDARY
	FENCE
	BIKE RACK
	HYDRO METERS
	GAS METERS
	ENTRANCE
	UNIT NUMBER
	HYD FIRE HYDRANT
	STOP SIGN
	3 PHASE TRANSFORMER & SWITCHGEAR
	TRANSFORMER
	CANADA POST MAIL BOX

DATE	REVISION	BY
04/05/20	Issue for Detailed Design	EC
25/03/20	Revise Site Plan for Site Plan Amendment	EC
01/03/18	Issue for Third Submission to City	SP
14/12/17	Issue for Second Submission to City	SP
28/07/17	Draft for review	SP

- GENERAL NOTES
- DO NOT SCALE DRAWINGS FOR PRINT.
 - THIS DRAWING IS THE EXCLUSIVE PROPERTY OF KORSIAK URBAN PLANNING AND MATAMY HOMES. COPYRIGHT RESERVED.
 - SITE PLAN PREPARED IN ACCORDANCE WITH PLAN 4M-1581 AND PLAN 4R-30196. PREPARED BY ANNIS O'SULLIVAN, VOLLEBEK LTD.
 - TOWNHOUSE DWELLING UNITS ARE DESIGNED TO ACCOMMODATE CURBSIDE GARBAGE PICK-UP.
 - WALKWAYS AND CURBS TO BE TIED INTO PUBLIC ROW WHERE APPLICABLE.
 - REFERENCES CITY OF OTTAWA T.W.S.I. DETAIL SC7.3

PROJECT TEAM	
SITE PLAN DESIGN: KORSIAK Urban Planning	LANDSCAPE ARCHITECTURE: NAK design strategies
PLANNING: Stantec	TRANSPORTATION: NOVATECH
ARCHITECTURE: Q4A	NOISE: VALCOUSTICS
CIVIL ENGINEER: DSEL	GEOTECHNICAL & STRUCTURAL: petersongroup
	MECHANICAL/ELECTRICAL: L R J
	ENVIRONMENTAL: KILGOUR & Associates

mattamyHOMES

WATERIDGE VILLAGE: PHASE 1B
1400 HEMLOCK ROAD
BLOCK 22
PART OF LOTS 22 AND 23
CONCESSION 1 (OTTAWA FRONT)
GEOGRAPHIC TOWNSHIP OF GLOUCESTER
REGISTERED PLAN 4M-1559
CITY OF OTTAWA

TITLE:	BLOCK 22 SITE PLAN	
DATE:	May 4, 2020	DRAWN BY: EC
FILE NO.:	D07-12-17-0111	CHECKED BY: CR
JOB NO.:	Mattamy - Wateridge	
		DRAWING NO. A2

re: **Landscaping Plan Review - Block 22**
Wateridge Village Residential Development - Phase 1B - Block 22
1400 Hemlock Road - Ottawa

to: Mattamy Homes - **Mr. Conor Sutherland** - Conor.Sutherland@mattamycorp.com

date: October 6, 2020

file: PG5345-MEMO.01 Revision 1

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a review of the landscaping drawings for Block 22 of the aforementioned residential development. It should be noted that Block 22 is located along both, City of Ottawa publicly owned roads and on a private road. The following memorandum should be read in conjunction with Paterson Report PG5345-1 Revision 1 dated September 10, 2020.

Landscaping Plan Review

Paterson reviewed the following landscaping plan prepared by Nak Design Strategies and grading plan prepared by DSEL regarding the aforementioned development:

- ☐ Landscape Plan - Block 22 - Job No. 20-076, Sheet No. L-01, Revision 4 dated September 30, 2020.
- ☐ Planting Plan - Block 22 - Job No. 20-076, Sheet No. L-02, Revision 4 dated September 30, 2020.
- ☐ Grading Plan - Wateridge Block 22 - Phase 1- Project No. 17-948, Sheet No. 3, Revision 11, dated June 23, 2020 (Received September 2020).

Blocks Adjacent to Publicly Owned Roads

Based on the landscaping plans provided, the proposed tree planting is in compliance with the recommendations provided by Paterson and is considered acceptable from a geotechnical perspective, provided the items noted below are addressed. Atterberg testing was completed at two (2) borehole locations across the overall site, all with plasticity index results of less than 40%. This satisfies the first condition for reducing the tree foundation setback to **4.5 m** in the City of Ottawa guideline "Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines." The following conditions are also required to be met based on the tree planting guidelines:

- ☐ The proposed trees should have a minimum setback of 4.5 m from the proposed foundation walls. Based on our review of the landscaping plan, a 4.5 m setback has been provided for all street trees, **with the exception of Block 2 - Unit 6**. It was noted that the 4.5 m setback intersected with the majority of stair and porch structures fronting onto a publicly owned road.

- ☐ The underside of footing is required to be 2.1 m below finished grade at the locations of the trees. Reference should be made to Table 1 below and following comments regarding the underside of footing elevations.
- ☐ Adequate soil volumes are required to be provided for the proposed trees - 25 cubic meters for small trees and 30 cubic meters for medium trees. This should be confirmed by the landscape architect.
- ☐ Tree species are required to be small to medium size, confirmed by the landscape architect. Reference should be made to the section below for comments regarding the tree species and appropriate setbacks from building foundation walls.
- ☐ The foundation walls are required to have a minimum of two 15-M bars in the upper and lower sections of the foundation walls. This should be indicated on the drawings for the relevant blocks foundation wall. Reference should be made to the additional comments below.
- ☐ Grading surrounding the tree should be designed to promote draining towards the tree root zone. This should be confirmed by the landscape architect and civil engineer.

Table 1 below provides a summary of the landscaping and grading information for the relevant Blocks:

Table 1 - Landscaping Plan and Grading Details					
Block - Unit	Underside of Footing Elevation	Lowest Prop. Finished Grade	Foundation Depth (m)	Underside of Engineered Pad (If Required)	Tree to Foundation (m)
1-1	89.20	89.48	0.28	87.38	5.3
1-2	89.20	89.56	0.36	87.46	6.6
1-3	89.20	89.64	0.44	87.54	6.7
1-4	89.20	89.73	0.53	87.63	6.4
1-5	89.20	89.81	0.90	88.00	7.8
1-6	89.20	90.13	0.93	88.03	7.8
2-1	89.37	90.13	0.76	88.03	7.7
2-2	89.37	90.02	0.65	87.92	6.4
2-3	89.37	90.10	0.73	88.00	6.6
2-4	89.37	90.18	0.81	88.08	6.4
2-5	89.37	90.26	0.89	88.40	6.4
2-6	89.37	90.34	0.97	88.50	3.1
3-1	89.23	90.13	0.90	88.03	6.1
3-2	89.23	90.16	0.93	88.06	7.2
3-3	89.23	90.18	0.95	88.08	6.3
3-4	89.23	90.20	0.97	88.10	7.2

Table 1 - Landscaping Plan and Grading Details					
Block - Unit	Underside of Footing Elevation	Lowest Prop. Finished Grade	Foundation Depth (m)	Underside of Engineered Pad (If Required)	Tree to Foundation (m)
3-5	89.23	90.22	0.99	88.12	6.5
3-6	89.23	90.25	1.02	88.15	6.1
4-1	87.57	89.46	1.89	87.36	8.4
4-2	87.57	89.64	2.07	87.54	8.6
4-3	87.57	89.64	2.07	87.54	8.6
4-4	87.57	89.64	2.07	87.54	8.6
4-5	87.57	89.64	2.07	87.54	8.5
4-6	87.57	89.89	1.90	87.79	5.9
4-7	87.57	89.86	2.29	N/A	N/A
4-8	87.57	89.83	1.80	N/A	N/A
4-9	87.57	89.79	2.22	N/A	N/A
4-10	87.57	89.69	1.70	N/A	N/A

Based on our review, the following outstanding issues need to be completed for the proposed development to qualify for the reduced tree planting setback:

Item A: Underside of Footing Elevation

Based on our review, a 2.1 m depth to underside of footing has not been provided for the blocks where trees have less than 10 m horizontal separation from the foundation wall.

Based on Paterson's conversations with the City staff for Block 15, It is understood that the City of Ottawa is open to accept reducing the required soil cover down to 1.9 m provided additional measures are provided and approved by the geotechnical consultant. Therefore, it is assumed the same approved recommendations provided for Block 15 would apply for Block 22 based on the similar subsurface profiles encountered throughout the subject sites. The following summarizes our justification for a reduced soil cover based on the subsurface profile, groundwater table and the proposed tree planting setback:

Based on our review of the proposed site conditions, the proposed footings along the front of the lots can be placed with a minimum 1.9 m soil cover provided that a minimum 300 mm thick granular pad be placed between the underside of footing and the underlying silty clay deposit. The rationale for this is that tree roots cannot penetrate a compacted granular fill. In addition, the groundwater table is well below the granular pad which makes it too deep for the roots to reach and impact the underlying silty clay material that is considered consolidated as a result of the surcharge program. Therefore, provided a minimum 300 mm thick granular pad is in place, the 1.9 m soil cover between the underside of pad to finished grade is sufficient from a geotechnical perspective.

Based on our review of the proposed USF levels, it is our understanding that footing depths range between 0.28 to 2.3 m below proposed finished grade. To compensate for the reduced foundation depth, an engineered fill pad (OPSS Granular A or Granular B Type II) can be placed below the footing to a depth of 1.9 m below proposed finished grade surrounding the building. The engineered fill should be placed in 300 mm thick loose lifts and compacted to a minimum 98% of the material's SPMDD and approved by Paterson at the time of construction. The engineered fill pad will effectively increase the depth between the finished grade and the underlying silty clay deposit to the required 1.9 m which achieves the same goal as lowering the footing from a tree planting perspective. More recommendations will follow in Item D below. Reference can be made to Figure 1 attached for additional information.

These recommendations are required for Block 1, Block 2, Block 3 and Block 4 - Unit 1 through Unit 6.

Item B: Tree Species

The landscaping architect should confirm that the tree species placed within 7.5 m of the foundation wall consist of small and medium size trees with a mature tree height less than or equal to 14 m. It is understood that the tree heights listed on the plan are the mature heights of these trees in natural conditions and not in city conditions.

Item C: Additional Reinforcing Requirements

As required by the guidelines, the foundation walls should be provided with a minimum of two 15-M bars in the upper and lower sections of the foundation walls. This should be indicated on the relevant drawings and reviewed by Paterson at the time of construction. This requirement applies to **all residential structures** adjacent to ROW trees within Block 22 of Phase 1B.

Provided these remaining conditions have been met, the landscaping drawings noted above are in compliance with the City of Ottawa tree planting guidelines.

Item D: Trees within 4.5 m of Front Stairs or Porches

Based on our review of the above noted drawings, the footing depths were found to be at a minimum of 0.6 m below proposed finished grade or lower. Based on the newest tree planting guidelines, the footings need to be placed at a minimum depth of 2.1 m below finished grade or an approved reduced depth of 1.9 m..

It is understood that a number of the stair case structures have 2 or 3 risers extending horizontally beyond the foundation walls towards publicly owned roads within the 4.5 m allowable tree planting horizontal separation, which includes **Block 1, Block 2, Block 3 and Block 4 - Unit 1 through Unit 6.**

In order to avoid lowering the footings and/or have differential settlement due to part of the riser being within the 4.5 m tree setback, it is recommended that where the front porch footings/risers are located within the 4.5 m setback, a granular backfill be introduced. Where the 1.9 m soil cover is not satisfied, the native material within the footprint of the front porch footings should be sub-excavated to a maximum 300 below the USF level and replaced with a granular pad consisting of OPSS Granular A or Granular B Type II placed in 300 mm loose lifts and compacted to 98% of the material's SPMDD. The granular pad should only be extended horizontally a minimum of 600 mm beyond the face of the foundation wall (towards the interior side of the front porch). It is important to note that a minimum 3H:1V frost taper will be required to transition from the granular pad to the native soil. Please refer to Figure 1 attached.

In addition, the backfill against the front facing porch foundation should also be backfilled with the above noted granular material. The horizontal extent of the foundation wall backfill should be dependent on the extent of the risers above, a minimum of 300 mm wide layer should be provided beyond the lowest riser.

We trust that this information satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.



Drew Petahtegoose, B.Eng.



Faisal I. Abou-Seido, P.Eng.

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4.5 m setback

Min 300 mm

Proposed Finished Grade

Site Excavated Material Compacted and Approved by Paterson

Lot/Block Front Facing Foundation Walls

150 mm Diameter Drainage Pipe (Note 4)

300 mm thick layer of 19 mm Clear Crushed Stone

Min 1H:1V

Thickness Dependent on Depth of Footing (Note 1)

Min 150 mm

Min 600 mm

Min 3H:1V

Native Material (Silty Clay)

Minimum 1.9 m below Proposed Grade

Engineered fill, OPSS Granular A or Granular B Type II compacted to 98% SPMDD.

- Note 1: Where front porch footings have a minimum depth below finished grade of 1.9 m, the granular pad below the footings will not be required.
- Note 2: The thickness of the engineered pad is dependent of the depth of footings below proposed grade. The thickness of the engineered pad can be calculated by subtracting the depth of footing from 1.9 m.
- Note 3: The placement of the engineered fill should be reviewed and approved in the field by Paterson personnel.
- Note 4: The 150 mm diameter perforated, corrugated drainage pipe should be geotextile wrapped, placed at the founding level and connected to a positive outlet with a gravity connection.

re: Grading Plan Review
Wateridge Residential Development - Phase 1B - Block 22
1400 Hemlock Road - Ottawa

to: Mattamy Homes - **Mr. Conor Sutherland** - Conor.Sutherland@mattamycorp.com

cc: DSEL - **Ms. Jennifer Ailey** - JAiley@dsel.ca

date: October 6, 2020

file: PG5345-MEMO.02 Revision 3

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a review of the grading plan for Block 22 of the aforementioned residential development. The following memorandum should be read in conjunction with Paterson Report PG5345-1 Revision 1 dated August 25, 2020.

Relevant design information is presented in Table 1 - Summary of Design Details for the subject blocks. The relevant design and inspection information includes the following:

- ☐ Legal block number
- ☐ Original ground surface elevation
- ☐ Proposed finished grade elevation
- ☐ Bearing resistance values
- ☐ Proposed USF elevation
- ☐ Seismic site class
- ☐ Approximate proposed frost cover depth
- ☐ Approximate engineered fill thickness
- ☐ LWF requirements, if applicable.

Grading Plan Review

Paterson reviewed the following grading plan prepared by DSEL, received on October 1, 2020, regarding the aforementioned development:

- ☐ Grading Plan - Block 22 - Job No. 17-948, Sheet 3, Revision 12, dated October 6, 2020.

Based on our review of the above noted grading plan, the proposed grade raises within Block 22 of the aforementioned development are acceptable from a geotechnical perspective and will not require the use lightweight fill at this time.

Where existing fill is encountered directly below the underside of footing (USF), the footings may be required to be lowered to an undisturbed, native bearing surface. Alternatively, a zero-entry, vertical trench can be excavated below the USF down to a native material and in-filled with engineered fill, compacted to a minimum 98% of the material's SPMDD or lean concrete mix (Minimum 15 MPa, 28 day strength). The in-filled trenches should be extended a minimum 150 mm beyond the footing face on all directions.

Protection of Footings Against Frost Action

Based on our review, several townhouse blocks were noted to be provided with reduced soil cover to footings against frost action. The following townhouse blocks were noted to have insufficient soil cover:

- ☐ Townhouse Block 1 - Units 1 to 6 - Approximately 0.75 m of soil cover
- ☐ Townhouse Block 2 - Units 1 to 6 - Approximately 1.0 m of soil cover
- ☐ Townhouse Block 3 - Units 1 to 6 - Approximately 1.0 m of soil cover

It should be noted that consideration was given to the engineered fill to be placed below a number of the above noted footings. Since non-frost susceptible, free draining material is proposed to be used below those footings, the thickness of the free draining material can compensate for the absence of enough frost cover. Therefore, based on the proposed estimated thickness of engineered fill required below the footings noted in Table 1, additional frost protection in the form of insulation will not be required for the subject site. Where the estimated thickness of fill is not carried out as anticipated below a footing footprint, Paterson should be notified to evaluate the requirement for addition insulation below the footings prior to placement of concrete.

Table 1 attached to this memo presents our summary of design details for the current phase.

We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc.



Drew Petahtegoose, B.Eng.



Faisal I. Abou-Seido, P.Eng.

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Table 1 - Summary of Grading Design Details - Wateridge Village - Block 22																
Legal Lot/ Block Number	Underside of Footing Elevation (Proposed)	Original GS Front	Existing GS Front	Proposed GS Front	Original GS Rear	Existing GS Rear*	Proposed GS Rear	Approx. Proposed Frost Cover Depth (m)	Minimum Bearing Capacity - Serviceability Limit States	Seismic Site Class	Permissible Grade Raise	Above Permissible Grade Raise Front	Above Permissible Grade Raise Rear	Approximte Engineered Fill Thickness Under Footings	LWF required in Garage and Front Porch	LWF Required
	(m)	(m)		(m)	(m)		(m)		(kPa)		(m)	(m)		(m)	(m)	(m)
Block 1 - Unit 1	89.20	88.50	88.76	89.92	88.50		89.48	0.72	150.00	C	2.00	n/a	n/a	1.00	n/a	n/a
Block 1 - Unit 2	89.20	88.60	88.71	89.98	88.50		89.56	0.78	150.00	C	2.00	n/a	n/a	0.90	n/a	n/a
Block 1 - Unit 3	89.20	88.70	88.71	90.04	88.50		89.64	0.84	150.00	C	2.00	n/a	n/a	0.80	n/a	n/a
Block 1 - Unit 4	89.20	88.80	88.80	90.10	88.50		89.73	0.90	150.00	C	2.00	n/a	n/a	0.70	n/a	n/a
Block 1 - Unit 5	89.20	88.90	89.00	90.16	88.50		89.81	0.96	150.00	C	2.00	n/a	n/a	0.60	n/a	n/a
Block 1 - Unit 6	89.20	89.00	89.00	90.43	88.60		90.13	1.23	150.00	C	2.00	n/a	n/a	0.50	n/a	n/a
Block 2 - Unit 1	89.37	89.10	88.87	90.43	88.60		90.13	1.06	150.00	C	2.00	n/a	n/a	0.80	n/a	n/a
Block 2 - Unit 2	89.37	89.20	88.87	90.37	88.70		90.02	1.00	150.00	C	2.00	n/a	n/a	0.80	n/a	n/a
Block 2 - Unit 3	89.37	89.30	88.87	90.43	88.70		90.10	1.06	150.00	C	2.00	n/a	n/a	0.80	n/a	n/a
Block 2 - Unit 4	89.37	89.40	89.29	90.50	88.75		90.18	1.13	150.00	C	2.00	n/a	n/a	0.38	n/a	n/a
Block 2 - Unit 5	89.37	89.50	89.29	90.56	88.75		90.26	1.19	150.00	C	2.00	n/a	n/a	0.38	n/a	n/a
Block 2 - Unit 6	89.37	89.60	89.29	90.60	88.80		90.57	1.23	150.00	C	2.00	n/a	n/a	0.38	n/a	n/a
Block 3 - Unit 1*	89.23	88.90	88.60	90.31	88.85	88.18	90.13	1.08	150.00	C	2.00	n/a	n/a	1.35	n/a	n/a
Block 3 - Unit 2*	89.23	88.90	88.60	90.25	88.70	88.05	90.16	1.02	150.00	C	2.00	n/a	n/a	1.48	n/a	n/a
Block 3 - Unit 3*	89.23	88.90	88.60	90.19	88.60	87.95	90.18	0.96	150.00	C	2.00	n/a	n/a	1.58	n/a	n/a
Block 3 - Unit 4*	89.23	88.85	88.79	90.20	88.55	87.85	90.20	0.97	150.00	C	2.00	n/a	n/a	1.68	n/a	n/a
Block 3 - Unit 5*	89.23	88.80	88.79	90.22	88.50	87.75	90.22	0.99	150.00	C	2.00	n/a	n/a	1.78	n/a	n/a
Block 3 - Unit 6*	89.23	88.75	88.17	90.25	88.50	87.65	90.25	1.02	150.00	C	2.00	n/a	n/a	1.88	n/a	n/a
Block 4 - Unit 1	87.57	88.40	88.01	89.46	-		-	1.89	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 2	87.57	88.35	88.01	89.64	-		-	2.07	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 3	87.57	88.35	87.93	89.64	-		-	2.07	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 4	87.57	88.30	87.93	89.64	-		-	2.07	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 5	87.57	88.25	87.93	89.64	-		-	2.07	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 6	87.57	88.20	88.00	89.97	-		-	2.40	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 7	87.57	88.25	88.19	89.95	-		-	2.38	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 8	87.57	88.30	88.19	89.91	-		-	2.34	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 9	87.57	88.30	88.29	89.87	-		-	2.30	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
Block 4 - Unit 10	87.57	88.35	88.29	89.69	-		-	2.12	150.00	C	2.00	n/a	n/a	n/a	n/a	n/a
DSEL Grading Plans Reviewed: Grading Plan - Wateridge - Block 22 - Project 17-948 - Sheet No. 3 - Revision 12, dated October 6, 2020.																
Note: Bearing Capacities noted in the table are based on engineered fill being placed over an undisturbed, native in-situ soil bearing surface. Based on the proposed USF elevations, in-situ silty clay and/or glacial till is anticipated to be encountered below the existing fill as a suitable bearing medium.																
Note: Approximate fill thickness estimated based on subexcavating up to 300 mm below the original ground surface elevation observed during the geotechnical investigations. Existing ground surface elevations may differ from original ground surface elevations encountered during the geotechnical investigations.																
Note: *Reflective of rear existing ground surface elevations based on permeameter testing associated with current investigation.																

re: **Geotechnical Review of Site Servicing Drawings**
Wateridge Residential Development - Phase 1B - Block 22
1400 Hemlock Road - Ottawa

to: Mattamy Homes - **Mr. Conor Sutherland** - Conor.Sutherland@mattamycorp.com

to: DSEL - **Ms. Jennifer Ailey** - Jailey@dsel.ca

date: October 6, 2020

file: PG5345-MEMO.03 Revision 2

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a geotechnical review of the design drawings prepared by DSEL for Block 22 of the aforementioned residential development. The following memorandum should be read in conjunction with Paterson Report PG5345-1 Revision 1 dated September 10, 2020.

Geotechnical Review

Paterson has reviewed the following set of site service drawings, cross-sections and grading plans prepared by DSEL:

- ☐ Grading Plan - Block 22 - Job No 17-948, Sheet 3, Revision 12, dated October 6, 2020.
- ☐ Site Servicing Plan - Block 22 - Job No. 17-948, Sheet 4, Revision 12, dated October 6, 2020.
- ☐ Cross-Section - Block 22 - Job No. 17-948, Sheet 8, Revision 12, dated October 6, 2020

From a geotechnical perspective, the relevant recommendations (i.e., adequate frost protection of services, pavement structure drainage, pipe bedding and backfill) provided in Paterson Report PG5345-1 Revision 1 dated September 10, 2020., have been sufficiently incorporated into the above-noted drawings.

Clay Seals

Based on our review of the aforementioned site servicing plan prepared by DSEL, the proposed location of the clay seals appears to be in accordance with our geotechnical recommendations. The seals should be at least 1.5 m long (in the trench direction) and should extend from trench wall to trench wall. Should trench walls extend beyond the anticipated trench width inferred by the location of the clay seal depicted on the aforementioned site servicing plan prepared by DSEL, the clay seal is recommended to extend the full trench width.

The seals should extend from the frost line and fully penetrate the bedding, subbedding and cover material. The barriers should consist of relatively dry and compactable brown silty clay placed in maximum 225 mm thick loose layers and compacted to a minimum of 95% of the SPMDD.

It should be noted that a grading plan review and subsequent recommendations will be completed under a separate memorandum report for the subject site.

Stormwater Storage Pipe Chambers

Based on our review of the current servicing plans, the lowest elevation of the bottom of the proposed storage media is approximately 87.5 m. Based on our findings in the geotechnical report and existing borehole coverage, the current long-term seasonally high groundwater table is estimated between an elevation of 86.5 to 85.5 m. However, it should be noted that a 0.5 m of post-development groundwater lowering will occur within the vicinity of the subject site. Therefore the post-development long-term groundwater table is estimated at an elevation of 86.0 to 85.0 m.

Based on the available information, the elevation of the base of the storage media at 87.5 m conforms to having 1 m of separation from the seasonally high groundwater table. Therefore, the design of the infiltration system is acceptable from a geotechnical perspective.

We trust this memorandum meets your immediate requirements.

Best Regards,

Paterson Group Inc.



Drew Petahtegoose, B.Eng.



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re: **Geotechnical Recommendations - Review of Servicing Installation Impact on Adjacent Building Foundations**
Wateridge Village Residential Development - Phase 1B - Block 22
1400 Hemlock Road - Ottawa

to: Mattamy Homes - **Mr. Conor Sutherland**- Conor.Sutherland@mattamycorp.com

cc: DSEL - **Ms. Jennifer Ailey**- JAiley@dsel.ca

date: October 6, 2020

file: PG5345-MEMO.04 Revision 2

Paterson Group (Paterson) has prepared the current memorandum report to provide geotechnical recommendations for supporting the building footings directly adjacent to the proposed service alignments across the aforementioned site. The following memorandum should be read in conjunction with Paterson Report PG5345-1 Revision 1 dated September 10, 2020.

Background Information

Paterson reviewed the following plan and sketches provided by David Schaeffer Engineering Limited (DSEL) for servicing at the aforementioned residential development:

- ☐ Site Servicing Plan - Wateridge - Block 22 - Project No. 17-948 - Sheet 4, Revision 12 dated October 6, 2020.
- ☐ Cross Sections - Wateridge - Block 22 - Project No. 17-948 - Sheet 8, Revision 12 dated October 6, 2020.

Based on the cross section details provided by DSEL, cross sections 2-2 and 3-3 have service alignments located within the lateral support zone of the adjacent building foundations:

- ☐ Section 2-2: The underside of the bedding for the water chamber structure will be located at approximately 85.85 m and the underside of footing is located at an elevation of 89.20 m. Therefore, the vertical separation is approximately 3.35 m with a lateral separation of approximately 0.30 m which does not include the additional trench excavation of approximately 0.3 m.
- ☐ Section 3-3: The underside of the bedding for the water chamber structure will be located at approximately 86.65 m and the underside of footing is located at an elevation of 89.37 m. Therefore, the vertical separation is approximately 2.72 m with a lateral separation of approximately 0.30 m which does not include the additional trench excavation of approximately 0.3 m.

Based on the proposed service and structure locations with respect to the adjacent building foundations, the following backfilling program is recommended to ensure that adequate lateral support is provided to the adjacent buildings.

Geotechnical Recommendations

Section 2-2

In order to ensure that the lateral support zone of the proposed footings (1H:1V from the face of footing) are not impacted by the water chamber structure, the lateral support zone for the footings should be dropped below the underside of excavation below the proposed water chamber structure which was measured to be at an elevation of 85.85 m.

In order to accomplish this, a lean-concrete (15 MPa, 28 day strength) in-filled trench extending to an elevation of 85.75 m is recommended to be placed below the footings of the exterior walls adjacent to water chamber structure at the south-west corner of Block 1. The lean concrete should be carried down to a depth of 85.75 for a minimum of 1.5 m beyond the edge of the chamber structures excavation at the proposed USF level along the west and south foundation walls. The bottom of the trench should then be tapered to USF upward at a 3H:1V incline to match the proposed USF elevations. The near vertical, zero entry trench should extend a minimum of 300 m beyond the exterior face of the affected footings. The near vertical, zero entry trench should be reviewed and approved by Paterson at the time of construction.

Section 3-3

In order to ensure that the lateral support zone of the proposed footings (1H:1V from the face of footing) are not impacted by the storage structure, the lateral support zone for the footings should be dropped below the underside of excavation below the proposed water chamber structure which was measured to be at an elevation of 86.65 m.

In order to accomplish this, a lean-concrete (15 MPa, 28 day strength) in-filled trench extending to an elevation of 86.55 m is recommended to be placed below the footings of the east foundations walls for Blocks 2. The lean concrete should be carried down to a depth of 86.55 for a minimum of 1.5 m beyond the edge of the chamber structures excavation at the proposed USF level along the south and east foundation walls. The bottom of the trench should then be tapered to USF upward at a 3H:1V incline to match the proposed USF elevations. The near vertical, zero entry trench should extend a minimum of 300 m beyond the exterior face of the affected footings. The near vertical, zero entry trench should be reviewed and approved by Paterson at the time of construction.

Watermain Adjacent to Block 1 and Block 2

It's understood that the proposed 100 mm diameter watermain will be installed adjacent to and within the lateral support zones for the south foundation walls and for Block 1 and Block 2. Based on our review, it is recommended that the lateral support zones for the south footings for Block 1 and Block 2 be dropped to a minimum of 300 mm below the invert of the watermain pipe using lean-concrete in-filled trenches. The trenches should be extended a minimum of 300 mm beyond the exterior face of the south footings where required.

Other Services

All other services were reviewed to be in conformance with our recommendations without interfering with the lateral support zone of footings.

We trust that this information is satisfactory to meet your immediate requirements.

Paterson Group Inc.



Drew Petahtegoose, B.Eng.



Faisal I. Abou-Seido, P.Eng.

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APPENDIX B

Water Supply

Ogilvie Rd.
Backup P.S.

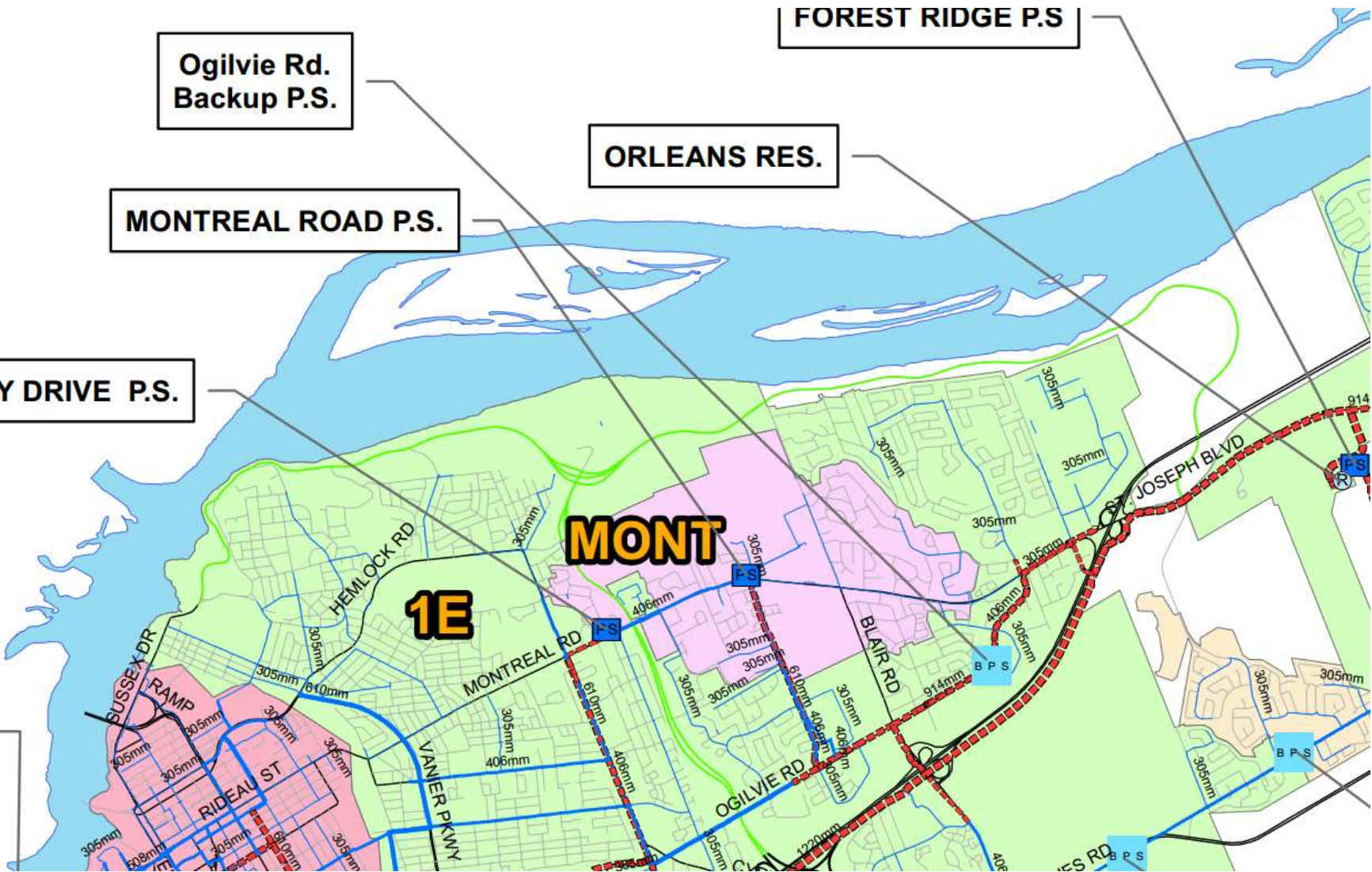
FOREST RIDGE P.S.

ORLEANS RES.

MONTREAL ROAD P.S.

BRITTANY DRIVE P.S.

REET P.S.



Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010



Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	-	0
Semi-detached	2.7	-	0
Townhouse	2.7	38	103
Apartment			0
Bachelor	1.4	-	0
1 Bedroom	1.4	-	0
2 Bedroom	2.1	-	0
3 Bedroom	3.1	-	0
Average	1.8	-	0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m ³ /d	L/min	m ³ /d	L/min	m ³ /d	L/min
Total Domestic Demand	103	28.8	20.0	141.3	98.1	213.4	148.2

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily		Max Day		Peak Hour	
			m ³ /d	L/min	m ³ /d	L/min	m ³ /d	L/min
Commercial floor space	2.5 L/m ² /d	-	0.00	0.0	0.0	0.0	0.0	0.0
Office	75 L/9.3m ² /d	-	0.00	0.0	0.0	0.0	0.0	0.0
Restaurant*	125 L/seat/d	-	0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Light	35,000 L/gross ha/d	-	0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d	-	0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			0.0	0.0	0.0	0.0	0.0	0.0
Total Demand			28.8	20.0	141.3	98.1	213.4	148.2
Total Demand			28.8	20.0	141.3	98.1	213.4	148.2
Total Demand+10%			31.7	22.0	155.4	107.9	234.8	163.0

* Estimated number of seats at 1 seat per 9.3m²

Block 1

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999



Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$

L/min

Where *F* is the fire flow, *C* is the Type of construction and *A* is the Total floor area

Type of Construction:

Wood Frame

C 1.5
A 1251.5

Type of Construction Coefficient per FUS Part II, Section 1
m² Total floor area based on FUS Part II section 1

Fire Flow	11674.4 L/min
	12000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	10200.0 L/min
-----------	----------------------

3. Reduction for Sprinkler Protection

Non-Sprinklered 0%

Reduction	0 L/min
-----------	----------------

4. Increase for Separation Distance

Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N Wood Frame	30.1m-45m	29		3	87	5%
S Wood Frame	10.1m-20m	29		3	87	14%
E Wood Frame	0m-3m	15		3	45	23%
W Wood Frame	20.1m-30m	15		3	45	8%
% Increase						50% value not to exceed 75%

Increase	5100.0 L/min
----------	---------------------

Lw = Length of the Exposed Wall

Ha = number of storeys of the adjacent structure. Max 5 stories

LH = Length-height factor of exposed wall. Value rounded up.

EC = Exposure Charge

Total Fire Flow

Fire Flow	15300.0 L/min	fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4
	15000.0 L/min	rounded to the nearest 1,000 L/min

Notes:

-Type of construction, Occupancy Type and Sprinkler Protection information provided by Mattamy Homes

-Calculations based on Fire Underwriters Survey - Part II

Block 2

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999



Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$

L/min

Where *F* is the fire flow, *C* is the Type of construction and *A* is the Total floor area

Type of Construction:

Wood Frame

C 1.5
A 1250.2

Type of Construction Coefficient per FUS Part II, Section 1
m² Total floor area based on FUS Part II section 1

Fire Flow	11668.0 L/min
	12000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	10200.0 L/min
-----------	----------------------

3. Reduction for Sprinkler Protection

Non-Sprinklered 0%

Reduction	0 L/min
-----------	----------------

4. Increase for Separation Distance

Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N Wood Frame	30.1m-45m	29		3	87	5%
S Wood Frame	10.1m-20m	29		3	87	14%
E Wood Frame	20.1m-30m	15		3	45	8%
W Wood Frame	0m-3m	15		3	45	23%
% Increase						50% value not to exceed 75%

Increase	5100.0 L/min
----------	---------------------

Lw = Length of the Exposed Wall

Ha = number of storeys of the adjacent structure. Max 5 stories

LH = Length-height factor of exposed wall. Value rounded up.

EC = Exposure Charge

Total Fire Flow

Fire Flow	15300.0 L/min	fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4
	15000.0 L/min	rounded to the nearest 1,000 L/min

Notes:

-Type of construction, Occupancy Type and Sprinkler Protection information provided by Mattamy Homes

-Calculations based on Fire Underwriters Survey - Part II

Block 3

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999



Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$

L/min

Where *F* is the fire flow, *C* is the Type of construction and *A* is the Total floor area

Type of Construction:

Wood Frame

C 1.5
A 1218.8

Type of Construction Coefficient per FUS Part II, Section 1
m² Total floor area based on FUS Part II section 1

Fire Flow	11520.5 L/min
	12000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	10200.0 L/min
-----------	----------------------

3. Reduction for Sprinkler Protection

Non-Sprinklered 0%

Reduction	0 L/min
-----------	----------------

4. Increase for Separation Distance

Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N Wood Frame	10.1m-20m	15		3	45	13%
S Wood Frame	30.1m-45m	15		3	45	5%
E Wood Frame	20.1m-30m	29		3	87	9%
W Wood Frame	20.1m-30m	29		3	87	9%
% Increase						36% value not to exceed 75%

Increase	3672.0 L/min
----------	---------------------

Lw = Length of the Exposed Wall

Ha = number of storeys of the adjacent structure. Max 5 stories

LH = Length-height factor of exposed wall. Value rounded up.

EC = Exposure Charge

Total Fire Flow

Fire Flow	13872.0 L/min	fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4
	14000.0 L/min	rounded to the nearest 1,000 L/min

Notes:

-Type of construction, Occupancy Type and Sprinkler Protection information provided by Mattamy Homes

-Calculations based on Fire Underwriters Survey - Part II

Block 4

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999



Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$

L/min

Where *F* is the fire flow, *C* is the Type of construction and *A* is the Total floor area

Type of Construction:

Wood Frame

C 1.5
A 2318.2

Type of Construction Coefficient per FUS Part II, Section 1
m² Total floor area based on FUS Part II section 1

Fire Flow	15888.6 L/min
	16000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	13600.0 L/min
-----------	----------------------

3. Reduction for Sprinkler Protection

Non-Sprinklered 0%

Reduction	0 L/min
-----------	----------------

4. Increase for Separation Distance

Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N Wood Frame	10.1m-20m	19		4	76	14%
S Wood Frame	>45m	19		4	76	0%
E Wood Frame	20.1m-30m	31		4	124	10%
W Wood Frame	20.1m-30m	31		4	124	10%
% Increase						34% value not to exceed 75%

Increase	4624.0 L/min
----------	---------------------

Lw = Length of the Exposed Wall

Ha = number of storeys of the adjacent structure. Max 5 stories

LH = Length-height factor of exposed wall. Value rounded up.

EC = Exposure Charge

Total Fire Flow

Fire Flow	18224.0 L/min	fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4
	18000.0 L/min	rounded to the nearest 1,000 L/min

Notes:

-Type of construction, Occupancy Type and Sprinkler Protection information provided by Mattamy Homes

-Calculations based on Fire Underwriters Survey - Part II

Anthony Temelini

From: Fraser, Mark <Mark.Fraser@ottawa.ca>
Sent: May 22, 2020 2:01 PM
To: Anthony Temelini
Cc: Jennifer Ailey
Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request
Attachments: Wateridge Village Phase 1B Block 22 May 2020.pdf; geoOttawa.pdf; block 22 Site Plan- 2020 May 4 _ec.pdf; wtr-2020-05-07_948_ggg.pdf; wtr-2020-05-07_948_ggg_water demand.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Anthony,

Please find below boundary conditions, HGL, for hydraulic analysis at **1400 Hemlock Road [BLOCK 22] within Wateridge Village Phase 1B** (zone MONT) assumed to be connected to the 203mm dia. watermain on Michael Stoqua Street and the 203mm dia. watermain on Moses Tennisco Street (see attached PDF for locations) for both existing and future conditions.

Domestic and Fire Flow Water Demands:

Type of Development: Residential (18 rear lane townhome units and 20 back-to-back stacked townhome units)

Average Day Demand = 0.36 L/s

Maximum Day Demand = 1.80 L/s

Peak Hour Demand = 2.72 L/s

Fire Flow Demand = 15,000 L/min

HGL has been provided for the higher fire flow (Blocks 1 and 2) since that will govern the design.

Existing Conditions Based on Current Pump Operations:

(HGL is the same at both connections)

Minimum HGL = 146.7m

Maximum HGL = 147.0m *The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.*

Max Day + FireFlow (250L/s) = 140.0m

Future Conditions Based on a Proposed HGL Target of 143.0m at Montreal Road P.S:

(HGL is the same at both connections)

Minimum HGL = 143.0m

Maximum HGL = 143.0m

Max Day + FireFlow (250L/s) = 136.0m

These are based on computer model simulation.

Disclaimer: *The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.*

Regards,

Mark Fraser, P. Eng.
Project Manager, Planning Services
Development Review Central Branch
City of Ottawa | Ville d'Ottawa
Planning, Infrastructure and Economic Development Department
110 Laurier Avenue West, 4th Floor, Ottawa ON, K1P 1J1
[Tel: 613.580.2424](tel:613.580.2424) ext. 27791
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From: Fraser, Mark
Sent: May 15, 2020 3:38 PM
To: Anthony Temelini <ATemelini@dsel.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Hi Anthony,

Please find below boundary conditions, HGL, for hydraulic analysis at **1400 Hemlock Road [BLOCK 22] within Wateridge Village Phase 1B** (zone MONT) assumed to be connected to the 203mm dia. watermain on Michael Stoqua Street and the 203mm dia. watermain on Moses Tennisco Street (see attached PDF for locations).

Domestic and Fire Flow Water Demands:

Type of Development: Residential (18 rear lane townhome units and 20 back-to-back stacked townhome units)

Average Day Demand = 0.36 L/s

Maximum Day Demand = 1.80 L/s

Peak Hour Demand = 2.72 L/s

Fire Flow Demand = 15,000 L/min

HGL has been provided for the higher fire flow (Blocks 1 and 2) since that will govern the design.

Existing Conditions based on Current Pump Operations (HGL is the same at both connections):

Minimum HGL = 146.7m

Maximum HGL = 147.0m. *The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.*

Max Day + FireFlow (250L/s) = 140.0m

Please note the following:

- **Boundary conditions provided above are for existing conditions.** *Upgrades to the Montreal and Brittany pump stations are currently being planned to support the CFB Rockcliffe development. The City plans to control the discharge HGL to 143.0m. Furthermore, the current plan is to use a different pumping strategy that will try to maintain a constant HGL of 143.0m even during peak hour and/or fire flow conditions.*
- **Boundary conditions will be forthcoming for future pump operation conditions as requested.** *Our model currently does not include the future pumping changes into the zone Mont so the model has to be modified and the future HGL target reconfirmed.*

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

***Disclaimer:** The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.*

Regards,

Mark Fraser, P. Eng.

Project Manager, Planning Services
Development Review Central Branch
City of Ottawa | Ville d'Ottawa
Planning, Infrastructure and Economic Development Department
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From: Anthony Temelini <ATemelini@dsel.ca>
Sent: May 11, 2020 2:47 PM
To: Fraser, Mark <Mark.Fraser@ottawa.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

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Hi Mark,

Thanks for confirming.

Can you please ensure that the Water Resources Unit provides us with two (2) sets of boundary conditions, one for the Montreal Pressure Zone under current conditions and one for the Montreal Pressure Zone under future conditions (after the upgrades described in the attached excerpt have been made)?

Please let us know.

Thank you,

Anthony Temelini, P.Eng.
Junior Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

cell: (613) 875-7862
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From: Fraser, Mark <Mark.Fraser@ottawa.ca>
Sent: May 11, 2020 9:18 AM
To: Anthony Temelini <ATemelini@dsel.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Hi Anthony,

The below request for boundary conditions has been sent to the Water Resources Unit. Please note that it can take approx. 5-10 business days to receive boundary conditions. I will forward you the boundary conditions once received.

Regards,

Mark Fraser

Project Manager, Planning Services
Development Review Central Branch
City of Ottawa | Ville d'Ottawa
Planning, Infrastructure and Economic Development Department
110 Laurier Avenue West, 4th Floor, Ottawa ON, K1P 1J1
[Tel:613.580.2424](tel:613.580.2424) ext. 27791
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From: Anthony Temelini <ATemelini@dsel.ca>
Sent: May 08, 2020 1:31 PM
To: Fraser, Mark <Mark.Fraser@ottawa.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

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Hi Mark,

Per the attached engineering comments from April 2, please note that we are proceeding with the boundary condition request for Wateridge Village – Phase 1B Block 22:

1. Location of Service / Street Number: 1400 Hemlock Road.

2. Development information and fire flow requirements:

- Proposed residential development with 18 rear lane townhomes and 20 back-to-back stacked townhomes.
- Back-to-back stacked townhomes will have automatic sprinklers.
- Perimeter meters to be used.
- It is anticipated that the development will have two (2) connection points to existing services (see attached geoOttawa markup):
 - Connection 1 to the existing 200 mm diameter watermain on Michael Stoqua Street;
 - Connection 2 to the existing 200 mm diameter watermain on Moses Tennisco Street;
- It is anticipated that required **fire flows will range from 233 L/s** (14,000 L/min) **to 250 L/s** (15,000 L/min) per the attached calculations.

3. Anticipated demands for the development have been calculated per the attached spreadsheet, with an additional 10% contingency to be conservative:

	L/min	L/s	L/s (+10%)
Avg. Daily	20.0	0.33	0.36
Max Day	98.1	1.64	1.80
Peak Hour	148.2	2.47	2.72
Min Hour	10.0	0.17	0.19

Can you please forward the boundary condition request to the City's water modelling group and confirm once it has been submitted?

Please let us know when we can expect to receive the boundary conditions.

Thank you,

Anthony Temelini, P.Eng.
Junior Project Manager

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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Hydraulic Capacity and Modeling Analysis Wateridge Village Phase 1B - Block 22 Development

Final Report

Prepared for:

David Schaeffer Engineering Ltd.
120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Prepared by:

GeoAdvice Engineering Inc.
Unit 203, 2502 St. John's Street
Port Moody, BC V3H 2B4

Submission Date: September 24, 2020

Contact: Mr. Werner de Schaetzen, Ph.D., P.Eng.

Project: 2020-040-DSE

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Project ID: 2020-040-DSE

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Document History and Version Control

Revision No.	Date	Document Description	Revised By	Reviewed By
R0	May 20, 2020	Draft	Ferdinand de Schoutheete	Werner de Schaetzen
R1	May 22, 2020	Final	Ferdinand de Schoutheete	Werner de Schaetzen
R2	May 25, 2020	Final	Ferdinand de Schoutheete	Werner de Schaetzen
R3	September 23, 2020	Updated Draft	Ben Loewen	Werner de Schaetzen
R4	September 24, 2020	Final	Ben Loewen	Werner de Schaetzen

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1 Introduction

GeoAdvice Engineering Inc. (“GeoAdvice”) was retained by David Schaeffer Engineering Ltd. (“DSEL”) to size the water main network for the Wateridge Village Phase 1B - Block 22 development (“Development”) in the City of Ottawa, ON (“City”).

The development is located at 1400 Hemlock Road between Michael Stoqua Street and Moses Tennisco Street. To the west of the development there is an existing 200 mm trunk main on Michael Stoqua Street, and to the east there is an existing 200 mm trunk main on Moses Tennisco Street.

The development consists of 18 rear-lane townhomes and 20 back-to-back stacked townhomes. Ten (10) Block 4 units, which front Michael Stoqua Street, will have direct service connections to the existing 200 mm water main.

The development model will have two (2) connections to the City water distribution system:

- Connection 1: Existing 200 mm diameter watermain on Michael Stoqua Street; and
- Connection 2: Existing 200 mm diameter watermain on Moses Tennisco Street.

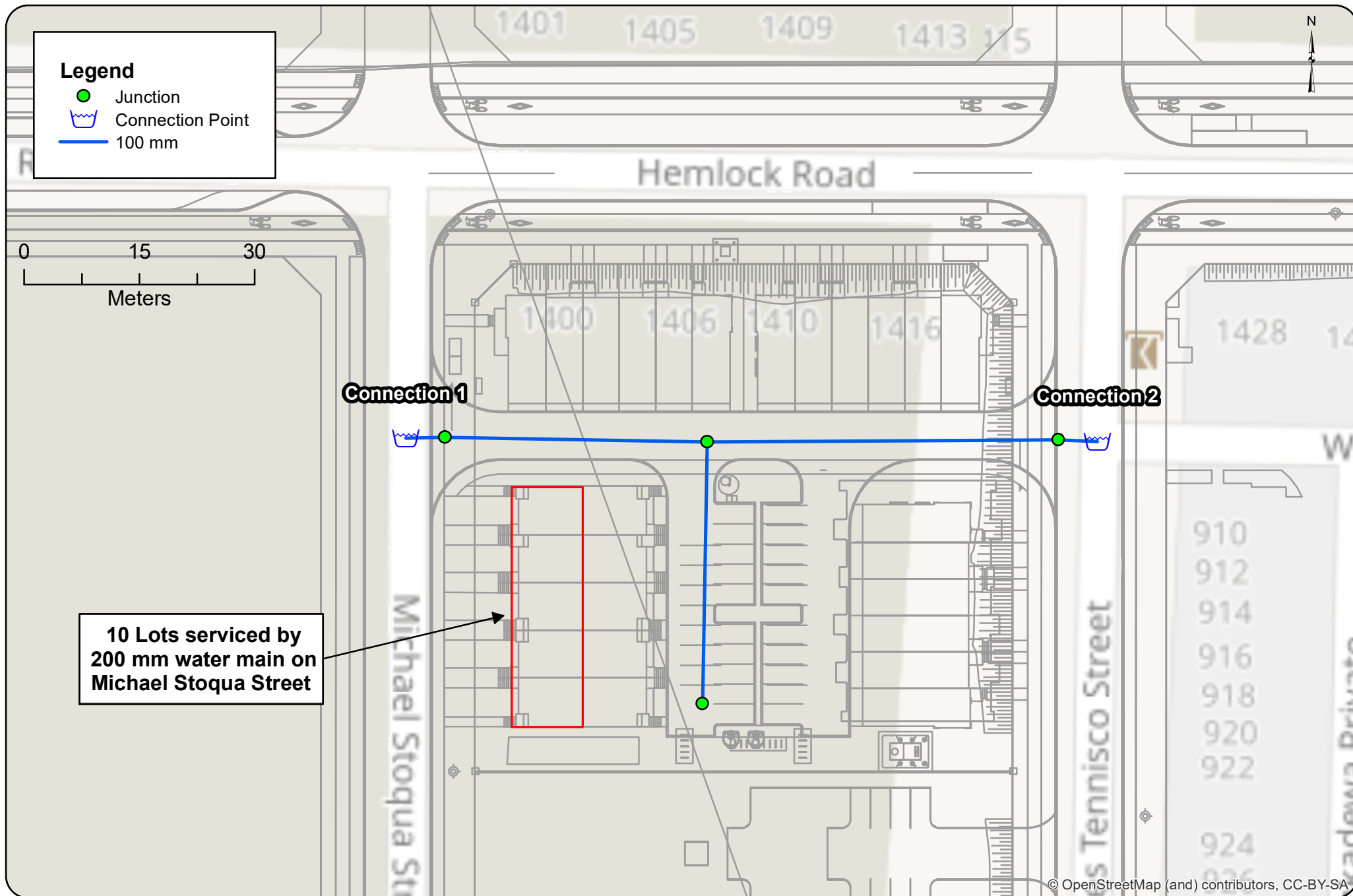
As agreed upon with DSEL, the following scenarios were assessed for the Wateridge Village Phase 1B - Block 22 development:

- Existing Scenario (based on current pump operations)
- Future Scenario (based on future proposed pump operations)

The development site is shown in **Figure 1.1** with the final recommended pipe diameters.

This report describes the assumptions and results of the hydraulic modeling and capacity analysis using InfoWater (Innovyze), a GIS water distribution system modeling and management software application.

The results presented in this report are based on the analysis of steady state simulations. No extended period simulations were completed in this analysis to assess the water quality or to assess the hydraulic impact on storage and pumping.



GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis
Wateridge Village Phase 1B Development**

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

DISCLAIMER: GeoAdvice does not warrant in any way the accuracy and completeness of the information shown on this map. Field verification of the accuracy and completeness of the information shown on this map is the sole responsibility of the user.

Site Layout and Connection Points

Figure 1.1



2 Modeling Considerations

2.1 Water Main Configuration

The water main network was modeled based on development layout provided by DSEL to GeoAdvice on May 12, 2020.

2.2 Elevations

Elevations of the modeled junctions were assigned based on the grading plan of the development provided by DSEL to GeoAdvice on May 12, 2020.

2.3 Consumer Demands

Demand calculations were completed by DSEL. A summary of the rates and peaking factors used for this development is shown in **Table 2.1** below.

Table 2.1: City of Ottawa Demand Rate and Peaking Factors

Demand Type	Amount	Unit
Average Day Demand		
Residential	280	L/c/d
Maximum Daily Demand		
Residential	4.9 x avg. day	L/c/d
Peak Hour Demand		
Residential	7.4 x avg. day	L/c/d
Minimum Hour Demand		
Residential	0.5 x avg. day	L/c/d

Table 2.2 summarizes the water demand calculations for the Wateridge Village Phase 1B - Block 22 Development. Demands were uniformly distributed to all the nodes in the model.

Table 2.2: Development Demand Calculations

Dwelling Type	Number of Units	Unit Rate*	Pop	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)	Minimum Hour Demand (L/s)
Townhouse	38 **	2.7 cap/unit	103	0.33	1.63	2.46	0.17
Total (+ 10 %)				0.37	1.80	2.72	0.19

*City of Ottawa Design Guidelines

**Although ten (10) of the 38 lots will be serviced by the 200 mm water main on Michael Stoqua Street, the demands have been included in this analysis (conservative assumption).



2.4 Fire Flow Demand

Fire flow calculations were completed by DSEL and are summarized in **Table 2.3** below.

Table 2.3: Fire Flow Requirements at 140 kPa (20 psi)

Development Type	Fire Flow (L/min)	Fire Flow (L/s)
Blocks 1 and 2	15,000	250
Block 3	14,000	233
Block 4	18,000	300

As agreed with the City, no hydraulic fire flow modeling (Max Day Demand plus Fire Flow) was completed as the fire flows provided by the adjacent hydrants are sufficient. In addition, a hydrant spacing analysis has been conducted in accordance to the City of Ottawa Design Guidelines and the available fire flow results are summarized in **Section 5.3**. Finally, it is expected that there would be minimal impact to the internal network in a fire flow scenario.

2.5 Boundary Conditions

The boundary conditions were provided by the City of Ottawa in the form of Hydraulic Grade Line (HGL) at the following locations:

- Connection 1: Existing 200 mm diameter watermain on Michael Stoqua Street; and
- Connection 2: Existing 200 mm diameter watermain on Moses Tennisco Street.

The above connection points are illustrated in **Figure 1.1**.

Table 2.4 and **Table 2.5** summarize the existing and future boundary conditions used to size the Wateridge Village Phase 1B - Block 22 development water network.

Table 2.4: Existing Boundary Conditions (Provided by DSEL on May 15, 2020)

Condition	Connection 1 HGL (m)	Connection 2 HGL (m)
Min Hour (maximum pressure)	147.0	147.0
Peak Hour (minimum pressure)	146.7	146.7

Table 2.5: Future Boundary Conditions (Provided by DSEL on May 22, 2020)

Condition	Connection 1 HGL (m)	Connection 2 HGL (m)
Min Hour (maximum pressure)	143.0	143.0
Peak Hour (minimum pressure)	143.0	143.0



The existing boundary conditions are based on the current Montreal Road pump station setting and the future boundary conditions are based on a proposed HGL target of 143.0 m at the Montreal Road pump station.

The existing and future boundary conditions can be found in **Appendix A**.



3 Hydraulic Capacity Design Criteria

3.1 Pipe Characteristics

Pipe characteristics used for the development are outlined in **Table 3.1** below.

Table 3.1: Model Pipe Characteristics

Diameter (mm)	Hazen Williams C-Factor (/)
100	110

3.2 Pressure Requirements

As outlined in the City of Ottawa Design Guidelines, the generally accepted best practice is to design new water distribution systems to operate between 350 kPa (50 psi) and 480 kPa (70 psi). The maximum pressure at any point in the distribution system in occupied areas outside of the public right-of-way shall not exceed 552 kPa (80 psi). Pressure requirements are outlined in **Table 3.2**.

Table 3.2: Pressure Requirements

Demand Condition	Minimum Pressure		Maximum Pressure	
	(kPa)	(psi)	(kPa)	(psi)
Normal Operating Pressure (maximum daily flow)	350	50	480	70
Peak Hour Demand (minimum allowable pressure)	276	40	-	-
Maximum Fixture Pressure (Ontario Building Code)	-	-	552	80
Maximum Distribution Pressure (minimum hour check)	-	-	552	80
Maximum Day Plus Fire	140	20	-	-



4 Hydraulic Capacity Analysis

The proposed water mains within the development were sized to the minimum diameter which would satisfy the peak hour demand. Modeling was carried out for minimum hour and peak hour using InfoWater. The existing and future boundary conditions provided by DSEL were used to size the network, and the results are presented in the following sections.

Detailed pipe and junction model input data can be found in **Appendix B**.

4.1 Development Pressure Analysis

The modeling results indicate that the development can be adequately serviced by the proposed water main layout shown in **Figure 1.1**. Modeled service pressures for the development are summarized in **Table 4.1**.

Table 4.1: Summary of Available Service Pressures

Scenario	Minimum Hour Demand Maximum Pressure	Peak Hour Demand Minimum Pressure
Existing	82 psi	80 psi
Future	77 psi	75 psi

As outlined in the City of Ottawa Design Guidelines, the generally accepted best practice is to design new water distribution systems to operate between 50 psi and 70 psi. The maximum pressure at any point in the distribution system in occupied areas outside of the public right-of-way shall not exceed 80 psi. As such, based on the City boundary conditions, pressure reducing valves may be required under the Existing scenario.

Detailed pipe and junction result tables and maps can be found in **Appendix C**.



5 Other Servicing Considerations

5.1 Water Supply Security

The City of Ottawa Design Guidelines allow single feed systems for developments up to a total average day demand of 50 m³/day and require two (2) feeds if the development exceeds 50 m³/day for supply security, according to Technical Bulletin ISDTB-2014-02.

The Wateridge Village Phase 1B - Block 22 development services a total average day demand of 32 m³/day (0.37 L/s); as such, only one (1) feed is required.

5.2 Valves

No comment has been made in this report with respect to exact placement of isolation valves within the distribution network for the Wateridge Village Phase 1B - Block 22 development other than to summarize the City of Ottawa Design Guidelines for number, location, and spacing of isolation valves:

- Tee intersection – two (2) valves
- Cross intersection – three (3) valves
- Valves shall be located 2 m away from the intersection
- 300 m spacing for 150 mm to 400 mm diameter valves
- Gate valves for 100 mm to 300 mm diameter mains
- Butterfly valves for 400 mm and larger diameter mains

Drain valves are not strictly required under the City of Ottawa Design Guidelines for water mains under 600 mm in diameter. The Guidelines indicate that “small diameter water mains shall be drained through hydrant via pumping if needed.”

Air valves are not strictly required under the City of Ottawa Design Guidelines for water mains up to and including 400 mm in diameter. The Guidelines indicate that air removal “can be accomplished by the strategic positioning of hydrant at the high points to remove the air or by installing or utilizing available 50 mm chlorination nozzles in 300 mm and 400 mm chambers.”

The detailed engineering drawings for the Wateridge Village Phase 1B - Block 22 development are expected to identify valves in accordance with the requirements noted above.



5.3 Hydrants

City of Ottawa Design Guidelines for maximum hydrant spacing are the following:

- 125 m for single family unit residential areas on lots where frontage at the street line is 15 m or longer;
- 110 m for single family unit residential areas on lots where frontage at the street line is less than 15 m and for residential areas zoned for row housing, doubles or duplexes; and
- 90 m for institutional, commercial, industrial, apartments and high-density areas.

Proposed hydrant locations were provided by DSEL to GeoAdvice on May 15, 2020.

Table 5.1 summarizes the theoretical available fire flow for each block based on the number of hydrants within the vicinity of the development.

Table 5.1: Fire Hydrant Spacing Analysis

Block Number	Required Fire Demand (L/min)	Number of Fire Hydrants within 75 m	Number of Fire Hydrants within 75 m and 150 m	Available Fire Flow* (L/min)
Block 1	15,000	1	3	17,033
Block 2	15,000	1	3	17,033
Block 3	14,000	1	3	17,033
Block 4	18,000	2	2	18,926

*Theoretical available fire flow, as per Table 18.5.4.3 of City of Ottawa ISTB-2018-02

As shown in the table above, the theoretical available fire flow is higher than the required fire flow demand for each block.



6 Conclusions

The hydraulic capacity and modeling analysis of the Wateridge Village Phase 1B - Block 22 development yielded the following conclusions:

- The proposed water main network can deliver all required domestic flows under the existing and future boundary conditions.
- Domestic pressures expected to range between 80 psi and 82 psi under the existing scenario and between 75 psi and 77 psi under the future scenario.
- Since the anticipated service pressures in the existing scenario are predicted to exceed the City of Ottawa Design Guideline of 80 psi, pressure reducing valves may be required.
- The proposed service connections from Block 4 to the Michael Stoqua Street are not expected to impact the existing water main system.



Submission

Prepared by:

Ben Loewen, E.I.T.

Hydraulic Modeler / Project Engineer

Approved by:

Werner de Schaetzen, Ph.D., P.Eng.

Senior Modeling Review / Project Manager



Appendix A Boundary Conditions

Appendix A.1 Existing Boundary Conditions Provided by DSEL on May 15, 2020.

Project ID: 2020-040-DSE





Ferdinand de Schoutheete <ferdinand.geoadvice@gmail.com>

Fwd: FW: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Werner de Schaetzen - GeoAdvice <werner@geoadvice.com>
To: Ferdinand de Schoutheete <Ferdinand@geoadvice.com>

15 May 2020 at 12:57

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

From: **Jennifer Ailey** <JAiley@dsel.ca>
Date: Fri, May 15, 2020 at 12:49 PM
Subject: FW: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request
To: werner de schaetzen <werner@geoadvice.com>
CC: Anthony Temelini <ATemelini@dsel.ca>

Hi Werner,

I hope you're keeping well. Please see below and attached for the boundary conditions. Please let me know if you have any questions.

I hope you enjoy the long weekend.

Thanks,

Jennifer Ailey, P.Eng.
Project Manager

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Phone: (613) 836-0856 ext. 526
Cell: (613) 222-6476
Email: jailey@dsel.ca

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From: Fraser, Mark <Mark.Fraser@ottawa.ca>
Sent: May 15, 2020 3:38 PM
To: Anthony Temelini <ATemelini@dsel.ca>
Cc: Jennifer Ailey <JAiley@dsel.ca>
Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Hi Anthony,

Please find below boundary conditions, HGL, for hydraulic analysis at **1400 Hemlock Road [BLOCK 22] within Wateridge Village Phase 1B** (zone MONT) assumed to be connected to the 203mm dia. watermain on Michael Stoqua Street and the 203mm dia. watermain on Moses Tennisco Street (see attached PDF for locations).

Domestic and Fire Flow Water Demands:

Type of Development: Residential (18 rear lane townhome units and 20 back-to-back stacked townhome units)

Average Day Demand = 0.36 L/s

Maximum Day Demand = 1.80 L/s

Peak Hour Demand = 2.72 L/s

Fire Flow Demand = 15,000 L/min

HGL has been provided for the higher fire flow (Block 1 and 2) since that will govern the design.

Existing Conditions based on Current Pump Operations (HGL is the same at both connections):

Minimum HGL = 146.7m

Maximum HGL = 147.0m. *The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.*

Max Day + FireFlow (250L/s) = 140.0m

Please note the following:

<https://mail.google.com/mail/u/0?ik=4df7aaf595&view=pt&search=all&permmsgid=msg-f%3A1666787757436938261&simpl=msg-f%3A166678775743...>

5/19/2020

Gmail - Fwd: FW: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

- **Boundary conditions provided above are for existing conditions.** Upgrades to the Montreal and Brittany pump stations are currently being planned to support the CFB Rockcliffe development. The City plans to control the discharge HGL to 143.0m. Furthermore, the current plan is to use a different pumping strategy that will try to maintain a constant HGL of 143.0m even during peak hour and/or fire flow conditions.
- **Boundary conditions will be forthcoming for future pump operation conditions as requested.** Our model currently does not include the future pumping changes into the zone Mont so the model has to be modified and the future HGL target reconfirmed.

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

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermain 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.

Regards,

Mark Fraser, P. Eng.

Project Manager, Planning Services

Development Review Central Branch

City of Ottawa | Ville d'Ottawa

Planning, Infrastructure and Economic Development Department

110 Laurier Avenue West, 4th Floor, Ottawa ON, K1P 1J1

Tel: 613.580.2424 ext. 27791

Fax: 613-580-2576

Mail: Code 01-14

Email: Mark.Fraser@ottawa.ca

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From: Anthony Temelini <ATemelini@dsel.ca>

Sent: May 11, 2020 2:47 PM

To: Fraser, Mark <Mark.Fraser@ottawa.ca>

Cc: Jennifer Ailey <JAiley@dsel.ca>

Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

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Hi Mark,

Thanks for confirming.

Can you please ensure that the Water Resources Unit provides us with two (2) sets of boundary conditions, one for the Montreal Pressure Zone under current conditions and one for the Montreal Pressure Zone under future conditions (after the upgrades described in the attached excerpt have been made)?

Please let us know.

Thank you,

Anthony Temelini, P.Eng.

Junior Project Manager

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

<https://mail.google.com/mail/u/0?ik=4df7aaf595&view=pt&search=all&permmsgid=msg-f%3A1666787757436938261&simpl=msg-f%3A166678775743...>



Appendix A.2 Future Boundary Conditions Provided by DSEL on May 22, 2020.

Project ID: 2020-040-DSE



Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Fraser, Mark <Mark.Fraser@ottawa.ca>
to Anthony Temelini, Jennifer Ailey

You are viewing an attached message. Gmail can't verify the authenticity of attached messages.

Hi Anthony,

Please find below boundary conditions, HGL, for hydraulic analysis at **1400 Hemlock Road [BLOCK 22] within Wateridge Village Phase 1B** (zone MONT) assumed to be connected to PDF for locations) for both existing and future conditions.

Domestic and Fire Flow Water Demands:

Type of Development: Residential (18 rear lane townhome units and 20 back-to-back stacked townhome units)

Average Day Demand = 0.36 L/s

Maximum Day Demand = 1.80 L/s

Peak Hour Demand = 2.72 L/s

Fire Flow Demand = 15,000 L/min

HGL has been provided for the higher fire flow (Blocks 1 and 2) since that will govern the design.

Existing Conditions Based on Current Pump Operations:

(HGL is the same at both connections)

Minimum HGL = 146.7m

Maximum HGL = 147.0m The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.

Max Day + FireFlow (250L/s) = 140.0m

Future Conditions Based on a Proposed HGL Target of 143.0m at Montreal Road P.S:

(HGL is the same at both connections)

Minimum HGL = 143.0m

Maximum HGL = 143.0m

Max Day + FireFlow (250L/s) = 136.0m

These are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time of preparation. The physical properties of watermain deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties may affect the results.

Regards,

Mark Fraser, P. Eng.

Project Manager, Planning Services

Development Review Central Branch

City of Ottawa | Ville d'Ottawa

Planning, Infrastructure and Economic Development Department

110 Laurier Avenue West, 4th Floor, Ottawa ON, K1P 1J1

Tel: 613-580-2424 ext. 27791

Fax: 613-580-2576

Mail: Code 01-14

Email: Mark.Fraser@ottawa.ca

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-
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From: Fraser, Mark

Sent: May 15, 2020 3:38 PM

To: Anthony Temelini <ATemelini@dse.ca>

Cc: Jennifer Ailey <JAiley@dse.ca>

Subject: RE: 948 - Wateridge Village Phase 1B Block 22 Boundary Condition Request

Hi Anthony,

Please find below boundary conditions, HGL, for hydraulic analysis at **1400 Hemlock Road [BLOCK 22] within Wateridge Village Phase 1B** (zone MONT) assumed to be connected to PDF for locations).

Domestic and Fire Flow Water Demands:

Type of Development: Residential (18 rear lane townhome units and 20 back-to-back stacked townhome units)

Average Day Demand = 0.36 L/s

Maximum Day Demand = 1.80 L/s

Peak Hour Demand = 2.72 L/s

Fire Flow Demand = 15,000 L/min

HGL has been provided for the higher fire flow (Blocks 1 and 2) since that will govern the design.

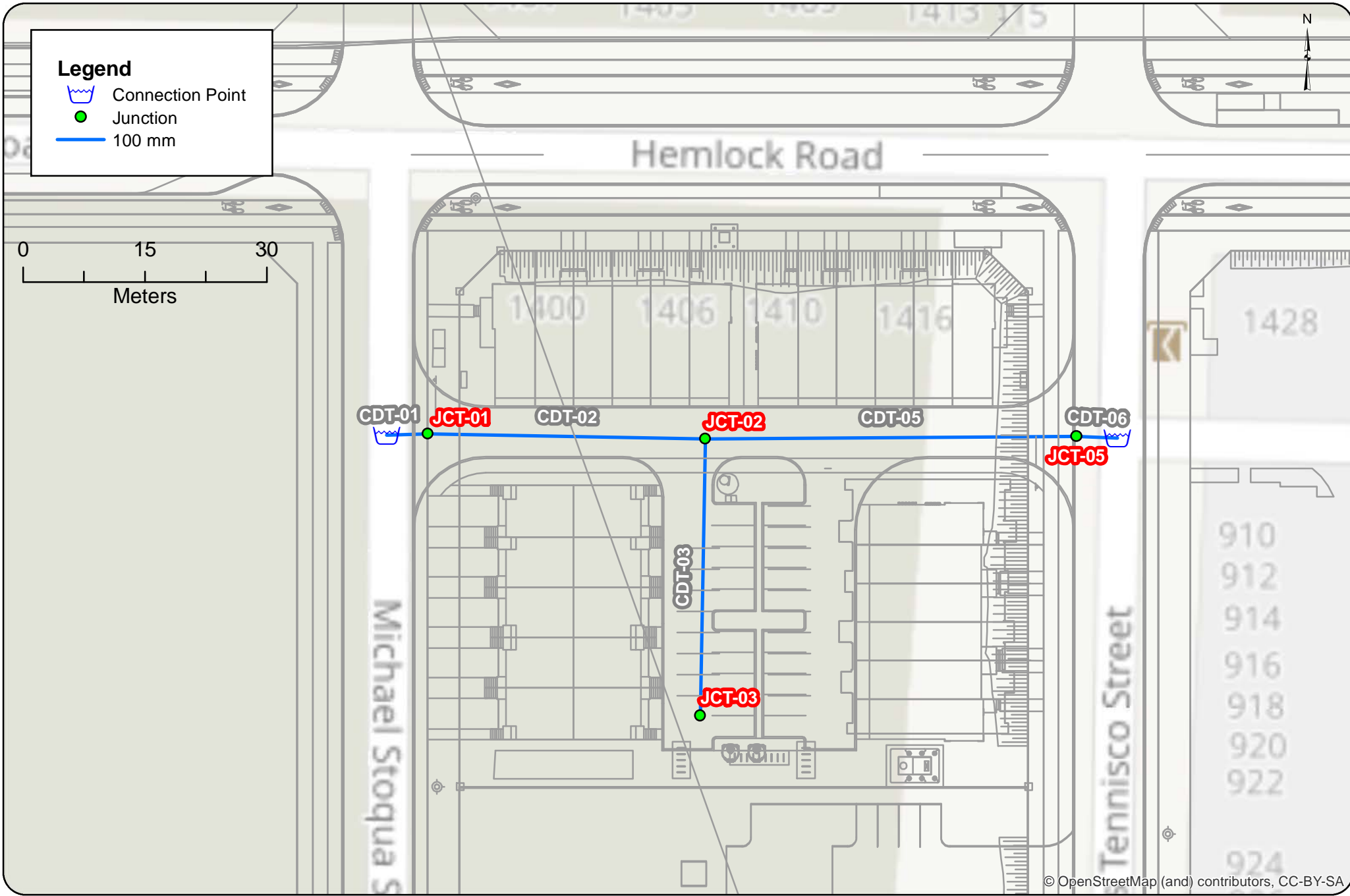
Existing Conditions based on Current Pump Operations (HGL is the same at both connections):



Appendix B Pipe and Junction Model Inputs

Project ID: 2020-040-DSE





GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis**

Wateridge Village Phase 1B Development

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

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System Layout

Figure B.1

Model Inputs

ID	From	To	Length (m)	Diameter (mm)	Roughness
CDT-01	RES_01	JCT-01	5.00	100	110
CDT-02	JCT-01	JCT-02	34.16	100	110
CDT-03	JCT-02	JCT-03	34.06	100	110
CDT-05	JCT-02	JCT-05	45.68	100	110
CDT-06	JCT-05	RES_02	5.00	100	110

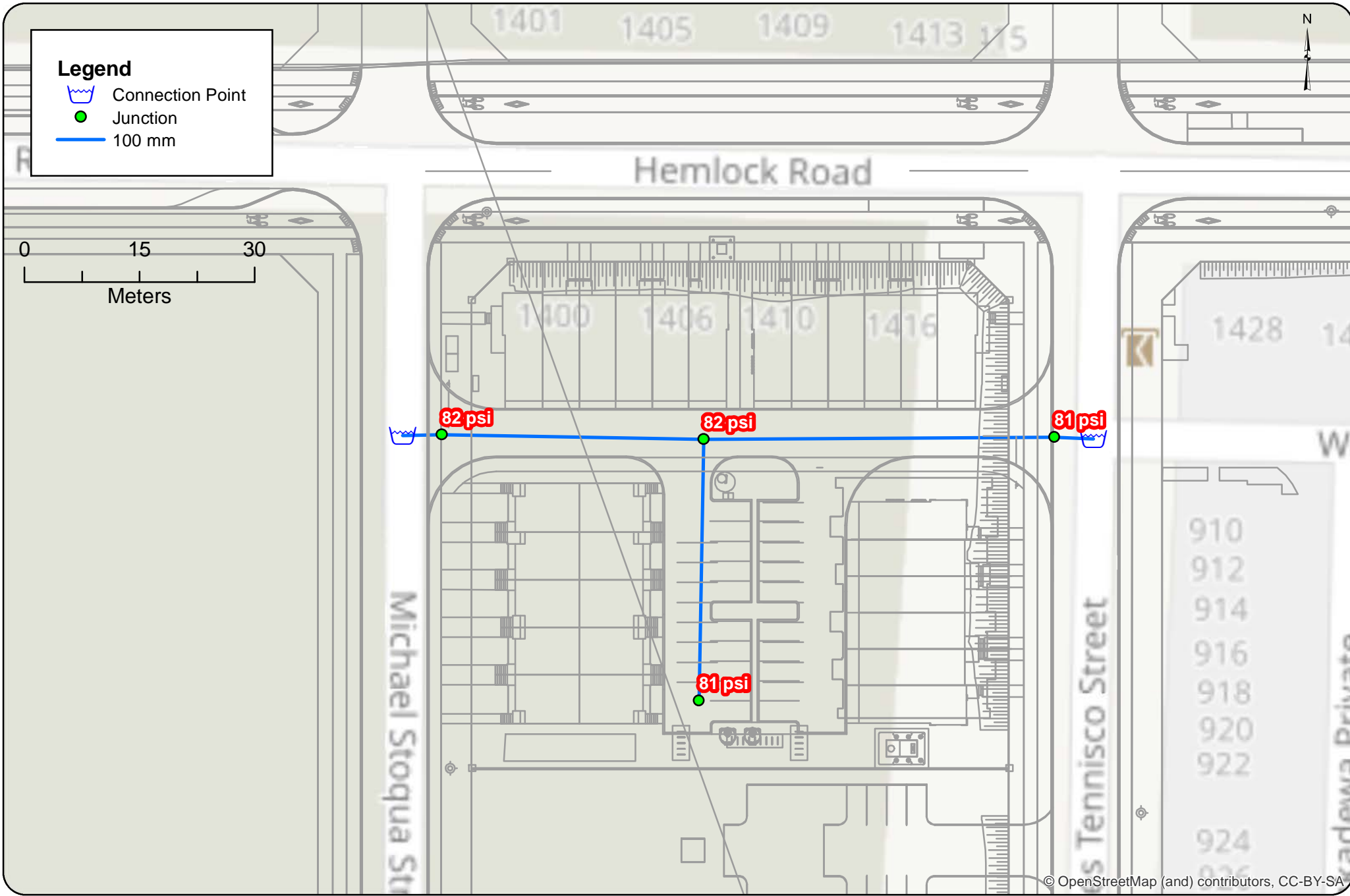
ID (Char)	Elevation (m)
JCT-01	89.12
JCT-02	89.61
JCT-03	89.79
JCT-05	90.33



Appendix C MHD and PHD Model Results

Project ID: 2020-040-DSE





GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis
Wateridge Village Phase 1B Development**

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

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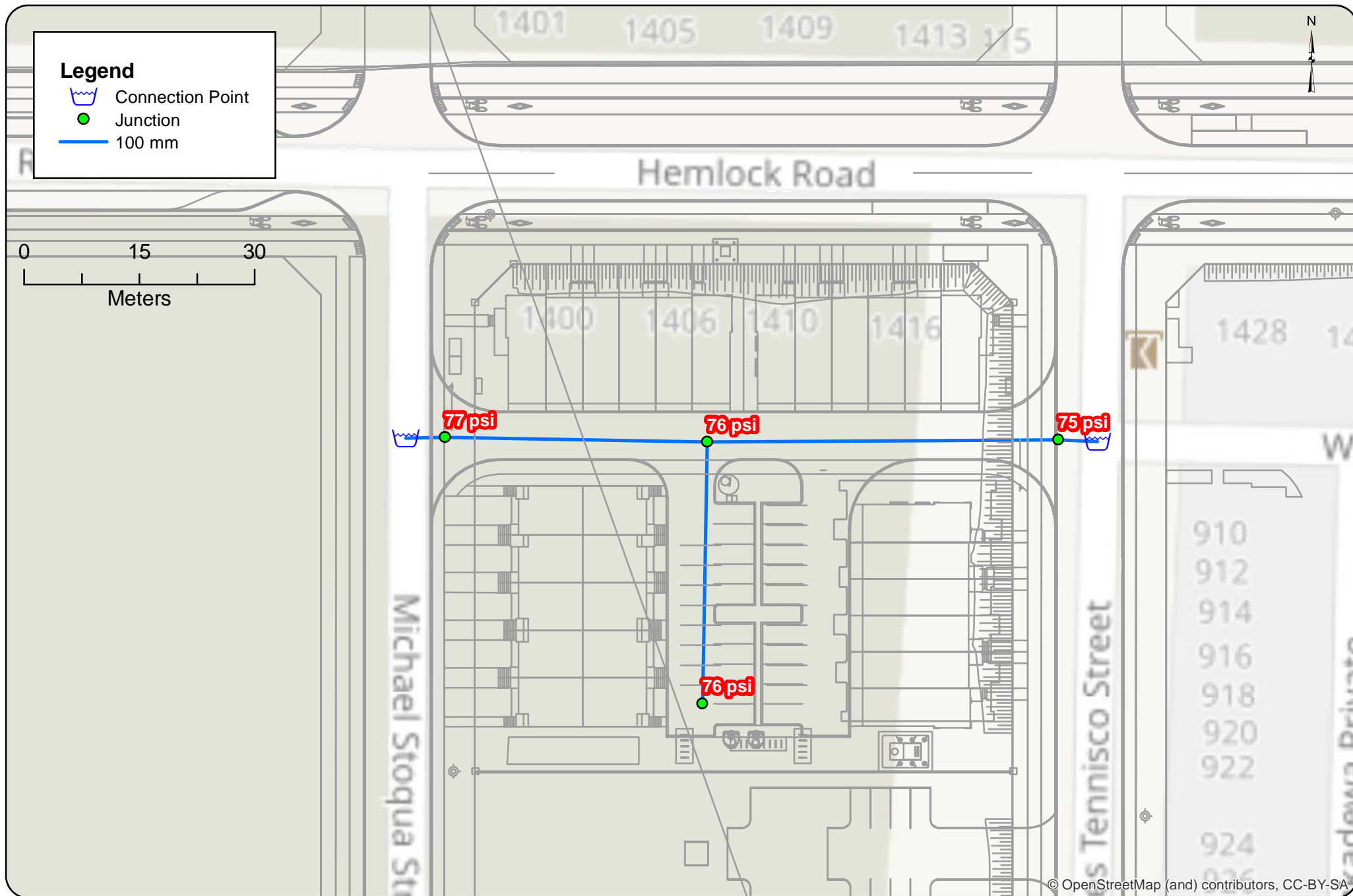
**MHD Results
Existing Scenario**

Figure C.1

Minimum Hour Demand Modeling Results - Existing

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
CDT-01	RES_01	JCT-01	8.65	100	110	0.10	0.01	0.00	0.01
CDT-02	JCT-01	JCT-02	30.59	100	110	0.05	0.01	0.00	0.00
CDT-03	JCT-02	JCT-03	34.06	100	110	0.05	0.01	0.00	0.00
CDT-05	JCT-02	JCT-05	41.73	100	110	-0.04	0.01	0.00	0.00
CDT-06	JCT-05	RES_02	9.00	100	110	-0.09	0.01	0.00	0.01

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
JCT-01	0.05	89.12	147	82
JCT-02	0.05	89.61	147	82
JCT-03	0.05	89.79	147	81
JCT-05	0.05	90.33	147	81



GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis**

Wateridge Village Phase 1B Development

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

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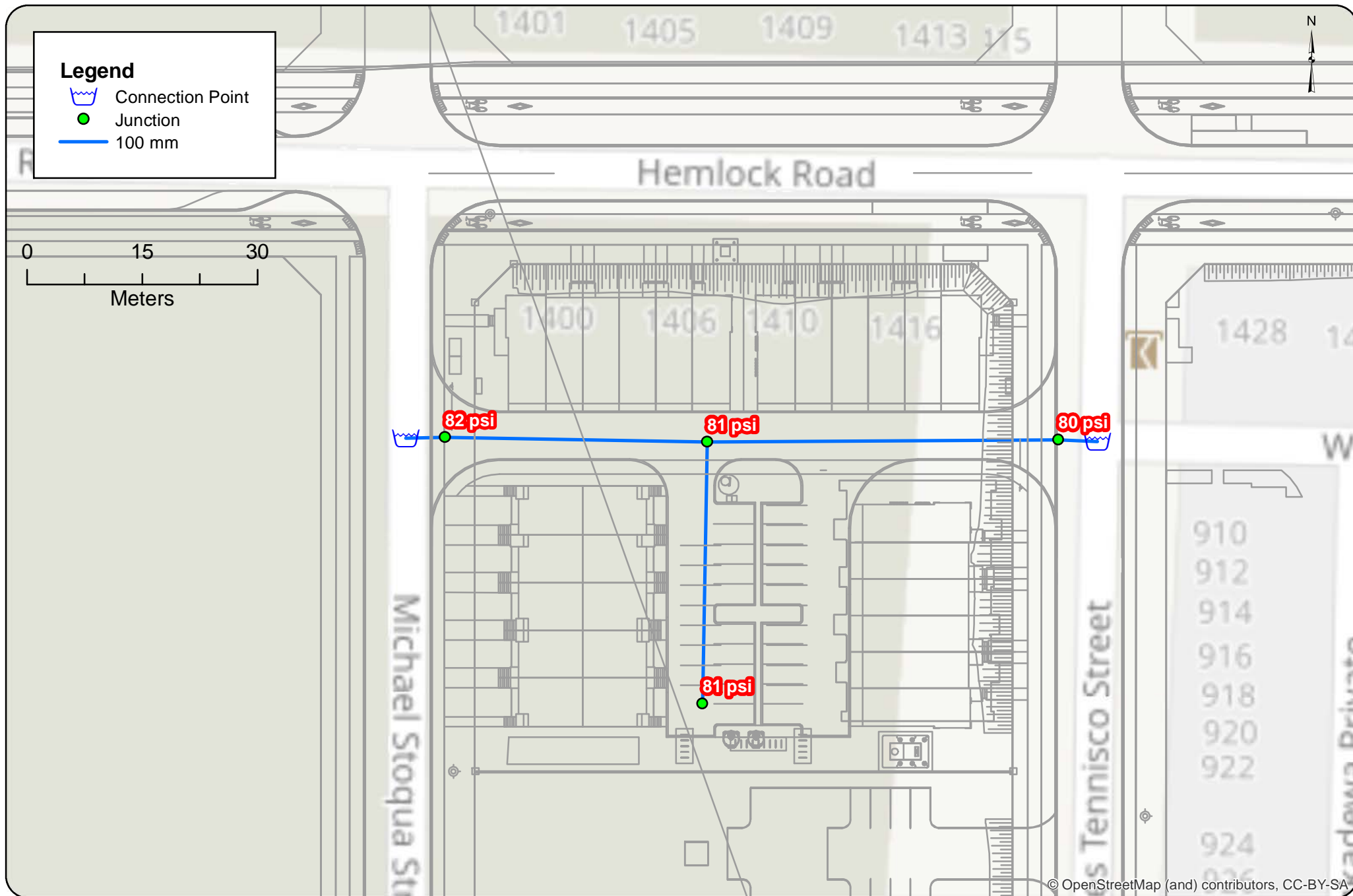
**MHD Results
Future Scenario**

Figure C.2

Minimum Hour Demand Modeling Results - Future

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
CDT-01	RES_01	JCT-01	8.65	100	110	0.10	0.01	0.00	0.00
CDT-02	JCT-01	JCT-02	30.59	100	110	0.05	0.01	0.00	0.00
CDT-03	JCT-02	JCT-03	34.06	100	110	0.05	0.01	0.00	0.00
CDT-05	JCT-02	JCT-05	41.73	100	110	-0.04	0.01	0.00	0.00
CDT-06	JCT-05	RES_02	9.00	100	110	-0.09	0.01	0.00	0.00

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
JCT-01	0.05	89.12	143	77
JCT-02	0.05	89.61	143	76
JCT-03	0.05	89.79	143	76
JCT-05	0.05	90.33	143	75



GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis
Wateridge Village Phase 1B Development**

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

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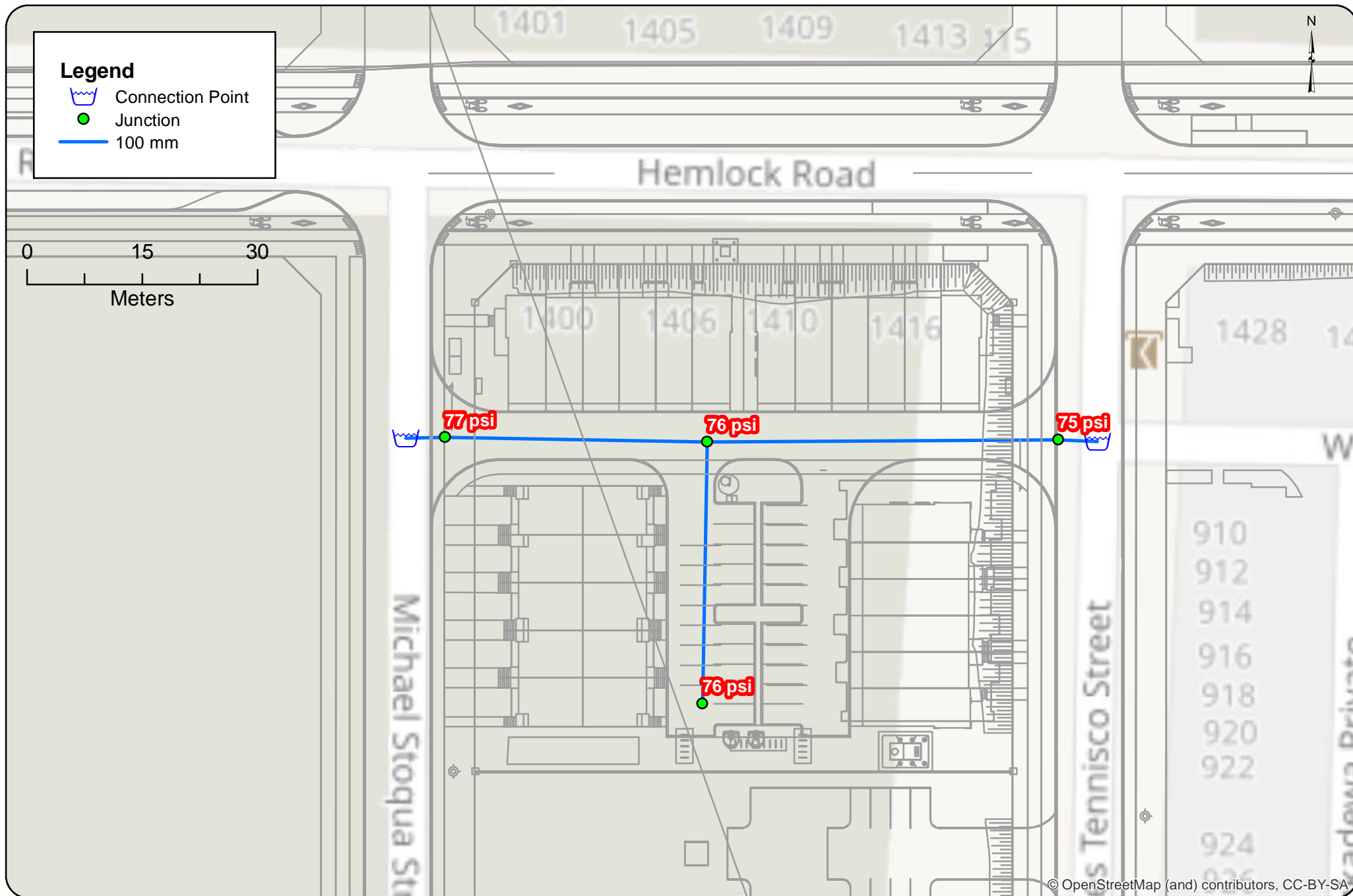
**PHD Results
Existing Scenario**

Figure C.3

Peak Hour Demand Modeling Results - Existing

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
CDT-01	RES_01	JCT-01	8.65	100	110	1.40	0.18	0.01	0.68
CDT-02	JCT-01	JCT-02	30.59	100	110	0.72	0.09	0.01	0.20
CDT-03	JCT-02	JCT-03	34.06	100	110	0.68	0.09	0.01	0.18
CDT-05	JCT-02	JCT-05	41.73	100	110	-0.63	0.08	0.01	0.16
CDT-06	JCT-05	RES_02	9.00	100	110	-1.31	0.17	0.01	0.60

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
JCT-01	0.68	89.12	147	82
JCT-02	0.68	89.61	147	81
JCT-03	0.68	89.79	147	81
JCT-05	0.68	90.33	147	80



GeoAdvice Engineering Inc.

Project: **Hydraulic Capacity and Modeling Analysis**

Wateridge Village Phase 1B Development

Client: **David Schaeffer Engineering Ltd.**

Date: **September 2020**

Created by: **BL**

Reviewed by: **WdS**

DISCLAIMER: GeoAdvice does not warrant in any way the accuracy and completeness of the information shown on this map. Field verification of the accuracy and completeness of the information shown on this map is the sole responsibility of the user.

**PHD Results
Future Scenario**

Figure C.4

Peak Hour Demand Modeling Results - Future

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/km)
CDT-01	RES_01	JCT-01	8.65	100	110	1.40	0.18	0.01	0.68
CDT-02	JCT-01	JCT-02	30.59	100	110	0.72	0.09	0.01	0.20
CDT-03	JCT-02	JCT-03	34.06	100	110	0.68	0.09	0.01	0.18
CDT-05	JCT-02	JCT-05	41.73	100	110	-0.63	0.08	0.01	0.16
CDT-06	JCT-05	RES_02	9.00	100	110	-1.31	0.17	0.01	0.60

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (psi)
JCT-01	0.68	89.12	143	77
JCT-02	0.68	89.61	143	76
JCT-03	0.68	89.79	143	76
JCT-05	0.68	90.33	143	75

Anthony Temelini

From: Jillian Normand <Jillian.Normand@mattamycorp.com>
Sent: May 7, 2020 10:42 AM
To: Anthony Temelini; Jennifer Ailey
Cc: Conor Sutherland
Subject: FW: Block 22 - Site Plan - for detailed design

Hi Anthony,

Please see below from Q4 for Block 22.

Thanks,
Jillian



Jillian Normand, MCIP, RPP
Senior Land Development Manager
T (613) 831-5144 (direct). C (613) 415-7786. F (613) 831-9060
Jillian.Normand@mattamycorp.com
Ottawa Office: 50 Hines Road, Suite 100, Ottawa, ON Canada K2K 2M5

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From: Matt Brown <MBrown@q4architects.com>
Sent: May 6, 2020 2:57 PM
To: Jillian Normand <Jillian.Normand@mattamycorp.com>; Cora Lia Taraciuk <ctaraciuk@q4architects.com>; Jessica McLellan <Jessica.McLellan@mattamycorp.com>
Cc: Conor Sutherland <Conor.Sutherland@mattamycorp.com>
Subject: RE: Block 22 - Site Plan - for detailed design

Sorry Jillian

I am being reminded of the 3rd floor egress on the rear lane towns. I have updated below

Mathew Brown
Associate, Sr. Project Manager, Tech

Q4 Architects Inc.
2171 Avenue Road, Suite 302, Toronto, Ontario M5M 4B4
T: 416-322-6334 x240 F: 416-322-7294
www.q4architects.com

From: Matt Brown
Sent: May 6, 2020 2:24 PM
To: Jillian Normand <Jillian.Normand@mattamycorp.com>; Cora Lia Taraciuk <ctaraciuk@q4architects.com>; Jessica McLellan <Jessica.McLellan@mattamycorp.com>
Cc: Conor Sutherland <Conor.Sutherland@mattamycorp.com>
Subject: RE: Block 22 - Site Plan - for detailed design

Hi Jillian

See my answers below

Mathew Brown

Associate, Sr. Project Manager, Tech

Q4 Architects Inc.

2171 Avenue Road, Suite 302, Toronto, Ontario M5M 4B4

T: 416-322-6334 x240 F: 416-322-7294

www.q4architects.com

From: Jillian Normand <Jillian.Normand@mattamycorp.com>

Sent: May 5, 2020 12:57 PM

To: Matt Brown <MBrown@q4architects.com>; Cora Lia Taraciuk <ctaraciuk@q4architects.com>; Jessica McLellan <Jessica.McLellan@mattamycorp.com>

Cc: Conor Sutherland <Conor.Sutherland@mattamycorp.com>

Subject: FW: Block 22 - Site Plan - for detailed design

Hi Matt, Cora,

Please see below from DSEL. Could you please provide comment on the requested information so they can prepare the grading plan?

Thank you,
Jillian



Jillian Normand, MCIP, RPP

Senior Land Development Manager

T (613) 831-5144 (direct). C (613) 415-7786. F (613) 831-9060

Jillian.Normand@mattamycorp.com

Ottawa Office: 50 Hines Road, Suite 100, Ottawa, ON Canada K2K 2M5

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From: Anthony Temelini <ATemelini@dsel.ca>

Sent: May 5, 2020 12:54 PM

To: Jillian Normand <Jillian.Normand@mattamycorp.com>

Cc: Jennifer Ailey <JAiley@dsel.ca>

Subject: RE: Block 22 - Site Plan - for detailed design

Hi Jillian,

Please note that we will need Mattamy to confirm the following to proceed with the design updates:

- Architectural relationships for all blocks with standard foundations (Block 4);
 - o BSE to USF; 0.3m
 - o USF to FFE 3.1m
 - o TFW to FFE; 0.35m
 - o SHG to FFE; 1.2min
 - o Minimum number of risers; 6R
 - o Maximum number of risers; 9R
 - o Standard riser height; 0.19
- Architectural relationships for all blocks with slab-on-grade foundations (Block 1, 2 and 3);
 - o Finished grade to USF; 1.53m
 - o SHG to FFE; 0.30
 - o SHG to Top Window Elevation; n/a no windows below grade

- o Maximum number of risers; 3R from garage or Front to SOG
- o Standard riser height; 0.19
- Building Material Class for all blocks;
 - o Per the attached excerpt from the water design guidelines, will the blocks be considered “wood frame” construction or “ordinary” construction? These are wood frame

Can you please confirm the above and let us know if you have any questions?

Thank you,

Anthony Temelini, P.Eng.
Junior Project Manager

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

cell: (613) 875-7862
phone: (613) 836-0856 ext.524
email: atemelini@dsel.ca

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From: Jillian Normand <Jillian.Normand@mattamycorp.com>
Sent: May 4, 2020 3:33 PM
To: Christian Matteau <cmatteau@nak-design.com>; Anthony Temelini <ATemelini@dsel.ca>; Jennifer Ailey <JAiley@dsel.ca>; Faisal Abou-Seido <FAbou-Seido@Patersongroup.ca>; Rochelle Fortier <r.fortier@novatech-eng.com>; Wagar, Barrett <barrett.wagar@stantec.com>; Seema Nagaraj <seema@valcoustics.com>
Cc: Conor Sutherland <Conor.Sutherland@mattamycorp.com>
Subject: RE: Block 22 - Site Plan - for detailed design

Hi Everyone,

It was brought to my attention that the site entrance curb radii were not the same. Attached is the updated Site Plan which reflects R9 for both site entrances. This is the only change made to this iteration of the plan.

Thank you,
Jillian



Jillian Normand, MCIP, RPP
Senior Land Development Manager
T (613) 831-5144 (direct). C (613) 415-7786. F (613) 831-9060
Jillian.Normand@mattamycorp.com
Ottawa Office: 50 Hines Road, Suite 100, Ottawa, ON Canada K2K 2M5

Notice: This email is intended for use of the party to whom it is addressed and may contain confidential information. If you have received this email in error, please inform me and delete it. Thank you.

From: Jillian Normand
Sent: May 1, 2020 4:04 PM

To: Christian Matteau <cmatteau@nak-design.com>; Anthony Temelini <ATemelini@dsel.ca>; Jennifer Ailey <JAiley@dsel.ca>; Faisal Abou-Seido <FAbou-Seido@Patersongroup.ca>; Rochelle Fortier <r.fortier@novatech-eng.com>; Wagar, Barrett <barrett.wagar@stantec.com>; Seema Nagaraj <seema@valcoustics.com>
Cc: Conor Sutherland <Conor.Sutherland@mattamycorp.com>
Subject: Block 22 - Site Plan - for detailed design

Hello Everyone,

Attached is the final Site Plan that we are proceeding with for detailed design. As previously mentioned, we are planning to submit to the City on May 13th.

Please ensure communication is maintained with each other for the duration of the process to maintain consistency with plans to avoid conflicts with design.

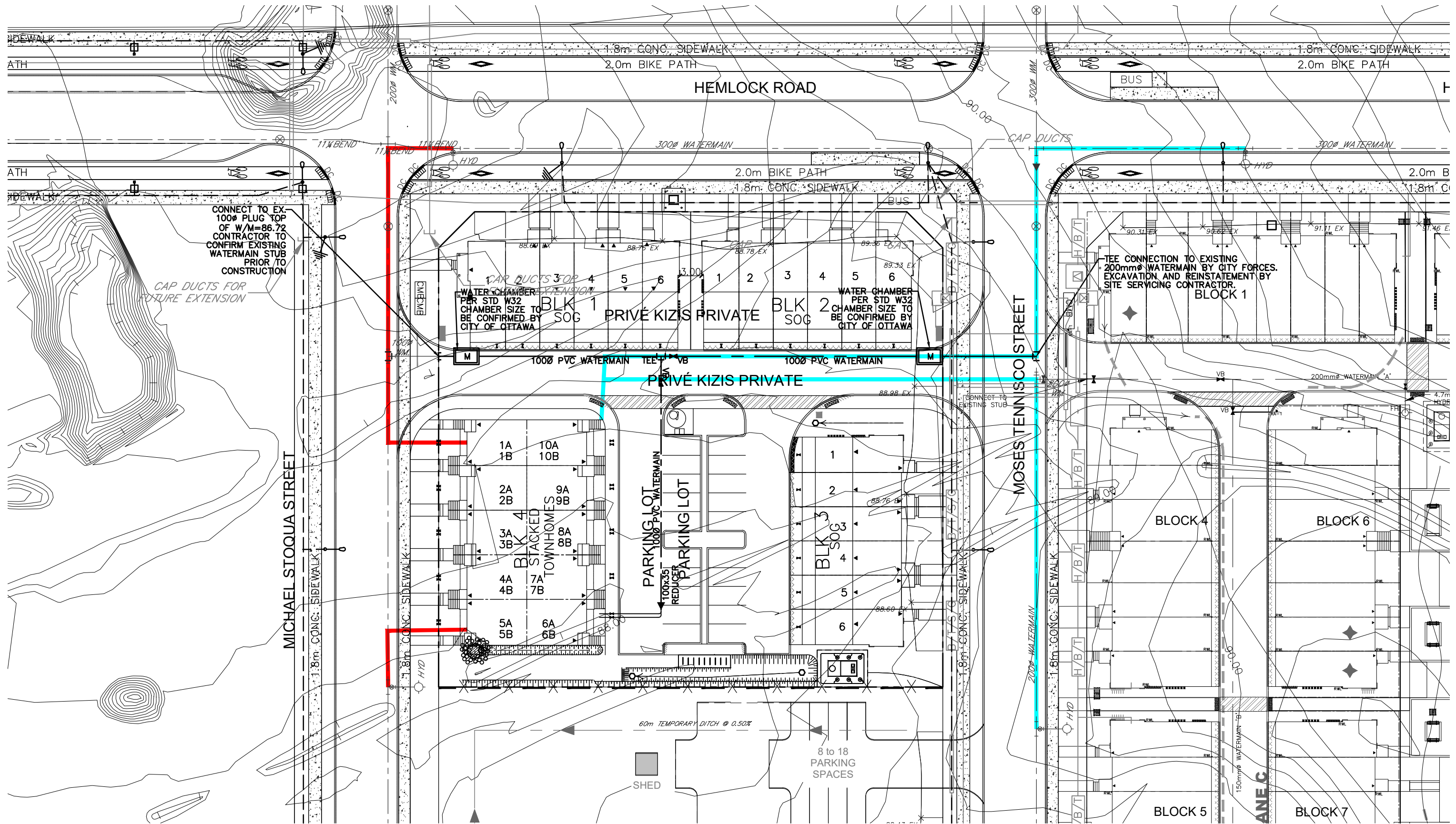
As always, I'm available if you have any questions or concerns.

Have a great weekend,
Jillian



Jillian Normand, MCIP, RPP
Senior Land Development Manager
T (613) 831-5144 (direct). C (613) 415-7786. F (613) 831-9060
Jillian.Normand@mattamycorp.com
Ottawa Office: 50 Hines Road, Suite 100, Ottawa, ON Canada K2K 2M5

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Fax. (613) 836-7183
www.DSEL.ca



HYDRANT DISTANCE TO BUILDING >76m AND <152m
(MAX. HYDRANT CAPACITY OF 3,785 L/min)
HYDRANT DISTANCE TO BUILDING <76m
(MAX. HYDRANT CAPACITY OF 5,678 L/min)

MAX. FIRE FLOW REQUIRED=18,000 L/min
MAX. FIRE FLOW AVAILABLE=18,926 L/min

**MATTAMY HOMES
WATERIDGE BLOCK 22 -
PHASE 1B
CITY OF OTTAWA**

**HYDRANT COVERAGE FIGURE -
BLOCK 4**

SCALE: 1:500	PROJECT No.: 17-948
DATE: SEPTEMBER 2020	FIGURE: 1

APPENDIX C

Wastewater Collection

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2012



Site Area 0.460 ha

Extraneous Flow Allowances

Infiltration / Inflow 0.13 L/s

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.3		105
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop 105

Average Domestic Flow 0.43 L/s

Peaking Factor 4.00

Peak Domestic Flow 1.70 L/s

Total Estimated Average Dry Weather Flow Rate	0.43 L/s
Total Estimated Peak Dry Weather Flow Rate	1.70 L/s
Total Estimated Peak Wet Weather Flow Rate	1.83 L/s

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004



Site Area 0.460 ha

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	0.02 L/s
Infiltration / Inflow (Wet)	0.13 L/s
Infiltration / Inflow (Total)	0.15 L/s

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7	38	104
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop 104

Average Domestic Flow 0.34 L/s

Peaking Factor 3.59

Peak Domestic Flow 1.21 L/s

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5 L/m ² /d		0.00
Hospitals	900 L/bed/d		0.00
School	70 L/student/d		0.00
Industrial - Light**	35,000 L/gross ha/d		0.00
Industrial - Heavy**	55,000 L/gross ha/d		0.00

Average I/C/I Flow 0.00

Peak Institutional / Commercial Flow 0.00

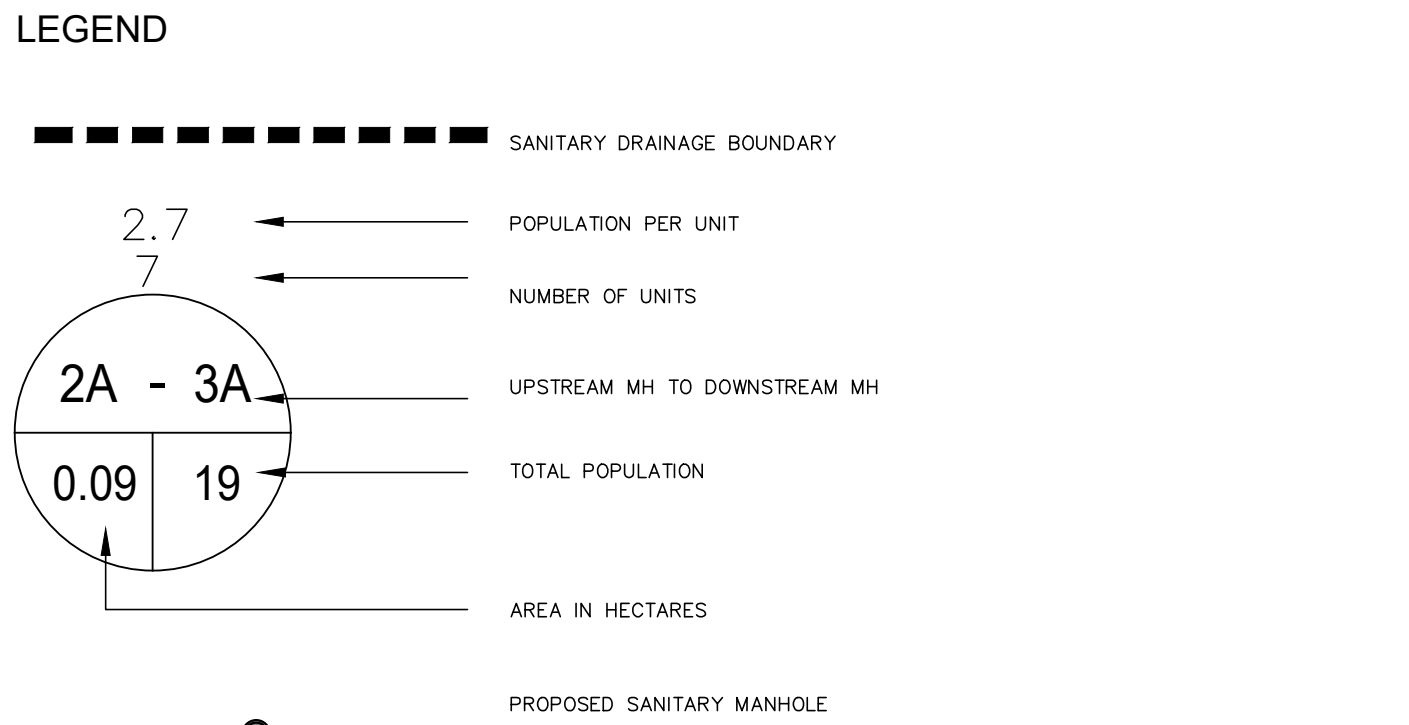
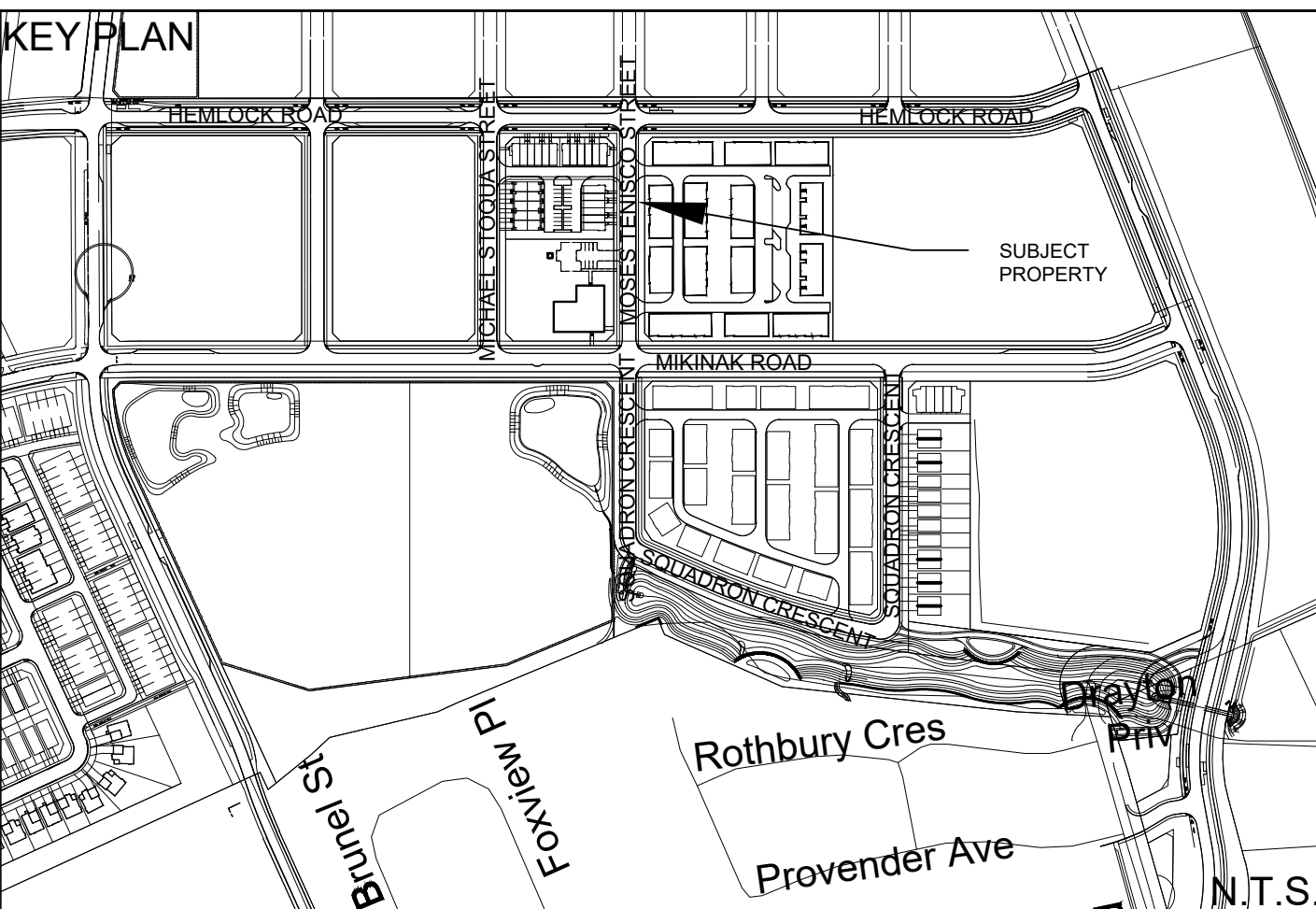
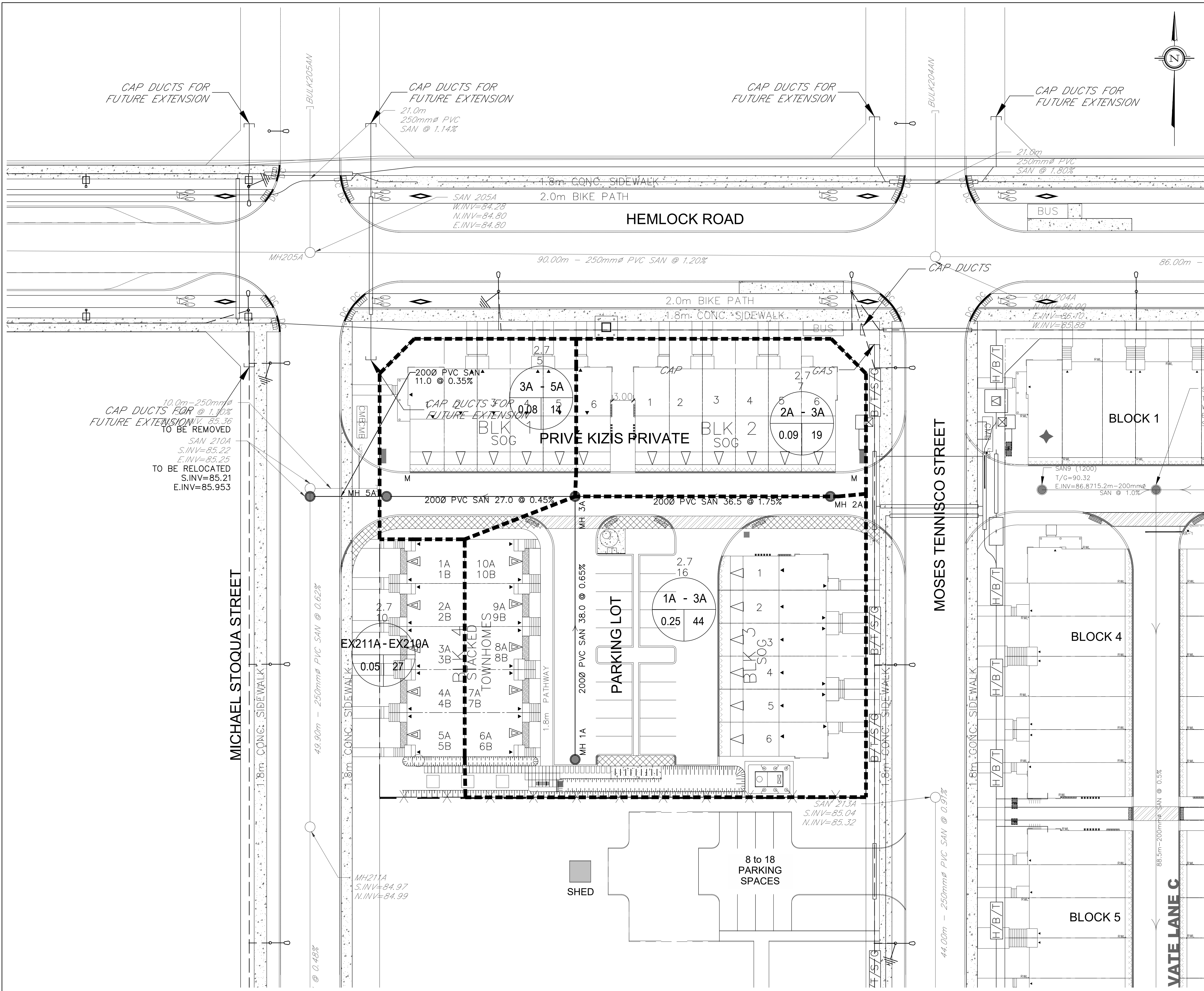
Peak Industrial Flow** 0.00

Peak I/C/I Flow 0.00

* assuming a 12 hour commercial operation

** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B

Total Estimated Average Dry Weather Flow Rate	0.36 L/s
Total Estimated Peak Dry Weather Flow Rate	1.23 L/s
Total Estimated Peak Wet Weather Flow Rate	1.36 L/s



NOT FOR CONSTRUCTION

12	A.W.T.	20-10-06	ISSUED FOR SITE PLAN AMENDMENT-SUBMISSION 6
11	G.G.G.	20-06-23	UPDATED HGL INFORMATION
10	S.L.M.	20-05-28	ISSUED FOR SITE PLAN AMENDMENT
9	S.L.M.	18-07-19	ISSUED FOR MUNICIPAL APPROVAL

No.	BY	DATE	DESCRIPTION
TOPOGRAPHIC INFORMATION			
TOPOGRAPHIC INFORMATION PROVIDED BY IBI GROUP			
PROJ. NO. 38298			
DATED NOVEMBER 13, 2017			
SITE SERVICING AND STORMWATER MANAGEMENT STUDY			
SERVICING AND STORMWATER MANAGEMENT			
RECOMMENDATIONS PROVIDED BY DSEL			
PROJ. NO. 17-948			
DATED OCTOBER 2020			
BENCH MARK			
ELEVATIONS ARE GEODETIC, REFERRED TO CITY OF OTTAWA VERTICAL BENCHMARK NO. 396			
ELEV= 95.06 METERS			
SITE PLAN INFORMATION		SITE PLAN PROVIDED BY KORSIAK URBAN PLANNING	
		DATED SEPTEMBER 25, 2020	
GEOTECHNICAL STUDY		GEOTECHNICAL	
		RECOMMENDATIONS PROVIDED BY PATTERSON GROUP INC.	
		PROJECT NO. PCS345-1	
		REVISION 1, DATED SEPTEMBER 10, 2020	

MATTAMY HOMES

120 Iber Road Unit 103
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
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WATERIDGE - BLOCK 22 PHASE 1B

110 Laurier Ave W
Ottawa, Ontario, K1P 1J1
Tel. (613) 580-2400
www.Ottawa.ca

© DSEL

SANITARY DRAINAGE PLAN

DRAWN BY:	A.W.T.	CHECKED BY:	S.L.M.	PROJECT No.	17-948
DESIGNED BY:	S.L.M.	CHECKED BY:	A.D.F.	SHEET No.	10

SCALE: 1:250

APPENDIX D

Stormwater Management



REVIEWED BY
DEVELOPMENT REVIEW SERVICES BRANCH

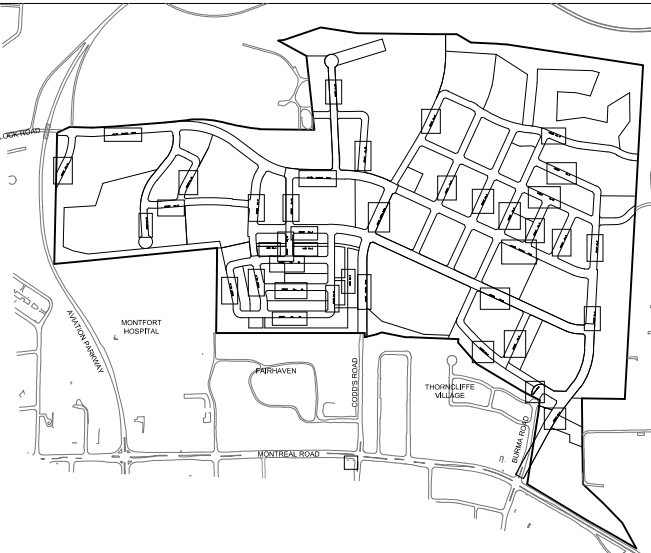
Signed _____

Date _____ 2017

Plan Number _____

LEGEND :

- AREA NUMBER
- RUNOFF COEFFICIENT
- AREA IN HECTARES
- POTENTIAL DRAINAGE DIRECTION



14			
13			
12			
11			
10			
9			
8			
7			
6	REVISED PER MOECC COMMENTS	J.I.M.	2017: 06: 07
5	ISSUED FOR TENDER	J.I.M.	2017: 03: 23
4	SUBMISSION FOR MOECC APPROVAL	J.I.M.	2017: 02: 16
3	SUBMISSION No.3 FOR CITY REVIEW	J.I.M.	2017: 01: 25
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M.	2016: 11: 04
1	SUBMISSION No.1 FOR CITY REVIEW	J.I.M.	2016: 07: 08
No.	REVISIONS	By	Date

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA

30 Metcalfe Street Suite 601
Ottawa, On K1P 5L4
613 998 7777

IBI GROUP
400 - 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

**WATERIDGE VILLAGE
AT ROCKCLIFFE
PHASE 1B**

Drawing Title

**STORM DRAINAGE
AREA PLAN**

Scale

1 : 2000

Design	J.I.M.	Date	MAY 2016
Drawn	M.M.	Checked	J.I.M.
Project No.	38298	Drawing No.	500A

STORAGE SUMMARY
BLOCK 22
TOTAL LID TREATMENT VOLUME

Total Area (sq.m)	4mm Volume (cu.m)
4600	18.4

Area ID	Drainage Area (sq.m)	Volume Req. (cu.m) (15mm Storm)	Perf Pipe Size (mm)	Pipe Length (m)	Volume Pipe + Granular (cu.m)
CB 1A	366.01	5.5	450	18	6.31
CB 1B	474.46	7.1	375	26	7.16
CB 2A	789.1	11.8	450	34	11.91
Total	1629.57	24.4		78.0	25.4

* Refer to Drawing DS-2 for Bioretention Cross Section
** Volume calculation assumes 40% Void Ratio for the Filter Media

U1	Imp.	Perv.	Total
Area	0.041	0.014	0.055
C	0.9	0.2	0.72

U2	Imp.	Perv.	Total
Area	0.006	0.020	0.026
C	0.9	0.2	0.36

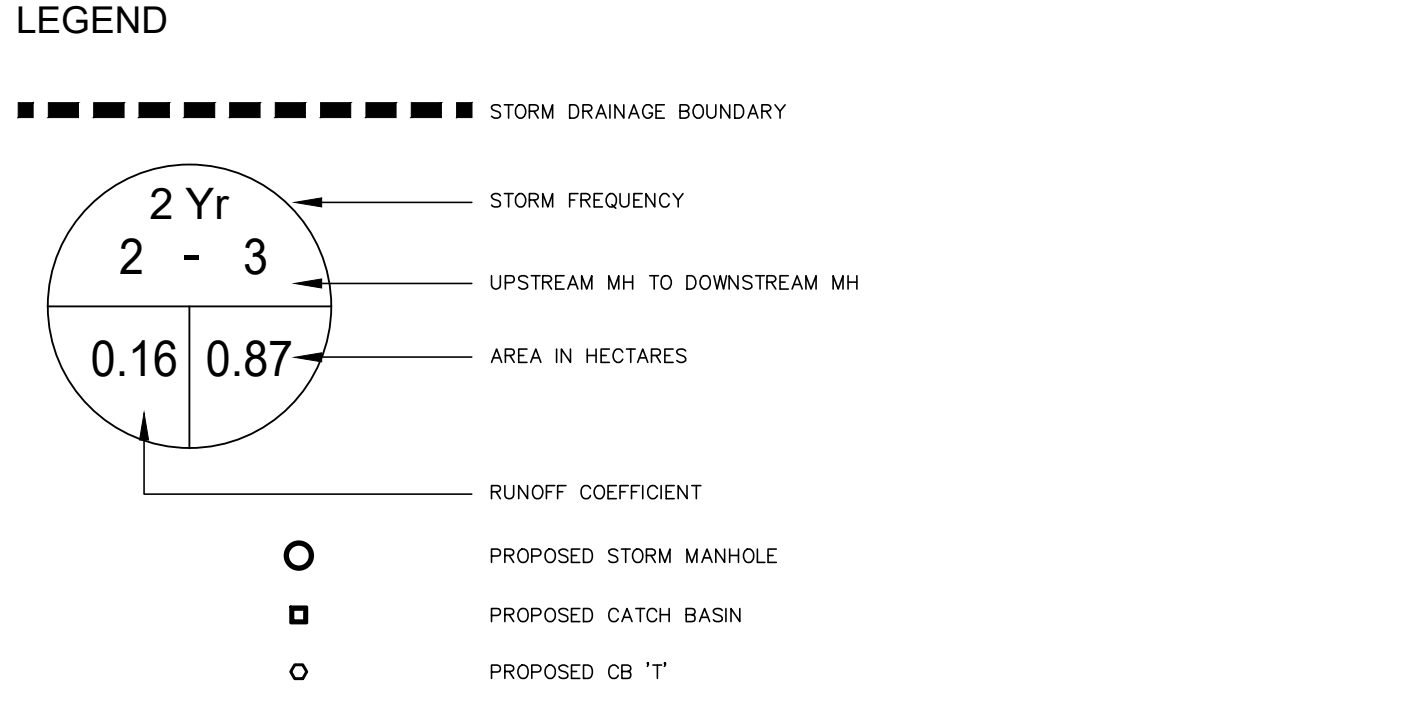
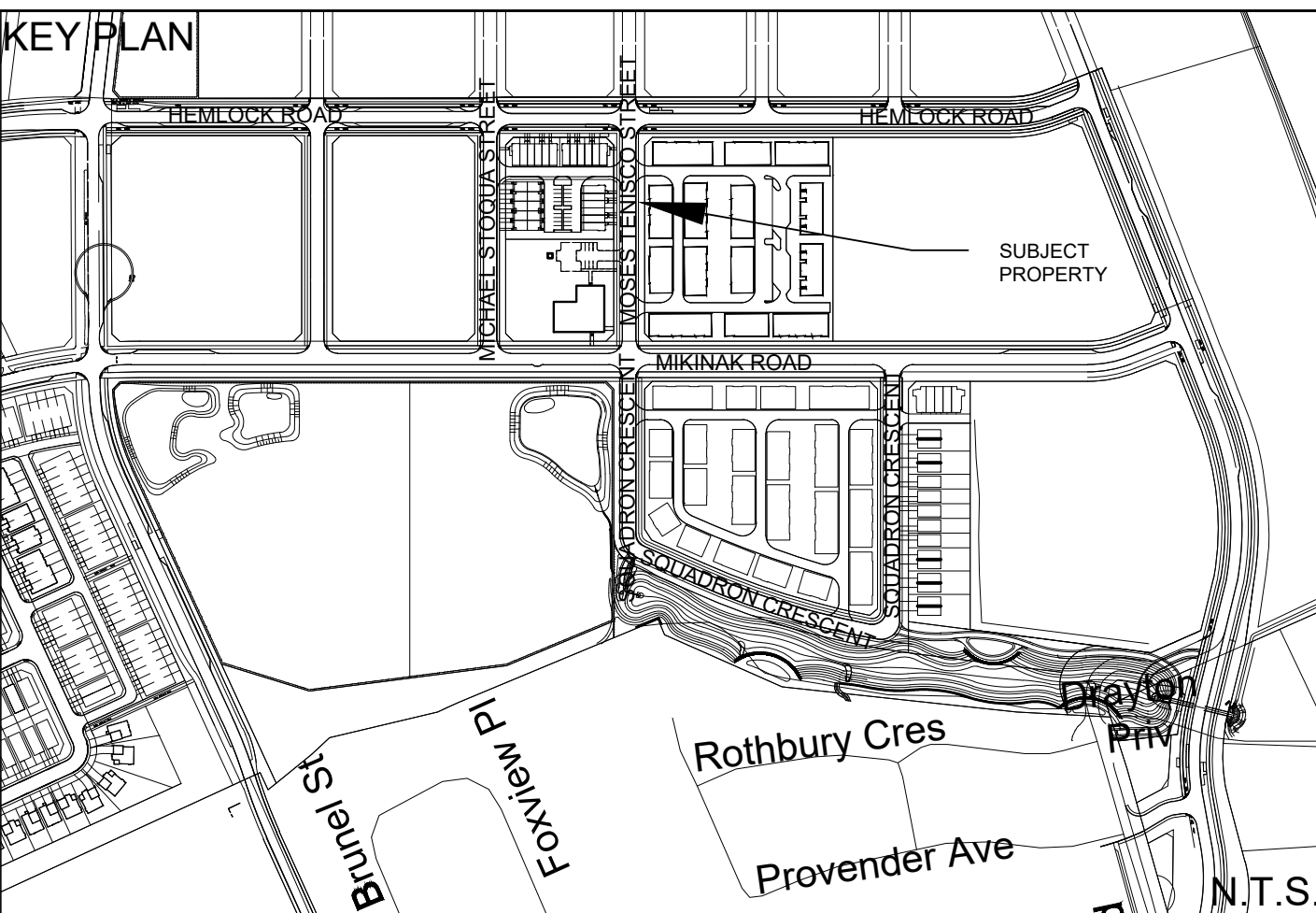
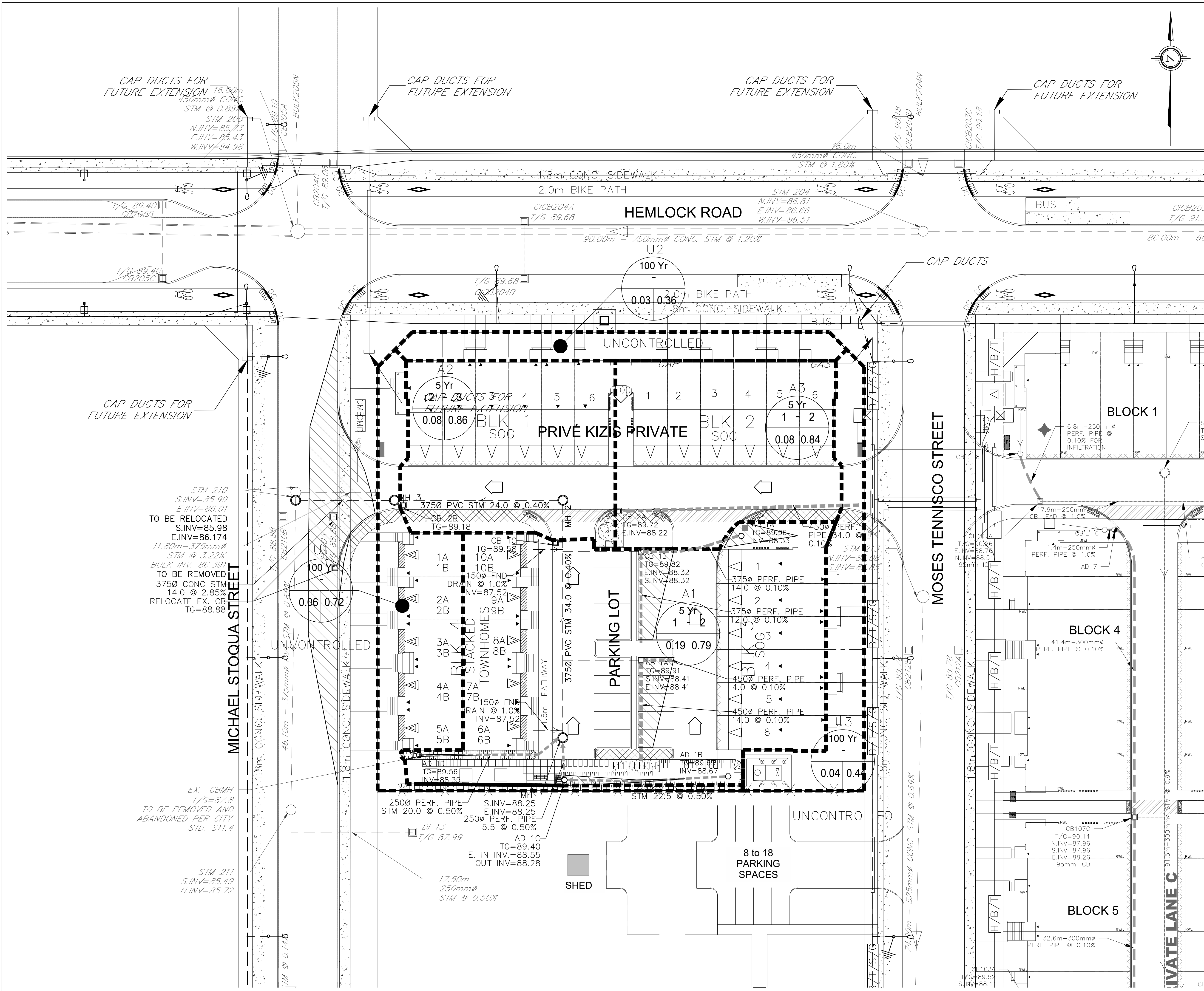
U3	Imp.	Perv.	Total
Area	0.013	0.024	0.037
C	0.9	0.2	0.44

A1	Imp.	Perv.	Total
Area	0.155	0.030	0.185
C	0.9	0.2	0.79

A2	Imp.	Perv.	Total
Area	0.072	0.004	0.076
C	0.9	0.2	0.86

A3	Imp.	Perv.	Total
Area	0.074	0.006	0.080
C	0.9	0.2	0.84

Total	Imp.	Perv.	Total
Area	0.361	0.099	0.460
C	0.9	0.2	0.75



NOT FOR CONSTRUCTION

12	A.W.T.	20-10-06	ISSUED FOR SITE PLAN AMENDMENT-SUBMISSION 6
11	G.G.G.	20-06-23	UPDATED HGL INFORMATION
10	S.L.M.	20-05-28	ISSUED FOR SITE PLAN AMENDMENT
9	S.L.M.	18-07-19	ISSUED FOR MUNICIPAL APPROVAL

No.	BY	DATE	DESCRIPTION
TOPOGRAPHIC INFORMATION			
TOPOGRAPHIC INFORMATION PROVIDED BY IBI GROUP			
PROJ. NO. 38298			
DATED NOVEMBER 13, 2017			
SITE PLAN INFORMATION			
SITE PLAN PROVIDED BY KORSIAK URBAN PLANNING			
DATED SEPTEMBER 25, 2020			

SITE SERVICING AND STORMWATER MANAGEMENT STUDY		GEOTECHNICAL STUDY	
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY PATRICKSON GROUP INC.		GEOTECHNICAL RECOMMENDATIONS PROVIDED BY PATRICKSON GROUP INC.	
DATED OCTOBER 2020		PROJECT NO. PCS345-1	
BENCH MARK		REVISION 1, DATED SEPTEMBER 10, 2020	
ELEVATIONS ARE GEODETIC, REFERRED TO CITY OF OTTAWA VERTICAL BENCHMARK NO. 396			
ELEV= 95.06 METERS			

MATTAMY HOMES

WATERIDGE - BLOCK 22
PHASE 1B

DSEL
david schaeffer engineering ltd

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Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

LICENSED PROFESSIONAL ENGINEER
S. L. MERRICK
100166523
2020-10-02
PROVINCE OF ONTARIO

110 Laurier Ave W
Ottawa, Ontario, K1P 1J1
Tel. (613) 580-2400
www.Ottawa.ca

STORM DRAINAGE PLAN

DRAWN BY: A.W.T. CHECKED BY: S.L.M. PROJECT No. 17-948

DESIGNED BY: S.L.M. CHECKED BY: A.D.F. SHEET No. 11

SCALE: 1:250

0.0m 5.0m 10.0m

October 05, 2020

Project Number: P1971

David Schaeffer Engineering Limited
120 Iber Road, Unit 103
Ottawa, Ontario
K2S 1E9

Attention: Jennifer Ailey, P.Eng.

Subject: Wateridge Village Phase 1B – Proposed Block 22 Stormwater Management Design

This memo is an update to a previous memo prepared by JFSA dated June 5, 2020. The previous version of this memo has been updated to reflect changes to the hydrologic and hydraulic modelling for this proposed development. Changes were completed to incorporate revisions to the contributing drainage areas and impervious values as well as to the internal storm sewer network configuration, sizes and inverts provided to JFSA by DSEL.

As requested by your office, we have evaluated, based on the available information as described below, the minor and major system design of the proposed private residential development by Mattamy Homes located at 1400 Hemlock Road in the City of Ottawa. The development is referred to as Wateridge Village Phase 1B – Block 22 based on the Stormwater Management (SWM) measures documented in the *Design Brief Wateridge Village at Rockcliffe Phase 1B Prepared for the Canada Lands Company* by IBI Group (June, 2017).

The subject property is located within the Ottawa River watershed and was included in the overall SWM design for Wateridge Village at Rockcliffe Phase 1B. In this SWM design, Block 22 was modelled with two drainage areas, LOT210 and LOT212B. LOT210 (west side) had an area of 0.23 ha, runoff coefficient of 0.80, and drained to Michael Stoqua Street. LOT212B had an area of 0.23 ha, runoff coefficient of 0.80 and drained to Moses Tennisco Street. From this report, Block 22 included a temporary ditch (60m long with a 0.50% slope) which collected minor system flows from both LOT210 and LOT212B draining to Michael Stoqua Street STM pipe. The subject site was also accounted for in the design of the Eastern SWM Facility which provides enhanced quality control for the subdivision.

The limit of the subdivision, as labelled in orange in Attachment A, consists of 18 proposed rear-lane townhomes, 20 proposed back-to-back stacked townhomes, and surface parking and has a total area of 0.46 ha. Within the subdivision, 0.34 ha will drain to the internal storm sewer on Michael Stoqua Street. The remaining 0.12 ha will sheet drain to the surrounding roads. The 0.34 ha area (hereby referred to as Block 22) was analyzed in this memo to assess the outflow to the Michael Stoqua Street storm sewer. Block 22 has an impervious area of 0.29 ha (86% impervious).

As seen in Attachment B, Block 22 consists of six (6) subcatchments labelled as CB2B, CB2A, CB1C, CB1B, CB1A, and AD1C. Each subcatchment drains to a corresponding catch basin (CB_2B, CB_2A, CB_1C, CB_1B, CB_1A, and AD_1C). All catch basins will be equipped with an Inlet Control Device (ICD) to control the flow to the 5-year storm, except for AD_1C as it is a landscape CB draining directly to MH1 therefore additional control is not necessary. The major system flow of subcatchment AD1C (0.023 ha) will drain along a ditch to the west and run offsite to Michael Stoqua Street on the southwest side of the site. Lots along the north side of the block (CB2B and CB2A) will drain south onto the road, Kizis Private, and into the storm sewer system. Lots on the west (CB1C) and east (CB1B and CB1A) area will drain along a parking lot and into the storm sewer system.

As noted above, in the approved servicing report by IBI Group, the drainage plan split minor and major system outflows from the site to Michael Stoqua Street and Moses Tennisco Street. However, the current storm strategy proposes sending the majority of the minor and major system drainage to Michael Stoqua Street. IBI Group has confirmed that this change will not negatively impact the overall subdivision performance, as documented in the correspondence in Attachment D.

The design criteria and guidelines used for the stormwater management of the subject site are those that were developed in the background documents as well as those provided in the *October 2012 City of Ottawa Sewer Design Guidelines* and generally accepted stormwater management design guidelines. The criteria for this project are listed below.

- Size ICDs for each street/parking lot catchbasin with a minimum of 5-year capture
- Complete a Hydraulic Gradeline (HGL) analysis confirming a 0.3 m freeboard between the underside of footing (USF) elevations for the townhouse blocks and the 100-year HGL elevation (3-hour Chicago and 24-hour SCS Type II). A 0 m freeboard is required for the 100-year + 20% stress test and three City of Ottawa historical events (July 1st, 1979, August 4th, 1988, August 8th, 1996).
- Confirm total (static + dynamic) 100-year water depths on the road/parking lot are less than 35 cm and total 100-year + 20% stress test water depths do not reach the building envelopes.

A PCSWMM model was built to simulate the major and minor system flows for multiple simulations as per the October 2012 City of Ottawa Sewer Design Guidelines. Refer to Attachment B for the PCSWMM model schematic. The following storms were run: 5-year 3-hour Chicago, 100-year 3-hour Chicago, 100-year 24-hour SCS Type II, 100-year + 20% 3-hour Chicago storm stress test, as well as the City of Ottawa historical events on July 1st, 1979, August 8th, 1996, and August 8th, 1996.

Note that the purpose of simulating the 100-year, 3-hour Chicago storm with a 20% increase is to stress test the drainage system for potential flooding resulting from climate change, as per the October 2012 City of Ottawa Sewer Design Guidelines.

The PCSWMM model schematic and hydraulic simulation results are presented in Attachment B for the 100-year Chicago storm. To limit minor system outflows to less than the 87 L/s accepted by IBI Group in the correspondence included in Attachment D (5-year Rational Method flow per DSEL), a 75 mm ICD (orifice) will be implemented for each street/parking lot catchbasin (5) in the system: CB_1A, CB_1B, CB_1C, CB_2A, and CB_2B. The landscape CB AD_1C will remain with 100% capture. The 5-year minor system outflow from the Block 22 storm sewer system to STM210, 64.9 L/s, is lower than the DSEL estimated peak flow of 87 L/s. The 100-year minor system outflow to STM210 is 78.3 L/s; again, lower than the DSEL estimated peak flow. The major system outflow to Michael Stouqua Street for the 5-year 3-hour Chicago storm from the portion of the block serviced by the internal storm sewer is 21.1 L/s, and 67.3 L/s for the 100-year 3-hour Chicago storm. It is JFSA's understanding IBI Group is to confirm this major system flow from the proposed development onto Michael Stouqua Street can be accommodated.

PRELIMINARY HYDRAULIC GRADELINE CALCULATIONS

Preliminary hydraulic gradeline calculations for the proposed storm sewer were performed in PCSWMM and are presented in Attachment C. The pipe data and storm sewer layout for the storm sewer are as provided by DSEL. As may be seen in the calculations in Attachment C, a freeboard of 0.3 m was achieved between the hydraulic gradeline and the estimated underside of footing elevations for the 100-Year 3-Hour Chicago and the 100-Year SCS Type II Storms. For the stress test (100-Year + 20%) and historical events, a freeboard of 0 m was achieved between the hydraulic gradline and the estimated underside of footing elevations.

MAJOR SYSTEM FLOW DEPTH CALCULATIONS

Within Block 22, the depth of water at the gutter will be retained within the right-of-water and will not exceed the maximum allowable value of 35 cm during the 100-year Chicago Storm, or reach the building envelopes during the 100-Year + 20% Chicago Storm. The Approach Flow, Capture Flow, and Total Water Depth (Static and Dynamic) can be found in the tables below. It was found for all major system segments, the product of the depth of water (m) at the gutter multiplied by the velocity of flow (m/s) will not exceed the maximum allowable 0.60 m²/s.

Table 1: 100-Year 3-Hour Chicago Major System Flow Depth Calculations

Subcatchment ID	CB ID	Approach Flow (m ³ /s)	Captured Flow (m ³ /s)	Total Water Depth (Static + Dynamic) (m)	Velocity (m/s)	v * d (m ² /s)
CB2B	CB_2B	0.083	0.015	0.08	0.50	0.040
CB2A	CB_2A	0.038	0.014	0.06	0.42	0.025
CB1C	CB_1C	0.036	0.016	0.07	0.23	0.016
CB1B	CB_1B	0.028	0.014	0.09	0.29	0.026
CB1A	CB_1A	0.023	0.013	0.07	0.28	0.020

Table 2: 100-Year + 20% 3-Hour Chicago Major System Flow Depth Calculations

Subcatchment ID	CB ID	Approach Flow (m ³ /s)	Captured Flow (m ³ /s)	Total Water Depth (Static + Dynamic) (m)	Velocity (m/s)	v * d (m ² /s)
CB2B	CB_2B	0.107	0.016	0.08	0.53	0.042
CB2A	CB_2A	0.046	0.014	0.06	0.44	0.026
CB1C	CB_1C	0.044	0.016	0.08	0.24	0.019
CB1B	CB_1B	0.033	0.014	0.11	0.30	0.033
CB1A	CB_1A	0.027	0.014	0.09	0.29	0.026

It may therefore be concluded that the proposed SWM design for Block 22 is in accordance with the City of Ottawa standards and the design of the overall subdivision (per IBI Group).

Yours truly,
J.F Sabourin and Associates Inc.



Tamarra Lewis, B.Eng., EIT
Water Resources EIT



Laura Pipkins, P.Eng.
Project Engineer in Water Resources



Bryan Willcott, P.Eng.
Project Engineer in Water Resources

cc: J.F Sabourin, M.Eng, P.Eng
Director of Water Resources Projects

Attachments

- Attachment A: Proposed Drainage Plan
- Attachment B: PCSWMM Schematic
- Attachment C: Pipe Data and Hydraulic Gradeline Results
- Attachment D: Email Correspondence

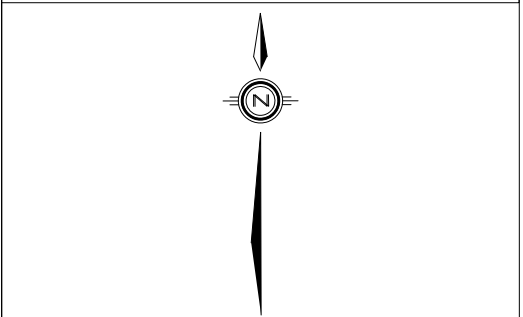
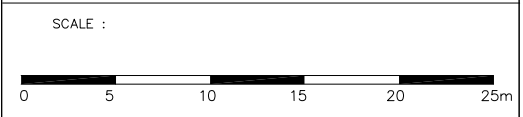
Attachment A

Proposed Drainage Plan

Figure 1

LEGEND :

- LIMITS OF SUBDIVISION
- MAJOR SYSTEM SUBCATCHMENT BOUNDARY TO LOW POINTS AND OTHER AREAS
- MAJOR SYSTEM FLOW DIRECTION
- FIRST DIRECTION OF EXCESS MAJOR SYSTEM FLOW AT LOW POINT
- SUB-CATCHMENT ID
- SUB-CATCHMENT AREA
- TOTAL IMPERVIOUSNESS



J.F. Sabourin & Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
OTTAWA (613) 836-3884
GATINEAU (819) 243-6858

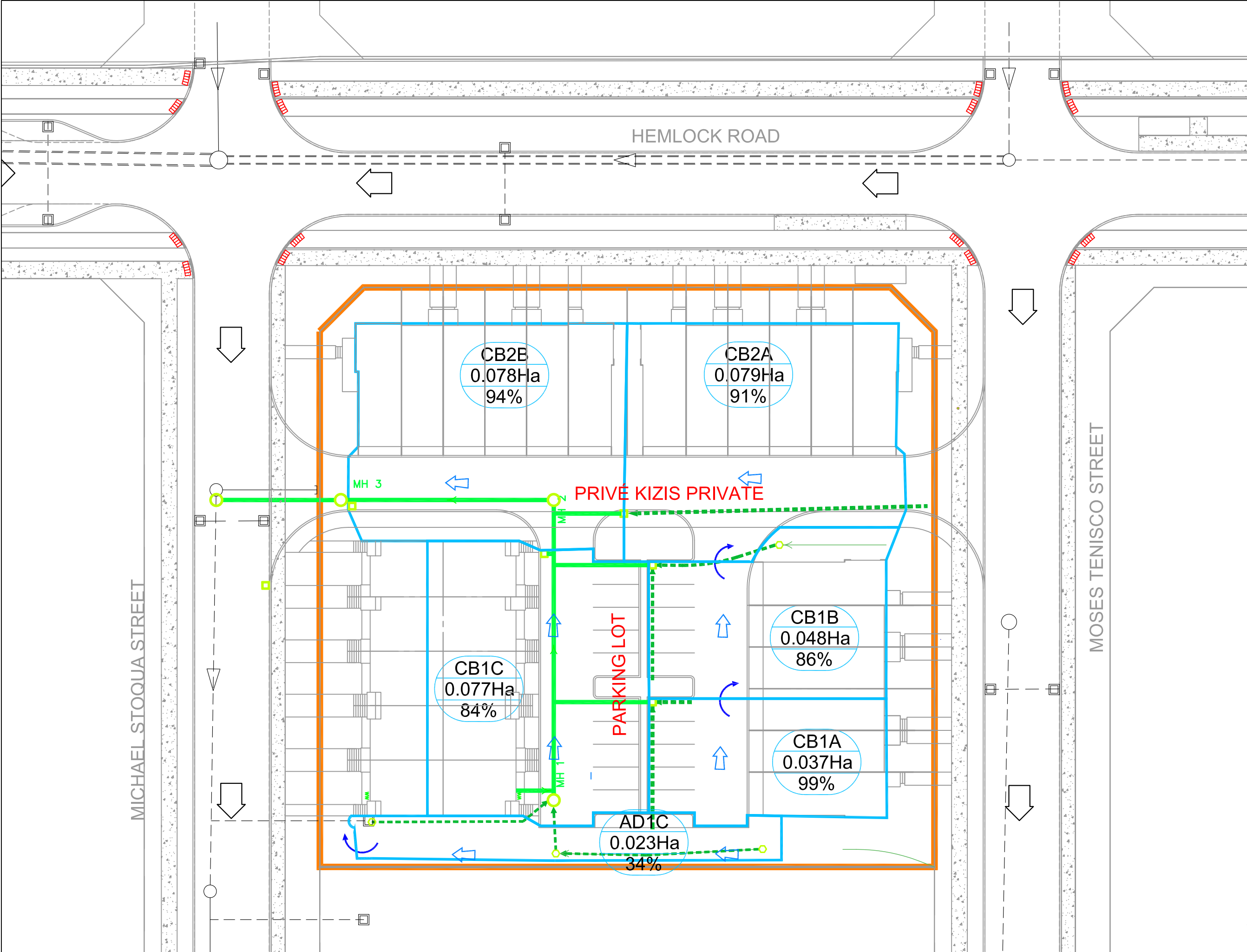
CLIENT : **DSEL**
david schaeffer engineering ltd
120 IBER ROAD, UNIT 103
STITTSVILLE, ONTARIO, K2S 1E9
(613) 836-0856

PROJECT : WATERIDGE VILLAGE PHASE 1B
PROPOSED BLOCK 22
SWM DESIGN

NO.	BY	DATE	DESCRIPTION	BY

PROPOSED DRAINAGE PLAN

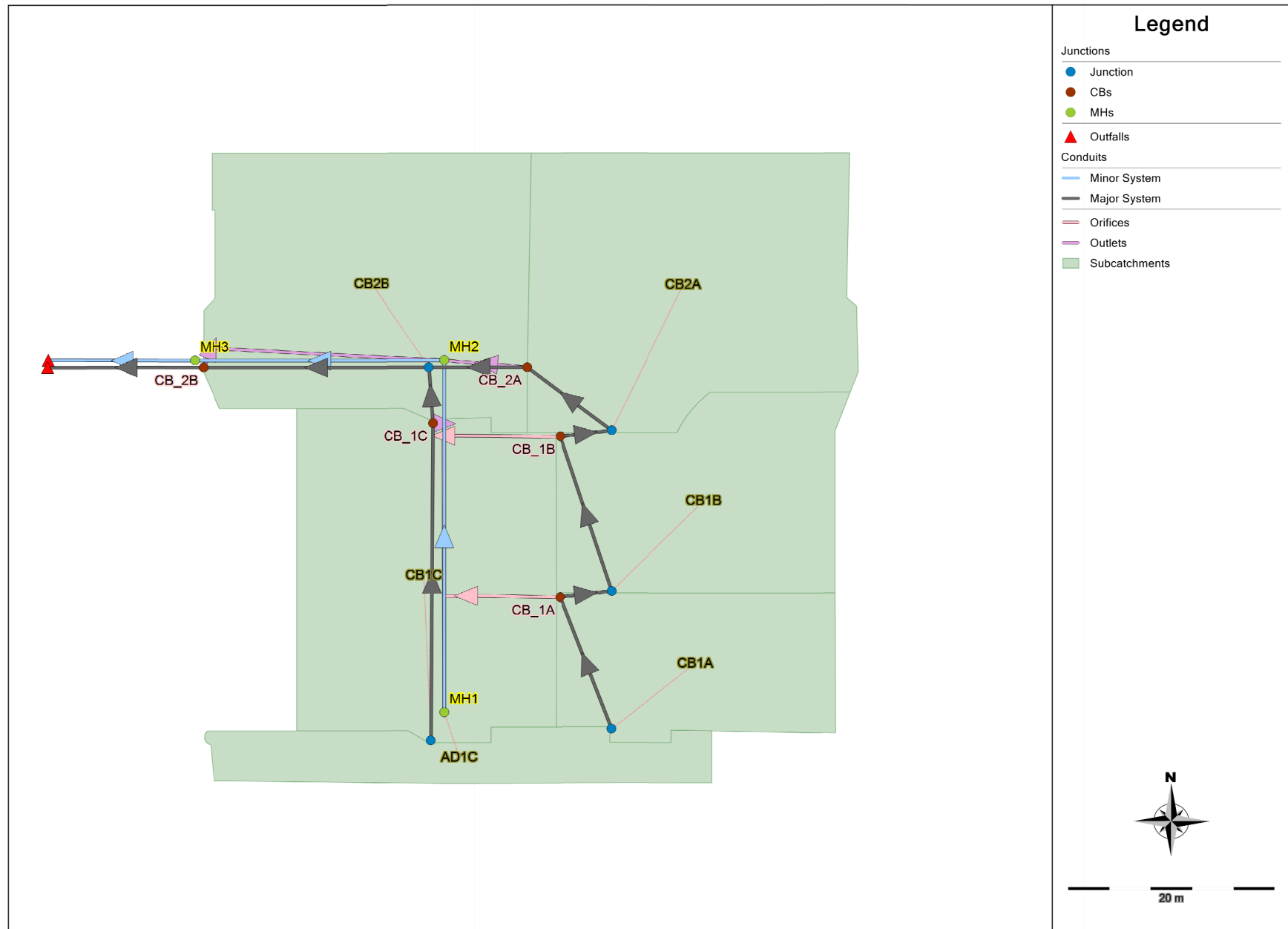
FIGURE 1	DESIGNED: TL/BW	PROJECT No.	
	DRAWN: BL/BW	1971	
	VERIFIED: JFS		
	APPROVED: JFS		
DRAWING REF.	DATE		
1971-20\202005 Subm2\ Design\CAD\JFSA Figures_202010.dwg	Oct/20		



Attachment B

PCSWMM Schematic

Figure 2



Attachment C

Pipe Data and Hydraulic Gradeline Results

Tables C-1A to Table C-1F

Table C-1A: Pipe Data and Hydraulic Simulation Results for the 100-Year, 3-Hour Chicago Storm

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.049	0.4	-0.175	1.17	87.100	86.920	4-6A	87.57	0.470
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.078	0.7	-0.144	1.17	86.920	86.710	4-10A	87.57	0.650
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.078	0.3	-0.238	1.17	86.710	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Table C-1B: Pipe Data and Hydraulic Simulation Results for the 100-Year, 24-Hour SCS Type II Storm

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.048	0.4	-0.175	12.00	87.100	86.910	4-6A	87.57	0.470
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.077	0.7	-0.154	12.00	86.910	86.700	4-10A	87.57	0.660
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.077	0.3	-0.248	12.00	86.700	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Table C-1C: Pipe Data and Hydraulic Simulation Results for the July 1st, 1979 Historical Event

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.044	0.4	-0.185	1.50	87.090	86.910	4-6A	87.57	0.480
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.072	0.7	-0.154	1.50	86.910	86.700	4-10A	87.57	0.660
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.072	0.2	-0.248	1.50	86.700	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Table C-1D: Pipe Data and Hydraulic Simulation Results for the August 4th, 1988 Historical Event

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.047	0.4	-0.175	2.02	87.100	86.910	4-6A	87.57	0.470
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.076	0.7	-0.154	2.02	86.910	86.700	4-10A	87.57	0.660
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.076	0.3	-0.248	2.02	86.700	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Table C-1E: Pipe Data and Hydraulic Simulation Results for the August 8th, 1996 Historical Event

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.042	0.4	-0.195	1.47	87.080	86.900	4-6A	87.57	0.490
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.070	0.6	-0.164	1.47	86.900	86.700	4-10A	87.57	0.670
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.070	0.2	-0.248	1.47	86.700	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Table C-1F: Pipe Data and Hydraulic Simulation Results for the 100-Year, 3-Hour Chicago Storm + 20%

U/S MH	D/S MH	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m ³ /s)	Peak Pipe Flow (m ³ /s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Lot Number	USF (m)	Freeboard (2) (m)
1	2	86.900	86.764	375	34.2	0.4	0.013	89.780	89.630	1.001	0.111	0.052	0.5	-0.165	1.17	87.110	86.920	4-6A	87.57	0.460
2	3	86.689	86.593	375	24.2	0.4	0.013	89.640	89.210	0.999	0.110	0.081	0.7	-0.144	1.17	86.920	86.710	4-10A	87.57	0.650
3	STM210	86.573	86.174	375	14.2	2.8	0.013	89.210	88.920	2.662	0.294	0.081	0.3	-0.238	1.17	86.710	86.430	N/A	N/A	N/A

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full

⁽²⁾ Conservative estimate of freeboard based on U/S HGL and lowest USF connected to pipe

Attachment D

Email Correspondence

Tamarra Lewis

From: Winston Yang <Winston.Yang@ibigroup.com>
Sent: Monday, August 21, 2017 3:23 PM
To: Jean Lachance; Jim Moffatt; Adam Fobert
Cc: Jillian Normand
Subject: RE: 918 Mattamy - Wateridge: IBI Servicing Review

Hi Jean,

As per our phone conversation, there should be no impact on Block 23's proposed serving scheme for SWM and servicing due to few changes* for Block 22.

*Note: The overland flow route and servicing outlet for Block 22 are both draining toward Michael Stoqua Street instead of splitting into half and assigning to Michael Stoqua Street and Moses Tennisco Street.

Should you have any questions please do not hesitate to contact me.

Yours truly,

Winston Yang P.Eng.

email Winston.Yang@ibigroup.com web www.ibigroup.com

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From: Jean Lachance [mailto:JLachance@clc.ca]
Sent: Tuesday, August 15, 2017 5:52 PM
To: Winston Yang <Winston.Yang@ibigroup.com>; Jim Moffatt <jmoffatt@IBIGroup.com>; Adam Fobert <AFobert@dsel.ca>
Cc: Jillian Normand <Jillian.Normand@mattamycorp.com>
Subject: Re: 918 Mattamy - Wateridge: IBI Servicing Review

Jim et al.,

What is the Mattamy's 100yr for each block and what impacts if any from Block 22 when considering Block 23's proposed serving scheme for MHI.

Thanks,

Jean

From: AFobert@dsel.ca

Sent: August 15, 2017 5:26 PM

To: Winston.Yang@ibigroup.com; jmoffatt@IBIGroup.com

Cc: JLachance@clc.ca; Jillian.Normand@mattamycorp.com

Subject: 918 Mattamy - Wateridge: IBI Servicing Review

Hello Jim and Winston,

How is your review of our site servicing is coming along? I have reviewed your Design Brief's for Phase 1A and 1B and have compared the analysis contained within to our proposed design.

I offer the following considerations based on my review:

General:

DSEL proposed one storm and one sanitary connection to each block. The City indicated that this was their expectation during our pre-consultation as it is their standard practice for multi-block parcels.

Block 15: The servicing brief shows three connections to Squadron Crescent. DSEL are proposing one connection downstream of the contemplated connections.

Block 22: The surrounding grades slope from east to west. The servicing brief shows a drainage divide mid-block, where half the site drains to Moses Tenisco and the other to Michael Stoqua. Moses Tenisco is 1.14m higher than Michael Stoqua at the proposed road connection points. As such, to avoid fighting grades DSEL proposed storm and sanitary connections to Michael Stoqua only.

Block 24: Moses Tenisco slopes from north to south 1.1m from Hemlock to Mikinak. The servicing brief shows a drainage divide mid-block with connections to Moses Tenisco and Mikinak. DSEL proposed a storm and sanitary outlet at the southern road connection on Moses Tenisco based on Mattamy's proposed site. This avoids fighting grades internally.

Wastewater:

Block 15:

IBI Servicing Brief = 487.3p

Mattamy Proposal = 335p

Proposed connections are downstream of IBI contemplated connections. Population is less than included in servicing brief. Therefore, we do not expect servicing issues with Block 15.

Block 22:

IBI Servicing Brief ~ 105p (note that I am interpolating since half of Block 22 is included in northern half of Block 24.)

Mattamy Proposal = 52p

IBI servicing brief assumed 52.5p tributary to Moses Tenisco. Therefore, we do not expect capacity issues.

Block 24:

IBI Servicing Brief ~284.4p (note that I am interpolating based on the population shown on phase 1A southern half of block 24).

Mattamy Proposal = 364p

DSEL reviewed the available capacity in the receiving sewers and did not see any capacity issues.

Note: Mattamy's proposed servicing eliminates the need for 63.8m of sanitary sewer on Moses Tennisco from MH213A to MH212A. Savings to CLC.

Stormwater:

I have reviewed Appendix E of the servicing briefs to compare our calculations to the assumptions used in the model.

Review of the Summary of DDSWMM Parameters

Block 15:

IBI Servicing brief: No storage assumed. 5 and 100 year capture 396L/s

Mattamy's proposal: 275m³ of storage provided. DSEL's estimated 5-year peak 357.4L/s

Block 19:

IBI Servicing brief: No storage assumed. 194 + 57 (note that Lot 209 and 208B are missing from chart).

Mattamy's proposal: TBD.

Block 22:

IBI Servicing brief: No storage assumed. 5 and 100 year (46 + 46) 92L/s

Mattamy's proposal: 46.5m³ of storage provided. DSEL's estimated 5-year peak 87L/s.

Block 24:

IBI Servicing brief: No Storage. 5 and 100 year capture (162 +162) 324L/s.

Mattamy's proposal: 27.3m³ of storage provided. DSEL's estimated 5-year peak 325.7L/s.

Let me know if you have any comments or questions. Thank you for your time.

Adam Fobert, P.Eng.
Manager of Site Plan Design

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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material. Based on in-situ soil testing of previous phases, it is anticipated that the soils tested in Phase 1B will have a field saturated hydraulic conductivity below 15mm/hr and therefore will require the installation of an underdrain per the TRCA/CVC LID Stormwater Planning and Design Guide (2010).

4.0 Recommended LID Types

The Draft Wateridge Village Phases 1B - Master Concept Plan (Appendix A) displays the proposed land-use in Phase 1B; including: low & medium rise residential and mixed-use, parks, and municipal ROW. Table 4.1 summarizes suitable LID measures by each land use.

Table 4.1 Low Impact Development (LID) Suitability Matrix by Land-Use

Assumed Lot Coverage		Phase 1B Proposed Land-Uses			
		Low & Medium Rise Residential	Low and Medium Rise Mixed-Use	Schools & Parks	Municipal ROW
		50-60%	80-100%	10-30%	n/a
LID Type					
Lot-Level Controls	Green Roofs	□	□	n/a	n/a
	Bioretention	□□	□□	□□□	□□□
	Rainwater Harvesting	□	□	n/a	n/a
	Soakaways, Trenches & Chambers	□□□	□□□	□□□	n/a
	Downspout Disconnection	□□□	□□□	n/a	n/a
	Soil Amendments	□□□	□□□	□□□	n/a
	Permeable Pavements	□□	□□	□□	See Conveyance Controls
	Infiltration Basins	n/a	n/a	□□□	n/a
Conveyance Controls	Vegetated/Grass Swales	n/a	n/a	□	□□
	Bioswales/Biofilters	n/a	n/a	□□	□□□
	Perforated Pipes	n/a	n/a	□	□□
	Permeable Pavements	n/a	n/a	□□	□□□
*Assumed lot coverage indicates percentage of development with hard surface land cover					
□□□ = Highly Suitable, □□ = Suitable, □ = Poor Suitability, n/a = Not Applicable					

In areas where infiltration is not possible, i.e. over underground parking structures, runoff can be collected using ditch inlets, catch basins, or eavestroughs for roof surfaces and conveyed via pipe to an infiltration system or end-of-pipe facility.

Based on the land-use proposed in the Master Concept Plan for Phase 1B, the following LIDs can be implemented in Phase 1B:

- Soakaways, Trenches & Chambers
- Downspout Disconnection
- Soil Amendments
- Bioretention
- Infiltration Basins

DRAWINGS / FIGURES

FUTURE RESIDENTIAL

MICHAEL STOQUA STREET

Corner Side Yard (West)

Corner Side Yard (East)

Corner Side Yard (East)

MOSES TENNISCO STREET

FUTURE RESIDENTIAL

BLOCK 24

BLOCK 23

HEMLOCK ROAD

BLOCK 23

FUTURE RESIDENTIAL

PRIVÉ KIZIS PRIVATE

Front Yard

Rear Yard

SITE STATISTICS AND DEVELOPMENT DATA

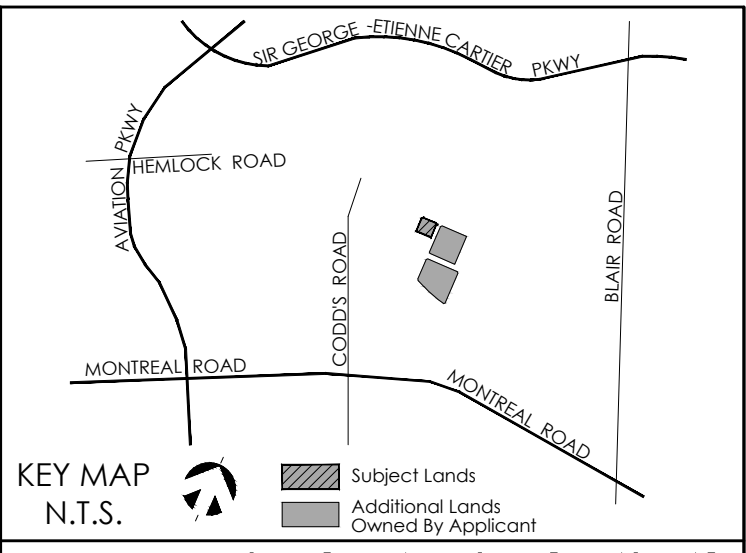
SITE AREA	4,594.19 m ²
PAVED AREA	1,350.20 m ² (29%)
LANDSCAPED AREA	1,385.87 m ² (30%)
TOTAL BUILDING COVERAGE	1,858.12 m ² (41%)
TOTAL GROSS FLOOR AREA	4,647 m ²
TYPE A TOWNHOUSE MODEL (12)	1,702 m ²
TYPE B TOWNHOUSE MODEL (2)	312 m ²
TYPE C TOWNHOUSE MODEL (4)	622 m ²
STACKED TOWNS UPPER MODEL (10)	1,152 m ²
STACKED TOWNS LOWER MODEL (10)	859 m ²
DENSITY (UPH)	82.6
ZONE CATEGORY	RSY[2457]

DWELLING BLOCK	DWELLING TYPE	GROUND FLOOR AREA (m ²)	UNITS
BLOCK 1	REAR LANE TOWNS	402.49	6
BLOCK 2	REAR LANE TOWNS	402.49	6
BLOCK 3	REAR LANE TOWNS	401.88	6
BLOCK 4	STACKED TOWNS	500.72	20
		TOTAL	38

SECTION	ZONE PROVISION - PLANNED UNIT DEVELOPMENT	REQUIRED	PROPOSED
164 (Table)	MIN. LOT WIDTH (m)	N/A	N/A
164 (Table)	MIN. LOT AREA (m ²)	1,400 m ²	4,594.19 m ²
164 (Table)	MAX. BUILDING HEIGHT (m)	11.00 m	10.63 m
239 [2457]	MIN. FRONT YARD SETBACK (m)	3.00 m	4.02 m
239 [2457]	MIN. CORNER SIDE YARD SETBACK (m)	3.00 m	4.06 m
164 (Table)	MIN. REAR YARD SETBACK (m)	3.00 m	5.59 m
164 (Table)	MIN. INTERIOR YARD SETBACK (m)	3.00 m	N/A
101 (Table)	RESIDENT PARKING - REAR LANE TOWNS (18 @ 1/unit)	18	18
	STACKED (20 @ 0.5/unit)	10	20
239 [2457]	VISITOR PARKING	0	0
131 (Table)[1]	MIN. WIDTH OF PRIVATE WAY (m)	6.00 m	6.00 m
239 [2457]	SETBACK OF ANY WALL OF A RES. BUILDING TO PRIVATE WAY (m)	1.00 m	1.00 m
239 [2457]	MIN. SETBACK OF GARAGE DOOR TO PRIVATE WAY (m)	1.00 m	1.00 m
111A (Table)	BICYCLE PARKING (STACKED TOWNS)	10 (0.5/unit)	10
137 (Table)[7]	MIN. STACKED TOTAL AMENITY AREA (6m ² per unit)	120 m ²	230 m ² *
	MIN. OF 50% OF THE REQUIRED TOTAL AMENITY AREA FOR COMMUNAL AMENITY AREA	60 m ²	60 m ²

*Includes an average of 18.5m² per unit for terraces

SECTION	ADDITIONAL PROVISIONS	REQUIRED	PROPOSED
65 (6)	PERMITTED PROJECTIONS INTO YARDS: COVERED OR UNCOVERED BALCONY, PORCH, DECK	2.00 m (MAX)	0.50 m
Table 65(5)	FIRE ESCAPES, OPEN STAIRWAYS, STOOP	>1.0m to lot line	2.50 m
106 (1)(a)	MIN. PERPENDICULAR PARKING SPACE SIZE	>0.60m to lot line	1.35 m
239 [2457]	MIN. DRIVEWAY WIDTH TO PARKING LOT (m)	2.6 x 5.2 m	2.6 x 5.2 m
239 [2457]	MIN. DRIVEWAY WIDTH TO SPACES (m)	6.00 m	6.00 m
107 (2)	MIN. DRIVEWAY WIDTH TO GARAGE (m)	6.00 m	6.00 m
109 (3)(b)	MIN. WALKWAY WIDTH PERMITTED IN YARD (m)	2.40 m	4.75 m
110 (Table)	MAX. WALKWAY WIDTH PERMITTED IN YARD (m)	1.80 m	1.80 m
	MIN. LANDSCAPE BUFFER WIDTH PARKING LOT TO LOT LINE	1.50 m	4.48 m
	MIN. OF 15% OF LANDSCAPE AREA WITHIN AND SURROUNDING A PARKING LOT	15%	≥15%
110 (3)(b)	MIN. WASTE COLLECTION SETBACK TO LOT LINE (m)	3.00 m	27.39 m
55 (3)(e)[ii]	ACCESSORY STRUCTURE SETBACK (m)	0.40 m	1.50 m
55 (5)	PROJECTION HEIGHT (MAX) (m)	3.20 m	1.80 m
239 [2457]	UTILITY INSTALLATIONS SETBACK (m)	0.60 m	1.50 m
Table 131(4)	MIN. SEPARATION DISTANCE BETWEEN BUILDINGS WITHIN A PLANNED UNIT DEVELOPMENT (m)	1.20 m	3.00 m
111B (TABLE)	MIN. BICYCLE PARKING SPACE DIMENSIONS (m)	Width: 0.6 m Length: 1.8 m	0.6 m 1.8 m
111 (9)	MIN. BICYCLE PARKING SPACE ACCESS WIDTH AISLE (m)	1.5 m	1.5 m



SCALE 1:200

LEGEND	
	PATHWAY (PAVERS)
	WALKWAY TO ENTRY
	CROSSWALK (PAVERS)
	ASPHALT DRIVEWAY
	MOUNTABLE CURB
	CURB (0.2m)
	DEPRESSED CURB
	PORCH
	WINDOW WELL
	PROJECTION (STAIRS)
	LANDSCAPED AREA
	TYPE A TOWNHOUSE (4.75m)
	TYPE B TOWNHOUSE (5.21m)
	TYPE C TOWNHOUSE (5.13m)
	STACKED DWELLING
	PROPOSED LOT BOUNDARY
	STREET TREE
	ENTRANCE
	UNIT NUMBER
	HYD FIRE HYDRANT
	STOP SIGN
	3 PHASE TRANSFORMER & SWITCHGEAR
	TRANSFORMER
	CANADA POST MAIL BOX
	ART/ WAYFINDING FEATURE
	VEHICULAR GATEWAY FEATURE
	FOOD GARDEN
	TACTILE WALKING SURFACE INDICATOR
	FENCE
	BIKE RACK
	HYDRO METERS
	GAS METERS
	SNOW STORAGE AREA
	BENCH
	PATIO SLABS AND STEPPING STONES

DATE	REVISION	BY
10/09/20	Revise Block 4 setback, insert internal walkway	CR
14/05/20	Issue for Detailed Design	EC
25/03/20	Revise Site Plan for Site Plan Amendment	EC
01/03/18	Issue for Third Submission to City	SP
14/12/17	Issue for Second Submission to City	SP
28/07/17	Draft for review	SP

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3. SITE PLAN PREPARED IN ACCORDANCE WITH PLAN 4M-1581 AND PLAN 4R-30196, PREPARED BY ANNIS O'SULLIVAN, VOLLEBEK LTD.
4. TOWNHOUSE DWELLING UNITS ARE DESIGNED TO ACCOMMODATE CURBSIDE GARBAGE PICK-UP.
5. WALKWAYS AND CURBS TO BE TIED INTO PUBLIC ROW WHERE APPLICABLE.
6. REFERENCES CITY OF OTTAWA T.W.S.I. DETAIL SC7.3

PROJECT TEAM	
SITE PLAN DESIGN: KORSAK Urban Planning	LANDSCAPE ARCHITECTURE: NAK design strategies
PLANNING: Stantec	TRANSPORTATION: NOVATECH
ARCHITECTURE: Q4A	NOISE: VALCOUSTICS
CIVIL ENGINEER: DSEL	ENVIRONMENTAL: KILGOUR & Associates
	GEOTECHNICAL & STRUCTURAL: patergroup

mattamyHOMES

WATERIDGE VILLAGE: PHASE 1B
1400 HEMLOCK ROAD
BLOCK 22
PART OF LOTS 22 AND 23
CONCESSION 1 (OTTAWA FRONT)
GEOGRAPHIC TOWNSHIP OF GLOUCESTER
REGISTERED PLAN 4M-1559
CITY OF OTTAWA

TITLE: BLOCK 22 SITE PLAN	
DATE: September 25, 2020	DRAWN BY: EC
FILE NO.: D07-12-20-0066	CHECKED BY: CR
JOB NO.: Mattamy - Wateridge	DRAWING NO. A2

CHEMIN HEMLOCK ROAD (26.0m WIDE)

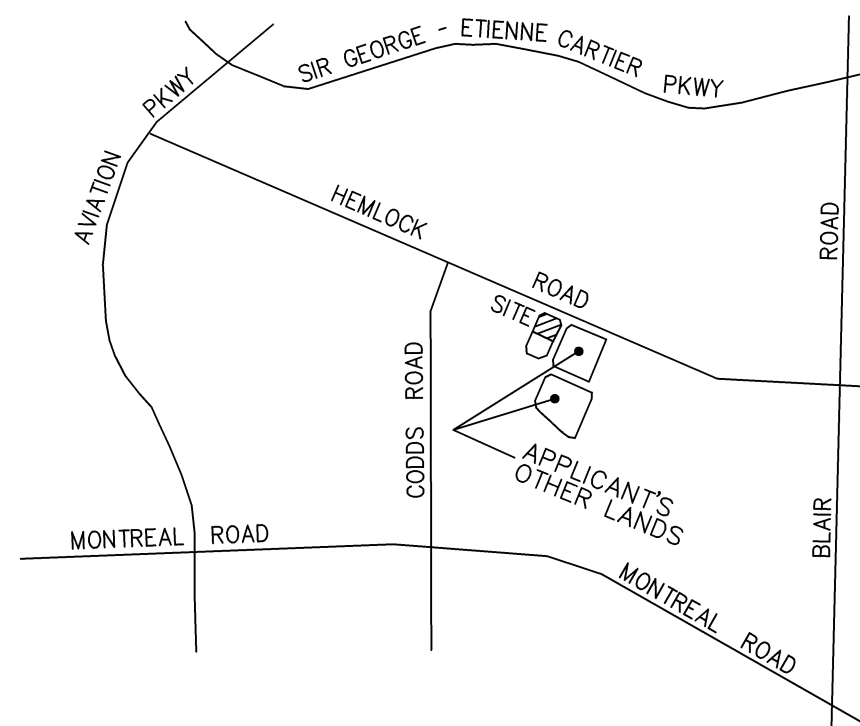
(DEDICATED BY REGISTERED PLAN 4M-1581)

PIN 04273-0627(LT)

SUBJECT TO EASEMENTS AS IN OC1755037, OC1755039, OC1771382 AND OC1874459

PLAN VIEW ILLUSTRATING CONFIGURATION OF
RESIDENTIAL UNITS 1 TO 20, INCLUSIVE, AND PARKING UNITS 21 TO 40, INCLUSIVE, ON LEVEL 1

SHEET 1 OF 1 SHEET



KEY PLAN NOT TO SCALE

1400 CHEMIN HEMLOCK ROAD

DRAFT PLAN OF STANDARD CONDOMINIUM OF
PART OF BLOCK 22
REGISTERED PLAN 4M-1581
CITY OF OTTAWA

J. D. BARNES LIMITED

SCALE 1 : 200



METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

ADDITIONAL INFORMATION REQUIRED UNDER
SECTION 51 (17) OF THE PLANNING ACT.

FOR A,B,C,E,F,G, AND J SEE DRAFT PLAN AND KEY PLAN

- D EACH UNIT IS SINGLE RESIDENTIAL. THE OWNER OF WHICH HAS OUTRIGHT OWNERSHIP. CERTAIN UNITS SHALL HAVE THE EXCLUSIVE USE OF PORTIONS OF THE COMMON ELEMENTS.
- H MUNICIPAL WATER IS AVAILABLE ON ADJACENT STREETS
- I CLAY LOAM
- K MUNICIPAL STORM AND SANITARY SEWERS ARE AVAILABLE ON ADJACENT STREETS.
- L ALL EASEMENTS AFFECTING THE SUBJECT SITE ARE SHOWN ON THE FACE OF THIS PLAN.

NOTES

BEARINGS HEREON ARE GRID. BEARINGS ARE REFERRED TO SPECIFIED CONTROL POINTS (SCPs). 019198434761 AND 0198434761, AND ARE REFERRED TO THE CENTRAL MERIDIAN 78°30' WEST LONGITUDE, ZONE 09, NAD83 (ORIGINAL). DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

INTEGRATION DATA

SPECIFIED CONTROL POINTS (SCPs): MTM ZONE 09, NAD83 (ORIGINAL).

COORDINATES TO AN URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
SCP 019198434761	372 436.11	5 036 178.12
SCP 01919680146	372 208.81	5 035 456.42

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

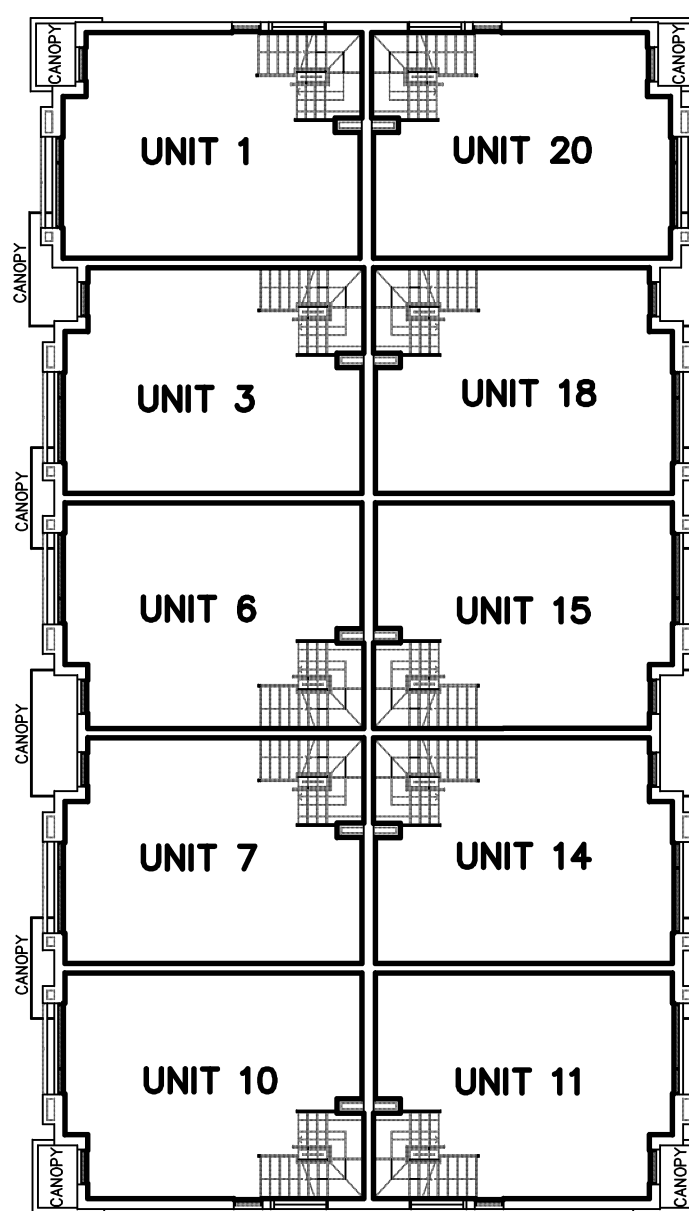
DEVELOPMENT STATISTICS

TOTAL NUMBER OF RESIDENTIAL UNITS = 20 STACKED TOWNHOUSES
SITE AREA = 4594.2 sq.m. (0.4594 ha.)
BUILDING COVERAGE = 1899.6 sq.m. (42%)
BUILDING HEIGHT = 3 STOREYS

PARKING

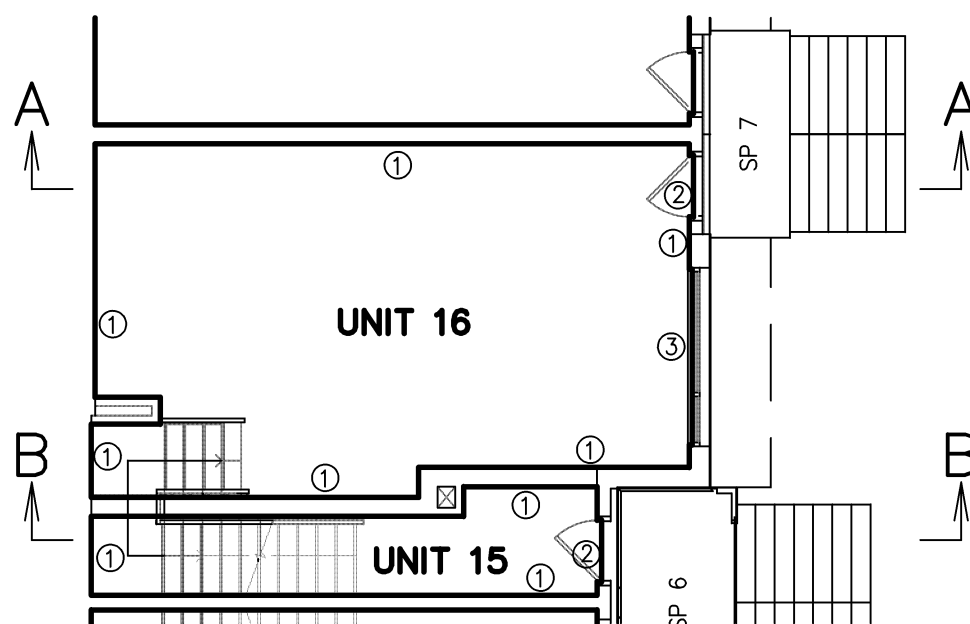
RESIDENT PARKING UNITS = 20
VISITOR PARKING SPACES = 0
VISITOR BICYCLE RACKS = 9

PLAN VIEW ILLUSTRATING CONFIGURATION OF
RESIDENTIAL UNITS 1, 3, 6, 7, 10, 11, 14, 15, 18 AND
20, (SECOND STORY)

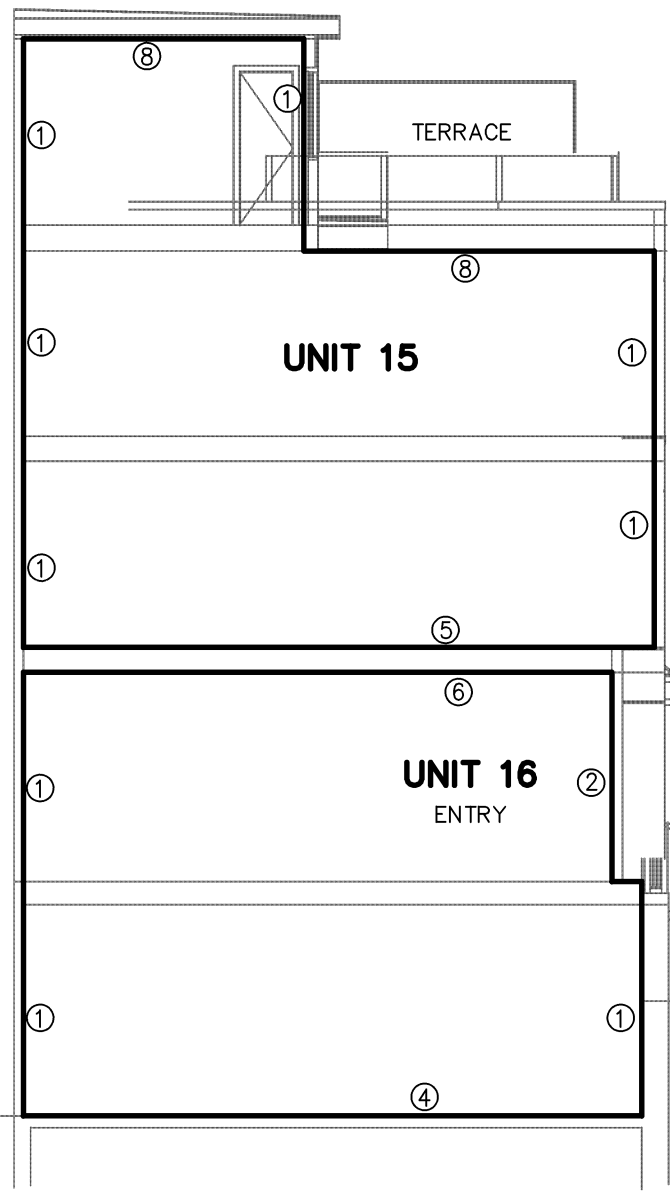


TYPICAL UNIT BOUNDARIES LEGEND

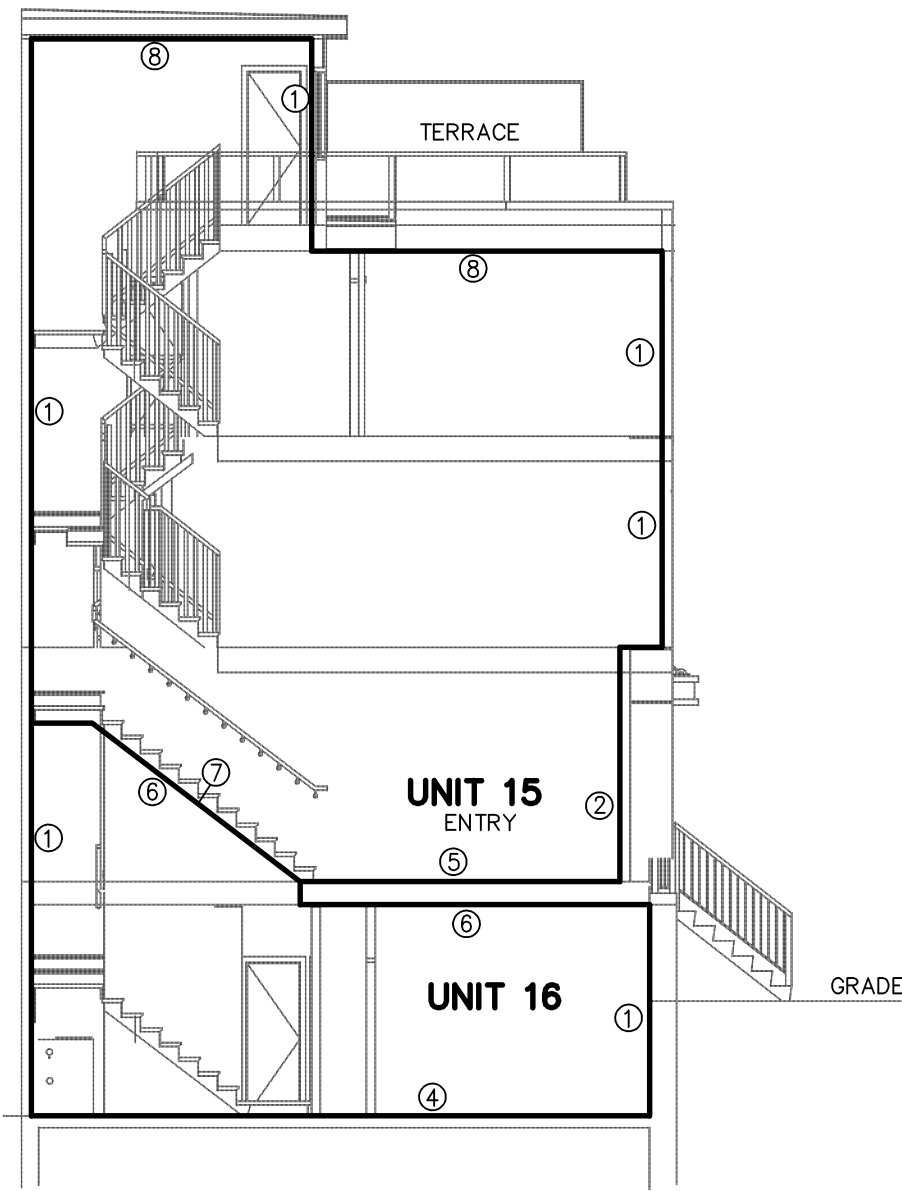
- ① DENOTES BACKSIDE OF DRYWALL SHEATHING
② DENOTES UNIT SIDE SURFACE OF DOOR AND FRAME
③ DENOTES UNIT SIDE SURFACE OF WINDOW AND FRAME
④ DENOTES UPPER SURFACE OF UNFINISHED CONCRETE FLOOR SLAB
⑤ DENOTES UPPER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY
⑥ DENOTES LOWER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY
⑦ DENOTES UPPER SURFACE OF UNFINISHED FIRE SEPARATION FLOOR ASSEMBLY BENEATH STAIRS
⑧ DENOTES UPPER SURFACE OF DRYWALL CEILING IN UPPER MOST STOREY



PLAN VIEW ILLUSTRATING TYPICAL
UNIT BOUNDARIES ON LEVEL 1
(AT GRADE)
NOT TO SCALE



SECTION VIEW A-A ILLUSTRATING TYPICAL
VERTICAL RELATIONSHIP OF UPPER
AND LOWER UNITS ON LEVEL 1
NOT TO SCALE



SECTION VIEW B-B ILLUSTRATING TYPICAL
VERTICAL RELATIONSHIP OF UPPER
AND LOWER UNITS ON LEVEL 1
NOT TO SCALE

PARTS 1 AND 2 APPROVED AND PARTS 3 AND 4 EXEMPTED
UNDER SECTION 9(3) OF THE CONDOMINIUM ACT R.S.O. 1998
AND SECTION 51 OF THE PLANNING ACT, R.S.O. 1993,
THIS ____ DAY OF _____ 20__.

STEPHEN WILLIS, MOP, RPP
GENERAL MANAGER
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT
DEPARTMENT, CITY OF OTTAWA

ZONING: R5Y[2457]

J.D.BARNES LIMITED SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
62 STACEE DRIVE, SUITE 103, KANATA, ON K2K 2A9
T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY: NS	CHECKED BY: GZ	REFERENCE NO.: 18-10-037-03
FILE: \$FILE\$	DATED: 9/8/2020	

SCHEDULE			
PARTS	BLOCK	PLAN	PIN
1	ALL OF 22	4M-1581	ALL OF 04273-0613 (LT)
2			
3			
4			
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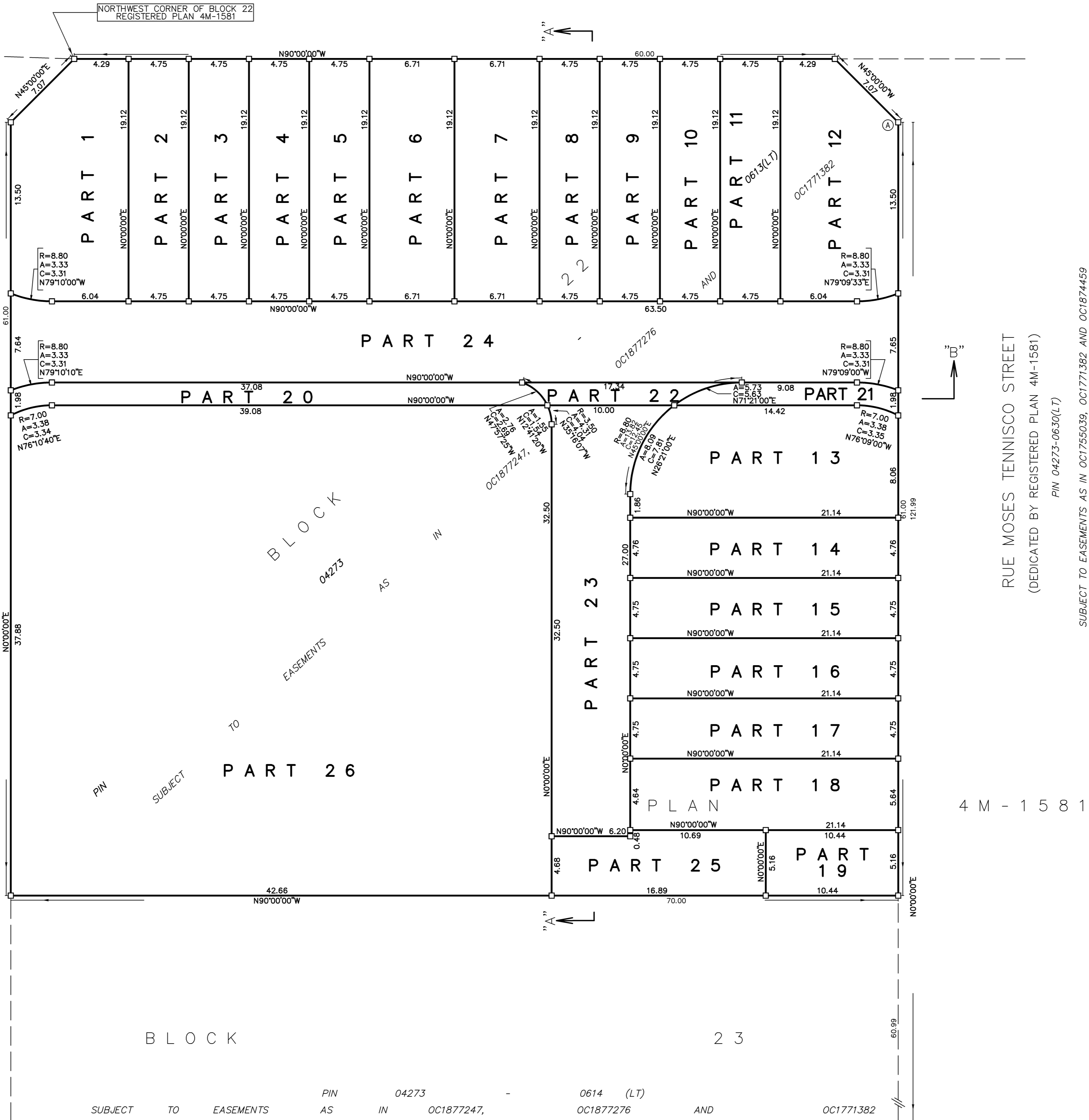
PARTS 1 TO 52 (BOTH INCLUSIVE), ARE SUBJECT TO EASEMENTS AS IN OC1877247 AND OC1877276
PARTS 27 TO 52 (BOTH INCLUSIVE), ARE SUBJECT TO EASEMENT AS IN OC1771382

PART	DIAGRAM No. SHOWING PLAN VIEWS OF PARTS	CROSS-SECTIONS SHOWING VERTICAL EXTENTS OF PARTS
	2	"A"- "A" "B"- "B"
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52	•	•

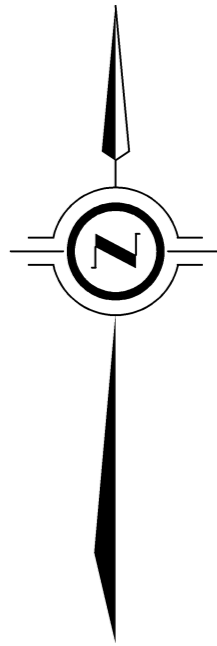
REGISTERED

RUE MICHEAL STOQUA STREET
(DEDICATED BY REGISTERED PLAN 4M-1581)

PIN 04273-0629(LT)
SUBJECT TO EASEMENTS AS IN OC1755039, OC1771382 AND OC1874459



SHEET 1 OF 2



STRATA PLAN OF SURVEY OF
BLOCK 22
REGISTERED PLAN 4M-1581
CITY OF OTTAWA

SCALE 1 : 200



THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:200

J.D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

ALL SET SURVEY MONUMENTS ARE PB'S UNLESS OTHERWISE NOTED.

PARTS 1 TO 26, (INCLUSIVE), ARE ABOVE THE HORIZONTAL PLANE AT THE ELEVATION OF 46.00m.

BEARINGS ARE MTM GRID, REFERRED TO OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD83 (ORIGINAL) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

INTEGRATION DATA		
OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 9, NAD83 (ORIGINAL) (2010.0). COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.		
POINT ID	EASTING	NORTHING
ORP (A)	372863.63	5035139.43
ORP (B)	372863.63	5035017.44
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.		

ELEVATION NOTE

ELEVATIONS ARE GEODETIC AND ARE ESTABLISHED USING GLOBAL POSITIONING SYSTEM (GPS) EQUIPMENT TO ESTABLISH ELLIPSOIDAL HEIGHTS. ELLIPSOIDAL HEIGHTS WERE TRANSFORMED TO CGVD-1928 DATUM (GEODETIC) USING THE FEDERAL HT2.0 HEIGHT TRANSFORMATION MODEL.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
PB	DENOTES	PLASTIC BAR
WT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED

ALL SET IB, SIB, SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

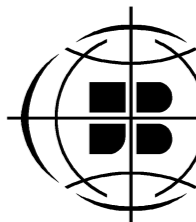
SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

- THIS SURVEY AND PLAN COMPRISING OF 2 SHEETS, ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
- THE SURVEY WAS COMPLETED ON , 2020.

PRELIMINARY
DATE _____
GEORGE ZERVOS
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER XXXXXXX



J.D.BARNES
LIMITED
LAND INFORMATION SPECIALISTS


63 STEACIE DRIVE, SUITE 103, KANATA, ON K2K 2A9

T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY: NS	CHECKED BY: GZ	REFERENCE NO.: 18-10-037-03
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FILE: G:\18-10-037\03 - Block 22\PLAN\18-10-037-03_LPLAN.dgn DATED: 8/21/2020

SCALE 1 : 200



THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT
WHEN PLOTTED AT A SCALE OF 1:200

J.D. BARNES LIMITED

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN
METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

ALL SET SURVEY MONUMENTS ARE PB'S UNLESS OTHERWISE NOTED.

PARTS 26 TO 52, (INCLUSIVE), ARE BELOW THE HORIZONTAL PLANE AT THE ELEVATION OF 46.00m.

BEARINGS ARE MTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY THE TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD83 (ORIGINAL) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999947.

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□	DENOTES	SURVEY MONUMENT SET
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SSIB	DENOTES	SHORT STANDARD IRON BAR
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PB	DENOTES	PLASTIC BAR
WIT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED

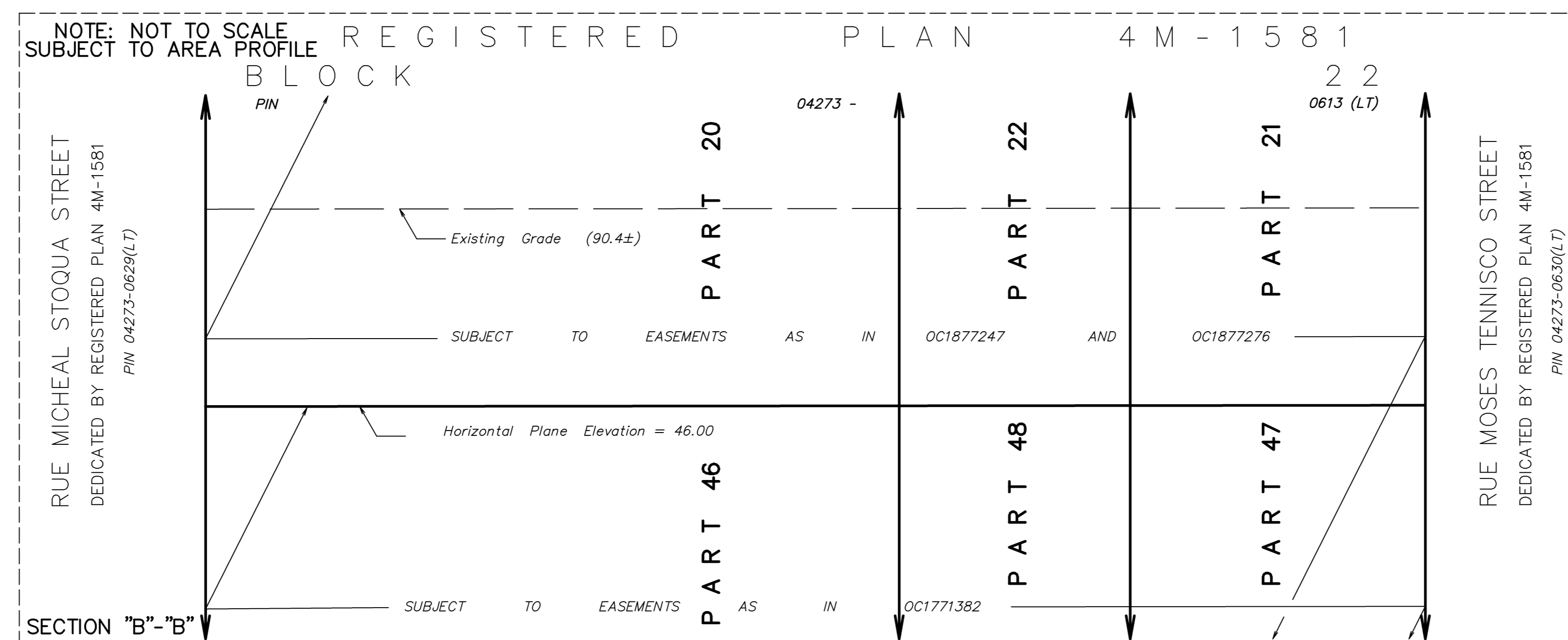
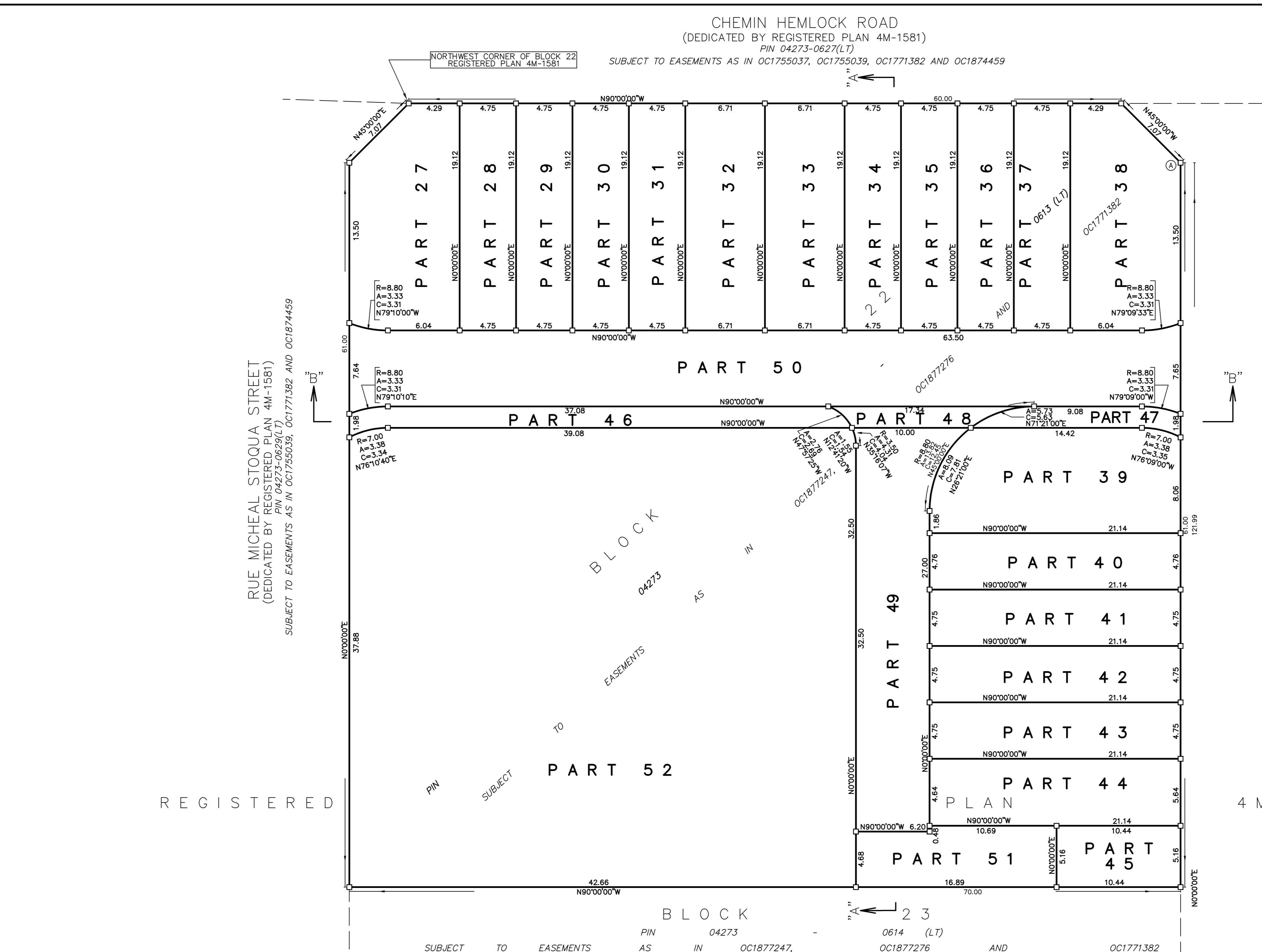
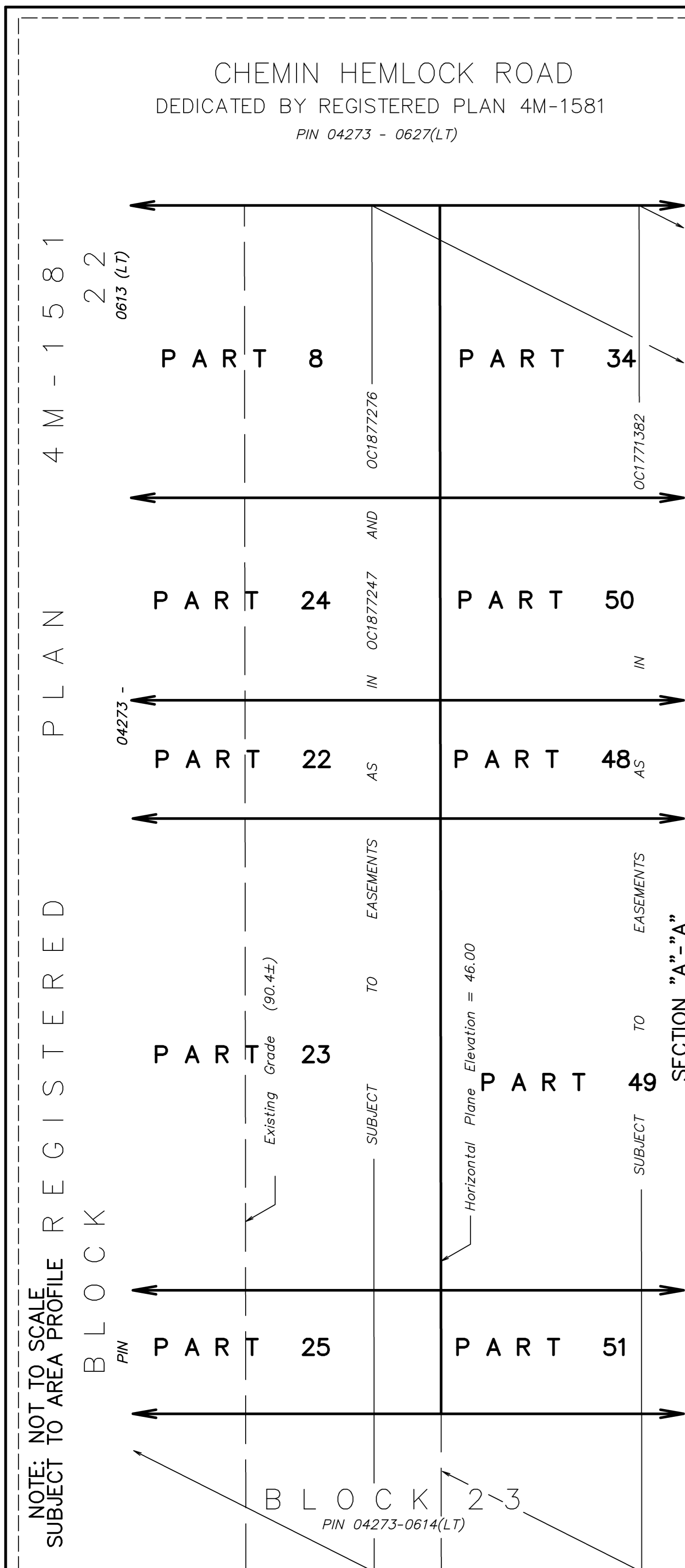
ALL SET IB, SIB, SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

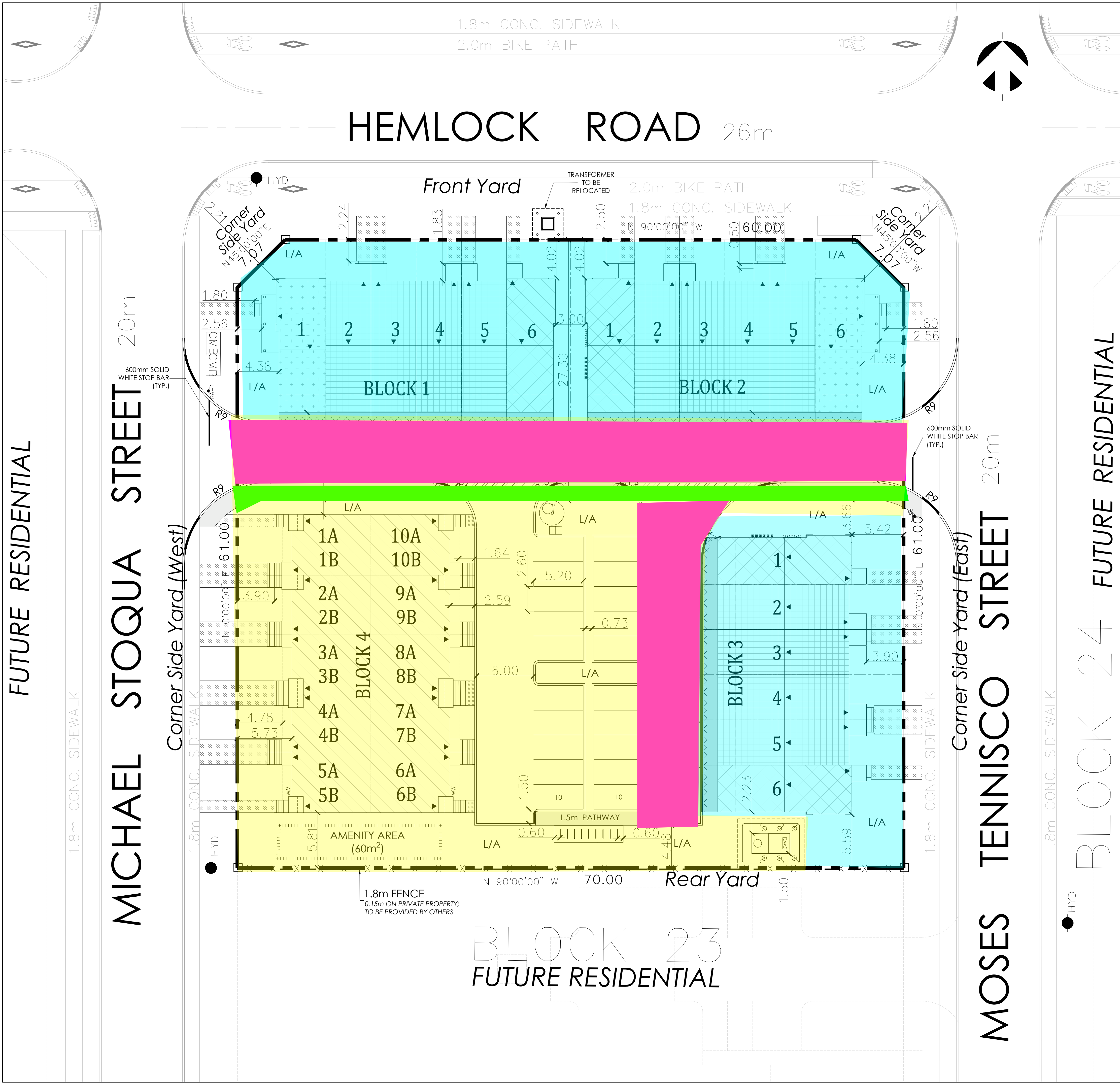
J.D. BARNES
LIMITED
SURVEYING
MAPPING
GIS

LAND INFORMATION SPECIALISTS

62 STEADIE DRIVE, SUITE 103, KANATA, ON K2K 2A9
T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY: _____ NS	CHECKED BY: _____ GZ	REFERENCE NO.: _____ 18-10-037-03
FILE # C:\18-10-037-03 - 03S 2200\18-10-037-03 - 03 R JKLM		DATE: 8/21/2018





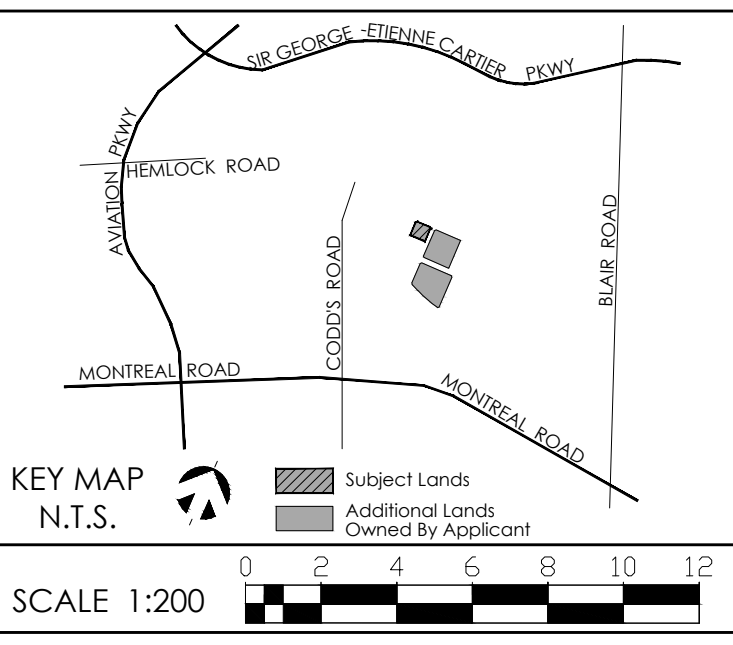
SITE STATISTICS AND DEVELOPMENT DATA

SITE AREA	4,594.19 m ²
PAVED AREA	1,304.28 m ² (28%)
LANDSCAPED AREA	1,390.33 m ² (30%)
TOTAL BUILDING COVERAGE	1,899.58 m ² (42%)
TOTAL GROSS FLOOR AREA	5,981 m ²
TYPE A TOWNHOUSE MODEL (4)	680 m ²
TYPE B TOWNHOUSE MODEL (3)	447 m ²
TYPE C TOWNHOUSE MODEL (2)	342 m ²
TYPE D TOWNHOUSE MODEL (2)	332 m ²
STACKED TOWNS UPPER MODEL (20)	2,340 m ²
STACKED TOWNS LOWER MODEL (20)	1,840 m ²
DENSITY (UPH)	82.6
ZONE CATEGORY	R5Y(2457)

DWELLING BLOCK	DWELLING TYPE	GROUND FLOOR AREA (m ²)	UNITS
BLOCK 1	REAR LANE TOWNS	402.49	6
BLOCK 2	REAR LANE TOWNS	402.49	6
BLOCK 3	REAR LANE TOWNS	401.88	6
BLOCK 4	STACKED TOWNS	500.72	20
		TOTAL	38

SECTION	ZONE PROVISION - PLANNED UNIT DEVELOPMENT	REQUIRED	PROPOSED
164 (Table)	MIN. LOT WIDTH (m)	N/A	N/A
164 (Table)	MIN. LOT AREA (m ²)	1,400 m ²	4,594.19 m ²
164 (Table)	MAX. BUILDING HEIGHT (m)	11.00 m	10.63 m
2018-124	MIN. FRONT YARD SETBACK (m)	3.00 m	4.02 m
2018-124	MIN. CORNER SIDE YARD SETBACK (m)	East: 1.68 m West: 1.68 m	East: 2.21 m West: 2.21 m
164 (Table)	MIN. REAR YARD SETBACK (m)	5.00 m	5.59 m
164 (Table)	MIN. INTERIOR YARD SETBACK (m)	1.20 m	N/A
101 (Table)	RESIDENT PARKING - TYPE A (12 @ 0.75/unit) TYPE B (2 @ 0.75/unit) TYPE C (4 @ 0.75/unit) STACKED (20 @ 0.5/unit)	9 1.5 3 10 0	12 2 4 10 0
2018-124	VISITOR PARKING	6.00 m	6.00 m
131 (Table)(1)	MIN. WIDTH OF PRIVATE WAY (m)	1.00 m	1.00 m
2018-124	SETBACK OF ANY WALL OF A RES. BUILDING TO PRIVATE WAY (m)	1.00 m	1.00 m
2018-124	MIN. SETBACK OF GARAGE DOOR TO PRIVATE WAY (m)	1.00 m	1.00 m
111A (Table)	BICYCLE PARKING (STACKED TOWNS)	10 (0.5/unit)	9
137 (Table)(7)	MIN. STACKED TOTAL AMENITY AREA (6m ² per unit)	120m ²	60m ²
SECTION	ADDITIONAL PROVISIONS	REQUIRED	PROPOSED
65 (6)	PERMITTED PROJECTIONS INTO YARDS: COVERED OR UNCOVERED BALCONY, PORCH, DECK	2.00 m (MAX)	0.50 m
106 (1)(a)	FIRE ESCAPES, OPEN STAIRWAYS, STOOP	>1.0m to lot line	2.50 m
2018-124	MIN. PERPENDICULAR PARKING SPACE SIZE	>0.97m to lot line	1.80 m
2018-124	MIN. DRIVEWAY WIDTH TO PARKING LOT (m)	2.6 x 5.2 m	2.6 x 5.2 m
2018-124	MIN. AISLE WIDTH TO SPACES (m)	6.00 m	6.00 m
107 (2)	MIN. DRIVEWAY WIDTH TO GARAGE (m)	6.00 m	4.75 m
109 (3)(b)	MAX. WALKWAY WIDTH PERMITTED IN YARD (m)	1.80 m	1.50 m
110 (Table)	MIN. LANDSCAPE BUFFER WIDTH PARKING LOT TO LOT LINE	1.50 m	4.48 m
110 (3)(b)	MIN. WASTE COLLECTION SETBACK TO LOT LINE (m)	3.00 m	27.39 m
55 (3)(e)(i)	ACCESSORY STRUCTURE SETBACK (m)	0.60 m	1.50 m
55 (5)	PROJECTION HEIGHT (MAX) (m)	3.20 m	1.80 m
2018-124	UTILITY INSTALLATIONS SETBACK (m)	0.60 m	1.50 m
2018-124	MIN. SEPARATION DISTANCE BETWEEN BUILDINGS WITHIN A PLANNED UNIT DEVELOPMENT (m)	3.00 m	3.00 m
111B (TABLE)	MIN. BICYCLE PARKING SPACE DIMENSIONS (m)	Width: 0.6m Length: 1.8m	0.6m 1.8m
111 (9)	MIN. BICYCLE PARKING SPACE ACCESS WIDTH AISLE (m)	1.5m	1.5m

- Freehold RLT w access/servicing through Standard Condo
- Vehicle Access Easement/Servicing for RLT (owned by S.C)
- Pedestrian Access Easement/ Public Access (owned by S.C)
- Standard Condo Corporation



LEGEND	
	PATHWAY
	WALKWAY TO ENTRY
	CROSSWALK (PAVERS)
	ASPHALT DRIVEWAY
	MOUNTABLE CURB
	CURB (0.2m)
	DEPRESSED CURB
	PORCH
	WINDOW WELL
	PROJECTION (STAIRS)
	LANDSCAPED AREA
	TYPE A TOWNHOUSE (4.75m)
	TYPE B TOWNHOUSE (5.21m)
	TYPE C TOWNHOUSE (5.13m)
	STACKED DWELLING
	PROPOSED LOT BOUNDARY
	BLOCK BOUNDARY
	FENCE
	BIKE RACK
	HYDRO METERS
	GAS METERS
	ENTRANCE
	UNIT NUMBER
	HYD FIRE HYDRANT
	STOP SIGN
	3 PHASE TRANSFORMER & SWITCHGEAR
	TRANSFORMER
	CANADA POST MAIL BOX

DATE	REVISION	BY
04/05/20	Issue for Detailed Design	EC
25/03/20	Revise Site Plan for Site Plan Amendment	EC
01/03/18	Issue for Third Submission to City	SP
14/12/17	Issue for Second Submission to City	SP
28/07/17	Draft for review	SP

- GENERAL NOTES
- DO NOT SCALE DRAWINGS FOR PRINT.
 - THIS DRAWING IS THE EXCLUSIVE PROPERTY OF KORSIAK URBAN PLANNING AND MATAMY HOMES. COPYRIGHT RESERVED.
 - SITE PLAN PREPARED IN ACCORDANCE WITH PLAN 4M-1551 AND PLAN 4R-30196. PREPARED BY ANNIS O'SULLIVAN, VOLLEBEK LTD.
 - TOWNHOUSE DWELLING UNITS ARE DESIGNED TO ACCOMMODATE CURBSIDE GARBAGE PICK-UP.
 - WALKWAYS AND CURBS TO BE TIED INTO PUBLIC ROW WHERE APPLICABLE.
 - REFERENCES CITY OF OTTAWA T.W.S.I. DETAIL SC7.3

PROJECT TEAM	
SITE PLAN DESIGN: KORSIAK Urban Planning	LANDSCAPE ARCHITECTURE: NAK design strategies
PLANNING: Stantec	TRANSPORTATION: NOVATECH
ARCHITECTURE: Q4A	NOISE: VALCOUSTICS
CIVIL ENGINEER: DSEL	GEOTECHNICAL & STRUCTURAL: petersongroup
	MECHANICAL/ELECTRICAL: L R J
	ENVIRONMENTAL: KILGOUR & Associates

mattamyHOMES

WATERIDGE VILLAGE: PHASE 1B
1400 HEMLOCK ROAD
BLOCK 22
PART OF LOTS 22 AND 23
CONCESSION 1 (OTTAWA FRONT)
GEOGRAPHIC TOWNSHIP OF GLOUCESTER
REGISTERED PLAN 4M-1559
CITY OF OTTAWA

TITLE: BLOCK 22 SITE PLAN	
DATE: May 4, 2020	DRAWN BY: EC CHECKED BY: CR
FILE NO.: D07-12-17-0111	DRAWING NO. A2
JOB NO.: Mattamy - Wateridge	



14			
13			
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9			
8	ISSUED FOR CONSTRUCTION	J.I.M.	2017:08:02
7	REVISED PER CITY COMMENTS	J.I.M.	2017:06:16
6	REVISED PER MOECC COMMENTS	J.I.M.	2017:06:07
5	ISSUED FOR TENDER	J.I.M.	2017:03:23
4	SUBMISSION FOR MOECC APPROVAL	J.I.M.	2017:02:16
3	SUBMISSION No.3 FOR CITY REVIEW	J.I.M.	2017:01:25
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M.	2016:11:04
1	SUBMISSION No.1 FOR CITY REVIEW	J.I.M.	2016:07:08
No.	REVISIONS	By	Date

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA

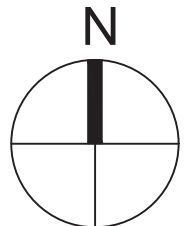
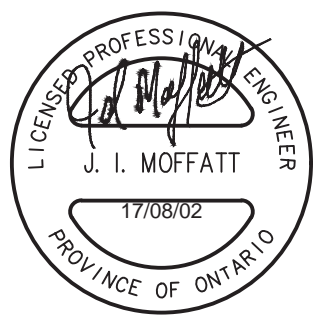
30 Metcalfe Street Suite 601
 Ottawa, On K1P 5L4
 613 998 7777

IBI GROUP
400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibiigroup.com

Project Title

WATERIDGE VILLAGE
AT ROCKCLIFFE

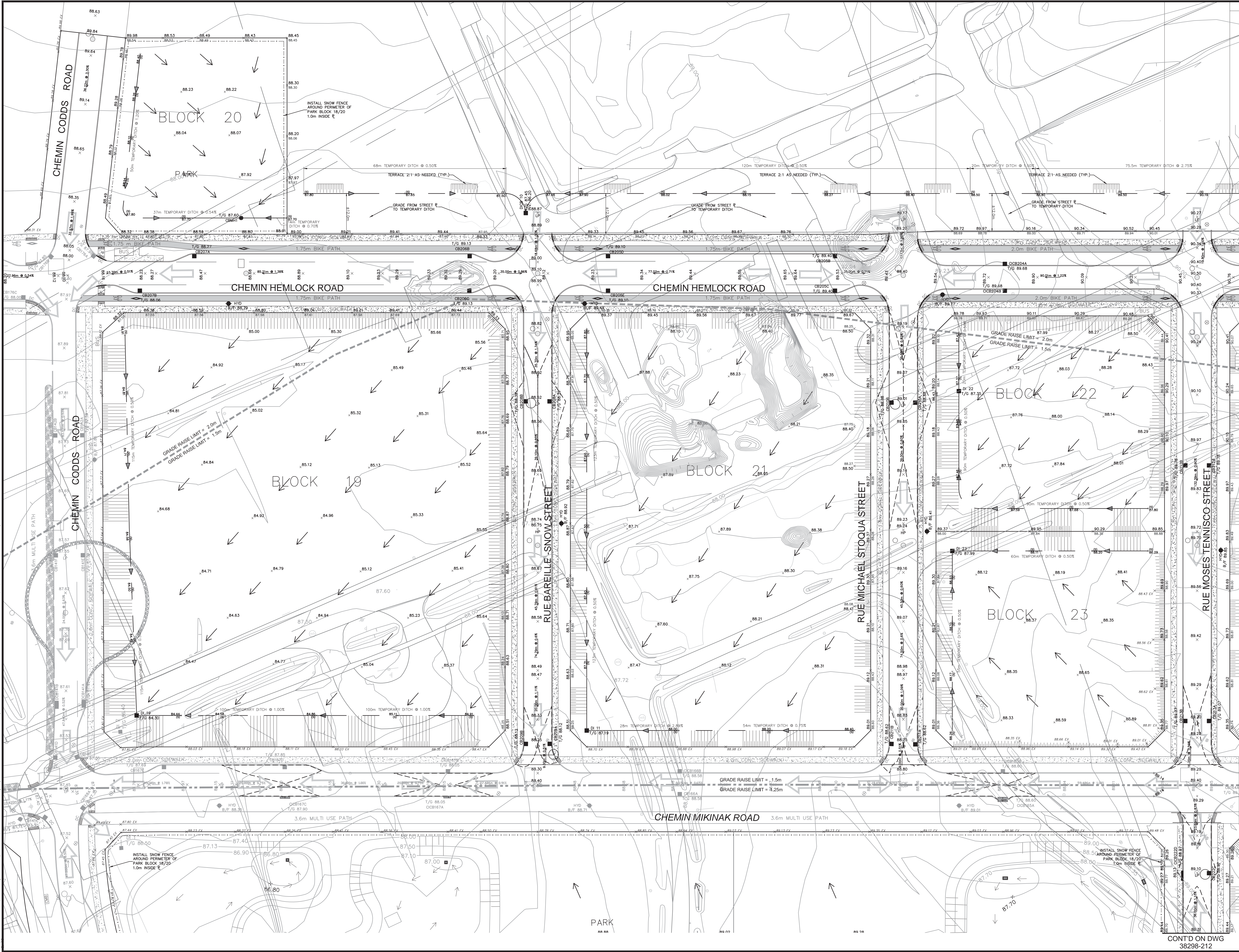
PHASE 1B



STATION	SAN SEWER INVERT	STM SEWER INVERT	TOP OF WATERMAIN	ROAD GRADE
2+300			87.747	90.147
2+316.9 V&C				
2+320			87.991	90.391
2+331.9 CROSS				
2+340			88.100	90.500
2+340.94 HYD				
2+360			88.359	90.759
2+360.94 HYD				
2+380			88.823	91.223
2+380			89.288	91.688
2+400			89.753	92.153
2+402.9 V&C				
2+420			90.100	92.500
2+420			90.192	92.592
2+440			90.553	92.953
2+460			90.915	93.315
2+470.94 HYD				
2+480			91.276	93.676
2+488.9 V&C				
2+500			91.503	93.903
2+503.9 TEE			91.592	93.992
2+520			91.604	94.004
2+540			91.579	93.979
2+560			91.385	93.785
2+580			91.599	93.999
2+580.0 TEND				
2+600			91.811	94.211
2+615.70 V&C				
2+620			92.025	94.425
2+620 TEE			92.238	94.638
2+640			92.353	94.702
			92.353	94.800
			91.955	94.685
STATION				ROAD GRADE

HEMLOCK ROAD	
STA. 2+300 TO WANAKI ROAD	
Scale	
HORIZ. SCALE	1 : 500
VERT. SCALE	1 : 50
Design	J.I.M.
Date	MAY 2016
Drawn	M.M.
Checked	J.I.M.
Project No.	38298
Drawing No.	131

J:\38298-05\Rockcliffe\5.9 Drawings\5.9a\Grading\PHB\210 GRADING PLAN.dwg User: AIA STANDARD-TULL CTB Plot Scale: 1:25.4 Plotted At: 7/25/2018 12:10 PM Last Saved By: mline Last Saved At: Feb.



CONT'D ON DWG 38298-211

CONT'D ON DWG 38298-211

CONT'D ON DWG 38298-211

CONT'D ON DWG 38298-212

GRADING & DRAINAGE
APPROVED

Signed _____
Date _____ 2017

NOTES:

FOR GRADING LEGEND, DETAILS AND CROSS SECTIONS REFER TO DRAWINGS 38298-015 & 38298-016.

THE PROPOSED PARK BLOCK GRADING IS TEMPORARY AND ENSURES THE PROPERTY WILL HAVE POSITIVE DRAINAGE UNTIL THE FINAL PARK GRADING DESIGN IS IMPLEMENTED.

14		
13		
12		
11		
10		
9	REVISED GRADING FOR BLOCKS 15, 18, 22 AND 24	J.I.M. 2018:02:02
8	ISSUED FOR CONSTRUCTION	J.I.M. 2017:08:02
7	REVISED PER CITY COMMENTS	J.I.M. 2017:06:16
6	REVISED PER MOECC COMMENTS	J.I.M. 2017:06:07
5	ISSUED FOR TENDER	J.I.M. 2017:03:23
4	SUBMISSION FOR MOECC APPROVAL	J.I.M. 2017:02:16
3	SUBMISSION No.3 FOR CITY REVIEW	J.I.M. 2017:01:25
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M. 2016:11:04
1	SUBMISSION No.1 FOR CITY REVIEW	J.I.M. 2016:07:08
No.	REVISIONS	By Date

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA

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Ottawa ON K1S 5N4 Canada
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Project Title

WATERIDGE VILLAGE
AT ROCKCLIFFE
PHASE 1B

N

Drawing Title

GRADING PLAN

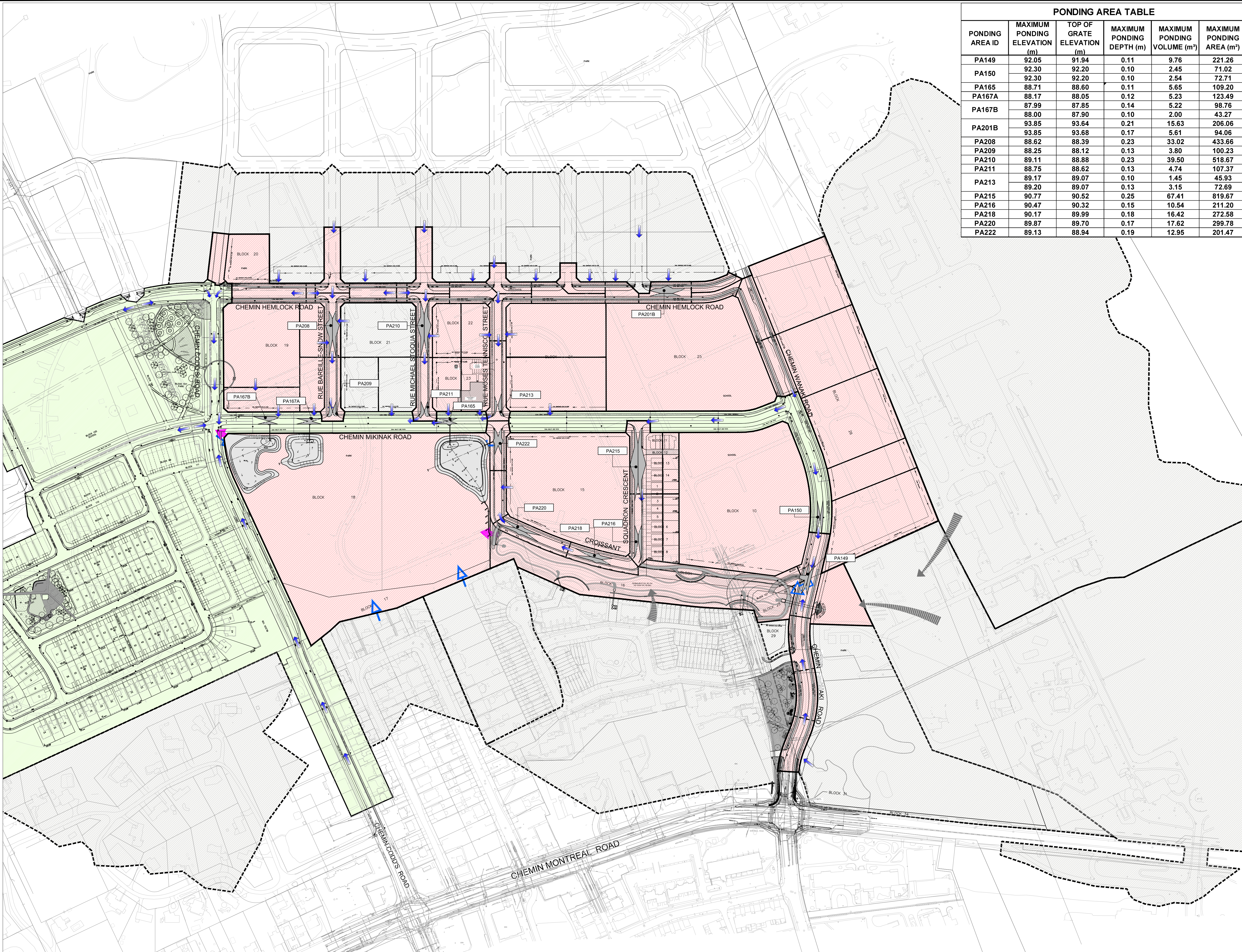
Scale

1 : 500

Design	J.I.M.	Date	MAY 2016
Drawn	M.M.	Checked	J.I.M.
Project No.	38298	Drawing No.	210

D07-16-15-0003
#17063

J:\38298-07\Rockcliffe\5.9 Drawings\5.9.dwg -5m-57M-751.dwg Layout Name: 751 Plot Size: 1:8,704 Printed At: 6/16/2017 8:13 AM Last Saved By: mmlm Last Saved At: Jun 16, 17



PONDING AREA TABLE					
PONDING AREA ID	MAXIMUM PONDING ELEVATION (m)	TOP OF GRATE ELEVATION (m)	MAXIMUM PONDING DEPTH (m)	MAXIMUM PONDING VOLUME (m³)	MAXIMUM PONDING AREA (m²)
PA149	92.05	91.94	0.11	9.76	221.26
PA150	92.30	92.20	0.10	2.45	71.02
	92.30	92.20	0.10	2.54	72.71
PA165	88.71	88.60	0.11	5.65	109.20
PA167A	88.17	88.05	0.12	5.23	123.49
	87.99	87.85	0.14	5.22	98.76
PA167B	88.00	87.90	0.10	2.00	43.27
	93.85	93.64	0.21	15.63	206.06
PA201B	93.85	93.68	0.17	5.61	94.06
PA208	88.62	88.39	0.23	33.02	433.66
PA209	88.25	88.12	0.13	3.80	100.23
PA210	89.11	88.88	0.23	39.50	518.67
PA211	88.75	88.62	0.13	4.74	107.37
	89.17	89.07	0.10	1.45	45.93
PA213	89.20	89.07	0.13	3.15	72.69
PA215	90.77	90.52	0.25	67.41	819.67
PA216	90.47	90.32	0.15	10.54	211.20
PA218	90.17	89.99	0.18	16.42	272.58
PA220	89.87	89.70	0.17	17.62	299.78
PA222	89.13	88.94	0.19	12.95	201.47

REVIEWED BY
DEVELOPMENT REVIEW SERVICES BRANCH

Signed _____
Date _____ 2016
Plan Number _____

LEGEND:

PHASE 1B DRAINAGE AREA

PHASE 1A DRAINAGE AREA

EXTERNAL DRAINAGE AREA

PA116 POND ID

MAJOR FLOW

TOTAL FLOW

MAJOR FLOW TO PARK DRY POND

MAJOR FLOW TO BURMA SWMF

EMERGENCY OVERLAND FLOW

MH136 MANHOLE ID

14			
13			
12			
11			
10			
9			
8			
7			
6	REVISED PER CITY COMMENTS	J.I.M.	2017:06:16
5	REVISED PER MOECC COMMENTS	J.I.M.	2017:06:07
4	SUBMISSION FOR MOECC APPROVAL	J.I.M.	2017:02:16
3	SUBMISSION No.3 FOR CITY REVIEW	J.I.M.	2017:01:25
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M.	2016:11:04
1	SUBMISSION No.1 FOR CITY REVIEW	P.S.	2016:07:11
No.	REVISIONS	By	Date

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Project Title

WATERIDGE VILLAGE
AT ROCKCLIFFE
PHASE 1B

J. L. MOFFATT
1706/16
PROVINCE OF ONTARIO

Drawing Title

PONDING PLAN

Scale

1:2000

Design	P.S.	Scale	JULY 2016
Drawn	S.V.	Checked	P.S.
Project No.	38298	Drawing No.	751