Report
Project: 144148-6.4.3

BLOCK 6 – WATERIDGE PHASE 4 SERVICING BRIEF

ARCADIS

IBI GROUP

Prepared for ROHIT Communities Inc.
by ARCADIS

March 2025

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1 INTRODUCTION

In 2011, Canada Lands Company (CLC), bought and took ownership of about 125 ha of the former CFB Rockcliffe air base site. The acquisition of the decommissioned base by CLC offers the opportunity today to reconnect this site back into the urban fabric of the City and create a highly desirable mixed-use community for approximately 10,000 residents. CLC completed a Community Design Plan (CDP) in 2015. In support of the CDP, there were numerous supporting documents including the "Former CFB Rockcliffe Master Servicing Study" (MSS), August 2015, prepared by IBI Group. That report provided a plan for provision of major infrastructure needed to support the proposed development of the Wateridge Village.

CLC plans to develop the Wateridge Village property in several phases. Phases 1A, 1B, 2 and 4 have already been constructed, which cover about 45 ha. This phase covers about 5.7 ha and includes 7 blocks. Block 6 is located in the West portion of the Wateridge Village Phase 4. The site plan is included in **Appendix A**. Arcadis Professional Services Inc. (ARCADIS) has been retained by Rohit Communities Inc. to provide professional engineering services for Block 6. The subject site is approximately 1.17 ha and consists of two 4-storey residential buildings with a total of 200 units. The site also consists of below grade parking facilities.

Block 6 is bounded by Street No.1 to the South, Future Park land to the North, NCC lands to the West, and Oshedinaa Street to the East. Refer to key plan on **Figure 1.1** for Site location.

Figure 1.1 Site Location

The proposed servicing design conforms to current City of Ottawa and MECP design criteria. Rideau Valley Conservation Authority (RVCA) and the Ontario Ministry of Environment, Conservation and Parks (MECP) were contacted via email and identified no concerns (see **Appendix A** for correspondence).

1.1 Guidelines and Standards

This evaluation takes into consideration the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), and the February 2014 Technical Bulletin ISDTB-2014-01, the September 2016 Technical Bulletin PIEDTB-2016-01, the June 2018 Technical Bulletin ISTB-2018-04, October 2019 Technical Bulletin 2019-01, and the July Technical Bulletin 2019-02.

It also considers the City of Ottawa Water Distribution Design Guidelines (OWDDG), and the 2010 Technical Bulletin 2010-02, the 2014 Technical Bulletin 2014-02, the 2018 Technical Bulletin 2018-02 and the 2020 Technical Bulletin 2020-02.

All specifications are as per current City of Ottawa standards and specifications, and Province of Ontario (OPSS/D) standards, specifications and drawings.

1.2 Pre-Consultation Meeting

The City of Ottawa hosted a virtual pre-consultation meeting on March 20th, 2023. Notes of the meeting are provided in **Appendix A**. There were no major engineering concerns flagged in this meeting. The City of Ottawa Servicing Study Checklist has also been included in **Appendix A**.

1.3 Environmental Issues

There are no environmental issues related to this site. All environmental concerns were dealt with as part of the CLC's Wateridge Phase 4 subdivision approval.

The Wateridge Phase 4 Development had previously cleared and pre-graded the subject lands. There are no existing watercourses or drainage features associated with this site.

1.4 Geotechnical Concerns

A geotechnical report entitled "Additional Geotechnical Investigation, Wateridge Village – Phase 5, Block 6, Ottawa, Ontario" dated January 24, 2024 by Terrapex Environmental Ltd. has been prepared for the subject site.

The objective of the investigation report include:

- Determination of the subsoil and groundwater conditions;
- Provision of geotechnical recommendations pertaining to the design and development of the subject site including construction considerations.

Among other items, the report comments on the following:

- Site grading;
- Foundation design;
- Pavement structure;
- Infrastructure construction;
- Groundwater control;

The report concludes that the subject site is considered suitable for the proposed development

2 WATER DISTRIBUTION

2.1 Existing Conditions

Phase 4 of Wateridge Village at Rockcliffe will be serviced with potable water from the City of Ottawa's Montreal Road Pressure Zone (Zone MONT). An existing 400 mm diameter watermain on Montreal Road will supply Phase 2B with connections at Codd's Road and Burma Road. As part of the Phase 1 water plan, two 400 mm mains were extended northward along Codd's Road and Wanaki Road.

There is an existing 200mm watermain in Oshedinaa Street to the east of Block 6 and an existing 200mm watermain in Street No.1 to the south of the site.

In the Wateridge Village Phase 4 design, a future 200mm watermain through Block 6 was proposed in order to provide a looped system. Two 200mm stubs were left at the Block 6 property line. Section 2.3 of this report discusses this feature further.

2.2 Design Criteria

2.2.1 Water Demands

The proposed development consists of 202 apartment units. In order to calculate water demand rates, the per unit population density and consumption rates are taken from Tables 4.1 and 4.2 of the Ottawa Design Guidelines – Water Distribution were used and are summarized as follows:

- Apartment — 1.4 person per 1-bedroom unit
  2.1 person per 2-bedroom unit
  3.1 person per 3-bedroom unit
- Average Day Demand — 280 l/cap/day
- Peak Daily Demand — 700 l/cap/day
- Peak Hour Demand — 1,540 l/cap/day

A water demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

- Average Day — 1.09 l/s
- Maximum Day — 2.74 l/s
- Peak Hour — 6.02 l/s

2.2.2 System Pressures

The 2010 City of Ottawa Water Distribution Guidelines states that the preferred practice for the design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi).
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.

Maximum Pressure	Maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code the maximum pressure should not exceed 552 kPa (80 psi) in occupied areas. Pressure reduction controls may be required for buildings when it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rate

The Fire Underwriters Survey was used to determine the fireflow for the site. The calculations result in a fire flow of 10,000 L/min for both Buildings B and C. Copies of the FUS calculations are included in **Appendix B** along with correspondence from the architect confirming the type of construction.

2.2.4 Boundary Conditions

The City of Ottawa has provided hydraulic boundary conditions at the proposed connections to the 200 mm mains on Oshedinaa Street and Street No. 1. The boundary condition is based on the water demand and fire flow rates provided. Note that a fireflow of 14,000 L/s was originally requested for Building B, however since it is not possible to achieve this level of service, the building construction type has been upgraded to reduce the fire flow demand to 10,000 L/s. The architect has provided a letter confirming the construction type, included in **Appendix B**. A copy of the boundary conditions received February 2024 is included in **Appendix B** and are summarized as follows:

BOUNDARY CONDITIONS	
SCENARIO	HGL (m)
Minimum HGL	143.0
Maximum HGL	143.0
Max Day + Fire Flow (166.7 l/s) – Bldg B	106.0
Max Day + Fire Flow (166.7 l/s) – Bldg C	102.5

2.3 Proposed Water Plan

In the Wateridge Village Phase 4 design, a future 200mm watermain through Block 6 was proposed in order to provide a looped system. A water analysis was completed for the area using the InfoWater program produced by Innovyze. It was determined that, due to the relatively high water pressure in the area, a looped system is not required to provide adequate pressures during the maximum day plus fire flow for a fire flow of 10,000 L/min. The City of Ottawa has completed their own analysis and provided the boundary conditions summarized in Section 2.2.4, confirming that the 200mm watermain through Block 6 is not required for the proposed design.

The proposed development consists of 129 one-bedroom apartment units, 63 two-bedroom apartment units and 8 three-bedroom apartment units, equating to a projected occupancy of 337.7 people. Detailed water demand calculations have been completed and can be found in **Appendix B**. Since the daily demand exceeds 50 m^3/day, a second service will be required to provide redundancy.

Two stubs were left at the Block 6 property line: a 200 mm diameter service from Oshedinaa Street and another 200 mm service from Street 1 (see 144148-100 Site Servicing Plan in **Appendix B**). It is proposed to use these stubs as water services to the site. A valve box isolates the proposed services from each other. The proposed services will provide adequate supply to the building to meet demands.

There are three municipal fire hydrants within 75m of Building B with a fire flow supply of 5,700 L/min for a combined total of 17,100 L/min, greater than the required 10,000 L/min. There are two municipal fire hydrants within 75m of Building C with a fire flow supply of 5,700 L/min and a combined total of 11,400 L/min, greater than the required 10,000 L/min.

Minimum Pressure (Peak Hour) – The minimum peak hour pressure on the site can be estimated as HGL 143.00m – highest ground floor elevation of 86.85m = 56.15m or 551 kPa which exceeds the minimum requirement of 276 kPa. The pressure on the top floor can be estimated as 143.00m – highest ground floor elevation plus max height (16m) of 102.85m = 40.15m or 394 kPa which exceeds the minimum requirement of 276 kPa.

Fire Flow – The max day plus fireflow for Building B can be estimated as HGL 106.0 – (ground floor elevation plus 0.4m) 87.25 = 18.75m or 184 kPa which exceeds the minimum of 140kPa. For Building C, 102.5 – 86.20 = 16.30m or 160 kPa, which also exceeds the minimum of 140 kPa.

Max HGL (High Pressure Check) – The high-pressure check can be estimated as HGL 143.00 – lowest ground floor elevation of 85.80 = 57.20m or 561 kPa which exceeds the maximum of 552 kPa, therefore a pressure reducing valve is required.

3 WASTEWATER

3.1 Existing Conditions

Canada Lands Company completed a Community Design Plan (CDP) in 2015. To support that plan, a number of technical reports were prepared including the 'Former CFB Rockcliffe Master Servicing Study, August 2015 (MSS), which was subsequently updated in June 2020. That report recommended that the existing combined sewers on the subject site be abandoned in favour of dedicated sanitary and storm sewer systems.

In particular, the MSS recommended that future wastewater flow from Phase 4 be directed to the Codd's Road Shaft. Accordingly, wastewater flows from the subject site will be designed to outlet to that location. The previous Phase 1A design included the new connection to that shaft and the proposed Phase 4 sanitary sewers will connect to the Phase 1A system.

3.2 Proposed Sewers

All on-site sewers have been designed to City of Ottawa and MECP design criteria which include but are not limited to the below listed criteria. The detailed sanitary sewer design sheet which is included in **Appendix C** illustrates the population densities and sewers which provide the necessary outlets. The design wastewater criteria for this analysis area:

3.2.1 Design Flow:

Average Residential Flow	-	280 l/cap/day
Peak Residential Factor	-	Modified Harmon Formula
Infiltration Allowance	-	0.33 l/sec/Ha
Minimum Pipe Size	-	200mm diameter

3.2.2 Population Density:

Apartment Units	-	1.4 person per 1-bedroom unit
	-	2.1 person per 2-bedroom unit
	-	3.1 person per 3-bedroom unit

4 SITE STORMWATER MANAGEMENT

4.1 Objective

The purpose of this evaluation is to prepare the dual drainage design, including the minor and major system, for the Block 6 development. The design includes the assignment of inlet control devices, roof storage and maximum depth of surface ponding. The evaluation takes into consideration the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), the February 2014 Technical Bulletin ISDTB-2014-01, the September 2016 Technical Bulletin PIEDTB-2016-01 and the June 2018 Technical Bulletin ISTB-2018-04.

4.2 Existing Conditions

CLC completed an update to the servicing report, “Former CFB Rockcliffe Master Servicing Study” in 2020. That report recommended a preferred Stormwater Management Plan for the Wateridge Village at Rockcliffe site. The report recommended construction of two stormwater ponds and related appurtenances to service the CLC property; the Western Stormwater Management Facility and the Eastern Stormwater Management Facility. The Eastern Pond is proposed to provide management of flows from most of Phase 1 and 2 of the CLC property, including the subject site. The Eastern Pond was constructed and put into service in 2017.

The MSS Report also recommends a series of local and trunk storm sewers to collect runoff from Phases 1, 2 and 4 and route those flows to the Eastern Facility. The Phase 1 design followed the recommendations of the MSS report, including construction of the large diameter sewers, which outlet to the Eastern Stormwater Management Facility; the Eastern Stormwater Management Facility and outlet to the Ottawa River. The Phase 4 storm sewers connect to the downstream Phase 1 sewer system. A copy of the storm drainage area plan is included in **Appendix D**.

A Removals Plan, C-REM, is also included in **Appendix D** due to the presence of pre-existing infrastructure that is no longer in use. This infrastructure is marked to be removed. Note that a temporary drainage CB is shown on the Wateridge Village Phase 4 storm drainage plan inside Block 6. This CB is not currently existing and is therefore not shown on the Removals Plan.

4.3 Design Criteria

The stormwater system for the subdivision was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

- Design Storm — 1:2-year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Softscape Areas — C = 0.20
  - Hardscape Areas — C = 0.90
- Pipe Velocities — 0.80 m/s to 3.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads)

4.4 System Concept

According to the Wateridge Phase 4 report prepared by IBI Group dated March 2023, the development of the adjacent downstream properties included the expected stormwater servicing needs of the subject property. The existing storm sewers constructed adjacent to the site were oversized to provide the needed capacity for minor storm runoff from the subject site. Minor storm runoff from the subject site is proposed to connect to the existing 3000mm sewer in Oshedinaa Street.

4.4.1 Dual Drainage Design

The dual drainage system proposed for the subject site will accommodate both major and minor stormwater runoff. Minor flow from the subject site will be conveyed through the storm sewer network and discharge into the existing 3000mm storm sewer in Oshedinaa Street.

The balance of the surface flow not captured by the minor system will be conveyed via the major system. Major flows up to the 100-year storm event will be restricted and detained on-site. Property line topography dictates emergency overflow will be directed to the north of the site which adheres to the MSS overland flow route.

4.4.2 Proposed Minor System

Using the criteria identified in Section 4.3, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated storm sewer drainage area plan are included in **Appendix D**. The general plan of services depicting all on-site storm sewers can be found in **Appendix B**.

4.5 Stormwater Management

Wateridge Phase 4 is part of the larger development referred to as the Former CFB Rockcliffe. The stormwater management strategy was outlined in the “Former CFB Rockcliffe Master Servicing Study” (MSS) (IBI Group, August 2020). Phase 4 is located north of Hemlock Road between Wateridge Phase 2B and Wateridge Phase 3&5 (refer to Figure 1.1).

The subject site is part of the drainage area that ultimately discharges to the Eastern SWM Facility. The trunk storm sewer to the pond and the pond itself were constructed as part of Wateridge Phase 1A.

4.5.1 Water Quality Control

The design takes into consideration the August 2020 MSS, the “Design Brief Wateridge Village at Rockcliffe Phase 1B” (IBI Group, June 2017), the “Design Brief Wateridge Village at Rockcliffe Phase 1A” (IBI Group, April 2016), the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), and the February 2014 Technical Bulletin ISDTB-2014-01.

Any runoff from the site, as with all future developments in Wateridge Village at Rockcliffe, will have end of pipe quality treatment. Any impacts to receiving watercourses will therefore be mitigated. There are no municipal drains in the vicinity of the subject development and there are no drainage catchment diversions proposed by the current development.

4.5.2 Water Quantity Control

The subject site will be limited to a maximum minor system release rate of 162 L/s according to Wateridge Phase 4 Design Brief dated March 2023. In the Phase 4 subdivision stormwater management system design, the development blocks are subjected to minor system inflow restriction with major flow cascading to a street segment. The restricted rates were provided in Table 5.3, taken from Wateridge Phase 4 – Design Brief, dated March 2023 included in **Appendix D**. This will be achieved through a combination of inlet control devices (ICD's), underground storage, surface storage where possible, and roof storage.

Surface flows in excess of the site's allowable release rate will be stored on site and gradually released into the minor system to respect the site's allowable release rate. The average rooftop retention depth located within the building area will be limited to 50mm during a 1:100-year event as shown on the ponding plan located in **Appendix D** and grading plans located in **Appendix E**. The Architect has provided a letter confirming that the rooftops will be designed to accommodate this level of service once detailed building designs commence (see letter in **Appendix D**).

Along the perimeter of the site, the opportunity to capture and store runoff is limited due to grading constraints and building geometry. These areas will discharge uncontrolled to Oshidinaa Street and to the north. These areas are located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties or in areas where ponding stormwater is undesirable. Additionally, stormwater captured by the parking garage access ramp will not be controlled.

Based on the proposed site plan, the total uncontrolled area has been calculated to be (0.04+0.06+0.03) 0.13 Ha plus 0.02 Ha from the ramp. For the detailed storm drainage area plan for the site, refer to Drawing 500 in **Appendix D**.

Based on a 1:100-year event, the flow from the 0.13 Ha uncontrolled area can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A** where:

C = Average runoff coefficient = 0.30 x 1.25 = 0.375 (100 year C-value)

$\mathbf{i_{100yr}}$ = Intensity of 100-year storm event (mm/hr)
= $1735.688 \times (T_c + 6.014)^{0.820}$ =178.56 mm/hr; where T_c = 10 minutes

A = Uncontrolled Area = 0.13 Ha

Therefore, the uncontrolled release rate can be determined as:

$\mathbf{Q_{uncontrolled1}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**
= 2.78 x 0.375 x 178.56 x 0.13
= 24.20 L/s

Similarly, the uncontrolled release rate from the ramp can be determined as:

$\mathbf{Q_{uncontrolled2}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**
= 2.78 x 1.00 x 178.56 x 0.02
= 9.93 L/s

The Maximum allowable release rate from the site can be determined by subtracting the Uncontrolled release rate from the minor system restricted flow rate.

$Q_{max} = Q_{restricted} - Q_{uncontrolled1} - Q_{uncontrolled2}$

Q_{max} = 162 L/s – 24.20 L/s – 9.93 L/s

Q_{max} = 127.87 L/s

Therefore, the total restricted flow rate through the minor system will be the design flow rate of **127.87 L/s**. This will be achieved using Inlet Control Devices. A summary of the ICD's, their corresponding storage requirements, storage availability, and associated drainage areas has been provided below.

DRAINAGE AREA	ICD RESTRICTED FLOW (L/s)	100 YEAR STORAGE REQUIRED (m^3)	2 YEAR STORAGE REQUIRED (m^3)	STORAGE PROVIDED (m^3)
Bldg B Roof	10.00	87.376	22.42	88.00
Bldg C Roof	23.00	44.442	7.49	45.00
Cistern	79.00	123.771	19.71	124.00
LCB B	7.00	4.735	0.23	5.04
LCB C	8.50	2.029	0.00	2.04
TOTAL	**127.00**	**262.53**	**49.84**	**264.31**

Detailed stormwater management calculations for the 2-year event, 100-year event, and stress test (100-year plus 20%) event can be found in **Appendix D**.

There will be no 2-year ponding per the modified rational method calculations.

A 0.3m freeboard from downstream high points/maximum ponding elevations to first floor building opening is maintained in all scenarios including emergency overflow conditions.

Refer to geotechnical report for information regarding foundation drainage. Foundation drainage systems are to be independent and connected to the storm service downstream of any stormwater management control device.

Detailed roof design to be completed by others at a later date. Roof design is to adhere to the requirements of this report (notably, the stormwater capacity and release rate) as well as any requirements in the Ontario Building Code (scupper details, emergency overflow, etc). Roof drain flow controls to be Watts Adjustable Accutrol Weir or equivalent (specification sheet found in **Appendix D**).

Note that Street No. 1 at the limits of this property is at a highpoint. When the street is extended westward, it will not create stormwater issues for the underground parking garage entrance.

5 LOW IMPACT DEVELOPMENT

Aquafor Beech was retained by Arcadis on behalf of ROHIT Communities Inc. to complete the design of an infiltration-based Stormwater Management (SWM) facility in support of the Wateridge Village Block 6 development.

A memo was prepared, titled “Block 6 Stormwater Management: SWM Facility Design Memo”, dated February 2025 by Aquafor Beech, which is to be submitted alongside this Site Servicing Report. Arcadis has incorporated this proposed infiltration system into the site servicing design.

6 SEDIMENT AND EROSION CONTROL PLAN

6.1 General

During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These will include:

- groundwater in trench will be pumped into a filter mechanism prior to release to the environment;
- bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewer;
- seepage barriers will be constructed in any temporary drainage ditches; and
- silt sacks will remain on open surface structure such as manholes and catchbasins until these structures are commissioned and put into use.

6.2 Trench Dewatering

During construction of municipal services, any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed including sediment removal and disposal and material replacement as needed.

6.3 Bulkhead Barriers

At the first manhole constructed immediately upstream of an existing sewer, a ½ diameter bulkhead will be constructed over the lower half of the outletting sewer. This bulkhead will trap any sediment carrying flows, thus preventing any construction –related contamination of existing sewers. The bulkheads will be inspected and maintained including periodic sediment removal as needed.

6.4 Seepage Barriers

These barriers will consist of both the Light Duty Straw Bale Barrier as per OPSD 219.100 or the Light Duty Silt Fence Barrier as per OPSD 219.110 and will be installed in accordance with the sediment and erosion control drawing. The barriers are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

6.5 Surface Structure Filters

All catchbasins, and to a lesser degree manholes, convey surface water to sewers. However, until the surrounding surface has been completed these structures will be covered to prevent sediment from entering the minor storm sewer system. Until rear yards are sodded or until streets are asphalted and curbed, all catchbasins and manholes will be equipped with geotextile filter socks. These will stay in place and be maintained during construction and build until it is appropriate to remove them.

7 APPROVALS AND PERMIT REQUIREMENTS

7.1 City of Ottawa

The City of Ottawa reviews all development documents including this report and working drawings. Upon completion, the City will approve the local watermains, submit the sewer ECA application to the province, and eventually issue a Commence Work Notification.

7.2 Province of Ontario

The Ministry of Environment, Conservation and Parks (MECP) Environmental Compliance Approval is not required for the subject development. The Ministry of Environment, Conservation and Parks (MECP) has been contacted regarding the proposed development. They have no comments at this time.

7.3 Conservation Authority

Since no watercourses are impacted by the proposed development, no permits will be required for Block 6 from the local Conservation Authority (Rideau Valley Conservation Authority). The Rideau Valley Conservation Authority has been contacted regarding the proposed development. They have no comments at this time.

7.4 Federal Government

There are no federal permits, authorizations or approvals needed for this development.

8 CONCLUSIONS & RECOMMENDATIONS

8.1 Conclusions

This report and the accompanying working drawings clearly indicate that the proposed development meets the requirements of the stakeholder regulators, including the City of Ottawa, provincial MECP and RVCA. The proposed development is also in general conformance with the Master Servicing Study completed by IBI dated June 2020.

Downstream sanitary and storm sewers were designed with the proposed development area included. There is a reliable water supply available adjacent to the proposed development.

8.2 Recommendations

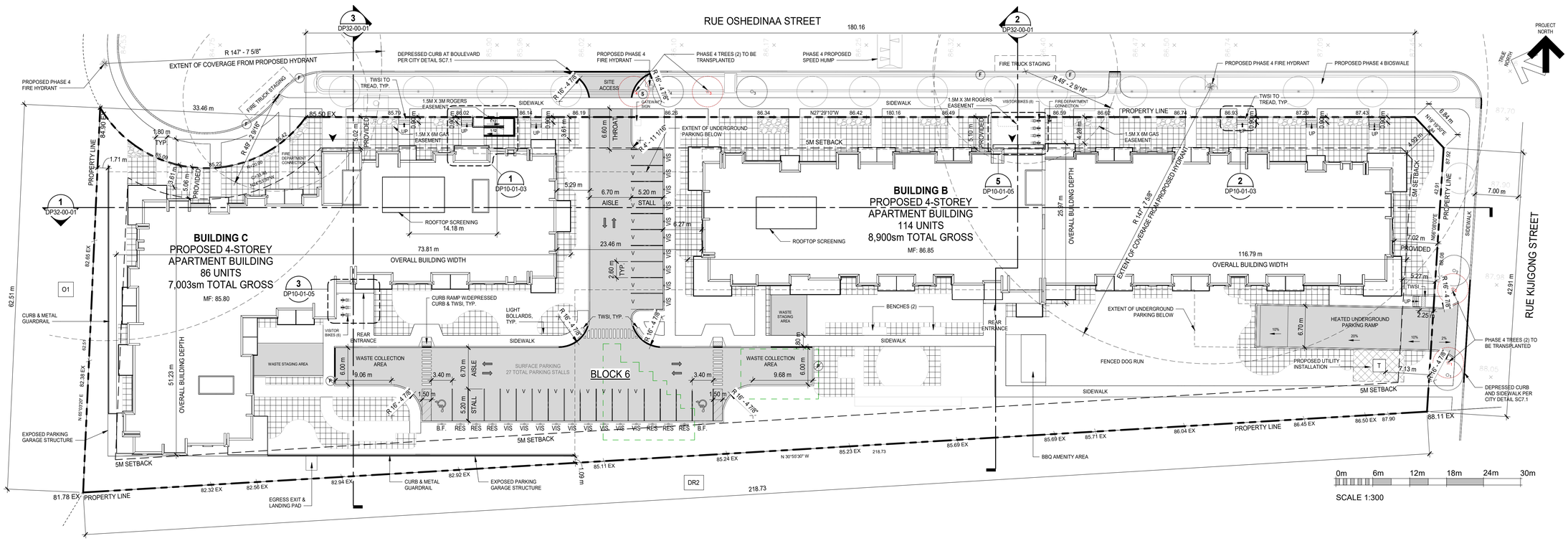
It is recommended that the regulators review this submission with an aim of providing the requisite approvals to permit the owners to proceed to the construction stage of the subject site.

Report prepared by:

ARCADIS

Samantha Labadie, P. Eng
Civil Engineer

APPENDIX A



1 DP10-01-01 BLOCK 6 SITE PLAN
SCALE: 1 : 300

SITE PLAN NOTES

- ALL EXISTING SITE INFORMATION AS PER REGISTERED PLAN DATED MARCH 31st, 2023 PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
- ANY SNOW ACCUMULATED IN INTERNAL ROAD/
- PRIVATE WAY IS TO BE TRUCKED OFF SITE.
- FIRE FIGHTING TO TAKE PLACE FROM OSHEDINAA STREET.
- REFER TO DP10-01-02 FOR PROPOSED CONSTRUCTION PHASING.
- REFER TO DP10-01-04 FOR WASTE COLLECTION DETAILS AND STATISTICS.
- REFER TO DP10-01-05 FOR BICYCLE STORAGE DETAILS AND STATISTICS.
- REFER TO LANDSCAPE DRAWINGS FOR PLANTING, SITE LIGHTING AND FURNITURE DETAILS.
- REFER TO CIVIL DRAWINGS FOR SERVICING AND GRADING.

SITE PLAN LEGEND

- PRINCIPAL ENTRY
- V — VISITOR PARKING
- DIRECTION OF TRAVEL
- T — PROPOSED TRANSFORMER LOCATION
- FIRE HYDRANT
- B.F. — BARRIER-FREE PARKING SIGNAGE
- VIS — VISITOR PARKING SIGNAGE
- RES — RESIDENT PARKING SIGNAGE
- NO PARKING SIGNAGE
- FIRE LANE SIGNAGE
- STOP SIGN
- TACTILE WARNING SURFACE
- CONCRETE ROAD
- LANDSCAPING - SOD
- LANDSCAPING - STONE MULCH
- LANDSCAPING - WOOD MULCH
- LANDSCAPING - OTHER
- LOW IMPACT DEVELOPMENT AREA
- TREE TO BE TRANSPLANTED - ORIGINAL LOCATION
- TREE TO BE TRANSPLATED - NEW LOCATION

Site Information

LAND USE DISTRICT	R5Y [2312] Residential Fifth Density Zone, Subzone Y, Urban Exception 2312	
LEGAL DESCRIPTION / PIN	Block 6, Registered Plan 4M-1718 / PIN 02473-1232	
MUNICIPAL ADDRESS	125 & 135 Oshedinaa Street, Ottawa, ON	
COMMUNITY	Wateridge Village	
SITE AREA	11,661 SM	125,518 SF
Required: 1,400 SM	2.88 AC	1.166 HA

AMENITY AREA	Required	Provided
Total amenity area	1,272 SM	2,870.50 SM
Communal amenity area	120 SM	793.27 SM

LOT WIDTH	Minimum	Provided
	18.0m	225.39m

Development Statistics

PROPOSED USE (PERMITTED)	Planned Unit Development; Two (2) low-rise apartment buildings; one (1) accessory utility installation structure in rear yard
UNITS TOTAL	200

SETBACKS	Required	Provided
Front yard (Oshedinaa Street)	5.0m	5.02m
Corner side yard (Kijigong Street)	5.0m	7.02m
Rear yard	5.0m	1.09m
Interior side yard	5.0m	1.71m

PROJECTIONS INTO SETBACKS	Greatest
Front yard (Oshedinaa Street)	1.39m
Corner side yard (Kijigong Street)	None
Rear yard	None
Interior side yard	None

DENSITY	Units/ Ha	Units
Minimum	105	122.4
Maximum	N/A	N/A
Proposed	172	200

HEIGHT	
Maximum	16.0m
Proposed	13.24m (Bldg B) / 13.49m (Bldg C)
SITE COVERAGE	34.36%

Area Calculations

BLDG / LEVEL	GROSS FLOOR AREA	
	SF	SM
BUILDING B		
LEVEL 1	24,115.7	2,240.42
LEVEL 2	23,895.1	2,219.93
LEVEL 3	23,895.1	2,219.93
LEVEL 4	23,895.1	2,219.93
GFA	95,801.1	8,900.21
BUILDING C		
LEVEL 1	19,012.1	1,766.28
LEVEL 2	18,788.9	1,745.55
LEVEL 3	18,788.9	1,745.55
LEVEL 4	18,788.9	1,745.55
GFA	75,378.8	7,002.92
TOTAL GFA	**171,180 SF**	**15,903.1 SM**
SITE COVERAGE	43,128 SF	4,007 SM (34.36%)

Amenity Area Calculations

BLDG / LEVEL	GROSS FLOOR AREA	
	SF	SM
BUILDING B (PRIVATE)		
LEVEL 1	3,082.6	286.38
LEVEL 2	3,289.0	305.56
LEVEL 3	3,289.0	305.56
LEVEL 4	3,289.0	305.56
Area	12,949.5	1,203.05
BUILDING C (PRIVATE)		
LEVEL 1	2,180.8	202.60
LEVEL 2	2,409.6	223.86
LEVEL 3	2,409.6	223.86
LEVEL 4	2,409.6	223.86
Area	9,409.6	874.18
COMMUNAL AMENITY		
GRADE	8,538.7	793.27
Area	8,538.7	793.27
TOTAL AREA	**30,898 SF**	**2,870.50 SM**

Landscape Calculations

BLOCK 6	AREA
	SM
HARDSCAPE	1,046
CONCRETE	850
UNIT PAVER	170
PEA GRAVEL	26
SOFTSCAPE	4,409
PLANT BEDS	2,103
SOD	2,306
TOTAL	**5,455 SM**
SITE COVERAGE	46.78%

Area Calculations - Underground Parking

BLDG / LEVEL	GROSS FLOOR AREA		UNDERGROUND PARKING
	SF	SM	# OF STALLS
BUILDINGS B & C			
UNDERGROUND PARKING	71,827.4	6,672.99	201

Vehicle Parking

TYPE	RATE	UNITS	REQUIRED STALLS	PROVIDED STALLS
Building B & C				
Resident	0.50 stalls/unit	200	94	209
Resident, Barrier-Free (underground)	Traffic & Parking Bylaw, Part C		3 of 201	3
Visitor	0.10 stalls/unit	200	19	19
Visitor, Barrier-Free (surface)	Traffic & Parking Bylaw, Part C		1 of 27	2
Total Stalls			113	228
Deficiency				
Surplus				115

*NOTE: Required resident parking determined by: total units - 12 units, x required rate

*NOTE: Required visitor parking determined by: total units - 12 units, x required rate

Unit Types - Block 6

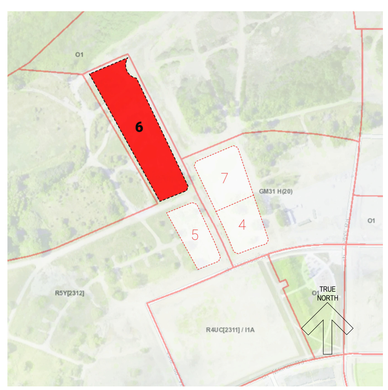
IDENTIFIER	SIZE	DESCRIPTION BEDROOM	WASHROOM	PROVIDED AREA m²	sq.ft.	BUILDING B	BUILDING C	QTY....	%
UNIT A1	< 60 SM	1	1	49.39	531.63	1	0	1	0.50%
UNIT A - ROSA	< 60 SM	1	1	43.57	469.03	15	8	23	11.50%
UNIT B2 - ROSSO	< 60 SM	1	1	49.84	536.48	8	8	16	8.00%
UNIT B - AMBRA	< 60 SM	1 + DEN	1	58.75	632.38	45	27	72	36.00%
AZURRO	> 60 SM	1 + DEN	1	63.00	678.15	0	4	4	2.00%
GIALLO	> 60 SM	1 + DEN	1	63.00	678.15	0	4	4	2.00%
GRIGIO	> 60 SM	1 + DEN	1	63.00	678.15	6	3	9	4.50%
ARGENTO	> 60 SM	2	2	90.22	971.10	12	16	28	14.00%
UNIT G	> 60 SM	2	2	76.58	824.31	20	9	29	14.50%
NERO D / ORO	> 60 SM	2 + DEN	2	84.30	907.41	3	3	6	3.00%
UNIT I	> 60 SM	3	2	103.50	1114.06	4	4	8	4.00%
BUILDING TOTAL						114	86		
TOTAL								200	100%

Accessible Suite Breakdown - Building B

TYPE	QUANTITY	ACTUAL %	TYPE %	TOTALS
STUDIO / 1 BEDROOM	23	20.35%		
1 BEDROOM + DEN	51	45.13%	65.5%	74
1 BEDROOM ACCESSIBLE	12	**10.62%**		
2 BEDROOM	32	28.32%		
2 BEDROOM + DEN	3	2.65%	31.0%	35
2 BEDROOM ACCESSIBLE	8	**7.08%**		
3 BEDROOM	4	3.54%	3.5%	4
3 BEDROOM ACCESSIBLE	1	**0.88%**		
SUBTOTAL	113	100%		
ACCESSIBLE TOTALS	21	**18.58%**		

Accessible Suite Breakdown - Building C

TYPE	QUANTITY	ACTUAL %	TYPE %	TOTALS
STUDIO / 1 BEDROOM	16	18.60%		
1 BEDROOM + DEN	38	44.19%	62.8%	54
1 BEDROOM ACCESSIBLE	9	**10.47%**		
2 BEDROOM	25	29.07%		
2 BEDROOM + DEN	3	3.49%	32.6%	28
2 BEDROOM ACCESSIBLE	4	**4.65%**		
3 BEDROOM	4	4.65%	4.7%	4
3 BEDROOM ACCESSIBLE	1	**1.16%**		
SUBTOTAL	86	100%		
ACCESSIBLE TOTALS	14	**16.28%**		



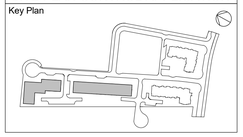
SITE CONTEXT MAP

DATE	ISSUED FOR	REV
2024-09-30	SPA SUBMISSION	A
2025-02-11	SPA SUBMISSION	B
2025-03-26	SPA SUBMISSION	C

Rohit™
Bold Goes Further

Project Component
SITE PLAN CONTROL APPLICATION

Key Plan



Consultants
Civil: Arcadis Professional Services (Canada) Inc.
Landscape: Arcadis Professional Services (Canada) Inc.
Architecture: NORR Architects Engineers Planners
Structural: TBD
Mechanical: TBD
Electrical: TBD
Owner: Rohit at Wateridge 6 Ltd.

Seal(s)

ONTARIO ASSOCIATION OF ARCHITECTS
JONATHAN D. HUGHES
LICENCE
5674

NORR

NORR Architects & Engineers Limited

55 Murray Street, Suite 600
Ottawa, ON, Canada K1N 5M3
norr.com

Project Manager	Drawn
M.EISELEN	O.BREYTENBACH
Project Leader	Checked
O.BREYTENBACH	E.FAULKNER

Client
ROHIT COMMUNITIES

550 91 ST SW #101, EDMONTON, AB, T6X 0V1

Project
Wateridge Village Block 6

125 & 135 OSHEDINAA STREET
OTTAWA, ON

Drawing Title
SITE PLAN, CONTEXT, AND STATISTICS

Scale
As indicated

Project No.
NCCA22-0243

Drawing No.
DP10-01-01

PLAN# 19211

FILE # D07-12-24-0126

Labadie, Sam

From: Nick Fritzsche <nick.fritzsche@rvca.ca>
Sent: Tuesday, February 6, 2024 9:20 AM
To: Labadie, Samantha
Subject: RE: Wateridge Rohit Block 6 - RVCA Comments

> You don't often get email from nick.fritzsche@rvca.ca. Learn why this is important

Hi Samantha,

Thank you for the email to our office.

I have forwarded your inquiry to RVCA Planner Eric Lalande for his comments.

For future inquiries, please reach out to info@lrconline.com.

Thank you,

Nick Fritzsche, B.Sc.
Section 28 Regulations Inspector
nick.fritzsche@rvca.ca,
613-692-3571 ext. 1193

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

From: Labadie, Samantha <samantha.labadie@arcadis.com>
Sent: Monday, February 5, 2024 3:33 PM
To: Nick Fritzsche <nick.fritzsche@rvca.ca>
Subject: Wateridge Rohit Block 6 - RVCA Comments

Hi Nick,

We are looking to hear comments from RVCA regarding the proposed new development at Wateridge. The proposal is to develop a 1.17ha parcel of land known as Block 6 in the Wateridge Village development. It consists of 202 units in two 4-storey residential buildings with one level of underground parking. Services will connect to Oshedinaa Street.

I have attached the site plan and location, let me know what else you need to review or any questions you may have.

Thank you,

Sam Labadie P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
C: +1 613 899 5717
www.arcadis.com

Labadie, Sam

From: Labadie, Samantha
Sent: Monday, February 5, 2024 3:38 PM
To: emily.diamond@ontario.ca
Subject: Wateridge Rohit Block 6 - MECP Comments
Attachments: 2024-01-12_NCCA22-0243_RohitWateridgeVillage_Block 6-SITE PLAN AT ROOF.pdf; Location_Blk6.pdf

Hi Emily,

We are looking to hear comments from MECP/MOE regarding the proposed new development at Wateridge. The proposal is to develop a 1.17ha parcel of land known as Block 6 in the Wateridge Village development. It consists of 202 units in two 4-storey residential buildings with one level of underground parking. Services will connect to Oshedinaa Street.

I have attached the site plan and location, let me know what else you need to review or any questions you may have.

Thank you,

Sam Labadie P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
C: +1 613 899 5717
www.arcadis.com

Pre-Consul Meeting Notes to the File Lead - John Bernier **April 11, 2023**
Re: 1076 Hemlock Ave., St., Lane, Way, Rd.
Ward 13 - Rideau-Rockcliffe, Councillor Rawlson King
4-7 with residential buildings (a mix of mid-rise apartments and stacked townhouses) with approximately 450 units.

Infrastructure:

There is no current infrastructure in Phase 4 to date. Please refer to proposed infrastructure, designed by IBI and latest revisions to civil drawings for this area, including LID features.

The following apply to this site and any development within a separated sewer area:

- Total allowable release rate will be 5-year pre-development rate.
- Coefficient (C) of runoff will need to be determined **as per existing conditions** but in no case more than 0.5. Please refer to MSS, ECAs and CPD for this subdivision (including any covenants) and/or updates.
- TC = 20 minutes or can be calculated
  TC should be no less than 10 minutes, since IDF curves become unrealistic at less than 10 min.
- Any storm events greater than 5 year, up to 100 year, and including 100-year storm event must be detained on site.
- Two separate sewer laterals (one for sanitary and other for storm) will be required for each unit or for each block (network).
- LID features are part of the ROW and requires an ECA, which has not been submitted, to date.

  Note: It is anticipated that any roads proposed for this development will be private and be a common element and/or have a joint use, maintenance and liability agreement (JUMLA).
  - All municipal roads must meet current and approved ROW X-Sections, Municipal Consent and Utility Circulation protocols.

Please note:
Foundation drains are to be independently connected to sewermain unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.

Roof drains are to be connected downstream of any incorporated ICD within the SWM system.

Provide Roof plan showing roof drain and scupper locations with a table that indicates flow rates, drain type and weir opening, if controlled. Provide Manufacturer Specifications on drains and also provide 5- and 100-year ponding limits on plan.

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

If window wells are proposed, they are to be indirectly connected to the footing drains.
A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.

Other:

Environmental Noise Study is required due to within 100m proximity of Hemlock Road.

Stationary Noise Study – consultant to speak to this in their report as per City NCG and NPC 300 Guidelines for each building in regards to roof top units, large parking areas, etc. May be required after Mechanical Design completed and prior to building permit issuance.

When equal to or greater than 9-storey in height, a Shadow Study is required for all buildings/dwellings.

When equal to or greater than 9-storey in height, a Wind Study is required for all buildings/dwellings.

Water Supply Redundancy – Fire Flow:

Applicant to ensure that a second service with an inline valve chamber be provided where the average daily demand exceeds 50 m^3 / day (0.5787 l/s per day)
FUS Fire Flow Criteria to be used unless a low-rise building, where OBC requirements may be applicable.

W12.pdf

Site Lighting:

Site lighting certificate and photometric plan required for this site. This will be a condition of agreement(s).

Site lighting certificate and photometric plan required for this site, particularly looking at light spillage and effects on nearby residential properties.

Trees:
Please note that a new Tree By-law is now in effect.

General Bulletin_New Tree Protection Bylaw.

Tree removal is not permitted from April 15- August 16
A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans.
This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

Gas Pressure Regulating Station.pdf

Regarding Quantity Estimates:

Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities.

In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

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

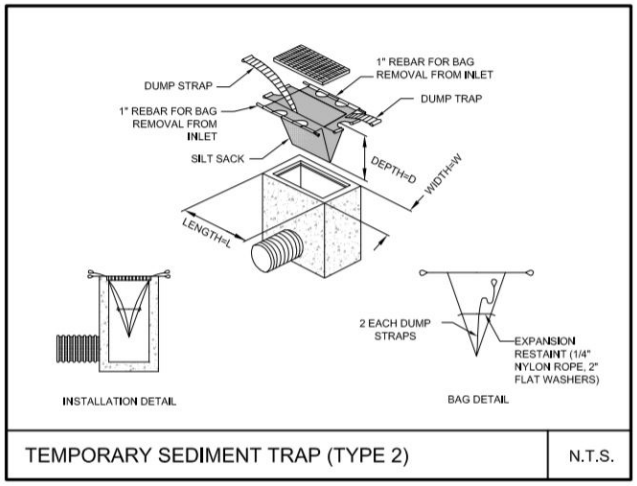
Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Pre-Construction (Piling/Hoe Ramming or excavation in close proximity to City Assets) and/or Pre-Blasting (if applicable) Survey required for any buildings/dwellings in proximity of 75m of

site and circulation of notice of vibration/noise to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled *Use of Explosives,* as amended. The intent is to protect nearby property owners, City and Utility Assets and, if appliable, unsupported claims against the applicant.

For Erosion and Sediment Control, provide details of specified and approved products. Please note that wrapping CB grates with geotextile fabric is not longer acceptable, see example of accepted CB protection, below:



UG storage and Surface Ponding for SWM:

Where underground storage (UG) and surface ponding are being considered:

Show all ponding for 5- and 100-year events

Above and below ground storage is permitted although uses ½ Peak Flow Rate or is modeled. Please confirm that this has been accounted for and/or revise.

Rationale:

The Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in

head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. We therefore require that an average release rate be used to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.

In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

Note that the above will added to upcoming revised Sewer Design Guidelines to account for underground storage, which is now widely used.

Further to above, what will be the actual underground storage provided during the major (100 year) and minor (2 year) storm events?

Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris?

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

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.

Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.

In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

For proposed depressed driveways or developments with private lanes, parking areas or with entrances etc. lower than roadway…


S18.pdf


S18.1.pdf

Rear yard on grade parking to be permeable pavement. Refer to City Standard Detail Drawings SC26 (maintenance/temp parking areas), SC27 or permeable asphalt materials. No gravel or stone dust parking areas permitted.

Severance:
If severance is planned, this needs to be addressed in servicing to satisfy severance requirements. Where a large parcel with multiple buildings is planned, City will require an ultimate servicing plan so as to appropriately understand how severance requirements are being met.

info "Provided Info to applicant":
Please be advised that it is the responsibility of the applicant and their representatives/consultants to verify information provided by the City of Ottawa.
Please contact City View and Release Info Centre at Ext. 44455

Environmental Source Information:

Due to more sensitive use, a Record of Site Condition (RSC) is required. Ensure Phase I, and if applicable, Phase II ESA's speak to required RSC.

Please also note that in the event soil and/or groundwater contamination is identified on this site and the proposal is for a more sensitive land use, the MECP will require approximately 1-1.5 years to review the RSC.

PIED will apply appropriate conditions, based on Environmental Protection Act (Section 168.3.1 (1)) and O.Reg. 153/04 (Parts IV and V) regarding requirements for RSC prior to building permit issuance. Dependent on the levels/types of contamination, timelines for building permit issuance may be longer than expected and we recommend applicant speak to Building Code Services, at the earliest convenience, so as to discuss these timelines in more detail, if deemed applicable.

City of Ottawa - Historical Land Use Inventory (HLUI) - Required

Rationale:
The HLUI database is currently undergoing an update. The updated HLUI will include additional sources beyond those included in the current database, making the inclusion of this record search even more important.
Although a municipal historic land use database is not specifically listed as required environmental record in O. Reg 153/04, Schedule D, Part II states the following:

The following are the specific objectives of a records review:

1. To obtain and review records that relate to the Phase I (One) property and to the current and past uses of and activities at or affecting the Phase I (One) property in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.

2. To obtain and review records that relate to properties in the Phase I (One) study area other than the Phase I (One) property, in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.

It is therefore reasonable to request that the HLUI search be included in the Phase I ESA to meet the above objectives.
Please submit.

Under site plan application:
There is a need for Delegated Authority Report for SPCA not for sewer extension. In addition, there will be an agreement for site plan control application that will cover all planning and infrastructure aspects. You do need to ask for any Delegated Authority Report for sewer extension.

All existing reports and plans will need to be revised if older than 2 years and must reflect current City Standards, Guidelines, By-laws and Policies.

Please refer to City of Ottawa website portal **for "Guide to preparing Studies and Plans"** at https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans.

Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.
Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Provide TBM location and elevation as well s Survey Monument information (taken from Survey Plan). Monument information should look like the following:

BENCH MARK No. 0011968U124
ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO BENCHMARK No. 0011968U124 HAVING A PUBLISHED ELEVATION OF 95.185m. LOCATION: BRIDGE OVER JOCK RIVER IN RICHMOND, 0.8 KM SOUTH OF RICHMOND ROAD, BARSS CAP IN TOP OF EAST WALL, 2.7M FROM NORTH END.

Please ensure you are using the current guidelines, bylaws and standards including materials of construction, disinfection and all relevant reference to OPSS/D and AWWA guidelines - all current and as amended, such as:

City of Ottawa Sewer Design Guidelines (**CoOSDG**) complete with all current and relative ISTDB technical bulletin updates as well as current Sewer, Landscape & Road Standard Detail Drawings as well as Material Specifications (MS Docs).
Sewer Connection (2003-513) & Sewer Use (2003-514) By-Laws.

City of Ottawa Water Distribution Design Guidelines (**CoOWDDG**) complete with all current and relative ISTDB technical bulletin updates as well as current Watermain/ Services Material Specifications (MS Docs) as well as Water and Road Standard Detail Drawings.
FUS Fire Flow standards
Water (2018-167) By-Law

Ensure to include version date and add **"(as amended)"** when referencing all standards, detail drwaings, by-Laws and guidelines.

Lane Closures:
Special Condition is required for SPC – Applicant t o contact Traffic Eng. Reviewer
PM and/or File Lead to contact Britney McGrath at Britney.McGrath@ottawa.ca (Ext. 44218)

Structural Works within ROW:
Constructability Report required for any structural works (i.e. Tiebacks) within the ROW.
PM and/or File Lead to contact Greg Kent (Mgr., Traffic Mgmt.) Ext # 21707 - Greg.Kent@ottawa.ca

Fourth (4th) Review Charges,
Please note that additional charges (per day) for each review, for 4th and each consecutive review, will be applicable to each file. No exceptions.

Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the OP / Zoning / Site Plan process to determine the ability to construct site and copy Choose a File Lead on this request.

Fire Routes - fireroutes@ottawa.ca

Contact me by e-mail shawn.wessel@ottawa.ca if you have any questions.

Sincerely,

Shawn Wessel, A.Sc.T., rcji
Project Manager
Development Review, Central Branch
Planning, Infrastructure and Economic Development Department (PIED)
City of Ottawa

Servicing study guidelines for development applications

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

- ☐ Executive Summary (for larger reports only).
- ☒ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☒ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☒ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.
- ☒ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☒ 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).
- ☒ 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.
- ☐ 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.
- ☐ Proposed phasing of the development, if applicable.

☒ Reference to geotechnical studies and recommendations concerning servicing.

☒ 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

4.2 Development Servicing Report: Water

☒ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☒ Identification of system constraints
☒ Identify boundary conditions
☒ Confirmation of adequate domestic supply and pressure
☒ 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.
☒ 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.
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
☒ Address reliability requirements such as appropriate location of shut-off valves
☐ Check on the necessity of a pressure zone boundary modification.
☒ 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

- ☒ 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.
- ☐ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

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

4.4 Development Servicing Report: Stormwater Checklist

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

- ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- ☐ 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.
- ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

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

4.6 Conclusion Checklist

- ☒ Clearly stated conclusions and recommendations
- ☒ 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.
- ☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario

APPENDIX B

ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

WATERMAIN DEMAND CALCULATION SHEET

Block 6 | Rohit Communities
144148-6.0 | Rev #2 | 2024-03-22
Prepared By: AC | Checked By: SL

NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND (l/min)
	APARTMENT 1 Bed	APARTMENT 2 Bed	APARTMENT 3 Bed	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	
Building C	54	28	4	146.80				0.48		0.48	1.19		1.19	2.62		2.62	10,000
Building B	75	35	4	190.90				0.62		0.62	1.55		1.55	3.40		3.40	10,000
TOTAL	**129**	**63**	**8**	**337.70**						**1.09**			**2.74**			**6.02**	

ASSUMPTIONS

POPULATION DENSITY

Apartment - 1 bed	1.4 persons/unit
Apartment - 2 bed	2.1 persons/unit
Apartment - 3 bed	3.1 persons/unit

WATER DEMAND RATES

Residential	280 l/cap/day
Commercial Shopping Center	2,500 L/(1000m2)/day

PEAKING FACTORS FOR POP. OF 501 TO 3000

Maximum Daily		
	Residential	2.5 x avg. day
	Commercial	1.5 x avg. day
Maximum Hourly		
	Residential	2.2 x max. day
	Commercial	1.8 x max. day

FIRE DEMANDS

Single Family	10,000 l/min (166.7 l/s)
Semi Detached & Townhouse	10,000 l/min (166.7 l/s)
Medium Density	15,000 l/min (250 l/s)

ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

FIRE UNDERWRITERS SURVEY

Block 6 | Rohit Communities
144148-6.0 | Rev #1 | 2024-01-22
Prepared By: AC | Checked By: SL

STEP	Contents	Description		Adjustment Factor		Result	
1	Floor Area	Building B				1125	m2
	Total Storey					4	storey
	Total Effective Floor Area					**4500**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type III Ordinary Construction	1.0		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C$\sqrt{A}$				**15000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Limited Combustible Contents	-15%	-2250	L/min
		Limited Combustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**12750**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-3825	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes	-10%	-1275	L/min
		Fully Supervised System	-10%	No			
	Fire Flow					**-5100**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	23.9	With unprotected opening	6%	765	L/min
		Length X Height Factor (m.storeys)	79.6				
		Construction Type	Type V				
	South	Separation (m)		2-hour rated firewall	10%	1275	L/min
		Length X Height Factor (m.storeys)					
		Construction Type					
	East	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type V				
	West	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type V				
	Fire Flow					**2040**	L/min
7	**Total Required Fire Flow**					**9690**	
		Rounded to Nearest 1000 L/min				**10000**	L/min

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

ARCADIS IBI GROUP
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Ottawa, Ontario K1S 5N4 Canada
arcadis.com

FIRE UNDERWRITERS SURVEY

Block 6 | Rohit Communities
144148-6.0 | Rev #1 | 2024-02-02
Prepared By: AC | Checked By: SL

STEP	Contents	Description		Adjustment Factor		Result	
1	Floor Area	Building C				1748.22	m2
	Total Storey					4	storey
	Total Effective Floor Area					**6992.88**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type III Ordinary Construction	1.0		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C$\sqrt{A}$				**18000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Limited Combustible	-15%	-2700	L/min
		Limited Combustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**15300**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-4590	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes	-10%	-1530	L/min
		Fully Supervised System	-10%	No			
	Fire Flow					**-6120**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type V				
	South	Separation (m)	23.9	With unprotected opening	6%	918	L/min
		Length X Height Factor (m.storeys)	79.6				
		Construction Type	Type V				
	East	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type V				
	West	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type V				
	Fire Flow					**918**	L/min
7	**Total Required Fire Flow**					**10098**	
		Rounded to Nearest 1000 L/min				**10000**	L/min

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

NORR

INFORMATION

March 1, 2024

Rohit Ottawa - Ordinary Construction Confirmation Letter

Project No.
NCCA22-0243-06

Project Name
Rohit - Ottawa Wateridge Village LOT 6

To whom it may concern,

This letter is to confirm that the exterior timber frame wall assembly for the Rohit – Ottawa Wateridge Village Lot 6 project, conforms to the definition of "Ordinary Construction" as set out by the Fire Underwriters Survey 2020 and will have a minimum 1-hour fire resistance rating.

"Ordinary Construction (Type III also known as joisted masonry)
A building is considered to be of Ordinary construction (Type III) when exterior walls are of masonry construction (or other approved material) with a minimum 1-hour fire resistance rating, but where other elements such as interior walls, arches, floors and/or roof do not have a minimum 1 hour fire resistance rating." – *page 22, WATER SUPPLY FOR PUBLIC FIRE PROTECTION, 2020, Fire Underwriters Survey*

For more information please do not hesitate to contact us.

Signed by
Project Manager Name: Erin Faulkner

Erin Faulkner
Digitally signed by Erin Faulkner
DN: C=CA, E=erin.faulkner@norr.com, CN=Erin Faulkner
Date: 2024.03.06 08:42:10-07'00'

Signature

2024-03-01

Date

Notification: ☒ Email

NORR Architects & Engineers Limited
55 Murray Street, Suite 600
Ottawa, ON
Canada K1N 5M3
55, rue Murray, bureau 600
Ottawa, ON
Canada K1N 5M3
T 613 241 5300
norr.com

Labadie, Sam

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: Tuesday, March 5, 2024 11:44 AM
To: Labadie, Sam
Cc: Whelan, Amy; Wessel, Shawn
Subject: FW: Block 6 - Wateridge Phase 4 - Water Boundary Conditions
Attachments: Block 6 - Wateridge Phase 4 February 2024.pdf

Hi Sam

The following are boundary conditions, HGL, for hydraulic analysis at Block 6 - Wateridge Phase 4 (zone MONT) assumed to be connected via two connections to the 203mm watermain on Oshedinaa Street and 203mm watermain on Kijigong Street (see attached PDF for location).

Please note:

- Fire Flow requirement has to be met from both connections. Oshedinaa Connection does not meet the 233.33 L/s fire flow demand.
- Request to lower the fire flow request and/or provide looping
- Future 200mm watermain on Winisik St is required for this site to meet reliability. CWNL cannot be issued until the Winisik Watermain is live.
- As such the future 200mm watermain on Winisik St is in included to provide the boundary condition analysis.
- 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.

Both Connections:
Minimum HGL: 143.0 m

Maximum HGL: 143.0 m

Connection 1 (Building B – Kijigong Street):

Max Day + Fire Flow (233.33 L/s): 106.0 m

Connection 2 (Building C – Oshedinaa Street):

Max Day + Fire Flow (233.33 L/s): not available

Max Day + Fire Flow (166.67 L/s): 102.5 m

Available Fire Flow at 20 (psi): 175 L/s, assuming ground elevation of 83.3 m

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.

Thanks
Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Chetrar, Anton <anton.chetrar@arcadis.com>
Sent: February 02, 2024 10:07 AM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Labadie, Samantha <samantha.labadie@arcadis.com>
Subject: Block 6 - Wateridge Phase 4 - Water Boundary Conditions

Good morning Nishant,

We are requesting watermain boundary conditions for the proposed Block 6 site plan (the location of the watermain connections are shown on the figure attached).

Please find attached the water demands for Block 6 proposed development (200 apartment units).

- Daily average demand – 1.09 l/s
- Maximum daily demand – 2.74 l/s
- Maximum hourly demand – 6.02 l/s

Fireflow for Building B: 14,000 L/min

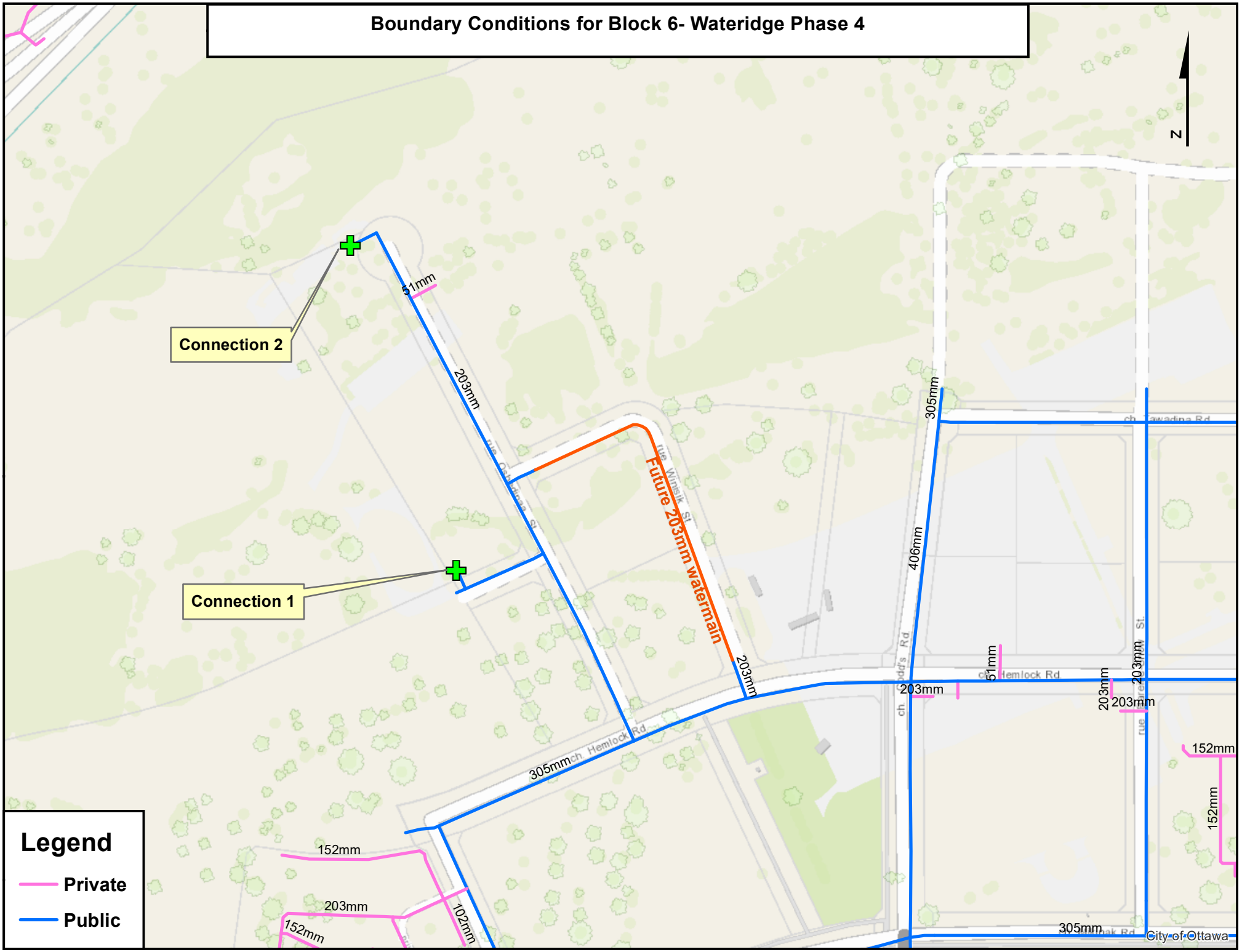
Let us know if any questions.

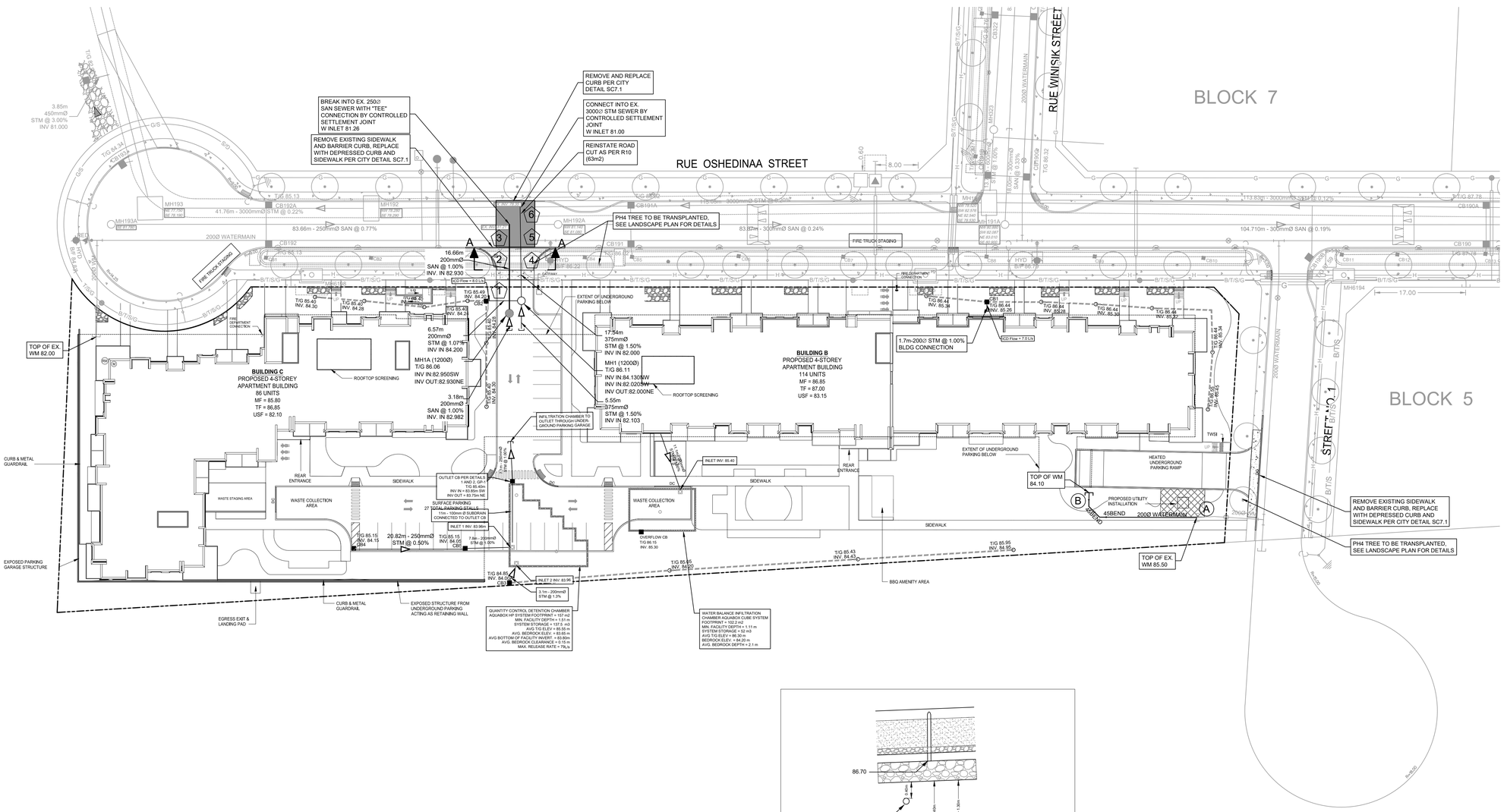
Thanks,

Anton Chetrar P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64072
M: +1 613 882 8197
www.arcadis.com

Please note my new email address and update for your records.

Boundary Conditions for Block 6- Wateridge Phase 4





BIOSWALE CROSSING
SECTION A-A
N.T.S.

CLIENT

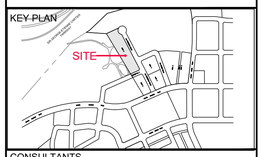
ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	2024-03-22
2	SUBMISSION NO. 1	2024-04-25
3	CITY SUBMISSION NO. 1	2024-09-25
4	REVISED PER NEW SITE PLAN	2024-10-04
5	CITY SUBMISSION NO. 2	2025-02-11
6	REVISED PER NEW SITE PLAN	2025-03-26
7		
8		

KEY PLAN



CONSULTANTS

1:400 0 4 12 20m

SEAL

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2025/03/26
PROVINCE OF ONTARIO

PRIME CONSULTANT
ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT
WATERIDGE VILLAGE
AT ROCKCLIFFE

PHASE 4 BLOCK 6

PROJECT NO: 144148	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **S.L.**

SHEET TITLE
GENERAL PLAN OF SERVICES

SHEET NUMBER	ISSUE
C-001	6

SCALE CHECK 1 in 50mm

19211

D07-12-24-0126

File Location: J:\144148_Block_6_PH4_\7.0_Production\7.03_Design\04_Civil\Sheets\001 GENERAL PLAN.dwg Last Saved: March 26, 2025, by mlherr4626 Plotted: March 26, 2025 8:14:38 AM by Miline, Marian

APPENDIX C

ARCADIS IBI GROUP
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Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

SANITARY SEWER DESIGN SHEET

Wateridge Block 6
Rohit Group
CITY OF OTTAWA

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN							
				AREA	UNIT TYPES				AREA	POPULATION		RES	PEAK	AREA (Ha)						ICI	PEAK	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	w/ Units (Ha)	1 Bed APT	2 Bed APT	3 Bed APT	Other APT	w/o Units (Ha)	IND	CUM	PEAK FACTOR	FLOW (L/s)	INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	INDUSTRIAL IND	INDUSTRIAL CUM	PEAK FACTOR	FLOW (L/s)	IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(full) (m/s)	L/s	(%)
Building B & C		MH1A	EX	1.17	129	63	8			337.7	337.7	3.44	3.77	0.00	0.0	0.00	0.0	0.00	0.0	1.00	0.00	1.17	1.17	0.39	1.00	1.00	5.16	34.22	16.66	200	1.00	1.055	29.06	84.93%

Design Parameters:

Residential			ICI Areas			
1-BD	1.4	p/p/u				
2-BD	2.1	p/p/u	INST	28,000	L/Ha/day	
3-BD	3.1	p/p/u	COM	28,000	L/Ha/day	
Other	1.8	p/p/u	IND	35,000	L/Ha/day	MOE Chart
				17000	L/Ha/day	

Notes:

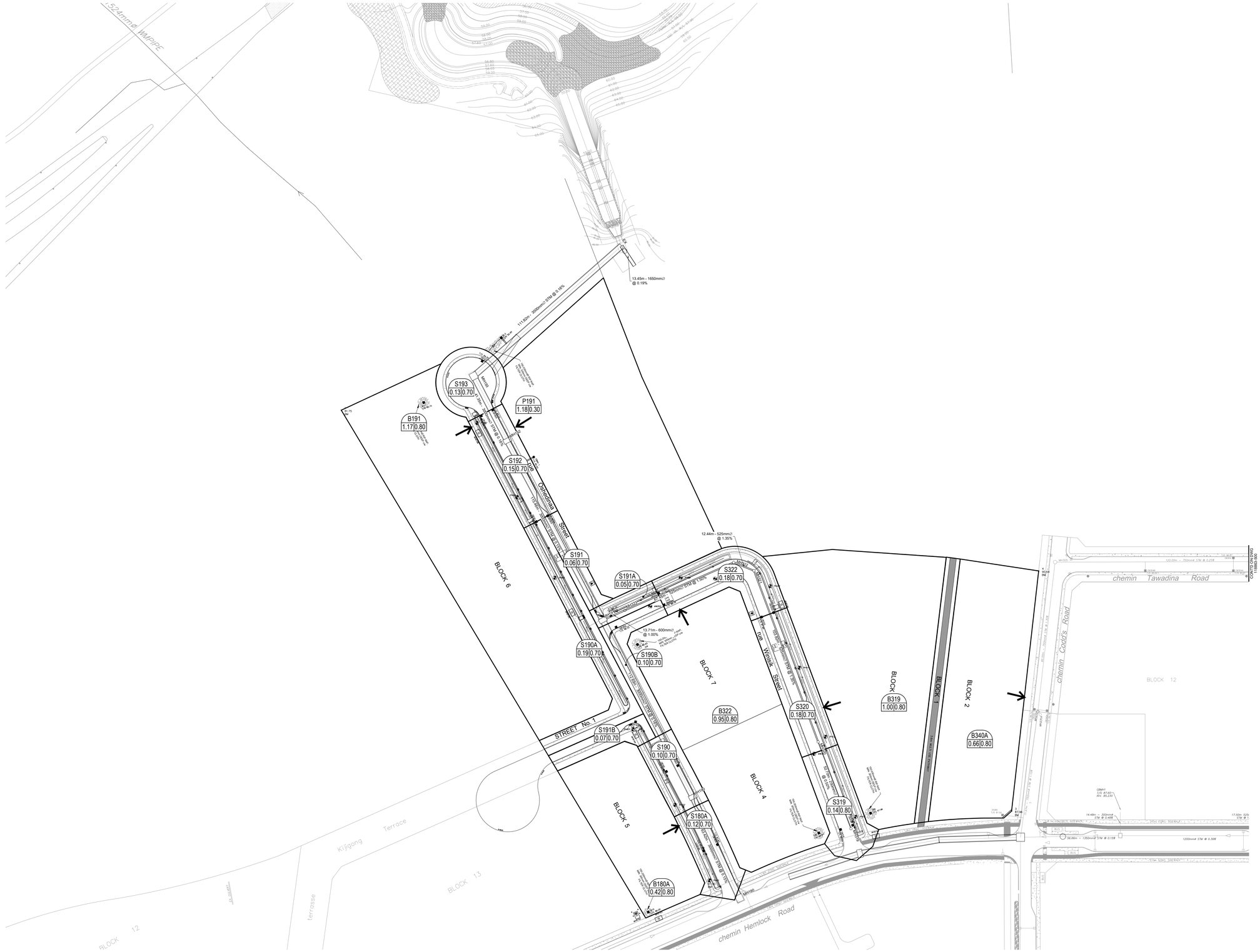
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

Designed: SEL
Checked: DRC
Dwg. Reference: 144148-400

No.	Revision	Date
1.	Site Servicing Report Submission 1	2024-04-29

File Reference: 123456-6.04.04
Date: 2024-04-29
Sheet No: 1 of 1

APPENDIX D

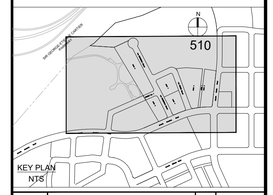


LEGEND :

S317
0.06 0.60

AREA NUMBER
RUNOFF COEFFICIENT
AREA IN HECTARES

PROPOSED SERVICE LATERAL LOCATION



No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9	REVISED OB180 TO CICB180 AND ADDED NEW LID BASE	J.I.M.	2023:11:03
8	REVISED PER GRDD PLAN	J.I.M.	2023:08:17
7	ISSUED FOR CONSTRUCTION	J.I.M.	2023:07:24
6	ISSUED FOR RFP	J.I.M.	2023:02:28
5	SUBMISSION NO. 5 FOR CITY REVIEW	J.I.M.	2023:01:31
4	SUBMISSION NO. 4 FOR CITY REVIEW	J.I.M.	2022:09:23
3	SUBMISSION NO. 3 FOR CITY REVIEW	J.I.M.	2021:12:10
2	SUBMISSION NO. 2 FOR CITY REVIEW	J.I.M.	2020:07:08
1	SUBMISSION NO. 1 FOR CITY REVIEW	J.I.M.	2018:12:20

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA
100 Queen Street
Ottawa,On
K1P 1J9

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 4

PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/11/03
PROVINCE OF ONTARIO

N

Drawing Title

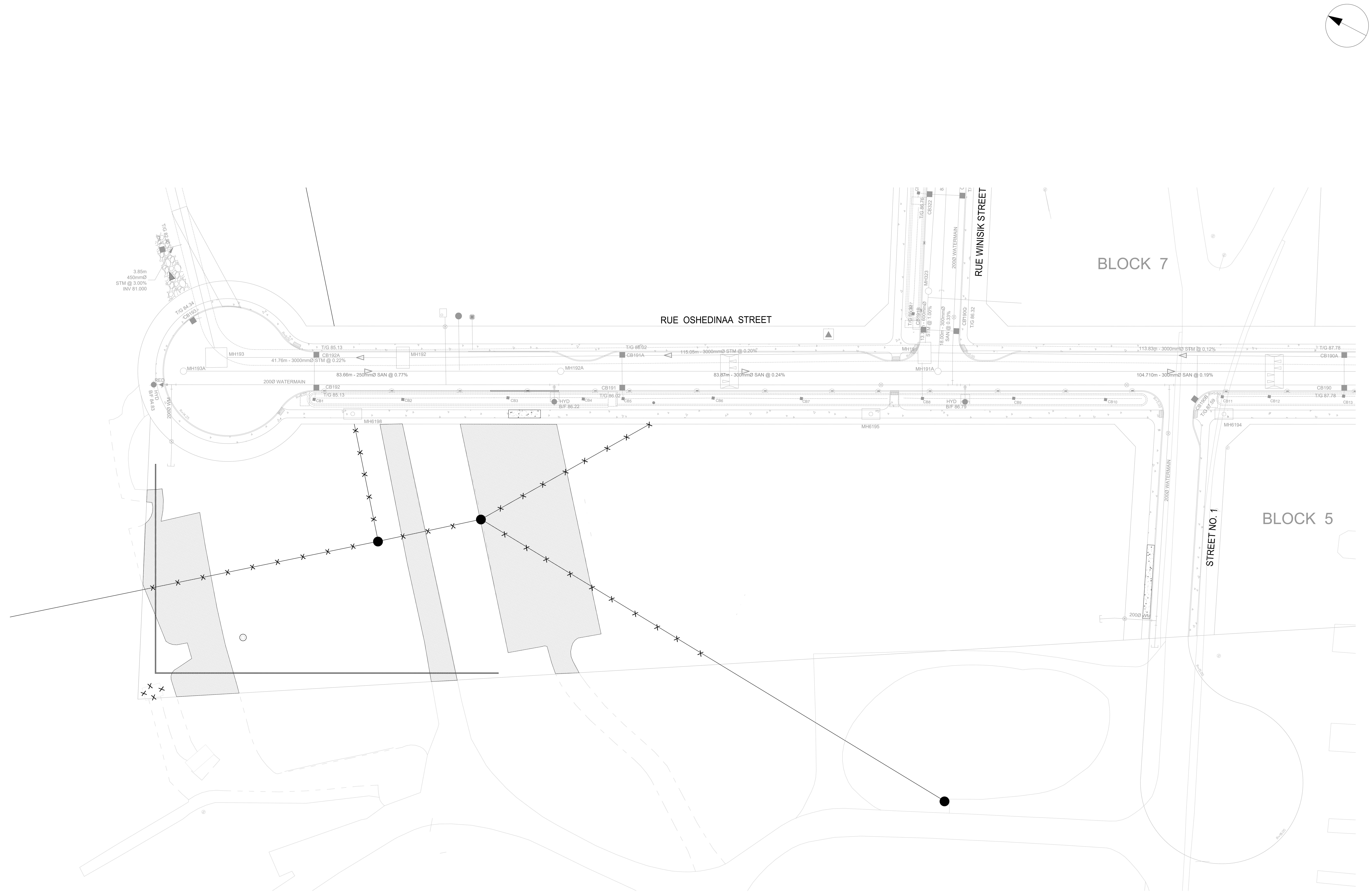
STORM DRAINAGE AREA PLAN

Scale
10 0 10 20
1:1000

Design	Date
J.I.M.	JUNE 2020
Drawn	Checked
M.M.	A.C.
Project No.	Drawing No.
118863	510

D07-16-15-0003_P4

#17063



LEGEND:

○	REMOVAL		DRY GRIND EXISTING ASPHALT. AVERAGE DEPTH 50mm.
	ADJUST MANHOLE, VALVES		FULL DEPTH ASPHALT REMOVAL
	ADJUST CATCH BASIN		AREA TO BE CLEARED AND GRUBBED
	ADJUSTMENT BY BELL OR HYDRO APPROVED CONTRACTOR		REMOVAL OF BUILDINGS, FOUNDATIONS, SEPTIC SYSTEM AND WELL
X	REMOVE OR ABANDON SEWER, WATERMAIN, UTILITY, CURB RETURNS		REMOVALS OF CONCRETE/ ASPHALT SIDEWALK
	PLUG		

CLIENT

ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

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Arcadis Professional Services (Canada) Inc.
formerly IBI Group Professional Services (Canada) Inc.

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	2024-03-22
2	SUBMISSION NO. 1	2024-04-25
3	CITY SUBMISSION NO. 1	2024-09-25
4	REVISED PER NEW SITE PLAN	2024-10-04
5	CITY SUBMISSION NO. 2	2025-02-11
6	REVISED PER NEW SITE PLAN	2025-03-26
7		
8		

KEY PLAN

SITE

CONSULTANTS

1:400 0 4 12 20m

SEAL

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2025/03/26
PROVINCE OF ONTARIO

PRIME CONSULTANT

ARCADIS

333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE AT ROCKCLIFFE

PHASE 4 BLOCK 6

PROJECT NO: 144148	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **S.L.**

SHEET TITLE

REMOVALS PLAN

SHEET NUMBER	ISSUE
C-REM	6

File Location: J:\144148_Block_6_Ph4_\7.0_Production\7.03_Design\04_Civil\Sheets\C-REM.dwg Last Saved: February 11, 2025, by milnem4626 Plotted: March 26, 2025 8:27:52 AM by Milne, Marian

D07-12-24-0126

SCALE CHECK 1 in 10mm

19211

Chetrar, Anton

From: Ghasri, Mahsa
Sent: Tuesday, October 31, 2023 1:59 PM
To: Chetrar, Anton
Cc: Labadie, Samantha; Cave, Doug; Black, Meghan
Subject: RE: Wateridge Phase 4 - Block 5, 6, 4

Hey Anton,

Block 5 (B180A in our report) is restricted to 120l/s, Block 6 (B191 is our report) is restricted at 162 l/s, and Block 4 & 7 (B322 in our report) to 200l/s. The downstream segment for overflow is to Kijigong Terrace (B191B), out of the site to the north, and Winisik Street (B190B), respectively.

Please note that we do not account for any on site storages for blocks within Waterdige.

Thank you

Mahsa Ghasri P.Eng
Water Resources Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64079
www.arcadis.com

Please note my new email address and update for your records.

From: Chetrar, Anton <anton.chetrar@arcadis.com>
Sent: Tuesday, October 31, 2023 1:36 PM
To: Ghasri, Mahsa <mahsa.ghasri@arcadis.com>
Cc: Labadie, Samantha <samantha.labadie@arcadis.com>; Cave, Doug <doug.cave@arcadis.com>; Black, Meghan <meghan.black@arcadis.com>
Subject: Wateridge Phase 4 - Block 5, 6, 4

Hi Mahsa,

As discussed, we are looking to obtain the stormwater criteria for blocks 5, 6 and 4 used for the design of Wateirdge Phase 4.

Let us know if you have any questions.

Thanks,
Anton Chetrar P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada

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M: +1 613 882 8197
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Please note my new email address and update for your records.

DRAINAGE AREA ID	AREA (HA)	D/S SEGMENT ID	XPSWMM NODE ID	IMP RATIO [TP (H)]	SEGMENT LENGTH (M)	SUBCATCHMENT WIDTH (M)	AVAILABLE STATIC PONDING (M^3)
S191	0.063	S192	MH191	0.71	59	118	0
S192	0.148	S193	MH192	0.71	69	137	0
S193	0.126	DITCH	MH193	0.71	39	78	0.12
P191	1.176	NORTH(3)	MH192	0.20	133	266	0
B180A	0.418	S191B	MH190	0.86	47	95	0(1)
B191	1.166	NORTH(3)	MH193	0.86	132	263	0(1)
B9	0.12	S176D	MH305	0.07	151	302	0(1)
S180A	0.118	S190	MH180	0.71	57	115	7
Relevant Existing Phase 1A							
S176D	0.13	DS142(2)	MH176	0.76	95	95	2.60
S176E	0.09	DS142(2)	MH176	0.76	80	80	0
S180	0.16	DNCC(4)	MH180	0.76	68	68	0

(1) Assumed ponding volume
(2) Existing Phase 1B
(3) North towards existing SWM facility
(4) West to future phase

Table 5.3 Minor Flow Capture

DRAINAGE AREA ID	CONTINUOUS/ SAG(1),(2)	ROAD TYPE	MINOR SYSTEM DESIGN TARGET	GENERATED FLOW ON INDIVIDUAL SEGMENT FOR MINOR SYSTEM DESIGN TARGET (DDSWMM SIMULATION) (L/S)	ICD (L/S)	NOTE
Phase 4						
B340A	Block	N/A	5	144	204	Minor system restriction for future development block
S319	Sag	22m Row, 8.5m asphalt	5	26	38	
B319	Block	N/A	100	398	490	Minor system restriction for future development block
S320	Continuous	22m Row, 8.5m asphalt	5	32	12	CB on continuous grade, capture in downstream sag
S322	Continuous	22m Row, 8.5m asphalt	5	30	25	CB on continuous grade, capture in downstream sag
B322	Block	N/A	5	200	200	Minor system restriction for future development block
S190	Sag	22m Row, 8.5m asphalt	5	17	76	
S190A	Continuous	22m Row, 8.5m asphalt	5	21	24	CB on continuous grade, capture in downstream sag

DRAINAGE AREA ID	CONTINUOUS/ SAG[1],[2]	ROAD TYPE	MINOR SYSTEM DESIGN TARGET	GENERATED FLOW ON INDIVIDUAL SEGMENT FOR MINOR SYSTEM DESIGN TARGET (DDSWMM SIMULATION) (L/S)	ICD (L/S)	NOTE
S190B	Sag	22m Row, 8.5m asphalt	5	19	24	
S191A	Sag	22m Row, 8.5m asphalt	5	7	63	
S191B	Continuous	22m Row, 8.5m asphalt	5	19	19	CB on continuous grade, capture in downstream sag
S191	Continuous	22m Row, 8.5m asphalt	5	23	19	
S192	Continuous	22m Row, 8.5m asphalt	5	25	12	
S193	Sag	22m Row, 8.5m asphalt	5	21	86	
P191	Park	N/A	5	22	24	
B180A	Block	N/A	5	145	120	Minor system restriction for future development block
B191	Block	N/A	5	162	162	Minor system restriction for future development block
B9	Park	N/A	5	12	0	No CBs located in this green space block
S180A	Sag	22m Row, 8.5m asphalt	5	21	25	
Relevant Existing Phase 1A						
S176D	Sag	26m Row, 9.5m asphalt	5		37	Replacing existing ICDs
S176E	Continuous	26m Row, 9.5m asphalt	5		11.4	ICD(s) installed
S180	Continuous	26m Row, 9.5m asphalt	5		16.3	ICD(s) installed

(1) Capture on continuous grade is limited to capacity of grate
(2) The minor flow restriction has been increased in sags to allow full capture of overflow from upstream segments on continuous grade during the design storm event without ponding.

5.4.3 Results of Hydrological Modeling

5.4.3.1 Street Segment Storage

The storage available on-site storage and the results of the DDSWMM major system evaluation for the design storm are presented in **Table 5.4**. The ponding plan for the subject site is presented in **Appendix F** on **Drawings 601.** The DDSWMM output files are presented in **Appendix F**.

NORR

INFORMATION

May 1, 2024

Rohit Ottawa – 5 and 100-year storm event ponding areas

Project No.
NCCA22-0243-06

Project Name
Rohit - Ottawa Wateridge Village LOT 6

To whom it may concern,

This letter is to confirm that in order to accommodate the 5- and 100- year storm event ponding areas, at the time of detailed design of the building, the roofs of the buildings will accommodate a ponding volume of 88m3 and 45m3 of stormwater retention on the rooftops of Building B and C respectively.

This equates to an average depth of 50 mm across
80% of the whole roof surface area for building B, and
50% of the whole roof surface area for building C.

For more information please do not hesitate to contact us.

Signed by

Project Manager Name: Erin Faulkner

Erin Faulkner

Digitally signed by Erin Faulkner
DN: C=CA, E=erin.faulkner@norr.com, CN=Erin Faulkner
Date: 2024.05.01 16:57:08-06'00'

Signature

e

w2024-05-01

Date

Notification: ☒ Email

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STORM SEWER DESIGN SHEET

Wateridge Block 6
Rohit Group
City of Ottawa

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW													SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.25	C= 0.40	C= 0.50	C= 0.60	C= 0.65	C= 0.70	C= 0.76	C= 0.80	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	I (2) (mm/hr)	I (5) (mm/hr)	I (10) (mm/hr)	I (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW IND	FIXED FLOW CUM	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	PIPE SIZE (mm) W	PIPE SIZE (mm) H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
Building B & C		MH1	EX			0.06		0.03	0.52				0.42	2.11	2.11	10.00	0.15	10.15	76.81	104.19	122.14	178.56	161.85	219.56	257.38	376.27	127.00	127.00	127.00	224.02	17.54	375			1.50	1.965	97.02	43.31%
																											*Flowrate restricted											

Definitions:
Q = 2.78CIA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
I = Rainfall intensity in millimeters per hour (mm/hr)
[I = 732.951 / (TC+6.199)^0.810] 2 YEAR
[I = 998.071 / (TC+6.053)^0.814] 5 YEAR
[I = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[I = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.01

Designed: SEL

Checked: DRC

Dwg. Reference: 144148-500

No.	Revision	Date
1.	Site Servicing Report Submission 1	2024-04-29

File Reference: 144148-6.04.04
Date: 2024-04-29
Sheet No: 1 of 1

LEGEND :

ROOF C | 0.18 | 0.90
- AREA NUMBER
- RUNOFF COEFFICIENT
- AREA IN HECTARES

RUE OSHEDINAA STREET

RUE WINISIK STREET

BLOCK 7

BLOCK 5

UNC C 0.06|0.30

BUILDING C ROOFTOP STORAGE
RESTRICTED FLOW RATE = 23l/s
100 yr STORAGE VOLUME = 44.44m3
AVAILABLE ROOFTOP VOLUME = 45.00m3
TOTAL AREA = 1800m2
USABLE AREA = 900m2
AVERAGE DEPTH DURING 100 yr = 0.05m

ROOF C 0.18|0.90

LCB C 0.03|0.60

UNC B 0.04|0.30

BUILDING B
PROPOSED 4-STOREY
APARTMENT BUILDING
114 UNITS
MF = 86.85
TF = 87.00
USF = 83.15

ROOF B 0.22|0.90

BUILDING B ROOFTOP STORAGE
RESTRICTED FLOW RATE = 10l/s
100 yr STORAGE VOLUME = 87.38m3
AVAILABLE ROOFTOP VOLUME = 88.00m3
TOTAL AREA = 2200m2
USABLE AREA = 1760m2
AVERAGE DEPTH DURING 100 yr = 0.05m

LCB B 0.06|0.40

UNC A 0.03|0.30

CISTERN 0.52|0.65

RAMP 0.02|0.90

17.54m 375mmØ STM @ 1.50% INV IN 82.000

MH1 (1200Ø) T/G 86.11 INV IN:84.130NW INV IN:82.020SW INV OUT:82.000NE

5.55m 375mmØ STM @ 1.50% INV IN 82.103

6.57m 200mmØ STM @ 1.07% INV IN 84.200

20.82m - 250mmØ STM @ 0.50%

7.8m - 200mmØ STM @ 1.00%

3.1m - 200mmØ STM @ 1.3%

41.76m - 3000mmØ STM @ 0.22%

115.05m - 3000mmØ STM @ 0.20%

113.83m - 3000mmØ STM @ 0.12%

3.85m 450mmØ STM @ 3.00% INV 81.000

INFILTRATION CHAMBER TO OUTLET THROUGH UNDER-GROUND PARKING GARAGE

QUANTITY CONTROL DETENTION CHAMBER AQUABOX HP SYSTEM FOOTPRINT = 157 m2 MIN. FACILITY DEPTH = 1.51 m SYSTEM STORAGE = 137.5 m3 AVG TIG ELEV = 86.55 m AVG. BEDROCK ELEV. = 83.65 m AVG BOTTOM OF FACILITY INVERT. = 83.80m AVG. BEDROCK DEPTH = 2.90 m MAX. RELEASE RATE = 78L/s

WATER BALANCE INFILTRATION CHAMBER AQUABOX CUBE SYSTEM FOOTPRINT = 102.7 m2 MIN. FACILITY DEPTH = 1.111 m SYSTEM STORAGE = 52 m3 AVG TIG ELEV = 86.30 m BEDROCK ELEV. = 84.20 m AVG. BEDROCK DEPTH = 2.1 m

ROOFTOP SCREENING

FIRE TRUCK STAGING

FIRE DEPARTMENT CONNECTION

GATEWAY

EXTENT OF UNDERGROUND PARKING BELOW

REAR ENTRANCE

SIDEWALK

WASTE COLLECTION AREA

WASTE STAGING AREA

SURFACE PARKING
27 TOTAL PARKING STALLS
11m - 100mm Ø SUBDRAIN CONNECTED TO OUTLET CB

OUTLET CB PER DET-143-1 1 AND 2, GP-1 T/G 85.40m INV IN = 83.65m SW INV OUT = 83.75m NE

INLET 1 INV: 83.96m

INLET INV: 85.40

INLET 2 INV: 83.90

OVERFLOW CB T/G 86.15 INV: 85.30

CURB & METAL GUARDRAIL

EXPOSED PARKING GARAGE STRUCTURE

EGRESS EXIT & LANDING PAD

CURB & METAL GUARDRAIL

EXPOSED STRUCTURE FROM UNDERGROUND PARKING ACTING AS RETAINING WALL

BBQ AMENITY AREA

PROPOSED UTILITY INSTALLATION

45BEND

22.5BEND

STREET NO.1

CLIENT

ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	2024-03-22
2	SUBMISSION NO. 1	2024-04-25
3	CITY SUBMISSION NO. 1	2024-09-25
4	REVISED PER NEW SITE PLAN	2024-10-04
5	CITY SUBMISSION NO. 2	2025-02-11
6	REVISED PER NEW SITE PLAN	2025-03-26
7		
8		

KEY PLAN

CONSULTANTS

1:400 0 4 12 20m

SEAL

PRIME CONSULTANT

ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE
AT ROCKCLIFFE

PHASE 4 BLOCK 6

PROJECT NO: 144148	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **S.L.**

SHEET TITLE

STORM DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-500	6

SCALE CHECK 1 cm 10mm

19211

D07-12-24-0126

File Location: J:\144148_Block_6_Ph4_17.0_Production\7.03_Design\04_Civil\Sheets\C-500 STORM DRAINAGE PLAN.dwg Last Saved: April 29, 2024, by MMilne Plotted: March 26, 2025 8:20:02 AM by Milne, Marian

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Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = $732.951 / (T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = $998.071 / (T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = $1735.688 / (T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate ($Q_{restricted}$ = 2.78*C*i_{5yr} *A_{site} based on C=0.50, Tc=20min)

Per Wateridge Phase 4 Design Brief, dated March 2023

$Q_{restricted}$ =	162.00	L/s

Uncontrolled Release ($Q_{uncontrolled}$ = 2.78*C*i_{100yr} *$A_{uncontrolled}$)

UNC A, B, C

C_{100yr} =	0.375	*(C increased 25% for 100-yr)*
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.13	Ha
$Q_{uncontrolled}$ =	24.20	L/s

RAMP

C_{100yr} =	1.00	*(C increased 25% for 100-yr)*
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.02	Ha
$Q_{uncontrolled}$ =	9.93	L/s

Maximum Allowable Release Rate ($Q_{max\ allowable}$ = $Q_{restricted}$ - $Q_{uncontrolled}$)

$Q_{max\ allowable}$ =	127.87	L/s

Runoff Coefficient Calculation for "Cistern"

Cistern	Area (m^2)	C
Softscape	1842	0.20
Hardscape	3340	0.90
Total	5182	**0.65**

** all area over Parking Garage treated as Hardscape*

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Ottawa, Ontario K1S 5N4 Canada
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MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area	Bldg B Roof				
Area (Ha)	0.22	Restricted Flow ICD_{Actual} (L/s)=	10.00		
C =	1.00	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	10.00	50% reduction for sub-surface storage	

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
50	63.95	39.11	10.00	29.11	87.34
51	63.03	38.55	10.00	28.55	87.37
52	62.14	38.01	10.00	28.01	**87.38**
53	61.28	37.48	10.00	27.48	87.37
54	60.44	36.96	10.00	26.96	87.36

100-Year +20% Ponding

$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
45.61	35.61	**111.09**

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	87.38	88.00	0	0.00	0.00	111.09	23.09
					convert to flow with peak Tc (L/s)		7.40

overflows to: Out

Drainage Area	Bldg B Roof		
Area (Ha)	0.22		
C =	0.90	Restricted Flow Q_r (L/s)=	10.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
20	52.03	28.64	10.00	18.64	22.37
21	50.48	27.78	10.00	17.78	22.41
22	49.02	26.98	10.00	16.98	**22.42**
23	47.66	26.23	10.00	16.23	22.40
24	46.37	25.53	10.00	15.53	22.36

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	22.42	88.00	0	0.00

overflows to: Out

Drainage Area	Bldg C Roof				
Area (Ha)	0.18	Restricted Flow ICD_{Actual} (L/s)=	23.00		
C =	1.00	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	23.00	50% reduction for sub-surface storage	

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
17	132.63	66.37	23.00	43.37	44.23
18	128.08	64.09	23.00	41.09	44.38
19	123.87	61.98	23.00	38.98	**44.44**
20	119.95	60.02	23.00	37.02	44.43
21	116.30	58.20	23.00	35.20	44.35

100-Year +20% Ponding

$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
74.38	51.38	**58.57**

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	44.44	45.00	0	0.00	0.00	58.57	13.57
					convert to flow with peak Tc (L/s)		11.91

overflows to: Out

Drainage Area	Bldg C Roof		
Area (Ha)	0.18		
C =	0.90	Restricted Flow Q_r (L/s)=	23.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
5	103.57	46.64	23.00	23.64	7.09
6	96.64	43.52	23.00	20.52	7.39
7	90.66	40.83	23.00	17.83	**7.49**
8	85.46	38.49	23.00	15.49	7.43
9	80.87	36.42	23.00	13.42	7.25

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	7.49	45.00	0	0.00

overflows to: Out

Drainage Area	Cistern				
Area (Ha)	0.52	Restricted Flow ICD_{Actual} (L/s)=	79.00		
C =	0.81	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	39.50	50% reduction for sub-surface storage	

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
24	106.68	125.30	39.50	85.80	123.55
25	103.85	121.97	39.50	82.47	123.71
26	101.18	118.84	39.50	79.34	**123.77**
27	98.66	115.88	39.50	76.38	123.74
28	96.27	113.08	39.50	73.58	123.61

100-Year +20% Ponding

$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
142.61	103.11	**160.85**

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	123.77	0.00	124.0	0.00	0.00	160.85	36.85
					convert to flow with peak Tc (L/s)		23.62

overflows to: LCB A

Drainage Area	Cistern		
Area (Ha)	0.52		
C =	0.65	Restricted Flow Q_r (L/s)=	39.50

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
7	90.66	85.19	39.50	45.69	19.19
8	85.46	80.30	39.50	40.80	19.58
9	80.87	75.99	39.50	36.49	**19.71**
10	76.81	72.17	39.50	32.67	19.60
11	73.17	68.75	39.50	29.25	19.31

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	19.71	0.00	124	0.00

overflows to: LCB A

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Drainage Area	***LCB B***		
Area (Ha)	0.06	Restricted Flow ICD_{Actual} (L/s)=	7.00
C =	0.50	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	7.00

50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YRQ_p 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
8	199.20	16.61	7.00	9.61	4.61			
9	188.25	15.70	7.00	8.70	4.70			
10	178.56	14.89	7.00	7.89	**4.74**	17.87	10.87	**6.52**
11	169.91	14.17	7.00	7.17	4.73			
12	162.13	13.52	7.00	6.52	4.70			

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance	100+20 Overflow	100+20 Required	100+20 Balance
0.00	4.74	5.04		0.00	0.00	6.52	1.48
					convert to flow with peak Tc (L/s)		2.47

overflows to: Out

Drainage Area	***LCB B***		
Area (Ha)	0.06		
C =	0.40	Restricted Flow Q_r (L/s)=	7.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
0	167.22	11.16	7.00	4.16	0.00
1	148.14	9.88	7.00	2.88	0.17
2	133.33	8.90	7.00	1.90	**0.23**
3	121.46	8.10	7.00	1.10	0.20
4	111.72	7.45	7.00	0.45	0.11

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.23	5.04	0	0.00

overflows to: Out

Drainage Area	***LCB C***		
Area (Ha)	0.03	Restricted Flow ICD_{Actual} (L/s)=	8.50
C =	0.75	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	8.50

50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YRQ_p 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
4	262.41	16.41	8.50	7.91	1.90			
5	242.70	15.18	8.50	6.68	2.00			
6	226.01	14.14	8.50	5.64	**2.03**	16.96	8.46	**3.05**
7	211.67	13.24	8.50	4.74	1.99			
8	199.20	12.46	8.50	3.96	1.90			

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance	100+20 Overflow	100+20 Required	100+20 Balance
0.00	2.03	2.04		0.00	0.00	3.05	1.01
					convert to flow with peak Tc (L/s)		2.80

overflows to: Out

Drainage Area	***LCB C***		
Area (Ha)	0.03		
C =	0.60	Restricted Flow Q_r (L/s)=	8.50

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
-2	229.26	11.47	8.50	2.97	-0.36
-1	192.83	9.65	8.50	1.15	-0.07
0	167.22	8.37	8.50	-0.13	**0.00**
1	148.14	7.41	8.50	-1.09	-0.07
2	133.33	6.67	8.50	-1.83	-0.22

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	2.04	0	0.00

overflows to: Out

Stormwater Management Summary Table

Drainage Area	ICD Restricted Flow (L/s)	100 Year Storage Required (m3)	2 Yr Storage Required (m3)	Storage Provided
Bldg B Roof	10.00	87.376	22.42	88.00
Bldg C Roof	23.00	44.442	7.49	45.00
Cistern	79.00	123.771	19.71	124.00
LCB B	7.00	4.735	0.23	5.04
LCB C	8.50	2.029	0.00	2.04
TOTAL	**127.50**	**262.35**	**49.84**	**264.08**

Max Allowable: ***127.87***

WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

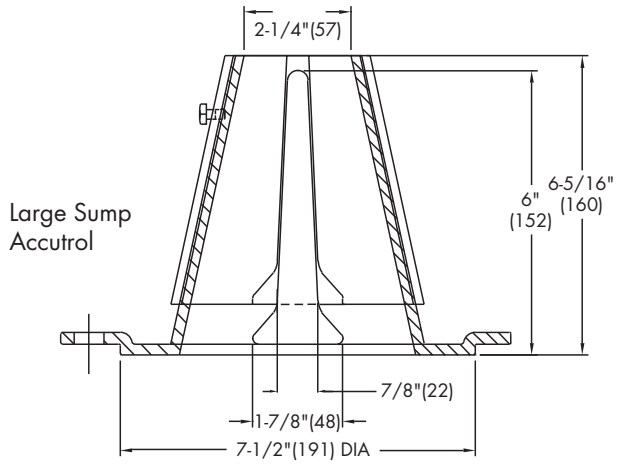
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

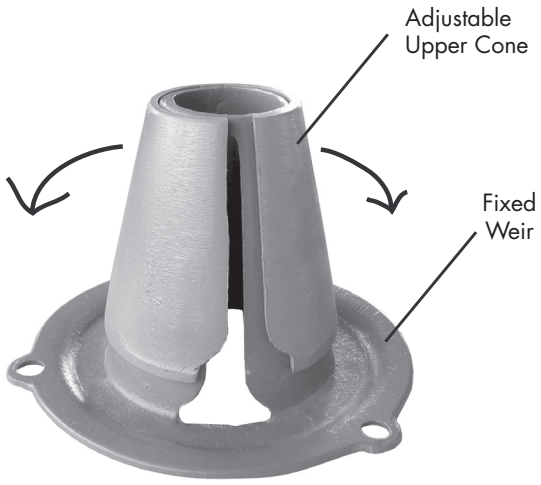
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____

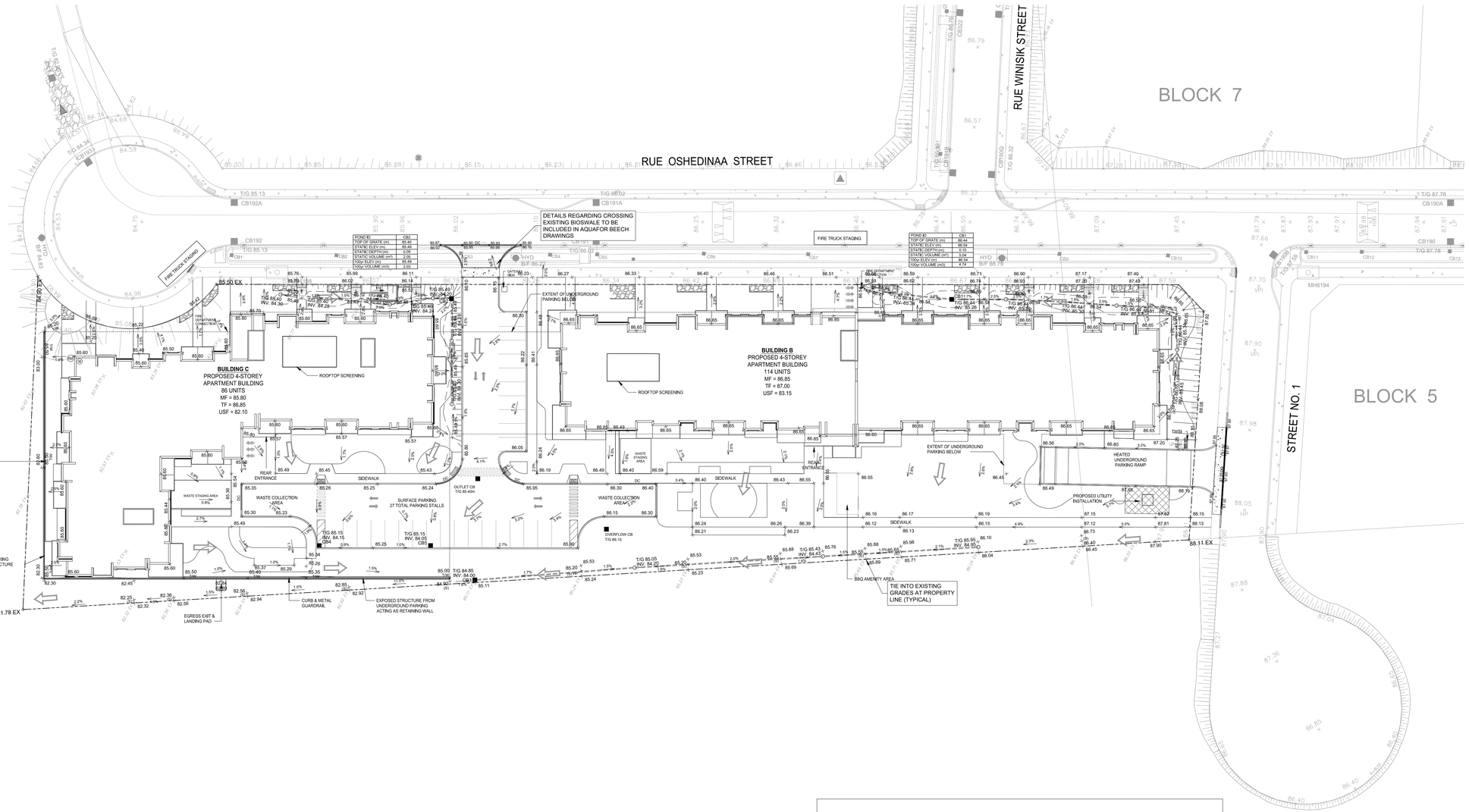
Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

WATTS®
A Watts Water Technologies Company

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • Watts.com

APPENDIX E



GRADING LEGEND

104.62	PROPOSED SPOT GRADE
104.60 / 103.59	LOT CORNER GRADE C/W EXISTING GRADE
1.3%	SLOPE C/W FLOW DIRECTION
	MAJOR OVERLAND FLOW ROUTE
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE

CLIENT

ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	2024-03-22
2	SUBMISSION NO. 1	2024-04-25
3	CITY SUBMISSION NO. 1	2024-09-25
4	REVISED PER NEW SITE PLAN	2024-10-04
5	CITY SUBMISSION NO. 2	2025-02-11
6	REVISED PER NEW SITE PLAN	2025-03-26
7		
8		

KEY PLAN

CONSULTANTS

1:400 0 4 8 12 20m

SEAL

PRIME CONSULTANT

ARCADIS

333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE
AT ROCKCLIFFE

PHASE 4 BLOCK 6

PROJECT NO: 144148	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **S.L.**

SHEET TITLE

GRADING PLAN

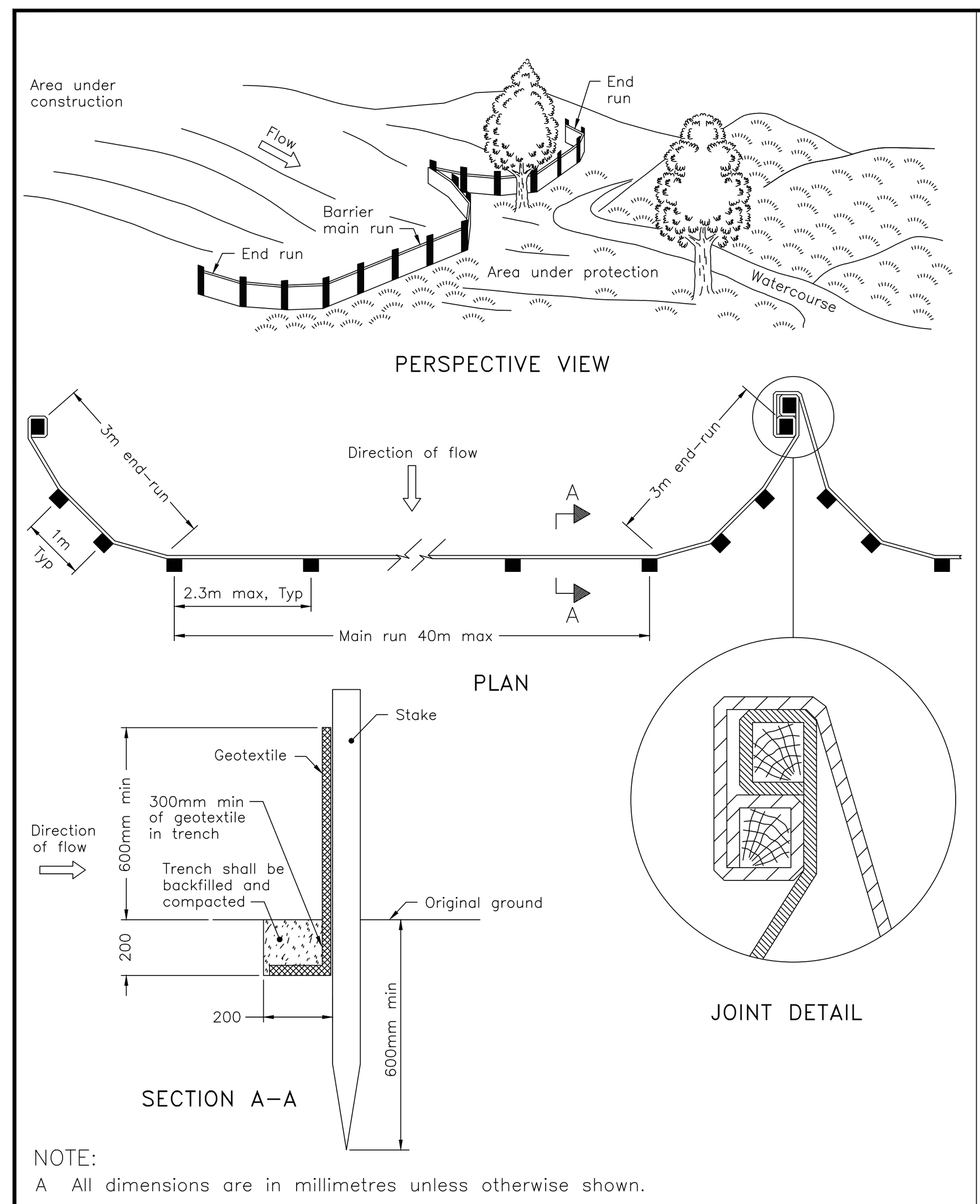
SHEET NUMBER	ISSUE
C-200	6

SCALE CHECK 1 in 50mm

19211

D07-12-24-0126

File Location: J:\144148_Block_6_Ph4_17-0_Production\7.03_Design\04_Civil\Sheets\200 GRADING PLAN.dwg Last Saved: February 11, 2025, by mlinem4928 Plotted: March 26, 2025 8:18:02 AM by Milne, Marian



ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2021 | Rev 3

LIGHT-DUTY SILT FENCE BARRIER

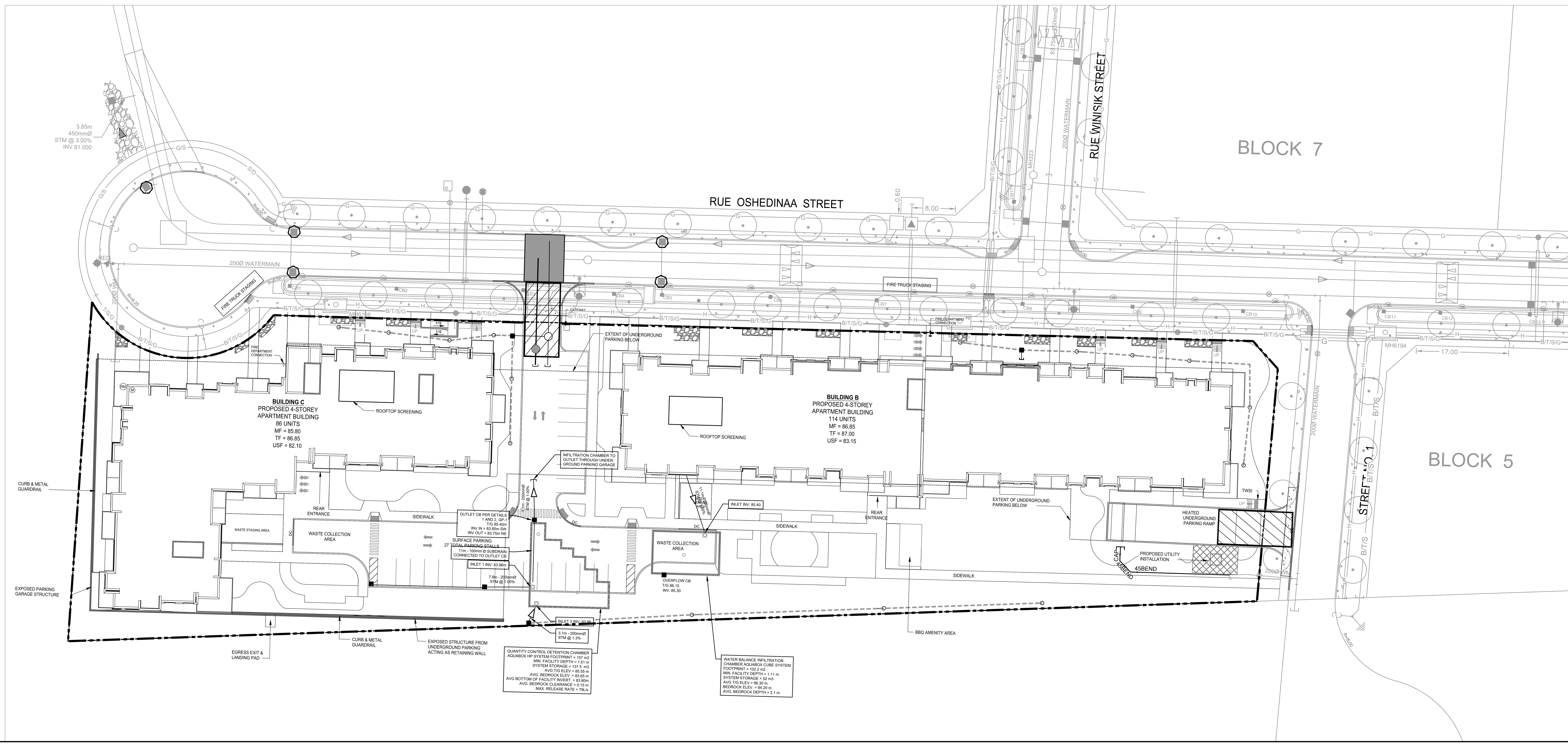
OPSD 219.110

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
3. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
5. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
6. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.
7. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
8. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT.

LEGEND:

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- SILT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH



CLIENT

ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
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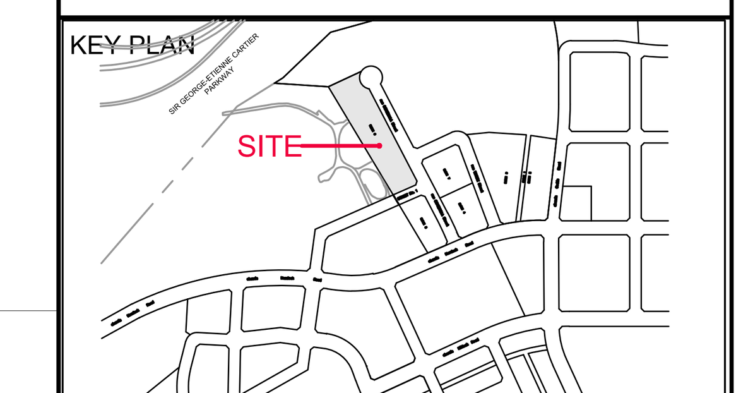
KEY PLAN



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SEAL

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2025/03/26
PROVINCE OF ONTARIO

PRIME CONSULTANT

ARCADIS

333 Preston Street - Suite 500
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PROJECT

WATERIDGE VILLAGE AT ROCKCLIFFE

PHASE 4 BLOCK 6

PROJECT NO: 144148	
DRAWN BY: M.M.	CHECKED BY: D.C.
PROJECT MGR: D.C.	APPROVED BY: S.L.

SHEET TITLE

SEDIMENT AND EROSION CONTROL PLAN

SHEET NUMBER C-900 | ISSUE 6

D07-12-24-0126

19211