

Report
Project: 144148-6.4.3

BLOCK 6 – WATERIDGE PHASE 4 SERVICING BRIEF



IBI GROUP

Prepared for ROHIT Communities Inc.
by ARCADIS

September 2024

Table of Contents

1	INTRODUCTION	4
1.1	Guidelines and Standards	5
1.2	Pre-Consultation Meeting	5
1.3	Environmental Issues.....	5
1.4	Geotechnical Concerns.....	5
2	WATER DISTRIBUTION	6
2.1	Existing Conditions	6
2.2	Design Criteria	6
2.2.1	Water Demands	6
2.2.2	System Pressures	6
2.2.3	Fire Flow Rate.....	7
2.2.4	Boundary Conditions.....	7
2.3	Proposed Water Plan.....	7
3	WASTEWATER.....	9
3.1	Existing Conditions	9
3.2	Proposed Sewers.....	9
3.2.1	Design Flow:	9
3.2.2	Population Density:	9
4	SITE STORMWATER MANAGEMENT	10
4.1	Objective	10
4.2	Existing Conditions	10
4.3	Design Criteria	10
4.4	System Concept.....	11
4.4.1	Dual Drainage Design	11
4.4.2	Proposed Minor System.....	11
4.5	Stormwater Management.....	11
4.5.1	Water Quality Control.....	11
4.5.2	Water Quantity Control.....	12
5	LOW IMPACT DEVELOPMENT	14
6	SEDIMENT AND EROSION CONTROL PLAN	15
6.1	General	15

6.2	Trench Dewatering.....	15
6.3	Bulkhead Barriers	15
6.4	Seepage Barriers	15
6.5	Surface Structure Filters	15
7	APPROVALS AND PERMIT REQUIREMENTS.....	16
7.1	City of Ottawa	16
7.2	Province of Ontario	16
7.3	Conservation Authority.....	16
7.4	Federal Government.....	16
8	CONCLUSIONS & RECOMMENDATIONS.....	17
8.1	Conclusions	17
8.2	Recommendations	17

List of Appendices

APPENDIX A

Site Plan for Block 6
RVCA Correspondence
MECP Correspondence
City of Ottawa Pre-Consultation Meeting Notes
City of Ottawa Servicing Checklist

APPENDIX B

Water Demand Calculations
FUS Calculations
Letter Confirming Building Construction Type
City of Ottawa Boundary Conditions
144148-001 Site Servicing Plan

APPENDIX C

Sanitary Sewer Design Sheet

APPENDIX D

Wateridge Phase 4 Storm Drainage Area Plan
144148-REM Removals Plan
Minor system release rate (Wateridge Phase 4)
Letter Confirming Rooftop Storage Availability
Storm Sewer Design Sheet
144148-500 Storm Drainage Area Plan
Modified Rational Method on-site SWM calculations
Watt's Adjustable Flow Control Roof Drain Spec

APPENDIX E

144148-900 Site Erosion and Sediment Control Plan
144148-200 Site Grading Plan

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 m³/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:

$$\begin{aligned}
 Q_{\text{uncontrolled}} &= 2.78 \times C \times i_{100\text{yr}} \times A \quad \text{where:} \\
 C &= \text{Average runoff coefficient} = 0.30 \times 1.25 = 0.375 \text{ (100 year C-value)} \\
 i_{100\text{yr}} &= \text{Intensity of 100-year storm event (mm/hr)} \\
 &= 1735.688 \times (T_c + 6.014)^{0.820} = 178.56 \text{ mm/hr; where } T_c = 10 \text{ minutes} \\
 A &= \text{Uncontrolled Area} = 0.13 \text{ Ha}
 \end{aligned}$$

Therefore, the uncontrolled release rate can be determined as:

$$\begin{aligned}
 Q_{\text{uncontrolled1}} &= 2.78 \times C \times i_{100\text{yr}} \times A \\
 &= 2.78 \times 0.375 \times 178.56 \times 0.13 \\
 &= 24.20 \text{ L/s}
 \end{aligned}$$

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

$$\begin{aligned}
 Q_{\text{uncontrolled2}} &= 2.78 \times C \times i_{100\text{yr}} \times A \\
 &= 2.78 \times 1.00 \times 178.56 \times 0.02 \\
 &= 9.93 \text{ L/s}
 \end{aligned}$$

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

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

$$Q_{\text{max}} = 162 \text{ L/s} - 24.20 \text{ L/s} - 9.93 \text{ L/s}$$

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

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	8.00	2.209	0.00	2.27
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 May 2024 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.

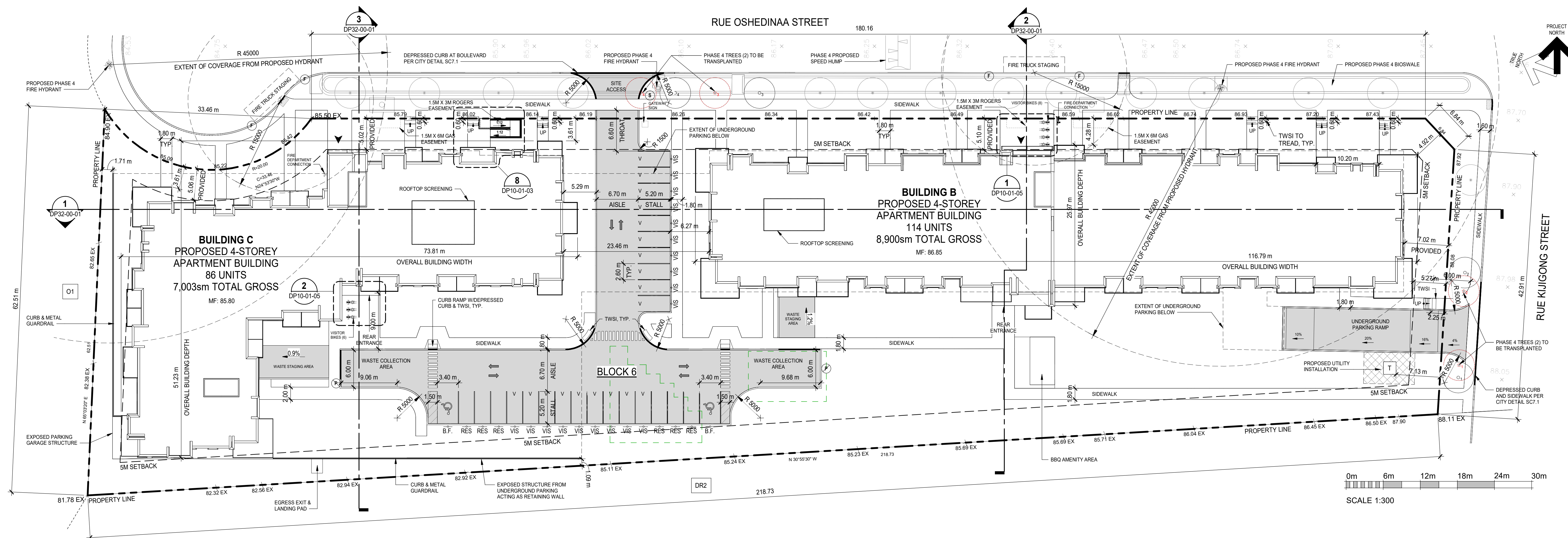
Report prepared by:

ARCADIS



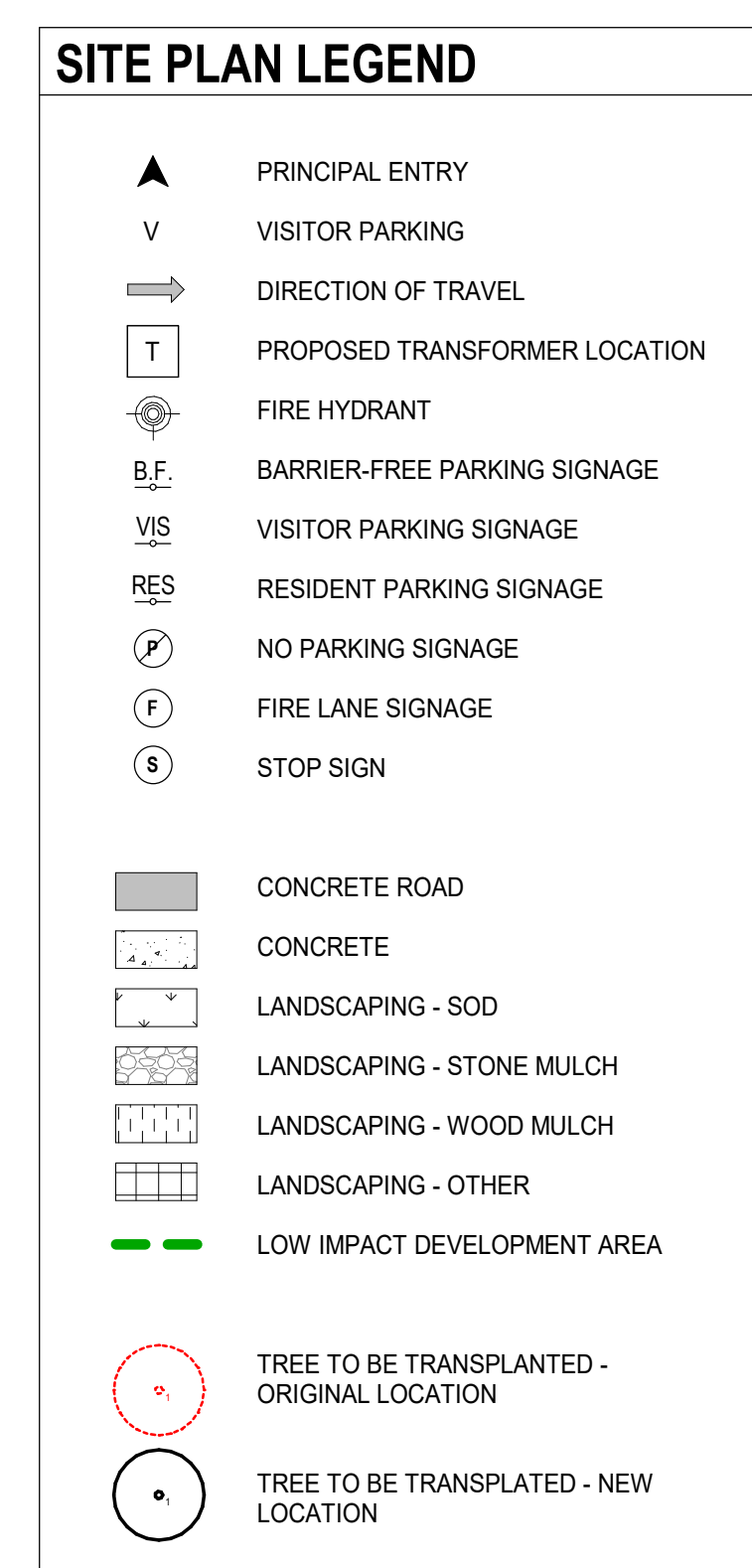
Samantha Labadie, P. Eng
Civil Engineer

APPENDIX A



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

- ### GENERAL NOTES
- ALL EXISTING SITE INFORMATION AS PER TOPOGRAPHICAL SURVEY PLAN DATED MARCH 32nd, 2023 PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
 - WHEEL STOPS TO BE 100MM HIGH AND PLACED 500MM FROM FRONT OF PARKING STALL, TYP.
 - ANY SNOW ACCUMULATED IN INTERNAL ROAD/Private WAY IS TO BE TRUCKED OFF SITE.
 - FIRE FIGHTING TO TAKE PLACE FROM OSHEDINAA STREET.
 - REFER TO LANDSCAPE DRAWINGS FOR PLANTING, SITE LIGHTING AND FURNITURE DETAILS.
 - REFER TO CIVIL DRAWINGS FOR SERVICING AND GRADING.



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 Oshedinna 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 50m Communal amenity area 120 SM 793 27m
LOT WIDTH	Minimum Provided 18.0m 48.18m

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 (Oshedinna 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 (Oshedinna Street)	1.39m	
Corner side yard (Kijigong Street)	None	
Rear yard	3.91m	
Interior side yard	3.29m	
DENSITY	Units/ Ha	Units
Minimum	105	122.4
Maximum	N/A	N/A
Proposed	172	200
HEIGHT		
Maximum	16.0m	
Proposed	15.71m (Bldg B) / 14.36m (Bldg C)	
SITE COVERAGE	34.36%	

Area Calculations

BLDG / LEVEL	GROSS FLOOR AREA	
	SF	SM
BUILDING B		
LEVEL 1	24115.7	2,240.42
LEVEL 2	23895.1	2,219.93
LEVEL 3	23895.1	2,219.93
LEVEL 4	23895.1	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
HARDSCAPE	1,021 SM
CONCRETE	625
UNIT PAVR	170
PEA GRAVEL	26
SOFTSCAPE	4,369
PLANT BEDS	2,051
SOD	2,318
TOTAL	5,390 SM
SITE COVERAGE	46.22%

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	STALLS	
			REQUIRED	PROVIDED
Building B & C				
Resident	0.50 stalls/unit	200	94	209
Visitor	0.10 stalls/unit	200	19	19
Total Stalls			113	228
Deficiency				
Surplus				115

Unit Types - Block 6

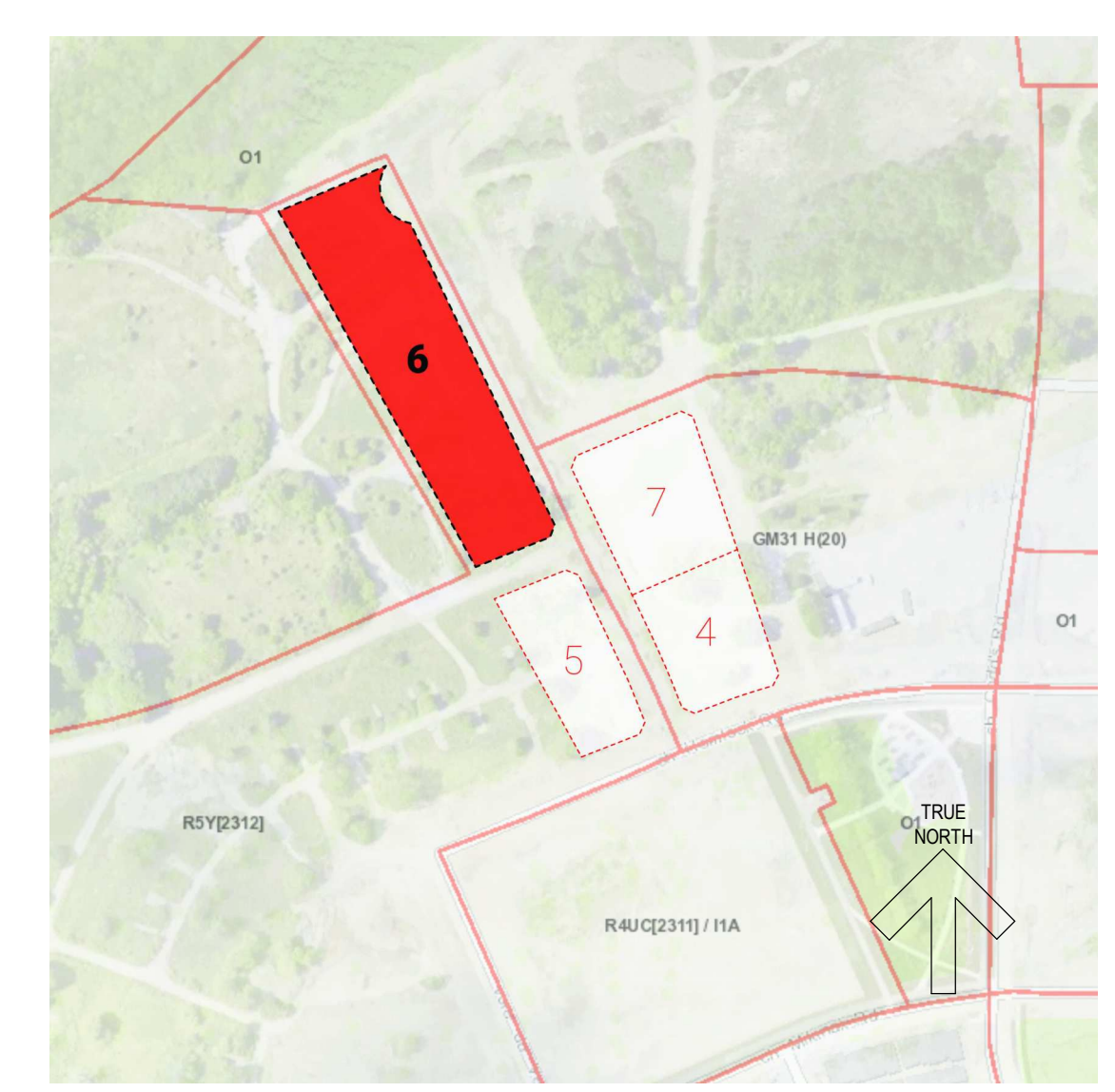
IDENTIFIER	SIZE	DESCRIPTION	PROVIDED AREA	BUILDING B	BUILDING C	QTY...	%
UNIT A1	<60 SM	BEDROOM	49.39	531.63	1	0	0.50%
UNIT A - ROSA	<60 SM	1	43.57	469.03	15	8	11.50%
UNIT B2 - ROSSO	<60 SM	1	49.84	536.48	8	16	8.00%
UNIT B - AMBRA	<60 SM	1 + DEN	58.75	632.38	45	27	36.00%
AZURRO	>60 SM	1 + DEN	63.00	678.15	0	4	2.00%
GIALLO	>60 SM	1 + DEN	63.00	678.15	0	4	2.00%
GRIGIO	>60 SM	1 + DEN	63.00	678.15	6	3	4.50%
ARGENTO	>60 SM	2	90.22	971.10	12	16	14.00%
UNIT G	>60 SM	2	76.58	824.31	20	9	29.00%
NERO D / ORO	>60 SM	2 + DEN	84.30	907.41	3	3	3.00%
UNIT I	>60 SM	3	103.50	1114.06	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	39	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

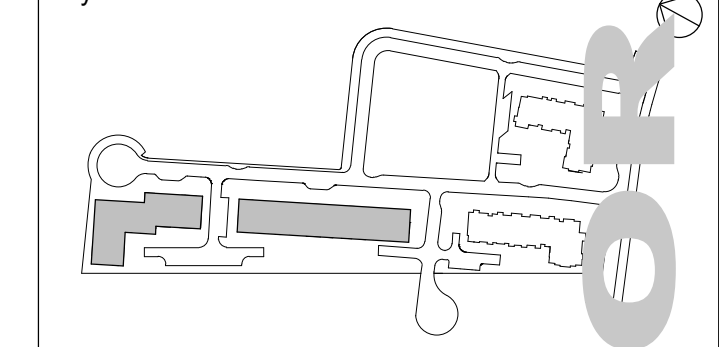
DATE	ISSUED FOR	REV
2024-09-XX	SPA SUBMISSION	A



This drawing has been prepared solely for the use of ROHIT COMMUNITIES and there are no representations of any kind made by NORR Architects Engineers Planners to any party with whom NORR Architects Engineers Planners has not entered into a contract.

This drawing shall not be used for construction purposes until the seal appearing hereon is signed and dated by the Architect or Engineer.

Project Component
SITE PLAN CONTROL APPLICATION



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

Seal(s)



NORR Architects & Engineers Ltd.
 55 Murray Street, Suite 600
 Ottawa, ON, Canada K1N 5M3
 norr.com

Project Manager: M.EISELEN
 Drawn: O.BREYTENBACH
 Project Leader: O.BREYTENBACH
 Checked: E.FAULKNER
 Client: ROHIT COMMUNITIES

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

Project
Wateridge Village Block 6
 125 & 135 OSHEDINNA STREET
 OTTAWA, ON

Drawing Title
SITE PLAN, CONTEXT, STATISTICS AND DETAILS

Scale: As indicated

Project No.: NCCA22-0243

Drawing No.: **DP10-01-01**

PRELIMINARY - NOT FOR CONSTRUCTION

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



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

This message may contain information that is privileged or confidential and is intended to be for the use of the individual(s) or entity named above. This material may contain confidential or personal information which may be subject to the provisions of the *Municipal Freedom of Information & Protection of Privacy Act*. If you are not the intended recipient of this e-mail, any use, review, revision, retransmission, distribution, dissemination, copying, printing or otherwise use of, or taking of any action in reliance upon this e-mail, is strictly prohibited. If you have received this e-mail in error, please contact the sender and delete the original and any copy of the e-mail and any printout thereof, immediately. Your cooperation is appreciated.

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



This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please note that any form of distribution, copying or use of this communication or the information in it is strictly prohibited and may be unlawful. If you have received this communication in error, please return it to the sender and then delete the email and destroy any copies of it. While reasonable precautions have been taken to ensure that no software or viruses are present in our emails, we cannot guarantee that this email or any attachment is virus free or has not been intercepted or changed. Any opinions or other information in this email that do not relate to the official business of Arcadis are neither given nor endorsed by it.

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_Bl6.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 m³ / 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.

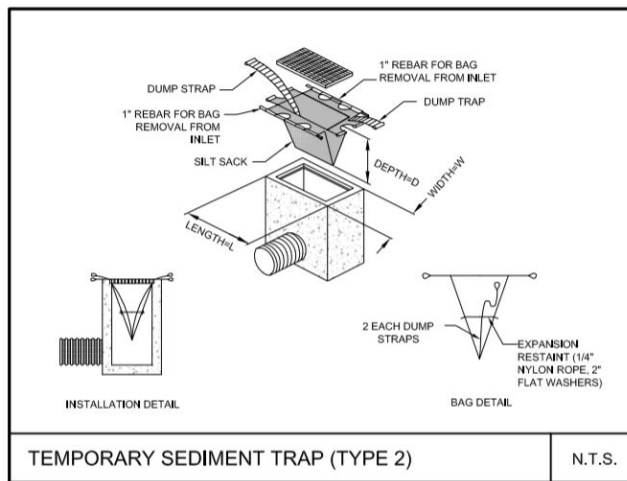
Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

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 applicable, 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 drawings, by-Laws and guidelines.

Lane Closures:

Special Condition is required for SPC – Applicant to 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 defensible 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 feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- 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

IBI GROUP

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	WATER DEMAND RATES		PEAKING FACTORS FOR POP. OF 501 TO 3000		FIRE DEMANDS	
Apartment - 1 bed	1.4 persons/unit	Residential	280 l/cap/day	Maximum Daily	Residential 2.5 x avg. day	Single Family 10,000 l/min (166.7 l/s)
Apartment - 2 bed	2.1 persons/unit	Commercial Shopping Center	2,500 L/(1000m2)/day	Maximum Hourly	Commercial 1.5 x avg. day	Semi Detached & Townhouse 10,000 l/min (166.7 l/s)
Apartment - 3 bed	3.1 persons/unit				Residential 2.2 x max. day	Medium Density 15,000 l/min (250 l/s)
					Commercial 1.8 x max. day	

STEP	Contents	Description	Adjustment Factor	Result
1	Floor Area	Building B		1125 m ²
	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 _v /A		15000 L/min
4	Occupancy and Contents	Noncombustible Contents	-25%	Limited Combustible Contents -15%
		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%
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes -10%
		Fully Supervised System	-10%	No
		Fire Flow		-5100 L/min
6	Exposure Adjustment	Based on Table 6 Exposure Adjustment Charges for Subject Building		
	North	Separation (m)	23.9	With unprotected opening 6%
		Length X Height Factor (m.storeys)	79.6	
		Construction Type	Type V	
	South	Separation (m)		2-hour rated firewall 10%
		Length X Height Factor (m.storeys)		
Construction Type				
East	Separation (m)	>30	With unprotected opening 0%	
	Length X Height Factor (m.storeys)	0		
	Construction Type	Type V		
West	Separation (m)	>30	With unprotected opening 0%	
	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.

STEP	Contents	Description	Adjustment Factor	Result
1	Floor Area	Building C		1748.22 m ²
	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 _v /A		18000 L/min
4	Occupancy and Contents	Noncombustible Contents	-25%	Limited Combustible -15%
		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%
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes -10%
		Fully Supervised System	-10%	No
			Fire Flow	
6	Exposure Adjustment	Based on Table 6 Exposure Adjustment Charges for Subject Building		
	North	Separation (m)	>30	With unprotected opening 0%
		Length X Height Factor (m.storeys)	0	
		Construction Type	Type V	
	South	Separation (m)	23.9	With unprotected opening 6%
		Length X Height Factor (m.storeys)	79.6	
		Construction Type	Type V	
East	Separation (m)	>30	With unprotected opening 0%	
	Length X Height Factor (m.storeys)	0		
	Construction Type	Type V		
West	Separation (m)	>30	With unprotected opening 0%	
	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.

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

https://norrzone-my.sharepoint.com/personal/minette_eiselen_norr_com/documents/documents/20240228-rohit_ottawa-ordinary_construction_confirmation.docx

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 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: Chettrar, Anton <anton.chettrar@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

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

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



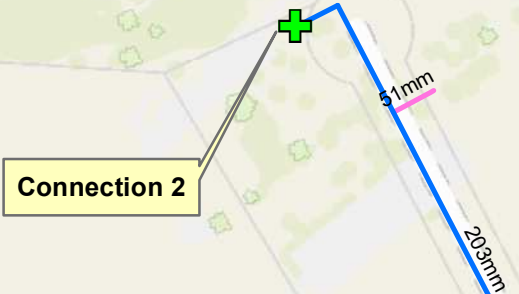
Please note my new email address and update for your records.

This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please note that any form of distribution, copying or use of this communication or the information in it is strictly prohibited and may be unlawful. If you have received this communication in error, please return it to the sender and then delete the email and destroy any copies of it. While reasonable precautions have been taken to ensure that no software or viruses are present in our emails, we cannot guarantee that this email or any attachment is virus free or has not been intercepted or changed. Any opinions or other information in this email that do not relate to the official business of Arcadis are neither given nor endorsed by it.

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

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

Boundary Conditions for Block 6- Wateridge Phase 4



Connection 2

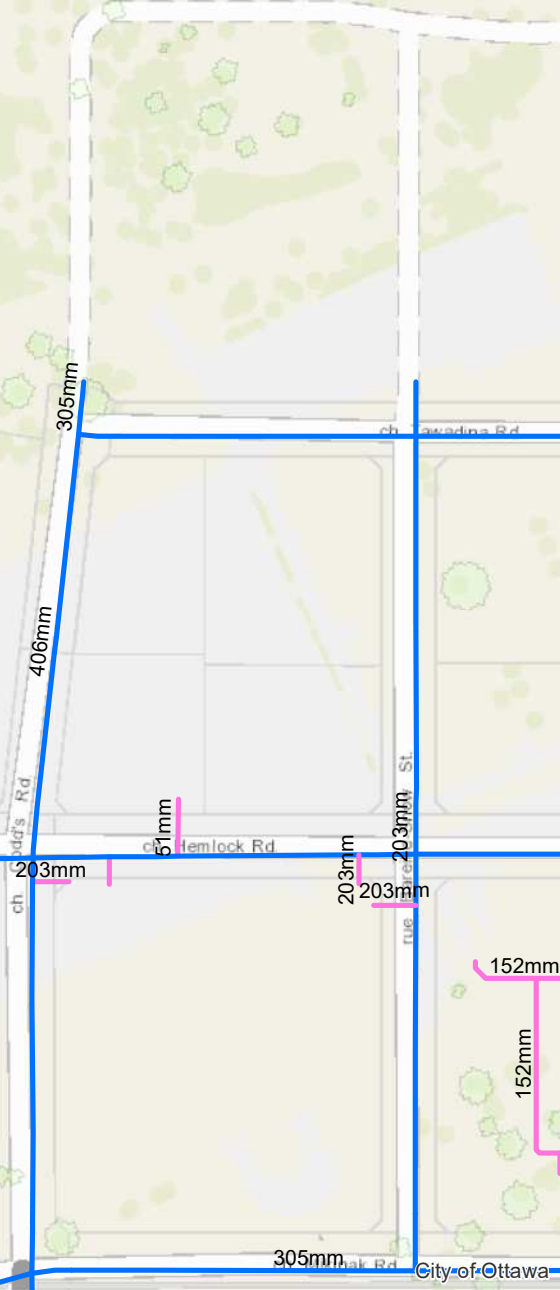
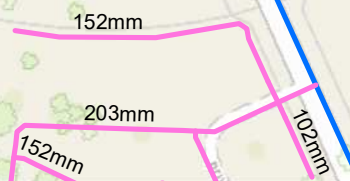


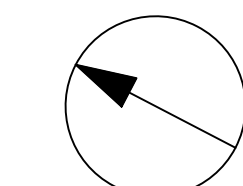
Connection 1

Future 203mm watermain

Legend

-  Private
-  Public



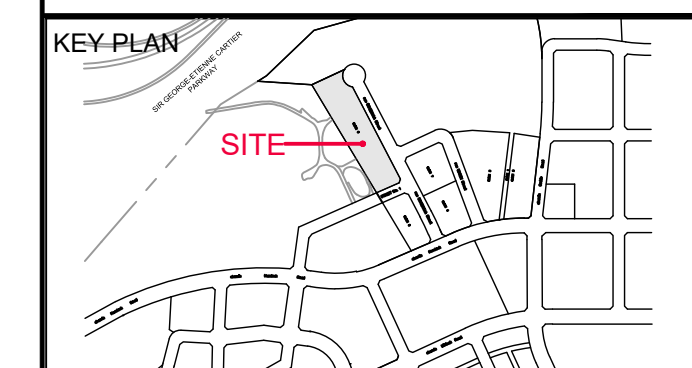


CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

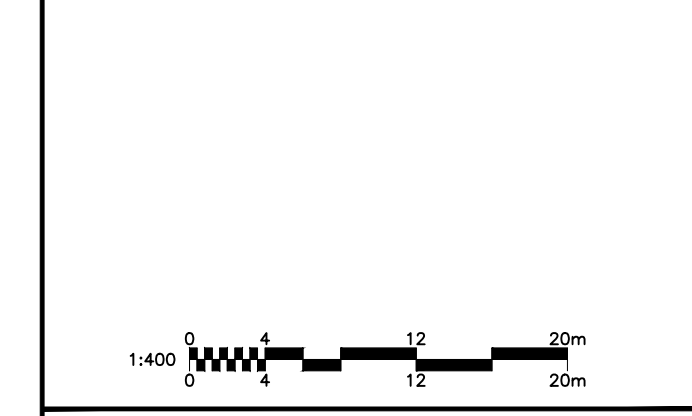
COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by Arcadis is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and Arcadis shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to Arcadis for general conformance before proceeding with fabrication.

Arcadis Professional Services (Canada) Inc.
Formerly B|G 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		
5		
6		
7		
8		



CONSULTANTS



SEAL

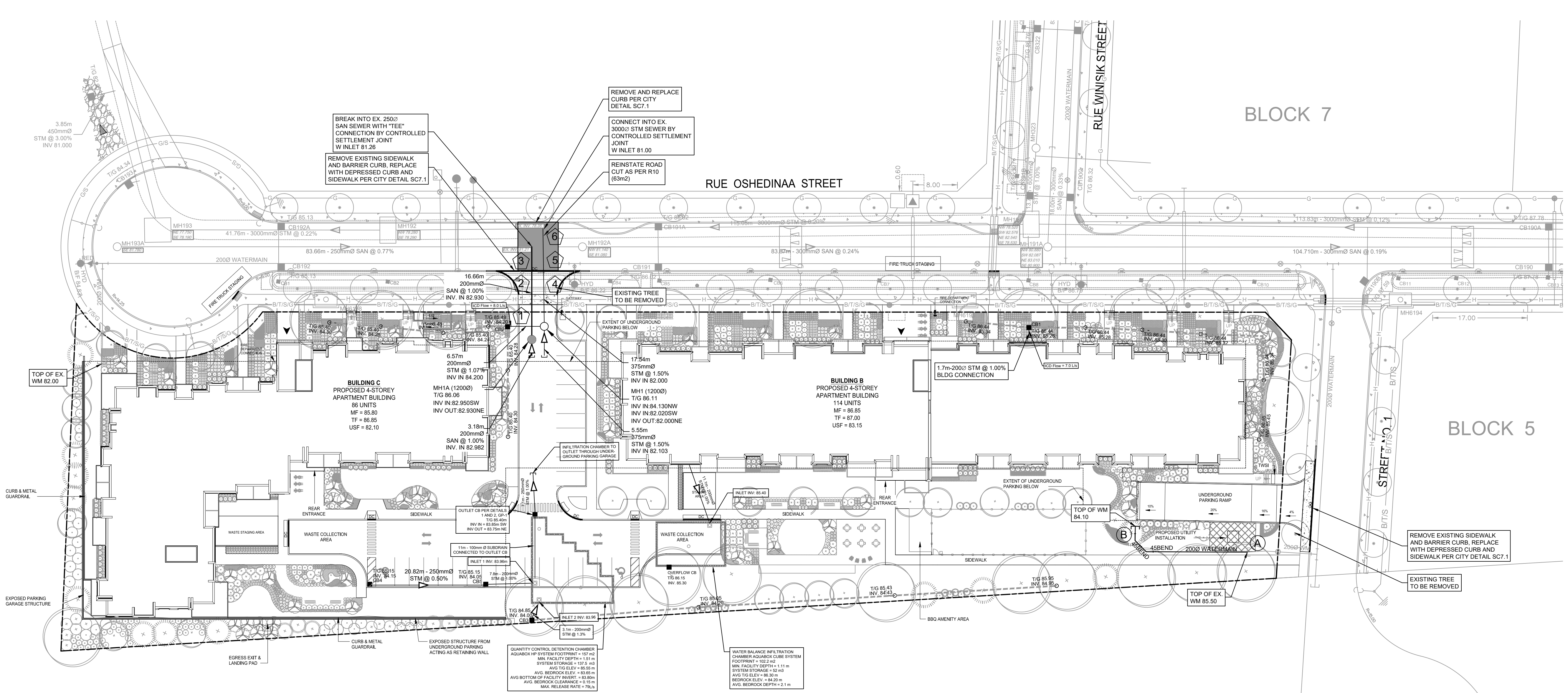
PRIME CONSULTANT
ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

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
GENERAL PLAN OF SERVICES

SHEET NUMBER **C-001** ISSUE **3**

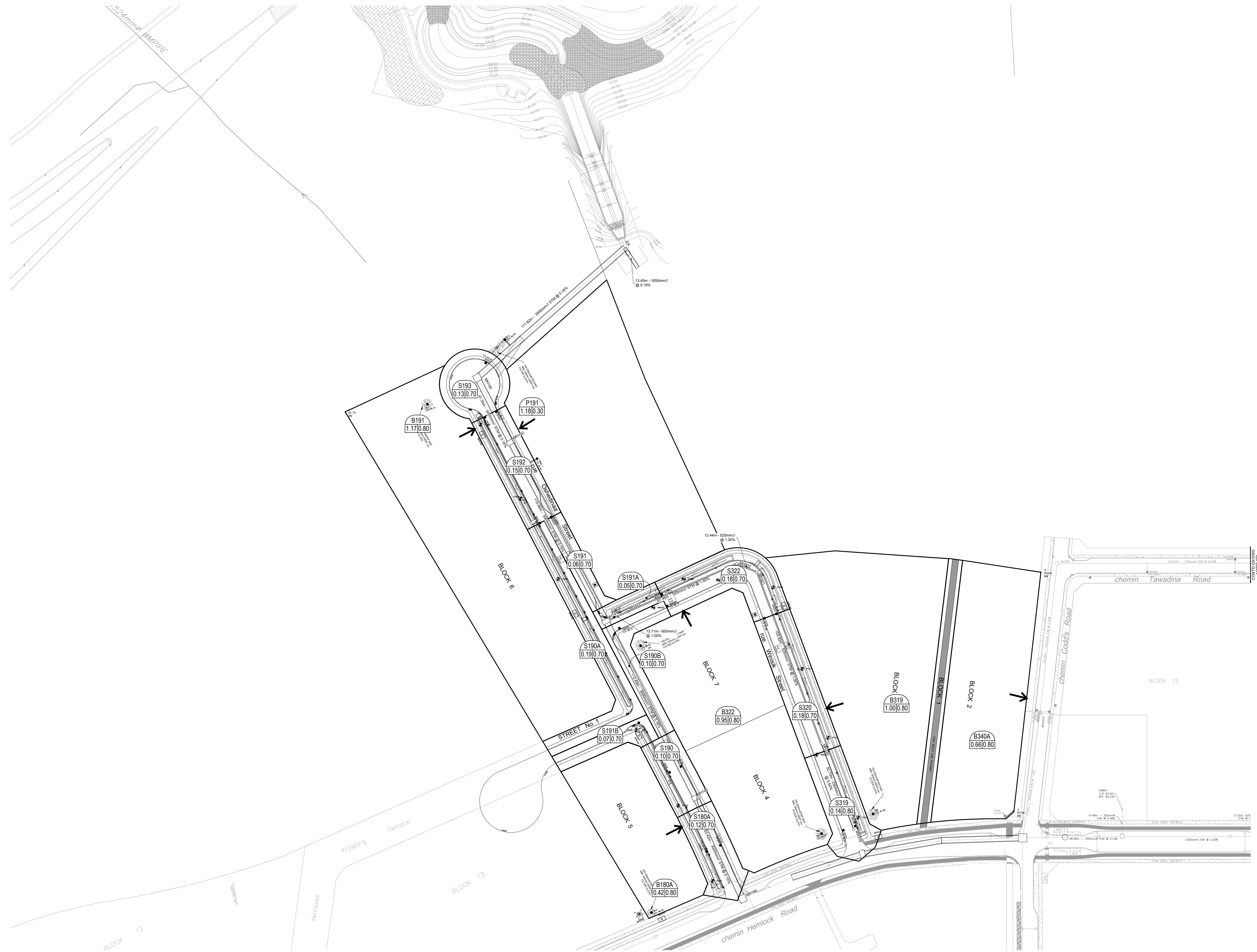


File Location: \\144148_Block_6_Ph4_L7_0_Production\03_Design\04_Civil\Sheets\01_GENERAL_PLAN.dwg Last Saved: September 25, 2024, 9:47:22 AM by Milne, Marlene
 SCALE CHECK 1:1m
 D07-XX-XX-XXXX
 XXXXX

APPENDIX C

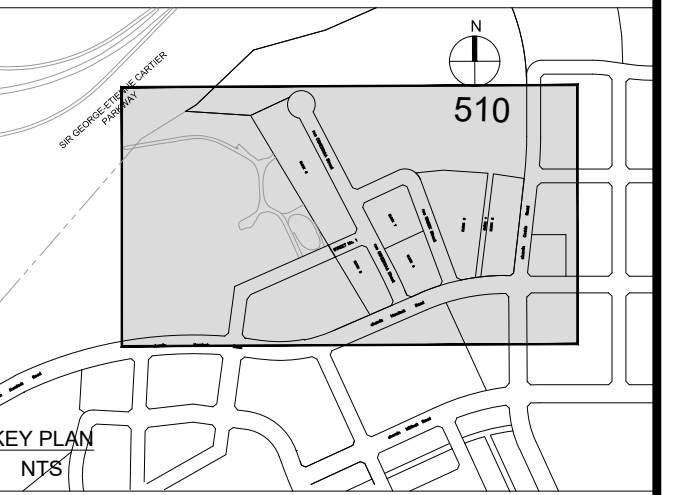
APPENDIX D

J:\118863_Wateridge\Drawings\Storm\1001 Storm.dwg Layout Name: 510 Plot: Storm - AIA STANDARD - AIA CTB Plot Size: 11.008 Printed At: 11/17/2023 4:22 PM Plot Size: 11.008 Plot Size: 11.008



LEGEND :

- AREA NUMBER
- RUNOFF COEFFICIENT
- AREA IN HECTARES
- PROPOSED SERVICE LATERAL LOCATION



No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9	REVISED CB180 TO CB180 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

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

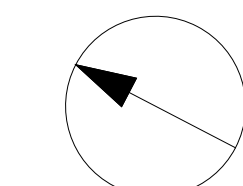
N

Drawing Title
STORM DRAINAGE
AREA PLAN

Scale
1:1000

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

D07-16-15-0003_P4

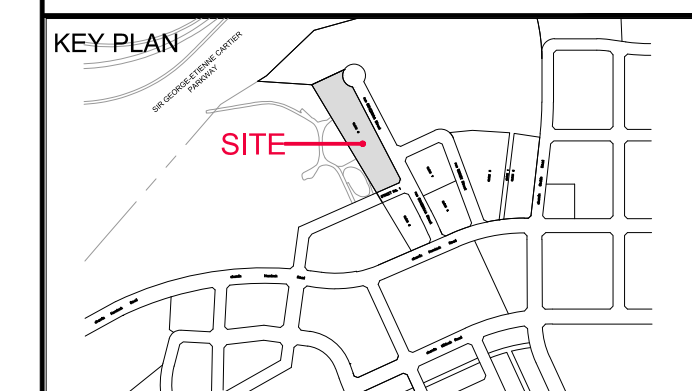


CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

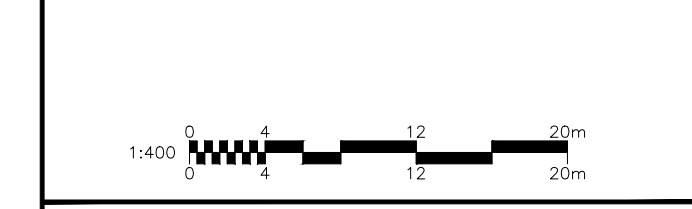
COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by Arcadis is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and Arcadis shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to Arcadis for general conformance before proceeding with fabrication.

Arcadis Professional Services (Canada) Inc.
Formerly B|I Group Professional Services (Canada) Inc.

ISSUES		
No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	2024-03-22
2	SUBMISSION NO. 1	2024-04-25
3		
4		
5		
6		
7		
8		



CONSULTANTS



SEAL

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

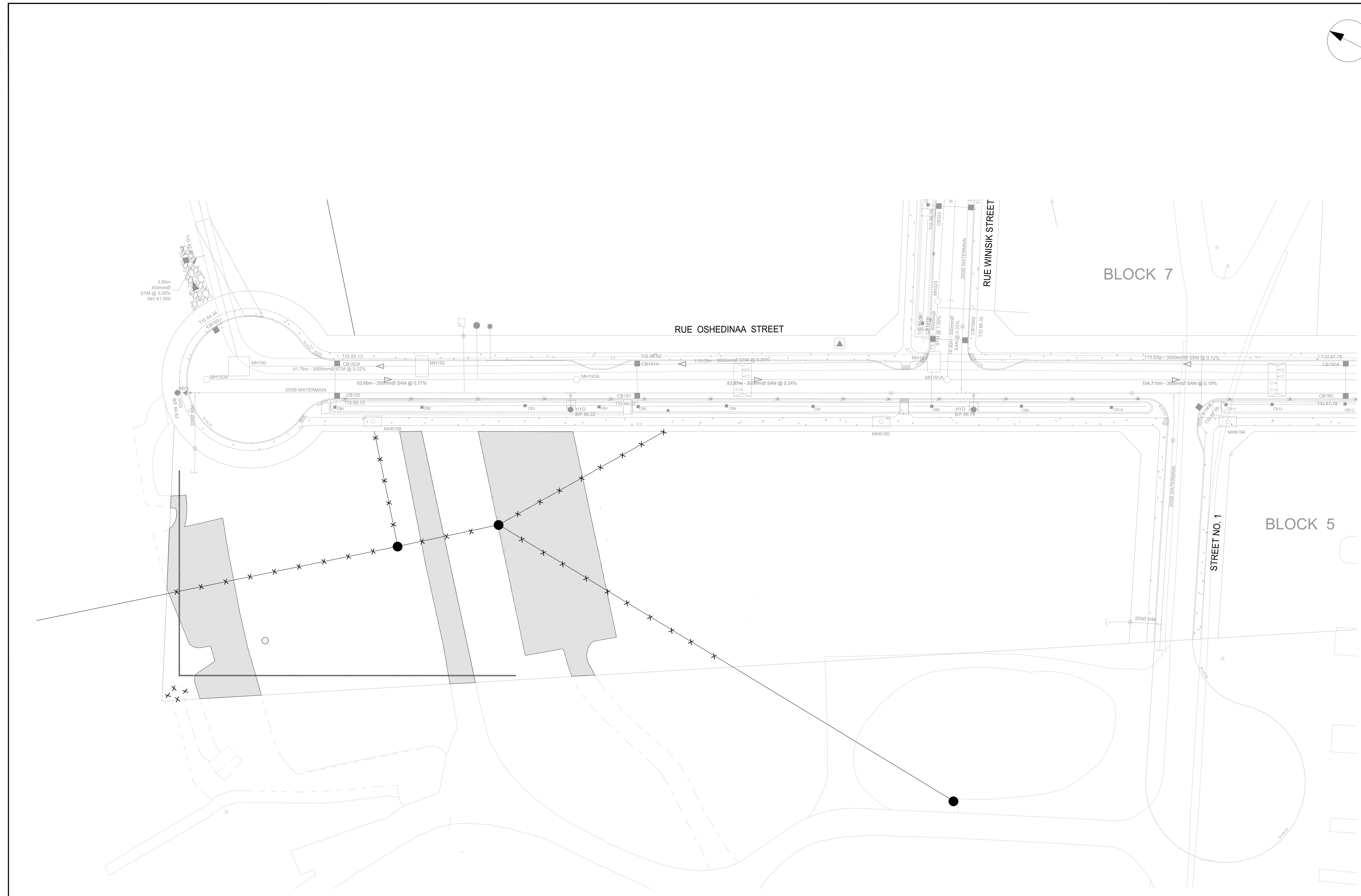
PROJECT
WATERIDGE VILLAGE AT ROCKCLIFFE
PHASE 4 BLOCK 6

PROJECT NO:
144148

DRAWN BY: M.M.	CHECKED BY: D.C.
PROJECT MGR: D.C.	APPROVED BY: S.L.

SHEET TITLE
REMOVALS PLAN

SHEET NUMBER C-REM	ISSUE 2
------------------------------	-------------------



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		

File Location: J:\144148_Production\7_03_Design\04_Civil\Sheets\C-REM.dwg
 Last Saved: April 25, 2024, by M.Milne
 Plotted: Thursday, April 25, 2024, 3:25:09 PM by Manim Milne
 D07-XX-XX-XXXX
 XXXXX

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 Wateridge.

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 Wateridge 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

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.

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**.

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

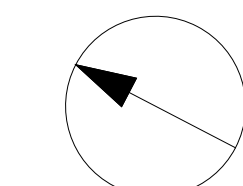
w2024-05-01

Date

Notification: Email

https://norrzone-my.sharepoint.com/personal/minette_eiselen_norr_com/documents/desktop/20240501-rohit_ottawa_wateridge_lot_6_-_storm_event_ponding_areas_.docx

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)			SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr)			
																															DIA	W	H			(L/s)	(%)			
Building B & C		MHI	EX			0.06		0.03						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				150	1.965	97.02	43.3%
																												*Flowrate restricted												
Definitions:				Notes:												Designed:												Revision												
Q = 2.78CIA, where:				1. Mannings coefficient (n) = 0.01												SEL												1												
Q = Peak Flow in Litres per Second (L/s)																Checked: DRC												Site Servicing Report Submission 1												
A = Area in Hectares (Ha)																Dwg. Reference: 144148-500																								
I = Rainfall Intensity in millimeters per hour (mm/hr)																												File Reference: 144148-E.04.D4												
[I = 732.951 / (TC+6.199)^0.810] 2 YEAR																												Date: 2024-04-29												
[I = 998.071 / (TC+6.053)^0.814] 5 YEAR																												Sheet No: 1 of 1												
[I = 1174.184 / (TC+6.014)^0.816] 10 YEAR																																								
[I = 1735.888 / (TC+6.014)^0.820] 100 YEAR																																								



LEGEND :

AREA NUMBER
RUNOFF COEFFICIENT
AREA IN HECTARES

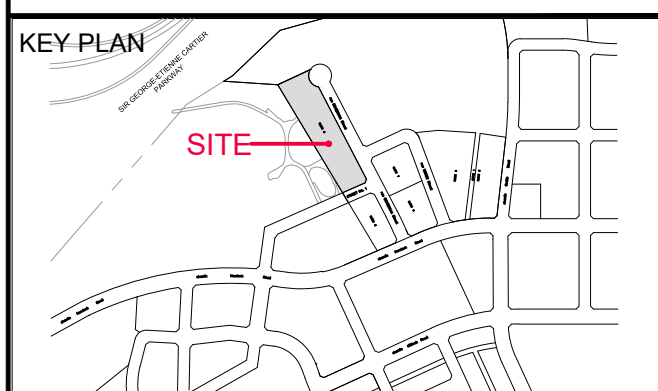
CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by Arcadis is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and Arcadis shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to Arcadis for general conformance before proceeding with fabrication.

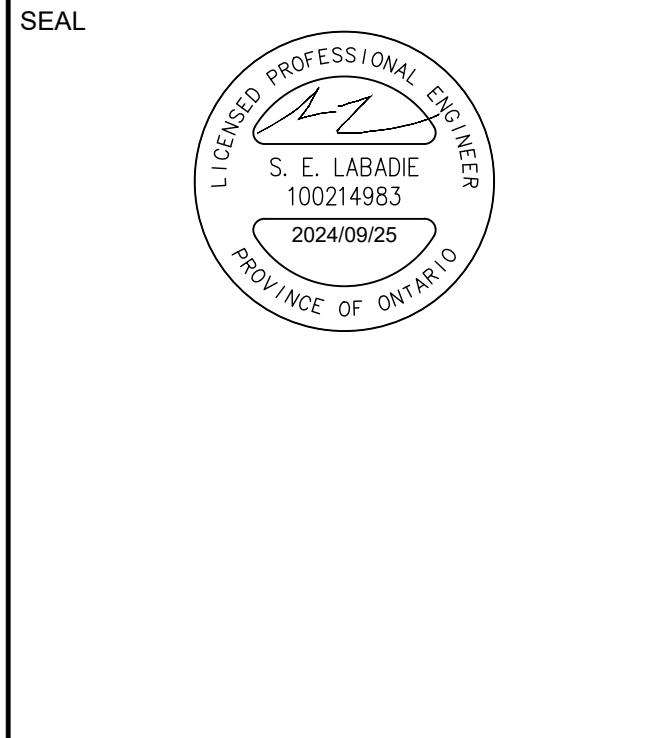
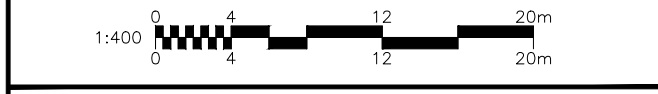
Arcadis Professional Services (Canada) Inc.
Formerly B|G Professional Services (Canada) Inc.

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		
5		
6		
7		
8		



CONSULTANTS



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

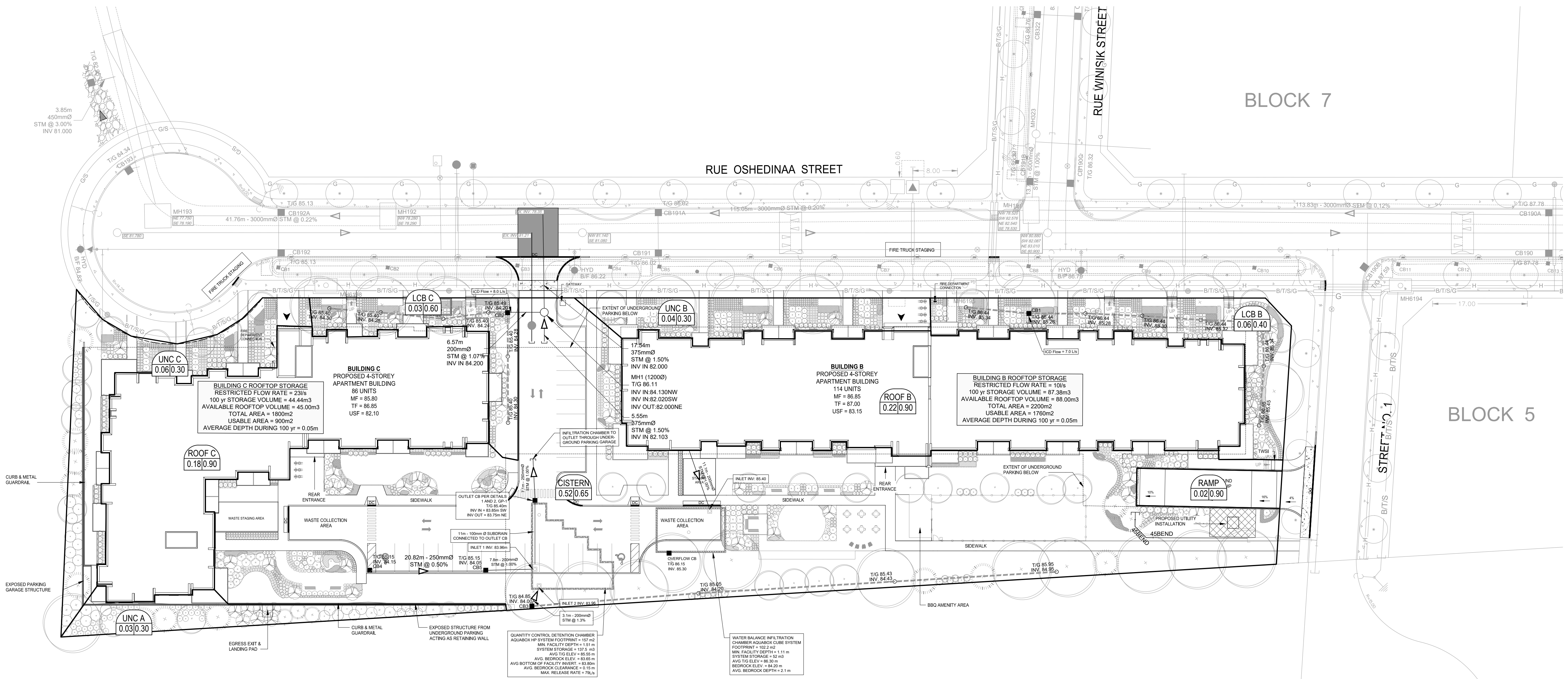
PROJECT
WATERIDGE VILLAGE AT ROCKCLIFFE
PHASE 4 BLOCK 6

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 C-500	ISSUE 3
------------------------------	-------------------



File Location: J:\144148_Production\7_03_Design\04_Civil\Sheets\C-500 STORM DRAINAGE PLAN.dwg Last Saved: April 25, 2024, by M.Milne Plotted: September 25, 2024 9:02:57 AM by Milne, Marlon
 1"=XXXX
 D07-XX-XX-XXXX

Formulas and Descriptions

$i_{2yr} = 1.2 \text{ year Intensity} = 732.951 / (T_c + 6.199)^{0.870}$
 $i_{5yr} = 1.5 \text{ year Intensity} = 998.071 / (T_c + 6.053)^{0.814}$
 $i_{100yr} = 1.100 \text{ year Intensity} = 1735.688 / (T_c + 6.014)^{0.820}$
 $T_c = \text{Time of Concentration (min)}$
 $C = \text{Average Runoff Coefficient}$
 $A = \text{Area (Ha)}$
 $Q = \text{Flow} = 2.78CIA \text{ (L/s)}$

Maximum Allowable Release Rate

Restricted Flowrate ($Q_{restricted} = 2.78 \cdot C^{1.1}_{5yr} \cdot A_{site}$ based on $C=0.50, T_c=20min$)

Per Wateridge Phase 4 Design Brief, dated March 2023

$Q_{restricted} =$	162.00 L/s
--------------------	------------

Uncontrolled Release ($Q_{uncontrolled} = 2.78 \cdot C^{1.1}_{100yr} \cdot A_{uncontrolled}$) UNC A, B, C

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

$Q_{uncontrolled} =$	24.20 L/s
----------------------	-----------

RAMP

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

$Q_{uncontrolled} =$	9.93 L/s
----------------------	----------

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

$Q_{max\text{ allowable}} =$	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

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					100-Year +20% Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{100yr} \times A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YR Q_p 20% (L/s)	$Q_p - Q_r$ (L/s)	Volume 100+20 (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	45.61	35.61	111.09		
53	61.28	37.48	10.00	27.48	87.37					
54	60.44	36.96	10.00	26.96	87.36					

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

Drainage Area		Bldg B Roof			
Area (Ha)	0.22	Restricted Flow ICD_{Actual} (L/s)=	10.00		
C =	0.90	Restricted Flow Q_r (L/s)=	10.00		
2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{2yr} \times A$ (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					100-Year +20% Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{100yr} \times A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YR Q_p 20% (L/s)	$Q_p - Q_r$ (L/s)	Volume 100+20 (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	74.38	51.38	58.57		
20	119.95	60.02	23.00	37.02	44.43					
21	116.30	58.20	23.00	35.20	44.35					

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

Drainage Area		Bldg C Roof			
Area (Ha)	0.18	Restricted Flow ICD_{Actual} (L/s)=	23.00		
C =	0.90	Restricted Flow Q_r (L/s)=	23.00		
2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{2yr} \times A$ (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					100-Year +20% Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{100yr} \times A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YR Q_p 20% (L/s)	$Q_p - Q_r$ (L/s)	Volume 100+20 (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	142.61	103.11	160.85		
27	98.66	115.88	39.50	76.38	123.74					
28	96.27	113.08	39.50	73.58	123.61					

Storage (m^3)					100+20				
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Surface	Sub-surface	Balance
0.00	123.77	0.00	124.0	0.00	0.00	160.85	0.00	124	36.85
					convert to flow with peak T_c (L/s)				
					23.62				
overflows to: LCB A									

Drainage Area		Cistern			
Area (Ha)	0.52	Restricted Flow ICD_{Actual} (L/s)=	79.00		
C =	0.65	Restricted Flow Q_r (L/s)=	39.50		
2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times CI_{2yr} \times A$ (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				



Adjustable Accutrol Weir
 Tag: _____

**Adjustable Flow Control
 for Roof Drains**

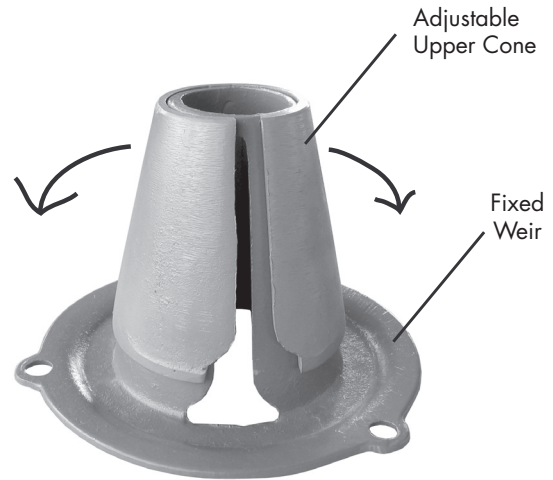
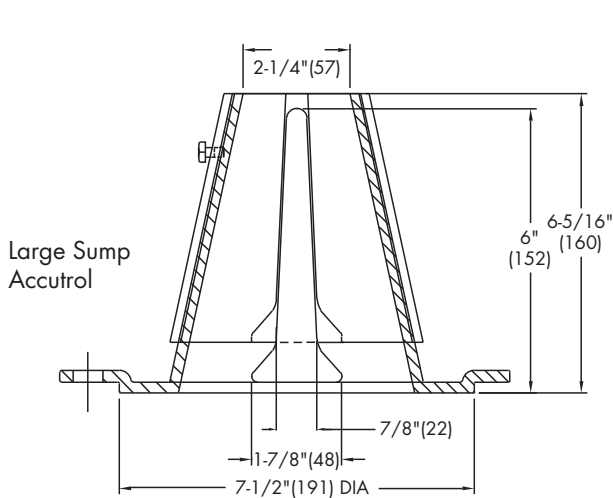
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

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 _____
 Job Location _____
 Engineer _____

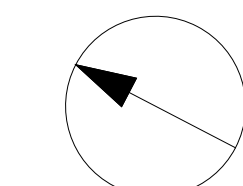
Contractor _____
 Contractor's P.O. No. _____
 Representative _____

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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



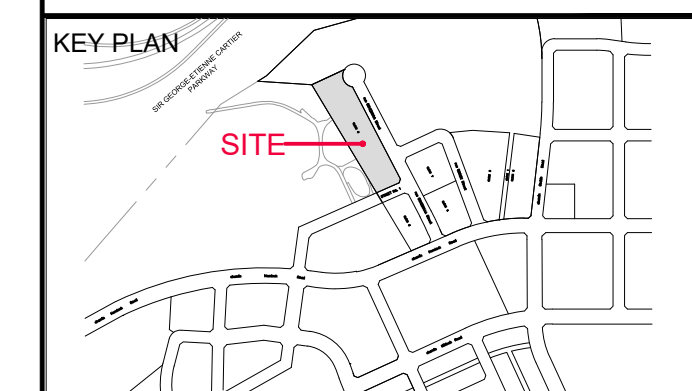
CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

COPYRIGHT
This drawing has been prepared solely for the intended use, thus any reproduction or distribution for any purpose other than authorized by Arcadis is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and Arcadis shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to Arcadis for general conformance before proceeding with fabrication.

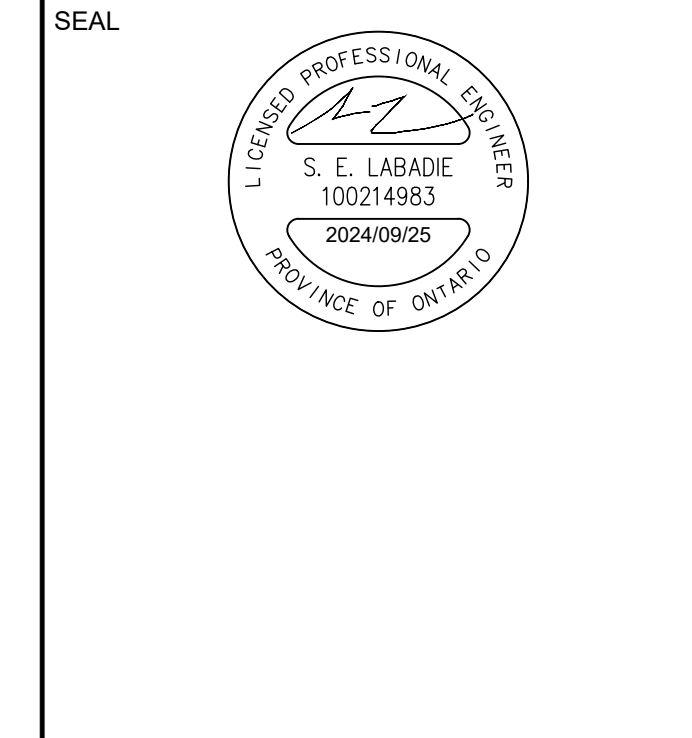
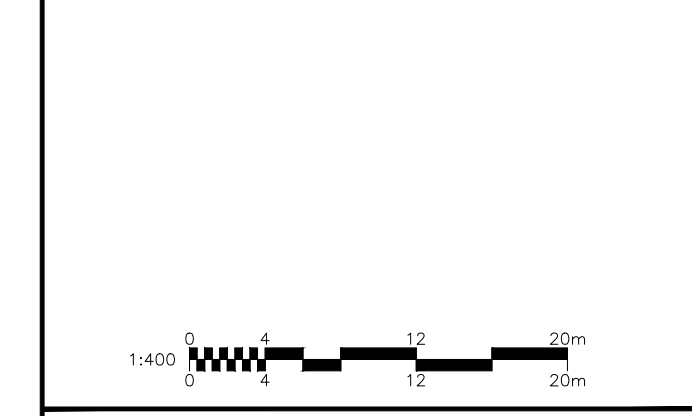
Arcadis Professional Services (Canada) Inc.
Formerly B|G Professional Services (Canada) Inc.

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		
5		
6		
7		
8		



CONSULTANTS



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

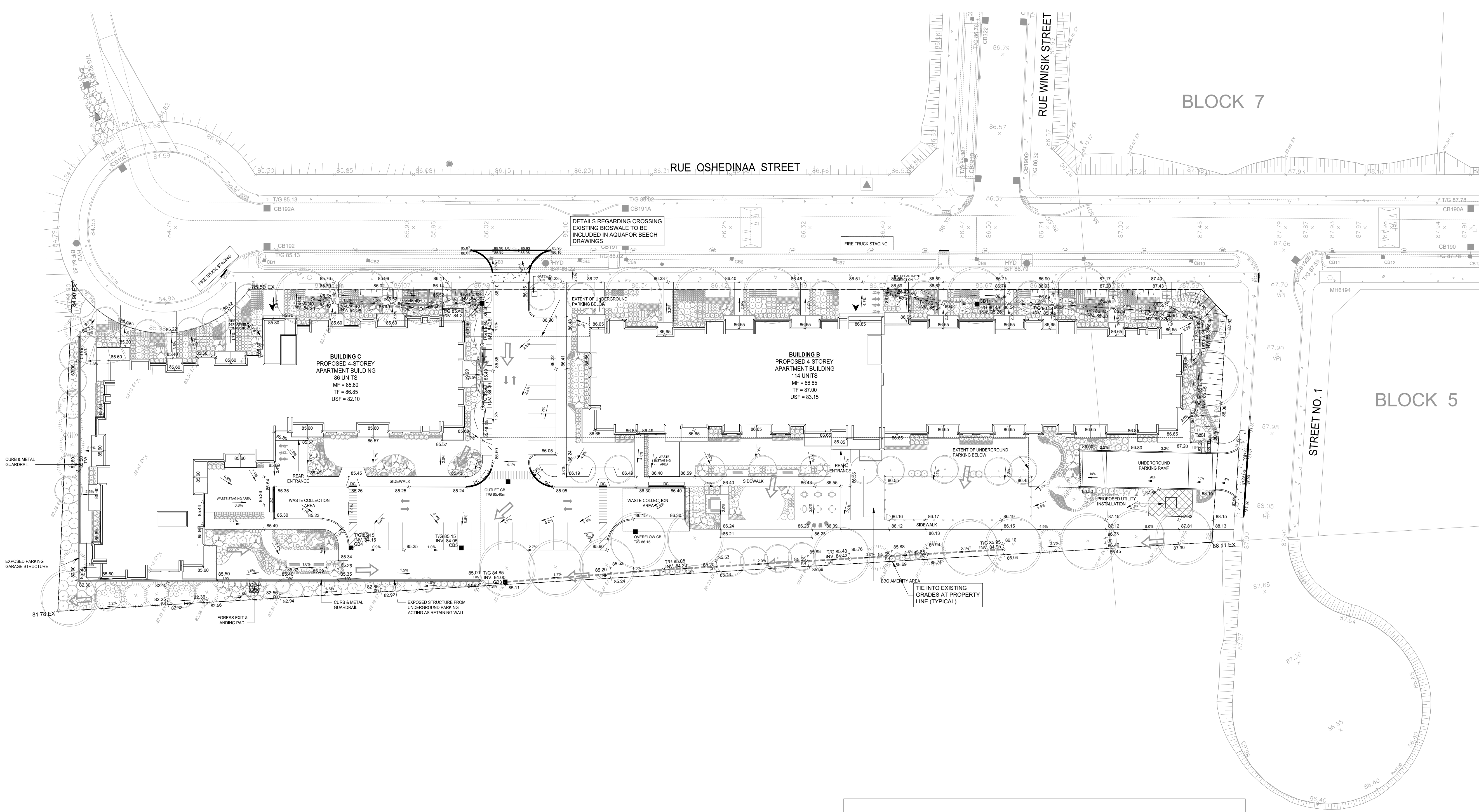
PROJECT
WATERIDGE VILLAGE AT ROCKCLIFFE
PHASE 4 BLOCK 6

PROJECT NO:
144148
DRAWN BY:
M.M.
PROJECT MGR:
D.C.

CHECKED BY:
D.C.
APPROVED BY:
S.L.

SHEET TITLE
GRADING PLAN

SHEET NUMBER
C-200
ISSUE
3



GRADING LEGEND

- PROPOSED SPOT GRADE
- LOT CORNER GRADE C/W EXISTING GRADE
- SLOPE C/W FLOW DIRECTION
- MAJOR OVERLAND FLOW ROUTE
- TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE

File Location: J:\144148_Production\703_Design\04_Civil\Sheets\200 GRADING PLAN.dwg Last Sheet: September 19, 2024, by mlm4226 Plotted: September 25, 2024 8:51:02 AM by Milne, Marjan
 D07-XX-XX-XXXX
 XXXXX