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STORMWATER MANAGEMENT REPORT

Proposed Residential Development
42 Northside Road
OTTAWA, ONTARIO

Prepared For:
Rohit Communities Ontario Inc.
550 91 Street SW, Suite 101
Edmonton, Alberta
T6X 0V1

PROJECT #: 211099

DISTRIBUTION
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1 INTRODUCTION

Kollaard Associates was retained by Rohit Communities Ontario Inc. to complete a Stormwater Management Report for a proposed 5 storey residential apartment building development in Ottawa, Ontario.

This report will summarize the stormwater management (SWM) design requirements and proposed works that will address stormwater flows arising from the site under post-development conditions. The report will identify any stormwater servicing concerns and also describe any measures to be taken during construction to minimize erosion and sedimentation. This report will also address the capacity of the existing municipal storm sewer to hydraulically convey the stormwater runoff from the site.

The proposed development is located at 42 Northside Road, Ottawa, Ontario. The property is on the southeast side of Northside Road immediately east of the west segment of Thorncliff Place.

The site has a total area of 0.12 hectares and is currently occupied by a vacant 1-storey commercial building. It is understood that the existing building will be removed and a new residential building with an approximately 883 square meter footprint will be constructed. The proposed development is to consist of a 5-storey building with 2 levels of underground parking.

On-site stormwater detention will be provided and the discharge rate from the stormwater storage will be restricted to ensure that the post-development runoff rate from the site during a 1 to 100 year design storm will be less than or equal to the predevelopment runoff rate for the 5 year design storm event. The stormwater storage requirements will be met for all design storm events up to and including the 100-year design storm on the roof for the proposed building.

Calculations of the required storage volumes have been prepared based on the modified Rational Method as identified in Section 5.4 and Section 8.3.10.3 of the City's Sewer Guidelines.

Design of the stormwater management system was completed in conformance with the City of Ottawa Sewer Design Guidelines (October 2012 as amended).

2 STORMWATER DESIGN

2.1 Background

The majority of the runoff from the existing property currently drains via overland sheet flow towards the northwest flowing onto Northside Road and towards the southwest flowing onto Thorncliff Place.

The storm sewer along Thorncliff Place consists of a 375 mm diameter concrete pipe which outlets to the storm sewer trunk along Northside Road at storm manhole MHST20040. The storm sewer along Northside Road west of Thorncliff Place consists of a 750 mm diameter concrete pipe. This concrete storm sewer increases in diameter to a 900 mm storm sewer at storm manhole MHST20040 and is 900 mm in diameter immediately adjacent the site.

2.2 Stormwater Management Design Criteria

The SWM design criteria was provided by the City of Ottawa and the Rideau Valley Conservation Authority during the pre-consultation meeting and were summarized in the Pre-Consultation Meeting Notes. (Included in Appendix C) 100 year post development flow from the proposed development will be restricted to 5 year pre-development flow assuming a maximum pre-development runoff coefficient of C = 0.5.

2.2.1 Quantity Control Design Criteria

The quantity control design criteria were provided by the City of Ottawa and are as follows:

- Design Storm for receiving sewer: 5-design Storm;
- Runoff Coefficient to model pre-development conditions is to be the lesser of C = 0.5 or C = pre-development;
- Time of Concentration (Tc) to be calculated. Minimum Tc = 10 minutes;
- The post-development runoff rate from a 100-year storm event is to be controlled to the 5-year pre-development runoff rate.
- Storm sewers to be designed and sized based on the rational formula and the Manning's Equation under free flow conditions for the 5-year storm using a 10-minute inlet time.

2.2.2 Quality Control Design Criteria

The quality control design criteria was provided by the Rideau Valley Conservation Authority and is as follows:

- The RVCA has no concerns, Based on the overall design and site plan, the RVCA will not have any water quality requirements;
- Best management practices are encouraged where possible.

2.3 Stormwater Quantity Control

2.3.1 Methodology

The peak flow and runoff rates for quantity control purposes during both Pre-Development and Post-Development stages of the project were calculated using the rational method. The rational method is a common and straightforward calculation, which assumes that the entire drainage area is subject to uniformly distributed rainfall. The formula is:

$$Q = \frac{CiA}{360}$$

Where
Q is the Peak runoff measured in m^3/s
C is the Runoff Coefficient, Dimensionless
A is the runoff area in *hectares*
i is the storm intensity measure in *mm/hr*

All values for intensity, i, for this project were derived from IDF curves provided by the City of Ottawa for data collected at the Ottawa International airport. For this project two return periods were considered, 5 and 100-year events. The formulas for each are:

5-Year Event

$$i = \frac{998.071}{(t_c + 6.053)^{0.814}}$$

100-Year Event

$$i = \frac{1735.688}{(t_c + 6.014)^{0.82}}$$

Where t_c is time of concentration

2.3.2 Runoff Coefficients

Runoff coefficients for impervious surfaces (roofs, asphalt, and concrete) were taken as 0.90, gravel areas were taken as 0.60, patio stones were taken as 0.7 and pervious surfaces (grass) were taken as 0.20.

A 25% increase for the post development 100-year runoff coefficients was used as per City of Ottawa guidelines.

2.3.3 Pre-development Site Conditions

As previously indicated, the site is located at 42 Northside Road. The property has a total area of about 0.12 hectares and is currently occupied by a vacant 1 -storey commercial building.

The adjacent property to the Northeast is a large church serviced with an asphalt parking lot. Topographic data and aerial photography indicate that the abutting parking lot drains away from the subject site and as such will not contribute offsite runoff to pre-development conditions.

The adjacent property to southeast appears to be a 1 storey commercial building used as the head office for Warlyn Construction Ltd. The property shares a common asphalt surface with the subject site. Topographic data indicates that a small portion of the adjacent property may contribute runoff onto the subject site, however, runoff originating from the adjacent property will be intersected by a property line swale during post development conditions and directed to towards Thorncliff Place to the Southwest. For this reason it is considered that no offsite runoff from the adjacent property to the southeast will be considered during the assessment of the pre-development runoff rate for the site.

Drawing 211099-PRE Pre-development Conditions shows the pre-development conditions and catchment areas considered for the proposed development.

2.3.4 Time of Concentration

The time of concentration for pre-development conditions was determined by referencing the Inlet Time Graph in Appendix 5-D of the Ottawa Sewer Design Guidelines. The maximum length of flow under pre-development conditions is about 26 metres towards Northside Road and about 31 metres towards Thorncliff Place. The existing ground surface is sloped to Northside at about 1.0 to 1.8 percent and toward Thorncliff Place at about 0.6 to 1.0 percent. The existing ground surface is mostly covered with asphaltic concrete pavement and has a runoff coefficient for pre-development conditions of 0.82 as indicated in section 2.3.5 of this report. From the Inlet Time Graph, a length of 31 metres, combined with a slope of 0.5 percent and an asphalt pavement surface results in an inlet time of about 5 minutes. Since the minimum time of concentration to be used is 10 minutes, a time of concentration of 10 minutes was used to model pre-development conditions and post-development uncontrolled runoff conditions.

2.3.5 Pre-development Runoff Coefficient

Pre-development site conditions are summarised in the following Table 2-1.

Table 2-1 – Summary of Pre-Development Runoff Coefficients

PRE-DEVELOPMENT

Description	Runoff Coefficient		Area (ha)
	5-year	100year	
			0.124
Gravel	0.60	0.75	0.000
Asphalt/ Concrete/ Roof	0.90	1.00	0.110
Patio Stones/Pavers	0.70	0.88	0.000
Grass	0.20	0.25	0.014
Weighted Average C	0.82	0.92	

It is understood that pre-development conditions will be considered as the lesser of current conditions or conditions resulting in a runoff coefficient of 0.5.

Based on the existing ground cover the pre-development runoff coefficient was calculated to be 0.82. However, the predevelopment runoff coefficient used for the purpose of this stormwater management design was C = 0.5.

2.3.6 Pre-development Flow Rate

Using the IDF curve formula for the Ottawa International Airport with a time of concentration of 10 minutes results in a rainfall intensity of 104.19 mm/hr for a 5 year design storm. Using the Rational Method, the previously calculated runoff coefficients and a storm intensity of 104.19 mm/hr, the pre-development runoff rate for the 5-year storm is:

5 year = 2.78 x 0.5 x 104.19 x 0.124= 17.9 L/s

In keeping with the stormwater management criteria, the total allowable runoff rate from the site is equal to the pre-development runoff rate occurring during a 5 year storm event. As such, the total allowable post-development runoff rate for the site is 17.9 L/s.

2.3.7 Post-Development Controlled and Uncontrolled Areas

For the purposes of this storm water management design, the site has been divided into uncontrolled and controlled areas as outlined on drawing 211099-SWMP Stormwater Management Plan and Catchment Areas. The site has two controlled areas.

The first controlled area is comprised of the main roof of the building. This roof area is considered as catchment 1 (CA1-upper roof). The upper roof area has an area of 0.082 Ha. The

upper roof will be constructed to accommodate stormwater storage. Outlet from the upper roof will be restricted by six WATTS Accutrol Roof Drains (with adjustable flow control) which will direct the roof discharge to internal stormwater plumbing that discharges to the storm service lateral connected to Thorncliff Place west of the site.

The second controlled area is the small roof section on the northeast side of the building located above level 2. This roof area is considered as catchment 2 (CA2 –lower roof). The lower roof section has an area of 0.008 Ha. CA2 will also be constructed to accommodate stormwater storage. Discharge from the lower roof will be restricted by two WATTS Accutrol Roof Drains (with adjustable flow control) which will also direct the discharge to the internal stormwater plumbing.

The site has one uncontrolled area. Since the building's footprint occupies the majority of the site, there is insufficient area available adjacent to the building to provide for appreciable detention and storage. As such, all of the surface areas in between the footprint of the building and the respective property lines are considered as one uncontrolled area (UA1). UA1 has an area of 0.033 Ha and is comprised of a combination of landscaped grass areas, ground level terrace, and concrete surfaces at the garage entrance and garbage collection area. Runoff from UA1 will be conveyed by surface flow and shallow swales without restriction to Northside Road and Thorncliff Place.

The following table provides a summary of the post development conditions.

Table 2-2 – Summary of Post-Development Site Conditions

Catchment Area ID.	Runoff Coefficient (5yr)	Runoff Coefficient (100yr)	Catchment Area (Ha)
Controlled CA1 (upper roof)	0.90	1.00	0.082
Controlled CA2 (lower roof)	0.90	1.00	0.008
Uncontrolled UA1	0.43	0.51	0.033
Total			***0.124***

2.3.8 Uncontrolled Runoff

Flow from the uncontrolled area will be directed without restriction towards Northside Road and Thorncliff Place. The maximum allowable release rate from the controlled area equals the allowable post development runoff rate minus the 100-year runoff rate from the uncontrolled portion of the site.

A post-development time of concentration of 10 minutes corresponds to a storm intensity of 104.19 mm/hr and 178.56 mm/hr during the 5-year and 100-year design storm events

respectively. The runoff rate from the uncontrolled areas was calculated using the Rational Method.

$$Q = \frac{CiA}{360}$$

The uncontrolled runoff for the 5 year and 100 year design storm events are as follows (calculations are provided in Appendix A):

5 year = 2.78 x 0.43 x 104.19 x 0.033= 4.1 L/s

100 year = 2.78 x 0.51 x 178.56 x 0.033= 8.4 L/s

2.3.9 Allowable Release Rate

The City of Ottawa requires that post-development stormwater runoff rate during a 100 year design storm event be limited to the to be less than or equal to the pre-development runoff rate, calculated assuming a maximum runoff coefficient of C=0.5, during a 5 year design storm event. To control runoff from the site it will be necessary to limit post-development flows, from the controlled areas, for all design storm events up to and including the 100-year event using onsite inlet controls.

The allowable release rate from the controlled areas of the site is equal to the total allowable runoff rate from the site less the runoff rate from the uncontrolled areas.

$Q_{controlled} = Q_{total\ allowable} - Q_{uncontrolled}$

For the 5-year Storm event
$Q_{controlled}$= 17.9 – 4.1L/s = 13.8 L/s

For the 100-year Storm event
$Q_{controlled}$= 17.9 – 8.4L/s = 9.5 L/s

Since the allowable release rate for a 100 year design storm event is less than the allowable release rate for a 5 year design storm event, the flow restriction for the 100 year design storm will govern. As such, the maximum allowable release rate from the combined controlled areas of CA1 and CA2 is limited to 9.5 L/s for a 100 year storm event.

2.3.10 Post Development Restricted Flow and Storage

Runoff generated on site in excess of the allowable release rate will be temporarily stored on both the main or upper roof (including penthouse roof) (CA1) and on the lower or second level roof (CA2). The stored water will be released during and following the storm event at a controlled rate less than or equal to the maximum allowable release rate from the controlled areas.

In order to achieve the allowable controlled area storm water release rate, storm water runoff from the roof CA1 (upper roof) will be controlled by six (6) roof drains fitted with weirs for flow control. The roof drains will be WATTS Large area single slot roof drains with adjustable flow control (RD-100-A1). The weir opening will be adjusted to the half open setting.

In order to achieve the allowable controlled area storm water release rate, storm water runoff from the roof CA2 (lower roof) will be controlled by two (2) roof drains fitted with weirs for flow control. The roof drains will be WATTS Large area single slot roof drains with adjustable flow control (RD-100-A1). The weir opening will be adjusted to the fully exposed mode

The controlled roof drains are selected such that the release rate, which is proportional to the head experienced by the drain, will not exceed the allowable maximum release rate from the controlled areas. Calculations for available rooftop storage are summarized in Appendix A. Roof drain specifications are provided in Appendix B.

The following tables present a summary of the controlled and uncontrolled runoff for each catchment and the required storage resulting from the restriction in flow rate.

Table 2-2 – Summary of Runoff Rates and Storage

Catchment Area ID.	Outlet Location	100-year design Storm			
		Release Rate (L/s)	Required Storage Volume (m^3)	Required Storage depth (m)	Available Storage (m^3)
UA1	Northside Road / Thorncliff Place	8.4	N/A		N/A
CA1 (upper roof)	Storm sewer	6.5	26.0	0.12	57.2
CA2 (lower roof)	Storm Sewer	1.2	1.9	0.05	10.3
Total Storm Runoff Rate		16.1			

The total allowable runoff rate from the site was 17.9 L/s. The total actual runoff rate during a 100 year design storm event is 16.1 L/s which is less than the total allowable runoff rate. Refer to Appendix A for a detailed summary of the stormwater management.

2.3.11 Rooftop Storage

Rooftop storage will be provided in CA1(upper roof), and CA2(lower roof).

The storage on the upper roof, CA1, will consist of 6 sections each containing an outlet drain as previously discussed. One section will consist of the penthouse roof. The remaining roof area will be divided into 5 sections. The roof drainage plans obtained from the Architect have been included in Appendix B. The divide between each of the quadrants has been set at each 0.1 or 0.12 m high relative to the drain. When the water is less than 0.10m high relative to the drain, water will be confined within each of the four quadrants. Water levels in excess of 0.10m will result in overflow of the separation between the quadrants and the stored water will be able to drain through any of the quadrants should one or more drains become inoperable. Additionally the roof will be fitted with overflow scuppers located at 0.15m relative to the drains. In the event that ponding occurs during a storm event which significantly exceeds the required storage during a 100 year storm event, or if some or all drains become plugged water can outlet from the roof and will land on the uncontrolled area below and ultimately deposit into the storm drains located on the adjacent street. The roof top storage has been designed to prevent standing water from pooling and is designed with a slope of 2%.

The storage on the lower roof, CA2, will consist of two similar sections, each with an outlet drain as previously discussed. The lower roof will have a maximum and minimum slope of 2.5% and 0.7% respectively. The separation between the two sections will overflow above an elevation of 0.04m relative to the elevation of the drains. Due to the limited space available, above 0.04m, water will be confined by the northeast face of the building above the second floor, and the parapet of the roof of the second floor. The roof will be fitted with overflow scuppers at 0.15m relative to the drain.

Routing of the internal storm pipe directing water from the roofs to the storm lateral is the responsibility of the mechanical engineer.

2.4 Stormwater Quality Control

As previously indicated in the report, quality control requirements for the site have been provided by the Rideau Valley Conservation Authority and are referenced in the pre-consultation minutes included in Appendix C. Based on the recommendations from RVCA, there are no quality control requirements however best management practices are encouraged.

The major source of stomwater contamination from a site, once development is completed and vegetation is established in the landscaped areas, is the onsite surface parking and roadways.

The surface areas at the site consist of the roof of the building, the landscaped areas, visitor parking area and the walkway and terrace areas.

- Surface parking will be limited to three spaces which will be located under the overhang of the second storey footprint and as such will be subject to a reduce quantity of participation.
- The roof of the building is not considered to be a major source of suspended solids contamination.
- The runoff from surface area of the below grade parking area driveway is limited to a short section not covered by the building. The remainder of the driveway is covered and not subject to precipitation. Snow melt from the vehicles within the parking garage will be directed to the sanitary sewer.
- The landscaped areas are not considered to be a source of suspended contamination as the landscaped areas provide vegetative filtration of the surface runoff and the vegetation and landscaping protects the ground surface reducing the potential for erosion and eliminating the landscaped ground surface area as a source of suspended solids.
- The walkways are limited in area and will be graded to direct runoff to vegetated surfaces where possible.
- The terraces will be sloped to direct runoff to the landscaped areas only. The terrace areas are private.
- The use of best management practices for the application of salt, sand and other snow and ice removal products can reduce the potential pollution from the walkways.

2.5 Stormwater System Operation and Maintenance

2.5.1 Roof Drains

The Roof Drains should be inspected on a semi-annual basis and following major storm events. Any blockages, trash or debris should be removed. The Roof Drains should be inspected before winter to ensure they have not be clogged with leafs.

2.5.2 Catch basin / Manhole

The catch basins and manholes should be cleaned with a hydrovac excavation truck following completion of construction, paving of the asphaltic concrete surface and establishment of adequate grass cover on the landscaped areas.

Following the initial cleaning the catch basins and manholes should be inspected on a semi-annual basis and following major storm events. Any blockages, trash or debris should be removed. Once the sediment accumulation in the catch basins and manhole has reached a level equal to 0.15 metres below the outlet invert of the structure, the sediment should be removed by hydro excavation.

2.5.3 Inspections

The owner or designated Property Management Company is responsible for inspections and maintenance. Records of inspections and maintenance should be kept for each visit. The suggested inspection schedule should be followed until the records indicate a more appropriate site specific schedule.

3 STORM SEWER DESIGN AND SUFFICIENCY OF EXISTING MUNICIPAL STORM SEWER

3.1 Storm Sewer Design

The on-site storm sewers were designed to be in general conformance with the City of Ottawa Sewer Design Guidelines (October 2012 as amended). Specifically, storm sewers were sized using Manning's Equation, assuming a roughness coefficient N = 0.013, to accommodate the uncontrolled runoff from the 5-year storm, under 'open-channel' conditions. The proposed storm sewer lateral between the building and the street will have a diameter of 200 mm. From the sewer design calculations included in Appendix A, the minimum capacity of the lateral is 46.43 L/sec. The unrestricted storm demand on the lateral during a 5-year design storm with a time of concentration of 10 minutes is 23.46 L/sec. As such, the proposed lateral will be sufficient to meet the storm demand under 'open channel flow' conditions.

3.2 Existing Storm Sewer

The proposed storm lateral from the site will be connected to the existing 375 mm diameter concrete storm sewer along Thorncliff Place. The existing storm sewer along the west side of Thorncliff Place increases in size from 300 mm in diameter to 375 mm in diameter at storm manhole MHST20049 approximately 18 metres south of the site. The increase in pipe diameter results in a capacity increase in this storm sewer of 45.4 L/s from 64.2 L/sec to 109.6 L/sec. The increase in storm water demand based on the existing catchment area for this storm sewer is approximately 34.3 L/sec during a 5 year design storm event. (Q=2.78CIA -- 2.78 x 0.50 x 83.56 mm/hr x 0.369 ha = 34.3 L/sec). The difference in between the increase in capacity and the increase in demand is 45.4 L/sec – 34.3 L/sec = 11.1 L/sec. The 375 mm diameter storm sewer from Thorncliff Place discharges into the trunk storm sewer along Northside Road at the location where the trunk sewer increases in diameter from 750 mm to 900 mm.

The pre-development runoff rate from the site was 29.3 L/sec as calculated in the Pre-Development Runoff Rate, Allowable Release Rate And SWM Summary sheet in Appendix A. This flow was divided between Northside Road and Thorncliff. The post-development release rate to Thorncliff is 9.0 L/sec during a 5 year design storm event. This release rate is less than half of the pre-development runoff from the site and is less than the net increase in available capacity in the existing storm sewer of 11.1 L/sec.

As such, the existing storm sewer will have sufficient capacity to accommodate the flow from the site.

4 EROSION AND SEDIMENT CONTROL

The owner (and/or contractor) agrees to prepare and implement an erosion and sediment control plan at least equal to the stated minimum requirements and to the satisfaction of the the City of Ottawa, appropriate to the site conditions, prior to undertaking any site alterations (filling, grading, removal of vegetation, etc.) and during all phases of site preparation and construction in accordance with the current best management practices for erosion and sediment control. It is considered to be the owners and/or contractors responsibility to ensure that the erosion control measures are implemented and maintained.

In order to limit the amount of sediment carried in stormwater runoff from the site during construction, it is recommended to install a silt fence along the property, as shown in Kollaard Associates Inc. Drawing #211099-ER The silt fence may be polypropylene, nylon, and polyester or ethylene yarn.

If a standard filter fabric is used, it must be backed by a wire fence supported on posts not over 2.0 m apart. Extra strength filter fabric may be used without a wire fence backing if posts are not over 1.0 m apart. Fabric joints should be lapped at least 150 mm (6") and stapled. The bottom edge of the filter fabric should be anchored in a 300 mm (1 ft) deep trench, to prevent flow under the fence. Sections of fence should be cleaned, if blocked with sediment and replaced if torn.

Filter socks should be installed across existing storm manhole and catch basin lids. As well, filter socks should be installed across the proposed catch basin and manhole lids immediately after the structures are placed. The filter socks should only be removed once the asphaltic concrete is installed and the site is cleaned.

The proposed landscaping works should be completed as soon as possible. The proposed granular and asphaltic concrete surfaced areas should be surfaced as soon as possible.

The silt fences should only be removed once the site is stabilized and landscaping is completed.

These measures will reduce the amount of sediment carried from the site during storm events that may occur during construction.

5 CONCLUSIONS

This report addresses the adequacy of the existing municipal storm sewer to service the proposed development of the residential appartment building on Northside Road. Based on the analysis provided in this report, the conclusions are as follows:

SWM for the proposed development will be achieved by restricting the 100 year post development flow to the 5 year pre-development flow assuming a predevelopment runoff coefficient of 0.5.

The existing municipal storm sewers will have adequate capacity to service the proposed development for both domestic and fire protection.

During all construction activities, erosion and sedimentation shall be controlled.

We trust that this report provides sufficient information for your present purposes. If you have any questions concerning this report or if we can be of any further assistance to you on this project, please do not hesitate to contact our office.

Sincerely,
Kollaard Associates, Inc.

Steven deWit, P.Eng.

Appendix A: Storm Design Information

- Pre Development Runoff Rate, Allowable Release Rate and STM Summary
- Post-Development Runoff Rate - Uncontrolled Area
- Actual Discharge Rate and Storage Volume Requirements (CA-1 Main Roof)
- Storage Volume & Discharge Rate Design Sheet - CA-1
- Discharge Storage Curve CA-1 Main Roof
- Stage Storage Curve CA-1 Main Roof
- Actual Discharge Rate and Storage Volume Requirements (CA-2 Main Roof)
- Storage Volume & Discharge Rate Design Sheet - CA-2
- Discharge Storage Curve CA-2 Main Roof
- Stage Storage Curve CA-2 Main Roof
- Storm Sewer Service Design Sheet

APPENDIX A: STORMWATER MANAGEMENT MODEL

PRE-DEVELOPMENT RUNOFF RATE, ALLOWABLE RELEASE RATE AND SWM SUMMARY

Client: Rohit Communities Ontario Inc.
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

PRE DEVELOPMENT FLOW

Runoff Coefficient Equation

$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2 + A_{gravel} \times 0.6)/A_{tot}$

Area	Surface	Ha	"C"	C_{avg}
Total	Gravel	0.000	0.60	**0.82**
0.1235	Roof/Asphalt/Concrete	0.110	0.90	
	Patio Stones	0.000	0.70	
	Grass	0.014	0.20	

5 Year Event			
Pre Dev.	**C**	**Intensity**	**Area**
5 Year	0.82	104.19	0.123
2.78CIA= 29.33			
29.3 L/s			

**Use a 10 minute time of concentration for 5 year

5 Year Event			
Pre Dev.	**C**	**Intensity**	**Area**
5 Year	0.50	104.19	0.123
2.78CIA= 17.88			
17.9 L/s			

**Use a 10 minute time of concentration for 5 year

Total Allowable Release: **17.9 L/s**

STORMWATER MANAGEMENT SUMMARY

Sub Area I.D.	Sub Area (ha)	5 year C	100 year 'C'	Outlet Location	5 Year Flow Rate (L/s)	Required 5 year Storage (m^3)	100 Year Flow Rate (L/s)	Required 100 year Storage (m^3)	100 year Storage Depth (m)
Total Allowable Runoff Rate from Site									
	0.12				**17.9**		**17.9**		
Post-Development Uncontrolled Runoff Rate from Site									
UA1	0.03	0.43	0.51	Storm	4.1	NA	8.4	NA	
Post-Development Controlled Release Rate from Site									
CA1 (UPPER ROOF)	0.08	0.90	1.00	Storm	5.2	11.0	6.5	26.0	0.12
CA2 (LOWER ROOF)	0.01	0.90	1.00	Storm	0.9	0.8	1.2	1.9	0.05
Total Runoff Rate from Site									
	0.123				**10.2**		**16.1**		

APPENDIX A: STORMWATER MANAGEMENT MODEL

POST-DEVELOPMENT RUNOFF RATE - UNCONTROLLED AREA

Client: Rohit Communities Ontario Inc.
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

UA1 - UNCONTROLLED AREA

Post Dev run-off Coefficient "C"

			5 Year Event		100 Year Event	
Area	**Surface**	**Ha**	**"C"**	**C_{avg}**	**"C"**	**C_{avg}**
Total	Gravel	0.000	0.60	**0.43**	0.75	**0.51**
0.033	Roof/ Asphalt/ Concrete	0.007	0.90		1.00	
	Patio Stones	0.005	0.70		0.88	
	Grass	0.021	0.20		0.25	

Runoff Coefficient Equation

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

Post Dev Free Flow

5 Year Event

Pre Dev.	C	Intensity	Area
5 Year	0.43	104.19	0.033
2.78CIA= 4.12			
4.1 L/S			

**Use a 10 minute time of concentration for 5 year

100 Year Event

Pre Dev.	C*	Intensity	Area
100 Year	0.51	178.56	0.033
2.78CIA= 8.38			
8.4 L/S			

**Use a 10 minute time of concentration for 100 year

*C value multiplied by 1.25 for 100 year event

Equations:

Flow Equation

Q = 2.78 x C x I x A

Where:

C is the runoff coefficient

I is the intensity of rainfall, City of Ottawa IDF

A is the total drainage area

APPENDIX A: STORMWATER MANAGEMENT MODEL

ACTUAL DISCHARGE RATE AND STORAGE VOLUME REQUIREMENTS

CA-1 Main Roof

Client: Rohit Communities Ontario Inc.
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

**Use a 10 minute time of concentration

(CA1)			5 Year Event				100 Year Event			
Area ha	Surface	Ha	"C"	C_{avg}	Intensity (mm/hr)	Runoff Rate (L/s)	"C"	C_{avg}	Intensity (mm/hr)	Runoff Rate (L/s)
	Asphalt/ Concrete/Roof	0.082	0.90	**0.90**	104.19	21.40	1.00	**1.00**	178.56	40.74
	Gravel	0.000	0.60				0.75			
	Patio Stone/Semipermeable block	0.000	0.70				0.88			
0.082	Grass	0.000	0.20				0.25			

Storage Requirements for Roof Area (CA1)

Area = 0.082 hectares
5-year Runoff Coefficient = 0.90 post development
100-year Runoff Coefficient = 1.00 post development

				Release Rate L/s	2	3	4	5	6	7	8
Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Storage Required (m^3)							
5 Year	10	104.19	21.40		11.6	11.0	10.4	9.8	9.2	8.6	8.0
	20	70.25	14.43		14.9	13.7	12.5	11.3	10.1	8.9	7.7
	30	53.93	11.07		16.3	14.5	12.7	10.9	9.1	7.3	5.5
	40	44.18	9.07		17.0	14.6	12.2	9.8	7.4	5.0	2.6
	50	37.65	7.73		17.2	14.2	11.2	8.2	5.2	2.2	-0.8
	60	32.94	6.76		17.2	13.6	10.0	6.4	2.8	-0.8	-4.4
	70	29.37	6.03		16.9	12.7	8.5	4.3	0.1	-4.1	-8.3
				Maximum 5 year storage rate	17.2	14.6	12.7	11.3	10.1	8.9	8.0
				Release Rate L/s	2	3	4	5	6	7	8
100 Year	10	178.56	40.74		23.2	22.6	22.0	21.4	20.8	20.2	19.6
	20	119.95	27.37		30.4	29.2	28.0	26.8	25.6	24.4	23.2
	30	91.87	20.96		34.1	32.3	30.5	28.7	26.9	25.1	23.3
	40	75.15	17.15		36.3	33.9	31.5	29.1	26.7	24.3	21.9
	50	63.95	14.59		37.8	34.8	31.8	28.8	25.8	22.8	19.8
	60	55.89	12.75		38.7	35.1	31.5	27.9	24.3	20.7	17.1
	70	49.79	11.36		39.3	35.1	30.9	26.7	22.5	18.3	14.1
	80	44.99	10.27		39.7	34.9	30.1	25.3	20.5	15.7	10.9
				Maximum 100 year storage rate	39.7	35.1	31.8	29.1	26.9	25.1	23.3

APPENDIX A: STORMWATER MANAGEMENT MODEL

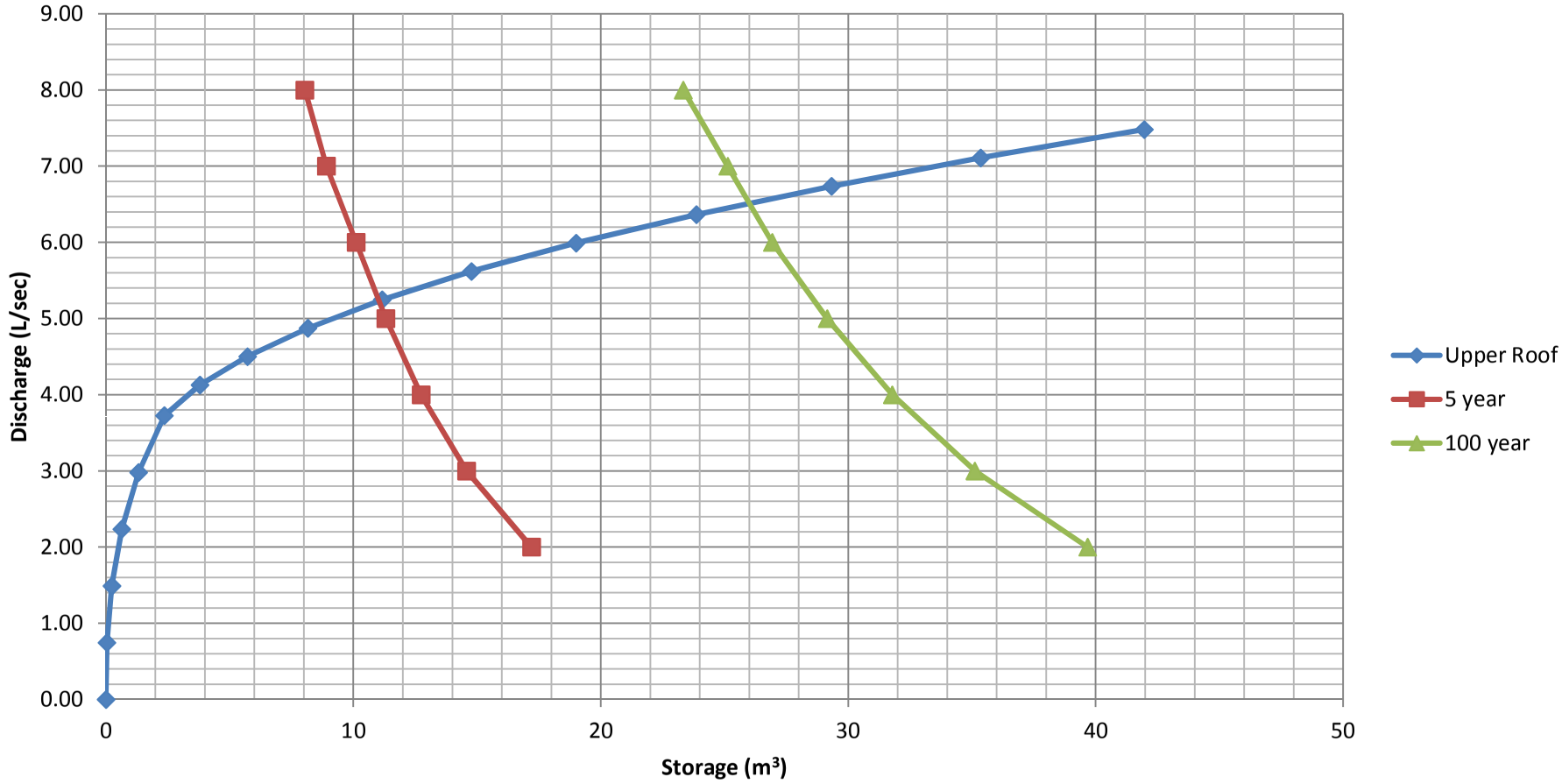
STORAGE VOLUME & DISCHARGE RATE DESIGN SHEET - CA-1

Client: **Rohit Communities Ontario Inc.**
Job No.: **211099**
Location: **42 Northside Road**
Date: **January 19, 2022**

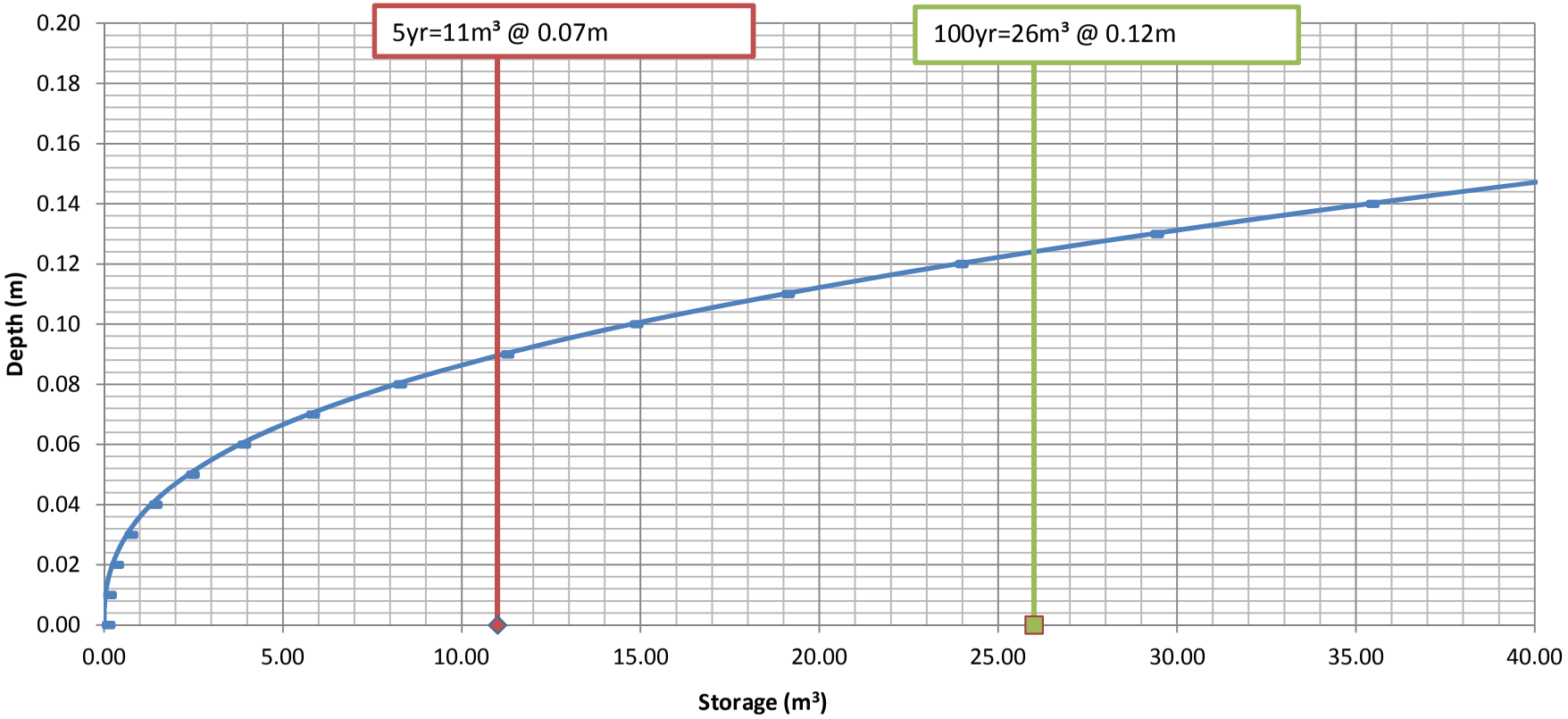
Storage Depth (m)	Layer Thickness (m)	Incremental Volume (upper roof) (m^3)	Cumulative Storage Volume (m3)	Release Rate Per Drain (Fully Open) (L/sec)	Release Rate All Drains (L/sec)	Total Outflow (L/sec)
0.15	0.01	6.61	41.96	1.25	7.48	7.48
0.14	0.01	6.03	35.35	1.18	7.11	7.11
0.13	0.01	5.46	29.32	1.12	6.74	6.74
0.12	0.01	4.86	23.86	1.06	6.36	6.36
0.11	0.01	4.23	19.00	1.00	5.99	5.99
0.10	0.01	3.61	14.77	0.94	5.62	5.62
0.09	0.01	3.00	11.16	0.87	5.25	5.25
0.08	0.01	2.44	8.16	0.81	4.87	4.87
0.07	0.01	1.92	5.72	0.75	4.50	4.50
0.06	0.01	1.44	3.80	0.69	4.13	4.13
0.05	0.01	1.04	2.36	0.62	3.73	3.73
0.04	0.01	0.68	1.32	0.50	2.98	2.98
0.03	0.01	0.40	0.64	0.37	2.24	2.24
0.02	0.01	0.20	0.24	0.25	1.49	1.49
0.01	0.01	0.04	0.04	0.12	0.75	0.75
0.00	0.00	0.00	0.00	0.00	0.00	0.0

Roof Drain Type: Watts Accutrol Large Area Roof Drain RD-100-A1 - HALF OPEN
Number of Drains: 6

APPENDIX A: STORMWATER MANAGEMENT MODELSTORAGE
Discharge -Storage Curve
CA-1 Main Roof



APPENDIX A: STORMWATER MANAGEMENT MODEL
Stage-Storage Curve
CA-1 Main Roof



APPENDIX A: STORMWATER MANAGEMENT MODEL

ACTUAL DISCHARGE RATE AND STORAGE VOLUME REQUIREMENTS

CA-2 Lower Roof

Client: Rohit Communities Ontario Inc.
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

**Use a 10 minute time of concentration

(CA1)			5 Year Event				100 Year Event			
Area ha	Surface	Ha	"C"	C_{avg}	Intensity (mm/hr)	Runoff Rate (L/s)	"C"	C_{avg}	Intensity (mm/hr)	Runoff Rate (L/s)
	Asphalt/ Concrete/Roof	0.008	0.90	**0.90**	104.19	2.16	1.00	**1.00**	178.56	4.12
	Gravel	0.000	0.60				0.75			
	Patio Stone/Semipermeable block	0.000	0.70				0.88			
0.008	Grass	0.000	0.20				0.25			

Storage Requirements for Roof Area (CA2)

Area = 0.008 hectares
5-year Runoff Coefficient = 0.90 post development
100-year Runoff Coefficient = 1.00 post development

			Release Rate L/s	0.3	0.5	0.7	0.9	1.1	1.3	1.5
Return Period	**Time (min)**	**Intensity (mm/hr)**	**Flow Q (L/s)**	**Storage Required (m^3)**						
5 Year	10	104.19	2.16	1.1	1.0	0.9	0.8	0.6	0.5	0.4
	20	70.25	1.46	1.4	1.2	0.9	0.7	0.4	0.2	0.0
	30	53.93	1.12	1.5	1.1	0.8	0.4	0.0	-0.3	-0.7
	40	44.18	0.92	1.5	1.0	0.5	0.0	-0.4	-0.9	-1.4
	50	37.65	0.78	1.4	0.8	0.2	-0.4	-1.0	-1.6	-2.2
	60	32.94	0.68	1.4	0.7	-0.1	-0.8	-1.5	-2.2	-2.9
	70	29.37	0.61	1.3	0.5	-0.4	-1.2	-2.1	-2.9	-3.7
			Maximum 5 year storage rate	1.5	1.2	0.9	0.8	0.6	0.5	0.4
			Release Rate L/s	0.5	0.8	1.1	1.4	1.7	2	2.3
100 Year	10	178.56	4.12	2.2	2.0	1.8	1.6	1.5	1.3	1.1
	20	119.95	2.77	2.7	2.4	2.0	1.6	1.3	0.9	0.6
	30	91.87	2.12	2.9	2.4	1.8	1.3	0.8	0.2	-0.3
	40	75.15	1.73	3.0	2.2	1.5	0.8	0.1	-0.6	-1.4
	50	63.95	1.48	2.9	2.0	1.1	0.2	-0.7	-1.6	-2.5
	60	55.89	1.29	2.8	1.8	0.7	-0.4	-1.5	-2.6	-3.6
	70	49.79	1.15	2.7	1.5	0.2	-1.1	-2.3	-3.6	-4.8
	80	44.99	1.04	2.6	1.1	-0.3	-1.7	-3.2	-4.6	-6.1
			Maximum 100 year storage rate	3.0	2.4	2.0	1.6	1.5	1.3	1.1

APPENDIX A: STORMWATER MANAGEMENT MODEL

STORAGE VOLUME & DISCHARGE RATE DESIGN SHEET - CA-2

Client: Rohit Communities Ontario Inc.
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

Storage Provided for Roof Area (CA2)

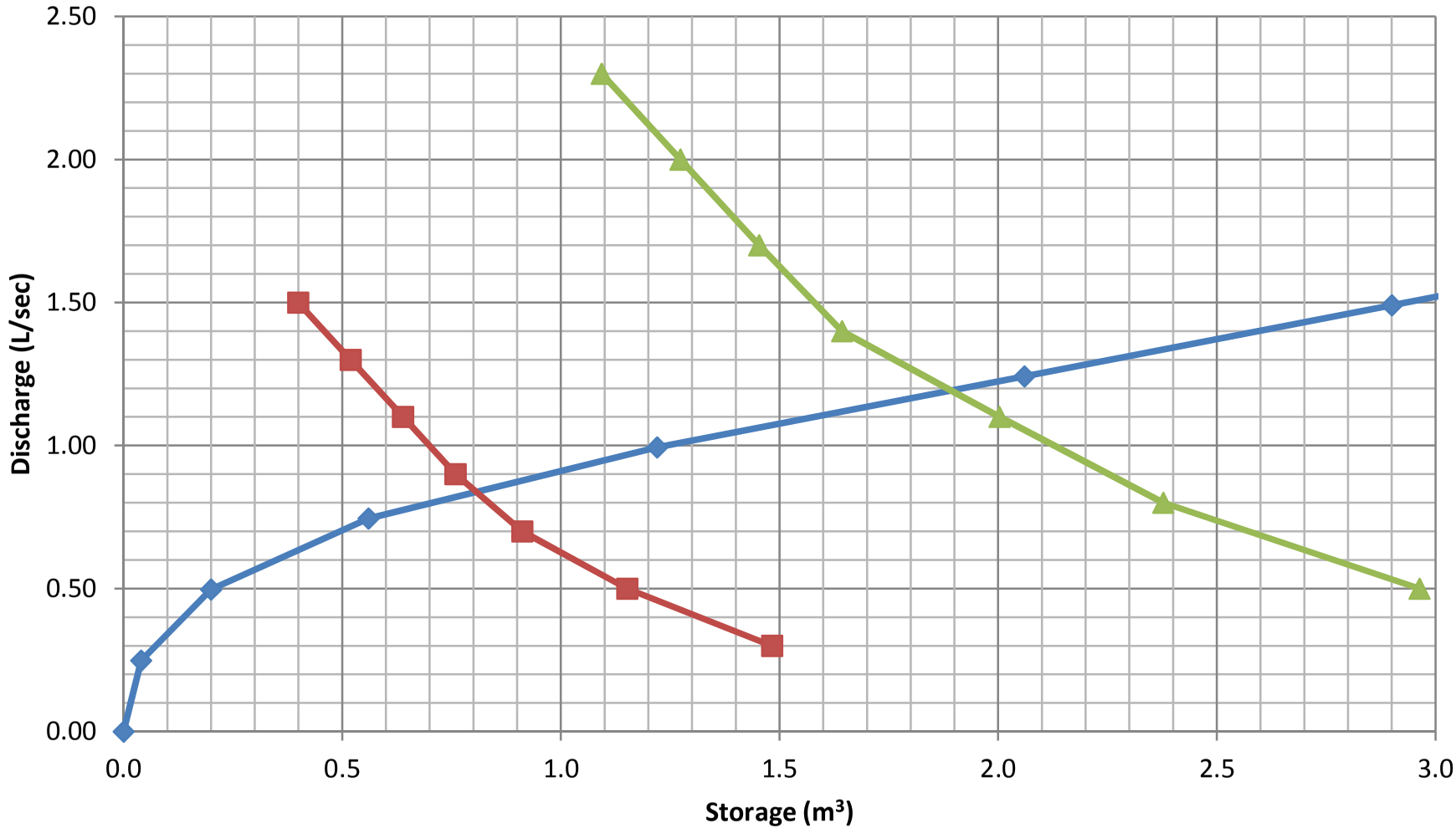
Storage Depth (m)	Layer Thickness (m)	Incremental Volume (Lower Roof) (m^3)	Cumulative Storage Volume (m3)	Release Rate Per Drain (Fully Open) (L/sec)	Release Rate All Drains (L/sec)	Total Outflow (L/sec)
0.15	0.01	0.84	10.46	1.86	3.73	3.73
0.14	0.01	0.84	9.62	1.74	3.48	3.48
0.13	0.01	0.84	8.78	1.61	3.23	3.23
0.12	0.01	0.84	7.94	1.49	2.98	2.98
0.11	0.01	0.84	7.10	1.37	2.73	2.73
0.10	0.01	0.84	6.26	1.24	2.48	2.48
0.09	0.01	0.84	5.42	1.12	2.24	2.24
0.08	0.01	0.84	4.58	0.99	1.99	1.99
0.07	0.01	0.84	3.74	0.87	1.74	1.74
0.06	0.01	0.84	2.90	0.75	1.49	1.49
0.05	0.01	0.84	2.06	0.62	1.24	1.24
0.04	0.01	0.66	1.22	0.50	0.99	0.99
0.03	0.01	0.36	0.56	0.37	0.75	0.75
0.02	0.01	0.16	0.20	0.25	0.50	0.50
0.01	0.01	0.04	0.04	0.12	0.25	0.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00

Roof Drain Type: Watts Accutrol Large Area Roof Drain RD-100-A1 - FULLY OPEN
Number of Drains: 2

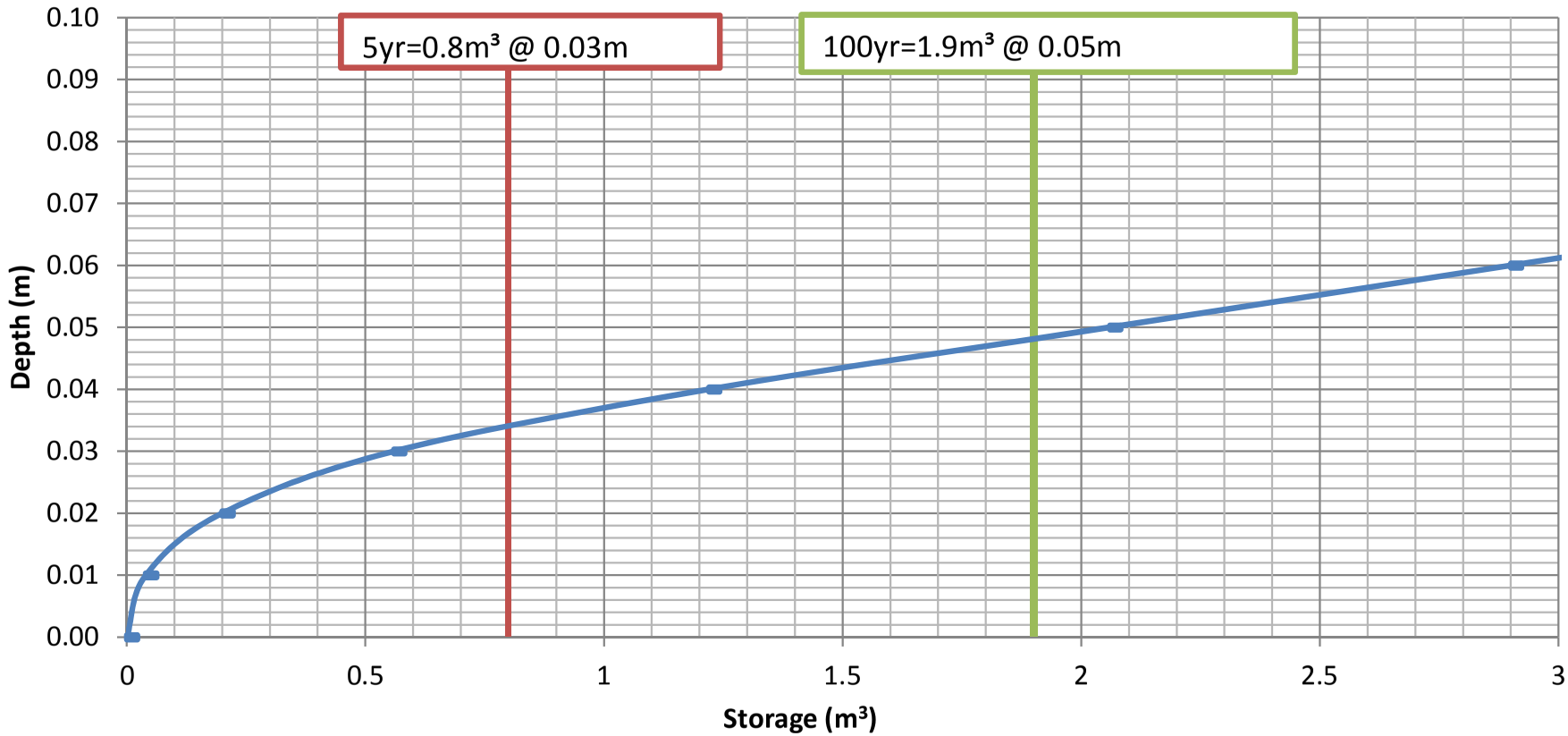
APPENDIX A: STORMWATER MANAGEMENT MODELSTORAGE

Discharge -Storage Curve

CA-2 Lower Roof



APPENDIX A: STORMWATER MANAGEMENT MODEL
Stage-Storage Curve
CA-2 Lower Roof



APPENDIX A: STORMWATER MANAGEMENT MODEL

Storm Sewer Service Design Sheet

Client: Rohit Communities
Job No.: 211099
Location: 42 Northside Road
Date: January 19, 2022

Storm Sewer Design Sheet (5-yr storm)

LOCATION									
							TIME	RAINFALL	PEAK
FROM	TO	COMMENT	Total Area (ha)	Actual R ('C')	INDIV 2.78 AR	ACCUM 2.78 AR	OF CONC.	INTENSITY I	FLOW Q (l/s)
BUILDING	STMH 01	PROPOSED	0.090	0.90	0.23	0.23	10.00	104.19	23.46
THORNCLIFF	STMH 01	EXISTING	0.190	0.50	0.26	0.26	10.00	104.19	27.52
STMH 01	STMH O2	PROPOSED			0.00	0.49	10.00	104.19	50.98

LOCATION		PROPOSED SEWER									
		TYPE	PIPE	PIPE			FULL FLOW	TIME OF	EXCESS		
FROM	TO	OF	SIZE	SLOPE	LENGTH	CAPACITY	VELOCITY	FLOW	CAPACITY	Q/Qfull	
		PIPE	(mm)	(%)	(m)	(l/s)	(m/s)	(min.)	(l/s)		
BUILDING	STMH 01	PVC	200.00	2.00	60.7	46.43	1.48	0.69	22.97	0.51	Controlled
THORNCLIFF	STMH 01	PVC	250.00	1.10	85.1	62.43	1.27	1.12	34.92	0.44	Uncontrolled
STMH 01	STMH O2	PVC	250.00	2.00	3.5	84.18	1.71	0.03	33.21	0.61	Uncontrolled

Rainfall Intensity = $998.071/(T+6.053)^{-0.814}$ T= time in minutes
(City of Ottawa, 5 year storm)

Appendix B: Product Information and Roof Drawings

- Accutrol Weirs Flow Control and Roof Drains Sheets
- Typical Roof Plan from Architect

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

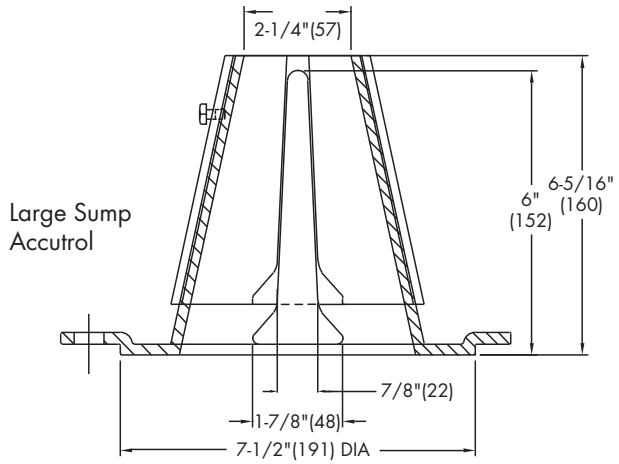
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

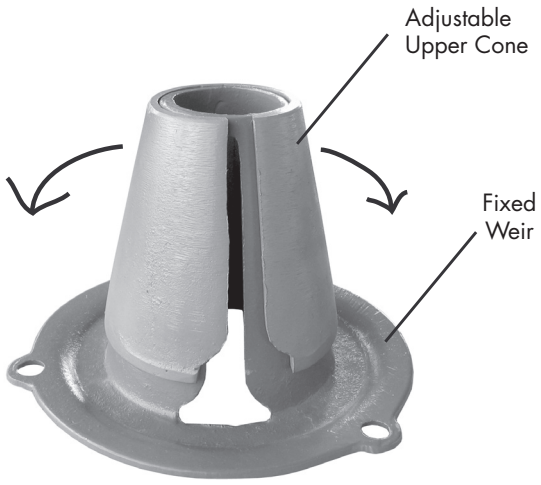
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

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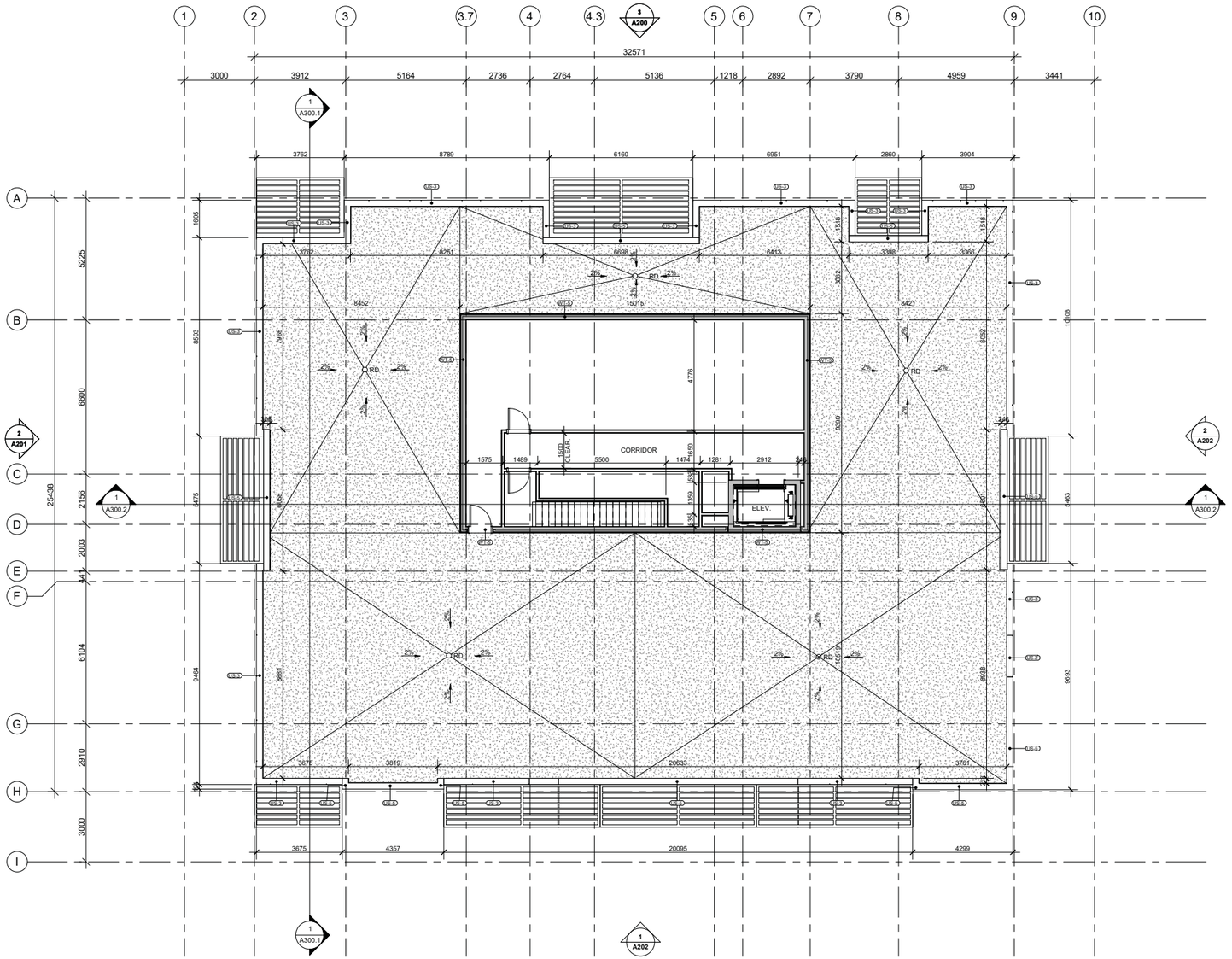

1 ROOF PLAN

1 : 100

GENERAL NOTES

NOTE-A : ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS, INCLUDING OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES BETWEEN DRAWINGS WILL BE REPORTED TO THE PROJECT LEAD IMMEDIATELY FOR CLARIFICATION PRIOR TO COMMENCING ANY CONSTRUCTION.

NOTE-B : ALL GENERAL SITE INFORMATION AND CONDITIONS HAVE BEEN COMPILED FROM EXISTING PLANS AND SURVEYS.

NOTE-C : CONTRACTOR IS RESPONSIBLE TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR OMISSIONS TO THE ARCHITECT.

NOTE-D : REFER TO LANDSCAPE PLANN FOR ALL EXTERIOR LANDSCAPING.

NOTE-E : DO NOT SCALE DRAWINGS.

NOTE-F : ALL CONTRACTORS MUST COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.

SPECIFIC NOTES

LEGEND

2-PLY MODIFIED BITUMEN WATERPROOF MEMBRANE

RD ROOF DRAINS

ROOF SCUPPER

ROSSMANN ARCHITECTURE

88 Saint-Joseph Boulevard, Gatineau QC J8Y 3W5
Tel : 819-600-1555

NOT FOR CONSTRUCTION / PAS POUR CONSTRUCTION

PROJECT TEAM / ÉQUIPE DU PROJET :

KEY PLAN / PLAN CLÉ :

KEY PLAN

CLIENT :

Rohit GROUP OF COMPANIES

Tel : XXX-XXX-XXXX | www.WEBSITE.com

revision	description	date

PROJECT NAME / NOME DU PROJET :

42 Northside Road

DRAWING NAME / NOM DU DESSIN :

TYPICAL ROOF PLAN

DRAWING INFORMATION / INFORMATION DU DESSIN :

PROJECT NO. / NO. DE PROJET :	**21087**
DATE :	**11/25/21**
DRAWN BY / DESSINÉ PAR :	**Author**
REVIEWED BY / VÉRIFIÉ PAR :	**Checker**
SCALE / ÉCHELLE :	**As indicated**
PROJECT PHASE / PHASE DU PROJET :	**1**

DWG NO. / NO. DESSIN :

A106

REVISION NO. / NO. DE RÉVISION :

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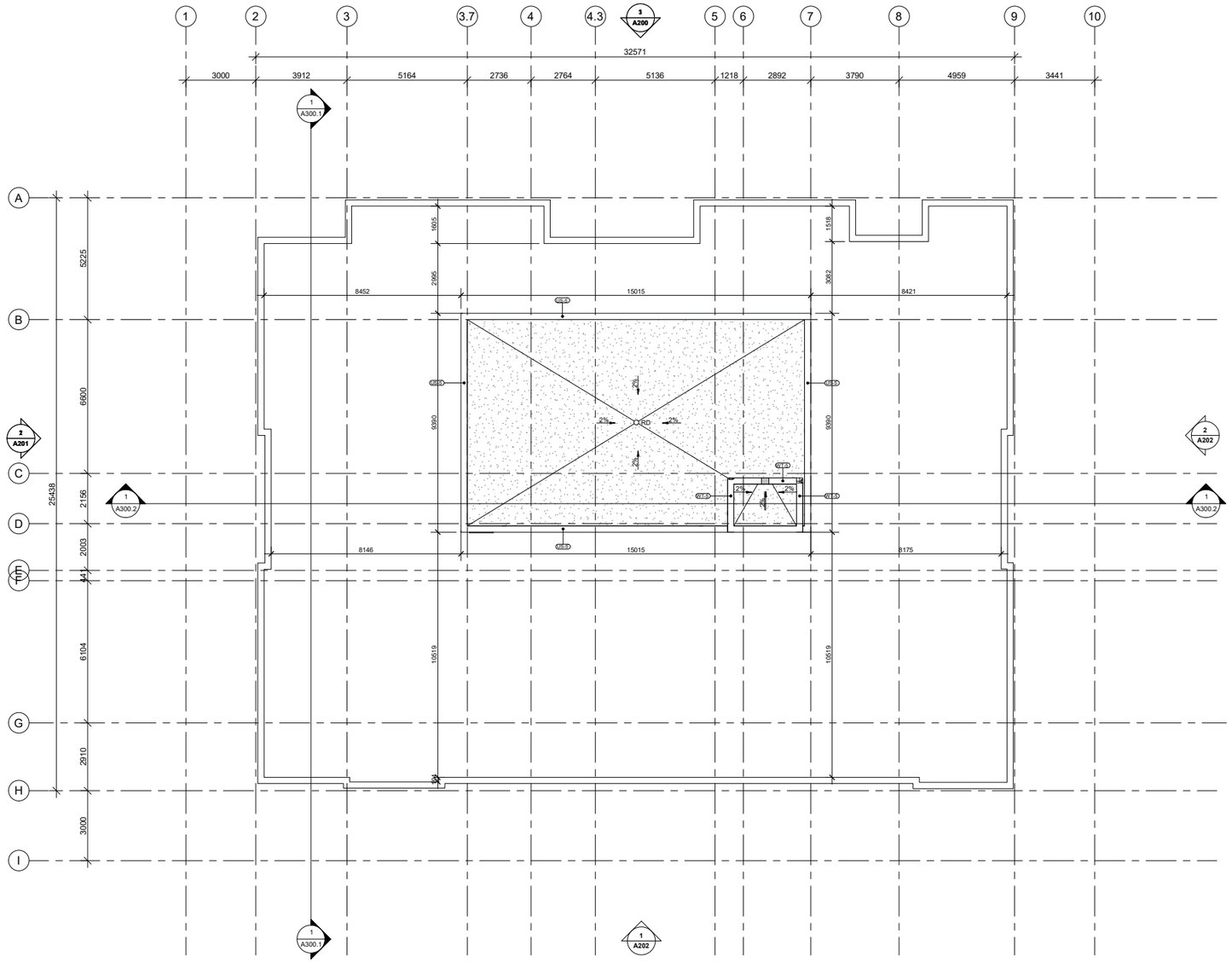

1 TOP OF ROOF PLAN

1 : 100

GENERAL NOTES

NOTE-A : ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS, INCLUDING OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES BETWEEN DRAWINGS WILL BE REPORTED TO THE PROJECT LEAD IMMEDIATELY FOR CLARIFICATION PRIOR TO COMMENCING ANY CONSTRUCTION.

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SPECIFIC NOTES

LEGEND

2-PLY MODIFIED BITUMEN WATERPROOF MEMBRANE

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88 Saint-Joseph Boulevard, Gatineau QC J8Y 3W5
Tel : 819-600-1555

NOT FOR CONSTRUCTION / PAS POUR CONSTRUCTION

PROJECT TEAM / ÉQUIPE DU PROJET :

KEY PLAN / PLAN CLÉ :

KEY PLAN

CLIENT :

Rohit GROUP OF COMPANIES

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revision	description	date

PROJECT NAME / NOME DU PROJET :

42 Northside Road

DRAWING NAME / NOM DU DESSIN :

TYPICAL TOP OF ROOF PLAN

DRAWING INFORMATION / INFORMATION DU DESSIN :

PROJECT NO. / NO. DE PROJET :	**21087**
DATE :	**01/12/22**
DRAWN BY / DESSINÉ PAR :	**Author**
REVIEWED BY / VÉRIFIÉ PAR :	**Checker**
SCALE / ÉCHELLE :	**As indicated**
PROJECT PHASE / PHASE DU PROJET :	**1**

DWG NO. / NO. DESSIN :

A107

REVISION NO. / NO. DE RÉVISION :

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Appendix C: Correspondence

File Number: PC2021-0295
September 9, 2021

Pre-Consultation Meeting Notes

Site Address: 42 Northside Road
Location: Virtual - Microsoft Teams
Meeting Date: August 23, 2021

Attendees: Colette Gorni – Planner, City of Ottawa
Molly Smith – Planner, City of Ottawa
Abi Dieme – Project Manager (Infrastructure), City of Ottawa
Mike Giampa – Project Manager (Transportation), City of Ottawa
Christopher Moise – Planner (Urban Design), City of Ottawa
Louise Cerveny – Planner (Parks), City of Ottawa
Jeffrey Ren – Co-op Student, City of Ottawa
Eric Lalande – RVCA
Akash Sinha – Rohit Group
Adil Kodian – Rohit Group
Mario Shaker – Rohit Group
Gagan Prince – Rohit Group
Robert Martin – Robert Martin Architects
Luke Boonstra – Robert Martin Architects

Regrets: Sami Rehman – Planner (Environmental), City of Ottawa
Mark Richardson – Planning Forester, City of Ottawa

Applicants Comments:

1. There is an existing zero lot line condition with the church
2. High water table – only 2 levels of underground parking.
3. 1:1 parking ratio (units plus visitor spaces = 1:1)
4. Bicycle parking in the underground parking garage.
5. Main entrance off northside road – double loaded corridor

Planning

1. Official Plan (OP) Designation – General Urban Area
2. Zoning – GM9 H(18.5) – General Mixed Use, Subzone 9, maximum height of 18.5 metres
3. Parking is to be provided at the rates specified for Area C per Schedule 1A:
    a. 1.2 per dwelling unit – apartment dwelling, low rise
    b. 0.2 visitor parking spaces per dwelling unit
    c. 0.5 bicycle parking spaces per dwelling unit

4. As per Section 101(6)(c)(i) of the Zoning By-law, where all parking spaces provided or required for a permitted land use are located below grade in the same building as that land use, the parking required by Table 101 for that land use may be reduced by the lesser of (i) 10 per cent of the required parking spaces, or (ii) 20 parking spaces.
5. Please note that Thorncliff Place is considered the front lot line.
6. The proposed development is subject to Site Plan Control and will require a Complex (Manager Approval, Public Consultation) application. Fees and forms for the above mentioned application can be found here.
7. Through a preliminary review of the provided concept plan, relief from the Zoning By-law is required for the following provisions:

    a. The minimum required rear yard setback for a residential use building on the site is 7.5 metres, as per Table 187(e)(iii) in the Zoning By-law.

    b. The minimum width of landscaped area abutting an institutional zone is 3 metres, as per Table 187(h)(ii) in the Zoning By-law)

    c. 9 visitor parking spaces are required (3 provided at grade).

    If the proposed building is unable to meet the requirements, relief from minimum rear yard setback provision in the Zoning By-law will be required prior to Site Plan Approval. This can be attained through either a minor variance or minor rezoning. Based on the scale of the relief required, staff are of the opinion that a minor rezoning application would most appropriate. Fees and forms for the Zoning By-law Amendment application can be found here. Refer to the Committee of Adjustment comments for more information on the minor variance process.
8. Staff have concerns with the proposed 0 metre rear yard setback, please consider increasing the setback. The Planning Rationale will need demonstrate that the 0 metre will not have an undue adverse impact on the abutting institutional use if they were to redevelop in the future.
9. For more information on electrical servicing, the following link outlines Hydro Ottawa's services for Commercial, Overhead and Underground, and Residential projects, together with contact information for Hydro Ottawa representatives: https://hydroottawa.com/en/accounts-services/accounts/contractors-developers/distribution-system-design
10. Please note that each planning application fee will be reduced by 10 per cent if two or more applications are submitted at the same time and for the same lands.
11. You are encouraged to reach out to Councillor Rick Chiarelli to discuss the proposal prior to submitting a formal application.
12. Please ensure that the submission takes into account appropriate Official Plan policies that are applicable at the time of the submission of the application

    a. If a complete application is received by no later than the day before the new Official Plan is adopted (October 2021), it will be processed on the basis of

existing Official Plan policy provided it is consistent with the 2020 Provincial Policy Statement

b. Applications received after the day before the new Official Plan is adopted (October 2021), will be reviewed and evaluated on the basis of the policies of the new Official Plan, which is consistent with the 2020 Provincial Policy Statement

Please contact Planner Colette Gorni at Colette.Gorni@ottawa.ca if you have any questions or require additional information relating to the comments above.

Committee of Adjustment

1. The Committee of Adjustment is authorized to grant a minor variance if all of the following criteria identified in Section 45(1) of the Planning Act, commonly referred to as the 'four tests', are met:

    1. The variance is minor;
    2. The variance is desirable for the appropriate development or use of the property;
    3. The general intent and purpose of the Zoning By-law is maintained;
    4. The general intent and purpose of the Official Plan is maintained.

    A requirement of a minor variance application is a detailed cover letter and/or report explaining the nature of the application and addressing the four tests of the Planning Act. In your rationale, in addition to the first two tests you should also explain how you are meeting the general intent and purpose of the Zoning by-law as well as Section 2.5.1 and 4.11 of the Official Plan. Section 2.5.1 Designing Ottawa provides the overall direction for assessing neighbourhood compatibility. Section 4.11 - Urban Design and Compatibility identifies general criteria for the evaluation of a specific development relative to policies of Section 2.5.1

2. Please note that Minor Variance applications are handled by the Committee of Adjustment. The Planning Department provides comments on Committee of Adjustment applications; however, the Committee of Adjustment makes the decision. For more information on the Committee of Adjustment, including application forms and fees, please visit: https://ottawa.ca/en/city-hall/planning-and-development/committee-adjustment. For questions pertaining to forms and fees, please contact the Committee of Adjustment directly at CofA@ottawa.ca or at (613)-580-2436.

3. Please note that the Committee of Adjustment process typically takes approximately 12 to 14 weeks from application submission to the end of the appeal period. My understanding is that once your application has been deemed complete it takes four to six weeks before the application is heard at a Committee meeting. The Committee meeting is the official public meeting; however, the Committee strongly recommends applicants consult with the public beforehand. As of June 3, 2020, meetings have been taking place via Zoom.

4. You are encouraged to consult with a Committee of Adjustment Planner before submitting an application to the Committee of Adjustment. Please refer to below contact information.

Please contact Committee of Adjustment Planner Lucy Ramirez at Lucy.Ramirez@ottawa.ca if you have any questions or require additional information relating to a Minor Variance application.

Urban Design

This proposal does not run along one of the City's Design Priority Areas and need not attend the City's UDRP. We appreciate the material provided for the pre-consult and have the following comments/questions regarding the design:

1. Main entrance that faces the public right of way, should employ architectural features that clearly indicate this to the public which is distinguishable from the private entrances.

2. We are supportive of the grade related units with access from the street.

3. **GM zone**: What is the planned context and future of the surrounding properties?

    a. Is the decision not to provide a reduced mass in the SW corner of the lot warranted and supportable?

4. **Rear yard separation**: Is 0m provided a reasonable decision for two storeys? We may have concerns if this results in a large blank wall condition.

    a. Is the location of exterior amenity on the 0m lot line set-back appropriate and sufficiently protected?

5. What is the nature of surrounding commercial? Would more bike parking be appropriate?

6. Is the Corner side yard set-back properly calculated?

    a. Would additional set-back fit better with surrounding development today and future? An illustration of the building alignment with neighbouring properties along Northside Road would help support these decisions;

7. **Facade**: We recommend that the street facing elevations employ quality materials and designed to improve the streetscape;

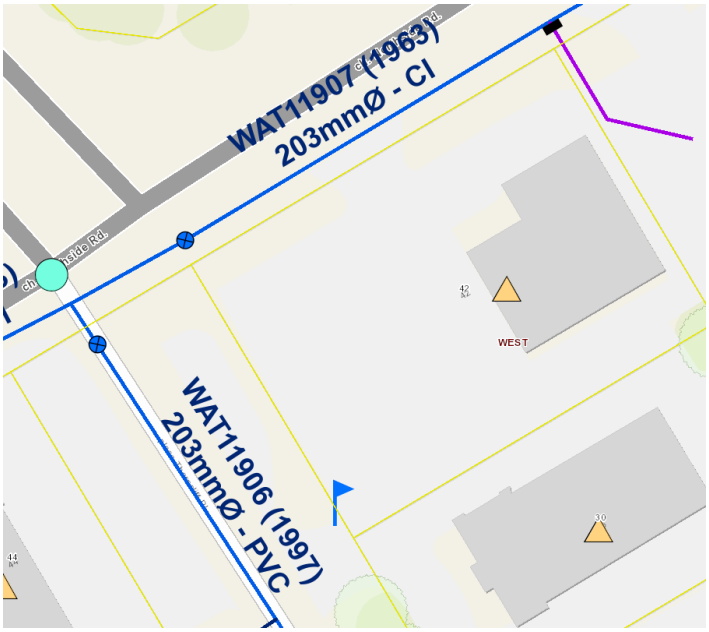
8. A scoped Design Brief is a required submittal for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided.

Please contact Urban Design Planner Christopher Moise at Christopher.Moise@ottawa.ca if you have any questions or require additional information relating to the comments above.

Engineering

Water:

1. District Plan No. 2W2C
2. Frontage charges are not applicable to the proposed development.
3. Connection point: 203mm PVC watermain on Thorncliff Place or 203mm CI watermain on Northside Road.
4. Connection to the watermain on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road.



5. Submission documents must include:
    a. Boundary conditions (civil consultant to request boundary conditions from the City's assigned Project Manager, Development Review). Water boundary conditions request must include the location of the service and the expected loads required by the proposed development. Please provide all the following information:
        i. Location of service (show on a plan or map)
        ii. Type of development and the amount of fire flow required (as per FUS, 1999).
        iii. Average daily demand: ___ l/s.
        iv. Maximum daily demand: ___l/s.
        v. Maximum hourly daily demand: ___ l/s.
        vi. Supporting Calculations of the required fire flow and all domestic demands listed above

b. Watermain system analysis demonstrating adequate pressure per section 4.2.2 of the Water Distribution Guidelines.

c. Fire protection (Fire demand, Hydrant Locations)

d. Proposed emergency route (to be satisfactory to Fire Services) to be on municipal street

6. A water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)

Sanitary:

7. Connection Point: 200mm sanitary main on Thorncliffe Place or 375mm concrete main on Northside Road

8. Connection to the sanitary main on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road.

9. A monitoring manhole will be required on private property.

Storm:

10. Connection Point: 375mm storm sewer on Thorncliffe Place or 900mm concrete sewer on Northside Road.

11. Connection to the sanitary main on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road

Stormwater Management:

12. Quality Control: Rideau Valley Conservation Authority to provide criteria.
13. Quantity Control:
    a. Design storm for receiving sewer: 5-year design storm
    b. Runoff coefficient (C): C=0.5 or C=pre-development, whichever is less
    c. Time of concentration (Tc): To be calculated, min Tc=10mins
    d. Allowable flow rate: Control the 100-year event to the 5-year event

Additional Notes

14. Please ensure that all existing and proposed utilities (municipal pipes) must be shown on the servicing plans.
15. No Capital Works Projects that would impact the application has been identified.
16. No moratorium that would impact the application has been identified.

17. Any easement identified should be shown on all plans.
18. For any proposed exterior light fixtures, please provide certification from a licensed professional engineer confirming lighting has been designed only using fixtures that meet the criteria for full cut-off classification as recognized by the Illuminating Engineering Society of North America and result in minimal light spillage onto adjacent properties (maximum allowable spillage is 0.5 fc). Additionally, include in the submission the location of the fixtures, fixture type (make, model, part number and mounting height).
19. For information on preparing required studies and plans refer to: http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans
20. Servicing and site works shall be in accordance with the following documents:
    a. Ottawa Sewer Design Guidelines (October 2012)
    b. Ottawa Design Guidelines – Water Distribution (2010)
    c. Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
    d. City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
    e. City of Ottawa Environmental Noise Control Guidelines (January, 2016)
    f. City of Ottawa Park and Pathway Development Manual (2012)
    g. City of Ottawa Accessibility Design Standards (2012)
    h. Ottawa Standard Tender Documents (latest version)
21. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

Please contact Infrastructure Project Manager Abi Dieme at Abibatou.Dieme@ottawa.ca if you have any questions or require additional information relating to the comments above.

RVCA

1. The RVCA has no concerns. Based on the overall design and site plan, the RVCA will not have any water quality requirements, however encourage best management practices where possible

Please contact the RVCA's Planner, Eric Lalande, at Eric.Lalande@rvca.ca if you have any questions or require additional information relating to the comments above.

Environmental Planning

1. No comments.

Please contact Environmental Planner Sami Rehman at Sami.Rehman@ottawa.ca if you have any questions or require additional information relating to the comments above.

Transportation

1. A TIA is warranted, please proceed to scoping.
    a. The application will not be deemed complete until the submission of the draft step 2-4. Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.
    b. Synchro files are required at Step 4. **Due to the low number of units, steps 3 and 4 may be combined.**
2. No ROW protection.
3. A Road Noise Impact Study is required
4. Access should be as far away from the intersection as possible/feasible. Clear throat requirements as per TAC guidelines for a collector road.

Please contact Transportation Project Manager Mike Giampa at Mike.Giampa@ottawa.ca if you have any questions or require additional information relating to the comments above.

Forestry

1. A Tree Conservation Report (TCR) is required if there any trees greater than 10cm in diameter located on the site. There appears to possibly be a tree in the southeast corner of the site – please confirm. If so, please refer the below requirements.

TCR Requirements

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. An approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with eh LP provided all information is supplied
2. As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester

   b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit

4. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition

5. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

6. The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site

7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained

8. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca

   a. The location of tree protection fencing must be shown on a plan

   b. Show the critical root zone of the retained trees

   c. If excavation will occur within the critical root zone, please show the limits of excavation

9. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa.

Next Steps

Please refer to the links to Guide to preparing studies and plans and fees for further information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to Colette Gorni, at Colette.Gorni@ottawa.ca, if you have any questions.

Appendix D: Drawings

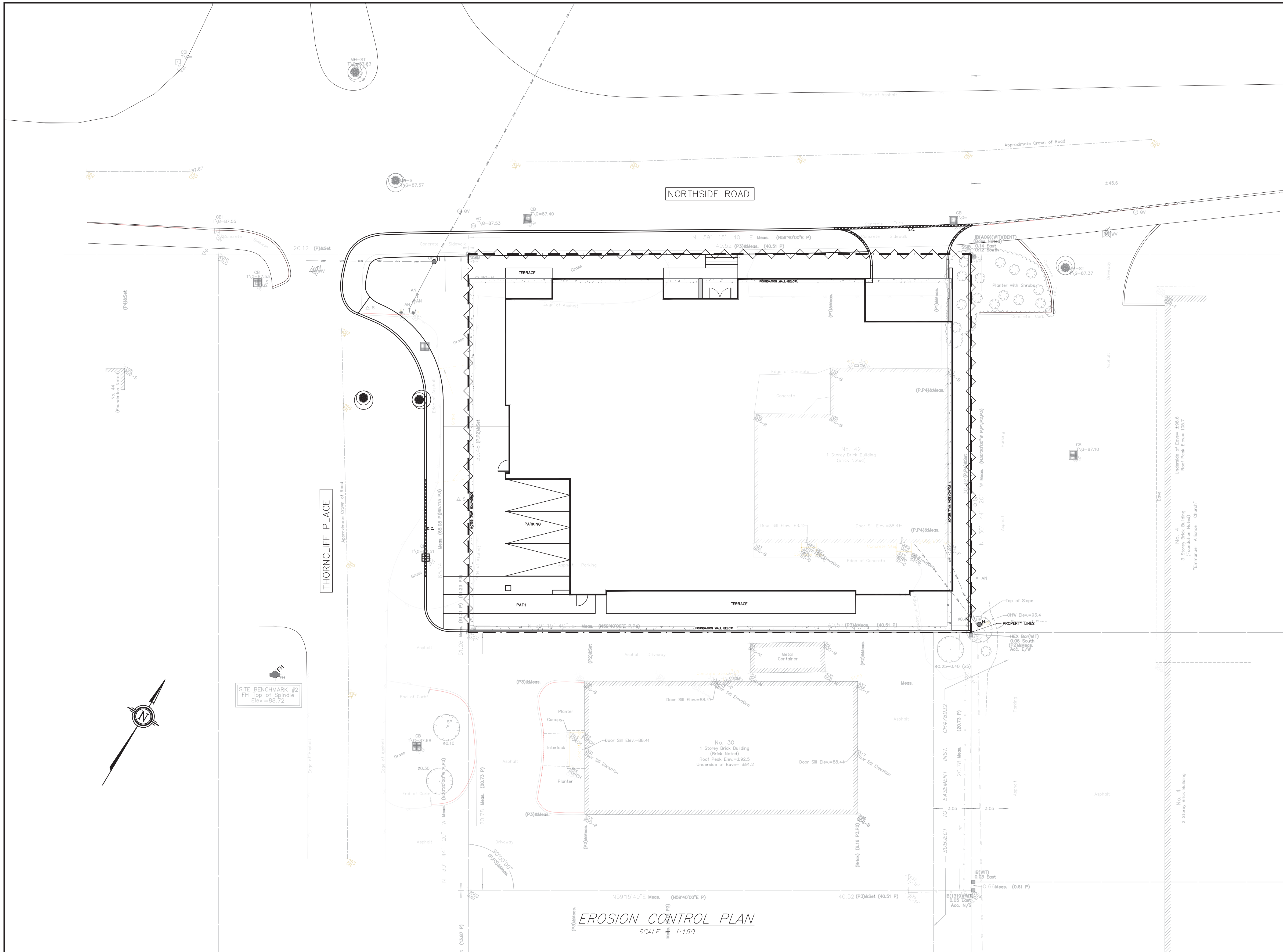
211099– PRE – Pre-Development Conditions

211099 –SWMP – Stormwater Management Plan and Catchment Areas

211099 – GR – Grading Plan

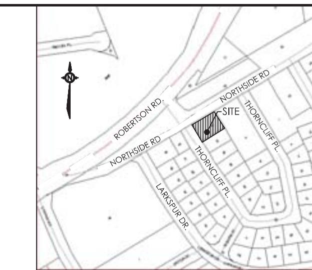
211099 – SER – Site Servicing Plan

211099 – ER – Erosion Control Plan



EROSION CONTROL PLAN

SCALE 1:150



0 1 2 3 4 5 10

SCALE: 1:150

LEGEND

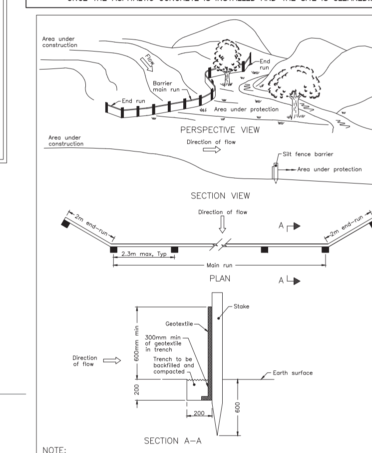
x68.75	EXISTING ELEVATIONS
68.75 / 68.75	PROPOSED/EXISTING ELEVATIONS
68.75C	PROPOSED CURB ELEVATION
68.75W	PROPOSED WALL ELEVATION
LS	EXISTING LIGHT STANDARD
D.C.	PROPOSED DROPPED CURB
B	EXISTING BOLLARD
H	EXISTING HYDRO POLE
	EXISTING HYDRO GUY WIRE ANCHOR
FH	EXISTING FIRE HYDRANT
SAN SAN	EXISTING/PROP SANITARY MANHOLE
STM STM	EXISTING/PROP STORM MANHOLE
VC VC	EXISTING/PROP VALVE CHAMBER
	EXISTING CATCH BASIN
GV	EXISTING GAS VALVE
WV	EXISTING WATER VALVE
	PROPOSED CATCH BASIN
W W	WATER SERVICES
SAN SAN	SANITARY SEWER
STM STM	STORM SEWER
OHW	OVERHEAD POWER LINES
	TEMPORARY BENCHMARK
	PROPERTY LINE
	SILT FENCE
	SLOPE (MAX 1V: 3H)

EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE STORM SEWER SYSTEM, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. THE OWNER (AND/OR CONTRACTOR) AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN AT LEAST EQUAL TO THE STATED MINIMUM REQUIREMENTS AND TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL.
3. THE CONTRACTOR IS TO ENSURE THAT THE SITE ACCESS POINTS AND ADJACENT STREETS TO THE ACCESS POINTS ARE MAINTAINED AND KEPT CLEAN OF CONSTRUCTION MATERIALS SUCH AS, BUT NOT LIMITED TO MUD, DIRT, CLAY AND GRANULARS ON A DAILY BASIS OR AS NECESSARY, TO THE SATISFACTION OF THE CITY OF OTTAWA.
4. EVERY EFFORT WILL BE MADE TO ENSURE THAT ALL DISTURBED AREAS ARE TOPSOILED AND SEEDED AS SOON AS REASONABLY POSSIBLE.
5. THE SEDIMENT AND EROSION CONTROL PLAN IS A LIVING DOCUMENT WHICH MAY BE AMENDED BY ONSITE REQUIREMENTS AT THE APPROVAL OF THE MUNICIPALITY AND THE CONSERVATION AUTHORITY.

MINIMUM EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS:

- TIME THE DEMOLITION AND EXCAVATION ACTIVITIES SO THAT THEY OCCUR NO SOONER THAN IS NECESSARY FOR SUBSEQUENT CONSTRUCTION ACTIVITIES.
- LANDSCAPE THE SITE AS SOON AS PRACTICALLY POSSIBLE.
- USE SILT FENCES AROUND ANY STOCKPILES OF SOIL.
- PRIOR TO CONSTRUCTION, SILT FENCE BARRIERS (OPSD 219.110) WILL BE PLACED ALONG THE PROPERTY LINES AS ON THE DRAWING.
- THE SILT FENCE SHOULD BE REMOVED ONLY WHEN THE SITE IS STABILIZED.
- FILTER SOCKS SHOULD BE INSTALLED ACROSS EXISTING STORM MANHOLE AND CATCH BASIN LIDS. AS WELL, FILTER SOCKS SHOULD BE INSTALLED ACROSS THE PROPOSED CATCH BASIN AND MANHOLE LIDS IMMEDIATELY AFTER THE STRUCTURES ARE PLACED. THE FILTER SOCKS SHOULD ONLY BE REMOVED ONCE THE ASPHALTIC CONCRETE IS INSTALLED AND THE SITE IS CLEANED..



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2006 Rev 1

LIGHT-DUTY SILT FENCE BARRIER

OPSD 219.110

NOTES:

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2. THIS IS NOT A LEGAL SURVEY.
3. BOUNDARY INFORMATION DERIVED FROM ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
4. EXISTING SERVICES INFORMATION SHOWN ARE BASED ON BEST CURRENT INFORMATION. CONTRACTOR TO VERIFY EXACT LOCATION AND REPORT ANY DISCREPANCIES TO KOLLAARD ASSOCIATES INC.
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13. THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORT #211099.

No.	REVISION	DATE	BY
0	ISSUED FOR SITE PLAN CONTROL	19.JAN.2022	AJ

CONSULTANTS

Rohit COMMUNITIES

Kollaard Associates Engineers

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K0G 1J0
FACSIMILE (613) 258-0475

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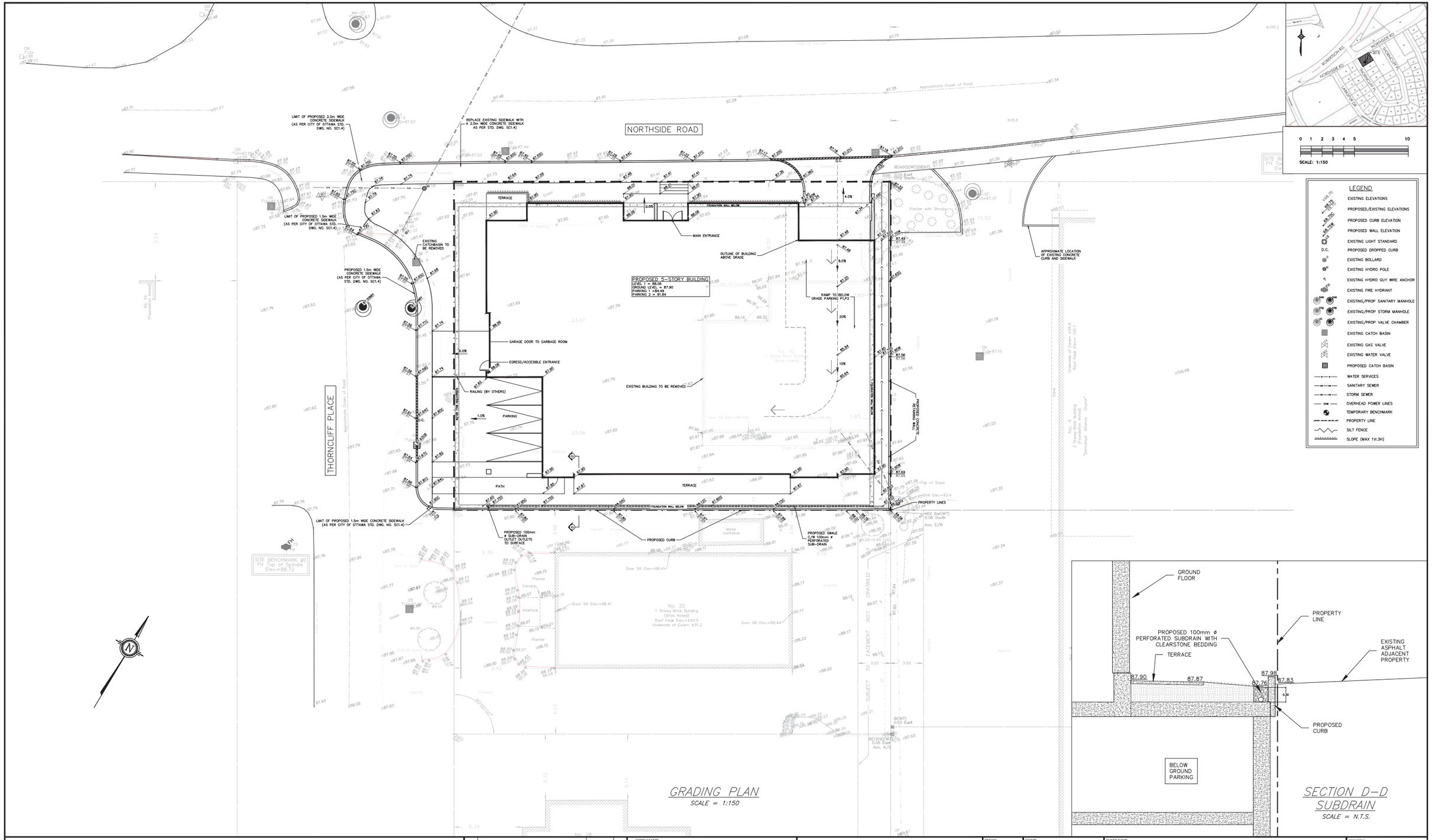
DESIGN	AJ
DRAWN	AJ
CHECKED	SD
APPROVED	SD

STAMP

CLIENT NAME	ROHIT COMMUNITIES INC.	PROJECT No.	211099
PROJECT NAME	PROPOSED RESIDENTIAL DEVELOPMENT	DATE	19.JAN.2022
PROJECT LOCATION	42 NORTHSIDE RD, OTTAWA, ONTARIO	SCALE	1:150
DRAWING	EROSION CONTROL PLAN	DRAWING No.	211099 - ER



LEGEND

- EXISTING ELEVATIONS
- PROPOSED/EXISTING ELEVATIONS
- PROPOSED CURB ELEVATION
- PROPOSED WALL ELEVATION
- EXISTING LIGHT STANDARD
- D.C. PROPOSED DROPPED CURB
- EXISTING BOLLARD
- EXISTING HYDRO POLE
- EXISTING HYDRO GUY WIRE ANCHOR
- EXISTING FIRE HYDRANT
- EXISTING/PROP SANITARY MANHOLE
- EXISTING/PROP STORM MANHOLE
- EXISTING/PROP VALVE CHAMBER
- EXISTING CATCH BASIN
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- PROPOSED CATCH BASIN
- WATER SERVICES
- SANITARY SEWER
- STORM SEWER
- OVERHEAD POWER LINES
- TEMPORARY BENCHMARK
- PROPERTY LINE
- SILT FENCE
- SLOPE (MAX 1V:3H)

GRADING PLAN
SCALE = 1:150

SECTION D-D SUBDRAIN
SCALE = N.T.S.

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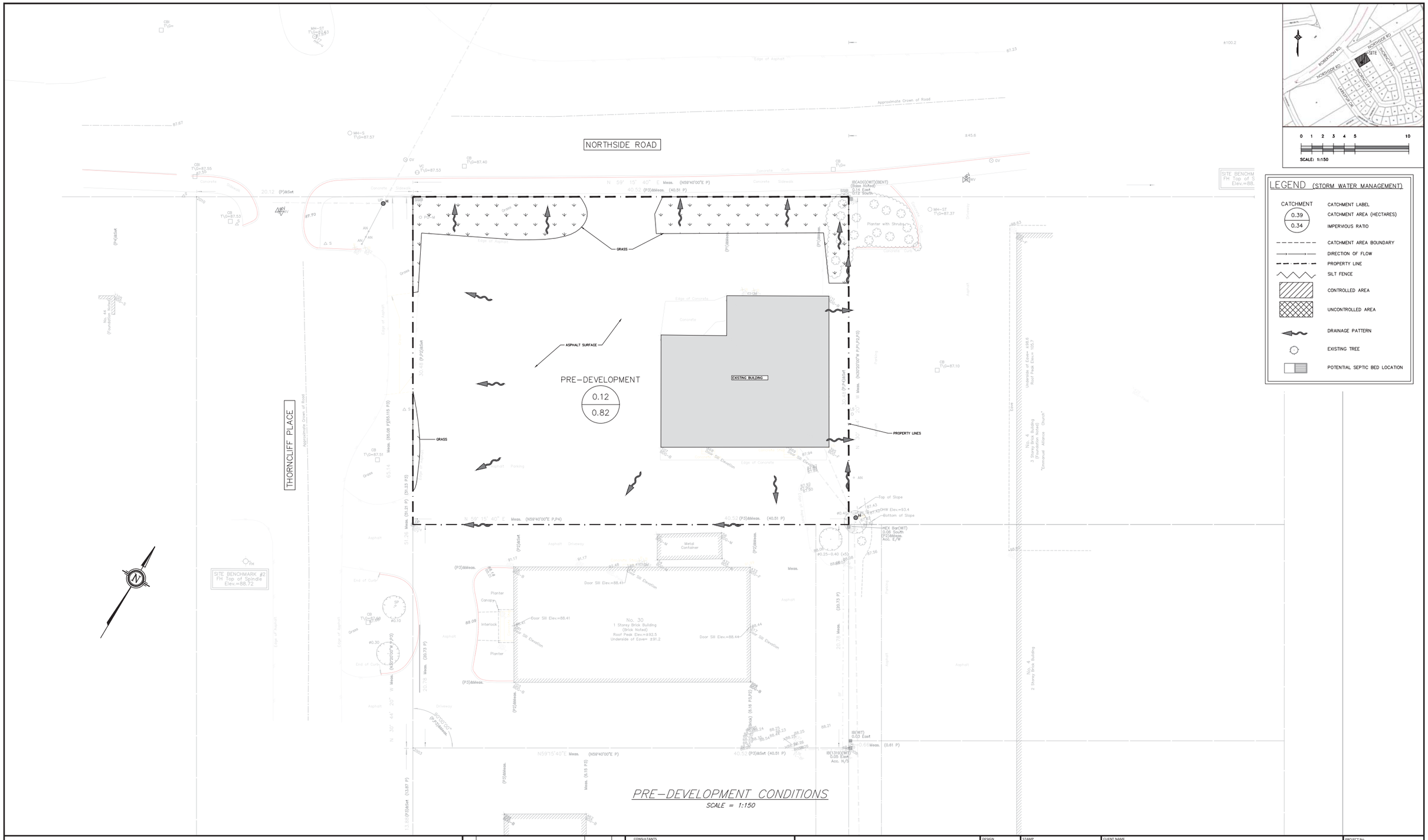

LEGEND (STORM WATER MANAGEMENT)

- CATCHMENT — CATCHMENT LABEL
- 0.39 / 0.34 — CATCHMENT AREA (HECTARES) / IMPERVIOUS RATIO
- CATCHMENT AREA BOUNDARY
- DIRECTION OF FLOW
- PROPERTY LINE
- SILT FENCE
- CONTROLLED AREA
- UNCONTROLLED AREA
- DRAINAGE PATTERN
- EXISTING TREE
- POTENTIAL SEPTIC BED LOCATION

PRE-DEVELOPMENT CONDITIONS

SCALE = 1:150

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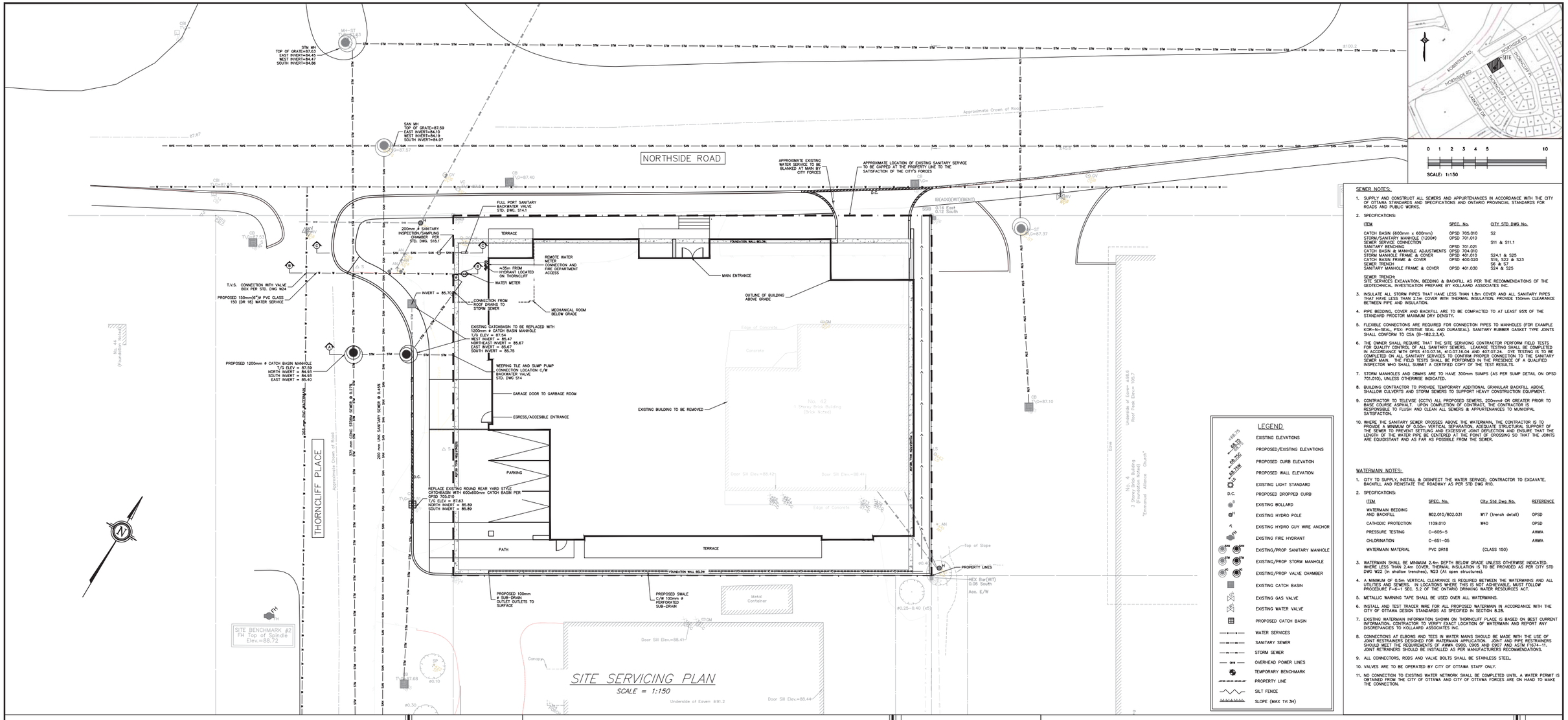
PROJECT NAME	PROPOSED RESIDENTIAL DEVELOPMENT
PROJECT LOCATION	42 NORTHSIDE RD, OTTAWA, ONTARIO
DRAWING	PRE-DEVELOPMENT CONDITIONS
PROJECT No.	211099
DATE	19.JAN.2022
SCALE	1:150
DRAWING No.	211099 - PRE



SITE SERVICING PLAN

SCALE = 1:150

SEWER NOTES:

1. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS AND ONTARIO PROVINCIAL STANDARDS FOR ROADS AND PUBLIC WORKS.
2. SPECIFICATIONS:

ITEM	SPEC. No.	CITY STD DWG No.
CATCH BASIN (600mm x 600mm)	OPSD 705.010	S2
STORM/SANITARY MANHOLE (1200ø)	OPSD 701.010	
SEWER SERVICE CONNECTION		S11 & S11.1
SANITARY BENCHING	OPSD 701.021	
CATCH BASIN & MANHOLE ADJUSTMENTS	OPSD 704.010	
STORM MANHOLE FRAME & COVER	OPSD 401.010	S24.1 & S25
CATCH BASIN FRAME & COVER	OPSD 400.020	S19, S22 & S23
SEWER TRENCH		S6 & S7
SANITARY MANHOLE FRAME & COVER	OPSD 401.030	S24 & S25

SEWER TRENCH:
SITE SERVICES EXCAVATION, BEDDING & BACKFILL AS PER THE RECOMMENDATIONS OF THE GEOTECHNICAL INVESTIGATION PREPARE BY KOLLAARD ASSOCIATES INC.

3. INSULATE ALL STORM PIPES THAT HAVE LESS THAN 1.8m COVER AND ALL SANITARY PIPES THAT HAVE LESS THAN 2.1m COVER WITH THERMAL INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
4. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTION PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). SANITARY RUBBER GASKET TYPE JOINTS SHALL CONFORM TO CSA (B-182.2,3,4).
6. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.4 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A QUALIFIED INSPECTOR WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
7. STORM MANHOLES AND CBMHS ARE TO HAVE 300mm SUMPS (AS PER SUMP DETAIL ON OPSD 701.010), UNLESS OTHERWISE INDICATED.
8. BUILDING CONTRACTOR TO PROVIDE TEMPORARY ADDITIONAL GRANULAR BACKFILL ABOVE SHALLOW CULVERTS AND STORM SEWERS TO SUPPORT HEAVY CONSTRUCTION EQUIPMENT.
9. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmø OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES TO MUNICIPAL SATISFACTION.
10. WHERE THE SANITARY SEWER CROSSES ABOVE THE WATERMAIN, THE CONTRACTOR IS TO PROVIDE A MINIMUM OF 0.50m VERTICAL SEPARATION, ADEQUATE STRUCTURAL SUPPORT OF THE SEWER TO PREVENT SETTLING AND EXCESSIVE JOINT DEFLECTION AND ENSURE THAT THE LENGTH OF THE WATER PIPE BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.

WATERMAIN NOTES:

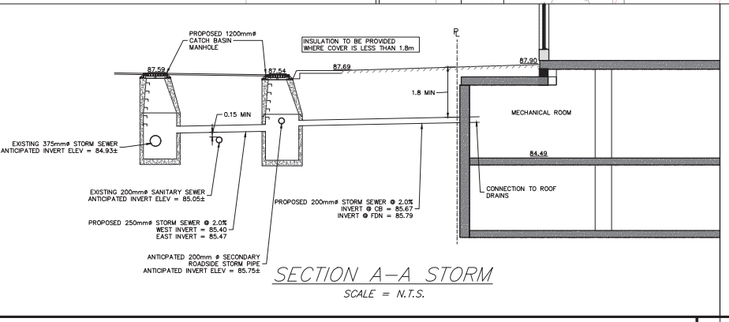
1. CITY TO SUPPLY, INSTALL & DISINFECT THE WATER SERVICE; CONTRACTOR TO EXCAVATE, BACKFILL AND REINSTATE THE ROADWAY AS PER STD DWG R10.
2. SPECIFICATIONS:

ITEM	SPEC. No.	City Std Dwg No.	REFERENCE
WATERMAIN BEDDING AND BACKFILL	802.010/802.031	W17 (trench detail)	OPSD
CATHODIC PROTECTION	1109.010	W40	OPSD
PRESSURE TESTING	C-605-5		AWWA
CHLORINATION	C-651-05		AWWA
WATERMAIN MATERIAL	PVC DR18	(CLASS 150)	

3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. WHERE LESS THAN 2.4m COVER, THERMAL INSULATION IS TO BE PROVIDED AS PER CITY STD DWG W22 (in shallow trenches), W23 (At open structures).
4. A MINIMUM OF 0.5m VERTICAL CLEARANCE IS REQUIRED BETWEEN THE WATERMAINS AND ALL UTILITIES AND SEWERS. IN LOCATIONS WHERE THIS IS NOT ACHIEVABLE, MUST FOLLOW PROCEDURE F-6-1 SEC. 5.2 OF THE ONTARIO DRINKING WATER RESOURCES ACT.
5. METALLIC WARNING TAPE SHALL BE USED OVER ALL WATERMAINS.
6. INSTALL AND TEST TRACER WIRE FOR ALL PROPOSED WATERMAIN IN ACCORDANCE WITH THE CITY OF OTTAWA DESIGN STANDARDS AS SPECIFIED IN SECTION 8.2.8.
7. EXISTING WATERMAIN INFORMATION SHOWN ON THORNCLIFF PLACE IS BASED ON BEST CURRENT INFORMATION. CONTRACTOR TO VERIFY EXACT LOCATION OF WATERMAIN AND REPORT ANY DISCREPANCIES TO KOLLAARD ASSOCIATES INC.
8. CONNECTIONS AT ELBOWS AND TEES IN WATER MAINS SHOULD BE MADE WITH THE USE OF JOINT RESTRAINERS DESIGNED FOR WATERMAIN APPLICATION. JOINT AND PIPE RESTRAINERS SHOULD MEET THE REQUIREMENTS OF AWWA C900, C905 AND C907 AND ASTM F1674-11. JOINT RETRAINERS SHOULD BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.
9. ALL CONNECTORS, RODS AND VALVE BOLTS SHALL BE STAINLESS STEEL.
10. VALVES ARE TO BE OPERATED BY CITY OF OTTAWA STAFF ONLY.
11. NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE CITY OF OTTAWA AND CITY OF OTTAWA FORCES ARE ON HAND TO MAKE THE CONNECTION.

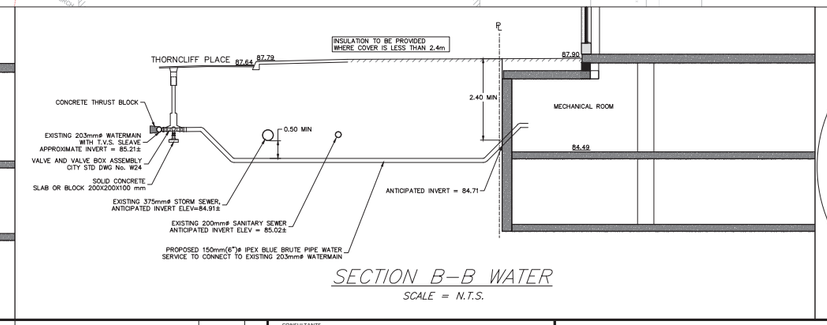
LEGEND

- EXISTING ELEVATIONS
- PROPOSED/EXISTING ELEVATIONS
- PROPOSED CURB ELEVATION
- PROPOSED WALL ELEVATION
- EXISTING LIGHT STANDARD
- D.C. PROPOSED DROPPED CURB
- EXISTING BOLLARD
- EXISTING HYDRO POLE
- EXISTING HYDRO GUY WIRE ANCHOR
- EXISTING FIRE HYDRANT
- EXISTING/PROP SANITARY MANHOLE
- EXISTING/PROP STORM MANHOLE
- EXISTING/PROP VALVE CHAMBER
- EXISTING CATCH BASIN
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- PROPOSED CATCH BASIN
- WATER SERVICES
- SANITARY SEWER
- STORM SEWER
- OVERHEAD POWER LINES
- TEMPORARY BENCHMARK
- PROPERTY LINE
- SILT FENCE
- SLOPE (MAX 1V:3H)



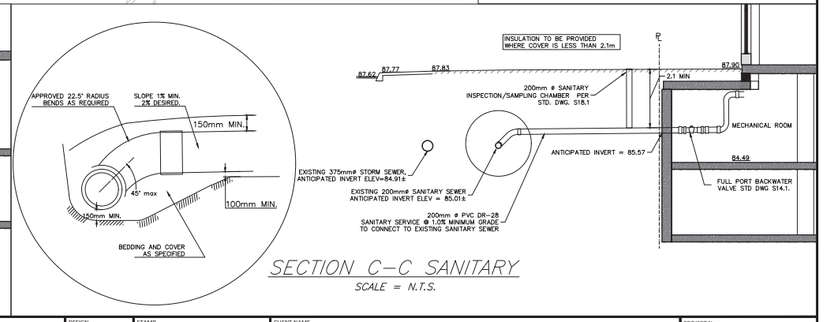
SECTION A–A STORM

SCALE = N.T.S.



SECTION B–B WATER

SCALE = N.T.S.



SECTION C–C SANITARY

SCALE = N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN METRES, UNLESS OTHERWISE SPECIFIED; ALL ELEVATIONS ARE IN METRES AND ARE GEODETIC.
2. THIS IS NOT A LEGAL SURVEY.
3. BOUNDARY INFORMATION DERIVED FROM ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
4. EXISTING SERVICES INFORMATION SHOWN ARE BASED ON BEST CURRENT INFORMATION. CONTRACTOR TO VERIFY EXACT LOCATION AND REPORT ANY DISCREPANCIES TO KOLLAARD ASSOCIATES INC.
5. CLIENT IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS.
6. CONTRACTOR TO VERIFY THAT APPROPRIATE PERMITS HAVE BEEN ACQUIRED PRIOR TO ANY CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF UTILITIES.
7. ALL DIMENSIONS TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
8. THIS DRAWING IS NOT FOR CONSTRUCTION UNTIL ALL APPROVALS HAVE BEEN GRANTED.
9. INSPECTION OF ROUGH GRADE BY KOLLAARD ASSOCIATES INC. AND CITY OF OTTAWA MUST BE CONDUCTED PRIOR TO PLACEMENT OF TOPSOIL OR SOD.
10. HYDRO, GAS, COMMUNICATIONS SERVICE TO BE INSTALLED ACCORDING TO THE SPECIFICATIONS OF SERVICE PROVIDER AND THE MECHANICAL ENGINEER.
11. ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS
12. ANY CHANGES MADE TO THIS PLAN MUST BE VERIFIED AND APPROVED BY KOLLAARD ASSOCIATES, INC.
13. THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORT #211099.

No.	REVISION	DATE	BY
0	ISSUED FOR SITE PLAN CONTROL	19.JAN.2022	AJ

CONSULTANTS

Rohit™ COMMUNITIES

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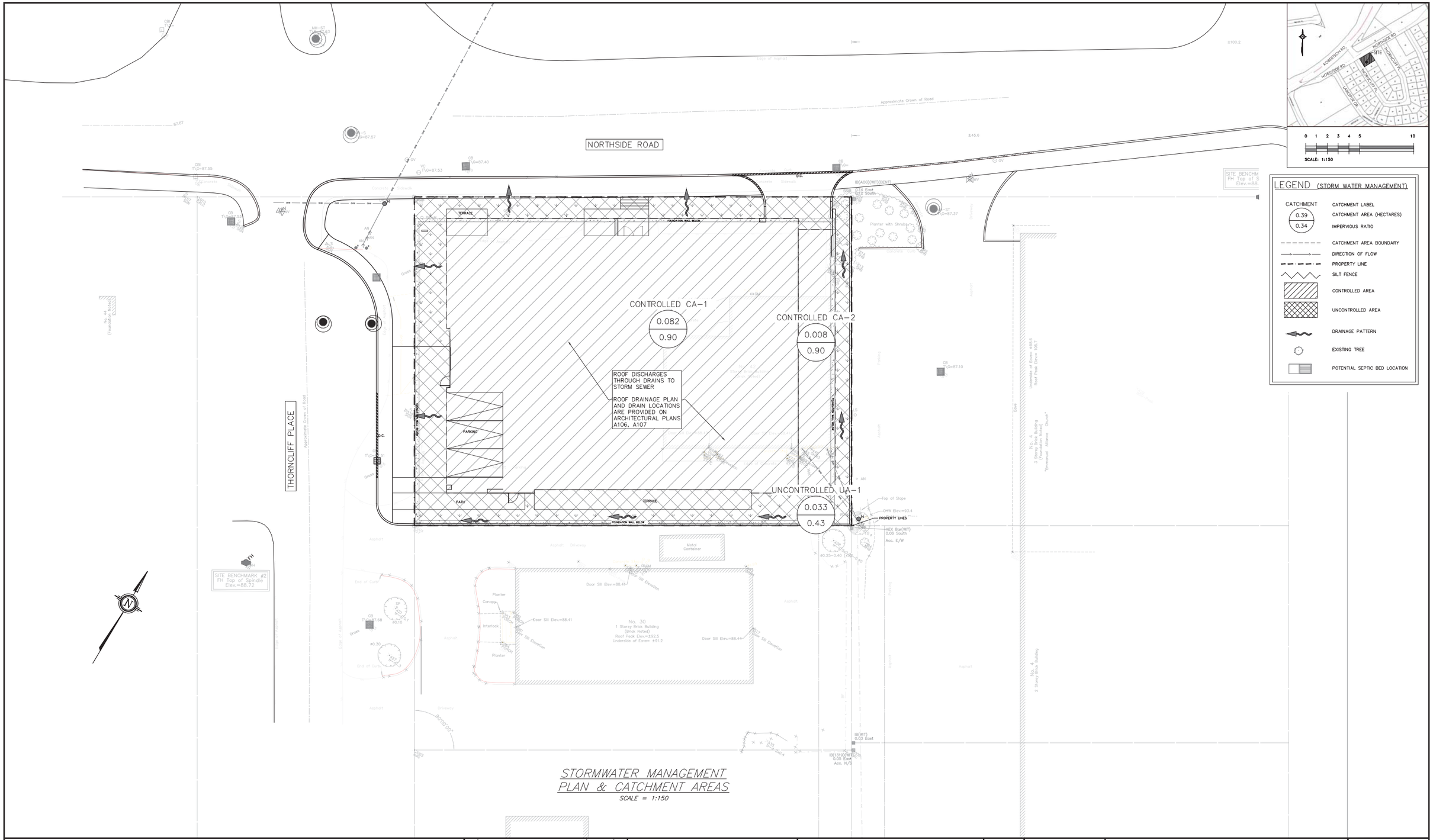
DESIGN	AJ
DRAWN	AJ
CHECKED	SD
APPROVED	SD
STAMP	

CLIENT NAME	ROHIT COMMUNITIES INC.
PROJECT NAME	PROPOSED RESIDENTIAL DEVELOPMENT
PROJECT LOCATION	42 NORTHSIDE RD, OTTAWA, ONTARIO
DRAWING	SITE SERVICING PLAN
PROJECT No.	211099
DATE	19.JAN.2022
SCALE	1:150
DRAWING No.	211099 – SER



LEGEND (STORM WATER MANAGEMENT)

- CATCHMENT — CATCHMENT LABEL
- 0.39 / 0.34 — CATCHMENT AREA (HECTARES) / IMPERVIOUS RATIO
- CATCHMENT AREA BOUNDARY
- DIRECTION OF FLOW
- PROPERTY LINE
- SILT FENCE
- CONTROLLED AREA
- UNCONTROLLED AREA
- DRAINAGE PATTERN
- EXISTING TREE
- POTENTIAL SEPTIC BED LOCATION

STORMWATER MANAGEMENT PLAN & CATCHMENT AREAS

SCALE = 1:150

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DESIGN	AJ
DRAWN	AJ
CHECKED	SD
APPROVED	SD
STAMP	
CLIENT NAME	ROHIT COMMUNITIES INC.
PROJECT NAME	PROPOSED RESIDENTIAL DEVELOPMENT
PROJECT LOCATION	42 NORTHSIDE RD, OTTAWA, ONTARIO
DRAWING	STORMWATER MANAGEMENT PLAN & CATCHMENT AREAS
PROJECT No.	211099
DATE	19.JAN.2022
SCALE	1:150
DRAWING No.	211099 – SWMP