

May 14, 2026

Town of Carleton Place  
175 Bridge Street  
Carleton Place, ON, K7C 2V8

**Attention: Ms. Niki Dwyer  
Director of Development Services  
Town of Carleton Place**

Dear Ms. Dwyer:

**Re: 41 Roe Street Development – Phase 1  
Novatech File: 126002**

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This Development Study has been prepared in support of the development permit application for the site at 41 Roe Street in the Town of Carleton Place.

### **EXISTING CONDITIONS**

The 1.17 ha site is part of the Hooper Street commercial/industrial subdivision constructed by the Town and is currently undeveloped. The site has a drainage easement and a stormwater management facility to the northeast, McNeely Drain to the northwest, Roe Street to the south, and vacant land (29 Roe Street) to the west.

The subdivision includes both watermain and sanitary sewers on Roe Street which connect into the watermain and sanitary sewers on Hooper Street. Based on subdivision design drawings, the site is designed to sheet drain to the roadside ditch on Roe Street as well as the existing ditch within the drainage easement on the northeast side of the site. All drainage is conveyed through the ditches and the McNeely Drain to the existing stormwater management (SWM) facility to the east.

### **PROPOSED DEVELOPMENT**

The proposed development is an asphalt parking area, and a grassed landscape area around the perimeter of the parking area. The remainder of the site will include a commercial building (details will be confirmed in Phase 2), completion of asphalt area, and a landscape area around the perimeter of the site in the Phase 2. The existing ditch within the drainage easement will remain.

The following documents were used in preparation of the design for this site:

- McNeely Avenue and Hooper Street Drainage Basin – Stormwater Management Report (prepared by McIntosh Perry, revised November 26, 2007)
- Proposed Commercial Building 29 and 41 Roe Street – Geotechnical Investigation/Report (prepared by Kollaard Associates February 02, 2026)
- Subdivision Asbuilt Drawings – Roe Street (Phase1) (prepared by Ainley Group October 11, 2018)

## WATER SERVICING

No water servicing is required or provided as part of Phase 1. Phase 2 will connect to the existing 200mm diameter watermain on Roe Street to the south in the Phase 2. The Roe Street watermain connects to the existing 300mm watermain on Hooper Street and on Cavanagh Road.

Once building details are known for Phase 2, water demands will be provided. Since the subdivision was designed for commercial/industrial use, and commercial use is proposed, the municipal watermain system has capacity for Phase 2.

## SANITARY SERVICING

No sanitary servicing is required or provided as part of Phase 1. Phase 2 of the site will connect to the existing 250mm diameter sanitary sewer on Roe Street. Servicing this site with the Roe Street sanitary sewer aligns with the sanitary drainage area plan for the subdivision. Refer to **Appendix B** for the existing sanitary drainage area plan.

Once building details are known for Phase 2, sewer demands will be provided. Since the subdivision was designed for commercial/industrial use, and commercial use is proposed, the municipal sanitary sewer on Roe Street has capacity for Phase 2.

The Town of Carleton place has previously indicated that the downstream sanitary sewer system on Hooper Street has sufficient capacity to service this type of development and that downstream capacity analysis is not required. Therefore, the site can be adequately serviced by the existing sanitary sewers. Refer to **Appendix A** for email correspondence.

## STORM SERVICING AND STORMWATER MANAGEMENT

The existing subdivision consists of a ditch and culvert system discharging to the McNeely Drain to the northwest of the site. The McNeely Drain conveys drainage to the existing SWM facility to the north. The existing SWM facility provides both quantity and quality control of stormwater runoff for the site. It is proposed that the site sheet drain to the existing ditch on northeast side, the proposed new swale on the south side of the parking area, and existing Roe Street roadside ditch, eventually connecting to the McNeely drain. A future storm service conveying rooftop runoff would outlet to the east ditch in Phase 2.

The subdivision drainage area plan prepared by Ainley Group and Stormwater management report prepared by McIntosh Perry indicates a maximum design runoff coefficient of 0.75. The proposed runoff coefficient for the site is 0.71 as summarized in **Table 1** below.

**Table 1: Post Development Site Runoff Coefficient**

Drainage Area ID	Area	C <sub>w</sub>	C <sub>ALLOW</sub>
STM-1	0.22	0.68	
STM-2	0.68	0.69	
STM-3	0.27	0.77	
<b>TOTAL SITE</b>	<b>1.17</b>	<b>0.71</b>	<b>0.75</b>

The proposed drainage splits for the site are outlined on the Post-Development Drainage Area Plan (126002-STM). As the drainage divide differs slightly from the subdivision design, the product of the proposed drainage area and runoff coefficient (AC) are compared to those on the subdivision drainage area plan. The comparison is outlined in **Table 2** below.

**Table 2: AxC Allowable to Post-Development Comparison**

Drainage Area Flow Direction	Allowable			Post-Development		
	Drainage Area (ha) A	C Factor	AC	Drainage Area (ha) A	C Factor	AC
Flow to Roe Street ditch	0.09	0.75	0.07	0.22	0.68	0.15
Flow to east site ditch	0.74	0.75	0.56	0.68	0.69	0.47
Flow to McNeely drain via proposed ditch	0.37	0.75	0.28	0.27	0.77	0.21
<b>TOTAL</b>	<b>0.978</b>		<b>0.73</b>	<b>0.978</b>		<b>0.83</b>

As shown in **Table 2**, the AC for the portion of the site draining to the Roe Street ditch exceeds the subdivision design AC. As a result, a downstream capacity analysis for the existing driveway culverts has been conducted for flows from a 5-year storm event and is included in **Appendix C**. The analysis shows that an existing 600mm diameter culvert, downstream of the site in the Roe Street ditch, with a headwater to diameter ratio of 0.53 has sufficient capacity to convey the proposed 5-year flows from the site along with drainage from adjacent sites.

The proposed AC to the east ditch and McNeely drain is less than the subdivision design AC. The overall C factor for the site of 0.75 matches the design C factor for the drainage areas in the subdivision. Therefore, no downstream analysis was conducted for this drainage area.

As a result of the above, no on-site quantity or quality control measures are required, and will not be provided. Quantity or quality control measures are provided by the subdivision ditches and the downstream SWM facility.

In Phase 2, a proposed storm service would be sized to convey runoff from the roof up to and including a 5-year storm event. The building roof will provide some storage for runoff in excess of a 5-year storm. Any flow exceeding the storage capacity of the roof will spill from the building onto the asphalt and drain overland to the perimeter swales and ditches.

The stormwater management report for the subdivision (prepared by McIntosh Perry, November 26, 2007) recommends using Best Management Practices (BMP's) for individual lot developments. BMPs have been considered and implemented where possible for this development. These include having the site drain to landscaped areas around the perimeter of the site and minimizing onsite swale slopes where possible.

Refer to **Appendix C** for the Post Drainage Area Plan and stormwater management calculations.

## **EROSION AND SEDIMENT CONTROL**

Temporary erosion and sediment control measures will be implemented during construction. Silt fence is proposed around the perimeter of the site as well as straw bale check dams in the ditches. These measures are to be implemented prior to the commencement of construction and maintained in good order until vegetation has been established. Refer to the Grading Plan (126002-GR-PH1) for additional information.

## **CONCLUSION**

- The overall stormwater runoff coefficient for the site does not exceed the allowable runoff coefficient. Therefore, quantity and quality control of stormwater runoff is provided downstream in the existing ditches and SWM facility and no additional stormwater management measures are required for the site.
- The drainage divide for the site is similar to the subdivision drainage area plan but differs slightly. As there is more proposed runoff flowing to the Roe Street ditch compared to the subdivision drainage area plan, a downstream analysis for the existing driveway culverts was conducted and confirms an existing 600mm diameter culvert downstream has adequate capacity for flows from a 5-year storm event.
- In Phase 2, water servicing for the future development will be provided by connecting to the existing 200mm diameter watermain on Roe Street. The existing watermain infrastructure can provide adequate flow and pressure.
- The sanitary service for the future building will connect to the existing 250mm diameter sanitary sewer on Roe Street. The existing sanitary sewer has adequate capacity to service the future development.
- Stormwater best management practices will be implemented where possible.
- Erosion and sediment control measures are to be implemented prior to and during construction.

Yours truly,

**NOVATECH**

Prepared by:



Deepkumar Mendapara,  
M.Eng. (Civil Engineering), EIT

Reviewed by:



Alex McAuley, P.Eng.  
Project Manager | Land Development Engineering

**APPENDIX A**  
**Correspondence**

**1. Email – Existing Servicing (Dec. 1/20)**

## Aden Rongve

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**From:** Robin Daigle <rdaigle@carletonplace.ca>  
**Sent:** Tuesday, December 1, 2020 10:07 AM  
**To:** Alex McAuley  
**Cc:** Steve Pentz; Aden Rongve  
**Subject:** RE: 119 Hooper - existing reports

Hi Alex,

There's no supplemental information for the JLR report, I can request clarification from JLR if necessary.

I will not be requiring any offsite capacity analysis for sanitary sewers as this subdivision was taken into account in our sanitary sewer trunk modelling (Hooper Street sanitary sewers) and as I previously mentioned I am not concerned about the capacity of the Roe Street as a quick check of the capacity of 250mm sewer at 0.4% confirms it provides more than enough capacity to service the subdivision. I can provide the trunk modelling if you would still like to refer to it.

Note I strongly recommend connecting to the Roe Street sanitary sewer as it is higher in elevation. The trunk sewer on Hooper Street is relatively deep and I know there to be an incredible amount of ground water at this depth which will make a connection much more challenging to construct.

Let me know if you have any questions,

**Robin Daigle, EIT**  
Engineering Manager  
Town of Carleton Place  
T. 613-257-6248 | F. 613-257-8170  
[rdaigle@carletonplace.ca](mailto:rdaigle@carletonplace.ca) | [www.carletonplace.ca](http://www.carletonplace.ca)

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**From:** Alex McAuley  
**Sent:** December 1, 2020 9:36 AM  
**To:** Robin Daigle  
**Cc:** Steve Pentz ; Aden Rongve  
**Subject:** RE: 119 Hooper - existing reports

Robin,  
Thank you for the water information. On a cursory review, the report does not appear to show where the number junctions from the model. Is there supplementary information on that? Regardless, we will review further and let you know if we require additional information.

For the sanitary, would there be a sanitary sewer design sheet or drainage area plan? We are bounded on 3 sides, so we want to ensure that we are connecting to the sewer location designed for this property. Will there be any requirement for downstream capacity analysis?

Thank you,

**Alex McAuley**, P.Eng., Project Manager | Land Development Engineering  
**NOVATECH** Engineers, Planners & Landscape Architects  
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 292 | Cell: 613.261.9166 | Fax: 613.254.5867

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

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**From:** Robin Daigle <[rdaigle@carletonplace.ca](mailto:rdaigle@carletonplace.ca)>  
**Sent:** Monday, November 30, 2020 2:01 PM  
**To:** Alex McAuley <[a.mcauley@novatech-eng.com](mailto:a.mcauley@novatech-eng.com)>  
**Cc:** Steve Pentz <[s.pentz@novatech-eng.com](mailto:s.pentz@novatech-eng.com)>; Aden Rongve <[a.rongve@novatech-eng.com](mailto:a.rongve@novatech-eng.com)>  
**Subject:** RE: 119 Hooper - existing reports

Hi Alex,

The industrial subdivision did not have a report prepared for sanitary and water that I could locate. The sanitary sewer is 250mm with 0.4% slope which provides more than enough capacity for the site. With respect to hydrant flow data: retrieving the hydrant testing data is somewhat cumbersome and the accuracy of the data is often questionable, I do however have readily available the attached JLR Water Modelling Report that may be utilized; note the Town of Carleton Place does not guarantee the accuracy of and disclaims all liability for any reason and for any errors or other inaccuracies relating to the information provided in this report. Let me know if this is sufficient for your purposes and if you still would like the hydrant flow data I can request it from our public works staff.

Thanks,

**Robin Daigle, EIT**  
Engineering Manager  
Town of Carleton Place  
T. 613-257-6248 | F. 613-257-8170  
[rdaigle@carletonplace.ca](mailto:rdaigle@carletonplace.ca) | [www.carletonplace.ca](http://www.carletonplace.ca)

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**From:** Alex McAuley <[a.mcauley@novatech-eng.com](mailto:a.mcauley@novatech-eng.com)>  
**Sent:** November 30, 2020 1:36 PM  
**To:** Robin Daigle <[rdaigle@carletonplace.ca](mailto:rdaigle@carletonplace.ca)>  
**Cc:** Steve Pentz <[s.pentz@novatech-eng.com](mailto:s.pentz@novatech-eng.com)>; Aden Rongve <[a.rongve@novatech-eng.com](mailto:a.rongve@novatech-eng.com)>  
**Subject:** 119 Hooper - existing reports

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

Are you able to provide the servicing report for the Hooper Street industrial subdivision? You had previously provided the Stormwater Management Report, but it did not include any information on the sanitary or water system.

Also, do you have any hydrant flow data for the area?

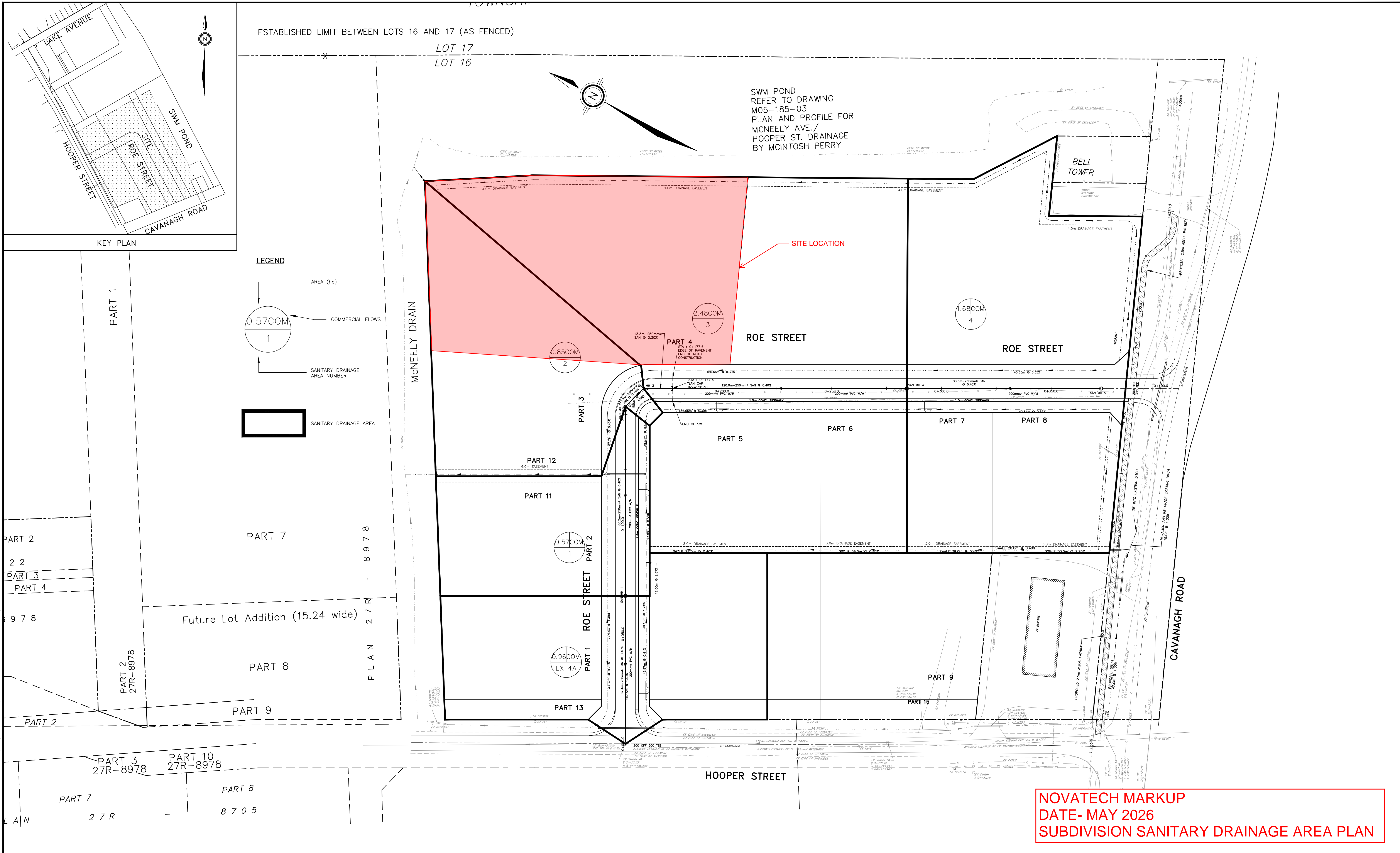
Thank you,

**Alex McAuley**, P.Eng., Project Manager | Land Development Engineering  
NOVATECH Engineers, Planners & Landscape Architects  
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 292 | Cell: 613.261.9166 | Fax: 613.254.5867

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

**APPENDIX B**  
**Sanitary Servicing Information**

- 1. Subdivision Sanitary Drainage Area Plan (Ainley, Novatech markup MAY 2026)**



Oct 17, 2018 I:\DRAWINGS\17039-Carleton Place-Roe Street\Drawings\AS BUILT\AS BUILT.dwg

**NOTES**

**CONTRACT DRAWINGS:**  
Contractor must verify all dimensions and be responsible for same. Any discrepancies must be reported to the Engineer before commencing work. Drawings are not to be copied, distributed or used by others without the express written consent of Anley Graham & Associates Limited. Drawings may not be used for any purpose other than that stipulated in the contract agreement between the owner/client and the Engineer without the express written consent of Anley Graham & Associates Limited. Use of these drawings by any party for any other purpose is subject to the following caution.

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NO.	REVISIONS	DATE	INITIAL	NO.	REVISIONS	DATE	INITIAL
5	ISSUED FOR CONSTRUCTION	MAY 2/18	GSC	5	ISSUED FOR CONSTRUCTION	MAY 2/18	GSC
4	ISSUED FOR TENDER	MAR 28/18	GSC	4	ISSUED FOR TENDER	MAR 28/18	GSC
3	ISSUED TO TOWN FOR FINAL REVIEW	MAR 06/18	GSC	3	ISSUED TO TOWN FOR FINAL REVIEW	MAR 06/18	GSC
2	ISSUED FOR CLIENT FINAL REVIEW	FEB 06/18	GSC	2	ISSUED FOR CLIENT FINAL REVIEW	FEB 06/18	GSC
1	ISSUED FOR CLIENT REVIEW	JAN 5/18	GSC	1	ISSUED FOR CLIENT REVIEW	JAN 5/18	GSC
7	AS-BUILT	OCT 11/18	GSC				
6	ISSUED FOR REVIEW	JUL 5/18	GSC				

SCALE: 1 : 750

DESIGN: JX

DRAWN: MH

CHECKED: GCS/JX

DATE: JAN 2018

ROE STREET  
TOWN OF CARLETON PLACE  
ONTARIO

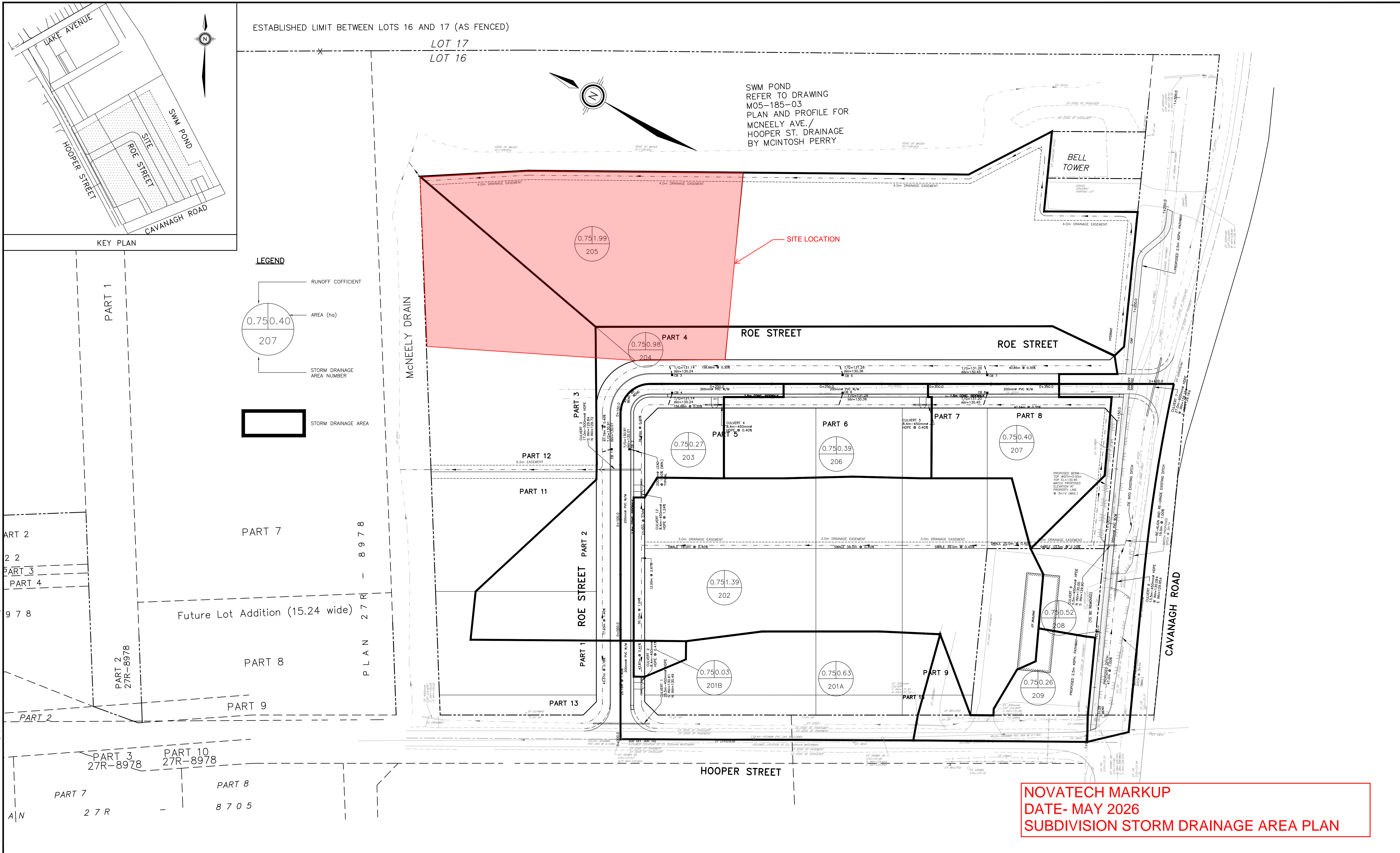
SANITARY DRAINAGE AREA PLAN

**Anley GROUP** CONSULTING ENGINEERS PLANNERS

CONTRACT No. PW2-2018 17039-SAN1

**APPENDIX C**  
**Storm Drainage Calculations**

- 1. Subdivision Storm Drainage Area Plan (Ainley, Novatech markup MAY 2026)**
  - 2. Post Development Storm Drainage Area Plan (MAY 2026)**
- 3. Post Development Runoff Coefficient and Flow Calculations (MAY 2026)**



**NOVATECH MARKUP**  
**DATE- MAY 2026**  
**SUBDIVISION STORM DRAINAGE AREA PLAN**

**NOTES**

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 Contractor must verify all dimensions and be responsible for same. Any discrepancies must be reported to the Engineer before commencing work. Drawings are not to be copied, distributed or used by others without the express written consent of Anley Graham & Associates Limited. Drawings may not be used for any purpose other than that stipulated in the contract agreement between the owner/client and the Engineer without the express written consent of Anley Graham & Associates Limited. Use of these drawings by any party for any other purpose is subject to the following caution.

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NO.	REVISIONS	DATE	INITIAL	NO.	REVISIONS	DATE	INITIAL
5	ISSUED FOR CONSTRUCTION	MAY 2/18	GSC	5	ISSUED FOR CONSTRUCTION	MAY 2/18	GSC
4	ISSUED FOR TENDER	MAR 28/18	GSC	4	ISSUED FOR TENDER	MAR 28/18	GSC
3	ISSUED TO TOWN FOR FINAL REVIEW	MAR 06/18	GSC	3	ISSUED TO TOWN FOR FINAL REVIEW	MAR 06/18	GSC
2	ISSUED FOR CLIENT FINAL REVIEW	FEB 06/18	GSC	2	ISSUED FOR CLIENT FINAL REVIEW	FEB 06/18	GSC
1	ISSUED FOR CLIENT REVIEW	JAN 5/18	GSC	1	ISSUED FOR CLIENT REVIEW	JAN 5/18	GSC
7	AS-BUILT	OCT 11/18	GSC				
6	ISSUED FOR REVIEW	JUL 5/18	GSC				

SCALE: 1 : 750

DESIGN: JX

DRAWN: MH

CHECKED: GCS/JX

DATE: JAN 2018

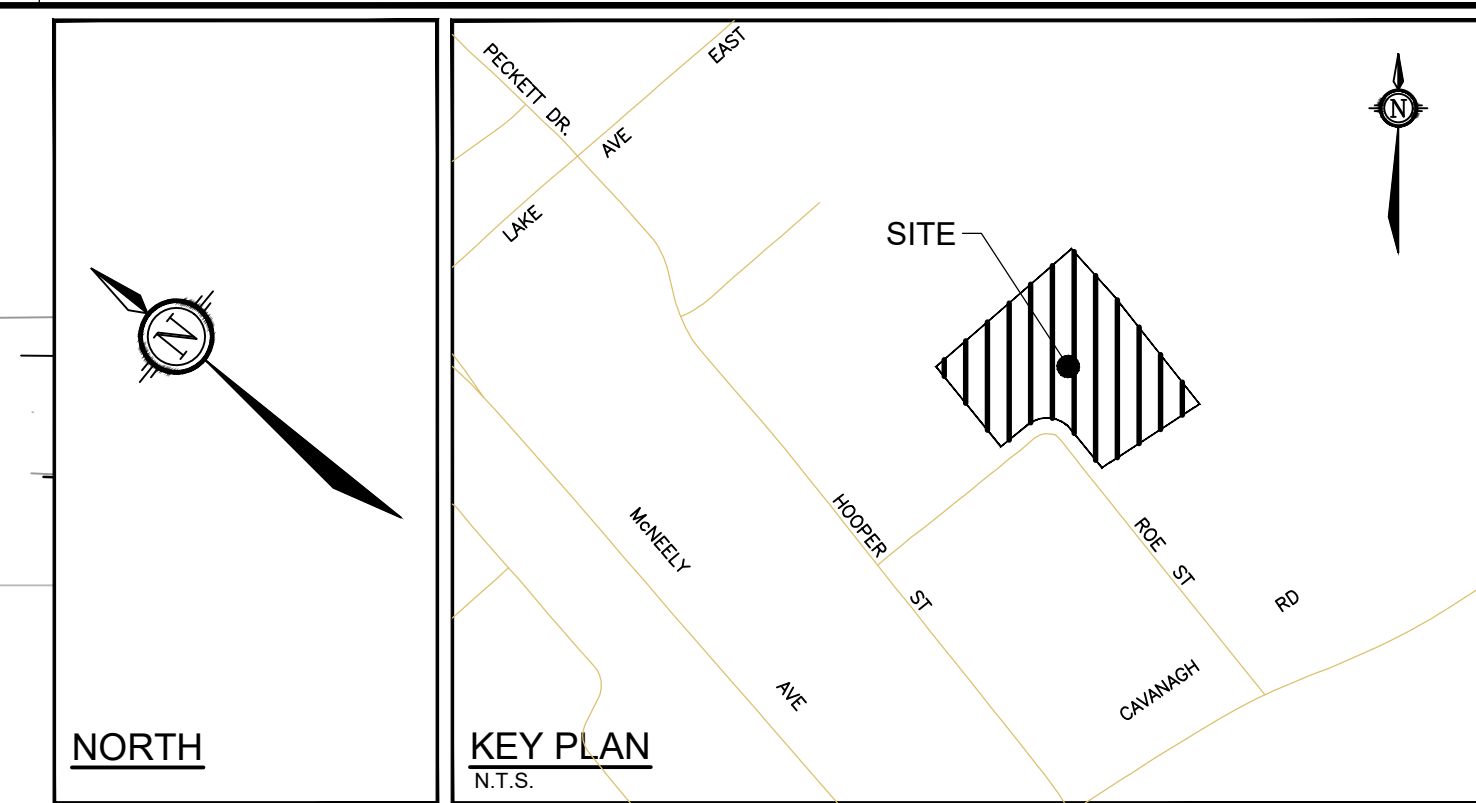
ROE STREET  
 TOWN OF CARLETON PLACE  
 ONTARIO

STORM DRAINAGE AREA PLAN

**Anley GROUP** CONSULTING ENGINEERS PLANNERS

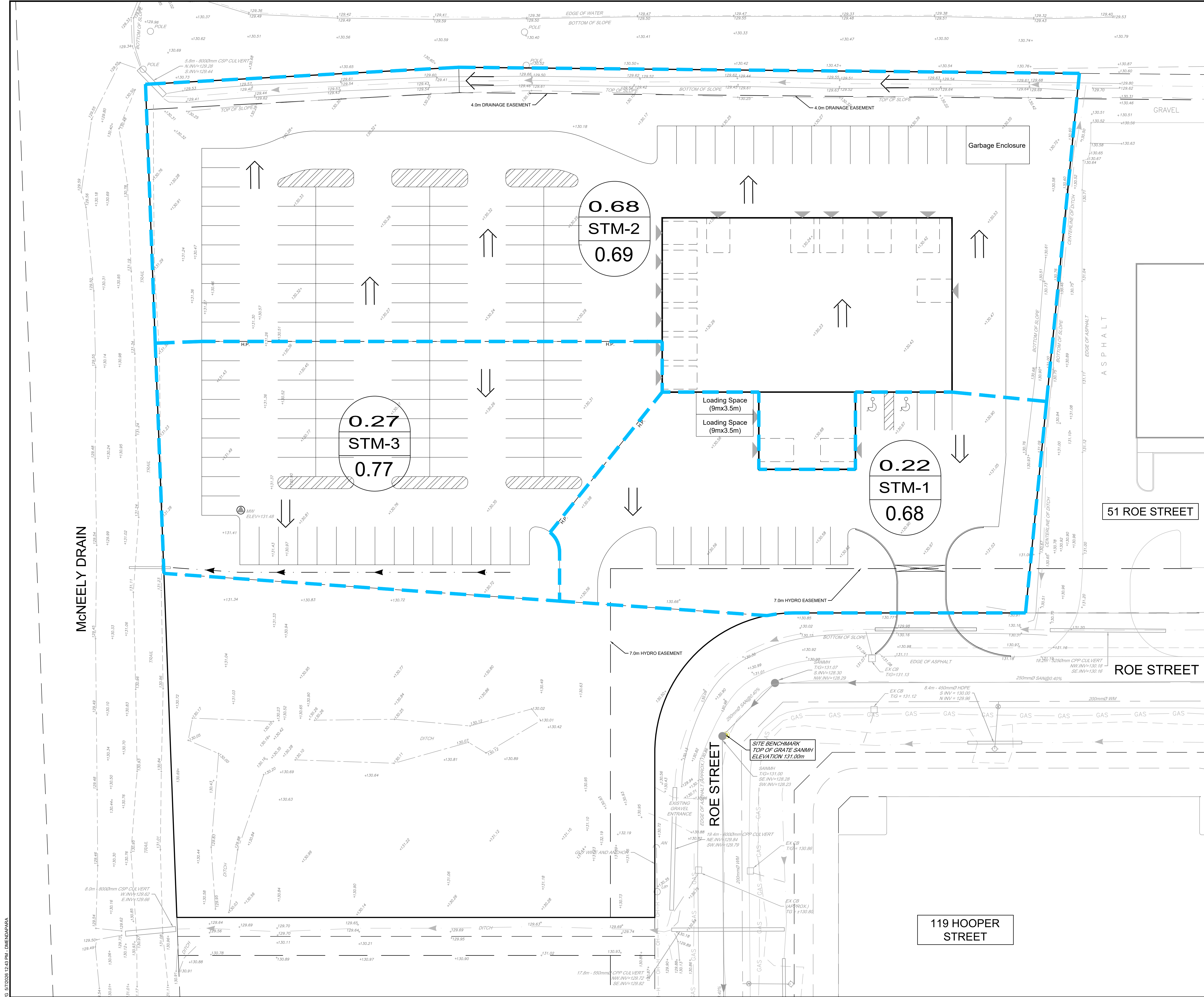
CONTRACT No. PW2-2018 17039-STM1

Oct 17, 2018 I:\DRAWINGS\17039-Carleton Place-Roe Street\Design\AS BUILT\17039-STM1 - AS BUILT.dwg



**LEGEND**

0.68	DRAINAGE AREA (hectares)
STM-2	DRAINAGE AREA ID
0.69	RUNOFF COEFFICIENT (C)
0.27	DRAINAGE AREA (hectares)
STM-3	DRAINAGE AREA ID
0.77	RUNOFF COEFFICIENT (C)
0.22	DRAINAGE AREA (hectares)
STM-1	DRAINAGE AREA ID
0.68	RUNOFF COEFFICIENT (C)
(Blue dashed line)	DRAINAGE AREA BOUNDARY
(Black arrow)	MAJOR OVERLAND FLOW DIRECTION



**NOTE:**  
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
1.	ISSUED FOR COORDINATION	APR 28/26	ARM

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

FOR REVIEW ONLY	
DESIGN	DKM
CHECKED	ARM
DRAWN	DKM
CHECKED	ARM
APPROVED	ARM

<p>Engineers, Planners &amp; Landscape Architects        Suite 200, 240 Michael Copeland Drive        Ottawa, Ontario, Canada K2M 1P6        Telephone: (613) 254-9643        Facsimile: (613) 254-5867        Website: www.novatech-eng.com</p>	LOCATION TOWN OF CARLETON PLACE 41 ROE STREET	PROJECT No. 126002
	DRAWING NAME POST DEVELOPMENT STORM DRAINAGE AREA PLAN	REV # 1 126002-STM



**Table C1: RUNOFF COEFFICIENT - DRAINAGE AREA STM-1**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>w</sub>
Total	Hard Surface	0.15	0.90	0.68
0.22	Soft Surface	0.07	0.20	

Equations:

Runoff Coefficient Equation

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

**Table C2: RUNOFF COEFFICIENT - DRAINAGE AREA STM-2**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>w</sub>
Total	Hard Surface	0.48	0.90	0.69
0.68	Soft Surface	0.20	0.20	

**Table C3: RUNOFF COEFFICIENT - DRAINAGE AREA STM-3**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>w</sub>
Total	Hard Surface	0.22	0.90	0.77
0.27	Soft Surface	0.05	0.20	

**Table C4: RUNOFF COEFFICIENT - OVERALL SITE**

**Post-Development Runoff Coefficient "C"**

Drainage Area ID	Area	C <sub>w</sub>	C <sub>ALLOW</sub>
STM-1	0.22	0.68	0.75
STM-2	0.68	0.69	
STM-3	0.27	0.77	
<b>TOTAL SITE</b>	<b>1.17</b>	<b>0.71</b>	



**STM-1 FLOWS**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>5</sub>	*C <sub>100w</sub>
Total	Hard Surface	0.15	0.90	0.68	0.85
0.22	Soft Surface	0.07	0.20		

Runoff Coefficient Equation

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

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

**Post-Development Flow**

Area (ha)	C <sub>5w</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
0.22	0.68	10	31.8	43.2	92.5

Flow Equation

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

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

$$2 \text{ yr Intensity} = 732.951 / (\text{Time}(m) + 6.199)^{0.810}$$

$$5 \text{ yr Intensity} = 998.071 / (\text{Time}(m) + 6.053)^{0.814}$$

$$100 \text{ yr Intensity} = 1735.68 / (\text{Time}(m) + 6.014)^{0.820}$$

**STM-2 FLOWS**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>5</sub>	*C <sub>100w</sub>
Total	Hard Surface	0.48	0.90	0.69	0.87
0.68	Soft Surface	0.20	0.20		

**Post-Development Flow**

Area (ha)	C <sub>5w</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
0.68	0.69	10	100.8	136.7	292.9

Time of Concentration (min)

$$T_c = 10$$

Intensity (2 Year Event)

$$I_2 = 76.81$$

Intensity (5 Year Event)

$$I_5 = 104.19$$

Intensity (100 Yr Event)

$$I_{100} = 178.56$$

**STM-3 FLOWS**

**Post-Development Runoff Coefficient "C"**

Area	Surface	Ha	"C"	C <sub>5</sub>	*C <sub>100w</sub>
Total	Hard Surface	0.22	0.90	0.77	0.96
0.27	Soft Surface	0.05	0.20		

**Post-Development Flow**

Area (ha)	C <sub>5w</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
0.27	0.77	10	44.4	60.2	129.1

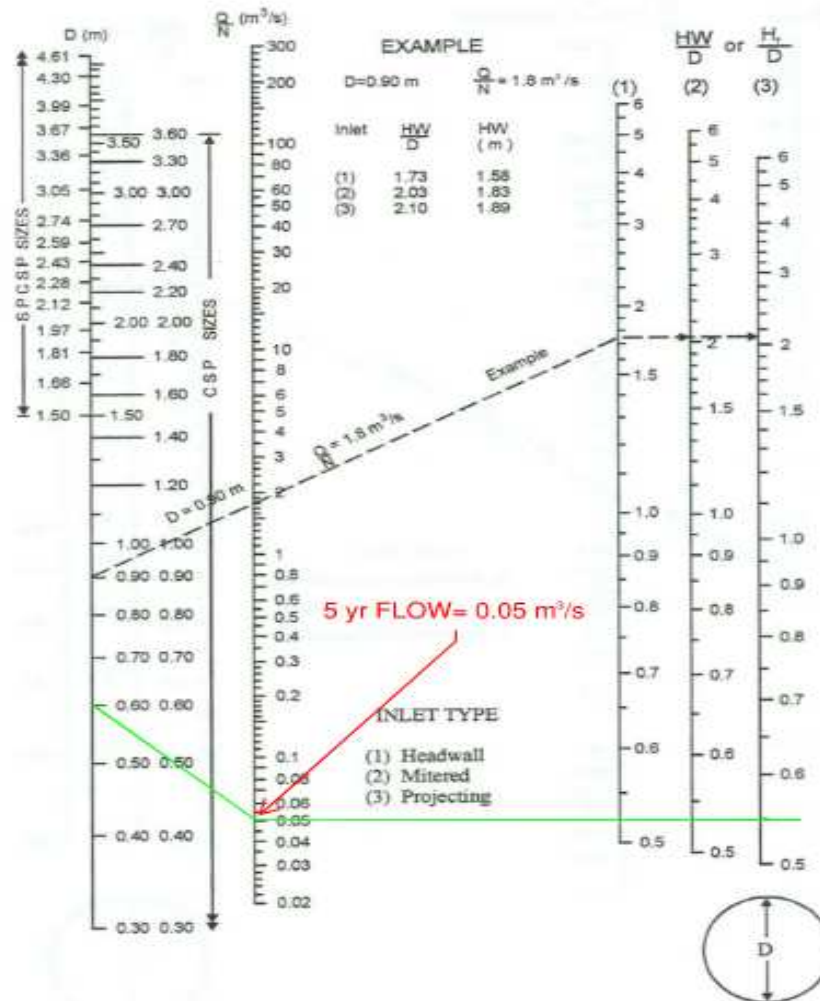
**Table C5: Post -Development Runoff Coefficient "C"**

Contributing Area	Area (ha)	C <sub>5W</sub>	T <sub>c</sub> (min)	Q <sub>5 Year</sub> (L/s)
From site to Roe St ditch	0.22	0.68	10	43.2
From adjacent sites to Roe St ditch	0.55	0.75	10	11.5
<b>TOTAL</b>				<b>54.7</b>

Time of Concentration T<sub>c</sub>= 10 min  
 Intensity (5 Year Event) I<sub>5</sub>= 104.19 mm/hr

**STORMWATER CALCULATIONS - THEORETICAL EX. 600mmØ ROE STREET DITCH CULVERT**  
**MTO Drainage Management Manual**

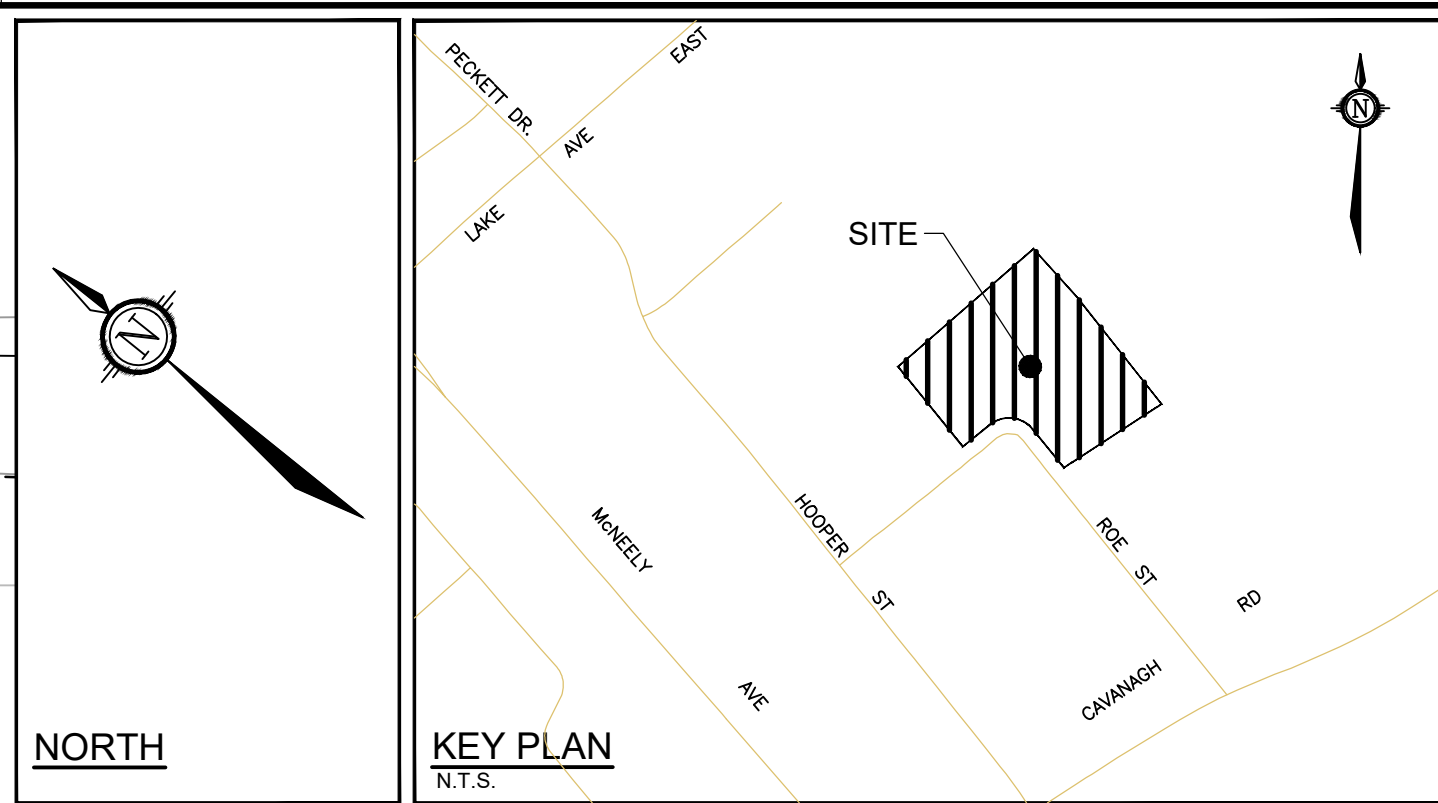
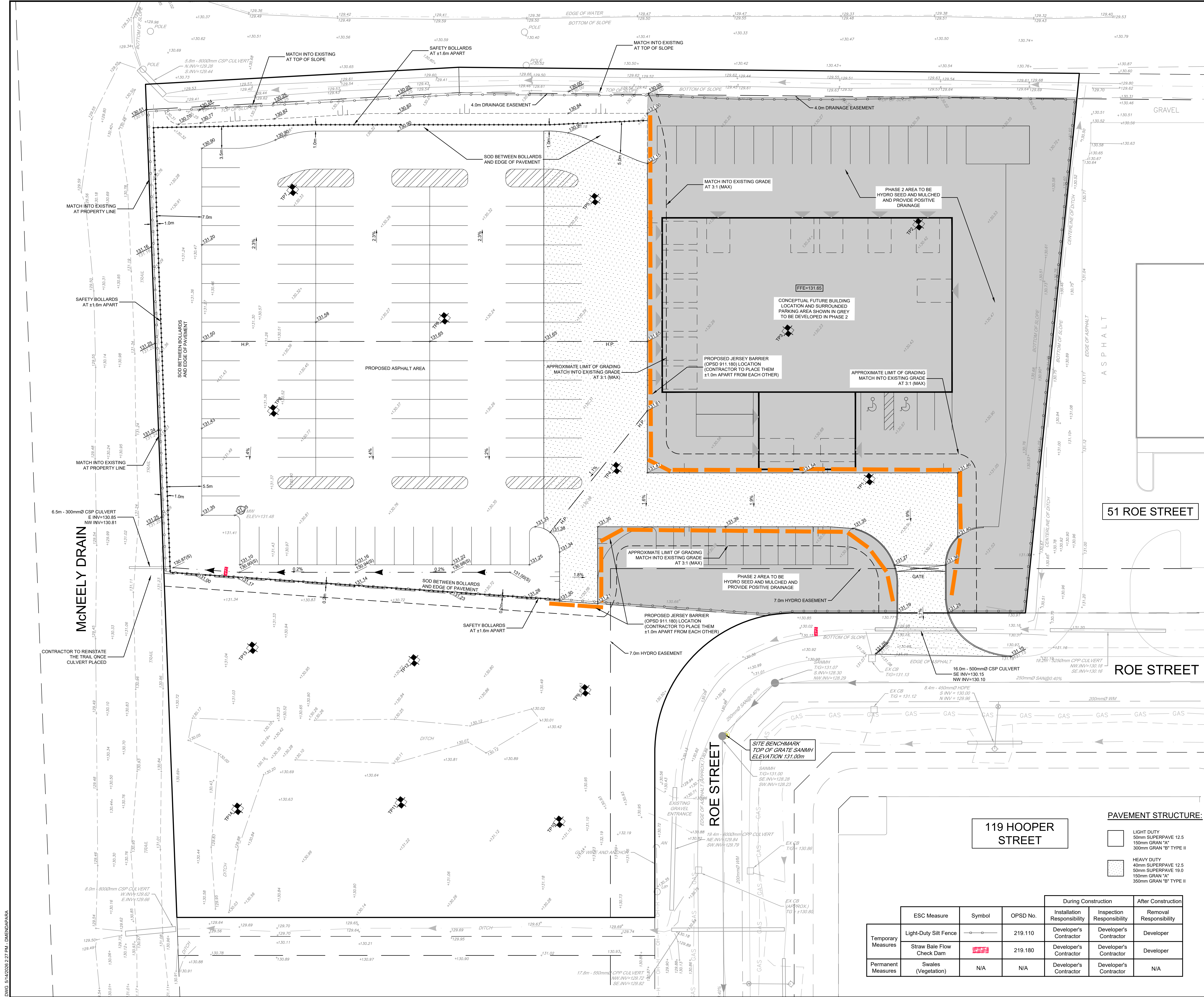
**Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts**



Source: Herr (1977)

## **APPENDIX D**

### **1. 126002-GR-PH1 - Grading, Erosion, Sediment Control Plan**



- LEGEND**
- PROPOSED ELEVATION
  - EXISTING ELEVATION
  - PROPOSED SWALE ELEVATION
  - SLOPE AND DIRECTION
  - TERRACING 3:1 SLOPE MAX (UNLESS OTHERWISE INDICATED)
  - PROPOSED SWALE AND DIRECTION OF FLOW
  - PROPOSED CURB
  - PROPOSED HIGH POINT
  - APPROXIMATE LIMIT OF GRADING
  - APPROXIMATE LOCATION OF TEST PIT
  - PROPOSED JERSEY BARRIER LOCATION
  - EXISTING SANITARY MANHOLE
  - EXISTING WATERMAIN
  - EXISTING SANITARY SEWER
  - EXISTING FIRE HYDRANT
  - EXISTING CENTRELINE OF DITCH
  - EXISTING GAS LINE
  - EXISTING OVERHEAD HYDRO
  - EXISTING HYDRO POLE

- GENERAL NOTES:**
- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
  - DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
  - OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE TOWN OF CARLETON PLACE BEFORE COMMENCING CONSTRUCTION.
  - BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
  - RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE TOWN OF CARLETON PLACE AND ENGINEER.
  - REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
  - ALL ELEVATIONS ARE GEODETIC.
  - REFER TO GEOTECHNICAL REPORT 251127, DATED FEBRUARY 2, 2026, PREPARED BY KOLLARD ASSOCIATES FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. A GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
  - REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS AND LANDSCAPE DETAILS.
  - SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
  - PROVIDE LINE/PARKING PAINTING.
  - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICES AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND TIG ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
  - ALL WORKS WITHIN THE MUNICIPAL RIGHT OF WAY WILL REQUIRE AN EXCAVATION PERMIT ISSUED BY THE TOWN OF CARLETON PLACE PUBLIC WORKS DEPARTMENT.

- GRADING NOTES:**
- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
  - EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
  - ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
  - THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
  - MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
  - MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
  - ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
  - ALL CURBS SHALL BE BARRIER CURBS (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
  - REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
  - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

- EROSION AND SEDIMENT CONTROL NOTES:**
- THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE TOWN OF CARLETON PLACE, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, 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, SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
  - SILT FENCING FOR ENTIRE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION.
  - THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

**PAVEMENT STRUCTURE:**

	LIGHT DUTY 50mm SUPERPAVE 12.5 150mm GRAN "A" 300mm GRAN "B" TYPE II
	HEAVY DUTY 40mm SUPERPAVE 12.5 50mm SUPERPAVE 19.0 150mm GRAN "A" 300mm GRAN "B" TYPE II

	ESC Measure	Symbol	OPSD No.	During Construction		After Construction
				Installation Responsibility	Inspection Responsibility	Removal Responsibility
Temporary Measures	Light-Duty Silt Fence		219.110	Developer's Contractor	Developer's Contractor	Developer
	Straw Bale Flow Check Dam		219.180	Developer's Contractor	Developer's Contractor	Developer
Permanent Measures	Swales (Vegetation)	N/A	N/A	Developer's Contractor	Developer's Contractor	N/A

**NOTE:**  
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
3	ISSUED FOR REVIEW	MAY 14/26	ARM
2	ISSUED FOR COORDINATION	APR 30/26	ARM
1	ISSUED FOR COORDINATION	APR 28/26	ARM

SCALE	
1:250	

**FOR REVIEW ONLY**

DESIGN	DKM
CHECKED	ARM
DRAWN	DKM
CHECKED	ARM
APPROVED	ARM

LOCATION  
TOWN OF CARLETON PLACE  
41 ROE STREET

DRAWING NAME  
**GRADING, EROSION, AND SEDIMENT CONTROL PLAN - PHASE 1**

PROJECT No. 126002  
REV # 3  
DRAWING No. 126002-GR1

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MAY 14, 2026