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2095 Dilworth Road, Kars, ON

Servicing Options and Conceptual Stormwater Management Report

Prepared for: Dilworth Development Inc.

Engineering excellence.

Planning progress.

Liveable landscapes.

2095 DILWORTH ROAD

**SERVICING OPTIONS AND
CONCEPTUAL STORMWATER MANAGEMENT REPORT**

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

July 17, 2024

Revised: October 21, 2025 (Revised per City comments)
Revised: April 6, 2026 (Revised per City comments)
Revised: August 20, 2026 (Revised per City comments)
Revised: September 4, 2026 (Revised per City comments)

Novatech File: 123081
Ref: R-2024-065

September 4, 2026

City of Ottawa
Development Review, Rural Services
Planning, Real Estate and Economic Development Department
110 av Laurier Avenue West - 4th Floor
Ottawa, ON, K1P 1J1

Attention: Ms. Cass Sclauzero, Planner II

**Reference: 2095 Dilworth Road, Kars, ON
Servicing Options and Conceptual Stormwater Management Report
Novatech File No.: 123081, City File No.: D02-02-24-0029**

Please find enclosed the Servicing Options and Conceptual Stormwater Management Report for the 2095 Dilworth Road property in Kars, within the City of Ottawa.

The report has been prepared to show the proposed servicing and stormwater management concept for the subject site and is submitted in support of a Zoning Amendment Application. This report has been updated based on City comments provided and is re-submitted for approval.

If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

NOVATECH



Cara Ruddle, P.Eng.
Senior Project Manager
Land Development Engineering

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1.0 INTRODUCTION

Novatech has been retained by Dilworth Development Inc. to prepare a Servicing Options and Conceptual Stormwater Management Report for the property located at 2095 Dilworth Road in Kars, within the City of Ottawa. The development is located just northeast of the Highway 416/Dilworth exit. **Figure 1** is a Key Plan showing the site location. The purpose of this report is to review the servicing options for the subject site and provide a concept for stormwater management.

2.0 EXISTING DEVELOPMENT

The existing property currently has a two-storey residential dwelling with associated garage/storage buildings and sheds and the remainder of the site is either agricultural or treed area with a few watercourses within the site. The property is approximately 33 hectares in size. The legal description of the property is identified as Part of Lot 35, Concession 3 (North Gower), City of Ottawa, Ontario. The property is bound by the Veterans Memorial Highway 416 to the west, adjacent residential properties along Third Line Road to the east, Dilworth Road to the south, and an undeveloped property to the north. The topography of the site is relatively flat and the site generally drains towards the watercourses within the site area. **Figure 2 - Existing Conditions** shows the existing site conditions of the subject property.

3.0 PROPOSED DEVELOPMENT

Dilworth Development Inc. is proposing to rezone areas of the Subject Site to permit future commercial and light industrial land uses (specific acceptable land uses are listed in the Planning Rationale). Other areas of the site that include rural natural heritage features will be rezoned as open space.

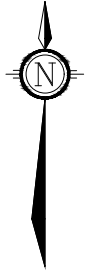
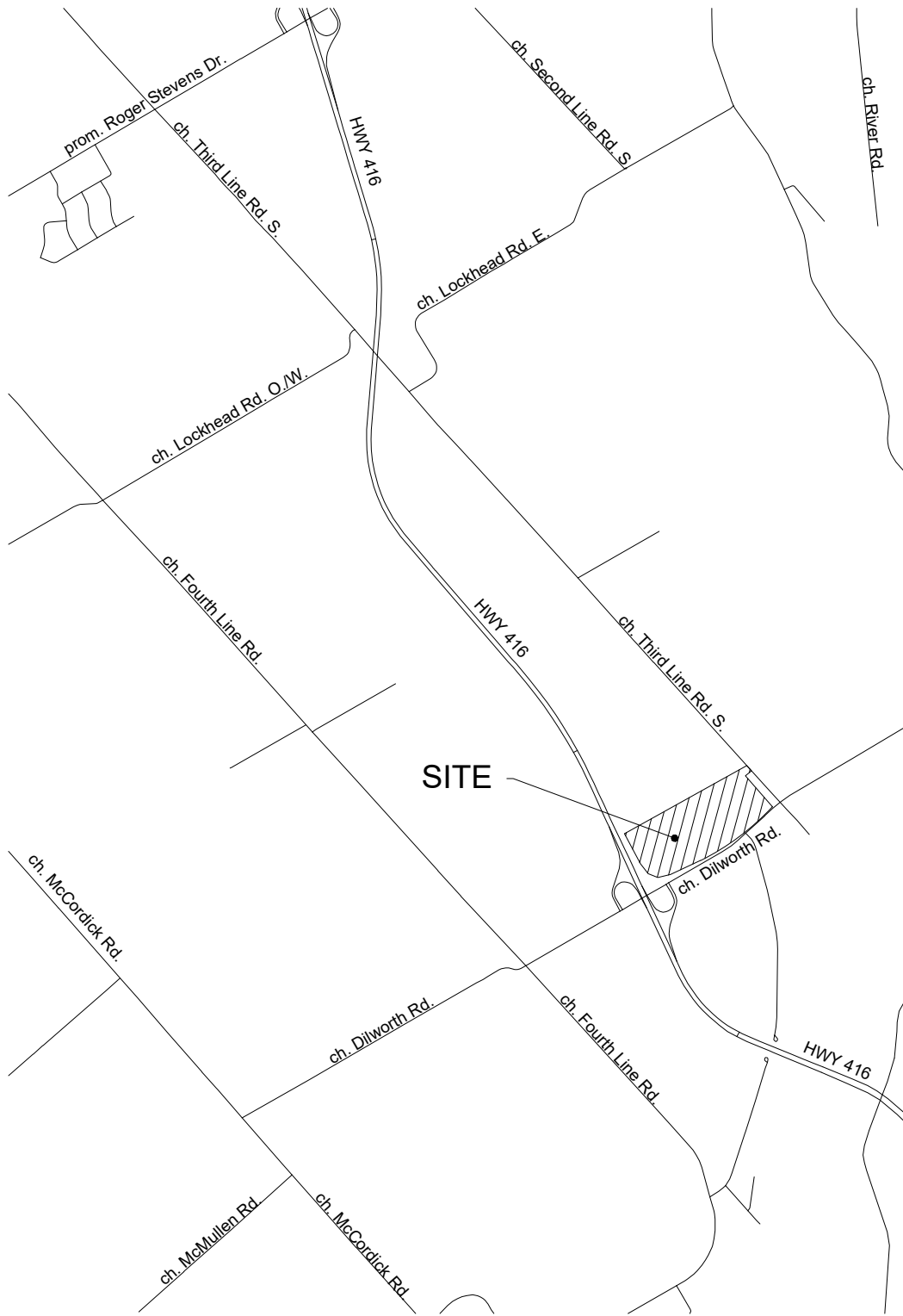
Since the proposed development is unknown at this time, a potential development concept has been prepared for the purpose of this report to demonstrate that the site is serviceable. The concept plan is based on a developable area which is derived from the remaining area outside of various setbacks and constraints. These are discussed subsequently.

4.0 SITE CONSTRAINTS

There are some site constraints noted in the supporting reports that may influence the engineering design of the subject development. These existing constraints are shown on **Figure 3 - Constraints and Developable Area Plan** and discussed subsequently.

A geotechnical investigation was completed by Englobe Corp. and a report prepared entitled "Preliminary Geotechnical Investigation Report, Proposed Commercial Development, 2095 Dilworth Road, Kars, ON," dated January 6, 2025 (latest version). An addendum letter was also prepared in response to City comments dated April 18, 2026. The report and letter included the following recommendations

- Groundwater is anticipated to be less than 2.0 m below ground surface.
- The Geotechnical Consultant assumed an anticipated grade raise of 1.0m which could result in approximately 40mm of settlement. Refer to Englobe letter entitled, "Proposed Commercial Development 1.0 m Grade Raise, 2095 Dilworth Road, Kars, ON", dated July 18, 2024 (provided in Appendix G of the Englobe Report). Lightweight fill and/or preloading may be a consideration for a proposed development on this site.



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KEY PLAN

LOT 35, CONCESSION 3
CITY OF OTTAWA

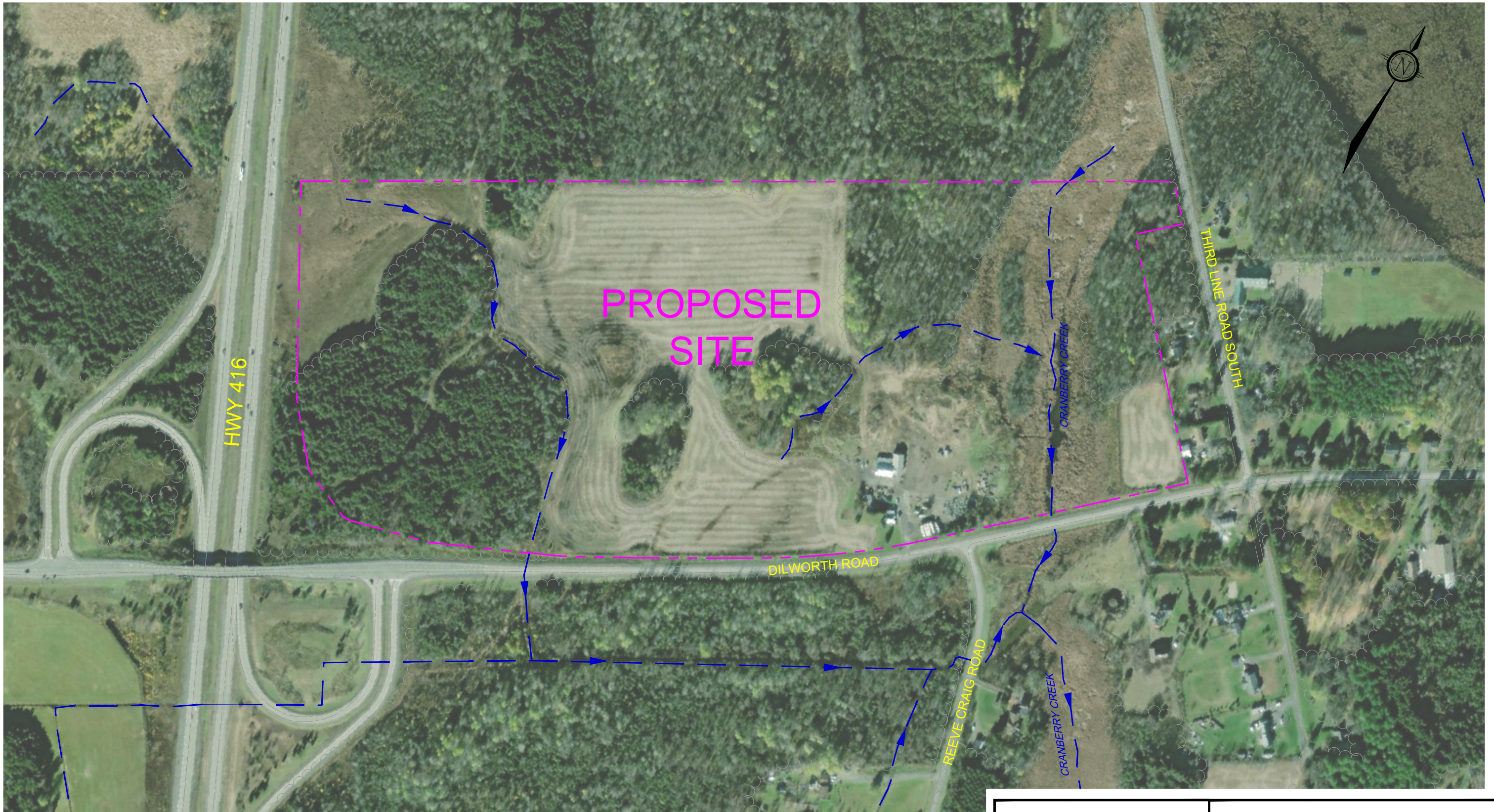
2095 DILWORTH ROAD

DATE
SEPT 2026

JOB
123081

FIGURE
1

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2095 DILWORTH ROAD

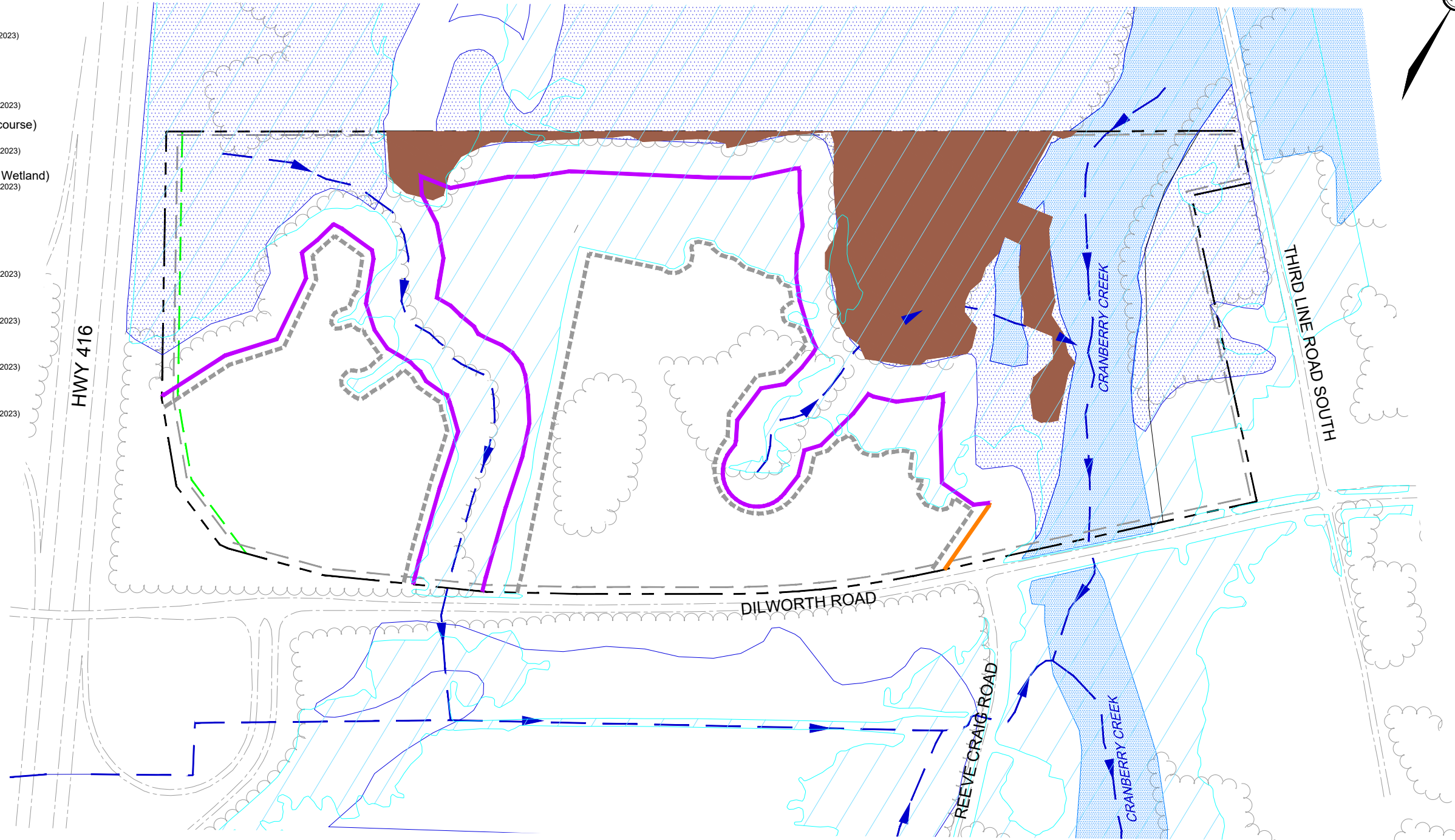
EXISTING CONDITIONS

SCALE 1 : 4000 0 40 80 120 160

DATE SEPT 2026 JOB 123081 FIGURE 2

LEGEND

- Site Boundary
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Property Setbacks
(Zoning Bylaw, 2008-250)
- Watercourse
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- 30m Setback (From Local Wetland/Watercourse)
Blanding's Turtle Category 2 Habitat
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- 50m Setback (From Provincially Significant Wetland)
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- MTO Setback (14m from Property Line)
(MTO, Highway Corridor Management Manual, April 2022)
- Provincially Significant Wetland
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Local Wetland
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Existing Floodline
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Significant Woodland
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Development Area



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2095 DILWORTH ROAD

**CONSTRAINTS AND
DEVELOPMENT AREA PLAN**

SCALE 1 : 4000 0 40 80 120 160

DATE SEPT 2026 JOB 123081 FIGURE 3

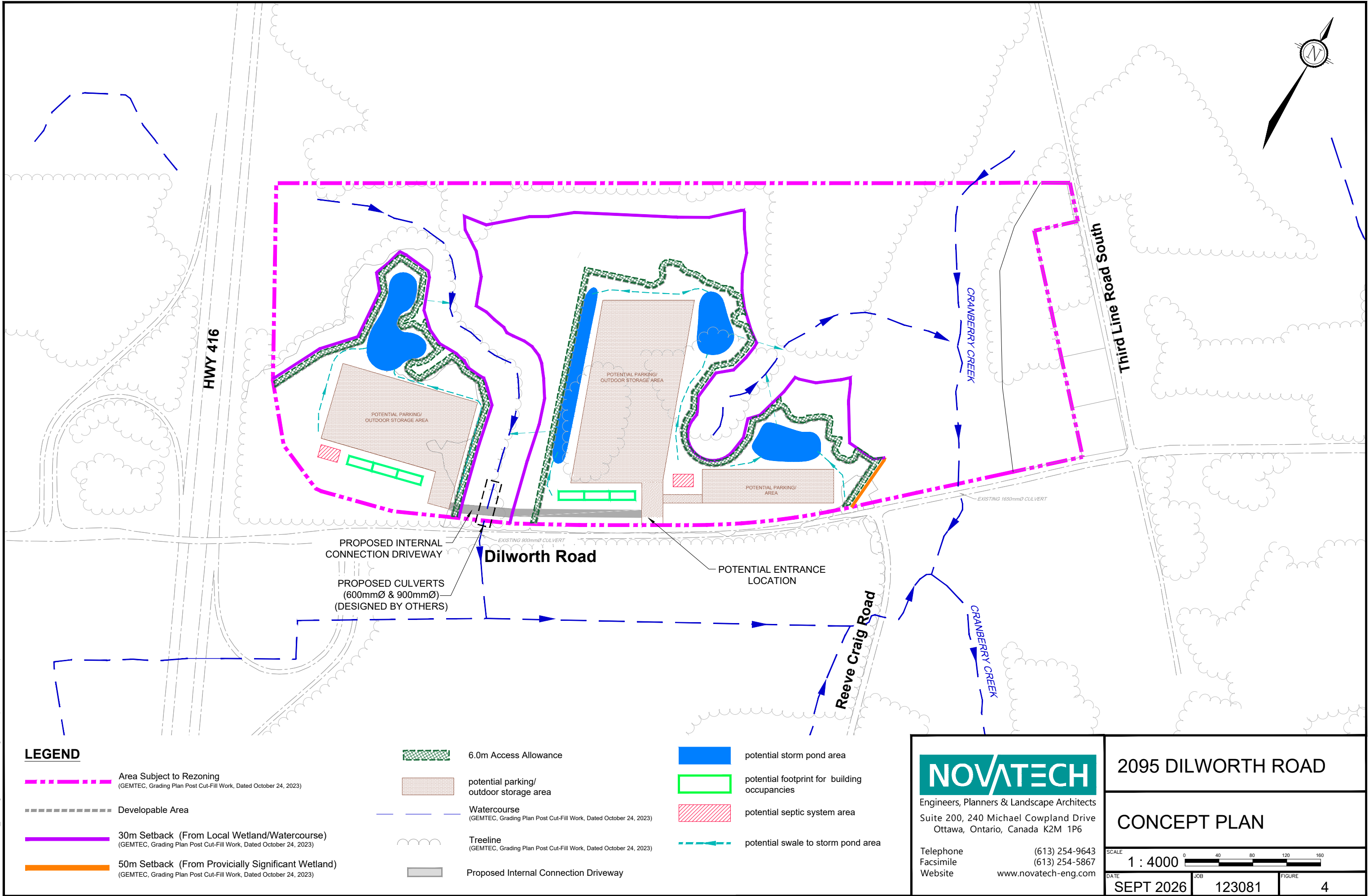
- A variety of subsurface conditions exist across the site, including clay, silt, sand, and till deposits. Foundation design will need to account for the differing engineering properties of these materials.
- Since the groundwater is less than 2.0m below ground surface, there could be significant dewatering required during building construction depending on the type of foundation proposed. Therefore, it may be required to register on the Environmental Activity and Sector Registry (EASR) or obtain a Permit To Take Water.
- Clay seals should be installed in any underground trenches.
- Adequate slopes and subdrains should be installed to assist with pavement drainage. Geotextile is also recommended below the pavement structure.

An Environmental Impact Statement, Proposed Zoning Amendment, 2095 Dilworth Road, Ottawa, Ontario' was prepared by Gemtec dated May 10, 2024 (Gemtec EIS Report). The Gemtec EIS Report identifies a number of constraints that may impact development. The constraints are described briefly below.

The developable area for this site must abide by each of the constraints and setbacks. As noted previously, a potential development concept plan has been prepared based on the developable areas of the site. **Figure 4 - Concept Plan** shows the Potential Concept Plan.

- Watercourses – There are two unnamed watercourses that travel through the subject site which require setbacks. The watercourse within the western portion of the property is assumed to provide fish habitat. The Gemtec EIS Report recommends a minimum setback of 30m (from top of bank) for the watercourse. The setback area shall remain undisturbed and is to be left in a natural state. This 30 m setback will also provide protection of fish habitat.
- Provincially Significant Wetlands (PSW) – A portion of the Cranberry Creek PSW is located within the eastern portion of the property. Local wetlands are also located within the site area. A 50 m setback is recommended from the Cranberry Creek PSW and a 30m setback is recommended from the local wetland area.
- Significant Woodlands – There is a significant woodland area located in the northeastern corner of the property. The Gemtec EIS Report suggests that the 30m setback to the local wetlands will be sufficient to protect significant woodland area.
- Significant Valleylands – There are significant valleylands within the site area but are located within the floodplain areas. The Gemtec EIS Report indicates that the 30m setback to wetland and watercourses is sufficient to protect significant valleyland areas.
- Significant Wildlife Habitat – The Gemtec EIS Report indicates a number of species listed as significant wildlife habitat within the site area. The 30 m and 50 m setbacks to wetlands and PSW will provide sufficient protection for these species and their habitat. Reptile exclusion fencing will be required prior to the commencement of any construction.
- Turtle Habitat – The subject site is within a greater area of known Blanding's Turtle siting's. Therefore, there are areas of Category 1, 2 and 3 Blanding's Turtle Habitat throughout the site. Exclusion fencing will be required prior to the commencement of any construction. And consultation with the MECP will be required through the Overall Benefit Permit process.

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Additional site constraints are noted as follows:

- MTO Setback – the site is located adjacent the Highway 416 and a 14m setback from the property line is required from provincial highways.
- Floodplain – The 100-year floodplain for the unnamed watercourses meanders through the site area and is another site constraint. Development is to occur outside the floodplain area and any storage of stormwater needs to be above the 100-year floodplain elevation.
- 6 metre flooding access allowance – The Rideau Valley Conservation Authority has requested a 6 metre access allowance in accordance with Section 3.2.1 Flooding Hazard General Policies in the Development Activity Policies and Procedures August 1, 2026 Version 1.1.0. Policy 2. of Section 3.2.1 states the allowance is to be provided “for new buildings or structures located adjacent to the flood plain. The concept plan is only to demonstrate the site is serviceable. The future development of the site will be subject to a future application for Site Plan Approval at which time the ultimate use, size and configuration of buildings, proximity to the flood plain, and impact of the access allowance will be certain. Accordingly, the developable area may be adjusted and addressed in the future Servicing and Stormwater Management study submitted in support of the Site Plan.

5.0 SITE SERVICING

There are 2 developable areas within the total site area (4.47 ha and 7.26 ha in size) which includes the 6m access allowance (as described in Section 4.0). Only one entrance connection is proposed to Dilworth Road since a second entrance for the western developable area may be too close to the Highway 416 on/off ramps. An internal road connection is shown to provide access to the western developable area. This internal road connection requires a culvert crossing which has been designed, approved and a permit from the RVCA has already been issued. These culverts have not yet been installed. Supporting documents are included in **Appendix A**. Further review will be required at the detailed design and site plan application stage in terms of potential impacts to the Dilworth Road right-of-way and downstream as a result of the two additional culverts and the proposed development as well as confirming a legal and sufficient outlet.

The site is located well outside the City of Ottawa urban boundary. Municipal services are not proposed or anticipated for the subject site as the closest municipal services are in Manotick, approximately 14 kilometres northeast of the subject property.

Proposed buildings would be serviced with a private well(s) and private sewage system(s).

A hydrogeological study was completed and a report prepared entitled ‘Hydrogeological Study Report, 2095 Dilworth Road, Kars, Ontario’ prepared by Englobe Corp. dated February 2026 (latest version). An addendum letter was also prepared in response to City comments dated April 16, 2026. This report and addendum provide information with respect to water quality and quantity for a well to service the site. The Englobe Report provided the following findings:

- There are exceedances with elevated levels of sodium and chloride within the development area closest to Hwy 416. It is understood that the zoning amendment for the subject site is for less sensitive uses where the number of employees would be low and there would not be a reliance on potable water. In general the quality of the groundwater is acceptable for non-potable uses. Any observed exceedances such as elevated

hardness, sodium, chloride and manganese in the aquifer are not uncommon and can be addressed with a treatment system.

- The groundwater supply is intended for non-potable use only and future development will be required to comply with Ontario Building Code requirements regarding non-potable water systems, including signage and fixture identification.
- The report discussed the aquifer testing and pumping rates in relation to less sensitive development. A more detailed analysis would be completed once the proposed development concept has been confirmed through the site plan process.
- Assumptions were made to review a possible septic system to ensure it would comply with MECP Procedure D-5-4. One of the assumptions was a maximum daily sewage discharge of 9000L/day (equivalent to the assumed water demand). Given the assumptions made (including infiltration rates and nitrate input) the septic system would comply with MECP Procedure D-5-4 with respect to nitrate impacts. It is recommended that percolation testing be completed in the area designated for the septic bed. It is also noted that a partially or fully raised system will be required and may be impacted by the grade raise restriction.

The private sewage system(s) would be designed based on Ontario Building Code or Ministry of the Environment (MECP) standards, depending on the theoretical design flow of the proposed building. Design flows in excess of 10,000L/day require approval from the MECP.

It should be noted that acceptable separation distances will be required between the floodplain, well and septic systems.

6.0 STORMWATER MANAGEMENT

Stormwater currently sheet drains across the property towards the unnamed watercourses and wetland areas within the property. The proposed development will continue to sheet drain stormwater and outlet to the unnamed tributaries. The stormwater management conceptual design is discussed subsequently.

6.1 Stormwater Management Criteria

Stormwater management design criteria are as follows:

- Quantity control of stormwater is required for storms up to and including the 100-year event controlled to the pre-development 2-year flow rates.
- Quality control of stormwater is required to a 'enhanced' level corresponding to 80% removal of Total Suspended Solids (TSS) is required.

6.2 Proposed Stormwater Management Design

Existing drainage patterns will be maintained under post-development conditions. The proposed drainage outlet is as per existing conditions to the two existing road crossing culverts under Dilworth Road. All runoff from the proposed development will continue to drain to the unnamed watercourses within the property per existing conditions which then drain to the two road crossing culverts under Dilworth Road. Only the developable areas are considered in the stormwater management design. The remaining undeveloped portion of the lots will remain untouched per existing conditions.

Stormwater management will be provided individually for each of the proposed developable areas. Quantity control of stormwater can be provided by ponding stormwater on building roofs and in surface detention areas such as grassed swales and in a proposed stormwater management pond.

The potential concept plan was used to complete a preliminary pond design to ensure that the site could drain to a pond and there is sufficient freeboard between the permanent pool elevation, the 100-year floodline elevation the watercourse/outlet elevation. The preliminary grading plan, included in **Appendix C**, shows preliminary site grading and the stormwater management concept with drainage arrows, swales and pond locations. A summary of the pond designs is show in the **Table 6.2.1** below.

Table 6.2.1: Pond Design Summary

STORMWATER MANAGEMENT POND SUMMARY					
POND ID	STREAM ELEVATION	PERMENANAT POOL ELEV	100YR VOLUME ACTIVE STORAGE (m3)	PERMENANT POOL VOLUME (m3)	POND AREA REQUIRED (ha)
A	87.00	87.75	1888	1118	0.27
B	87.00	87.75	1225	644	0.18
C	87.00	87.75	1221	921	0.17
D	87.00	87.75	754	460	0.11

Quality control of stormwater is required to a level of 80% removal of total suspended solids. Quality control will be achieved through the use of grassed ditches and a stormwater management facility. Increased levels of TSS removal in grassed swales is achieved by reducing flow velocities and increasing the density of vegetation. Stormwater ponds achieve high levels of TSS removal by slowing the release rates creating longer retention times of stormwater. Detailed calculations supporting this approach will be included at the detail design stage as part of the site plan application process. The culvert design for the culverts crossing Dilworth Road will also need to be reviewed and confirmed with calculations during the site plan application process.

In storm events greater than the 100-year storm, stormwater will continue to drain to the unnamed watercourses within the property similar to existing conditions.

The proposed stormwater management ponds could also be used as a water source for fire protection. A dry hydrant would be installed as part of the fire protection system. The detailed pond design would need to incorporate this function into the design (ie pond depth, access route, type of hydrant and location, frost protection etc.). This would be reviewed by Ottawa Fire Service (OFS) during the site plan application process. In the event the pond is not feasible for fire protection, underground storage tanks could be used.

The stormwater management design may require an MECP ECA. Either a direct submission to MECP will be required or an EASR. This will be confirmed with MECP during the site plan application process.

6.3 Best Management Practices

The proposed development can use the following stormwater best management practices (BMPs) to mitigate the reduction in groundwater infiltration/recharge resulting from development:

- Surface drainage will sheet drain through the grassed areas and swales and outlet directly to the existing unnamed watercourses within the site where possible.
- Roof leaders will be discharged to the grassed rear yards.
- Construction of swales at minimal slopes where possible.

By implementing stormwater management BMPs as part of the storm drainage design, the impacts of development on the hydrologic cycle can be reduced. The use and implementation of BMPs will be reviewed again during the detailed design process.

7.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures will be implemented during construction in accordance with the Best Management Practices for Erosion and Sediment Control. This includes the following temporary measures:

- Silt fences around the area under construction placed as per OPSS 577 and OPSD 219.110.
- Light duty straw bale check dam per OPSD 219.180.
- Seed or sod the swales as soon as possible to reduce the sediment runoff to Cranberry Creek.

The erosion and sediment control measures are to be installed to the satisfaction of the engineer, the Municipality, and Rideau Valley Conservation Authority prior to construction (of on site and off-site/culvert works) and will remain in place during construction until vegetation is established. The erosion and sediment control measure will also be subject to regular inspection to ensure measures are operational.

Preliminary erosion and sediment control measures are shown on the Conceptual Erosion and Sediment Control Plan included in **Appendix C**. More detailed erosion and sediment control measures including any off-site measures will need to be provided at the detailed design stage in support of a site plan application.

8.0 CONCLUSIONS

The conclusions of this report are as follows:

- Quantity control of stormwater will be provided to the 2 year pre-development levels through ponding of stormwater on building roofs and at the surface in grassed swales and in a stormwater management pond within each of the development areas.
- Quality control of stormwater will be provided through the installation of a stormwater management ponds.
- An overland flow route will be provided to the unnamed watercourses within the site similar to existing conditions.
- Erosion and sediment control measures will be required during construction.

This report is respectfully submitted for approval. Please contact the undersigned should you have questions or require additional information.

NOVATECH

Prepared by:



Cara Ruddell, P.Eng.
Senior Project Manager
Land Development Engineering

Reviewed by:

A handwritten signature in black ink, appearing to read "Lee Sheets".

Lee Sheets C.E.T.
Director
Land Development & Public Sector
Infrastructure

APPENDIX A

CULVERT INFORMATION

RVCA Letter of Permission —

Ont. Reg. 174/06, S. 28 *Conservation Authorities Act*
1990, As Amended.



Date: November 24, 2023
File: RV6-4923
Contact: eric.lalande@rvca.ca; 613-692-3571 x1137

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

Dilworth Development Inc.
92 Bentley Avenue,
Ottawa, ON K2E 6T9

**Permit for: Development and Alteration to a Watercourse
Under Section 28 of the Conservation Authorities Act for grading within the floodplain
to allow for the construction of a driveway access at 2095 Dilworth Drive, Lot 35,
Concession 3, former Township of Rideau, now in the City of Ottawa.
Roll Number: 06141482840103000000**

Dear Mr. Griesseier,

The Rideau Valley Conservation Authority has reviewed the application and understands the proposal to be for:

- a) **Installation of a new driveway access within the floodplain**
- b) **Installation of a 900mm and 600mm culvert for watercourse crossing.**

This proposal was reviewed under Ontario Regulation 174/06, the "*Development, Interference with Wetlands, and Alteration to Watercourse and Shorelines*" regulation and the RVCA Development Policies, specifically Section 1.0 General Principles, Section 1.2.6 Minor Works and Section 3.2 Channel Realignment, Road Crossings, Diversions, Dams. The proposal is not expected to impact the control of flooding, pollution, erosion or conservation of land providing conditions are followed.

PERMISSION AND CONDITIONS

By this letter the Rideau Valley Conservation Authority hereby grants you approval to undertake this project as outlined in your permit application but subject to the following conditions:

1. Approval is subject to the understanding of the project as described above and outlined in the application and submitted plans:
 - a) Road and Culver Plan, Profiles and Details, completed by GEMTEC, Numbered C1, dated October 11, 2023 Project #65007.01
 - b) Access Road Culvert Design Summary, 2095 Dilworth Road, Ottawa, ON dated October 11, 2023, prepared by GEMTEC, project no. 65007.001 -R0
2. The proposed development shall be supervised and certified by a professional engineer to ensure compliance with the approved plans.
3. Work in-water shall not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods.

4. A De-watering Plan and Sediment and Erosion Control Plan must be submitted by the contractor to this office for review prior to construction activities commencing.
5. Any changes to the proposed work must be submitted in writing to the Conservation Authority for review and approval prior to implementation. No conditions are subject to change/revision by the on-site contractor(s).
6. All excavated material not utilized for the purposes of the approved development (if appropriate material) must be removed from the site to a suitable disposal site outside of any 1:100-year floodplain, wetland, and regulated area.
7. No grade changes are permitted other than those explicitly permitted by approved drawings identified in Condition 1.
8. A finished grading plan will be submitted as soon as the work is complete to confirm the final grade of the driveway on the property. A refundable deposit of \$1720 is required to be submitted prior to commencement of the work. Satisfactory review of the finished grading plan and compliance with other conditions of approval will result in the return of the deposit (less 10% administrative fee).
9. Any on-site drainage works should not disrupt natural drainage patterns.
10. The applicant must notify the RVCA two business days prior to project commencement and within two business days of project completion.
11. The existing vegetated buffer consisting of a mixture of native vegetation and non-manicured grasses is to be retained in a natural state and vegetation removal is limited to what is necessary to complete the work. Any vegetation that is removed shall be re-established.
12. The applicant agrees that Authority staff may visit the subject property before, during and after project completion to ensure compliance with the conditions as set out in this letter of permission.
13. Only clean material free from particulate matter may be placed in the water.
14. Silt or debris that has accumulated around the temporary cofferdams should be cautiously removed prior to their withdrawal. No channel modifications or dredging is permitted or implied by this letter.
15. A De-watering Plan and Sediment and Erosion Control Plan must be submitted by the contractor to this office for review prior to construction activities commencing
16. Sediment control will be established to ensure no sediment migration from the site. All grubbing and equipment storage and operation will be limited to the development envelope. All areas located outside the development envelope will be left untouched. No fill including topsoil, sand, etc. will be placed outside the development envelope for any

reason. No equipment will be permitted to disturb area outside the development envelope.

17. Sediment barriers should be used on site in an appropriate method according to the Ontario Provincial Standard Specifications (OPSS) for silt barriers as a minimum. In-water work will require the use of a properly secured silt curtain. Soil type, slope of land, drainage area, weather, predicted sediment load and deposition should be considered when selecting the type of sediment/erosion control.
18. A new application must be submitted should any work as specified in this letter be ongoing or planned for or after November 24, 2025

By this letter the Rideau Valley Conservation Authority assumes no responsibility or liability for any flood, erosion, or slope failure damage which may occur either to your property or the structures on it or if any activity undertaken by you adversely affects the property or interests of adjacent landowners. All other approvals as might be required from the Municipality, and/or other Provincial or Federal Agencies must be obtained prior to initiation of work. This includes but is not limited to the Drainage Act, the Endangered Species Act, the Ontario Water Resources Act, Environmental Protection Act, Public Lands Act, or the Fisheries Act.

This permit is not transferable to subsequent property owners.

Should you have any questions regarding this letter, please contact Eric Lalande, Senior Planner at the contact information listed above.

A handwritten signature in black ink that reads "Terry K. Davidson". The signature is written in a cursive, flowing style.

Terry K. Davidson P.Eng
Conservation Authority S. 28 Signing delegate
O. Reg. 174/06

Owner's Acknowledgement of Conditions

- Pursuant to the provisions of S. 28(12) of the *Conservation Authorities Act* (R.S.O.1990, as amended) any or all of the conditions set out above may be appealed to the Executive Committee of the Conservation Authority in the event that they are not satisfactory or cannot be complied with.
- Failure to comply with the conditions of approval or the scope of the project may result in the cancelling of the permission and/or initiation of legal action under S. 28(16) of the Act.
- Commencement of the work and/or a signed and dated copy of this letter indicates acknowledgement and acceptance of the conditions of the RVCA's approval letter concerning the application and the undertaking and scope of the project.
- Where a permit has been issued pursuant to the *Conservation Authorities Act* (R.S.O.1990, as amended), the person to whom it is issued shall have the permit or a copy of it posted at all times throughout the duration of the project in a conspicuous place on the property in respect of which the permit was issued.

Name: _____ (print)

Signed: _____ Date: _____

October 11, 2023

File: 65007.001 – R0

Dilworth Development Inc.
92 Bentley Avenue
Ottawa, Ontario
K2E 6T9

Attention: Mr. Walter Griesseier,

**Re: Access Road Culvert Design Summary
2095 Dilworth Road, Ottawa, Ontario**

This letter presents a design summary for the proposed access road culvert at 2095 Dilworth Road. The summary has been prepared for submission to the Rideau Valey Conservation Authority (RVCA) as a component of the application for approval to the watercourse crossing application as per requirements of Section 28 of the Conservation Authorities Act and Ontario Regulation 174/06.

The following files are included as attachments to the culvert design summary:

- completed Application for “Development, Interference with Wetlands and Alterations to Shorelines and Watercourses” Ont. Reg. 174/06
- Dilworth Developments Inc. letter of authorization for GEMTEC to act as an agent for submissions to RVCA
- culvert design drawing
- peak flow calculations
- culvert capacity calculations

Culvert Design

The proposed watercourse crossing is located upstream of an existing culvert crossing of Dilworth Road. Although the existing culvert is a 900 mm diameter pipe, the proposed culvert installation will have 2 barrels (900 mm and 600 mm) to ensure the peak design flow can be conveyed without surcharging. It should be noted the field survey indicated a slight reverse grade for the existing culvert with the outlet invert being 0.137 m higher than the inlet. This creates a backwater condition upstream of the culvert, where the new crossing is proposed. The proposed culvert will use this backwater condition to ensure constant flow depth in the new culvert barrels, without the need to countersink the pipe. It will also promote silt/sediment deposition in the bottom of the pipe for fish habitat.

Peak design flow and culvert sizing calculations for the access road culvert are attached to this design summary and include the following:

- proposed culvert details
 - 900 mm and 600 mm Boss 2000 HDPE pipe
 - culvert lengths = 16 m
 - pipe slope = 0.5%
- Q_{100} design flow: $1.05 \text{ m}^3/\text{s}$
- capacity of proposed culverts: $1.26 \text{ m}^3/\text{s}$
- minimum access road elevation: 88.1 m (exceeds 87.29 m Regulatory flood elevation)

Site Photo

The following photo shows the proposed crossing location looking upstream while standing above the existing culvert crossing of Dilworth Road.



Erosion and Sediment Control

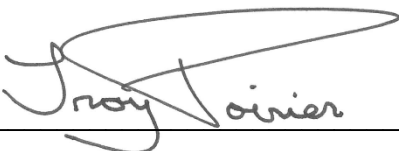
Erosion and sediment control is to be provided by isolating the work and access area from the watercourse using sediment control fencing. The fencing will be installed prior to site work and will be inspected and repaired on a daily basis. Any water pumped from the worksite during dewatering activities will be discharged to an undisturbed and stable location east of the proposed crossing.

Temporary Water Control During Culvert Installation

The small watercourse has a catchment area of 23.2 hectares and flow is intermittent. It is advised that the culvert installation be performed during relatively dry conditions, when there is little to no flow. Temporary water control will be performed by isolating the worksite from the rest of the stream using sandbags and plastic liners, with pumping to be performed from upstream of the site to the downstream culvert, as required.

Closing

We trust the above information sufficiently describes the proposed watercourse crossing and culvert design. If you have any questions, or require additional information, please contact us at your convenience.

A handwritten signature in dark ink, appearing to read 'Troy Poirier', is written over a horizontal line.

Troy Poirier, P.Eng.

Enclosures

N:\Projects\65000\65007.01\Hydrology Review\65007.001_LTR_Culvert-Summary_2023-10-11_Rev0.docx



Box 599, 3889 Rideau Valley Drive
Manotick, Ontario K4M 1A5
613-692-3571
www.rvca.ca

Application/File #:

Prior to application submission, please contact the
RVCA for pre-consultation or visit www.rvca.ca

Official Use Only
Date Received Stamp

Related Files

Fee

Application for "Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" Ont. Reg. 174/06

Pursuant to Section 28 of the *Conservation Authorities Act* and Ontario Regulation 97/04

The Rideau Valley Conservation Authority will consider your application based on the information you provide below. Any false or misleading statement made on this application will render null and void any permission granted. Complete all relevant sections, date, sign and return the application along with applicable scale drawings and other documents necessary (refer to minimum guideline requirements) as well as application fee "Schedule B."

Contact Information (please print clearly)

Property Owner's Name(s): **Dilworth Developments Inc. (President: Walter Griesseier)**

Mailing Address (Street, P.O. Box) **92 Bentley Avenue** City **Ottawa, ON** Postal Code **K2E 6T9**

Telephone: Home Work **613-223-4900** Mobile

E-mail **walterg@louconmetal.com**

Agent's Name: **Troy Poirier, P.Eng. (GEMTEC Consulting Engineers and Scientists)**

** Property owner's letter of authorization required*

Mailing address (Street, P.O. Box) **191 Doak Road** City **Fredericton, NB** Postal Code **E3C 2E6**

Telephone: Home **n/a** Work **506-453-1025** Mobile **506-461-8474**

E-mail **troy.poirier@gemtec.ca**

Location of Proposed Works

Property Assessment Roll Number (From Property Tax Notice, required) **0614.1482.840.10300.0000**

Municipal Street Address **2095 Dilworth Road**

Municipality **Ottawa** Former Municipality **Rideau** Watercourse/Drain **Cranberry Creek**

Lot **35** Concession **3** Registered Plan Number Sub-lot

Culvert Identification Number

Description of Works (please check each that apply)

- | | |
|--|---|
| ☐ Placement of fill, site alteration, changes in land elevation | ☐ Construction of a structure (building, septic system, pools) |
| ☐ Pond construction, cleanout and/or repair | ☒ Watercourse crossing (culvert or bridge) |
| ☐ Dam re-construction/repair | ☐ Bank protection |
| ☐ Dredging | ☒ Alteration to a watercourse or shoreline |
| ☐ Drainage works and ditching | ☐ Other _____ |
| ☐ Interference with a wetland | |

What is the purpose of the work? _____

Installation of a new culvert crossing of a small watercourse within the Regulation Limit. This culvert is needed to access lands on the west side of the watercourse and outside the current Regulation Limit.

Proposed Starting Date September 01, 2023

Completion Date December 31, 2023

Existing use of land Agricultural
(i.e., residential, commercial, vacant)

Proposed use of land Commercial

Details (e.g. Permit Number, Application Number)

Previous RVCA application on this property?

☒ yes ☐ no Cut fill application (RV6-0122)

Planning approval required? (e.g. site plan approval or re-zoning, minor variance)

☐ yes ☒ no

Applications made to other agencies? (e.g., MNRF, MOECC, Parks Canada, DFO)

☐ yes ☒ no

Municipal Building Permit required?

☐ yes ☒ no

Septic application/permits required?

☐ yes ☒ no

Is fill remaining on site? (If the answer is "no" you must specify an address where the fill is to be removed to:)

☐ yes ☒ no address _____

Submission Requirements and Terms

Digital transmission of PDFs are: USB/floppy drive, CD or email (development@rvca.ca)

- Applications must be submitted digitally with one hard copy to scale.
- Permits or Approvals granted by the Rideau Valley Conservation Authority are non-transferable.
- Permits, approvals, etc. may be required from other agencies prior to undertaking the proposed work. Rideau Valley Conservation Authority permission, if granted for the proposed work, does not exempt the owner/agent from complying with any or all other laws, statutes, ordinances, directives, regulations, approvals, etc. that may affect the property or the use of same.
- Fees paid are for application processing only; the RVCA reserves the right to refuse permission based on policy provisions and the applicant's right to a hearing under Section 28(12) of the Act.
- Section 28 (20) *Conservation Authorities Act* — An officer appointed by the RVCA may enter on private property, other than a dwelling or building, if the entry is for the purpose of considering a request related to the property for permission that is required by a regulation. By signing this form consent is being granted.
- Cancellation fee may apply to applications that have been accepted.

*** I/we the undersigned hereby certify to the best of my/our knowledge and belief that all of the above-noted, attached and/or supporting documentation information is correct and true. I/we further solemnly declare that I/we have read and fully understand the contents of this application and specifically the terms and conditions, and the declaration which is written below.**

By signing this application, consent is given to the Rideau Valley Conservation Authority, its employees and authorized representatives to access the property for the purposes of obtaining information and monitoring any approved works pursuant to Section 28(20) of the Act.

Owner's name: Walter Griesseier

Date: 2023 / 08 / 25

Authorized Agent: Troy Poirier, P.Eng.

☒ Letter of Authorization from owner must be attached if agent is signing off on all works

Notice of Collection

Pursuant to the municipal Freedom of Information and Protection of Privacy Act, the personal information contained on this form is collected under the Authority of the *Conservation Authorities Act*, R.S.O. 1990, Chapter C. 27, and O Regulation 174/06 RVCA Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses. This information is used to access applications and where approved issue permits. Information on this form will be disclosed to government and municipal agencies for review and comments and may be disclosed to members of the public through the Freedom of Information process.

Dilworth Developments Inc
2095 Dilworth Rd
Kars, Ontario

January 13 2022

To whom it may concern,

Dilworth Developments is the owner of 2095 Dilworth Rd and hereby authorizes Troy Poirier from Gemtech to act as our agent for any and all submission of all relevant permits required for the said property with the Rideau Valley Conservation Authority.

Please do not hesitate to contact me should you have and questions.

Sincerely,



Walter Griesseier

President

Dilworth Developments

613-223-4900

Walterg@louconmetal.com

Peak Runoff Estimate for Culvert at 2095 Dilworth Road

Use Ottawa CDA Station to Estimate Local Rainfall Rates

Rainfall Intensity - Ottawa CDA Climate Station 6105978

Rainfall Interpolation Eqn: $R = A * T^B$ (R=mm/hr; T = hrs)

Return Period (years)		2	5	10	25	50	100
Coefficient (A)		21.6	27.7	31.8	36.9	40.8	44.5
Exponent (B)		-0.711	-0.697	-0.691	-0.685	-0.682	-0.679

Peak Runoff and Time of Concentration Equations

Rational Equation (Peak Runoff)

$$Q = 0.0028 ciA$$

i = intensity (mm/hr)

A = area (ha)

Q = peak flow (m³/s)

Bransby Williams (Time of Concentration)

$$T_c = 0.605 L / (S^{0.2} * A^{0.1})$$

Tc = time of concentration (hrs)

L = drainage length (km)

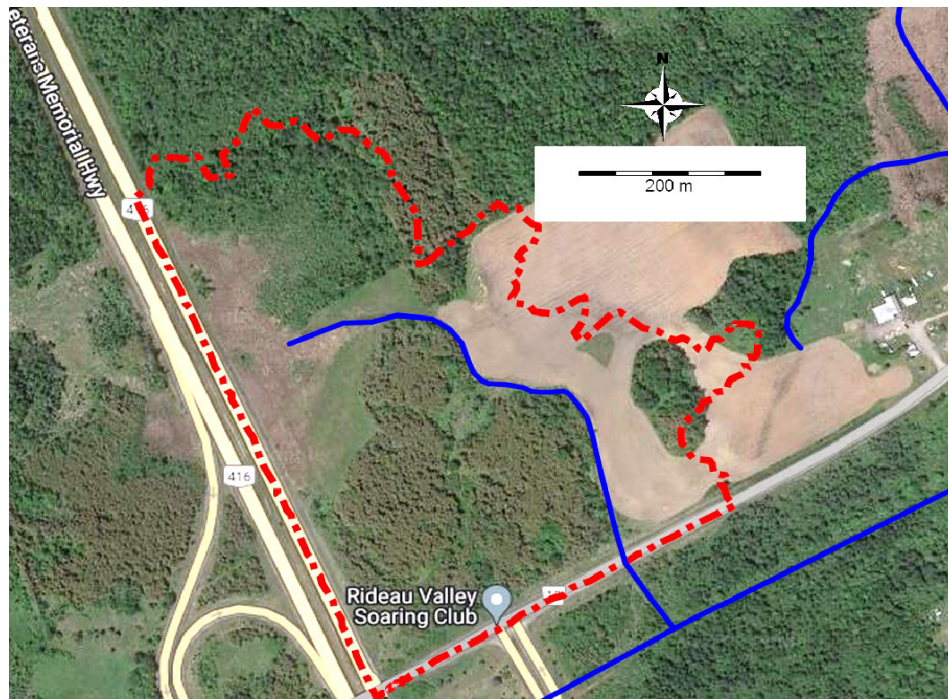
S = drainage slope (%)

A = catchment area (km²)

Runoff Coeff.	Catchment Area (ha)	Drainage Length (km)	Drainage Slope (%)	Time of Concentration (hrs)
0.25	23.2	0.6	0.2	0.58

Peak Runoff Estimates - Current Conditions

Return Period (years)	Rainfall Intensity (mm/hr)	Peak Flow (m ³ /s)
2	31.8	0.52
5	40.5	0.66
10	46.4	0.75
25	53.6	0.87
50	59.2	0.96
100	64.4	1.05



CULVERT SIZING CHECK

Project : 65007.001 - 2095 Dilworth Road

Capacity Check for Non-Embedded Culverts

Q₁₀₀ Design Flow 1.05 m³/s

Combined Culvert Capacity 1.26 m³/s

Barrel #1: 900 mm HDPE

barrel diameter	0.9 m
barrel length	16.0 m
barrel slope	0.005 m/m
Manning's "n"	0.012
discharge coefficient "Cd"	0.5
inlet loss coefficient "Ke"	0.5
headwater depth ratio	1.0 (1 = full pipe)
headwater depth	0.9 m
tailwater depth	0.80 m

INLET CONTROL

Discharge capacity 0.95 m³/s

OUTLET CONTROL

Discharge capacity 0.88 m³/s

Outlet Control Governs

Barrel #2: 600 mm HDPE

barrel diameter	0.6 m
barrel length	16.0 m
barrel slope	0.005 m/m
Manning's "n"	0.012
discharge coefficient "Cd"	0.5
inlet loss coefficient "Ke"	0.5
headwater depth ratio	1.5 (1.5 = surcharged)
headwater depth	0.9 m
tailwater depth	0.80 m

INLET CONTROL

Discharge capacity 0.49 m³/s

OUTLET CONTROL

Discharge capacity 0.37 m³/s

Outlet Control Governs Design

Discharge Coefficients "Cd"

thin walled projecting	0.50
flush headwall	0.60
cylinder inlet	0.67
socket inlet	0.70
bellmouth inlet	0.97

(after C.D. Smith, 1985)

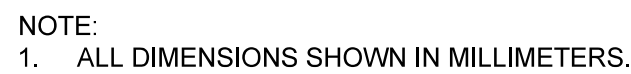
Inlet Loss Coefficients "Ke"

thin walled projecting	1.00
flush headwall	0.50
cylinder inlet	0.30
socket inlet	0.20
bellmouth inlet	0.10

(after C.D. Smith, 1985)

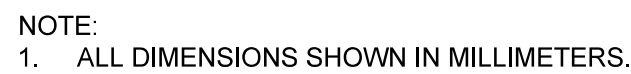


SCALE: 1:2500



TYPICAL ROADWAY SECTION

SCALE: 1:50



TYPICAL CULVERT CROSS SECTION AND BACKFILL

SCALE: 1:50



SCALE: 1:250



SCALE: 1:250



WATERCOURSE

WETLAND

ROAD CENTER LINE

EDGE OF ROAD

PROPERTY LINE

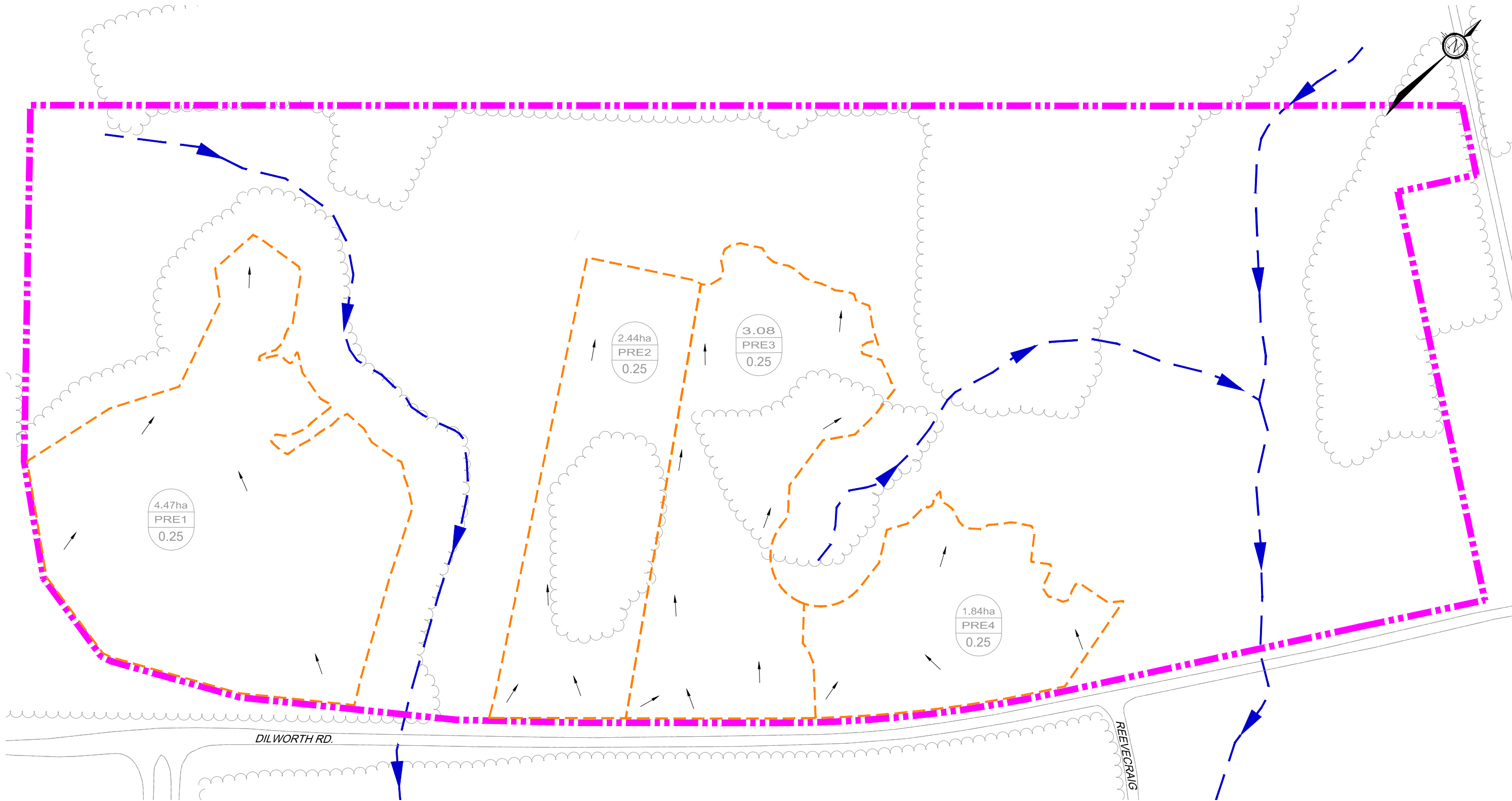


GEMTEC
CONSULTING ENGINEERS
AND SCIENTISTS

APPENDIX B

Stormwater Management Calculations

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LEGEND

--- PRE DEVELOPMENT DRAINAGE AREA

--- DEVELOPABLE AREA

--- DEVELOPABLE AREA

4.82ha
PRE1
0.25

— DRAINAGE AREA (ha)

— AREA ID

— RUNOFF COEFFICIENT

— DIRECTION OF DRAINAGE ARROWS

— Treeline
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)

NOVATECH

Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

2095 DILLWORTH ROAD

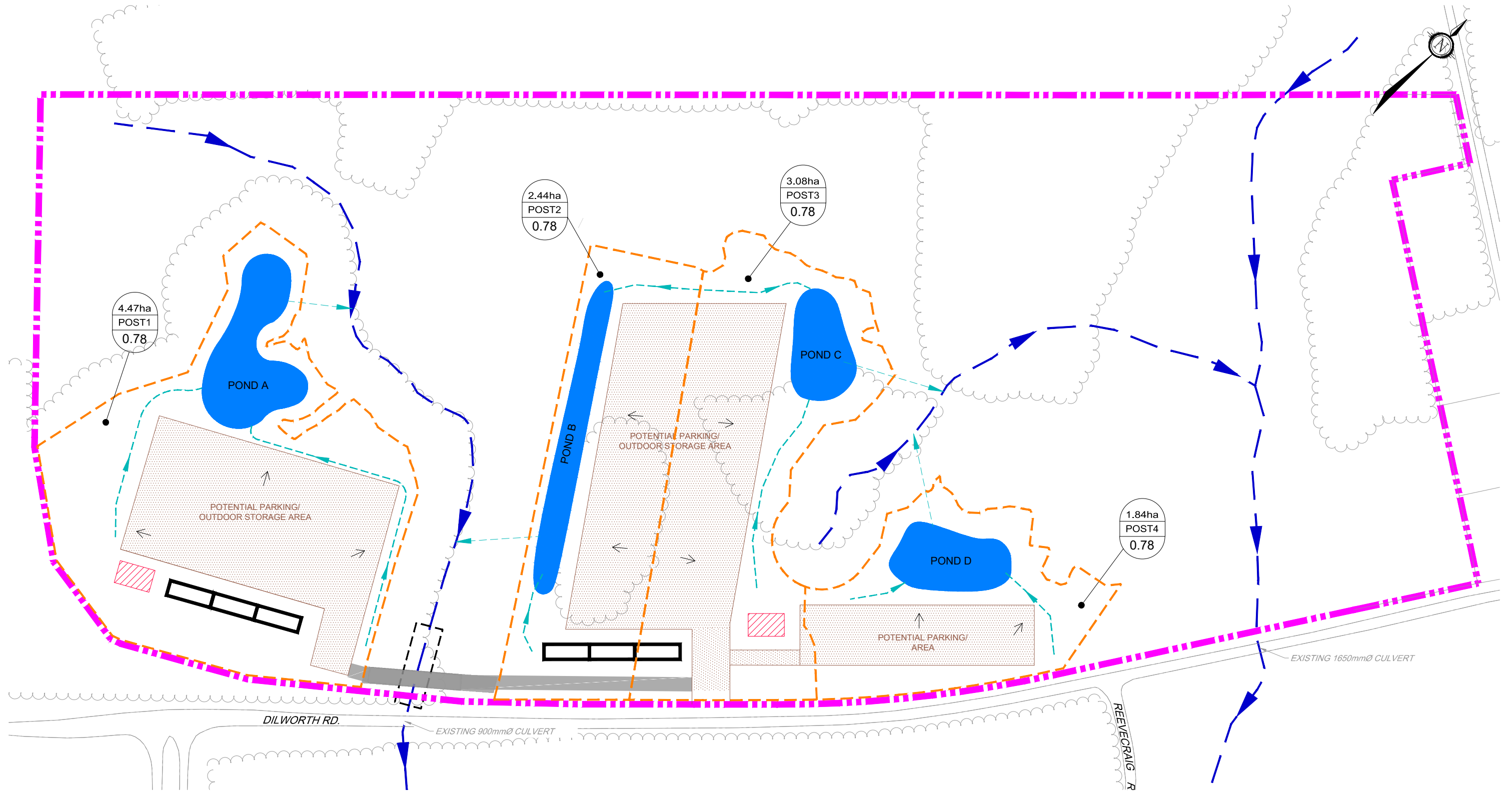
PRE DEVELOPMENT DRAINAGE AREAS

SCALE 1 : 2500

0 25 50 75 100

DATE SEPT 2026 JOB 1253081 FIGURE SWM - PRE

M:\2023\123081\CAD\CIVIL\123081-SWM.DWG 9/4/2026 11:22 AM - CVISSER



LEGEND

— POST DEVELOPMENT DRAINAGE AREA

— DEVELOPMENT DRAINAGE AREA

4.82ha
PRE1
0.25

— DRAINAGE AREA (ha)
— AREA ID
— RUNOFF COEFFICIENT

Treeline
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)

← DIRECTION OF DRAINAGE ARROWS

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Website www.novatech-eng.com

2095 DILLWORTH ROAD

POST DEVELOPMENT DRAINAGE AREAS

SCALE 1 : 2500

DATE SEPT 2026 JOB 1253081 FIGURE SWM-POST

SHT11X17.DWG - 279mmX432mm



PRE - 1 Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	Hard	N/A	0.90	0.25	0.31
4.47	Soft	N/A	0.20		

PRE - 2 Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	Hard	N/A	0.90	0.25	0.31
2.44	Soft	N/A	0.20		

Runoff Coefficient Equation

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

$$*C = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

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

PRE - 3 Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	Hard	N/A	0.90	0.25	0.31
3.08	Soft	N/A	0.20		

PRE - 4 Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	Hard	N/A	0.90	0.25	0.31
1.84	Soft	N/A	0.20		

Pre-Development (uncontrolled)

Outlet Options	Area (ha)	Q _{2 Year} (L/s)	Q _{5 Year} (L/s)	Q _{100 Year} (L/s)
PRE1	4.47	209.9	284.3	608.2
PRE2	2.44	46.0	61.7	131.0
PRE3	3.08	124.4	168.1	359.2
PRE4	1.84	91.1	123.5	264.3

PRE-1 TC		Tc=	13	min	PRE-3 TC		Tc=	17	min
Rainfall Intensity (2 Year Event)	I ₂ =	67.56	mm/hr		Rainfall Intensity (2 Year Event)	I ₂ =	58.09	mm/hr	
Rainfall Intensity (5 Year Event)	I ₅ =	91.50	mm/hr		Rainfall Intensity (5 Year Event)	I ₅ =	78.53	mm/hr	
Rainfall Intensity (10 Year Event)	I ₁₀ =	107.20	mm/hr		Rainfall Intensity (10 Year Event)	I ₁₀ =	91.94	mm/hr	
Rainfall Intensity (25 Year Event)	I ₂₅ =	126.93	mm/hr		Rainfall Intensity (25 Year Event)	I ₂₅ =	108.81	mm/hr	
Rainfall Intensity (50 Year Event)	I ₅₀ =	141.62	mm/hr		Rainfall Intensity (50 Year Event)	I ₅₀ =	121.38	mm/hr	
Rainfall Intensity (100 Year Event)	I ₁₀₀ =	156.61	mm/hr		Rainfall Intensity (100 Year Event)	I ₁₀₀ =	134.23	mm/hr	
PRE-2 TC		Tc=	52	min	PRE-4 TC		Tc=	12	min
Rainfall Intensity (2 Year Event)	I ₂ =	27.11	mm/hr		Rainfall Intensity (2 Year Event)	I ₂ =	71.25	mm/hr	
Rainfall Intensity (5 Year Event)	I ₅ =	36.40	mm/hr		Rainfall Intensity (5 Year Event)	I ₅ =	96.55	mm/hr	
Rainfall Intensity (10 Year Event)	I ₁₀ =	42.50	mm/hr		Rainfall Intensity (10 Year Event)	I ₁₀ =	113.15	mm/hr	
Rainfall Intensity (25 Year Event)	I ₂₅ =	50.16	mm/hr		Rainfall Intensity (25 Year Event)	I ₂₅ =	134.00	mm/hr	
Rainfall Intensity (50 Year Event)	I ₅₀ =	55.89	mm/hr		Rainfall Intensity (50 Year Event)	I ₅₀ =	149.52	mm/hr	
Rainfall Intensity (100 Year Event)	I ₁₀₀ =	61.81	mm/hr		Rainfall Intensity (100 Year Event)	I ₁₀₀ =	165.35	mm/hr	

100 year Intensity = $1735.688 / (\text{Time in min} + 6.014)^{0.820}$
 10 year Intensity = $1174.184 / (\text{Time in min} + 6.014)^{0.816}$
 5 year Intensity = $998.071 / (\text{Time in min} + 6.053)^{0.814}$
 2 year Intensity = $732.951 / (\text{Time in min} + 6.199)^{0.810}$

For 25 year storms add 10% to C value
 For 50 year storms add 20% to C value
 For 100 year storms add 25% to C value

TABLE C8: Time of Concentration (Uplands Overland Flow Method)

Area ID	Overland Flow						Channel Flow			Overall	
	Length	Elevation U/S	Elevation D/S	Slope	Velocity (Uplands)	Travel Time	Length	Velocity (Uplands)	Travel Time	Time of Concentration	Time to Peak
	(m)	(m)	(m)	(%)	(m/s)	(min)	(m)	(m/s)	(min)	(min)	(min)
PRE-1	230	92.25	87.75	2.0%	0.30	12.8	560	N/A	N/A	13	9
PRE-2	220	87.25	87.00	0.1%	0.07	52.4	561	N/A	N/A	52	35
PRE-3	100	87.50	87.30	0.2%	0.10	16.7	562	N/A	N/A	17	11
PRE-4	125	87.50	86.60	0.7%	0.18	11.6	563	N/A	N/A	12	8

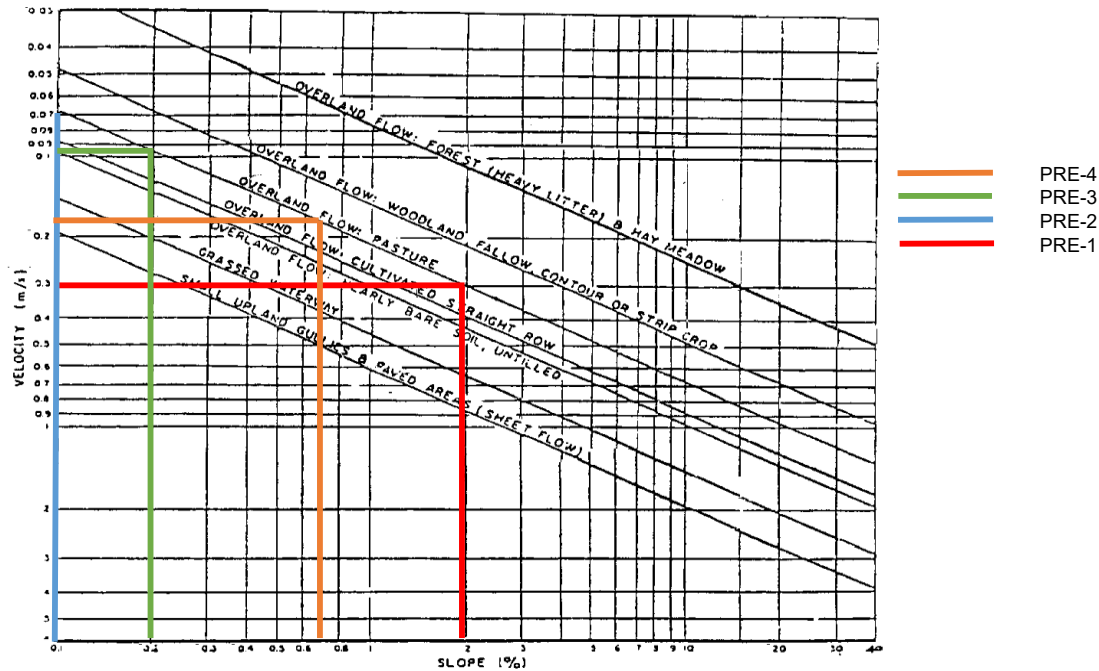


Figure A.5.2: Upland Method for Estimating Time of Concentration
(SCS National Engineering Handbook, 1971)

POND 'A'

Post-Development Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	HARD	3.35	0.95	0.78	0.97
4.47	SOFT	1.12	0.25		

QUANTITY STORAGE REQUIREMENT - 100 YEAR

4.47 =Area (ha)

0.97 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m ³)
100 YEAR	40	75.15	904.62	209.9	694.72	1667.33
	45	69.05	831.25	209.9	621.35	1677.64
	50	63.95	769.90	209.9	560.00	1679.99
	55	59.62	717.77	209.9	507.87	1675.96
	60	55.89	672.87	209.9	462.97	1666.71

PERMENANT POOL VOLUME REQUIRED PER MOE TABLE 3.2

1118

P.P. Depth	1.5 m	<---Input
Active Depth (100yr)	1 m	
side slopes	4 :1	
freeboard	0.3 m	
pathway	0 m	

	Length (m)	Width (m)	
Bottom	93.19	1.15	
Perm Pool	105.19	13.15	<---Input
100yr	113.19	21.15	
Freeboard +0.3m	115.59	23.55	
Pond Block +5m	115.59	23.55	

P.P. Volume	1,118 m3
100yr Volume:	1,888 m3
Footprint:	0.27 ha

WET POND DESIGN PER MOE TABLE 4.6

POND 'B'

Post-Development Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	HARD	1.83	0.95	0.78	0.97
2.44	SOFT	0.61	0.25		

QUANTITY STORAGE REQUIREMENT - 100 YEAR

2.44 =Area (ha)

0.97 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m ³)
100 YEAR	115	34.01	223.46	46.0	177.46	1224.45
	120	32.89	216.16	46.0	170.16	1225.15
	125	31.86	209.37	46.0	163.37	1225.29
	130	30.90	203.04	46.0	157.04	1224.90
	135	30.00	197.12	46.0	151.12	1224.04

PERMENANT POOL VOLUME REQUIRED PER MOE TABLE 3.2

610

P.P. Depth	1.5 m	<---Input
Active Depth (100yr)	1 m	
side slopes	4 :1	
freeboard	0.3 m	
pathway	0 m	

	<u>Length (m)</u>	<u>Width (m)</u>	
<i>Bottom</i>	59.58	0.00	
Perm Pool	71.58	12.00	<---Input
<i>100yr</i>	79.58	20.00	
<i>Freeboard +0.3m</i>	81.98	22.40	
<i>Pond Block +5m</i>	81.98	22.40	

P.P. Volume	644 m3
100yr Volume:	1,225 m3
Footprint:	0.18 ha

WET POND DESIGN PER MOE TABLE 4.6

POND 'C'

Post-Development Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	HARD	2.31	0.95	0.78	0.97
3.08	SOFT	0.77	0.25		

QUANTITY STORAGE REQUIREMENT - 100 YEAR

3.08 =Area (ha)

0.97 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m ³)
100 YEAR	45	69.05	572.76	124.4	448.36	1210.58
	50	63.95	530.49	124.4	406.09	1218.26
	55	59.62	494.57	124.4	370.17	1221.56
	60	55.89	463.64	124.4	339.24	1221.25
	65	52.65	436.69	124.4	312.29	1217.95

PERMENANT POOL VOLUME REQUIRED PER MOE TABLE 3.2

770

P.P. Depth	1.5 m	<---Input
Active Depth (100yr)	1 m	
side slopes	4 :1	
freeboard	0.3 m	
pathway	0 m	

	<u>Length (m)</u>	<u>Width (m)</u>	
<i>Bottom</i>	31.13	9.57	
Perm Pool	43.13	21.57	<---Input
<i>100yr</i>	51.13	29.57	
<i>Freeboard +0.3m</i>	53.53	31.97	
<i>Pond Block +5m</i>	53.53	31.97	

P.P. Volume	921 m3
100yr Volume:	1,221 m3
Footprint:	0.17 ha

WET POND DESIGN PER MOE TABLE 4.6

POND 'D'

Post-Development Runoff Coefficient "C"

Area	Surface	Ha	"C"	C _{avg}	*C ₁₀₀
Total	HARD	1.38	0.95	0.78	0.97
1.84	SOFT	0.46	0.25		

QUANTITY STORAGE REQUIREMENT - 100 YEAR

1.84 =Area (ha)

0.97 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m ³)
100 YEAR	35	82.58	409.21	91.1	318.11	668.02
	40	75.15	372.37	91.1	281.27	675.05
	45	69.05	342.17	91.1	251.07	677.89
	50	63.95	316.91	91.1	225.81	677.44
	55	59.62	295.46	91.1	204.36	674.38

PERMENANT POOL VOLUME REQUIRED PER MOE TABLE 3.2

460

P.P. Depth	1.5 m	<---Input
Active Depth (100yr)	1 m	
side slopes	4 :1	
freeboard	0.3 m	
pathway	0 m	

	<u>Length (m)</u>	<u>Width (m)</u>	
<i>Bottom</i>	20.46	4.23	
Perm Pool	32.46	16.23	<---Input
<i>100yr</i>	40.46	24.23	
<i>Freeboard +0.3m</i>	42.86	26.63	
<i>Pond Block +5m</i>	42.86	26.63	

P.P. Volume	460 m3
100yr Volume:	754 m3
Footprint:	0.11 ha

WET POND DESIGN PER MOE TABLE 4.6

3.3.2 Water Quality Sizing Criteria

The volumetric water quality criteria are presented in Table 3.2. The values are based on a 24 hour drawdown time and a design which conforms to the guidance provided in this manual. Requirements differ with SWMP type to reflect differences in removal efficiencies. Of the specified storage volume for wet facilities, 40 m³/ha is extended detention, while the remainder represents the permanent pool.

Table 3.2 Water Quality Storage Requirements based on Receiving Waters^{1, 2}

Protection Level	SWMP Type	Storage Volume (m ³ /ha) for Impervious Level			
		35%	55%	70%	85%
<i>Enhanced</i> 80% long-term S.S. removal	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250
<i>Normal</i> 70% long-term S.S. removal	Infiltration	20	20	25	30
	Wetlands	60	70	80	90
	Hybrid Wet Pond/Wetland	75	90	105	120
	Wet Pond	90	110	130	150
<i>Basic</i> 60% long-term S.S. removal	Infiltration	20	20	20	20
	Wetlands	60	60	60	60
	Hybrid Wet Pond/Wetland	60	70	75	80
	Wet Pond	60	75	85	95
	Dry Pond (Continuous Flow)	90	150	200	240

¹Table 3.2 does not include every available SWMP type. Any SWMP type that can be demonstrated to the approval agencies to meet the required long-term suspended solids removal for the selected protection levels under the conditions of the site is acceptable for water quality objectives. The sizing for these SWMP types is to be determined based on performance results that have been peer-reviewed. The designer and those who review the design should be fully aware of the assumptions and sampling methodologies used in formulating performance predictions and their implications for the design.

²Hybrid Wet Pond/Wetland systems have 50-60% of their permanent pool volume in deeper portions of the facility (e.g., forebay, wet pond).

Table 4.6: Wet Ponds – Summary of Design Guidance

Design Element	Design Objective	Minimum Criteria	Preferred Criteria
Drainage Area	Volumetric turnover	5 hectares	≥ 10 hectares
Treatment Volume	Provision of appropriate Level of protection (see Section 3.3.1.1)	As per Table 3.2	1. Permanent Pool volume increased by expected maximum ice volume 2. Active Storage increased from 40 m ³ /ha to 25% of total volume
Active Storage Detention	Suspended Solids Settling	24 hrs (12 hrs if in conflict with minimum orifice size)	24 hrs
Forebay	Pre-treatment	Minimum Depth: 1 m Sized to ensure non-erosive velocities leaving forebay Maximum Area: 33% of total Permanent Pool	Minimum Depth: 1.5 m Maximum Volume: 20% of total Permanent Pool
Length-to-Width Ratio	Maximize flow path and minimize short-circuiting potential	Overall: minimum 3:1 (may be accomplished by berms, etc.) Forebay: minimum 2:1	From 4:1 to 5:1
Permanent Pool Depth	Minimize re-suspension, avoid anoxic conditions	Maximum Depth: 3 m Mean Depth: 1 m - 2 m	Maximum Depth: 2.5 m Mean Depth: 1 m - 2 m
Active Storage Depth	Storage/Flow Control	Water Quality and Erosion Control: maximum 1.5 m Total (including quantity control): 2 m	Water Quality and Erosion Control: maximum 1.0 m Total (including quantity control): 2 m
Side slopes	Safety Maximize the functionality of the pond	5:1 for 3 m on either side of the permanent pool Maximum 3:1 elsewhere	7:1 near normal water level plus use of 0.3 m steps 4:1 elsewhere

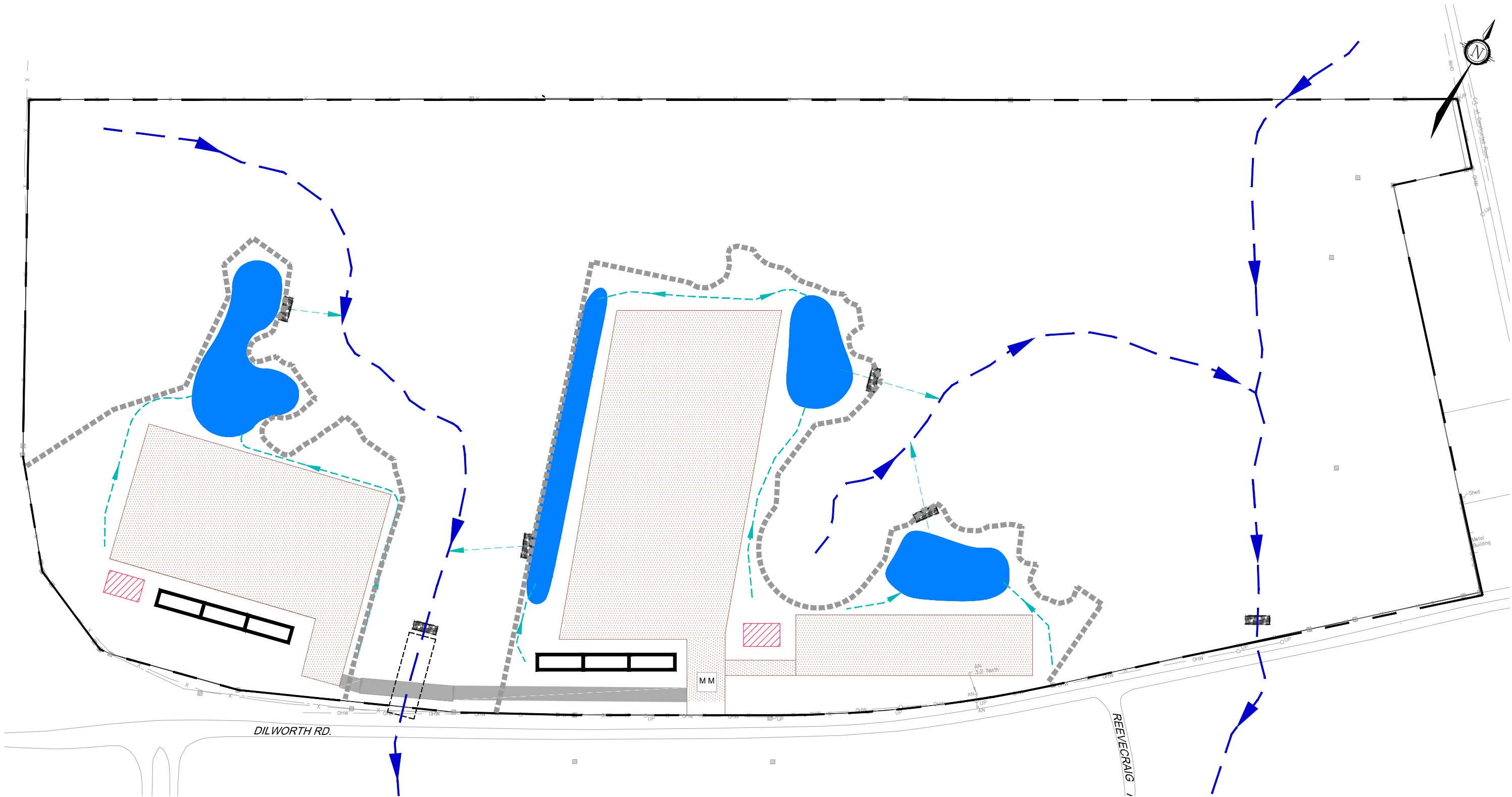
Table 4.6: Wet Ponds – Summary of Design Guidance (cont'd)

Design Element	Design Objective	Minimum Criteria	Preferred Criteria
Inlet	Avoid clogging/ freezing	Minimum: 450 mm Preferred pipe slope: > 1% If submerged, obvert 150 mm below expected maximum ice depth	
Outlet	Avoid clogging/ freezing	Minimum: 450 mm outlet pipe Reverse sloped pipe should have a minimum diameter of 150 mm Preferred pipe slope: > 1% If orifice control used, 75 mm diameter minimum	Minimum 100 mm orifice
Maintenance Access	Access for backhoes or dredging equipment	Provided to approval of Municipality	Provision of maintenance drawdown pipe
Sediment Drying Area	Sediment removal	While preferable, should only be incorporated into the design when it imposes no additional land requirement	To be provided above maximum water quality water level Drainage returned to Pond
Buffer	Safety	Minimum 7.5 m above maximum water quality/erosion control water level Minimum 3 m above high water level for quantity control	

APPENDIX C

Drawings

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LEGEND

	Site Boundary (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)		Watercourse (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
	DEVELOPABLE AREA LIMIT		Treeline (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
	PROPOSED MUD MAT		Proposed Internal Connection Driveway
	STRAWBALE CHECK DAM (OPSD 219.180)		POTENTIAL SWALE TO STORM POND AREA

	POTENTIAL PARKING/ OUTDOOR STORAGE AREA
	POTENTIAL STORM POND AREA
	POTENTIAL FOOTPRINT FOR BUILDING OCCUPANCIES
	POTENTIAL SEPTIC SYSTEM AREA

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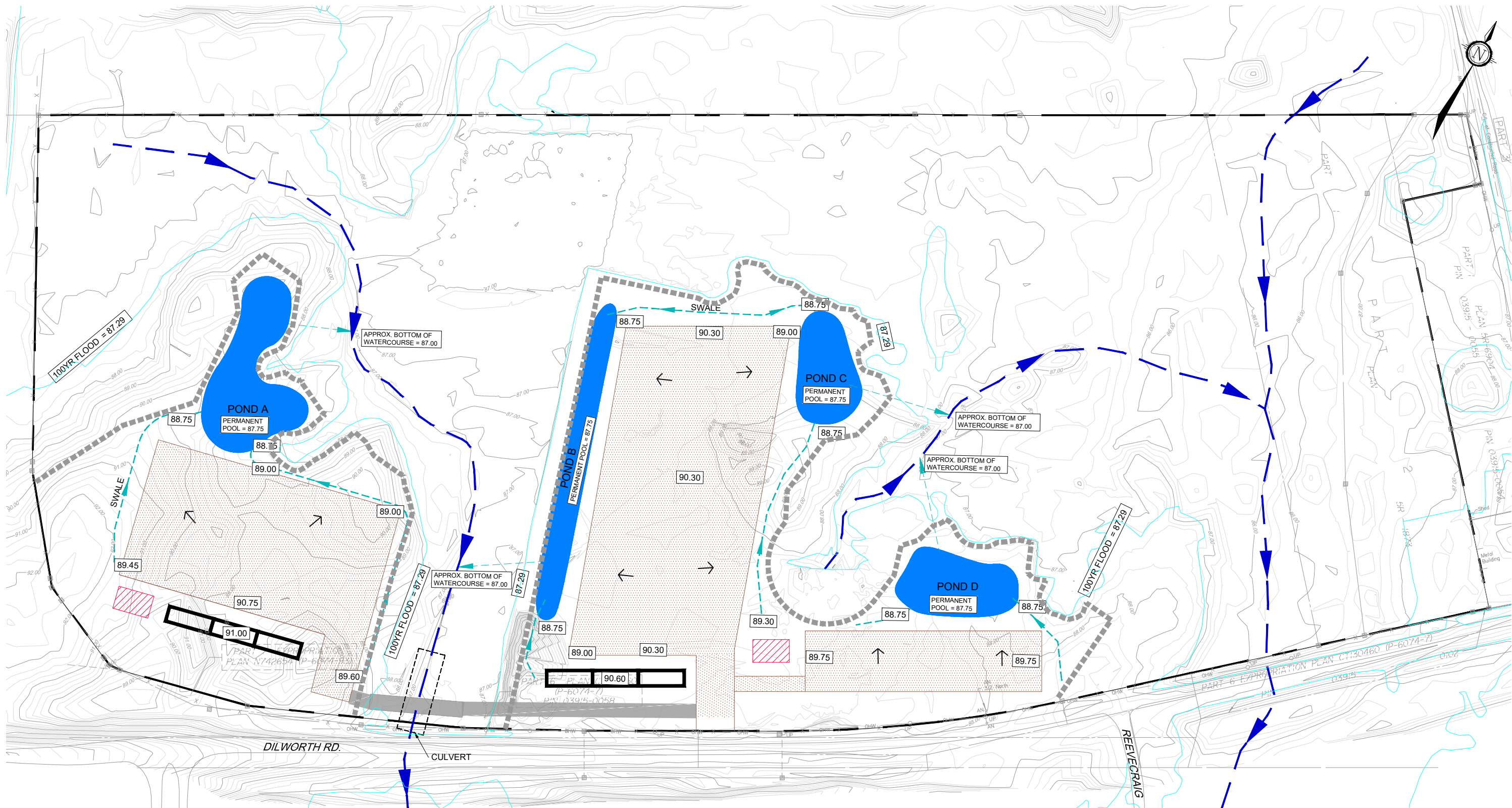
CITY OF OTTAWA
2095 DILWORTH ROAD

CONCEPTUAL EROSION SEDIMENT CONTROL PLAN

SCALE 1 : 2500

DATE AUG 2026 JOB 123081 FIGURE ESC

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LEGEND

- | | | | |
|--|--|--|--|
| | Site Boundary
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023) | | Watercourse
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023) |
| | 100YR FLOODPLAIN (ELEVATION = 87.29)
(GEMTEC, Cut Fill Balance Analysis, Dated December 22, 2021) | | Treeline
(GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023) |
| | PRELIMINARY GRADE | | Proposed Internal Connection Driveway |
| | DIRECTION OF FLOW ARROW | | Developable Area Limit |

- | | |
|--|---|
| | POTENTIAL PARKING/
OUTDOOR STORAGE AREA |
| | POTENTIAL STORM
POND AREA |
| | POTENTIAL FOOTPRINT FOR
BUILDING OCCUPANCIES |
| | POTENTIAL SEPTIC
SYSTEM AREA |
| | POTENTIAL SWALE TO
STORM POND AREA |

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CITY OF OTTAWA
2095 DILWORTH ROAD

CONCEPTUAL GRADING & SERVICING PLAN

SCALE	1 : 2500	
DATE	AUG 2026	JOB 123081
FIGURE	GR	

APPENDIX D

City Correspondence

August 20, 2026

City of Ottawa
Planning, Development, and Building Services Department
110 Laurier Avenue West, 4th Floor
Ottawa, Ontario
K1P 1J1

Attention: Cass Schlauzero – Planner II

**Reference: 2095 Dilworth Road
Response to City Technical Review Comments
City File No.: D02-02-24-0029
Novatech File No.: 123081**

Please find enclosed the following responses in *blue* to the City's technical review comments letter received on July 24, 2026 regarding the *Zoning By-law Amendment (City File No.: D02-02-24-0029)* application for 2095 Dilworth Road. The responses have been provided by Novatech with updated plans and reports to address the below comments. A subsequent submission will follow by TBT Engineering Limited with updated plans and reports included to address the below comments.

General

1. Per discussion between City staff and Novatech on July 8, all plans and reports, including plans within reports, must be revised to reflect the updated flood plain mapping, where applicable.

Novatech Response: Reports and plans have been adjusted to reflect minor discrepancies to flood plain mapping as per RVCA letter dated December 17, 2024.

2. On July 2, 2026 the Ontario Land Tribunal issued an oral decision stating that the unappealed portions of Zoning By-law 2026-50 are now in full force and effect. In accordance with By-law 2026-50, the proposed zoning for the subject site is Rural Commercial Zone, Subzone 4 (RC4) and Open Space Facility Zone, Subzone 5 (FAC5), with both zones subject to site-specific exceptions.

Novatech Response: Noted.

3. The proposed boundary between the FAC5 and RC4 zones should be revised such that it aligns with the most restrictive of the regulatory flood plain limit, 30-meter watercourse/local wetland setback or 50-metre Provincially Significant Wetland (PSW) setback, as applicable.

- a) **Where the zone boundary is based on the regulatory flood plain limit**, the RVCA has requested that the boundary include an additional 6-metre setback within the FAC5 zone between the zone boundary and the mapped flood plain limit. This access allowance is **only** applicable to the portions of the FAC5 zone boundary that

are based on the regulatory flood plain limit.

Novatech Response: The boundary between the FAC5 and RC4 zone has been consistently shown based on the most restrictive of the 30-metre setback to local wetland and watercourses, and 50-metre setback to PSW. The City Zoning By-law uses a floodplain overlay to show flood plain limits. Including portions of the floodplain that are not subject to the other setbacks, and including an additional 6 metre access as requested by RVCA is inconsistent with City Zoning practice. Further Novatech response will be provided in separate submission specific to the FAC5 Zone boundary and the updated proposed zoning schedule as it relates to flood plain limit.

4. Based on the findings of the Hydrogeological and Terrain Analysis report and subsequent correspondence with Travis Smith, Hydrogeologist, and based upon overall review of the information contained within the plans and reports submitted to date, staff propose that the balance of the site subject to the rezoning, outside of areas identified to be rezoned to FAC5 [XXXXr] and outside those areas already zoned EP3 and RU (east of the EP3 zone), be rezoned to Rural Commercial Zone, Subzone 4 (RC4 [XXXXr]-h).

a) The following will be included in a site-specific exception to the RC4 zone:

- i. For the purposes of determining lot lines and yards, on the portions of the parcel zoned RC [XXXXr]-h the front lot line shall be the lot line abutting Dilworth Road. On the portion of the parcel zoned RU, the front lot line shall be the lot line abutting Third Line Road South.

- ii. Land uses prohibited – all uses except:

artist studio

automobile rental establishment automobile

service station

car wash

heavy equipment servicing

gas bar, limited to the dispensing of automotive fuels and associated retail

kennel

parking lot, limited to a “park and ride” lot or a parking lot accessory to a permitted use

retail food store, limited to an **outdoor farmers’ market**

retail store, limited to the sale, rental or display of non-food, non-perishable goods only

service and repair shop

warehouse, limited to an indoor self-storage facility

- iii. In addition to the provisions of Table 218A, all development within the RC4 [XXXXr]-r zone is subject to Site Plan Control Approval
- iv. No single commercial use is permitted to occupy more than 300m² of gross leasable floor area
- v. All uses under Section 1303-1(1) are prohibited
- vi. Where an **outdoor farmers’ market** is located on a lot containing

another use, the provisions of 218A do not apply to the **outdoor farmers' market**, and the **outdoor farmers' market** may only be located in a:

- (i) parking lot;
 - (ii) yard abutting a parking lot; and,
 - (iii) front or corner side yard; associated with the other use.
- vii. No more than one **warehouse**, limited to an indoor self-storage facility, is permitted on the property
- viii. For the purposes of calculating gross leasable floor area of a **warehouse** limited to an indoor self-storage facility, the total area of a building, including individual storage units, access hallways, office area, etc., occupied by and/or for the exclusive use of an indoor self-storage facility may not exceed 300m² of gross leasable floor area
- ix. Outdoor storage associated with a single indoor self-storage facility is subject to the following provisions:
- limited to a maximum total area of 5000m²
 - permitted only in an interior yard or rear yard
 - must be screened from any abutting street, provincial-series highway, and/or Residential zone
- x. Outdoor storage associated with an **automobile rental establishment** or the sale of agricultural, construction, gardening or landscaping-related products, equipment or supplies is permitted in any yard and must be screened from any abutting street, provincial-series highway, and/or Residential zone
- xi. The holding symbol shall only be removed:
- upon satisfying all conditions of Site Plan Control approval;
 - as part of the Site Plan Control Approval process, upon demonstrating to the satisfaction of the General Manager, Planning, Development and Building Services, that the proposed and existing development (if any) complies with the findings of a Hydrogeological and Terrain Analysis which considers all lands subject to the RC [XXXXr]-h zone; and
 - from only the portion of the site associated with the limits of each development that has received Site Plan Control approval

Novatech Response: Noted. Holding is accepted.

5. Per discussion on July 8, 2026, City staff clarified that the holding symbol imposes the requirement that any future development on the site, including those below the standard threshold for Site Plan Control approval, is subject to Site Plan Control approval and the associated requirement for a Hydrogeological and Terrain Analysis.

Novatech Response: Requirement to lift a holding symbol through zoning through a future Site Plan Control application is acceptable.

Suggested Zoning

6. The boundary between the FAC5 and RC4 zones in the Suggested Zoning figure should be based on the most recent version of the Floodplain Overlay, per the Zoning By-law 2026-50 layer on geoOttawa.

Novatech Response: Plans have been adjusted to reflect minor discrepancies to flood plain mapping as per RVCA letter dated December 17, 2024.

Topographic Information Plan

7. Refer to comments under the Surveys and Mapping heading below. These comments were not addressed in the April 6, 2026 response letter from the applicant.

Please contact Cass Sclauzero, Planner II, for follow-up questions. cass.sclauzero@ottawa.ca

Novatech Response: See response below.

Engineering

List of Studies and Plans Reviewed:

- ☐ **Update to Geotechnical Investigation;** TBTE Ref No:26-0120, Concept Plan (April 2026), 2095 Dilworth Road, Ottawa, Ontario, dated April 18, 2026, sealed April 17, 2026
- ☐ **Preliminary Geotechnical Investigation Report; Future Commercial Development, 2095 Dilworth Road, Kars, ON,** prepared by Englobe, dated January 06, 2025
- ☐ **Servicing Options and Conceptual Stormwater Management Report, 2095 Dilworth Road, Kars, ON,** prepared by Novatech, dated July 17, 2024, revised April 6, 2026

Comments:

Servicing Options and Conceptual Stormwater Management Report

8. The April 6, 2026 response letter from the applicant to RVCA indicates that there were still two outstanding RVCA comments as of that date. Confirmation from the RVCA will be required to ensure the outstanding comments have been addressed to the satisfaction of the RVCA.

Novatech Original Comment and Response:

Zoning & Natural Hazard Management

- 1) *Based on a review of the current concept plan and suggested zoning figure provided within the planning rational document, there are discrepancies between RVCA's regulatory flood plain mapping, and the extent of the flood plain identified on the noted plan/figure. The regulatory flood plain limit as delineated on RVCA mapping should be utilized to update the extent of the Flood Plain Overlay on the site.*

A 6 metre access allowance has been identified on the concept plan. In some areas of the site the access allowance has been applied from the extent of the 30 or 50 metre buffer from wetlands, watercourses or species at risk habitat. The 6 metre access allowance should only be applied from the regulatory flood plain limit.

Additionally, it is noted in the response memo that the access allowance will not be zoned to an open space or environmental protection category. The intent of the 6 metre access allowance is to establish an unencumbered area free and clear of any structures, both above and below ground to provide space for machinery/equipment and workers to access a flood plain area to undertake repairs/maintenance in the event that there is erosion or stability issues caused by flood waters. RVCA continues to advocate for the access allowance area to be zoned to a category that has the effect of prohibiting development but defer to City of Ottawa staff for the ultimate decision on the matter.

Novatech Response: Please find the Suggested Zoning figure prepared by Novatech dated March 2026 which has the 6 metre access allowance within the O1R zone.

- 2) *Once the above noted comment related to the delineation of the regulatory floodplain is addressed, the potential storm pond areas should be reviewed/revised accordingly.*

Novatech Response: Please find the revised Concept Plan prepared by Novatech dated April 2026 which is included in this resubmission package.

Updated Novatech Response: The boundary between the FAC5 and RC4 zone has consistently been shown based on the most restrictive of the 30-metre setback to local wetland and watercourses, and 50-metre setback to PSW. The proposed zoning of the FAC5 will include a 6 metre access allowance for these setbacks in accordance with the RVCA 2026 Development Activity Policies and Procedures Section 4.1 – Definition, which defines Access Allowance as:

Access allowance: means a 6-metre development setback applied to the stable slope allowance/top of stable slope/meander belt allowance and forming part of the erosion hazard for confined (apparent) and unconfined (not apparent) river or stream systems including flood plain limits. The access allowance is applied to provide for emergency access to hazard prone areas, provide for construction access for regular maintenance and access to the site during or after a natural hazard event or failure of a slope or a structure, and provide for protection against unforeseen or predicted external conditions which could have an adverse effect on the natural conditions or processes acting on or within a hazard

prone area.

It is acknowledged that the definition includes "...including flood plain limits" however, the City Zoning By-law uses a flood plain overlay to show flood plain limits. Including shallow portions of the floodplain that are not subject to the other setbacks and including an additional 6 metre access allowance within the FAC5 Zone boundary is inconsistent with City Zoning practice. Unlike the setback to local wetland, watercourses and PSW, these shallow portions of the flood plain are unlikely to be used for emergency access or to be used for regular access.

We believe the definition better to be an area of shallow flooding as defined below:

Area of shallow flooding: *means low-lying areas where flooding may occur, but whether flooding occurs by backwater from tributaries or channels, oversaturation and exfiltration of soils or intense rainfall events is unknown.*

It was confirmed through discussion with the RVCA that they would not be using the access allowance for emergency or construction but rather to define and identify the flood plain for future purchasers. It is our opinion that this is unnecessary as it provides no additional notification over the accurate flood plain overlay shown on schedules for Zoning By-law 2026-50 based on the RVCA's regulatory limit. The addition of the 6 metres to the flood plain overlay for areas outside the 30-metre setback to local wetland and watercourses and 50-metre setback to PSW creates a precedent to the City's approach to flood plain zoning. Further Novatech response will be provided in separate submission specific to the FAC5 Zone boundary and the updated proposed zoning schedule as it relates to flood plain limit.

Our research suggests that the 6 metres is to provide access in emergency to effect repairs. The 6 m access corridor is intended to provide physical access for inspection and maintenance equipment. It is usually an operational requirement rather than a hazard-mapping requirement.

9. Aerial imagery from 2019 shows potentially existing drainage path from Highway 416 right-of-way, through the site, towards the on-site watercourse site. Change in the existing condition though potential development of the area designated as Area 1 may have an impact on the Highway 416 drainage.

The email correspondence with the MTO is noted; however, maintaining stormflows from the adjacent properties including from MTO's Highway 416 lands, among others, should be analyzed and specifically discussed in the report. The Pre/Post Development Drainage Areas Plan, included in Appendix B, does not appear to include any potentially existing off-site tributary flows, which need to be accounted for. **This comment was not addressed in the report.**

It appears that MTO property does drain to the subject property (it was included in the report's appendix in the peak run-off estimates for the RVCA culverts on-site), but it is not clear if it is at the southwest or northwest corner. The report needs to generally define (high level) applicable external flows to be accommodated within the area of the proposed zoning, to confirm that the zoning proposal and the future development will not adversely affect either of the properties (SWM pond area allocation, ponding on adjacent properties, etc.), once the zoning is in place. The conclusions/assumptions need to be included in the report, not in an external commentary. If the pre-development and post-development drainage area plans are affected, please update.

Novatech Response: It is our opinion that the highway drainage drains along a roadside ditch towards the wetland area and around the subject site. Please refer to attached figure DSK-1 that shows contour mapping. We have added drainage direction arrows to show the flow path of the highway drainage. We have also shown two cross sections which shows a low point between the highway and the site forming a drainage ditch. The highway drainage does enter the wetland area and follows the tributary and therefore, should be included in the drainage area for the culvert crossing Dilworth Road (as included in Gemtec's culvert calculations). The drainage does not affect the developable area of the subject site. Further review will be done through later Site Plan Application that will be required to lift the Holding Zone.

10. Figure 3 of the report only shows directions at the outlet points. The figure should be revised to show complete overland stormwater flow directions. **This comment was not adequately addressed in the report.**

The previously-provided drainage pattern was removed from Figure 3; however, the matter of drainage pattern is still not clear. The drainage pattern arrows shown in Appendix SWM-PRE plan indicate that the MTO property is likely draining, across the property line, to the area PRE-1 (via northwest corner?).

Please account for offsite flows and show the directions of surface runoff on the properties directly adjacent, which might contribute to SWM (Ponds A and D) on the site under consideration. Some flows might also be entering area PRE-4 across the property line. The report needs to be clear in establishing if external flows are applicable or not.

Novatech Response: Direction of drainage arrows for adjacent property have been added to the attached DSK-1 which shows that drainage from the adjacent property drains towards the tributary and not ponds A and D.

11. The design proposes two culverts (900mm and 600mm) within the roadway connecting Area 1 and Area 2. Plan C1 in Appendix A shows the road culvert with a diameter of 900mm. The two proposed culverts will discharge directly into the road right-of-way ditch and the roadway culvert with a lower conveyance capacity. The 900mm road culvert capacity, the roadside ditch capacity and the potential roadside ditch erosion were not discussed in the report in the post development condition.

Please determine peak volumes exiting the proposed culverts and provide evidence and rationalize thoroughly in the report that the proposed culverts will not negatively impact the stormwater management in the municipal right-of-way during 2-year, 5-year, 10-year, 25-year, 50-year and 100-year storm events. It should be noted that, previously, flood plain water would rise gradually and outlet via the road culvert, while now it will be raised behind the proposed culverts and forced via two culverts into the right-of-way and subsequently into a smaller-diameter road culvert.

Current response: The Novatech response states that "The two culverts have already been design (by others) and approved by the RVCA. This should be satisfactory for a zoning application. More details can be provided through the site plan application process".

The City agrees to move this request to the future Site Plan Control; however, the report needs to be updated to state that this analysis will need to be undertaken during the Site Plan control stage, prior to the installation of the said culverts.

Please note that the requested analysis of the potential impacts to the municipal ROW would not necessarily be within the RVCA scope of review and this is also clearly reiterated in the RVCA's disclaimer at the end of the RVCA Letter of Permission, attached in Appendix A. Please also note that that permit is not transferable to any subsequent property owners.

Novatech Response: Wording has been added to the report as requested.

12. No erosion control measures were provided between the added floodplain culverts and the road crossing culvert. Please contemplate and add as needed.

Novatech Response: The culvert information was designed by others and shown on our concepts for context. Detailed design drawings will be provided for a site plan application along with more detailed erosion and sediment control measures.

The City agrees to move this request to the future Site Plan Control; however, the report needs to be updated to state that this analysis will need to be undertaken during the Site Plan control stage, prior to the installation of the said culverts.

Section 4.0 only mentioned the Englobe Preliminary Geotechnical Investigation. This investigation is now supplemented by "Update to Geotechnical Investigation; TBTE Ref No:26-0120, Concept Plan (April 2026), 2095 Dilworth Road, Ottawa, Ontario, dated April 18, 2026, sealed with the date of April 17, 2026. This update is final and no new geotechnical information within the ZBLA process, is expected. Please reference the update in the report, as it contains important elements not contained within the original report.

Novatech Response: The section has been updated in the report to include the addendum letter.

13. Section 5.0 made a reference to Hydrogeological and Terrain Analysis and states that exceedances in water quality are common and can be addressed with a treatment system. This does not reflect the facts presented in the hydrogeological studies. The well water was found to be non-potable, and this will need to be registered on title to the property. Please revise the report and also reference the latest "Update to Hydrogeological Study Report" (and as updated, in the future), prepared by TBT Engineering Consulting Group.

Novatech Response: This section has been updated in the report to include the addendum letter.

14. Section 6.2 identified EASR as a City's process. Please note that EASR ([Environmental Activity and Sector Registry | ontario.ca](https://www.ontario.ca/en/gov/service/easr)) is an MECP, provincially-required, process of registration of eligible business activities on the Environmental Activity and Sector Registry, by the Applicant, based on the approved SWM works on-site.

Novatech Response: Section 6.2 has been updated to reflect that either a direct submission to MECP or an EASR may be required and will be determined during the site plan application process in order to lift the Holding Zone.

15. Stormwater storage volumes, in Table 6.2.1, do not match the calculation values in Appendix B. They are also different than values in the previous report (dated October 29, 2025). Please verify the storage volume calculation sheets in Appendix B and update as

needed, throughout the report.

Novatech Response: The table in the report has been updated.

16. Appendix B, Pond D calculation table used 158.3 L/s as allowable runoff, while the PRE-4 established Q2 as 112.9 L/s. Please verify all values and correct as needed. **This comment was not addressed; the allowable runoff values in Appendix are different than previously but the pond D is still using the allowable run-off from pond C (122.3 L/s, this time).**

Novatech Response: Calculations have been updated so that Pond D used the PRE-4 allowable runoff of 112.9 L/s.

17. It is not clear why all storage volume calculations, for all ponds, in Appendix B are different than in the previous report submission. What are the changes which were introduced in this submission?

Novatech Response: The previous report simply showed drainage areas based on the developable areas. The subsequent submission included a concept plan and the drainage areas were based on the concept plan. The revised drainage areas changed the storage volumes.

The last table of the Appendix B provided Stream Invert elevations. Please explain what those inverts are. It is also not clear if the ponds will be equipped with outlets, or if they will collect all inflows up to 100-year return storm and the only outlet will be an emergency outlet for storms exceeding 100-year storms (once 0.3m freeboard fills up). If they store stormwater without outlets, what will happen once they fill out with water over time? How will they function for all storm events then?

The Novatech response stated that the Table was revised; however, the Table cannot be found in Appendix B anymore, and Table 6.2.1 provided in Section 6.2 of the report, is the exact copy of the old table from Appendix B where the storage volumes do not match the current calculations provided in Appendix B. Please update the Table/s, as needed.

Novatech Response: The table has been updated.

Please contact Derek Kulyk, Infrastructure Project Manager, for follow-up questions.
derek.kulyk@ottawa.ca

Environmental Remediation Unit

List of Studies and Plans Reviewed:

- ☐ **Phase One Environmental Site Assessment, 2095 Dilworth Road, Kars, Ontario**, prepared by DST Consulting Engineers, dated April 2021
- ☐ **Phase II Environmental Site Assessment, 2095 Dilworth Road, Kars, Ontario**, prepared by DST Consulting Engineers, dated April 2021, sealed December 08, 2024
- ☐ **Phase One Environmental Site Assessment Update, Dilworth Road, Ottawa, Ontario**, prepared by TBT Engineering Limited, dated March 20, 2026

- ☐ **Supplemental Groundwater Investigation – 2095 Dilworth Road, Ottawa, Ontario**, prepared by TBT Engineering Limited, dated April 17, 2026
- ☐ **Update to Environmental Site Assessment Reports**, prepared by TBT Engineering Limited, dated April 17, 2026

Comments:

Supplemental Groundwater Investigation

18. The format of the reporting did not follow the acceptable standard. The recent work and results should be submitted in an updated Phase II ESA. The updated report shall be in general compliance with the O. Reg. 153/04 requirements, including text, figures, tables, etc. and signed/sealed by a QP.

Novatech Response: The Supplemental Groundwater Investigation will be updated and submitted shortly afterwards.

Update to Environmental Site Assessment Reports

19. The document addressed the Phase II ESA comments, but the requested information updates need to be included in an official Phase II report (please see the reporting criteria above).

Novatech Response: The Environmental Site Assessment will be updated and submitted shortly afterwards.

Please contact Vahid Arasteh, Specialist, Environmental Remediation, for follow-up questions.
vahid.arasteh@ottawa.ca

Surveys and Mapping

List of Studies and Plans Reviewed:

- ☐ **Plan 4R-36265, Plan of Survey of Part of lot 35 Concession 3, Geographic Township of North Gower, City of Ottawa**, surveyed by Jamie Leslie, Ontario Land Surveyor, for Annis, O'Sullivan, Vollebekk Ltd., dated July 18, 2024
- ☐ **Topographic Information Plan**, drawing no. 123081-TIP, prepared by Novatech, dated Jan 1/10

Comments:

20. The R-plan is sufficient for demonstrating the extent of ownership; however, in accordance with the Terms of Reference for Plan of Survey, a Reference Plan is "required for subdivision/condominium development, encroachment agreement, road closure, road widening and land severances."

Novatech Response: The application for the Subject Site is for Zoning By-law Amendment only. The legal survey 4R-26265 is the most current legal survey of the property. The R-plan satisfies the requirement of the City's Plan of Survey Terms of Reference for the

purposes of a Zoning By-law Amendment application.

21. For the purposes of the Zoning By-law Amendment, the Topographic Information Plan does not comply with the Terms of Reference for a Topographic Plan of Survey. Please provide a Topographic Plan of Survey that is certified by a Geomatics P.Eng or an Ontario Land Surveyor, and which addresses the following:

- a) Which horizontal and vertical datums were used?
- b) Where are the benchmarks located?
- c) How has the topographic information been integrated with the legal survey?

Please contact Saeid Sedaghat, City Surveyor, for follow-up questions.
saeid.sedaghatjahromi@ottawa.ca

Novatech Response: Additional information to address items have been added to the plan and the plan will conform to the City's Plan of Survey Terms of Reference for a topographic survey as prepared by a Professional Engineer licensed in Ontario (P.Eng.).

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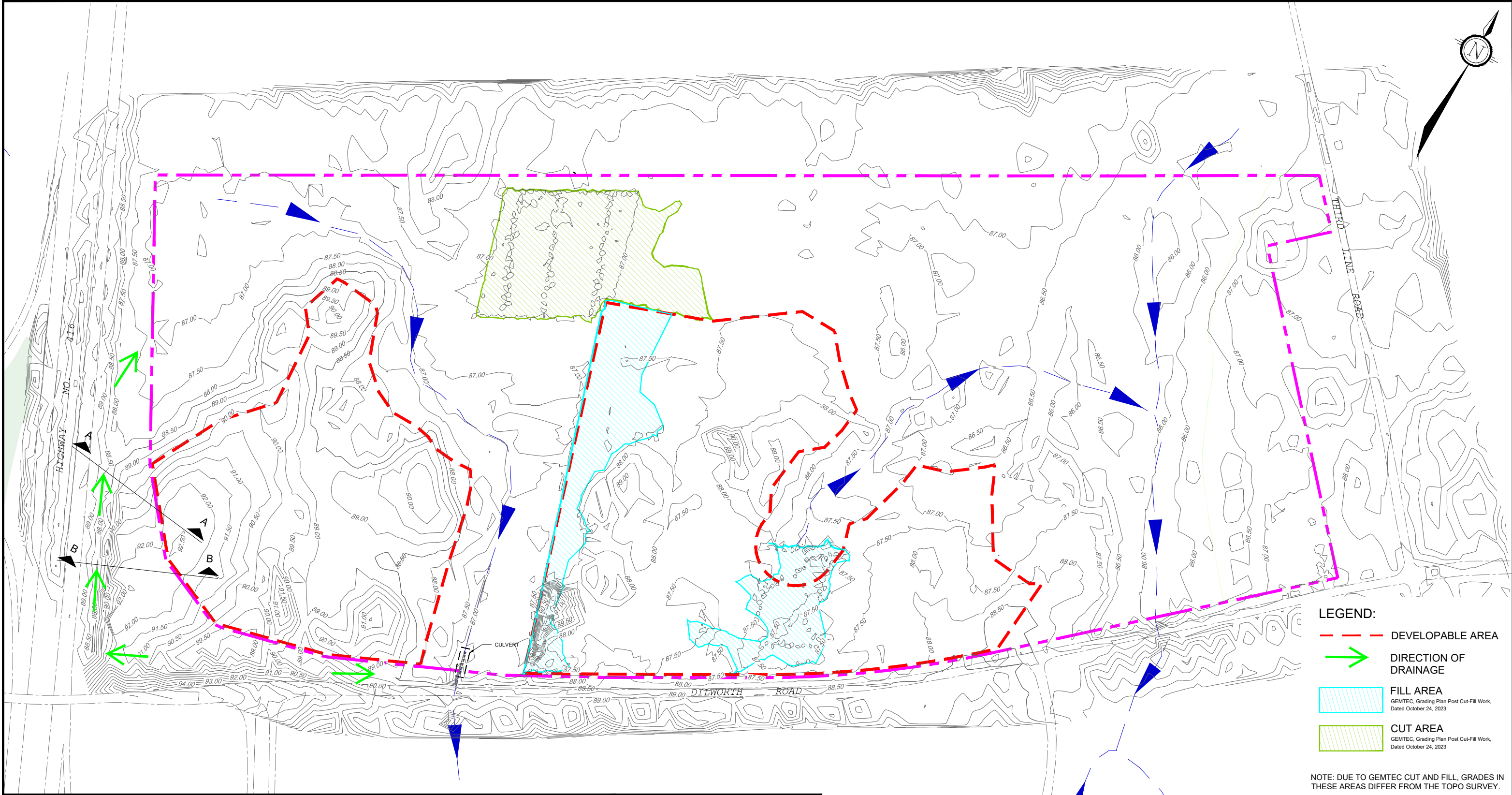
Robert Tran, M.Pl.
Project Planner, Planning & Development



Cara Ruddle, P.Eng.
Senior Project Manager, Land Development Engineering

Cc: Lee Sheets, C.E.T., Director – Novatech
Greg Winters, MCIP, RPP, Director – Novatech
George Thomas, P.Eng. – TBT Engineering Limited
Shane Dunstan, P.Eng., Senior Geotechnical Engineer – TBT Engineering Limited

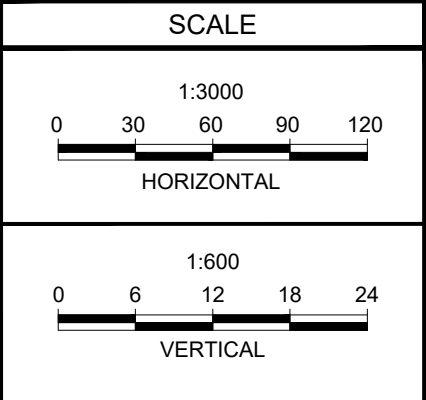
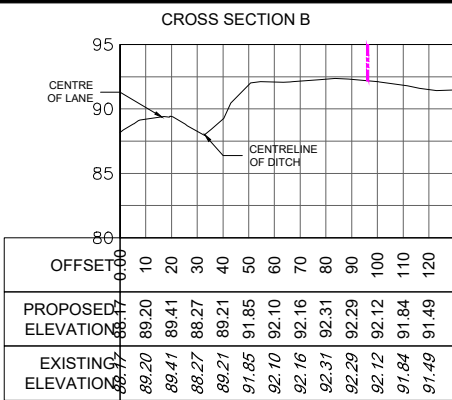
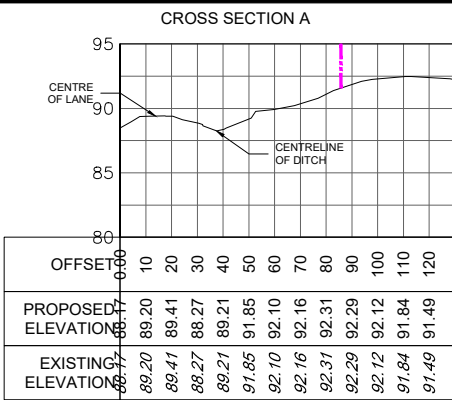
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LEGEND:

- DEVELOPABLE AREA
- DIRECTION OF DRAINAGE
- FILL AREA
GEMTEC, Grading Plan Post Cut-Fill Work,
Dated October 24, 2023
- CUT AREA
GEMTEC, Grading Plan Post Cut-Fill Work,
Dated October 24, 2023

NOTE: DUE TO GEMTEC CUT AND FILL, GRADES IN THESE AREAS DIFFER FROM THE TOPO SURVEY.



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Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA
2095 DILWORTH ROAD

ROAD DITCH CROSS
SECTIONS

SCALE 1 : 3000

DATE AUG 2026

JOB 123081

FIGURE DSK-1

Cara Ruddle

From: Cara Ruddle
Sent: Friday, September 4, 2026 3:01 PM
To: 'Kulyk, Derek'
Cc: Scлаuzero, Cass; Brown, Adam; Robert Tran; Greg Winters; Lee Sheets
Subject: RE: September 1st meeting -2095 Dilworth Road - SWM report final comments

Derek:

Please find below responses to your comments in red. An updated report will be provided by separate email.
Please confirm that all comments have now been satisfied.

1. Section 3.0 zoning references do not match those shown on the latest Concept Plan, however, following the meeting discussion on September 1st, 2026, it appears that there are going to be more zoning boundary adjustments, initiated by the Applicant, and due to timing constraints at the moment, please make a reference in the report to the current zoning details, provided on the plans, but also mention in the report that final details will be stated during the Site Plan Control Process (SPC), as discussions pertaining to final zoning boundary details are still ongoing. **Novatech Response: Section 3 of the report has been reworded.**
2. Section 5.0 of the report identified developable areas A1 = 4.47 ha and A2 = 7.26 ha, while the Developable Area Plan shows 4.11 ha and 6.68 ha, respectively. **Novatech Response: The noted area comparison is between a figure in the Servicing and Stormwater Management Report and a figure in the Planning Rationale. The difference in the areas is the 6m access allowance requested by RVCA. This area has been included in the report and calculations to be conservative because this is a preliminary report. Final area calculations and details will be determined through the Site Plan Application phase and the outcome of the City of Ottawa's review of the 6m access allowance requirement.**
3. The report mentions one access to enter both future development areas (Area 1 and Area 2), while the plans (Developable Area and Concept Plan) show 2 labelled entrances and additional 2 (not labelled) shown with thin black lines. Report and the plans need to be consistent in describing the proposal. **Novatech Response: The Developable Area and Concept Plan shows one entrance. The thin black lines have been removed.**
4. Regarding the potential offsite flows towards the future development areas, comment, previously related to Figure 3, the Novatech response mentioned that offsite flow directions were shown on a DSK-1 Plan. The mentioned plan was not included in the last submission. Please provide the DSK-1 Plan in the report. **Novatech Response: The figure will be included in report appendices with a copy of the response letter.**
5. The report in Section 5.0 stated:" In general, the quality of the groundwater is acceptable for commercial development. Any observed exceedances such as elevated hardness, sodium, chloride and manganese in the aquifer are not uncommon and can be addressed with a treatment system." This statement can be misconstrued, especially considering that water is considered non-potable in the next paragraph. The report should not seek to overrule recommendations of the hydrogeological reporting, water quality standards, or treatability limits. General reference to the site well water, as "acceptable for non-potable uses" would more adequately describe its usefulness, rather than "the

quality of the groundwater is acceptable for commercial development”, especially given the water quality exceedances above the Province's maximum concentration considered reasonably treatable. **Novatech Response: Section 5.0 has been updated to indicate the water quality is acceptable for non-potable uses.**

6. The 2 culverts (650 mm dia and 900 mm dia.) proposed within the subject property will now exclusively convey stormwater from the flood plain (now redirected further north by fill and blocked by a roadway) and they will outlet directly into a culvert of lower capacity (under Dilworth Road). It is still not clear if potential impacts of adding these two culverts, on the municipal ROW and potentially on the private properties in the area, were addressed at the floodplain redesign stage. It should be understood that peak flows and/or time of concentration at the point of outlet or downstream might differ as the result of this change, and it can affect downstream flows. However, understanding that this analysis might require some coordination with the RVCA, who already issued permits for the said works, as per discussion during the meeting on September 1st, 2026, this matter should be addressed at the future SPC phase of the site development.

Due to the current ZBLA application timing constraints, discussed in yesterday's meeting, the report should be clear in stating that this matter is still outstanding and to confirm that if there are any negative impacts to the road ROW and the downstream and surrounding area properties, resulting from addition of these two culverts and/or following future site development, that they will be addressed at the SPC stage of this proposal, and a brief rationale should demonstrate that there will be a path forward to obtaining legal and sufficient outlet. **Novatech Response: Section 5.0 has been revised and wording added as requested.**

Thanks.

Cara Ruddle, P.Eng., Senior Project Manager | Land Development Engineering

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Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 220 | Cell: 613.261.7719

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

From: Kulyk, Derek <derek.kulyk@ottawa.ca>

Sent: Wednesday, September 2, 2026 11:38 AM

To: Cara Ruddle <c.ruddle@novatech-eng.com>

Cc: Sclauzero, Cass <cass.sclauzero@ottawa.ca>; Brown, Adam <adam.brown@ottawa.ca>

Subject: September 1st meeting -2095 Dilworth Road - SWM report final comments

Hello Cara,

As a follow-up to yesterday's meeting, please see below the outstanding comments for 2095 Dilworth Rd ZBLA proposal:

1. Section 3.0 zoning references do not match those shown on the latest Concept Plan, however, following the meeting discussion on September 1st, 2026, it appears that there are going to be more zoning boundary adjustments, initiated by the Applicant, and due to timing constraints at the moment, please make a reference in the report to the current zoning details, provided on the plans, but also mention in the report that final details will be stated during the Site Plan Control Process (SPC), as discussions pertaining to final zoning boundary details are still ongoing.

2. Section 5.0 of the report identified developable areas A1 = 4.47 ha and A2 = 7.26 ha, while the Developable Area Plan shows 4.11 ha and 6.68 ha, respectively.
3. The report mentions one access to enter both future development areas (Area 1 and Area 2), while the plans (Developable Area and Concept Plan) show 2 labelled entrances and additional 2 (not labelled) shown with thin black lines. Report and the plans need to be consistent in describing the proposal.
4. Regarding the potential offsite flows towards the future development areas, comment, previously related to Figure 3, the Novatech response mentioned that offsite flow directions were shown on a DSK-1 Plan. The mentioned plan was not included in the last submission. Please provide the DSK-1 Plan in the report.
5. The report in Section 5.0 stated: "In general, the quality of the groundwater is acceptable for commercial development. Any observed exceedances such as elevated hardness, sodium, chloride and manganese in the aquifer are not uncommon and can be addressed with a treatment system." This statement can be misconstrued, especially considering that water is considered non-potable in the next paragraph. The report should not seek to overrule recommendations of the hydrogeological reporting, water quality standards, or treatability limits. General reference to the site well water, as "acceptable for non-potable uses" would more adequately describe its usefulness, rather than "the quality of the groundwater is acceptable for commercial development", especially given the water quality exceedances above the Province's maximum concentration considered reasonably treatable.
6. The 2 culverts (650 mm dia and 900 mm dia.) proposed within the subject property will now exclusively convey stormwater from the flood plain (now redirected further north by fill and blocked by a roadway) and they will outlet directly into a culvert of lower capacity (under Dilworth Road). It is still not clear if potential impacts of adding these two culverts, on the municipal ROW and potentially on the private properties in the area, were addressed at the floodplain redesign stage. It should be understood that peak flows and/or time of concentration at the point of outlet or downstream might differ as the result of this change, and it can affect downstream flows. However, understanding that this analysis might require some coordination with the RVCA, who already issued permits for the said works, as per discussion during the meeting on September 1st, 2026, this matter should be addressed at the future SPC phase of the site development.

Due to the current ZBLA application timing constraints, discussed in yesterday's meeting, the report should be clear in stating that this matter is still outstanding and to confirm that if there are any negative impacts to the road ROW and the downstream and surrounding area properties, resulting from addition of these two culverts and/or following future site development, that they will be addressed at the SPC stage of this proposal, and a brief rationale should demonstrate that there will be a path forward to obtaining legal and sufficient outlet.

Please let me know if you would like to discuss any details further.

Sincerely,

Derek Kulyk, P.Eng.
Project Manager | Gestionnaire de Projet

Development Review – Rural Services | Examen des Projets d'Aménagement – Service Ruraux
Planning, Development and Building Services Department (PDBS) | Direction Générale des Services de la Planification, de
l'Aménagement et du Bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
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