

**THE CORPORATION OF THE TOWNSHIP OF NORTH GLENGARRY**  
**Special Meeting of Council**

Monday, January 29, 2024, 4:45 p.m.

Council Chamber

3720 County Road 34

Alexandria, On. K0C 1A0

**DRAFT AGENDA**

1. **CALL TO ORDER**
2. **DECLARATIONS OF PECUNIARY INTEREST**
3. **ACCEPT THE AGENDA(Additions/Deletions)**
4. **ADOPTION OF PREVIOUS MINUTES**
5. **DELEGATION(S)**
6. **STAFF REPORTS**
  - a. **Public Works**
    1. **Fowler Danis Drain Preliminary Engineer's Report**
7. **UNFINISHED BUSINESS**
8. **CONSENT AGENDA**
9. **NEW BUSINESS**
10. **NOTICE OF MOTION**

Next Regular Public Meeting of Council

Monday January 29, 2024 at 6 p.m. in the Council Chambers, 3720 County Road 34, Alexandria Ontario.

Note: Meeting are Subject to Change or cancellation.
11. **QUESTION PERIOD**

(Limit of one question per person and subsequent question will be at the discretion of the Mayor)
12. **CLOSED SESSION BUSINESS**
13. **CONFIRMING BY-LAW**
14. **ADJOURN**



## STAFF REPORT TO COUNCIL

Report No: PW-2024-03

January 29, 2024

From: Zoe Bougie – Director of Finance/Treasurer

RE: Fowler Danis Drain Preliminary Engineer's Report

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### Recommended Motion:

THAT the Council of the Township of North Glengarry receives Staff Report PW-2024-03 Fowler Danis Drain Preliminary Engineer's Report;

AND THAT Council accept the Preliminary Engineer's Report prepared by Robinson Consultants;

AND THAT Council does not proceed to a final Engineer's Report.

### Background / Analysis:

On June 11<sup>th</sup>, 2018, Robinson Consultants Inc. was appointed by the Council of the Township of North Glengarry to complete a Preliminary Engineer's Report for amendments to the existing Engineer's Report of the Fowler Danis Drain. The Preliminary Engineer's Report was initiated due to a request from a landowner for the Township to consider improvements to the drain for improved tile outlet. The request indicated that part of Lot 13 in Concession 1 (geographic Township of Lochiel), in the Township of North Glengarry, required the existing drain to be deepened to allow for improved outlet for tiles.

Robinson Consultants considered four options:

1. Improvements to 2,185 meters of drain.
2. Improvements to 255 meters of drain from the upstream end.
3. Installation of a sufficient header tile and pumped tile outlet by the landowner.
4. Review of the County Road culvert and the CNR culvert.

The attached Preliminary Engineer's Report recommends Option 3 as the preferred and most cost-effective option to meet the requested improvements by the landowner. This work does not require Council approval and would be entirely at the landowner's cost.

Further, based on the Preliminary Engineer's Report and feedback from landowners, staff do not believe that proceeding to a final Engineer's Report is required at this time.

**Alternatives:**

1. Council passes the attached resolution (recommended)
2. Council does not pass the attached resolution.

**Financial Implications:**

If Council chooses not to proceed to a final Engineer's Report, all costs associated with the preliminary report will be assessed to the Township of North Glengarry in the estimated amount of \$16,500.

**Attachments & Relevant Legislation:**

Preliminary Engineer's Report for Amendments to the Fowler-Danis Municipal Drain  
Fowler Danis Municipal Drain Meeting to Consider Presentation  
Drainage Act

**Others Consulted:**

Dean McDonald, Drainage Superintendent  
Lorne Franklin, Robinson Consultants

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Reviewed and Approved by:  
Sarah Huskinson, CAO/Clerk

Preliminary Engineer's Report  
For Amendments to the  
Fowler-Danis Municipal Drain

Prepared For:

**NORTH  
GLENGARRY**

Prepared By:

Robinson Consultants Inc.  
Consulting Engineers

Our Project No. B18074  
September 2023

September 29, 2023

Mayor and Members of Council  
Township of North Glengarry  
90 Main Street P.O. Box 700  
Alexandria, ON K0C 1A0

**Attention:** Sarah Huskinson  
CAO/Clerk

**Reference:** Preliminary Engineer's Report for Amendments to the  
Fowler-Danis Municipal Drain  
Township of North Glengarry  
Our Project No. B18074

Dear Ms. Huskinson:


This Preliminary Engineer's Report for amendments to the Fowler-Danis Municipal Drain, Township of North Glengarry, which is respectfully submitted for Council's consideration, was initiated as a result of a request by a landowner that the Township consider improvements to the drain for improved tile outlet. The purpose of the preliminary report, which is completed in accordance with Section 10 and initiated Under Section 78 of the Drainage Act, R.S.O. 1990, c. D.17, is to review the requirements, cost considerations and to determine any outside agency concerns.

All costs associated with the preliminary report will be assessed against the drain when it is ultimately constructed or to the Township of North Glengarry should it be the decision not to proceed to a final Engineer's Report following consideration of the Preliminary Engineer's Report.

If you have any questions, please feel free to contact the undersigned at 592-6060 extension 104.

Yours very truly,

ROBINSON CONSULTANTS INC.



A.J. Robinson, P.Eng.  
Drainage Engineer

Lorne Franklin, L.E.T., C.E.T., rcca, CISEC  
Licensed Engineering Technologist  
Drainage Services

LJF: plw

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## **1.0 INTRODUCTION**

Robinson Consultants Inc. was appointed by the Township of North Glengarry on June 11<sup>th</sup>, 2018, to complete a Preliminary Engineer's Report for amendments to the existing Engineer's Report, entitled "Fowler-Danis Municipal Drain", completed by Stidwell & Associates Ltd. and dated May 21, 1969, and enacted by Township of Lochiel By-Law No. 649. According to the 1969 Report the drain was originally constructed as an Award Drain in 1890 and was converted to a Municipal Drain in 1912 under a report by Colonel W. H. Magwood, C.E.

The Preliminary Engineer's Report for the Municipal Drain was requested by the Township of North Glengarry to ensure that the landowners are informed of the costs, impacts of any required improvements (widening, deepening, additional land required, etc.) and any environmental concerns associated with the amendments prior to proceeding to a full Engineer's Report.

In conjunction with the Preliminary Engineer's Report, design considerations and general details of the proposed drain were circulated to the various environmental approval agencies including the Raisin Region Conservation Authority (RRCA), Department of Fisheries and Oceans (DFO) and the Ministry of Environment Conservation and Parks (MECP). Where provided, requirements or concerns of the Agencies are addressed by the Preliminary Engineer's Report and incorporated into the estimated costing.

The purpose of the proposed amendment is to provide adequate outlet for tile drainage to the lands considered to be within the area requiring drainage. The Preliminary Report will provide a proposed drainage solution, discuss costs, and address Agency concerns.

Requirements for Preliminary Reports are outlined under Section 10 of the Drainage Act ( R.S.O. 1990, c. D.17), and are as noted below:

- A sketched plan of the drainage works;
- An estimated cost of the works (to the extent practicable to do so);
- An environmental appraisal (where requested);
- And a Benefit/Cost Statement (where requested).

We note that an environmental appraisal or benefit/cost statement has not been requested in this regard and, as such, neither has been completed.

The applicable items as well as any additional considerations are outlined in the sections below.

## **1.1 History**

The Preliminary Engineer's Report was initiated in response to a request by a landowner. The request indicates that part of Lot 13, Concession 1 (geographic Twp. of Lochiel), in the Township of North Glengarry requires the existing drain to be deepened to allow for improved outlet for tiles.

Preliminary investigations completed by the Drainage Superintendent for the Township of North Glengarry indicate that the existing municipal drain would require deepening of the drain by +/- 1m to a total typical depth of +/- 1.5m at this location. Improvements are required to accommodate tile outlets. Additional improvements would be required to the downstream drain to provide sufficient outlet for the improved depth of drain at the upstream location.

An on-site meeting was held on September 4<sup>th</sup>, 2018, to discuss the requirements of the request as well as to determine if there are other concerns within the drainage area. The primary concerns noted at the meeting were as follows:

- The original requester was not present at the meeting, however, the Drainage Superintendent (Manson Barton) presented the request for deepening of the drain to accommodate tile outlet at the upstream end of the drain.
- Landowners present indicated concerns with regard to decreased outlet capacity due to a culvert lining at County Rd. 10.
- Landowners present indicated concern with regard to the capacity of the existing crossing of the Canadian National Railway – Main Line (CNR) located in Lot 10, Concession 2 (Lochiel).
- Landowners present indicated concerns that improvements and changes in land use upstream may cause flooding if sufficient outlet was not provided.
- Landowners present indicated concerns with regard to the potential costs of the proposed improvements to the municipal drain.

## **2.0 AREA REQUIRING DRAINAGE**

Subsequent to the on-site meeting and upon hearing all concerns noted at the meeting it was determined by the Drainage Engineer that the "area requiring drainage," as per the requirements of the Drainage Act, was as described in the request, being Pt. Lot 13, Con 1, Former Twp. of Lochiel (Lochiel).

Improvements to allow for sufficient outlet of the increased depth of drain are determined by this report.

Capacity of the Cty. Rd. 10 and CNR crossing are also reviewed and addressed by this report.

## **3.0 SOLUTION ANALYSIS**

The depth of the existing drain within the area requiring drainage as surveyed ranges from approximately 300mm at the upstream end of the drain to approximately 800mm at the downstream limit of the property -- located in the west ½ of Lot 13, Con 1 (Lochiel). The landowner at this location has indicated that a minimum depth of the drain of 1.5m is required to allow for tile installation (at 1.2 m deep) and normal tile freeboard (300mm).

A review of the surveyed profile (2018) was completed and determined that an increased depth of 1.41m at the upstream end is required to provide for a total average depth of drain of 1.5m in Lot 13, Con 1 (Lochiel). Review of the surveyed profile (2018) indicates that the improved depth must be carried downstream at the typical minimum 0.05% slope (50mm drop per 100m) will require improvements to approximately 2,185m of drain to the point where the proposed (improved) grade intersects the existing channel grade.

For comparison, a second option providing an average depth of drain of +/- 1.0m for the west ½ of Lot 13, Con 1 (Lochiel) was considered. This results in a decreased total length of improvements to a total of approximately 255m of drain, however, does not meet the requirements specified by the property owner.

Additionally, a third option which includes the owner installing sufficient header tile and a pumped tile outlet without any changes to the existing drain was considered.



A fourth option was also given consideration which addresses the concerns expressed at the on-site meeting with regard to the perceived reduced capacity of the County Rd. Culvert (due to lining) and the capacity of the Rail crossing.

Ultimately, the final profile, cross section and a determination for sufficient outlet for the proposed improvements is to be determined in conjunction with the Final Engineer's Report which may be initiated under Section 78 of the Drainage Act, R.S.O. 1990, c. D.17, at the discretion of the Township of North Glengarry or by petition of the landowners in the area requiring drainage under Section 4 of the Act should there be a desire to proceed following consideration of the Preliminary Engineer's Report.

A preliminary survey of the existing municipal drain and major crossings was completed in conjunction with this Preliminary Engineer's Report. The results of the survey as well as the proposed improvement options and the existing 1969 Engineer's Profile are indicated in plan view on Dwg. 18074-A1, in profile on Dwg. No. 18074-P1 through 18074-P4 (inclusive), which are provided in **Appendix A**.

For the purpose of costing, Option 1 provides for improvements to approximately 2,185m from the upstream end of the drain to accommodate installation of gravity tiles (as per the request) and to convey flows to a sufficient outlet. No concerns were expressed with regard to the existing 1969 Engineer's Cross-Section with 1.25:1 side slopes, however, where improvements are made it is recommended that the side slopes be improved to the standard 2:1 side-slope. As noted above, the final determination of section, profile and sufficient outlet is to be made in conjunction with the Final Engineer's Report.

Option 2 provides for improvements to approximately 255m from the upstream end of the drain to accommodate the required improvements and convey flows to a sufficient outlet. Side slopes are recommended to be improved to 2:1. The existing 1969 Engineer's Plan, and Cross-Section are assumed to be satisfactory, however, slope flattening of the banks where improvements are made to the standard 2:1 as noted in Option 1 is recommended.

Option 3 does not make changes to the existing drain but gives consideration to the individual owner constructing a private tile header and tile outlet pump to serve his property.

Option 4 allows for review of the Cty. Rd. Culvert and the CNR Culvert, but does not address improvements to the drain or capacity for tile outlet. This item was the primary concern expressed by residents in attendance at the on-site meeting. However, initial review of the surveyed profile indicates that the farm crossings immediately downstream of the Cty. Rd. Culvert and the Rail crossing but significantly smaller in size (1000mm dia. and 900mm dia. respectively) may be the primary item limiting capacity. As such, in consideration of this option review of capacity requirements is provided for the County Road Culvert and the Rail Crossing and it is assumed that the farm crossings are reviewed and replaced. For the purpose of estimating, it is assumed that the farm crossings are replaced with culverts of similar capacity to the County Road. Arch pipes (CSPA) are used due to limited cover (2230x1700mm CSPA = 2000mm dia. CSP). It is also anticipated that the side channel which allows excess flow to be conveyed to an adjacent larger rail crossing culvert (1900w x 3050h Conc. Box Culvert) may need to be maintained. This option allows for Council to give consideration to options of no work to address the initial request or a tile pump-station and limiting engineering review/reporting to specifically address the concerns expressed by landowners at the on-site meeting and considered to have broader support by the affected landowners.

It is anticipated that Option 3 may need to be combined with Option 4 at the discretion of the Council where required to provide sufficient outlet and to address the concerns of landowners as noted at the on-site meeting. The final determination of size, type and grade of the crossing is to be made in conjunction with the Final Engineer's Report

## **4.0 ENVIRONMENTAL CONSIDERATIONS**

### **4.1 Conservation Authorities Act**

The "Fill, Construction and Alteration of Waterways and Wetlands" is regulated by the Ontario Conservation Authorities Act. The Raisin Region Conservation Authority (RRCA) is the governing Agency with regard to the Conservation Authorities Act for the proposed drain. In conjunction with the completion of the Final Engineer's Report a Permit for the required work will be obtained from the RRCA.

The Preliminary Report was circulated in Draft for review and consideration by the RRCA however, no response was received. In the absence of a direct response, it is assumed that by completing works to standard RRCA requirements, as follows, any concerns may be mitigated:

- Establish all required sediment and erosion control measures prior to the commencement of work and maintain all measures in good working order throughout the duration of work and until permanent erosion control measures are established.
- Complete work to the standards and specifications of the "approved" Final Engineer's Report.
- Complete work in conformance with any noted fish and fish habitat authorization requirements.
- Riparian vegetation may be removed for either bank (but preferably not both).
- Finished channel to be as narrow and deep as possible.
- Complete work only when flows are not elevated.

### **4.2 Fish and Fish Habitat**

The downstream portion of the existing Fowler-Danis Municipal Drain is classified as a Type "E" drain under the Department of Fisheries and Oceans Drain Classification System – DFO ID No. 92720, last assessed 2017.

Class "E" drains have permanent flows and support sensitive fish species which may require specific mitigation measures.

The upstream portion of the existing drain from Lot 11 through Lot 13 (inclusive), Con 1 (Lochiel), approximately 1,660m, is identified as "Not Rated", ID No. 92718 under the Department of Fisheries and Oceans Drain Classification System, last assessed in 2019. It is likely that due to the limited input (flow) in this section that periodic dry/no-flow conditions would result in conditions comparable to a Class "F" drain if assessed.

Class "F" drains do not have permanent flows and do not provide direct fish habitat. By utilizing the following Best Management Practices (BMP's) it is anticipated that some of the potential impacts to fish and fish habitat may be mitigated:

- Install appropriate temporary sediment and erosion control measures sufficient to control sediment throughout the duration of any work and maintain until permanent measures are in place and functional.
- Where possible, complete work in the dry, or under "no-flow" conditions.

- Where possible, minimize the disturbance to the existing ditch to the bottom only, or the bottom plus one side only.
- Where work is completed on one side only the preferred side for construction will be the North or East side where possible.
- Complete work outside of normal fisheries exclusion timing windows (No work between March 15<sup>th</sup> and July 15<sup>th</sup> of any calendar year).
- Stabilize (seed) all disturbed areas prior to September 15<sup>th</sup> of any calendar year and/or provide additional erosion control measures (such as erosion control blankets) for work past September 15<sup>th</sup>.
- Provide methodologies and measures to remove/relocate fish (downstream) and exclude fish from work areas where in-water work is anticipated.
- Provide scour/erosion protection at tile drainage outlets.

However, it is not anticipated that these measures will fully mitigate the proposed modifications due to the specific conditions found within a typical Class "E" system associated with the downstream +/- 525m of required improvement considered under Option 1. As such, it is anticipated that further mitigation or compensation measures may be required. A "Letter of Authorization" for any proposed work from the DFO will be required. Final fish and fish habitat mitigation measures will be established in conjunction with the final Engineer's Report and may be adjusted depending on the nature and extent of the required work.

Option 2 and Option 3 are completed entirely within the "Not Rated" portion of the drain. By utilizing the following Best Management Practices (BMP's) it is anticipated that all potential impacts to fish and fish habitat may be fully mitigated:

- Install appropriate temporary sediment and erosion control measures sufficient to control sediment throughout the duration of any work and maintain until permanent measures are in place and functional.
- Complete all work in the dry, or under "no-flow" conditions.
- Where possible, minimize the disturbance to the existing ditch to the bottom only, or the bottom plus one side only.
- Stabilize (seed) all disturbed areas prior to September 15<sup>th</sup> of any calendar year and/or provide additional erosion control measures (such as erosion control blankets) for work past September 15<sup>th</sup>.

This Preliminary Report was submitted in Draft for DFO consultation, however, return correspondence indicated due to the high volume of requests received by DFO they can not provide comment on Draft Preliminary Reports. Should an option be chosen, and the decision is made to proceed to a full Engineer's Report, details of the chosen option will be forwarded to the DFO for further consultation.

The nature and extent of additional mitigation and/or compensation measures is dynamic and subject to change at the time of review of the final Engineer's Report. As such, the cost of these measures may not be fully estimated by this preliminary report.

#### **4.3 Ministry of Environment Conservation and Parks (MECP) – Species at Risk**

This Preliminary Report was submitted in Draft for MECP consultation and screening, however, no response was received. Should an option be chosen, and the decision is made to proceed to a full Engineer's Report, details of the chosen option will be forwarded to the MECP for further consultation.

Based on consultations for other projects in the general vicinity of the Fowler-Danis Municipal Drain it is anticipated that the following Species at Risk (SAR) will be identified as potentially existing in proximity to the site (subject to further consultation with the MECP).

### ***Birds***

- Barn Swallow (Threatened).
- Bobolink (Threatened).
- Eastern Meadowlark (Threatened)
- Wood Thrush (Threatened)
- Eastern Wood Peewee (Threatened)

### ***Turtles***

- Snapping Turtle (Special Concern).

### ***Fish***

- No SAR Species Identified

Species and general habitat protection is afforded to species identified as "Threatened" above.

Where it is the determination of the MECP that the proposed work has the potential to adversely affect a SAR species or their habitat, the MECP may require an Environmental Site Assessment (ESA). However, under Section 6 of the Ontario Drainage Act, an Agency requesting an ESA is responsible for the costs of the ESA. For the purpose of costing, it is assumed that an official ESA will not be requested/required.

Where it is the determination that potential adverse effects to SAR species, or their habitat may be mitigated through the implementation of standard Best Management Practices (BMP), or avoidance practices such measures will be determined and implemented in conjunction with the Final Engineer's Report. For the purpose of costing, it is assumed that standard BMP's and avoidance will be sufficient – typical costs are accommodated in the Cost Estimate provided in this report.

## **5.0 RECOMENDATIONS**

### **5.1 Recommended Solution**

Robinson Consultants Inc. recommends that upon acceptance of the Preliminary Engineer's Report by Council and in general acceptance of the adjacent landowners, following the Meeting to Consider the Preliminary Engineer's Report, that the Township inform the requesting landowner that a private tile pump-station (Option 3) is the preferred and most cost effective solution.

## **6.0 ESTIMATED TOTAL COST OF OPTIONS**

The cost of Option 1, including the Preliminary and Final Engineer's Report, Inspection, Administration, and Construction is estimated at **\$479,587.50**. However, this amount includes approximately **\$151,750.00** of Road and Rail Authority Special Assessment for Engineering cost associated with crossing review and construction work, which is anticipated to be assessed to the authorities, reducing the overall cost assessed to the landowners to **\$327,837.50**.

The cost of Option 2, including the Preliminary and Final Engineer's Report, Inspection, Administration, and Construction is estimated at **\$74,348.82**. However, this option does not meet the required depth as requested and does not address landowner concerns with regard to the County Road Culvert and CN Rail Culvert

The construction cost of Option 3 (completed by the landowner) is estimated at **\$67,450.00**. Additionally, this option requires an annual operation cost estimated at **\$1,400.00** which is not included in the estimated cost. The estimated cost for the Preliminary Engineer's Report in the amount of **\$16,500.00** is excluded and is to be borne by the Township as proceeding with this option is considered a withdrawal of the S. 78 request.

The cost of Option 4, including the Preliminary and Final Engineer's Report, Inspection, Administration, and Construction is estimated at **\$86,206.40**. This option addresses the concerns of other residents as expressed at the on-site meeting, however, if completed alone, does not meet the tile outlet requirements. Of this amount approximately **\$22,000.00** of Road and Rail Authority Special Assessment for Engineering cost associated with crossing review work, which is anticipated to be assessed to the authorities, reducing the overall cost assessed to **\$64,206.40**. This cost estimate makes the assumption that engineering review of the County Road Culvert and CN Rail culvert will ultimately determine that the respective culverts provide adequate capacity. Should the respective culverts require replacement the cost of replacement will be the responsibility of the respective authority.

The estimated costs are exclusive of any grants or allowances as outlined below. Details of the estimates are provided in **Appendix B**

Option 3 is considered to provide the most cost effective methodology for the proposed modifications and meets the requested outlet requirements. Where completed in conjunction with option 4, the concerns of other residents as expressed at the on-site meeting will also be addressed. Where not completed in conjunction with Option 4 it is recommended that a general maintenance of the drain be completed by the Drainage Superintendent under the authority of the 1969 By-Law and Report.

All Options are subject to consideration by the affected landowners. Ultimately, Option 1, Option 2 and Option 4 will also require a mandate from the Council of the Township of North Glengarry with regard to proceeding with a full Engineer's Report and construction. If completed alone, Option 3 may be completed at the landowners discretion (subject to the approval of the Drainage Superintendent) and does not require a mandate from the Council of the Township of North Glengarry.

The distribution of costs is to be determined under the final Engineer's Report with a percentage of the costs assessed to the owners who directly benefit from the improvements and a percentage of the costs assessed to all affected property owners (upstream of the limit of construction, but, within the drainage area) for outlet. Individual assessments are not specified by a Preliminary Engineer's Report, however, it is noted that a significant portion of the total cost (exclusive of the Cty. Rd. and CNR costs) of Option 1 or Option 2 may be assessed against the requesting landowner as a special benefit where it is determined that there is limited direct improvement for other owners.

Grants (current rate of 33% of the assessed costs) for agricultural properties based on the eligibility criteria of the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA)--Agricultural Drainage Infrastructure Program (ADIP) may be available to eligible properties. General eligibility requirements include the following:

- Be assessed as farmland by the Municipal Property Assessment Corporation.
- Used as part of an ongoing farming operation generating at least \$7,000 in annual revenue.
- Hold a valid Farm Business Registration Number and be registered with AgriCorp.
- Have more than 50% Canadian ownership.

Where applicable, allowances to individual property owners are also provided for lands used and/or crops lost in the construction of the drain. This in turn will reduce the net assessment for the eligible properties adjacent to the drain.

The County of Stormont Dundas and Glengarry Road Authority is responsible for any additional costs associated with the replacement of the culvert under Cty. Rd. 10 as may be required to meet road standards, including any associated engineering.

The Canadian National Railway (Rail Authority) is responsible for any additional costs associated with the replacement of the culvert under the CNR main line tracks as may be required to meet railway standards, including any associated engineering or rail authority supervision requirements.

All of which is respectfully submitted,

ROBINSON CONSULTANTS INC.



A.J. Robinson, P.Eng.  
Drainage Engineer



Lorne Franklin, L.E.T., C.E.T., rcca, CISEC  
Licensed Engineering Technologist  
Drainage Services



Professional Engineers  
Ontario

23/09/29

Licensed Engineering Technologist

Name: L. FRANKLIN

Number: 100501335

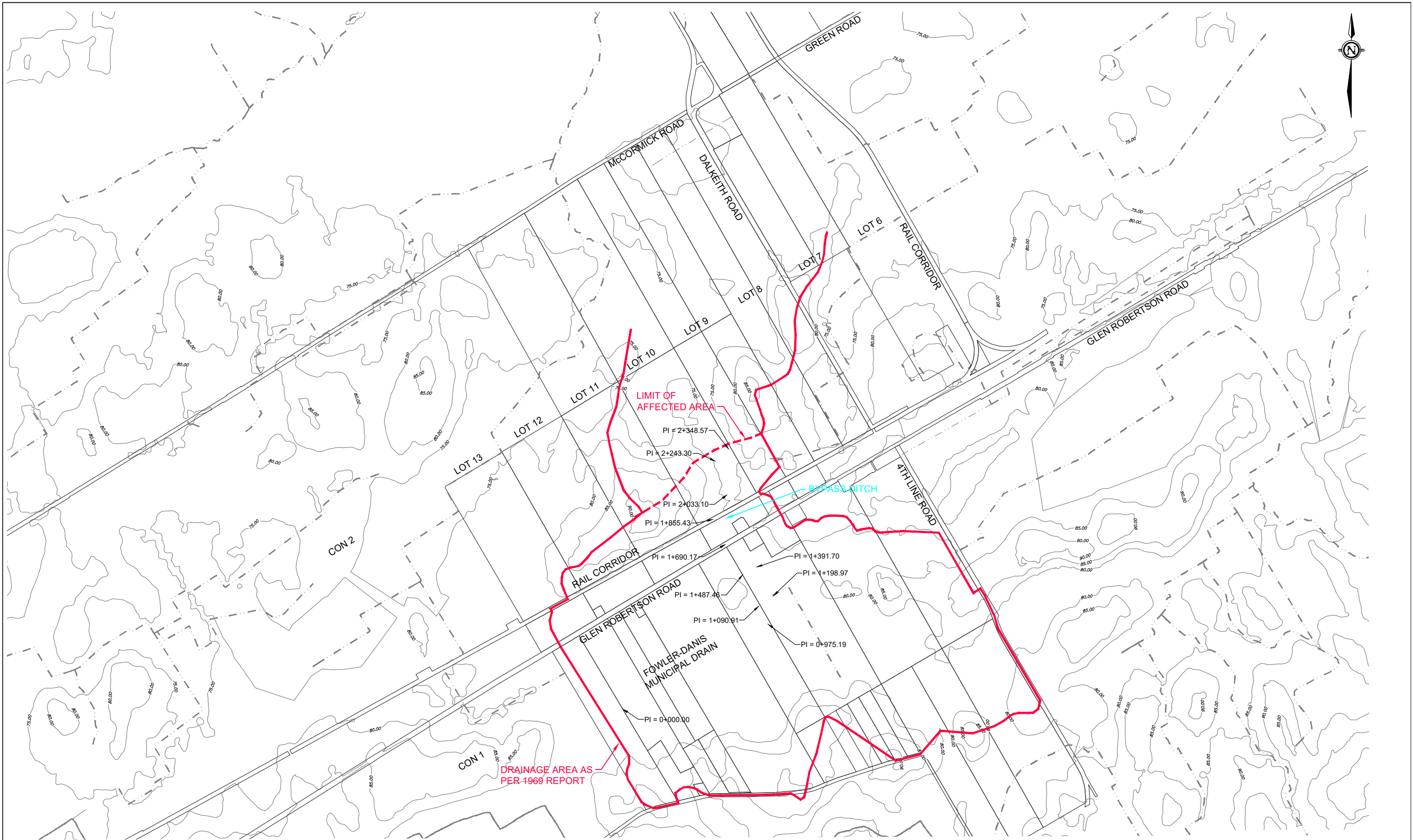
Limitations: Providing plans, non-technical content of reports and other non-technical advice for submission under the Ontario Drainage Act.

Association of Professional Engineers of Ontario

## Appendix A

### Drawings

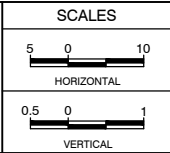
- Plan 18074– A1
- Profile 18074– P1
- Profile 18074– P2
- Profile 18074– P3
- Profile 18074– P4



No.	DATE	REVISION	BY
1	29.09.23	ISSUED FOR DISTRIBUTION	AJR



Professional Engineers  
Ontario  
23/09/29  
Licensed Engineering Technologist  
Name: L. FRANKLIN  
Number: 100501335  
Limitations: Providing plans, non-technical content of  
reports and other non-technical advice for submission  
under the Ontario Drainage Act.  
Association of Professional Engineers of Ontario



**Robinson**  
Consultants

350 Palladium Drive  
Ottawa, ON K2V 1A8  
(613) 592-6060 rcii.com

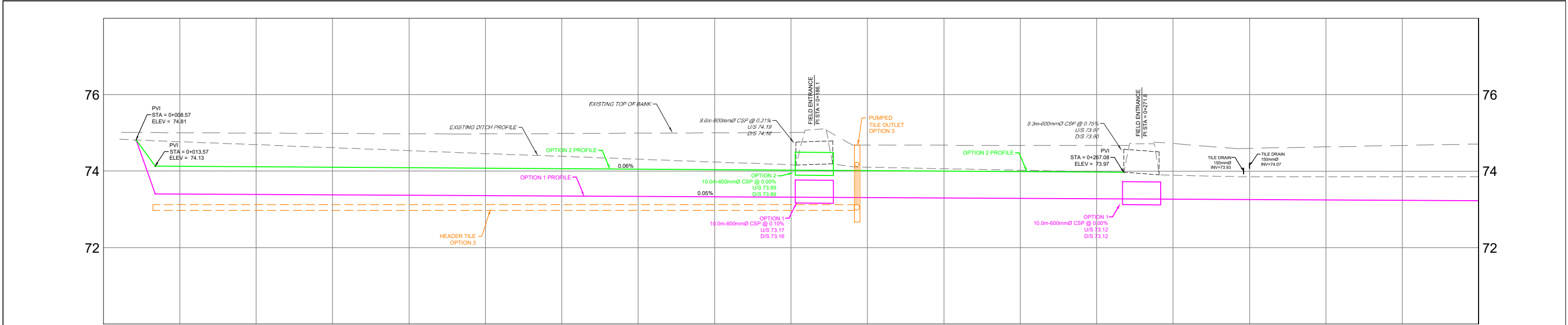
DESIGN	LF
CHECKED	AJR
DRAWN	JHB
CHECKED	LF
APPROVED	AJR

NORTH GLENGARRY
FOWLER-DANIS MUNICIPAL DRAIN

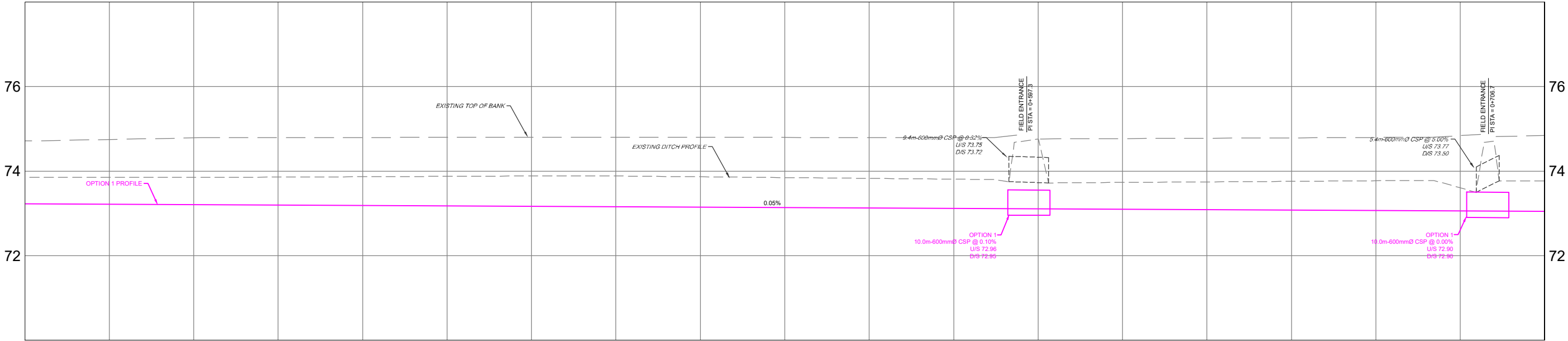
PROJECT No. 18074 CONTRACT No.
DATED SEP 2023
DWG. No: 18074-A1

PRELIMINARY ENGINEER'S REPORT DRAINAGE AREA PLAN
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PROPOSED GRADE	74.77	74.69	74.61	74.54	74.46	74.39	74.31	74.24	74.16	74.10	74.06	74.02	73.98	73.89	73.85	73.85	73.85		
EXISTING FIRM BOTTOM	74.77	74.69	74.61	74.54	74.46	74.39	74.31	74.24	74.16	74.10	74.06	74.02	73.98	73.89	73.85	73.85	73.85		
STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360

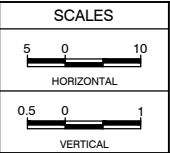


PROPOSED GRADE																				
EXISTING FIRM BOTTOM	73.85	73.85	73.85	73.86	73.87	73.88	73.88	73.88	73.87	73.85	73.83	73.81	74.75	73.73	73.74	73.76	73.77	73.60	73.76	
STATION	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	

No.	DATE	REVISION	BY
1	29.09.23	ISSUED FOR DISTRIBUTION	AJR



Professional Engineers  
Ontario  
23/09/29  
Licensed Engineering Technologist  
Name: L. FRANKLIN  
Number: 100501335  
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Association of Professional Engineers of Ontario



Robinson  
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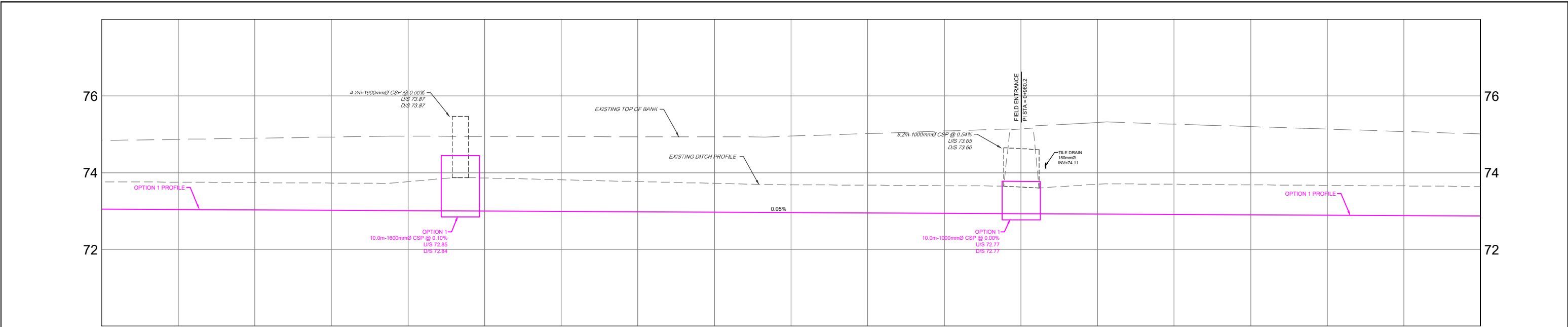
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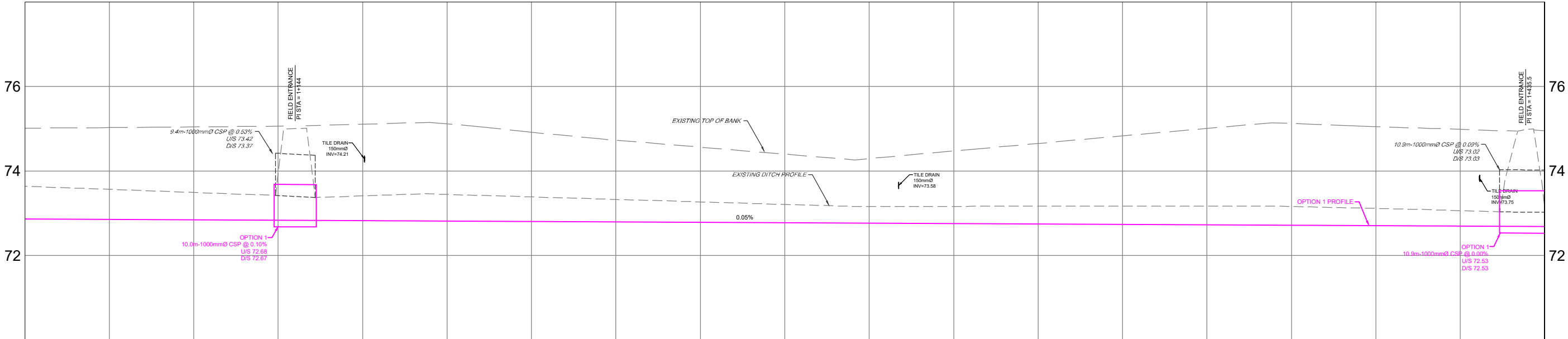
NORTH GLENGARRY  
FOWLER-DANIS MUNICIPAL DRAIN

DRAIN PROFILE  
STA. 0+000 TO STA. 0+720

PROJECT No.	18074
CONTRACT No.	
DATED	SEP 2023
DWG. No:	18074-P1



PROPOSED GRADE																			
EXISTING FIRM BOTTOM	73.76	73.75	73.74	73.73	73.77	73.86	73.81	73.77	73.72	73.69	73.67	73.66	75.14	73.70	73.70	73.68	73.67	73.65	73.64
STATION	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080

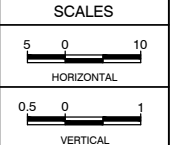


PROPOSED GRADE																			
EXISTING FIRM BOTTOM	73.64	73.56	73.49	73.94	73.41	73.44	73.39	73.33	73.27	73.21	73.16	73.16	73.16	73.17	73.17	73.16	73.11	73.06	73.16
STATION	1+080	1+100	1+120	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440

No.	DATE	REVISION	BY
1	29.09.23	ISSUED FOR DISTRIBUTION	AJR



Professional Engineers  
Ontario  
23/09/29  
Licensed Engineering Technologist  
Name: L. FRANKLIN  
Number: 100501335  
Limitations: Providing plans, non-technical content of reports and other non-technical advice for submission under the Ontario Drainage Act.  
Association of Professional Engineers of Ontario



Robinson  
Consultants

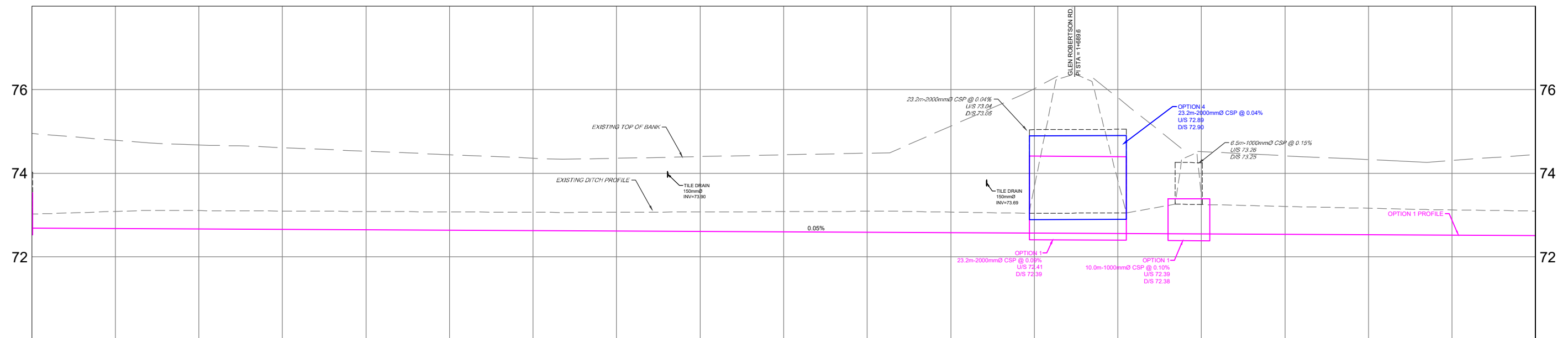
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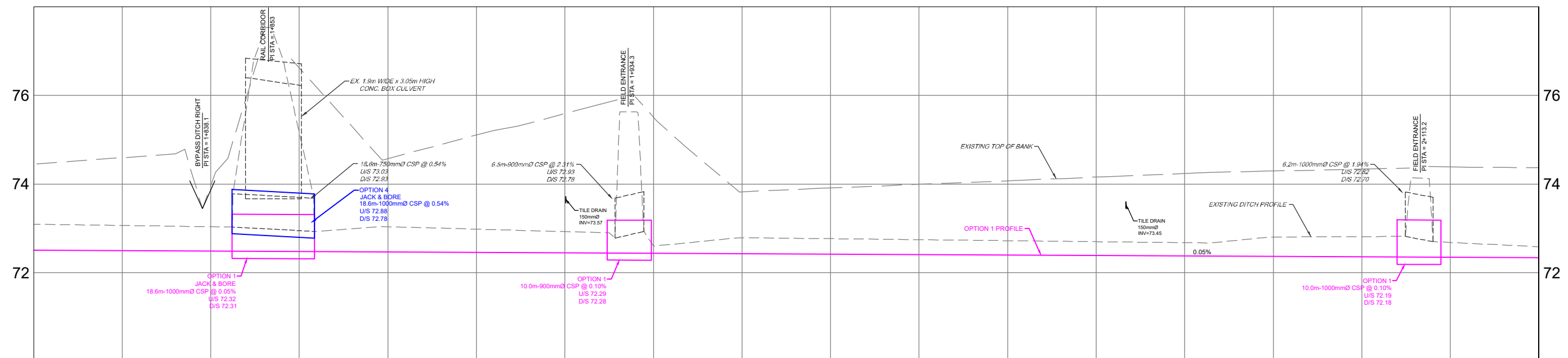
NORTH GLENGARRY  
FOWLER-DANIS MUNICIPAL DRAIN

DRAIN PROFILE  
STA. 0+720 TO STA. 1+440

PROJECT No.	18074
CONTRACT No.	
DATED	SEP 2023
DWG. No:	18074-P2

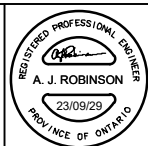


PROPOSED GRADE																				
EXISTING FIRM BOTTOM	73.16	73.09	73.10	73.09	73.09	73.07	73.06	73.06	73.07	73.08	73.09	73.07	73.67	73.62	73.45	73.21	73.16	73.12	73.09	
STATION	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+800	

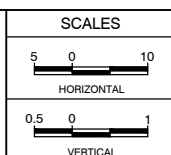


PROPOSED GRADE																			
EXISTING FIRM BOTTOM	73.09	73.06	73.04	73.16	73.04	72.99	72.93	72.60	72.79	72.77	72.74	72.72	72.70	72.68	72.60	72.61	72.68	72.68	
STATION	1+800	1+820	1+840	1+860	1+880	1+900	1+920	1+940	1+960	1+980	2+000	2+020	2+040	2+060	2+080	2+100	2+120	2+140	

No.	DATE dd.mm.yy	REVISION	BY
1	29.09.23	ISSUED FOR DISTRIBUTION	AJR



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Ontario  
23/09/29  
**Licensed Engineering Technologist**  
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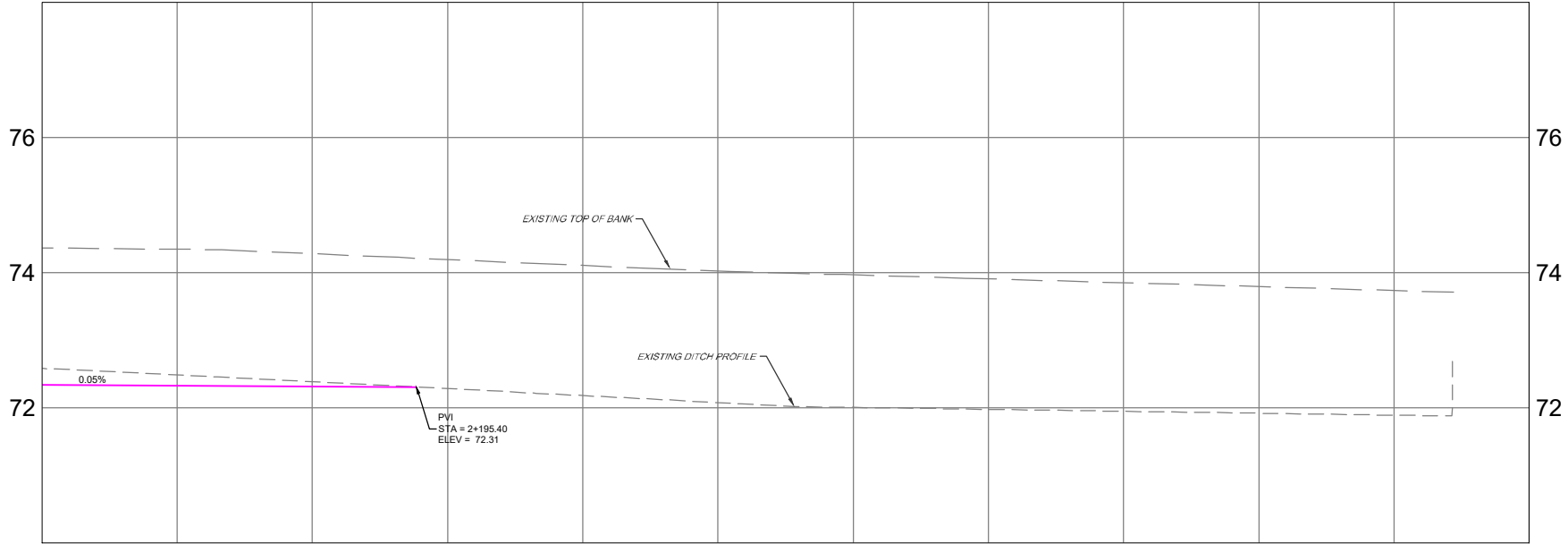
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APPROVED	AJR

NORTH GLENGARRY

FOWLER-DANIS MUNICIPAL DRAIN

DRAIN PROFILE  
STA. 1+440 TO STA. 2+140

PROJECT No.	18074
CONTRACT No.	
DATED	SEP 2023
FWG. No:	18074-P3

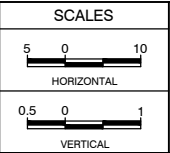


PROPOSED GRADE												
EXISTING FIRM BOTTOM	72.58	72.49	72.39	72.29	72.18	72.08	72.01	71.98	71.95	71.92	71.89	
STATION	2+140	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300	2+320	2+340	2+360

No.	DATE dd/mm/yy	REVISION	BY
1	29.09.23	ISSUED FOR DISTRIBUTION	AJR



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NORTH GLENGARRY
FOWLER-DANIS MUNICIPAL DRAIN

DRAIN PROFILE STA. 2+140 TO STA. 2+340
PROJECT No. 18074 CONTRACT No.
DATED SEP 2023
DWG. No: 18074-P4

## Appendix B

### Cost Estimates

- Option 1
- Option 2
- Option 3
- Option 4

**PRELIMINARY COST ESTIMATE  
OPTION 1  
THE FOWLER-DANIS MUNICIPAL DRAIN**

**Robinson  
Consultants**

Project No: B18074  
Date: 29-Sep-23

Type	Item No.	Item	Unit	Cost/Unit	Quantity	Total	
Sta 0+150 to Sta 2+335)						2,185.00m	
Construction							
Construction	Site Preparation Activities						
		Mobilization	LS	\$ 9,000.00	1.00	\$ 9,000.00	
		Erosion and Sediment Control Plan and Measures	LS	\$ 10,000.00	1.00	\$ 10,000.00	
		Clearing/Grubbing (including individual tree removals)	ha	\$ 5,000.00	2.50	\$ 12,500.00	
	Excavation Activities						
		Earth Ex. - Ditch (full construction) - Incl. Spreading	m³	\$ 12.50	13530.00	\$ 169,125.00	
		FARM ACCESS CULVERTS -- REPLACEMENT OF (11) CULVERTS)					
		- 600mm DIA CSP CULVERT(S)	m	\$ 350.00	40.00	\$ 14,000.00	
		- 1000mm DIA CSP CULVERT(S)	m	\$ 470.00	62.00	\$ 29,140.00	
		- 1600mm DIA CSP CULVERT(S)	m	\$ 740.00	10.00	\$ 7,400.00	
		- Rock Protection End Treatments	each	\$ 800.00	22.00	\$ 17,600.00	
		COUNTY ROAD CULVERT					
		- 2000mm DIA CSP CULVERT(S)	m	\$ 870.00	25.00	\$ 21,750.00	
		- All Inclusive Road Reinstatement	L.S.	\$ 20,000.00	1.00	\$ 20,000.00	
		- Rock Protection End Treatments	each	\$ 2,500.00	2.00	\$ 5,000.00	
		CNR CULVERT (JACK AND BORE)					
		- 1000mm DIA CSP CULVERT (Jack and Bore)	m	\$ 5,000.00	20.00	\$ 100,000.00	
		- Rock Protection End Treatments	each	\$ 2,500.00	2.00	\$ 5,000.00	
	Reinstatement Activities						
		Tile Outlet Restoration/Protection	each	\$ 500.00	10.00	\$ 5,000.00	
		Hand Seeding	m²	\$ 0.50	24145.00	\$ 12,072.50	
		Rock Protection - Erosion Control	m²	\$ 27.50	800.00	\$ 22,000.00	
		Sub-Total - Construction Costs					\$ 459,587.50
		Contingency Allowance - Construction					\$ 20,000.00
		Total - Construction Costs					\$ 479,587.50
	Engineering/Administration						
			Preliminary Engineer's Report	LS	\$ 16,500.00	1.00	\$ 16,500.00
			Final Engineer's Report	LS	\$ 35,000.00	1.00	\$ 35,000.00
		Contract Administration/Inspection	LS	\$ 25,000.00	1.00	\$ 25,000.00	
		Sub-Total - Routine Engineering				\$ 76,500.00	
Total - Engineering/Administration						\$ 76,500.00	
Other							
		HST	L.S	(1.76% of Costs Above)		\$ 9,787.14	
		Allowances	LS	estimate		\$ 2,000.00	
Total - Other Costs						\$ 11,787.14	
Sub-Total - Net Costs						\$ 567,874.64	
Total Net Costs - Option 1				\$ 567,874.64			

**PRELIMINARY COST ESTIMATE  
OPTION 2  
THE FOWLER-DANIS MUNICIPAL DRAIN**

**Robinson  
Consultants**

Project No: B18074  
Date: 29-Sep-23

Type	Item No.	Item	Unit	Cost/Unit	Quantity	Total
<b>Sta 2+080 to Sta 2+335</b>						<b>255.00m</b>
<b>Construction</b>						
<b>Construction</b>	<b>Site Preparation Activities</b>					
		Mobilization	LS	\$ 300.00	1.00	\$ 300.00
		Erosion and Sediment Control Plan and Measures	LS	\$ 2,000.00	1.00	\$ 2,000.00
		Clearing/Grubbing (including individual tree removals)	ha	\$ 5,000.00	0.25	\$ 1,250.00
	<b>Excavation Activities</b>					
		Earth Ex. - Ditch (full construction) - Incl. Spreading	m <sup>3</sup>	\$ 5.25	890.00	\$ 4,672.50
		FARM ACCESS CULVERTS -- REPLACEMENT OF (11) CULVERTS)				
		- 600mm DIA CSP CULVERT(S)	m	\$ 350.00	10.00	\$ 3,500.00
		- Rock Protection End Treatments	each	\$ 800.00	2.00	\$ 1,600.00
	<b>Reinstatement Activities</b>					
		Hand Seeding	m <sup>2</sup>	\$ 0.50	2550.00	\$ 1,275.00
		<b>Sub-Total - Construction Costs</b>				<b>\$ 14,597.50</b>
		<b>Contingency Allowance - Construction</b>				<b>\$ 15,000.00</b>
		<b>Total - Construction Costs</b>				<b>\$ 29,597.50</b>
<b>Engineering/Administration</b>						
		Preliminary Engineer's Report	LS	\$16,500	1.00	\$ 16,500.00
		Final Engineer's Report	LS	\$ 15,000.00	1.00	\$ 15,000.00
		Contract Administration/Inspection	LS	\$ 10,000.00	1.00	\$ 10,000.00
		<b>Sub-Total - Routine Engineering</b>				<b>\$ 41,500.00</b>
<b>Total - Engineering/Administration</b>						<b>\$ 41,500.00</b>
<b>Other</b>						
		HST	L.S	(1.76% of Costs Above)		\$ 1,251.32
		Allowances	LS	estimate		\$ 2,000.00
<b>Total - Other Costs</b>						<b>\$ 3,251.32</b>
<b>Sub-Total - Net Costs</b>						<b>\$ 74,348.82</b>
<b>Total Net Costs - Option 2</b>						<b>\$ 74,348.82</b>

**PRELIMINARY COST ESTIMATE  
OPTION 3  
THE FOWLER-DANIS MUNICIPAL DRAIN**

**Robinson  
Consultants**

Project No: B18074  
Date: 29-Sep-23

Type	Item No.	Item	Unit	Cost/Unit	Quantity	Total
Tile Outlet Header and Pump Only						
0.00m						
Construction						
Construction	Tile Header and Tile Outlet Pump					
		- 200mm DIA Tile Header	m	\$ 88.00	300.00	\$ 26,400.00
		- Tile Outlet Pump and Casing	LS	\$ 20,000.00	1.00	\$ 20,000.00
	Reinstatement Activities					
		Hand Seeding	m <sup>2</sup>	\$ 0.50	100.00	\$ 50.00
		Sub-Total - Construction Costs				\$ 46,450.00
		Contingency Allowance - Construction				\$ 4,500.00
		Total - Construction Costs				\$ 50,950.00
Engineering/Administration						
		Preliminary Engineer's Report	LS	\$16,500	1.00	\$ 16,500.00
		Sub-Total - Routine Engineering				\$ 16,500.00
Total - Engineering/Administration						\$ 16,500.00
Sub-Total - Net Costs						\$ 67,450.00
Total Net Costs - Option 3				\$ 67,450.00		



**PRELIMINARY COST ESTIMATE  
OPTION 4  
THE FOWLER-DANIS MUNICIPAL DRAIN**

**Robinson  
Consultants**

Project No: B18074  
Date: 29-Sep-23

Type	Item No.	Item	Unit	Cost/Unit	Quantity	Total	
Cty. Rd. and CNR Locations Only							
0.00m							
Construction							
Construction	Site Preparation Activities						
		Mobilization	LS	\$ 2,000.00	1.00	\$ 2,000.00	
		Erosion and Sediment Control Plan and Measures	LS	\$ 2,000.00	1.00	\$ 2,000.00	
	Excavation Activities						
		- *2130x1700 CSPA CULVERT(S)	m	\$ 600.00	20.00	\$ 12,000.00	
		- Rock Protection End Treatments	each	\$ 2,500.00	4.00	\$ 10,000.00	
	Reinstatement Activities						
		Hand Seeding	m²	\$ 0.50	500.00	\$ 250.00	
		Sub-Total - Construction Costs					\$ 26,250.00
		Contingency Allowance - Construction					\$ 15,000.00
		Total - Construction Costs					\$ 41,250.00
Engineering/Administration							
		Preliminary Engineer's Report	LS	\$ 16,500.00	1.00	\$ 16,500.00	
		Final Engineer's Report	LS	\$ 15,000.00	1.00	\$ 15,000.00	
		Contract Administration/Inspection	LS	\$ 10,000.00	1.00	\$ 10,000.00	
		Sub-Total - Routine Engineering				\$ 41,500.00	
Total - Engineering/Administration						\$ 41,500.00	
Other							
		HST	L.S	(1.76% of Costs Above)		\$ 1,456.40	
		Allowances	LS	estimate		\$ 2,000.00	
Total - Other Costs						\$ 3,456.40	
Sub-Total - Net Costs						\$ 86,206.40	
Total Net Costs - Option 4				\$ 86,206.40			

**FOWLER DANIS MUNICIPAL DRAIN  
MEETING TO CONSIDER THE PRELIMINARY ENGINEER'S  
REPORT  
JANUARY 29, 2024**

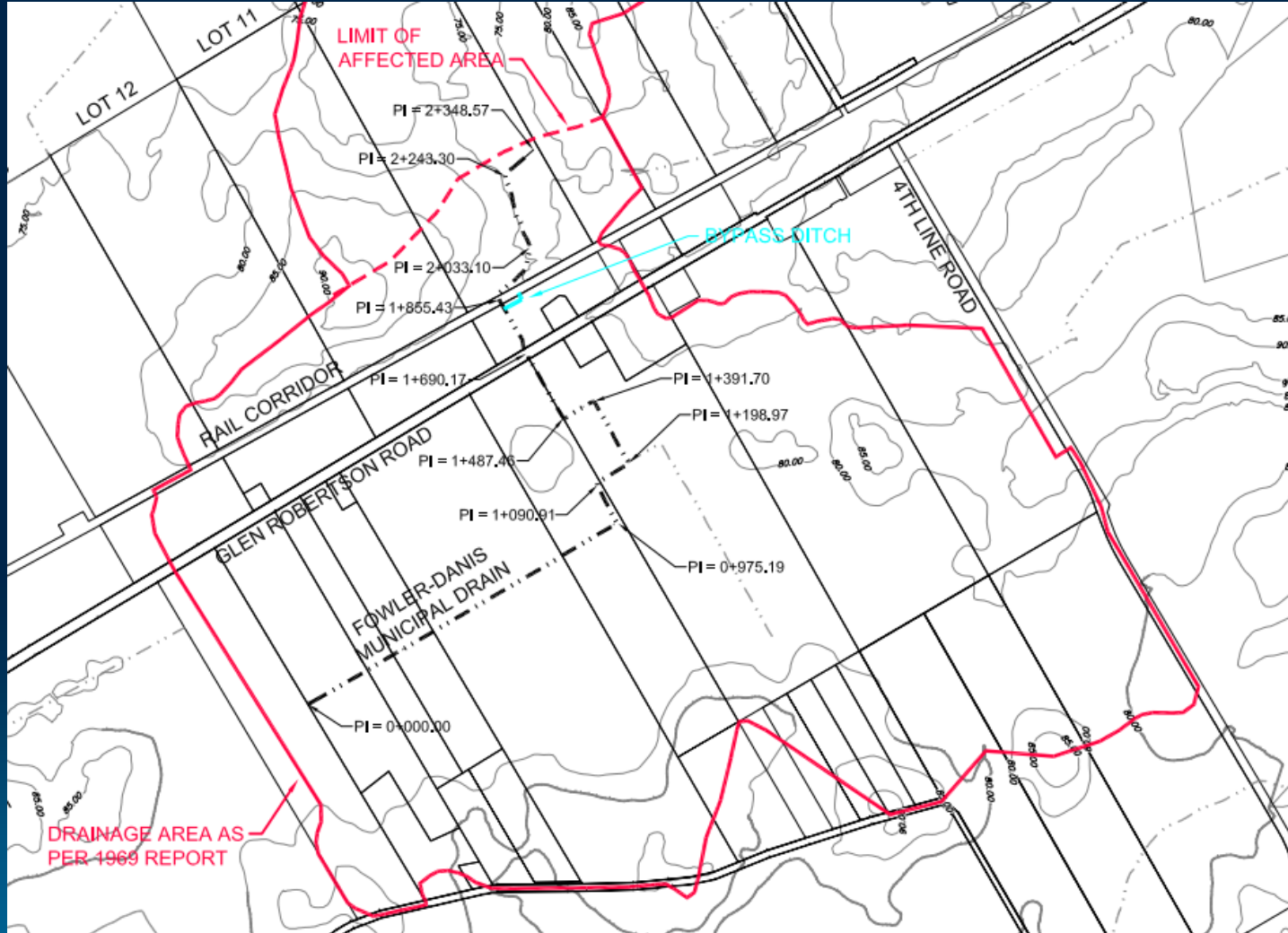
Presented by:

Lorne Franklin, L.E.T., C.E.T., rcca

Robinson Consultants Inc.

# Location Plan

- Red signifies Drainage Area
- Black signifies Work Area



# INTRODUCTION

## ■ HISTORY – EXISTING DRAINAGE

- The existing Fowler Danis Municipal Drain was originally constructed as an Award Drain in 1890 and was converted to a Municipal Drain in 1912.
- The Fowler Danis Municipal Drain was last improved under an Engineer's Report completed by Stidwell & Associates Ltd. and dated May 21, 1969.



# INTRODUCTION

## ■ HISTORY -- THE NEW ENGINEER'S REPORT

- Robinson Consultants Inc. was appointed by the Township of North Glengarry on June 11th, 2018, to complete a Preliminary Engineer's Report for amendments to the existing Engineer's Report
- The Preliminary Engineer's Report for the Municipal Drain was requested by the Township of North Glengarry to ensure that the landowners are informed of the costs, impacts of any required improvements (widening, deepening, additional land required, etc.) and any environmental concerns associated with the amendments prior to proceeding to a full Engineer's Report.



# INTRODUCTION

## ■ HISTORY -- THE NEW ENGINEER'S REPORT

- Robinson Consultants Inc. submitted a draft of the Preliminary Engineer's Report for the Municipal Drain to the Township of North Glengarry for their review on January 15, 2020.
- An extended review period was incurred due to COVID and an initial acceptance by staff of the general recommendation that no work was recommended.
- The Township of North Glengarry confirmed the intent to proceed to a Meeting to Consider (MTC) on September 20, 2023.
- Robinson Consultants Inc. finalized and submitted the Preliminary Report for distribution and the consideration for the MTC.

# INTRODUCTION

## ■ HISTORY -- THE NEW ENGINEER'S REPORT

- An on-site meeting of the affected landowners and concerned parties was held on September 4th, 2018.
- The primary concerns expressed at the on-site meeting included:
  - Concerns regarding decreased outlet capacity due to a culvert lining at County Rd. 10
  - Capacity of the existing crossing of the Canadian National Railway
  - that improvements and change in land use upstream may cause flooding if sufficient outlet was not provided
  - potential costs of the proposed improvements to the municipal drain.

# PURPOSE OF THE WORK

- The purpose of the proposed amendment is to provide adequate outlet for tile drainage to the lands considered to be within the area requiring drainage. The Preliminary Report will provide a proposed drainage solution, discuss costs and address Agency concerns.
- Requirements for Preliminary Reports are outlined under Section 10 of the Drainage Act (R.S.O. 1990), and are as noted below:
  - A sketched plan of the drainage works;
  - An estimated cost of the works (to the extent practicable to do so);
  - An environmental appraisal (where requested);
  - And a Benefit/Cost Statement (where requested).



# POTENTIAL OPTIONS

- A review of the surveyed profile (2018) was completed and determined that an increased depth of 1.41m at the upstream end is required to provide for a total average depth of drain of 1.5m in Lot 13, Con 1 (Lochiel). Review of the surveyed profile (2018) indicates that the improved depth must be carried downstream at the typical minimum 0.05% slope (50mm drop per 100m) will require improvements to approximately 2,185m of drain to the point where the proposed (improved) grade intersects the existing channel grade.



# POTENTIAL OPTIONS

- For comparison, a second option providing an average depth of drain of +/- 1.0m for the west ½ of Lot 13, Con 1 (Lochiel) was considered. This results in a decreased total length of improvements to a total of approximately 255m of drain, however, does not meet the requirements specified by the property owner.
- Additionally, a third option which includes the owner installing sufficient header tile and a pumped tile outlet without any changes to the existing drain was considered.
- A fourth option was also given consideration which addresses the concerns expressed at the on-site meeting with regard to the perceived reduced capacity of the County Rd. Culvert (due to lining) and the capacity of the Rail crossing.

# COST ESTIMATE – PROPOSED WORK

- A portion of the overall cost is allocated and assessed to all properties within the drainage area based on the typical cost of maintenance for this drain, however, some of the cost for the initial construction will be paid by the road authorities.

	Option 1 (\$)	Option 2 (\$)	Option 3 (\$)	Option 4 (\$)
Sub-Total - Routine	479,587.50	74,348.82	67,450.00	86,206.40
Sub-Total - Special Benefit	151,750.00	-	-	22,000.00
Total Assessed to Properties	327,837.50	74,348.82	67,450.00	64,204.40
Option Breakdown	Full Report – Road and Rail	Full Report – no Road and Rail	Landowner	Full Report – No Tile

- Current costs, estimated at \$15,000.00 must be paid by the Municipality as the project initiator (under Section 78 of the *Drainage Act*) if ultimately no work is to proceed.

# COST ESTIMATE – PROPOSED WORK

- Current costs must be paid by the Municipality as the project initiator (under Section 78 of the *Drainage Act*) if ultimately no work is to proceed

# *Questions?*

