ROLLINGS DRAINAGE WORKS

THE MUNICIPALITY OF NORTH MIDDLESEX

TENDER for CONTRACT IO-03-2026

Dobbin Engineering Inc.

CLOSING DATE: February 11, 2026 @ 12 p.m. (Noon)

BID FORM

ROLLINGS DRAINAGE WORKS

MUNICIPALITY OF NORTH MIDDLESEX

OWNER:	The Municipality of North Middlesex
CONTRACT ADMINISTRATOR:	R. Dobbin Engineering Inc.
LOCATION:	Lot 9-10, Concession 1 in the Municipality of North Middlesex and Lot 14, Concession 1 in the Township of Lucan-Biddulph.

Bids will be received in sealed envelopes clearly marked **"Rollings Drainage Works"** at the Municipal office of:

The Municipality of North Middlesex

229 Parkhill Main Street

Parkhill, ON

N0M 2K0

Your bid must be received at the above specified location no later than:

Wednesday February 11, 2026

12:00 p.m. (Noon) LOCAL TIME

Bid inquiries shall be submitted to Josh Warner, R. Dobbin Engineering Inc.:

Josh Warner, P. Eng.
R. Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia, Ontario
josh@dobbineng.com
(519)-882-0032 ext. 204

Tender enquiries shall be accepted until February 6, 2026

SCHEDULE OF TENDER PRICES

TENDER PRICE

A. **Offer by:** _____

Name: _____

Address: _____

_____

HST #: _____

Date: _____

To: The Municipality of North Middlesex

We, the undersigned, having examined the site of the Work, having carefully investigated the conditions pertaining to the Work and having secured all the information necessary to enable us to submit a bid, and having inspected all the Contract Documents and Drawings, hereby agree to enter into a Contract and perform all the Work in accordance with the Contract Documents and Drawings to the satisfaction of the Contract Administrator for the total bid price **INCLUDING HST** of:

_____

_____ ($)

1. **ADDENDA**

   We agree that we have received addenda ___ to ___ inclusive, and the bid price includes the provisions set out in such addenda.

TENDER TABLE

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Pre-Construction Meeting	1	LS		
Brushing and Tree Removal	1	LS		
Remove and Reinstall Fences	1	LS		
Silt Fence	1	LS		
Open Channel Work (Station 0+150 to 0+757)				
Strip and Level Topsoil Adjacent Channel	607	m		
Open Channel Excavation	607	m		
Levelling of Excavated Material	607	m		
Channel Restoration with Matting and Seed	1640	sq.m		
Reconnect Existing Tiles	20	each		
Watermain Lowering on North Side of Mooresville Drive				
Cut and Cap Existing Watermain	2	each		
100mmø PVC Watermain Pipe insatlled by Directional Drilling c/w tracer wire	15	m		
Hot tap existing watermain with 50mmØ corporation stop, c/w stainless steel saddle for supply during testing procedure. To be removed and corporation stop to be permanently closed upon completion	1	each		
Supply and install Couplers at connections	2	each		
Connect new 100mmØ watermain to existing. Both connections to be completed the same day	1	LS		
New watermain to undergo pressure testing, leakage testing and bacteriological testing as per Municipal Standards prior to connection	1	LS		
Remove and dispose offsite existing watermain	15	m		
Restoration	1	LS		

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Culvert #1 (Mooresville Drive)				
Traffic Control	1	LS		
Daylight and Work Around Existing Fiber Line	1	LS		
Remove and Reinstall Existing Telecom Duct on Existing Box Culvert	1	LS		
Remove and Dispose of Existing Concrete Box Culvert	1	LS		
Supply and Install 2400mmø CSP (3.5mm Thick) c/w Bedding and Backfill	20	m		
Rip Rap Endwalls	40	tonne		
Restoration and Ditch Grading	1	LS		
Culvert #2 (J. Cockwill & 1510457 Ontario Inc.)				
Remove and Dispose of Existing Culvert	1	LS		
Supply and Install 2000mmø CSP (2.8mm Thick) c/w Bedding and Backfill	20	m		
Rip Rap Endwalls	40	tonne		
Tile Drain Replacement (Station 0+757 to 1+064)				
Remove and Dispose of Existing CSP Outlet Pipes	2	each		
Locate and Abandon (Crush) Tile Drains (525mmø and 450mmø)	1	LS		
Strip and Level Topsoil Along Tile Alignment	614	m		
Supply and Install 750mmø Concrete Tile (2000D)	602	m		
Clear Stone Bedding where depth of Tile Exceeds 2.5m	10	tonne		
Supply and Install 6m of 750mmø HDPE Pipe c/w Rodent Grate	2	each		
Rip Rap at Outlet	15	tonne		
Locate and Connect Existing Tiles	20	each		
Daylight and Work Around Existing Fiber and Telephone Line	1	LS		
Daylight and Work Around Existing Watermain	1	LS		

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Richmond Street Crossing (Station 1+064 to 1+101)				
Traffic Control and Permitting	1	LS		
Daylight and Work Around Existing Gas Main (Vital Main)	1	LS		
Remove Existing Catch Basins and Leads	2	each		
Supply and Install 914mm Steel Casing by Jack and Bore	32	m		
Supply and Install 825mmø Concrete Tile (2000D)	5	m		
Grout Existing Tile Under Roadway (600mmø)	25	m		
Catch Basin #1 (1200mm x 900mm) c/w Connections	1	LS		
Catch Basin #2 (1200mm x 900mm) c/w Connections	1	LS		
Connect Existing 300mmø Tile from Revington Drain to CB #1	1	LS		
Connect Existing 525mmø Tile from Knip Drain to 825mmø Tile	1	LS		
Restoration and Ditch Grading	1	LS		
Contigency	1	LS	17,000	17,000

Sub Total

HST (13%)

Total Tender Price

OFFERED ON BEHALF
OF THE CONTRACTOR

_____

COMPANY NAME

_____

SIGNATURE

CONTRACTOR'S SEAL
(See Note Below)

_____

SIGNATURE

_____

WITNESS (See Note Below)

_____

COMPANY STREET ADDRESS

_____

CITY, PROVINCE, POSTAL CODE

_____

DATE OF OFFER

The Contractor agrees to complete substantially the work included in the contract baring delays regarding strikes and acts of God beyond our control, within _____working days from the time of starting construction.

Note: Contractor to have the necessary signatures to bind the company. If a Contractor's seal is used there is no need for the offer to be witnessed. If no Contractor's seal is used, then a witness signature is needed.

CONDITIONS OF BID

1. The lowest or any bid will not necessarily be accepted by the Owner.

2. Contract Drawings 1 to 5 and the attached Specifications of Work for the Rollings Drainage Works are made part of this Contract Bid. The Contractor is to complete construction in accordance with the Drawings and the conditions indicated within this Bid Document.

3. A Form of Agreement is required to be signed and returned within 10 days of the award of contract.

4. TENDER DEPOSIT

   The tender shall be accompanied by a tender deposit in the form of a certified cheque or a Bid Bond payable to the Owner (Municipality of North Middlesex) in the amount of 10% of the value of the tender price.

   The Tenderers shall keep their tenders open for acceptance for 45 days after the closing date. Withdrawal during this period will result in forfeiture or enforcement of the tender deposit or Bid Bond.

   Upon being notified that the tender has been accepted, the Contractor shall execute copies of the Agreement, supply bonds and insurance documents as specified, and start Work as specified.

   Failure to execute the copies of the Agreement, or to supply bonds and insurance documents, within one week of the date of acceptance of the tender, will automatically mean the forfeiture or enforcement of the tender deposit. Tender deposits of unsuccessful Tenderers will be returned not later than two weeks following Tender close. The tender deposit of the successful Tenderer will be returned once the Contract Security is in place.

5. CONTRACT SECURITY

   The bid deposit of the successful Tender shall be retained by the Municipality of North Middlesex until the contract is completed and a completion certificate is issued by the Engineer. The successful Contractor shall have the option of furnishing the Municipality of North Middlesex with a Performance Bond in the amount of one hundred percent (100%) of the total tender price (not including HST). The Performance Bond shall ensure completion of the work and maintenance of the work for a period of one year after the date of the completion certificate.

6. SCHEDULE

a) The Contract is to be completed on or before – **November 30, 2026.**

b) If the time limit above is not sufficient to permit completion by the Contractor working a normal number of hours, the Contractor shall make changes to permit the Work to be completed by the above date. Additional costs incurred shall be deemed to be included in the price bid for the Works.

7. EXAMINATION

a) Upon receipt of Documents, verify that they are complete; notify the Contract Administrator should the Documents be incomplete.

b) Each firm submitting a Tender shall carefully examine the Documents for discrepancies or omissions, and immediately notify the Consultant upon finding discrepancies or omissions, at least four (4) days prior to the date specified for closing.

c) All firms submitting Tenders will acknowledge receipt of Addenda in the space provided in the Tender Form. If no Addenda are received, insert the word "None" in the space provided.

8. EXAMINATION OF SITE

a) The Tenderers shall visit the site of the Work before submitting their Tender and shall by personal examination satisfy themselves as to the local conditions that may be encountered during construction of the Work. They shall make their own estimate of the facilities and difficulties that may be encountered and the nature of the subsurface materials and conditions.

b) The Tenderer shall not claim at any time after submission of their Tender that there was any misunderstanding of the terms and conditions of the Contract relating to site conditions.

9. INSURANCE

a) The successful Bidder will file with the Municipality within 10 calendar days of award of Contract, General Liability, Automobile and Property Damage Insurance coverage required by the Ontario Provincial Standard General Conditions.

10. WORKER'S SAFETY INSURANCE BOARD

a) The successful Bidder will file with the Municipality within 10 calendar days of award of Contract, a current Certificate of good standing from the Worker's Safety Insurance Board (WSIB).

11. TIME CONSTRAINTS

a) All Work shall be completed within the times outlined in The Municipality of North Middlesex noise by-law regulations.

b) No weekend Work is permitted without prior approval by The Municipality of North Middlesex.

12. GUARANTEE PERIOD

a) The Contractor shall guarantee the Material and Work shall for a period of twelve (12) months from the acceptance date remain in such condition as will meet the Contract Administrator's approval, and that they will make good in a permanent manner, satisfactory to the Contract Administrator, any imperfections due to materials or workmanship used in the construction and any damage caused by such imperfections. The decision of the Contract Administrator shall be final as to the nature and cause of such imperfections and the necessity for remedying them.

   Should the Contractor fail to comply with the directions of the Contract Administrator, the Contract Administrator may, after giving the Contractor forty-eight (48) hours written notice, perform the necessary Work, and the cost may be deducted, or collected by the Owner as provided in the Contract.

b) Notwithstanding the provision of the subsection (a) of this clause, the Contract Administrator may, in cases of danger or public safety, make such immediate arrangements for repairs as he/she sees fit, and the Contract Administrator will inform the Contractor of such action. The cost of such emergency Work shall be borne by the Contractor.

c) If the Contract Administrator notifies the Contractor, in writing, of imperfections prior to the termination of the guarantee period, the Contractor shall make good the imperfections as required in subsection (a) above, notwithstanding that such Work of making good may commence after or extend beyond the end of the guarantee period.

d) To cover the rectification costs during the guarantee period, the Municipality shall retain 3% of the value of Work done. This holdback will be retained for a period of twelve (12) months from the acceptance date.

13. PAYMENT

a) Monthly draws for Work completed will be paid as needed. Payment will be subject to the 3% maintenance holdback and a 10% statutory holdback in accordance with the Construction Act. Payment at the unit priced bid for each item shall be full compensation for all labour, equipment, and materials required to do the Work.

14. EXTRA WORK

a) Extra Work shall be undertaken as described in subsection GC3.10.02 of the General Conditions.
b) If applicable tender items are provided in other parts of the Contract, extra Work shall be performed using the appropriate unit prices from these parts.
c) Extra Work shall be paid under the Contingency Allowance.

15. QUANTITY OVERUNS AND UNDERUNS

a) Compensation for quantity over runs and under runs shall be as described in GC 8.01.02 of the General Conditions.

16. DAMAGE

a) Any damage to existing infrastructure and neighboring properties shall be repaired by the Contractor to the satisfaction of the Contract Administrator and be at the Contractors expense.

17. Liquidated Damages

Where the working days exceeds those identified in the contract the Contractor shall be

responsible for the cost of the engineering inspection for the additional working days.

18. UTILITIES

a) The Contractor shall secure locates at no extra cost to the Contract prior to any construction activities.

19. CONSTRUCTION LAYOUT

a) The Contractor will be responsible for the layout of all lines and grades from the plans at no extra cost to the Contract. Control information will be provided to the successful Bidder by R. Dobbin Engineering Inc. in a digital format.

b) All discrepancies are to be reported to the Contract Administrator prior to proceeding with the Work. The Contract Administrator will review the layout in the field prior to construction.

20. INCLEMENT WEATHER

a) There will be no compensation for inclement weather other than consideration of an extension for lost time at the end of the Contract that will be at the discretion of the Contract Administrator.

21. SUBSTANTIAL PERFORMANCE

a) The project will be considered substantially performed when all parts of the Contract are completed in accordance with the General Conditions of Contract – GC 1.05.

22. ONTARIO PROVINCIAL STANDARDS

a) GENERAL CONDITIONS OF CONTRACT (OPSS.MUNI 100), November 2006 apply to this Contract.

b) The Ontario Provincial Standard Specifications (OPSS) and Drawings (OPSD) apply to this contract. All required OPS Specifications can be downloaded at:

http://www.raqsb.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage

THE SUPPLEMENTAL SPECIFICATIONS APPLICABLE TO THIS PROJECT ARE AS FOLLOWS:
Operational Constraints

The following operational constraints form part of the Contract. No additional costs will be made for completing Work within the operational constraints. Payment for Work associated with the operational constraints shall be included in the applicable unit price item.

1. The Contractor is responsible to complete the Contract within the schedule specified.

2. Safe and reasonable access must be provided to local vehicle traffic and to pedestrian traffic. The Contractor shall ensure traffic regulatory signs and 911 signs are in place and secure at all times.

3. The Contractor is responsible for securing locates and providing coordination with all utilities and agencies. In addition, the Contractor shall protect from damage all buried and aerial utility lines during construction.

4. If required, the Contractor is responsible for obtaining a Permit to Take Water (PTTW) for dewatering purposes.

5. Geotechnical investigation has not been undertaken within the project limits.

6. All conditions from the Department of Fisheries and Oceans (DFO) and Ausable Bayfield Conservation's (ABCA) approvals shall be adhered to.

Estimate of Cost

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Pre-Construction Meeting	1	LS	200	200
Brushing and Tree Removal	1	LS	6,000	6,000
Remove and Reinstall Fences	1	LS	500	500
Silt Fence	1	LS	500	500
Open Channel Work (Station 0+150 to 0+757)				
Strip and Level Topsoil Adjacent Channel	607	m	20	12,140
Open Channel Excavation	607	m	30	18,210
Levelling of Excavated Material	607	m	10	6,070
Channel Restoration with Matting and Seed	1640	sq.m	4	6,560
Reconnect Existing Tiles	20	each	150	3,000
Watermain Lowering on North Side of Mooresville Drive				
Cut and Cap Existing Watermain	2	each	1,500	3,000
100mmø PVC DR 18 CL 150 watermain c/w tracer wire	12	m	450	5,400
Hot tap existing watermain with 50mmØ corporation stop, c/w stainless steel saddle for supply during testing procedure. To be removed and corporation stop to be permanently closed upon completion	1	each	1,000	1,000
45 Degree 100mmØ MJ Fittings c/w denso mastic and tape	4	each	250	1,000
Supply and install Hymax Couplers at connections	2	each	1,200	2,400
Connect new 100mmØ watermain to existing. Both connections to be completed the same day	1	LS	6,500	6,500
New watermain to undergo pressure testing, leakage testing and bacteriological testing as per Municipal Standards prior to connection	1	LS	2,000	2,000
Remove and dispose offsite existing watermain	12	m	70	840
Restoration	1	LS	800	800
Culvert #1 (Mooresville Drive)				
Traffic Control	1	LS	800	800
Daylight and Work Around Existing Fiber Line	1	LS	500	500
Remove and Reinstall Existing Telecom Duct on Existing Box Culvert	1	LS	800	800
Remove and Dispose of Existing Concrete Box Culvert	1	LS	4,000	4,000
Supply and Install 2400mmø CSP (3.5mm Thick) c/w Bedding and Backfill	20	m	2,200	44,000
Rip Rap Endwalls	40	tonne	120	4,800
Restoration and Ditch Grading	1	LS	1,500	1,500

Item Description	Quantity	Unit	Unit Cost ($)	Total ($)
Culvert #2 (J. Cockwill & 1510457 Ontario Inc.)				
Remove and Dispose of Existing Culvert	1	LS	1,500	1,500
Supply and Install 2000mmø CSP (2.8mm Thick) c/w Bedding and Backfill	20	m	1,600	32,000
Rip Rap Endwalls	40	tonne	120	4,800
Tile Drain Replacement (Station 0+757 to 1+064)				
Remove and Dispose of Existing CSP Outlet Pipes	2	each	300	600
Locate and Abandon (Crush) Tile Drains (525mmø and 450mmø)	1	LS	1,000	1,000
Strip and Level Topsoil Along Tile Alignment	614	m	5	3,070
Supply and Install 750mmø Concrete Tile (2000D)	602	m	120	72,240
Clear Stone Bedding where depth of Tile Exceeds 2.5m	10	tonne	40	400
Supply and Install 6m of 750mmø HDPE Pipe c/w Rodent Grate	2	each	1,500	3,000
Rip Rap at Outlet	15	tonne	120	1,800
Locate and Connect Existing Tiles	20	each	120	2,400
Daylight and Work Around Existing Fiber and Telephone Line	1	LS	800	800
Daylight and Work Around Existing Watermain	1	LS	1,000	1,000
Richmond Street Crossing (Station 1+064 to 1+101)				
Traffic Control and Permitting	1	LS	12,000	12,000
Daylight and Work Around Existing Gas Main (Vital Main)	1	LS	2,500	2,500
Remove Existing Catch Basins and Leads	2	each	600	1,200
Supply and Install 914mm Steel Casing by Jack and Bore	32	m	1,600	51,200
Supply and Install 825mmø Concrete Tile (2000D)	5	m	160	800
Grout Existing Tile Under Roadway (600mmø)	25	m	150	3,750
Catch Basin #1 (1200mm x 900mm) c/w Connections	1	LS	3,500	3,500
Catch Basin #2 (1200mm x 900mm) c/w Connections	1	LS	3,500	3,500
Connect Existing 300mmø Tile from Revington Drain to CB #1	1	LS	300	300
Connect Existing 525mmø Tile from Knip Drain to 825mmø Tile	1	LS	500	500
Restoration and Ditch Grading	1	LS	2,500	2,500
Contigency				17,000
	Sub Total			355,880

Rollings Drainage Works
Municipality of North Middlesex
October 24, 2025

SPECIFICATION OF WORK

1. Location

The work in this specification is located in Lot 9, 10 and 11, Concession 1 in The Municipality of North Middlesex and Lot 14, Concession 1 in the Township of Lucan-Biddulph.

2. Scope of Work

The work included in this specification includes, but is not limited to, the following:

- 307m of proposed twinned 750mm dia. tile c/w catch basins
- 35m of proposed 900mm dia. Steel Casing completed by Jack and Bore across Richmond Street
- 607m of open channel deepening and widening
- 1 Access Culvert Replacement and a Road Culvert Replacement on Mooresville Drive
- Watermain Lowering by Directional Drilling

3. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in their tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent and Engineer who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

All excess material shall be disposed offsite at the expense of the Contractor.

All equivalents shall be approved in writing by the Engineer.

The Contractor shall be responsible for all permitting and requirements, except fees, deemed necessary by the MTO and utility companies as part of their tender submission.

4. Plans and Specifications

This Specification of Work shall take precedence over all plans and general conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the Plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

5. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

When applicable the Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision).

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the Contract.

The Contractor shall also ensure that only competent workers are employed onsite and that appropriate training and certification is supplied to all employees.

6. Utilities

The Contractor is responsible for organizing locates and exposing all the utilities along the length of the drainage works. The utilities shall be located prior to the installation of any tile. If any utilities interfere with the proposed drainage works in a manner not shown on the accompanying Estimate of Cost or profile the Contractor shall notify the Drainage Superintendent and Engineer.

The Contractor is responsible for coordinating the replacement of additional utilities with the utility company if they interfere with the proposed drain. All costs for the utility to replace their services will be outside of this report and shall be borne by the utility as per Section 26 of the Drainage Act.

All additional costs to work around and organize replacement of the utilities not included in the estimate shall be tracked separately and the cost plus a portion of the engineering and taxes (25% of the cost) shall be borne by that utility.

Once the locates have been ordered, the Contractor shall provide the locate number to the Enbridge Gas Damage Prevention Inspector. Contact information will be provided by the Engineer.

7. Traffic Control

Access and driveways to private properties shall not be obstructed longer than the minimum time necessary for the work and shall be reinstated as soon as possible all to the satisfaction of the Engineer. The contractor shall schedule any obstruction of existing driveways with the owners at least two full working days in advance. The Traffic Plan must be approved by the MTO and Municipality.

a) The Contractor shall supply, erect and maintain all detour signs and special signs necessary for detours to divert traffic from the area under construction as directed by the Road Superintendent or Engineer. All this work shall be at the Contractor's expense.

b) The Contractor shall be responsible for supplying, erecting and maintaining all signs, supports, barricades, flashers, cones, etc. in the construction area and at the boundaries of the work as part of the above detours, all to the satisfaction of the Engineer or Drainage Superintendent. All this work shall be done by the Contractor at their own expense.

c) The Contractor shall not be allowed to proceed with construction activities unless proper signage and flagmen are present. Flagging procedures, signage and detours shall conform to the recommendations of Book 7, Temporary Conditions, Ontario Traffic Manual, issued by the Ministry of Transportation. Conformance shall be enforced by the Ministry of Labour Inspector.

d) If work is being completed on a Road and or Road Allowance in North Middlesex, the Contractor is required to complete a Road Allowance Work Permit Application available on their website: https://www.northmiddlesex.on.ca/media/591. No fees are required.

The Contractor is responsible for obtaining any necessary approvals and permits from the MTO. Fees will not be the responsibility of the Contractor. The Contractor shall apply for a permit with the MTO at least 3 months in advance of completing work within the Right of Way.

8. Pre-Construction Meeting

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting shall be scheduled by the Contractor. The Landowners, Engineer, MTO, the Township of Lucan-Biddulph and the Municipality of North Middlesex shall be notified of the pre-construction meeting at least 1 week in advance.

9. Access and Working Area

Access to the work site for construction and future maintenance shall be from Richmond Street and Mooresville Drive. Access shall generally be restricted to a width of 6 metres along the length of the drainage works. For future maintenance, access may be along the property lines at the Drainage Superintendents discretion.

The working area for the construction and future maintenance of the proposed tile drain shall be restricted to a width of 25m along the length of the drainage works normally centred on the proposed tile drain. For construction, the working area for the open channel shall be the south/east side of the channel from Station 0+150 to 0+323 and the west side from Station 0+323 to 0+757. The working area shall be restricted to a width of 35m from the proposed top of bank. For maintenance, the working area shall extend 10m past the top of bank on either side. The working area shall extend 10m past the length of the drain to allow for vehicles to turn around.

The working area at each culvert shall extend 10 metres from the bank on both sides and for 10 metres along the channel on either side of the culvert.

10. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the Plan and Profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal. At the request of the Contractor, R. Dobbin Engineering can add additional benchmarks along the length of the drainage works.

11. Removals

The culverts, catch basins, hickenbottoms, outlet pipes, unsuitable or not required excavated material, etc. shall be removed in their entirely and shall be disposed offsite at the expense of the Contractor.

The Contractor shall work around the existing fences and signs if they are able to. If the existing fences and signs are required to be removed, they shall be removed and re-installed in the same location with the existing materials. All work in connection with fences and signs shall be carried out in a careful manner so they are replaced in as good a condition as the existing materials permit.

12. Brushing and Tree Removal

For the tile drain all brush, trees, woody vegetation, stumps etc. shall be removed for a width of 25 metres normally centered on the proposed tile drain. For the open channel all brush, trees, woody vegetation, stumps etc. shall be removed within the channel cross-section and working area in order to facilitate construction or as determined by the Drainage Superintendent or Engineer.

A mechanical grinder attached to an excavator shall be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut. The Contractor shall stockpile the trees and brush in a single pile on the property in which they were removed or dispose of the trees and brush offsite. The Contractor is responsible for the burning of the trees and brush. The Contractor is responsible for obtaining all necessary permits for any disposal sites. Burning of the trees and brush is subject to local bylaws and guidelines of the Ministry of the Environment Conservation and Parks.

Certain trees may be left in place at the discretion of the Drainage Superintendent or Engineer.

13. Locate and Abandon Existing Drain

The existing tile drain shall be exposed at the discretion of the Drainage Superintendent or Engineer and Contractor in order to adequately determine the proposed alignment. The existing municipal drain shall be abandoned and crushed. The existing Main Drain between Station 0+757 and 1+064 is a twin drain with 525mm and 450mm dia. tile.

14. Strip and Place Topsoil

The topsoil adjacent the channel shall be stripped within the working area to allow for the placement of the excavated material. The topsoil shall be placed at the edge of the working allowance until the levelling of the excavated material has taken place. Once the excavated material has been levelled the Contractor shall level the topsoil over the excavated material and ensure that the area is left in a condition suitable to cultivation while ensuring positive drainage to the channel. This item is to be completed as part of the improvement project only.

The Contractor shall strip the topsoil for a width of 6m normally centered on the proposed tile drain. The topsoil shall be stockpiled at the edge of the working allowance for the duration of the tile installation. Once the tile is installed, the Contractor shall level the topsoil over the drain to its pre-construction condition.

15. Excavation of Open Channel

For construction and future maintenance, the open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this Engineers Report. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

The south/east drain bank shall be resloped to 2:1 between Station 0+150 and 0+323 and the west bank from Station 0+323 to 0+757.

The excavated material is to be levelled on the side it is being excavated from. Excavated material shall be cast at least 1.5 metres clear of the bank. Excavated material shall not be placed in low runs or swales out letting surface water to the channel. The excavated material shall be levelled to a maximum depth at 150mm increments and shall be left in a condition suitable for cultivation. This shall include the removal of any rocks larger then 10cm in diameter and any debris/wood that could damage or plug farm equipment. Leveling shall occur when the material is dry enough to do so as determined by the Drainage Superintendent or Engineer. All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the side slopes. All material unfit for placing on farmlands, as determined by the Drainage Superintendent or Engineer, shall be disposed of offsite by the Contractor.

16. Installation of Culverts

The Contractor is required to notify the Landowner forty-eight (48) hours prior to the removal of a culvert.

The minimum cover is not always adequate during construction and it is the Contractors responsibility to provide additional cover to avoid damage to the pipe.

The Contractor shall supply, install, and backfill aluminized corrugated steel pipe with a minimum wall thickness of 2.8mm for all access culverts. Corrugated Steel Pipe Arches and Road Culverts shall have a minimum wall thickness of 3.5mm. All corrugation profiles shall be of helical lock seam manufacture using 68 x 13mm corrugations for 1600mm dia. pipe and smaller and 125 x 25mm corrugations for 1800mm dia. pipe and larger. Pipe with 125 x 25mm corrugations shall be used if 68 x 13mm corrugations are not available.

The culverts designated to be replaced in the future under this report shall be examined after any cleanout of the open channel as to its condition. If it is found to be in disrepair (i.e. there are holes corroded in the bottom or sides) it shall be replaced as per these specifications.

The culverts shall be installed generally in the same location or as approved by the Drainage Superintendent or Engineer. The culverts shall be installed with the invert 10% (minimum 150mm) below the original channel bottom elevation unless otherwise shown in order to achieve the minimum cover.

All culverts may have concrete block or rip rap end walls. All culvert lengths are based on utilizing rip rap end walls.

The pipes that shall be extended upstream or downstream of the proposed culvert shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

Access Culverts:

The bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone and wrapped in filter fabric from the bottom of the excavation to the spring line of the pipe, this shall be considered the bedding. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The access culverts shall be backfilled from the spring line to within 150mm of finished grade with granular "B" or approved native material. The top 150mm shall be backfilled with OPS granular "A" material to finished grade.

Culvert #2 shall be centered on the property line in order to provide access to both properties.

Road Culverts:

Where there is asphalt, the asphalt shall be sawcut and milled for a thickness of 45mm and 0.30m past the joint. The milled surface shall be tack coated as per OPSS.

The bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone and wrapped in filter fabric from the bottom of the excavation to the spring line of the pipe, this shall be considered the bedding. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The pipe shall be backfilled above the clear stone with granular "B" or select native material.

Asphalt Road: The asphalt shall be HL4 and HL3 at depths to match the existing thickness with a minimum thickness of 50mm for each.

Gravel Road: The top 200mm shall be OPS Granular “M”, produced from 100% crushed dolomite, and shall be mechanically compacted to 100% modified standard proctor density.

If rip rap end walls are used, they shall consist of 150mm x 300mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Mirafi P150 or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

If concrete block end walls are used, they shall consist of concrete blocks with dimensions of approx. 600mm x 600mm x 1200mm, 600mm x 600mm x 2400mm or 300mm x 600mm x 1200mm as required. 600mm x 600mm x 2400mm concrete blocks will be paid at twice the unit price established per block, all others will be at a unit of 1. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. 2400mm wide concrete blocks shall be used as the top block on arch and larger round pipes in order to span between the culvert top and the supporting block. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be imbedded a minimum of 300mm into each bank and shall extend into the drain bottom to match the pipe invert or below. Erosion protection shall be placed on the banks next to the end walls. The erosion protection shall consist of 150mm x 300mm quarry stone over filter fabric (Terrafix 270R or approved equal). It shall extend 500mm upstream or downstream and from top of bank to top of bank at each end wall.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the end wall a finished appearance.

17. Installation of Tile

The Contractor shall supply, install, and backfill the specified sizes of tile and pipe to the depths and grades as shown on the drawings.

Concrete tile shall conform to ASTM C412, 2000D. Tile shall have a circular interior and exterior shape.

Where the concrete tile depth is greater than 2.5m the tile shall be bedded to the spring line with clear stone.

HDPE pipe shall be CSA Approved smooth wall gasketed pipe with bell and spigot joints (320 kPa).

It is intended that the tile be installed outside of the two existing tiles.

The trenching and laying of the concrete tile shall be done by wheel machine. An excavator must be used in areas of soil instability, unless approved by the Engineer. All tile joints shall be wrapped with a minimum 300mm width of Mirafi P150 (or approved equal) filter fabric. The filter fabric shall be overlapped by 450mm at the top of the tile. The tile shall be laid in straight lines or on smooth gradual curves with a minimum radius or 25m.

Where approved by the Engineer (or specified) concrete tile may be laid in tighter curves by saw cutting joints. The maximum deflection of one concrete tile joint shall be 22 degrees. Turns of greater than 22 degrees shall require the use of manufactured bends (HDPE smooth wall).

Laser control shall be used to ensure proper grades. The grades calculated on the Profile are to the invert of the tile and pipe with allowances to be made by the Contractor for the wall thickness of the tile and pipe. The depths shown and figured are from ground level to the invert of the pipe along the line of the proposed drain. Should an error appear in the figured depth at any station or stations, the grade shall be made to correspond with that shown on the Profile without extra charge.

Wheel Machine

A wheel machine shall be used to excavate the trench to allow for a round bottom. Prior to backfilling, the tile shall be covered manually to a depth of approx. 100mm over the pipe to ensure that the tile and pipe are not displaced by large clumps of earth. The trench shall be backfilled with excavated material free of stones, broken tile or other deleterious material. All stones larger than 100mm in diameter evident immediately after construction shall be picked up by the Contractor and disposed offsite. The Landowners are responsible for stones after that. The material shall be left windrowed over the trench to allow for settlement.

Excavator

When concrete tile is installed with an excavator, the tile must be installed as per the manufacturer's recommendations **complete with bedding to the spring line**. The bedding, except where the depth of the tile is greater than 2.5m, shall be included in the Contractors unit price for this item if being completed by excavator. Prior to backfilling, the tile shall be covered manually to a depth of approx. 100mm over the pipe to ensure that the tile and pipe are not displaced by large clumps of earth. The trench shall be backfilled with excavated material free of stones, broken tile or other deleterious material. All stones larger than 100mm in diameter evident immediately after construction shall be picked up

by the Contractor and disposed offsite. The Landowners are responsible for stones after that. The material shall be left windrowed over the trench to allow for settlement.

If the land level must be lowered in order to carry out trenching operations, then it is up to the Contractor to determine if it is necessary and include any extra cost involved. They shall first strip the topsoil to its full depth and stockpile it along one side of the working width and then grade the area to allow the trenching to be carried out. All excavated material shall be windrowed on the side opposite the trench that the topsoil is stockpiled. After trenching and backfilling operations are complete, the topsoil shall be spread to its original depth.

All areas disturbed by construction, except the material windrowed over the trench, shall be left in a condition suitable for cultivation.

The Contractor shall not operate any trenching or backfill equipment, delivery trucks or equipment, pickup trucks or other vehicles along or over the trench during or after construction. The Contractor shall be responsible for any damage caused by any equipment or vehicles operated over the trench. If the Contractor must cross the trench, he will do so in one area.

The Landowners are also warned to minimize farm equipment crossing over the trench or along the length of the trench for 1 year after construction in order to protect the tile.

18. Outlet Works

The outlet works for the drain shall consist of HDPE smooth wall pipe as shown on the profile (320 kPa) with a manufactured rodent rotating grate. It shall be installed at the outlet to the open channel.

Erosion protection made up of rip rap and filter fabric shall be installed on the channel side slope from the bottom of the channel to the top of the bank and for a distance of 1m on either side of all outlets. Rip rap shall be made up of 150mm to 300mm quarry stone or approved equal. The area to receive the rip rap shall first be graded to allow the placement of the rip rap to a depth of 400mm below finished grade. After grading, a layer of filter fabric (Mirafi P150 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

19. Richmond Street Bore

The Contractor shall supply and install a steel pipe casing by boring and jacking to the depths and grades as shown on the Profile. The steel casing shall have a minimum thickness of 12mm. All work shall be completed in accordance with OPSS.MUNI 416. Cathodic protection is not required.

20. Grout Existing Tile under Richmond Street

This item is to include filling the existing 600mm dia. tile under Richmond Street Road with grout.

The grout shall contain 25kg of type 10 Portland Cement per cubic metre. Portland cement shall conform to the requirements of CSA CAN3-A5M. The gradation shall conform to Table 1 of CSA Standard. The slump of unshrinkable fill shall be between 150mm and 200mm. The maximum 28 days compression strength shall not exceed 0.40 MPa, as measured in accordance with CAN-A23.2-9C. At no time will water be added to the concrete on site. Concrete which is unworkable or that is too stiff to produce a satisfactory product is to be discarded.

21. Watermain Lowering

The watermain lowering shall be completed by Directional Drilling.

The existing watermain is 100mm dia. SDR 26 PVC.

The Contractor shall be responsible for notifying the Municipality of North Middlesex, Ontario Clean Water Agency and the Engineer prior to lowering of the watermain.

The watermain shall be installed in accordance with OPSS with a minimum cover of 1.70m below the proposed channel/culvert bottom.

The proposed watermain shall be Certa-Lok PVC Pipe or approved equivalent.

Contractor shall confirm the line and grade of the existing main by means of excavation prior to commencing pipe installation. Physical ties are to be free from bends and elbows.

The distribution system shall be backflow protected and pressured tested to 1050 kPa for a period not less than two hours. All leaking joints, fitting and/ or appurtenances shall be tightened and all defective materials shall be removed and replaced. The maximum allowable leakage is 1.85L per day per mm of diameter, per km of length and all necessary steps to reduce the leakage to the allowable amount shall be taken. When the installation is completed and the leakage test and pressure test results are satisfactory, the system shall be thoroughly swabbed and flushed to remove all debris and unwanted material. The system shall be disinfected using a chlorine solution maintained at a minimum concentration of 50mg/L throughout the length of the watermain. The residual concentration at the end of the 24 hours shall be a minimum of 25mg/L. If the test of the chlorine solution is satisfactory, the contents of the watermain shall be flushed out completely and recharged with municipal water. Water samples of the recharge water in the system shall be analyzed for contamination and the system shall not be put into operation until test results indicate no contamination.

Disinfection procedures shall be repeated as necessary. All testing and disinfection shall be carried out by the Contractor in the presence of the Municipality's representative and in accordance with current provincial standards.

22. Catch Basins

Structure	Station	Size (mm)	Grate Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	1+064	900x1200	263.20	261.73 (W) / 261.73 (S) 750 / 750	261.80 (E) 900 STEEL
CB #2	1+099	900x1200	263.70	261.85 (N) 900 STEEL	261.86 (E) 825

The catch basins shall be square precast concrete structures as noted above and shall have a birdcage type grate. The ditch inlet catch basins (denoted DICB) shall have a 2:1 sloped top. The direction in the inlet elevation column denotes the direction the low side of the ditch inlet catch basins shall face. The catch basins shall be located with the backside at the property line and at the locations identified on the Plans. When specified the catch basins shall have a berm constructed on the downstream end. The top of the berm shall be 0.60m above the inlet elevation. The berm shall have a 2:1 front slope and 5:1 back slope with a 1m wide top. The height and back slopes can be increased under the direction of the Drainage Superintendent in order to reduce erosion and facilitate farming. Care shall be taken to ensure this does not negatively impact upstream lands. The berms shall be constructed using excess materials on site. If more material is required it shall be supplied at the expense of the drainage works.

The catch basins shall be made with the top sections separate from the base sections in order to allow riser sections to be installed or removed as necessary (i.e. the base section shall not extend for more than 150mm above the top of the highest opening in the base section). The wall thickness of all structures shall be 115mm and each shall have a 300mm sump. Birdcage grates shall be manufactured with a bar spacing no larger than 50mm.

The catch basins shall be set at the final elevations as directed by the Drainage Superintendent. The catch basins shall be set on a layer of clear stone. The clear stone shall be extended up to the spring line of the inlet and outlet pipe connections.

The tile at the connection to the catch basins shall be concreted on both the inside and outside prior to backfilling. Any pipe or tile shall not protrude more than 50mm inside the wall.

As part of this item the Contractor shall grade the area in the vicinity of the basin to ensure proper drainage.

The Drainage Superintendent or Engineer may change a birdcage type grate on a catch basin to a concrete lid or sloped birdcage grate at the request of a Landowner.

23. Seeding/Restoration

All areas disturbed by construction shall be restored to their pre-construction state.

All previously grass areas disturbed by construction, shall be restored with 50mm of screened topsoil and hydro seeded. The timing of the seeding shall be approved by the Drainage Superintendent or Engineer. The side slopes of the open channel shall be restored with double straw matting and seed.

Seed mixture, fertilizer and application rates are as follows:

- Canada Wild Rye (Elymus Canadensis), Virginia Wild Rye (Elymus virginicus), or Indian grass (Sorghastrum nutans)
- Fertilizer (300 kg/ha.) consisting of 8-32-16.
- Hydraulic mulch (2,999 kg/ha.) type “B” and water (52,700 litres/ha.) in accordance with OPSS 572 (hydroseed).

The above seed mixture shall apply unless otherwise approved by the Drainage Superintendent or Engineer.

24. Subsurface Drainage

All existing subsurface drains encountered during construction shall be reconnected to the open channel and tile drain unless otherwise noted on the drawings or as directed by the Drainage Superintendent.

A suitable length of equivalent sized PE agricultural tubing shall be used to connect the drain to the open channel and tile drain. Manufactured fittings shall connect the PE tile to the existing drain and to the concrete tile. The connections shall be carefully backfilled to ensure there is adequate support under the pipe and large clumps of clay do not displace the tile.

25. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.

- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.
- Material shall not be in areas regulated by the Conservation Authority or Ministry of Natural Resources.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0m from the top of the bank or excavation. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall repair erosion and sediment control measures and structures if damage occurs.
- The Contractor shall remove non-biodegradable erosion and sediment control materials once site is stabilized.
- Remove all construction materials from site upon project completion.

A light duty silt fencing shall be installed down-gradient of the work for the duration of construction.

The light duty silt fencing shall be supplied and installed in accordance with OPSS 577 and OPSD 219.110. The light duty silt fencing shall be removed once construction is complete.

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
OCT. 24, 2025
PROVINCE OF ONTARIO

MUNICIPALITY OF NORTH MIDDLESEX

TOWNSHIP OF LUCAN–BIDDULPH

CONCESSION 1

CONCESSION 1

CONC. 2

ADARE DRIVE

ADARE DR

REVINGTON MUNICIPAL DRAINS

'A'

'B'

'C'

'D'

LOT 6

LOT 7

LOT 8

LOT 9

LOT 10

LOT 11

LOT 12

LOT 13

LOT 14

LOT 15

LOT 16

RICHMOND STREET

000–010–020–02
CLIFF KNIP FARMS LTD
0.00 Ha

000–020–047
C. KNIP
6.60 Ha (SURFACE WATER ONLY)

(4.86 Ha)

5.67 Ha

000–010–019
C. & J. ROLLINGS
17.90 Ha

000–020–046
R. & R. DERUITER
35.61 Ha

SMITH – GLAVIN DRAIN

GLAVIN DRAIN

SMITH – GLAVIN DRAIN BRANCH

CRONYN BRANCH No.2

000–010–018
1413144 ONTARIO INCORPORATED
19.02 Ha

2.02 Ha

000–010–016
R. YOUNG
3.68 Ha

REVINGTON BRANCH

KNIP BRANCH

000–020–045
1433468 ONTARIO INC.
c/o MARIA SCHROEDERS
38.44 Ha

1.62 Ha

000–010–015
1413144 ONTARIO INCORPORATED
23.06 Ha

CRONYN BRANCH No.1

BM4

PROP TWIN 750ø

CB#1
1+064

CB#2
1+096

000–020–044
1433468 ONTARIO INC.
c/o MARIA SCHROEDERS
37.23 Ha

BM3

TILE OUTLET
0+757

EXISTING OPEN CHANNEL
FROM STATION 0+150 TO
0+757 TO BE DEEPENED

000–010–014
1510457 ONTARIO INC
15.47 Ha

000–020–043
CLIFF KNIP FARMS LTD
6.56 Ha

CUNNINGHAM DRAIN

000–020–042
CLIFF KNIP FARMS LTD
9.53 Ha

000–010–013–05
J. COCKWILL
0.31 Ha

BM2

0+546

MAIN DRAIN

000–010–013
J. & M. COCKWILL
15.12 Ha

000–010–011–10
D. & C. ELLIS
0.40 Ha

MOORESVILLE DRIVE

MOORESVILLE DR

0+323 BM1

0+000

0+150

CUNNINGHAM
DRAIN EXT. 1968

000–010–011
J. & L. FEVERY
7.79 Ha

OWNER INDEX NUMBER

1. 000–020–042–03 M. & J. MCBURNEY 0.08 Ha
2. 000–020–040 M. & J. MCBURNEY 0.21 Ha
3. 000–020–042–01 H. TSUGAWA & P. CHANG 0.57 Ha
4. 000–020–041–03 B. RYAN & C. HOFFMAN 0.38 Ha
5. 000–020–041–02 E. COXON 0.47 Ha
6. 000–020–041–01 M. COCKWILL 0.32 Ha
7. 000–020–041 G. & M. COCKWILL 0.47 Ha
8. 000–010–012 T. RYAN 0.25 Ha
9. 000–010–014–02 D. FULFORD 0.31 Ha
10. 000–010–015–01 1413144 ONTARIO INCORPORATED c/o GERRIT & LENY PETERS 0.40 Ha
11. 000–010–020 M. REVINGTON 0.40 Ha

LEGEND

- DRAINAGE AREA
- ROLLINGS DRAINAGE WORKS
- MUNICIPAL DRAIN
- [2] OWNER INDEX NUMBER
- EXISTING CULVERT
- EXISTING CULVERT TO BE REPLACED
- (2) CULVERT NUMBER

SCALE: 1:10,000
0 150 300 450m

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rollings Drainage Works Plan

PROJECT No. 2024–1629

APPROVED J. WARNER	SCALE		PLAN	
CHECKED B. VAN RUITENBURG			1:10,000	
DRAWN C. SAUNDERS	NO.	REVISIONS	DATE	BY
	1	FINAL REPORT	OCT. 24, 2025	CS

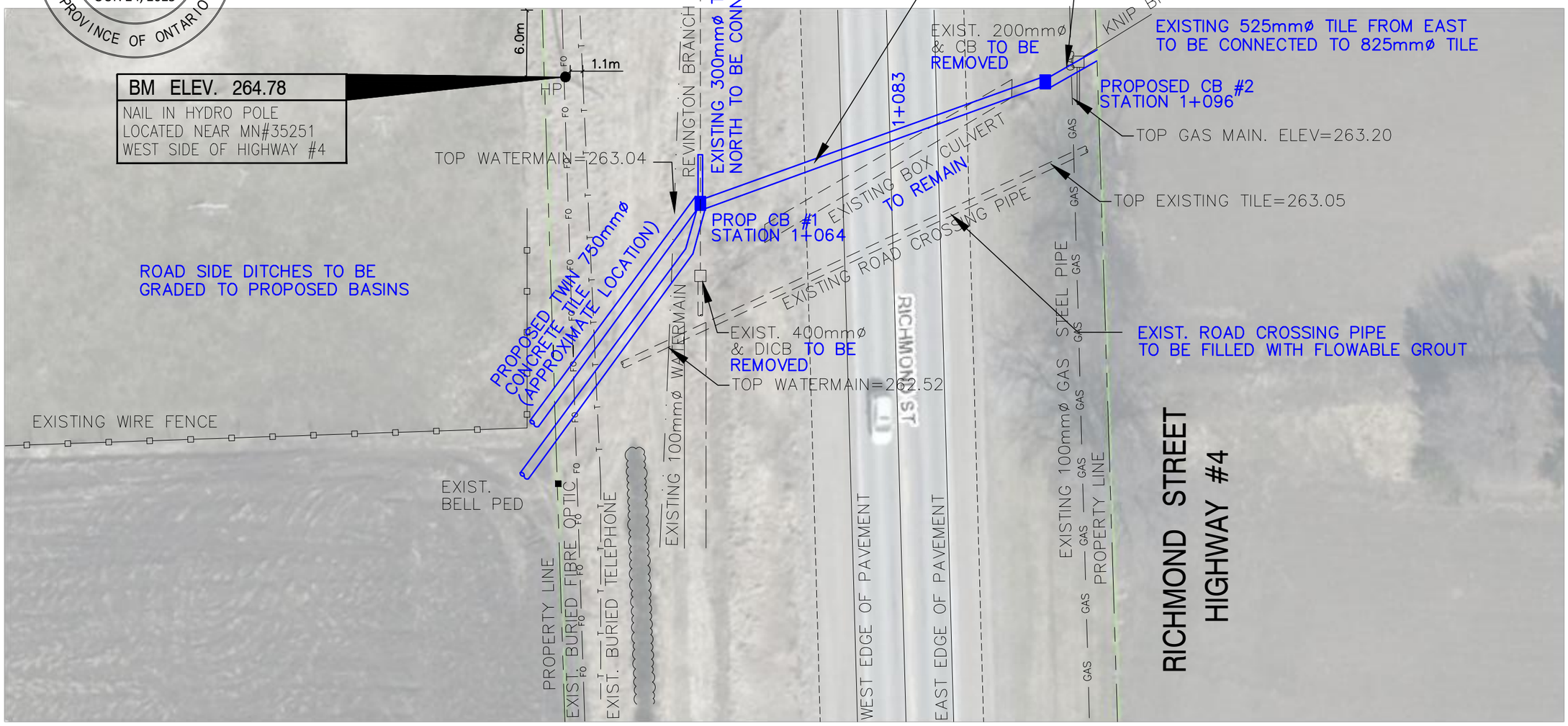
MUNICIPALITY of NORTH MIDDLESEX

ROLLINGS DRAINAGE WORKS PLAN

1 OF 5

Last Updated: August 28, 2025

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
OCT. 24, 2025
PROVINCE OF ONTARIO



DETAIL PLAN

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rollings Drainage Works Detail Plan
PROJECT No. 2024-1629

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	OCT. 24, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:400			
C. SAUNDERS	0 4 8 12m			

MUNICIPALITY of NORTH MIDDLESEX

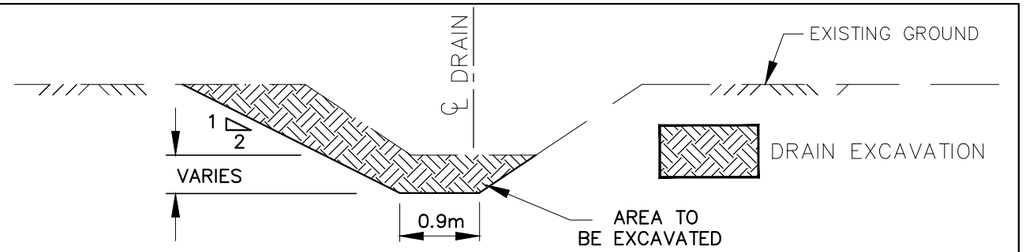
ROLLINGS DRAINAGE WORKS
DETAIL PLAN

Last Updated: July 17, 2025

GENERAL NOTES

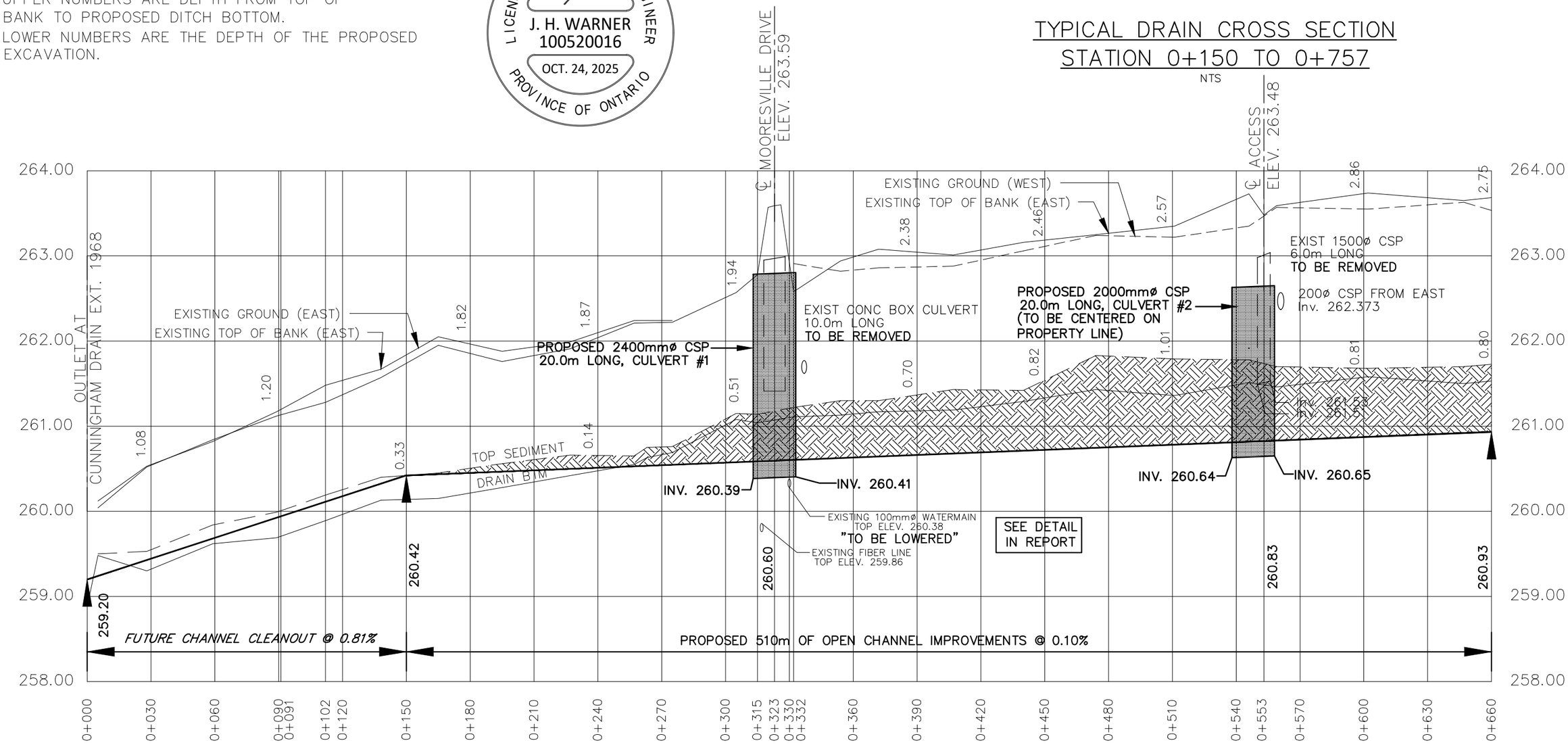
1. BENCHMARK No.1 ELEV. 263.56
   SOUTHWEST CORNER OF CONCRETE BOX CULVERT HEADWALL, STATION 0+323
   BENCHMARK No.2 ELEV. 263.04
   TOP OF NORTH END OF EXISTING 1500mmø CSP, STATION
2. UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED DITCH BOTTOM.
3. LOWER NUMBERS ARE THE DEPTH OF THE PROPOSED EXCAVATION.

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
OCT. 24, 2025
PROVINCE OF ONTARIO



TYPICAL DRAIN CROSS SECTION STATION 0+150 TO 0+757

NTS



Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rollings Drainage Works Profile 1

PROJECT No. 2024-1629

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	OCT. 24, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE: 1:2,000
0 20 40 60m

MUNICIPALITY of NORTH MIDDLESEX

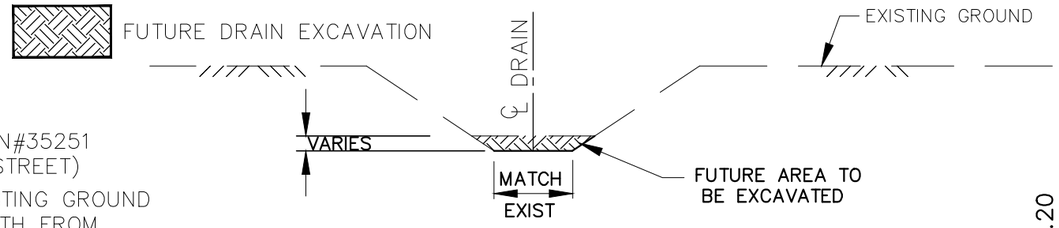
ROLLINGS DRAINAGE WORKS

PROFILE

Last Updated: August 28, 2025

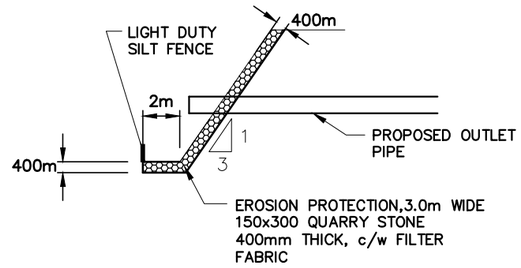
GENERAL NOTES

1. BENCHMARK No.3 ELEV. 262.37
   TOP OF 400mmø CSP FROM CRONYN BRANCH NO. 1, STATION 0+757
   BENCHMARK No.4 ELEV. 264.78
   NAIL ON UTILITY POLE LOCATED NEAR MN#35251 WEST SIDE OF HIGHWAY #4 (RICHMOND STREET)
2. UPPER NUMBERS ARE DEPTH FROM EXISTING GROUND TO INVERT OF PROPOSED TILE AND DEPTH FROM THE TOP OF BANK TO PROPOSED DITCH BOTTOM.
3. LOWER NUMBERS ARE THE DEPTH OF THE PROPOSED EXCAVATION.



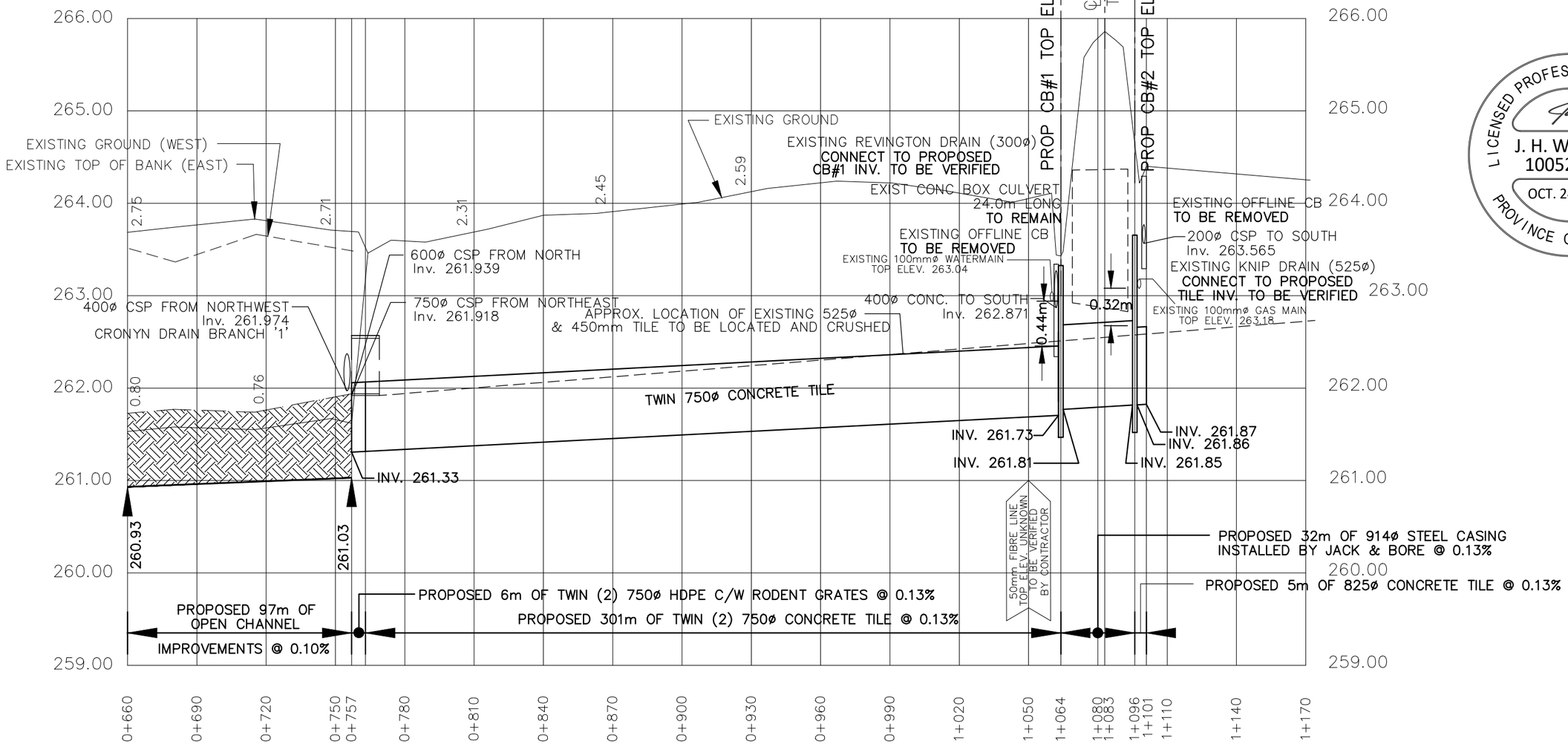
TYPICAL DRAIN CROSS SECTION FUTURE CHANNEL CLEANOUT

NTS



OUTLET DETAIL

NTS



LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
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OCT. 24, 2025
PROVINCE OF ONTARIO

Dobbin Engineering Inc.

4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
Rollings Drainage Works Profile 2

PROJECT No.
2024-1629

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	OCT. 24, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

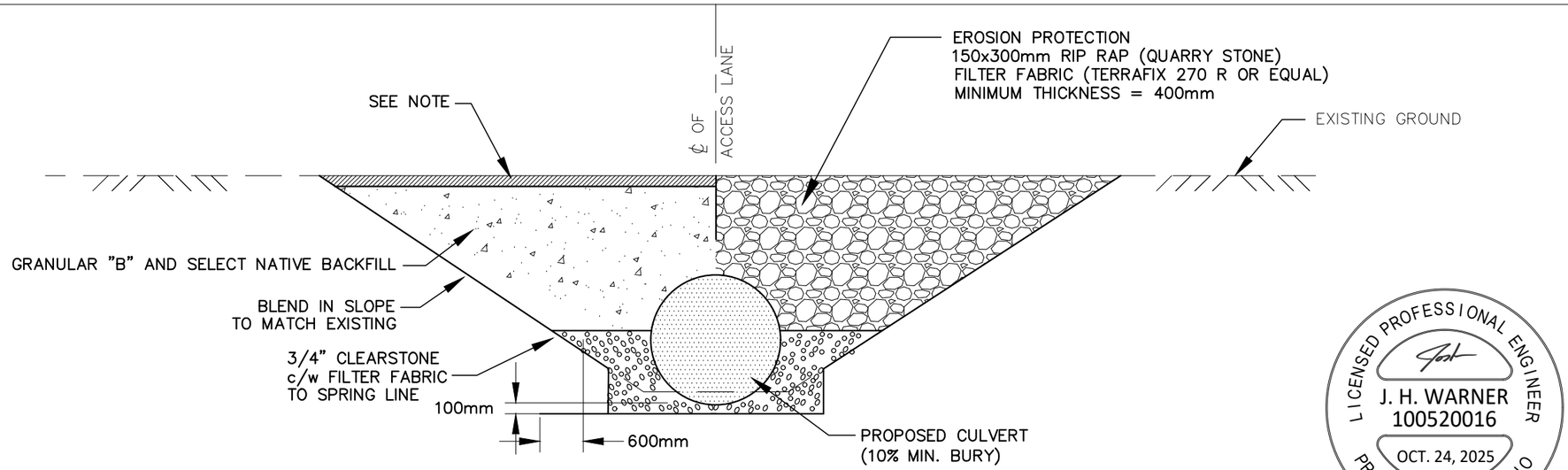
SCALE: 1:2,000
0 20 40 60m

MUNICIPALITY of NORTH MIDDLESEX

ROLLINGS DRAINAGE WORKS
PROFILE

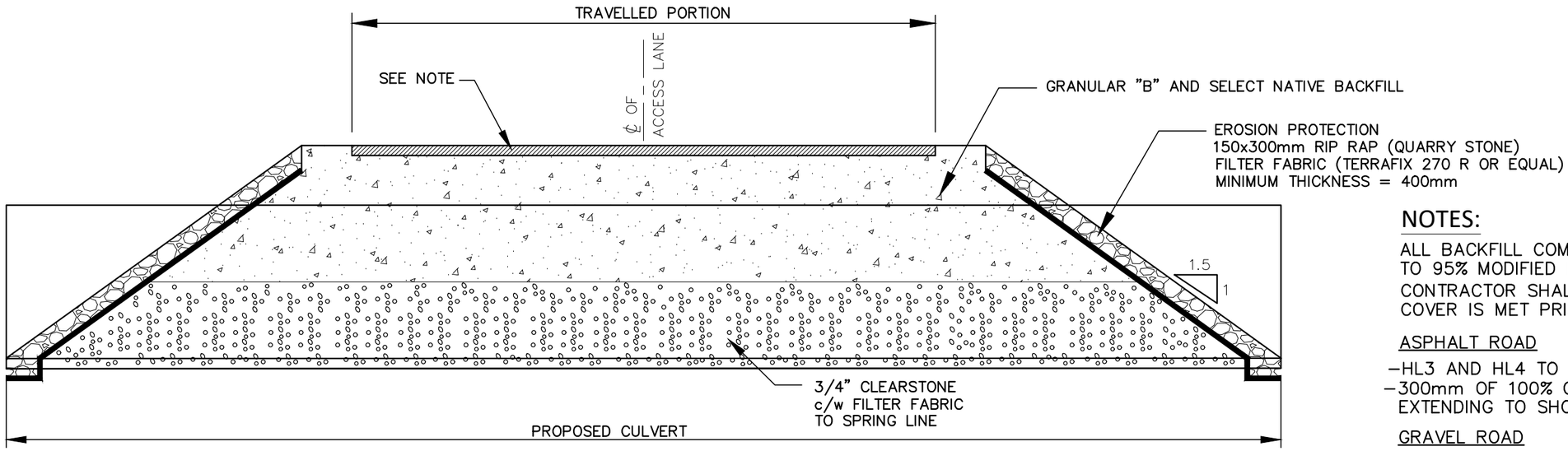
4
OF 5

Last Updated: August 28, 2025



PROPOSED PIPE END SECTION

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
OCT. 24, 2025
PROVINCE OF ONTARIO



PROPOSED CROSS-SECTION

NOTES:

ALL BACKFILL COMPACTED
TO 95% MODIFIED PROCTOR DENSITY

CONTRACTOR SHALL ENSURE MINIMUM
COVER IS MET PRIOR TO CROSSING

ASPHALT ROAD

- HL3 AND HL4 TO MATCH EXISTING THICKNESS
- 300mm OF 100% CRUSHED GRAN "A"
  EXTENDING TO SHOULDER

GRAVEL ROAD

- 200mm OF OPS GRANULAR "M"
  (CRUSHED DOLOMITE SOURCE)
  TO MATCH EXISTING ROAD WIDTH

ACCESS CULVERT

- 150mm OF 100% CRUSHED GRANULAR "A"

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
Rollings Drainage Works Culvert Detail

PROJECT No.
2024-1629

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	OCT. 24, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1:75
0 2m

MUNICIPALITY of NORTH MIDDLESEX

ROLLINGS DRAINAGE WORKS
TYPICAL CULVERT DETAIL

5
OF 5

Last Updated: August 28, 2025