



K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS & PLANNERS

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TENDER CALL

**Hamilton Drain 2025
Township of Huron-Kinloss**

The Township of Huron-Kinloss hereby invites qualified, experienced contractors to tender a bid on the above-referenced drain construction.

Bids will be received until:

Thursday, August 21, 2025 at 3:00 pm

And will be received in the following methods:

All bids must be sealed and submitted to the Township of Huron-Kinloss Municipal Office at:

21 Queen Street
P.O. Box 130
Ripley ON, N0G 2R0

The project is located in Lots 7-10, Concession 1 (Bruce Road 86) in the geographic Township of Huron.

The work includes:

Hamilton Drain A

- Total of 749m of ditch cleanout and improvements (including washout repairs, rock chutes and bank stabilization at specified locations)
- 26m of ditch re-alignment at the junction of Hamilton Drain A and Towle Branch
- Construction of a 100m long x 0.5m deep permanent sediment trap and riprap placement for erosion control in various locations

*The Engineer's estimate for the cost of construction (incl. contingencies) is **\$66,400.***

TENDER DOCUMENTS may be obtained at the following location:

<https://www.huronkinloss.com/build-invest-and-grow/bids-and-tenders/>

If you would like a tender document sent to you by mail or email contact the Project Engineer at the email address noted below.

PROJECT ENGINEER: Joel Miller, P. Eng, Drainage Engineer, K. Smart Associates Ltd., (519) 748-1199 ext 228, jmiller@ksmart.ca

**HAMILTON DRAIN 2025
Township of Huron-Kinloss****TENDER DOCUMENTS**

1. The Township of Huron-Kinloss hereby invites qualified, experienced contractors to submit tenders for the construction of the above-referenced drain.

Tenders will be received until:

Thursday, August 21, 2025 at 3:00 pm

And will be received in the following methods:

- Delivered to the Township Office at:

21 Queen Street
P.O. Box 130
Ripley ON, N0G 2R0

Tenders will be publicly opened at the Clerk's office after 3:10 p.m. on August 21, 2025, and may be considered for award by Council at the next Council meeting.

2. Tender Deposit: A Tender deposit equal to **\$7,000** is required as Tender security. The Tender Deposit shall be in the form of a certified cheque or Bid Bond, payable to the Township of Huron-Kinloss.

If a Bid Bond is submitted, an Agreement to Bond must be completed and submitted as part of the Tender Submission (as described in Section 100.3 Contract Security).

The Bid Bond shall be issued by a Bonding Company acceptable to the Municipality and licensed to carry on business in Ontario. The Bid Bond must be irrevocable and remain open for bid acceptance for at least **SIXTY (60)** days from the date of bid opening.

3. Contract Security: If the Selected Tenderer used a certified cheque as their Tender Deposit, the certified cheque will be retained as Contract Security until issuance of the Certificate of Completion. All other certified cheques submitted as Tender Deposits will be returned after award of the contract.

If the Selected Tenderer submitted an **Agreement to Bond** with their tender, prior to Form of Agreement execution, the Selected Tenderer shall submit the following required bonds:

- A **Performance Bond** for the due completion of the Work in accordance with the terms and conditions of the Contract, the bond shall be in an amount equal to **50%** of the Total Contract Price (excluding HST), including a 1-year Maintenance Period from date of Substantial Performance, in the form of FORM 32, Performance Bond under Section 85.1 of the Construction Act.; and;
- A **Labour and Material Payment Bond**, the Bond shall be in an amount equal to **50%** of the Total Contract Price (excluding HST) in the form of FORM 31, Labour and Material Payment Bond under Section 85.1 of the Construction Act.

The Bonds received from the Selected Tenderer shall remain in force throughout the duration of the Contract including the guarantee, warranty or maintenance period of the Contract and/or until the Contract is deemed complete by the Owner.

4. Tender Documents: The Tender Documents consists of the following:

- 100 Instructions to Tenderers
- 101 Schedule of Tender Prices
- 102 Form of Tender
- 103 Form of Agreement (*Sample*)
- 200 General Conditions
- 400 Standard Specifications for Construction of Drains
- 410 Standard Specification for Open Drains
- 500 "*Issued for Construction*" Drawings 1 to 10, dated July 16, 2025

Upon award of the contract, the Tender Documents shall form the Contract Documents.

5. Deliverables: The Contractor shall supply all labour, equipment and materials to complete the works as shown on the Drawings and as listed in the Schedule of Tender Prices.
6. Pricing: Tenderers shall complete and submit the Schedule of Tender Prices. The Schedule of Tender Prices is required for the evaluation of Tenders received, preparation of progress payment certificates, any adjustments necessary to the Contract made under Sections 400.8 and 400.9 of the *Standard Specifications for Construction of Drains*, and calculation of assessments to properties per the Drain Report.
7. Contingencies: Tenderers are to provide pricing for the contingency items contained in the Schedule of Tender Prices. Contingency items shall not be expended without the authorization of the Engineer and any part not expended shall be deducted from the final contract price.
8. Tender Submission Errors: A discrepancy or mathematical error in the Schedule of Tender Prices may be corrected by the Municipality with the Total Tender Price corrected accordingly.

If a Tenderer has omitted a price for an item in the Schedule of Tender Prices, it shall be assumed that the Tenderer has allowed for this item elsewhere in the Schedule of Tender Prices. Unless agreed to by the Municipality, no increase shall be made in the Total Tender Price on account of such omission.

9. Tender Omissions/Objections/Interpretations: If a Tenderer finds discrepancies in, or omissions from the Tender Documents, or if there is doubt as to their meaning, they shall notify the Engineer and an addendum may be issued to provide correction or clarification.

If a Tenderer objects to the materials, methods, or design specified, they shall notify the Engineer, in writing, stating their reason for objection and they may submit an alternative. In such an event, the Engineer may choose to issue an addendum.

Neither the Municipality, Engineer, nor the Drainage Superintendent will make oral interpretations of the content of the Tender Documents.

Any questions are to be directed, in writing, to **Joel Miller, P. Eng. (Project Engineer).**

10. Deletions: The Municipality reserves the right to delete individual items from the Contract.

11. **Taxes:** Tenderers shall not include HST on pricing items provided in Section 101 - Schedule of Tender Prices.

The Contractor shall pay all applicable taxes, Harmonized Sales Tax (HST), for labour, equipment and materials supplied. The Municipality will include 13% HST on all payments to the Contractor. If the Contractor is entitled to any exemptions, the Municipality will supply the necessary Certificates.

12. **Schedule Constraints:** As per the Department of Fisheries & Oceans mapping, Drain A of the Hamilton Drain is identified as a "Class C" Drain, and as such, no in-water work is to occur between the window of **March 15th to July 15th**.

13. **Evaluation:** Tenders will be evaluated based on the Total amount of the Tender and the relevant experience of the Tenderer constructing works under the *Drainage Act*. The Engineer may request additional information from the Tenderer documenting prior relevant experience. The lowest of any Tender not necessarily accepted.

Tenders which are incomplete, conditional, illegible, obscure or that contain additions not called for, reservations, deletions, alterations, mathematical errors, or pricing that is considered unbalanced by the Engineer, or irregularities of any kind, may be rejected as informal. The Municipality reserves the right to waive informalities at its discretion.

To evaluate tenders, the Corporation of the Township of Huron-Kinloss may, at its sole discretion, choose to include or exclude any combination of Items P1, P2 and P3 – which provide provisional pricing to substitute coir mat with Flexamat by Terrafox (or approved equal) at bank repair locations. The successful Tenderer will be informed at the time of contract award which provisional items, if any, are included in the contract.

14. **Submission Requirements:** The following documents must be completed and submitted with the Tender as specified in Section 100.1 above:

- 14.1 A Tender Deposit in compliance with Section 100.2 above
- 14.2 Agreement to Bond in compliance with Section 100.3 above (if applicable)
- 14.3 Section 101 - SCHEDULE OF TENDER PRICES
- 14.4 Section 102 - FORM OF TENDER (including full completion of the *Proof of Ability, List of Proposed Subcontractors, and Construction Scheduling*)

15. **Pre-Conditions of Agreement:** Upon notice of Contract Award by the Municipality, the Selected Tenderer shall provide the following documentation prior to the commencement of work:

- 15.1 Clearance Certificate from the Workplace Safety and Insurance Board (WSIB)
- 15.2 Insurance Documents in compliance with Section 200.18 **(\$5,000,000 for Commercial General Liability, Automobile Liability, and Professional Liability and Errors and Omissions, as required by the Township of Huron-Kinloss)**.
- 15.3 Contract Security as per Section 100.3 above.

16. **Form of Agreement:** The Municipality and the Selected Tenderer shall enter into a formal agreement as per the sample Section 103 FORM OF AGREEMENT attached. If the Selected Tenderer fails to execute the Agreement or satisfy any Pre-Conditions of Agreement (as per Section 15 above) within 15 days of notice of award, the Municipality may, without incurring any liability, proceed to award to another Tenderer and pursue all other remedies available to the Municipality.

17. Contract Award: Contract Award is anticipated at the next available Council meeting. The Municipality reserves the right to alter the date of Contract Award or not accept any tender at its sole discretion.
18. Occupational Health and Safety: All bidders are to note the Corporation of the Township of Huron-Kinloss' CORPORATE STATEMENT OCCUPATIONAL HEALTH AND SAFETY notice (Schedule A) attached to the end of this Tender. As per the Township's Procurement Policy By-law No. 2022-196, Clause 5.5.2, this Notice will accompany the letter to the successful Bidder on award of the contract.
19. Questions: Further information is available through the Project Engineer:

Joel Miller, P. Eng. (Project Engineer)
K. Smart Associates Limited
(519) 748-1199, Ext. 228
jmiller@ksmart.ca

HAMILTON DRAIN 2025
Township of Huron-Kinloss

This schedule must be completed and attached to the Form of Tender when submitting a Tender.

Item	Stations	Description	Qty.	Unit	Unit Price	Cost
i) Hamilton Drain A						
A1	-0+275 to -0+175	Construct 100m long permanent sediment trap, with 5m ² of riprap at outlet	1	L.S.		
A2	-0+175 to -0+069	106m of ditch cleanout, includes levelling and seeding.	106	/m		
A3	-0+069	60m ² of riprap placed on north bank at junction with Towle Branch	60	/m ²		
A4	-0+069 to -0+043	26m of ditch re-alignment, includes levelling and seeding.	26	/m		
A5	-0+043 to 0+210	253m of ditch cleanout, salvage spoil for upstream bank stabilization, seed banks and disturbed areas.	253	/m		
A6	0+210 to 0+600	390m of ditch cleanout and bank improvements with salvaged spoil, level and seed excess material.	390	/m		
A7	0+300	Repair washout per detail by: straightening 42m of ditch, reconstructing bank with 50m ³ of on-site material and installing 100m ² of coir mat	1	L.S.		
A8	0+379	Repair washout per detail by: straightening 38m of ditch, reconstructing banks with 200m ³ of on-site material installing 100m ² of coir mat	1	L.S.		
A9	0+379	Construct rock chute at surface run with 20m ² riprap	20	/m ²		
A10	0+483	5m ² riprap at two Branch F tile outlets (10m ² total)	10	/m ²		
A11	0+561	Repair washout per detail by: straightening 25m of ditch, reconstructing bank with 25m ³ of on-site material and installing 150m ² of coir mat	1	L.S.		
A12	0+689	Remove beaver dam	1	L.S.		
A13	0+210 to 0+561	Hydroseed 1,650m ² of reconstructed ditch banks where directed by engineer	1650	/m ²		
-	0+600 to 1+306	No ditch work required	N.A.	N.A.	N.A.	N.A.
A14	1+132	Install 5m ² of rip-rap on the north bank	5	/m ²		
Sub Total Part i)						

Item	Stations	Description	Qty.	Unit	Unit Price	Cost
ii) Contingencies (if required and approved by the engineer)						
C1		20m ² riprap on geotextile, where directed	20	/m ²		
C2		Lump sum contingency allowance	1	L.S.	6,900	6,900
Sub Total Part ii)						
Total Tender Price:						
iii) Provisional Pricing (if approved by the engineer)						
P1		To replace Item A7 at Drain A, Station 0+300: Repair washout per detail by: straightening 42m of ditch, reconstructing bank with 50m ³ of on-site material and installing 100m ² of Flexamat by Terrafix (or approved equal)	1	L.S.		
P2		To replace Item A8 at Drain A, Station 0+379: Repair washout per detail by: straightening 38m of ditch, reconstructing bank with 200m ³ of on-site material and installing 100m ² of Flexamat by Terrafix (or approved equal)	1	L.S.		
P3		To replace Item A11 at Drain A, Station 0+561: Repair washout per detail by: straightening 25m of ditch, reconstructing bank with 25m ³ of on-site material and installing 150m ² of Flexamat by Terrafix (or approved equal)	1	L.S.		

Name of Company: _____

Address: _____

 Signing Authority: _____
 Print Name _____ Signature _____

Signature: _____

Phone Number(s): _____

Foreman Mobile Number(s): _____

E-Mail: _____

Date: _____

Note: Transfer Total Tender Price to Section 102 FORM OF TENDER

TO: The Mayor and Council, Township of Huron Kinloss**RE: CONSTRUCTION OF: HAMILTON DRAIN 2025**

1. The Tenderer agrees, having carefully examined the plans, specifications and location of the work and understanding all conditions, and hereby offers to enter into a contract to construct the said work for the said Municipality, complete and ready for use in accordance with the plan, profiles and specifications attached which form the basis of the proposal for the following price.

**Total Labour, Equipment and Materials
including Contingencies**

\$ _____

Total must agree with the Total Tender Price in Section 101 - Schedule of Tender Prices.

2. Proof of Ability

List a minimum of (3) comparable drainage projects to demonstrate relevant experience.

Project Name	Owner	Year	Project Cost	Reference
				Name: Phone:
				Name: Phone:
				Name: Phone:

3. List of Proposed Subcontractors

If no subcontractors are proposed, write "N/A" in the table below.

Work	Subcontractor Name
Other (please specify)	

4. Construction Scheduling

To assist the Engineer and Owners with scheduling, The Tenderer shall complete the following:

a) Work is anticipated to begin _____.

b) Work will be completed on or before _____.

c) We carry liability insurance in the amount of \$_____ with the

_____ Company.

d) Our Workers' Compensation Board Account Number is _____ and we guarantee to the Township that all premiums for this account have been paid. We agree to provide, prior to Tender acceptance and at any time if and when requested, a Workers' Compensation Board Certificate.

e) Our H.S.T. Registration Number is _____.

5. Confirm receipt of Addenda (if any) as follows:

I acknowledge receipt of Addendum No(s): _____.

Note: If no addenda were issued, leave this section blank.

6. The Contractor acknowledges the completion and enclosure of the following documents with this formal tender submission:

- ☐ The Tenderer encloses a Tender Deposit in the amount of \$ 7,000, and an Agreement to Bond (if applicable).
- ☐ The Tenderer encloses all pages of 101 SCHEDULE OF TENDER PRICES complete with all unit prices and total costs and company information/signature filled out (hard copy submission only).
- ☐ The Tenderer encloses all pages (2) of this completed 102 FORM OF TENDER.

7. The Tenderer agrees that if this Tender is accepted, the signature below and the Tender Deposit/Contract Security enclosed is the Tenderer's undertaking to commence and complete the specified work as per the Tender Documents.

8. The Contractor agrees that liquidated damages in the amount of \$ N/A will be charged for each day after the completion date indicated that the Work remains unfinished, unless the completion date is extended by the Engineer.

9. Failure to fully complete this Form of Tender and enclose the above-referenced documents may result in the Tender being rejected by the Municipality.

OFFERED ON BEHALF OF THE TENDERER

Name _____

Company _____

Signature _____

Address _____

Date _____

Email _____

(Seal)

Office Phone _____

Mobile Phone _____

RE: CONSTRUCTION OF: HAMILTON DRAIN 2025

THIS AGREEMENT made in TRIPLICATE this _____ DAY OF _____, 2025.

BETWEEN:

(hereinafter called the "Township")

- and -

(hereinafter called the "Contractor")

WITNESSETH that in consideration of the mutual covenants, conditions, and agreements contained herein, the parties hereto and hereby agree as follows:

ARTICLE 1

The articles of this Agreement here with documents listed below constitute the documents of the "Contract" and shall be read together establishing the Contract as fully and completely, to all the stipulations described herein. The Contract Documents are listed as follows:

- 100 Instructions to Tenderers
- 101 Schedule of Tender Prices
- 102 Form of Tender
- 103 Form of Agreement
- 200 General Conditions
- 400 Standard Specifications for Construction of Drains
- 410 Standard Specification for Open Drains
- 500 "Issued for Construction" Drawings 1 to 10, dated July 16, 2025

Addenda Issued during Tendering (if any)

ARTICLE 2

The Contractor undertakes and agrees:

- (A) To supply all the materials, labor and equipment necessary to perform all the work in accordance with this Contract.
- (B) To make every reasonable effort to commence and complete the work to the dates as outlined by the Contractor in the FORM OF TENDER.
- (C) That liquidated damages in the amount of \$ N/A will be charged for each day after the completion date indicated that the Work remains unfinished, unless the completion date is extended by the Engineer.

ARTICLE 3

The Township undertakes and agrees:

- (A) To pay the Contractor in current funds for the performance of the Contract subject to additions and deductions as provided in the Contract Documents.
- (B) To make payments on account thereof by invoices submitted from the Contractor in accordance with the Contract Documents. Invoices will be paid net 30 days.

ARTICLE 4

If and whenever either party hereto desires to give notice to the other concerning any matters related to this contract, or and general concerns or communication arising on site, such notice/communication shall be written in email format addressed to:

The Contractor: _____

The Township: _____

ARTICLE 5

This agreement shall ensure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of this day and year set out above.

THE CONTRACTOR	THE TOWNSHIP OF HURON-KINLOSS
Signed:	Signed:
Position Held:	Position Held:
Witness:	Witness:
(Seal)	(Seal)

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200 GENERAL CONDITIONS**200.1 SCOPE**

The work to be done under this contract consists of supplying all labour, equipment and materials to construct the drainage work as outlined in the Instructions to Tenderers, the Form of Tender and Agreement, the Schedule of Tender Prices, the Drawings, the General Conditions, Special Provisions and the Standard Specifications.

200.2 ORDER OF PRECEDENCE

In case of any inconsistency or conflict between the drawings and specifications, the following order of precedence shall apply: Addenda, Form of Tender and Agreement, Schedule of Tender Prices, Special Provisions, Contract Drawings, Standard Specifications, General Conditions.

200.3 MUNICIPALITY

Municipality refers to a municipal corporation in the Province of Ontario. Where reference to Township, County, Region, Town, City or Owner appears it shall be deemed to be the same as the word Municipality. Where reference to owner appears in the specifications it is usually in reference to the owner of the property on which the drain is being constructed.

200.4 TENDERS AND CONTRACT SECURITY

Tenders are to be submitted for the complete works or a portion thereof, as instructed by the Municipality. The Schedule of Tender Prices must be completed and provided with the Contractor's tender.

A Tender Deposit in the form of a certified cheque, bank draft, bonding, or other security acceptable to the Municipality must accompany each tender as a guarantee of good faith. The Tender Deposit shall name the Municipality as the payee. Refer to the Instructions to Tenderers for additional Tender Deposit information and Contract Security requirements.

200.5 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Prior to the submission of the Tender, the Tenderer must examine the premises and site to compare them with the Drawings and Specifications in order to be satisfied with the existing conditions and the extent of the work to be done. If site examination requires entry onto privately owned lands, the Tenderer shall contact the Drainage Superintendent at least one week prior to the tender closing date to arrange site examination with the Drainage Superintendent.

The Tenderer must ensure that the meaning and intent of the drawings, estimated quantities and specifications is clearly understood before submission of the Tender. No allowances shall be made on behalf of the Contractor by reason of any error made in the preparation of the tender submission.

Any estimates of quantities shown or indicated on the drawings or elsewhere in the tender/contract document are provided for the convenience of the Tenderer. The Tenderer shall check the estimate of quantities for accuracy. Any use made of the estimated quantities by the Tenderer in calculating the tendered amounts is done at the Tenderer's risk.

200.6 COMMENCEMENT AND COMPLETION OF WORK

The work must commence immediately after the Tenderer is notified of the contract award or at a later date, where specified in the tender/contract document. If weather and ground conditions are unsuitable,

work may be started at a later date from either of the above two dates if such delay is approved by the Engineer.

Refer to Standard Specifications 400.2, 400.11, 400.20, 400.21, 400.25 and 400.26 for notification requirements related to the *PRE-CONSTRUCTION MEETING, BENCHMARKS AND LAYOUT, WORKING IN ROAD ALLOWANCES, LANEWAYS AND ACCESS CROSSINGS, LIVESTOCK, AND STANDING CROPS*.

The work must proceed in such manner as to ensure its completion at the earliest possible date consistent with first class workmanship and within the time limit set out in the tender/contract document. Failure to commence or complete the work as set out in the tender/contract document may result in a forfeiture of all or part of the Contract Security if the Engineer determines that damages have been sustained by the Municipality or any landowner because of the non-commencement or non-completion of the contract as awarded and that the failure to meet the specified dates has been the fault of the Contractor.

200.7 NOTICE FOR RESUMPTION OF WORK

If the Contractor leaves the job site for a period of time after initiation of work, a minimum of 2 working days advance notice shall be given to the Engineer and the Municipality before returning to the job site to resume work. If any work is resumed without the advance notice, the Contractor shall be fully responsible for all such work undertaken prior to said notification and shall make good any works or materials judged to be inadequate.

200.8 PERMITS, NOTICES, LAWS AND RULES

The Contractor shall apply and pay for all necessary permits or licenses required for the execution of the work. This shall not include the obtaining of permanent easements or rights or servitude. The Contractor shall give all necessary notices and pay all fees required by the law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public's health and safety and if the specifications and drawings are at variance therewith, any resulting additional expense incurred by the Contractor shall constitute an addition to the contract price.

200.9 HEALTH AND SAFETY

Contractor must comply with the *Occupational Health and Safety Act (OHSA)* and the associated *Regulations for Construction Projects*, including, but not limited to the requirements related to hazardous materials, physical agents and designated substances. Contractor must also follow any site-specific safety and training requirements of the Municipality, agencies, utility companies or other authorities.

Communication about site-specific hazards and safety requirements shall occur at the pre-construction meeting. If no pre-construction meeting is conducted, Contractor will communicate site-specific hazards and safety requirements before beginning work.

Contractor shall immediately report any workplace incidents, near misses, injuries and occupational illnesses to the Engineer.

200.10 LIMITATIONS OF OPERATIONS

Except for such work as may be required by the Engineer to maintain the works in a safe and satisfactory condition, the Contractor shall not carry out operations under the contract on Sundays or Statutory Holidays without permission in writing from the Engineer. The Engineer may direct in writing to the Contractor to cease or limit operations under the contract on any day or days if the operations are of such a nature, or if the work is so located, or if the traffic is of such a volume, that the Engineer deems it necessary or expedient to do so.

200.11 SUPERVISION

The Contractor shall provide constant supervision of the construction work and shall keep a competent foreman in charge at the site.

200.12 CHARACTER AND EMPLOYMENT OF WORKERS

The Contractor shall employ only orderly, competent and skillful workers to do the work and shall give preference to available qualified residents in the area of the contract. Whenever the Engineer informs the Contractor in writing that any workers are, in the opinion of the Engineer, disorderly, incompetent, or breaking the law, such workers shall be discharged from the job site and shall not again be employed on the job site without the written consent of the Engineer.

200.13 SUB-CONTRACTORS

If the Municipality so directs, the Contractor shall not sublet the whole or any part of this contract without the approval of the Engineer.

200.14 PAYMENT

Progress payments equal to the value of the work completed to date, less applicable holdbacks, will be made to the Contractor monthly or at the completion of the work. The Contractor may be required to provide a Proper Invoice for the progress payment amount. In accordance with the *Construction Act, R.S.O. 1990*, sixty (60) days after certification of substantial performance, the 10% Statutory Holdback will be released. Warranty Holdback of 3% of the contract value, unless specified otherwise in the tender/contract documents, may be reserved by the Municipality for one year after certification of substantial performance.

Holdbacks may be increased by the Municipality if, in the written opinion of the Engineer, particular conditions of the contract require such greater holdback.

After certification of substantial performance, the Warranty Holdback may be used by the Municipality to correct defects from faulty construction and/or materials, provided that notice shall first be given by the Engineer in writing to the Contractor stating that the Contractor has seven (7) days to remedy the defect in construction and/or materials.

Where alterations to the work are authorized by the Engineer, the Engineer's evaluation of payment for such changes shall consider the tendered price for similar work item(s). See Specification 400.8 – *Alterations to Work*.

200.15 TERMINATION OF CONTRACT BY THE MUNICIPALITY

Termination of the contract by the Municipality may be considered if the Contractor:

1. should be adjudged bankrupt or make a general assignment for the benefit of creditors or if a receiver should be appointed on account of insolvency;
2. should refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days' notice in writing from the Engineer to supply such additional workmen or materials in order to commence or complete the works;
3. should fail to make prompt payment to sub-contractors or suppliers for labour or materials.
4. should persistently disregard laws, ordinances, or instructions from the Engineer, or otherwise be guilty of a substantial violation of the provisions of the contract;

then the Municipality, upon Certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy, give written notice to the Contractor to terminate the employment of the Contractor and take possession of the premises, and of all materials, tools and

appliances thereon, and may finish the work by whatever method the Municipality may deem expedient, but without undue delay or expense. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price will exceed the expense of finishing the work including compensation to the Engineer for additional services and including other damages of every name and nature, such excess shall be paid to the Contractor. If such expense will exceed such unpaid balance including the Contract Security, the Contractor shall pay the difference to the Municipality. The expense incurred by the Municipality, as herein provided, shall be certified by the Engineer. If the contract is terminated by the Municipality due to the Contractor's failure to properly commence the works, the Contractor shall forfeit the Contract Security and furthermore shall pay to the Municipality an amount to cover the increased costs, if any, associated with a new tender for the contract being terminated.

If any unpaid balance and the Contract Security do not equal the monies owed by the Contractor upon the termination of the contract, the Municipality may also charge such expenses against any money which is or may thereafter be due to the Contractor from the Municipality.

200.16 LIQUIDATED DAMAGES

It is agreed by the parties to the Contract that if all the work called for under the Contract is not finished or complete within the period of time as set forth in the tender/contract document, damage will be sustained by the Municipality. It is understood by the parties that it will be impracticable and extremely difficult to ascertain and determine the actual damage which the Municipality will sustain in the event of and by reason of such delay. The parties hereto agree that the Contractor will pay to the Municipality a sum as set out in the tender/contract documents for liquidated damages for each and every calendar day delay, including Saturdays, Sundays and Statutory Holidays, spent finishing the work in excess of the number of working days prescribed. It is agreed that the liquidated damages amount is an estimate of the actual damage to the Municipality which will accrue during the period in excess of the prescribed number of working days.

The Municipality may deduct any amount due under this section from any monies that may be due or payable to the Contractor on any account whatsoever. The liquidated damages payable under this section are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Municipality.

The Contractor shall not be assessed with liquidated damages for any delay caused by acts of nature, or of the Public Enemy, Acts of the Province or of any Foreign State, Fire, Flood, Epidemics, Quarantine Restrictions, Embargoes or any delays of Sub-Contractors due to such causes.

If the time available for the completion of the work is increased or decreased by reason of alterations or changes made under the provisions of the Contract, the number of working days shall be increased or decreased as determined by the Engineer.

If the tender/contract document does not show an amount for Liquidated Damages then Liquidated Damages do not apply for this contract.

200.17 CONTRACTOR'S LIABILITY

The Contractor and all workers, agents or any party under the Contractor's control, including Sub-Contractors, shall use due care that no person or property is injured and that no rights are infringed during the construction work outlined in the contract. The Contractor shall be solely responsible for all damages by whomsoever claimable in respect of any injury to persons or to lands, buildings, structures, fences, livestock, trees, crops, roadways, ditches, drains and watercourses, whether natural or artificial, or property of whatever description and in respect of any infringement of any right, privilege or easement wherever occasioned in the carrying on of the work or any part thereof, or by any neglect, misfeasance or non-feasance on the Contractor's part or on the part of any workers, agents or parties under the Contractor's control including Sub-Contractors, and shall bear the full cost thereof. The Contractor shall be fully responsible to make such temporary provisions as may be necessary to ensure the avoidance of

any such damage, injury or infringement and to prevent the interruption of or danger or menace to the traffic in any railway or any public or private road entrance or sidewalk and to secure to all persons and corporations the uninterrupted enjoyment of all their rights, in and during the performance of the work. The Contractor shall indemnify and save harmless the Municipality and the Engineer from and against all claims, demands, losses, costs, damages, actions, suits or other proceedings by whomsoever made, brought or prosecuted in any manner based upon, occasioned by, or attributed to any such damage, injury or infringement.

Wherever any work is of such an extent and nature that it must necessarily be confined to particular areas of a roadway, a working area, or private property, the Contractor shall use reasonable care not to damage or deface the remaining portions of the property, and if any damage is occasioned as a result of the Contractor's operations, it shall be rectified by and at the expense of the Contractor, to the satisfaction of the Engineer. Notwithstanding the indemnity provisions contained in this section, where in the opinion of the Engineer the Contractor has failed to rectify any damage, injury or infringement or has failed to adequately compensate any person for any damage, injury or infringement for which the Contractor is responsible under the contract, the Engineer, following notice in writing to the Contractor of an intention so to do, may withhold payment of any monies due the Contractor under this or any other contract until the Contractor has rectified such damage, injury or infringement or has paid adequate compensation for such damage, injury or infringement, provided however, that the Municipality will not withhold such monies where in the opinion of the Engineer there are reasonable grounds upon which the Contractor denies liability for such damage, injury or infringement and the Contractor has given the claimant a reasonable time in which to establish the validity of the claim, and provided further that the amount withheld under this section shall not exceed the amount of such claims against the Contractor.

Where the Contractor uses privately owned lands for material disposal, the Contractor shall comply with applicable laws and provide the Engineer with a release signed by or on behalf of the owner of each material disposal area used by the Contractor. If the said release is not obtained, then sufficient monies will be withheld from the Contractor except, however, where the owner's signature is withheld solely on the basis of damage, injury, or infringement it will be dealt with as provided elsewhere in this subsection.

Nothing herein contained shall be construed as in any way restricting or limiting the liability of the Contractor under the laws of the country, province or locality in which the work is being done. Neither the Certificate of Substantial Performance nor final payment thereunder, nor any provision in the Contract Document shall relieve the Contractor from this liability.

200.18 LIABILITY INSURANCE

The Contractor shall take out and keep in force until the end of the warranty period for the entire work, a comprehensive policy of public liability and property damage insurance providing insurance coverage of at least \$3,000,000 for each and every accident, exclusive of interest and cost, against loss or damage resulting from bodily injury to or death of one or more persons and loss of or damage to property and such policy shall name the Municipality, K. Smart Associates Limited, and such additional parties as may be required by the Municipality or K. Smart Associates Limited, as additional insured thereunder and shall protect all named parties against all claims for all damage or injury including death to any person or persons and for damage to any property of the Municipality or any other public or private property resulting from or arising out of any act or omission on part of the Contractor or any of his servants or agents during the execution of the Contract.

200.19 LOSSES DUE TO ACTS OF NATURE, ETC.

All damage, loss, expense and delay incurred or experienced by the Contractor in the prosecution of the work, by reason of unanticipated difficulties, bad weather, strikes, wars, acts of nature, or other mischances, shall be borne by the Contractor and shall not be the subject of a claim for additional compensation.

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400 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF DRAINS**400.1 ABBREVIATIONS**

- i) MTO means the Ministry of Transportation of Ontario
- ii) ASTM means the American Society for Testing Materials
- iii) CSA means the Canadian Standard Association
- iv) OPSD means Ontario Provincial Standard Drawings
- v) OPSS means Ontario Provincial Standard Specifications
- vi) DFO means Fisheries and Oceans Canada
- vii) MNRF means Ministry of Natural Resources and Forestry
- viii) MECP means Ministry of Environment, Conservation and Parks

400.2 PRE-CONSTRUCTION MEETING

The Contractor shall arrange a pre-construction meeting with the Engineer, Municipality, and affected landowners prior to commencement of construction. The Contractor shall provide at least ten working days advance notice of the pre-construction meeting. Construction shall not commence less than five working days after the pre-construction meeting to allow time for layout and crop salvage.

If there is no pre-construction meeting or if a landowner is not present at the pre-construction meeting, prior to construction, the drain is to be walked by the Contractor and each landowner not present at the meeting to ensure that both agree with the work shown on the Drawings. Any difference of opinion shall be referred to the Engineer for decision. If the landowner is not contacted for such review, the Contractor shall advise the Engineer or the Municipality.

The cost to coordinate and attend the pre-construction meeting, including any follow-up meetings, is considered incidental and shall be included in the price of other tender items.

400.3 COLD WEATHER

When working in cold weather is approved by the Engineer, the Contractor shall provide suitable means for heating, protection of the work, and snow and ice removal. All work completed in cold weather conditions shall be to the satisfaction of the Engineer and any additional cost to remedy unsatisfactory work, or to protect the work, shall be borne by the Contractor. All backfilling shall occur as soon as possible to avoid backfilling with ground containing frozen particles. The Contractor will assume all responsibility for damages to any tile drains and for settlements or bank failure that may result from work in cold weather.

400.4 WORKING AREA

Unless otherwise specified on the Drawings, the working area is defined as follows:

- Where any part of the drain is on a road allowance, the road allowance shall be the working area.
- If any part of the drain is close to a property line, then the property line shall be one of the limits of the working area.
- For a closed drain, the working area shall not exceed 25 metres. A 10m x 10m working area exists around any catchbasin, junction box or access point.
- For an open drain, the working area shall be 17 metres wide on the side for leveling and 3 metres wide on the opposite side.
- A 10m wide working area shall exist for any overflow swale or grassed waterway.

400.5 PROPERTY BARS AND MONUMENTS

All property bars and monuments shall be protected. If a property bar or monument is shown on the Drawings with a note “***to be protected***”, or similar, and is damaged by the Contractor, the damaged bar(s) shall be reinstated by an Ontario Land Surveyor at the Contractor's expense.

400.6 ACCESS

The Contractor shall have access to the drain by entering the working area directly from road allowances or along access routes shown on the Drawings. No other access routes shall be used unless first approved by the Engineer and the affected landowner. The Contractor shall notify each landowner prior to using the designated access routes. Standard Specifications *400.24 - FENCES*, *400.25 - LIVESTOCK*, and *400.26 - STANDING CROPS* also apply to access routes. The Contractor shall make good any damages caused by using the designated access routes. Costs to restore access routes to existing conditions shall be borne by the Contractor.

400.7 ACCESS TO PROPERTIES ADJOINING THE WORK

The Contractor shall provide at all times and at no additional cost, access to private properties adjoining the work, unless otherwise authorized by the Engineer. Where interruptions to access have been authorized by the Engineer, a minimum of 48 hours written notice shall be given by the Contractor to the affected landowners and such interruptions shall be arranged to minimize interference to those affected.

400.8 ALTERATIONS TO WORK

Design changes determined by the Engineer (alteration, additions, and deletions) shall be implemented by the Contractor without delay and shall in no way render the contract void.

In every such case, the contract amount shall be increased or decreased as required according to a fair evaluation of the work completed. Where such design changes involve additional work similar to items in the contract, the price for additional work shall be determined after consideration is given to the tendered price for similar items.

Additional work desired by the landowner(s), which is not part of the drainage works, may be arranged with the Contractor provided the cost of the work is paid by the landowner(s) and the Engineer reviews the additional work in advance. Such additional work is not part of the drainage works for future maintenance.

400.9 ERRORS AND UNUSUAL CONDITIONS

The Contractor shall notify the Engineer immediately of any “*errors or unusual conditions*” which may be found. Any attempt by the Contractor to correct an “*error*” without notice to the Engineer is at the Contractor's risk and expense. The Engineer shall determine necessary steps to correct errors or address unusual conditions. The contract amount shall be adjusted through a fair evaluation of documentation for the work added, deleted, or adjusted.

400.10 TESTS

The Engineer reserves the right to subject any materials to a competent testing laboratory for compliance with applicable Provincial and/or Municipal standards. If any materials supplied by the Contractor fail to meet the applicable standards, the Contractor shall bear full responsibility to remove all rejectable materials and replace with acceptable materials.

400.11 BENCHMARKS AND LAYOUT

The Engineer will layout the location of the proposed work unless otherwise provided in the Contract.

It is the Contractor's responsibility to confirm the location and elevation of benchmarks and layout stakes prior to construction and notify the Engineer immediately of any discrepancies.

The Contractor shall be liable for the cost of replacing any benchmarks or layout stakes destroyed during construction. The Contractor shall also be liable for the cost of additional layout if the Contractor's schedule delay requires replacement of original layout stakes.

400.12 INSPECTION OF UNDERGROUND WORK

The Contractor shall not cover up any work without providing the Engineer two working days notice and opportunity for carrying out an inspection.

If inspection does not occur as the work proceeds, inspection points shall be provided, with no additional payment, at the following locations: 50m intervals, tile connections, grade changes, junction boxes, fittings and pipe diameter/material transitions. If no inspection points are provided, the Engineer reserves the right to require the Contractor to expose the buried work for inspection purposes.

No additional payment will be made if the Engineer requires additional inspection points or exposure of covered work in other locations.

400.13 FINAL INSPECTION

Final inspection by the Engineer will occur after receiving written notice from the Contractor that work is complete. All the work included in the contract shall, at the time of final inspection, be completed to the dimensions and cross-sections shown on the Drawings.

Prior to issuing the certificate of substantial performance, a final inspection meeting may be held by the Engineer with landowners directly affected by the construction of the drain. The Contractor shall attend this meeting upon notice by the Engineer.

If there is no final inspection meeting with the Engineer, the Contractor shall obtain from each landowner a written statement indicating that the work has been performed to the landowner's satisfaction. If the Contractor is unable to obtain a written statement from the landowner, the Engineer will determine if further work is required prior to issuing the certificate of substantial performance.

The cost of attending the final inspection meeting and/or obtaining written statements from landowners, including any follow-up meetings, is considered incidental and shall be included in price of other tender items.

400.14 WARRANTY

There shall be a one-year warranty period on all completed work. The warranty period will commence on the date of the certificate of substantial performance.

When directed by the Engineer, the Contractor shall repair and make good any deficiencies in the work that may appear during the warranty period.

Before final acceptance by the Municipality and release of Warranty Holdback, the Contractor shall complete all work as directed by the Engineer, remove all debris and surplus materials, and leave the work neat and presentable.

400.15 PIPE MATERIALS**400.15.1 Concrete Drain Tile**

Concrete drain tile shall conform to the requirements of the most recent ASTM C412 specifications for heavy duty extra quality concrete tile, unless a stronger concrete tile is required by the Special Provisions or Drawings. All tile furnished shall be subject to the approval of the Engineer.

The minimum nominal length of concrete drain tile shall be 1200mm.

All tile shall be of good quality, free from distortions and cracks and shall meet the standards specified. The ends shall be smooth and free from cracks. The Engineer reserves the right to reject unacceptable tiles. All rejected tiles are to be immediately removed from the site at the Contractor's expense.

400.15.2 Corrugated Plastic Tubing

Corrugated plastic tubing shall conform to the current version of the *Land Improvement Contractors of Ontario Standard Specification for Corrugated Plastic Drainage Tubing*.

Type of material (solid or perforated) and need for filter sock will be specified on the Drawings or in the description of the work in the Special Provisions. Filter sock, where specified, shall be a standard synthetic filter material as provided by a recognized plastic tubing manufacturer unless noted differently on the contract drawings or elsewhere in the contract document. The Contractor shall protect coils of plastic tubing from damage and deformation.

400.15.3 Smooth Wall Plastic Tubing

Smooth wall plastic tubing shall be dual-wall, high density polyethylene and conform to the requirements of the most recent ASTM 3390 specification for "*lined flexible corrugated polyethylene pipe*" for land drainage applications.

Type of material (solid or perforated) and need for filter sock will be specified on the Drawings or in the description of the work in the Special Provisions. Filter sock where specified shall be a standard synthetic filter material as provided by a recognized plastic tubing manufacturer unless noted differently on the contract drawings or elsewhere in the contract document. The Contractor shall protect coils of smooth wall plastic tubing from damage and deformation.

400.15.4 Corrugated Steel Pipe

Corrugated Steel Pipe (CSP) shall be according to OPSS.MUNI 1801 (CSA G401). Unless stated otherwise in the Special Provisions the pipe shall be:

- galvanized
- helical corrugation with lock seam and re-rolled annular ends
- 68mm x 13mm corrugation profile for diameters up to 1200mm
- 125mm x 25mm corrugation profile for diameters 1200mm and larger
- minimum wall thickness of 1.6mm for diameters up to 500mm
- minimum wall thickness of 2.0mm for diameters 600mm and larger
- joined using standard couplers matching the pipe diameter and material

Other coatings that may be specified include aluminized Type 2 or polymer. Polymer coating shall be a 254mm polymer film laminated to both sides of the pipe.

400.15.5 HDPE Pipe

Material indicated as "HDPE Pipe" or "Solid Plastic Pipe" shall be a high density polyethylene, dual-wall corrugated pipe with smooth inner wall, solid with no perforations, and minimum pipe stiffness at 320 kPa at 5% deflection certified to CSA B182.8, in accordance with OPSS.MUNI 1840.

When HDPE pipe is installed under a road right-of-way, private laneways or parking areas, the pipe joints shall be bell and spigot with rubber gaskets (CSA 182.8, Type 1) so that joints are watertight.

When HDPE pipe is specified for use on private lands, acceptable joints may be bell and spigot with rubber gaskets, or snap-on or split couplers (CSA 182.8, Type 3) so that joints are soil tight.

All fittings shall be injection molded HDPE.

400.15.6 Concrete Sewer Pipe

Concrete sewer pipe shall be in accordance with OPSS 1820.

Concrete sewer pipe shall be reinforced circular concrete pipe according to CSA A257.2 with joints and gaskets according to CSA A257.3.

Where specified, reinforced elliptical concrete sewer pipe, joints and gaskets shall be according to ASTM C 507M.

Classes shall be as shown on the Contract Drawings or as described in the Form of Tender.

Where concrete sewer pipe “**seconds**” are specified, the pipe should exhibit no damage or cracks on the barrel section and shall be capable of satisfying the crushing strength requirements of OPSS 1820. The pipe may contain cracks or chips in the bell or spigot which prevent the use of rubber gaskets but the joints must be protected with geotextile.

400.16 RIPRAP

All riprap is to be placed on a geotextile underlay, unless directed otherwise in the Drawings. Geotextile material shall be as specified in Specification 400.17 - *GEOTEXTILE*, with the upstream edge of the geotextile keyed down 300mm below the bottom of riprap. The riprap is to be graded heavy angular stone (quarry stone is recommended) and shall meet gradation requirements for R-50 riprap per OPSS.MUNI 1004 Table 8 (averaging in size from 210mm to 305mm) and is to be placed at 300mm thickness, unless otherwise specified. Smaller particles may be included to fill voids. The finished top of riprap shall be at design cross-section, at design elevation or flush with existing ground.

400.17 GEOTEXTILE

Geotextile to be non-woven fabric that is rot proof, non-biodegradable, chemically resistant to acidic and alkaline soils and is dimensionally stable under different hydraulic conditions (Terrafix 360R or equal). Alternative geotextile materials shall be submitted to the Engineer prior to construction. The primary function of geotextile is to act as a highly permeable, non-clogging barrier between different materials. The Contractor shall follow the manufacturer's recommendations for cutting, installation and precautions necessary to avoid damage to the geotextile.

400.18 BACKFILL

Where sufficient clean on-site material is not available, the Contractor shall import material for backfill. Any imported material shall be approved by the Engineer in advance of supply & placement. Imported material shall be free of deleterious material and shall satisfy the requirements of O. Reg. 406/19 for use in the location proposed. If requested by the Engineer, the Contractor shall provide test results at no additional cost to demonstrate conformance with project requirements. If non-conforming materials are rejected by the Engineer, they shall be removed at no additional cost.

If the work is being performed during winter months, frozen material shall not be used as backfill under roads or any other areas where settlement could negatively affect the surface above the work area.

400.19 NOTIFICATION OF ROAD AUTHORITIES, UTILITIES AND RAILROADS

The Contractor shall notify any Road Authority, Utility, or Railroad at least two working days in advance regarding work to be performed on their property or affecting their infrastructure. Where a Road Authority, Utility or Railroad has specific notification requirements, those requirements shall apply. The notice will be in writing and is exclusive of Saturdays, Sundays and Holidays. The Contractor is responsible to determine, understand and comply with the requirements of all authorities that may place restrictions upon the performance of the work, including without limitation, MTO, local utilities and railway authorities. In

submitting the tender, the Contractor represents that they have made all necessary inquiries to all authorities, as required, to carry out the proposed work.

400.20 WORKING IN ROAD ALLOWANCES

400.20.1 General

Work within public road allowances shall be done in accordance with the Ontario Traffic Manual Book 7, latest edition and the requirements of the Road Authority.

400.20.2 Maintenance of Traffic

Unless directed otherwise on the drawings or in the specifications, the Contractor shall keep roads open to traffic at all times. The Contractor shall provide suitable warning signs and/or flagging per OTM Book 7 requirements to the satisfaction of the Road Authority and the Engineer. Where specified in the Contract or when requested by the Engineer, the Contractor shall provide a Traffic Control Plan to the satisfaction of the Road Authority and the Engineer at no additional cost.

If road closure is required, the Contractor shall submit a Detour Plan for approval by the Road Authority and Engineer. The Contractor shall provide all signage for the detour route per OTM Book 7 and undertake all notifications required for the road closure in consultation with the Municipality.

400.20.3 Road Crossings

If no specific detail is provided for road crossings on the drawings or in the specifications the following shall apply:

General/Pre-Construction Phase

- A Road Authority will supply no labour, equipment, or materials for the construction of the road crossing.
- The Contractor shall not commence road crossing work until any required permits have been obtained.
- The Contractor shall notify the Road Authority, per the Road Authority's notification requirements, in advance of any construction in the road allowance. If the Road Authority has no notification requirements, at least 3 working days written notice shall be given.
- At least 2 working days prior to starting road crossing work, the Contractor shall confirm with the Municipality that EMS, OPP and Fire Department have been properly notified of any detours or road closures.

Construction Phase

- Exact location of the crossing shall be verified with the Road Authority and the Engineer.
- Pipe bedding shall be a minimum 150mm depth of Granular A, shaped for the pipe and compacted to 98% SPMDD.
- Pipe cover shall be Granular B, compacted to 98% SPMDD and extend 300mm above the top of the pipe.
- Trench shall be backfilled with acceptable native material for the base width of the road base. Trench backfill material shall be placed in lifts not exceeding 300mm in depth and shall be thoroughly compacted to 95% SPMDD. Trench backfill (subgrade) shall be inspected and approved by the Engineer prior to the placement of road base granular material.
- Road base granular material shall be placed in lifts not exceeding 300mm in depth and shall be compacted to 100% SPMDD. Unless otherwise specified, road base shall consist of minimum 450mm of Granular B and minimum 150mm of Granular A.
- Any surplus excavated material within the road allowance shall be disposed of per the Road Authority's requirements.
- The Contractor shall restore the road surface to the satisfaction of the Engineer and Road Authority requirements.

Warranty Phase

- The Contractor shall be responsible for correcting any backfill settlement during construction and during the warranty period. Upon approval of the Road Authority, surplus gravel shall be stockpiled near gravel road crossings to provide backfill for future trench settlement.

- If any road crossing is not left in a safe manner at the end of the working day, barricades and warning signs shall be erected to guarantee the safety of the travelling public per OTM Book 7 requirements.
- If the Engineer deems a road surface to have been damaged by the construction of a drain, either across or along the road, the Engineer may direct the Contractor to restore the road surface to existing or better condition, at no additional cost.
- All road crossings shall meet the final approval of the Road Authority at the end of the warranty period.

400.21 LANEWAYS AND ACCESS CROSSINGS

If no specific detail is provided for laneways and access crossings on the Drawings or in the Specifications the following shall apply:

General/Pre-Construction Phase

- The Contractor shall notify the landowner(s) at least 1 working day prior to impacting laneway access.

Construction Phase

- Pipe shall be on suitable, undisturbed, native material. If native material is deemed unsuitable by the Engineer, pipe shall be placed on 300mm depth of 19mm clear stone, wrapped in geotextile.
- Pipe bedding, cover and trench backfill shall be suitable native material placed in lifts not exceeding 300mm in depth and shall be thoroughly compacted to 95% SPMDD.
- Top 450mm of laneway backfill shall consist of minimum 300mm depth of Granular B and minimum 150mm depth of Granular A, compacted to 98% SPMDD, and shall be placed in lifts not exceeding 300mm in depth.
- Where pipe cover is minimal, laneway backfill may consist of minimum 300mm depth of Granular A, compacted to 98% SPMDD, subject to approval by the Engineer.
- Unless otherwise specified, the Contractor shall restore the laneway surface and dimensions to existing conditions, to the satisfaction of the Engineer.

Warranty Period Phase

- The Contractor shall be responsible for correcting any backfill settlement during construction and warranty period.

400.22 LOCATIONS OF EXISTING UTILITIES

The position of pole lines, conduits, watermains, sewers and other underground and overhead utilities are not necessarily shown on the Contract Drawings, and, where shown, the accuracy of the position of such utilities and structures is not guaranteed. Before starting work, the Contractor shall have all public and private utilities located.

Upon the request of the Utility owner or the Engineer, utilities shall be exposed to confirm there are no utility conflicts and adequate clearance is provided between existing utilities and the proposed work. In the case of utility conflict(s) or inadequate clearance(s), the Contractor shall notify the Engineer immediately. The Engineer may change the proposed design in accordance with Specification 400.8 - *ALTERATIONS TO WORK*.

Unless otherwise provided in the tender, the cost of exposing utilities, including the use of hydrovac methods, shall be included in the price of other tender items. Additional payment will be allowed for relocation of utilities if conflicts are encountered.

The Contractor is responsible for protecting all located and exposed utilities from damage during construction. The Contractor shall assume liability for damage caused to all properly located utilities.

400.23 EXISTING CROSSING CLEANOUT

Where the Special Provisions require an existing crossing to be cleaned, the Contractor shall provide a bottom width and depth that provides capacity equivalent to the capacity of the channel on either side. Excavated materials shall be hauled away unless adjacent landowners give permission for leveling. Care shall be taken to ensure that existing abutments or any portion of the structure are not damaged or undercut. The method of removing the material is to be pre-approved by the Engineer.

400.24 FENCES

If the Contractor is responsible to remove and install fences, the following shall apply:

- All fences removed by a Contractor are to be re-erected in as good a condition as existing materials permit.
- All fences shall be properly stretched and fastened. Where directed by the Engineer, additional steel posts shall be placed to adequately support a fence upon re-erection.
- Where possible, the Contractor shall take down an existing fence at the nearest anchor post and roll the fence back rather than cutting the fence and attempting to patch it.
- Where fence materials are in such poor condition that re-erection is not possible, the Contractor shall replace the fence using equivalent materials. Such fence material shall be approved by the Engineer and the landowner. Where the Engineer approves new fence material, additional payment will be provided.

Any fences paralleling an open drain, that are not line fences, which hinder the proper working of the excavating machinery for drain construction or maintenance, shall be removed and rebuilt by the landowner at their own expense. If such parallel fences are line fences, they shall be removed and reinstalled by the Contractor.

No excavated or cleared material shall be placed against fences.

The installation of all fences shall be done to the satisfaction of the Engineer and the landowner.

400.25 LIVESTOCK

If any construction is within a fenced field containing livestock that are evident or have been made known to the Contractor, the Contractor shall notify the owner at least two working days in advance of accessing the field. Thereafter, the owner shall be responsible for the protection of the livestock in the field during construction and shall also be liable for any damage to or by the livestock.

The Contractor shall adequately re-erect all fences at the end of each working day, unless the owner provides written approval for the fences to remain open until construction is complete. No field containing livestock shall have a trench left open at the end of the working day, unless the trench has been adequately protected with fencing. Failure of the Contractor to comply with this paragraph shall render the Contractor liable for any damage to or by the livestock.

Where livestock may be encountered on any property the Contractor shall notify the Engineer to arrange for inspection of the work prior to backfilling.

400.26 STANDING CROPS

The Contractor shall not be held responsible for damages to standing crops within the working area and designated access routes for the drain. However, the Contractor shall notify the owner of upcoming work that will damage/destroy crops at least two working days prior to commencement of construction to allow the owner an opportunity to harvest or salvage the crop within the drain working area. If this advance notice is not given, the Contractor may be held liable for the loss of the standing crops if harvest could have reasonably been achieved by the owner if proper notice had been given by the Contractor.

400.27 CLEARING VEGETATION**400.27.1 General**

The area for clearing, if not defined elsewhere, shall be 15m on each side of the drain.

400.27.2 Trees to Remain

Where it is feasible to work around existing trees that do not impede the function of the drainage works, the Contractor shall not remove any deciduous tree larger than 300mm and any coniferous tree larger than 200mm, unless authorized by the Engineer.

400.27.3 Incidental Clearing

Incidental clearing includes removal of trees, brush or other vegetation with an excavator during construction activities, and the cost is to be included in the price for the related construction activity.

400.27.4 Power Brushing

Power brushing includes removal of above-ground vegetation with a rotary brush cutter or other mechanical means. Stump and root removal is not required. Power brushed vegetation in a channel cross-section shall be removed and leveled in the working area. Excavated material may be placed and leveled on power brushed vegetation.

400.27.5 Close-Cut Clearing

Close-cut clearing includes removal of above-ground vegetation cut flush with the ground. Stump and root removal is not required.

400.27.6 Clearing And Grubbing

Clearing and grubbing includes removal of vegetation, including stumps and roots. Removal of earth from the grubbed area into the windrows or piles is to be minimized.

400.27.7 Disposal of Cleared Vegetation**400.27.7.1 In Bush Areas**

Cleared vegetation is to be pushed into windrows or piles at the edge of the cleared area. Stumps and roots are to be piled first at the edge of the cleared area, followed by other vegetation (trunks, branches, etc.). Provisions for lateral drainage are required through all windrows. Windrows are not to block any laneways or trails. After removing cleared vegetation, the working area shall be leveled to the satisfaction of the Engineer.

400.27.7.2 In Field Areas

Cleared vegetation resulting from incidental clearing or power brushing may be hauled away, mulched in place or reduced to a size that permits cultivation using conventional equipment without causing undue hardship on farm machinery.

Cleared vegetation resulting from close-cut clearing or clearing and grubbing is to be hauled away to an approved location. Disposal sites may be in bush areas or other approved locations on the same farm. No excavated material shall be levelled over any logs, brush or rubbish of any kind.

400.27.8 Landowner Requested Salvage

A landowner may request that wood be separated from the windrows for the landowner's future use. This additional work would be eligible for extra payment, subject to the approval of the Engineer.

400.27.9 Clearing by Landowner

Wherever the Contract indicates that clearing may be undertaken by the landowner, work by the landowner shall be in accordance with the Clearing Vegetation requirements of this specification and must be completed so as not to cause delay for the Contractor. If the landowner does not complete clearing in accordance with these requirements, the Contractor will undertake the clearing at a price approved by the Engineer.

400.28 TOPSOIL

The Contractor shall strip, stockpile and salvage all existing topsoil within the disturbance limit of construction activities. The salvaged topsoil shall then be used to restore disturbed areas to the satisfaction of the Engineer. Disposal of excess topsoil shall be approved by the Engineer, and shall be disposed of at an approved disposal site.

Unless specified otherwise, the cost to remove, handle, haul, stockpile, salvage, dispose, supply and place topsoil, including all labour, material and equipment, shall be included in the price of other tender items.

400.29 BEDROCK REMOVAL**400.29.1 General**

This section applies to bedrock and boulders that are greater than one-half cubic meter in size and that require blasting or hoe-ram removal. Bedrock or boulders that can be removed with an excavator bucket are not considered bedrock removal for the purposes of this section.

400.29.2 Blasting Requirements

All blasting shall be performed by a competent, qualified blaster in accordance with OPSS 120. Blasting mats are required. A pre-blast survey meeting the requirements of OPSS 120 must be completed for any structure within 200m of any blasting. The cost for pre-blast survey shall be included in the tender price for bedrock removal.

400.29.3 Typical Sections and Pay Limits

For tile drains and road culverts, bedrock shall be removed to 150mm below the proposed grade shown on the profile so that pipes are not in direct contact with bedrock. The width of bedrock removal shall be 1m minimum or the diameter of the pipe plus 600mm.

For open drains, bedrock removal shall match the proposed grade and bottom width shown on the Drawings. Side slopes shall be vertical or sloped outward. Side slopes shall be free of loose bedrock when excavation is completed.

Payment for the quantity of bedrock removed will be based on the typical sections described in these specifications and confirmed by field measurements. There will be no payment for overbreak.

400.29.4 Disposal of Bedrock

Excavated bedrock shall be piled at the edge of the working area at locations designated by the landowner. The cost to pile excavated bedrock shall be included in the tender price for bedrock removal. If the Special Provisions or the landowner require excavated bedrock to be hauled away, additional payment will be considered.

Where approved by the Engineer, excavated bedrock may be used in place of imported riprap in compliance with Specification *400.16 - RIPRAP*.

400.30 SURFACE RESTORATION**400.30.1 General**

The Contractor shall be responsible for re-seeding as necessary for uniform catch during warranty period.

Areas that remain grassed after construction may not need to be seeded, unless directed otherwise by the Engineer.

400.30.2 Seeding

All disturbed ditch banks, berms and other grassed areas are to be seeded at the end of the day.

The following seed mixture shall be applied at 60kg/ha using a mechanical (cyclone) spreader:

- 35% Creeping Red Fescue
- 25% Birdsfoot Trefoil
- 25% Kentucky Bluegrass
- 10% Cover Crop (Oats, Rye, Barley, Wheat)
- 5% White Clover

Provide temporary cover for late fall planting by adding an additional 10 kg/ha of rye or winter wheat.

400.30.3 Hydroseeding

Where hydroseeding is specified, disturbed areas will be restored by the uniform application of a standard roadside mix, fertilizer, mulch and water at a rate of 2,000 kg/ha and be in accordance with OPSS 804.

400.30.4 Lawns

Unless specified otherwise, lawn areas shall be seeded with Canada No. 1 lawn grass mixture applied at 300 kg/ha using a mechanical (cyclone) spreader on 100mm of topsoil. Fertilizer shall be 5:20:20 or 10:10:10 applied at 300 kg/ha. Seed and fertilizer shall be applied together. Contractor shall arrange for watering with landowners.

400.30.5 Sod

Where sod is specified, sod is to be commercial grade turfgrass nursery sod, Kentucky Bluegrass placed on 150mm of topsoil. Fertilizer shall be 5-20-20 applied at 10kg/ha. Place sod in accordance with supplier instructions. The Contractor is responsible for saturating the sod with water on the day of sod placement. Subsequent watering is the responsibility of the landowner.

400.31 EROSION AND SEDIMENT CONTROL**400.31.1 General**

The Contractor shall install sediment control features at the downstream limits of the project and at other locations as shown on the drawings or as directed by the Engineer.

Sediment control features shall be installed prior to any excavation taking place upstream of that location. The Contractor shall maintain all sediment control features throughout construction and the warranty period.

Sediment that accumulates during construction shall be removed and levelled as required by the Contractor.

400.31.2 Silt Fence

Silt fence shall be in accordance with OPSS 805.07.02.02 and OPSD 219.110 (light-duty).

400.31.3 Erosion Control Blankets

Erosion Control Blankets (ECB) shall be biodegradable and made of straw/coconut (Terrafix SC200, Nilex SC32 or equal) or coconut (Terrafix C200, Nilex C32 or equal) with photodegradable, double net construction. The blanket and the staples shall be supplied and installed as per OPSS 804.

Erosion control blankets shall be placed and stapled into position as per the manufacturer's installation instructions on slopes as directed by the Engineer. Blankets shall be installed in direct contact with the ground surface to form a uniform, cohesive mat over the seeded earth area. The blankets are to be single course with 150mm overlap between blankets and staggered joints. The Contractor shall ensure that the ECB is anchored to the soil and that tenting of the ECB does not occur.

On slopes, when the ECB cannot be extended 1m beyond the crest of the slope, the uppermost edge of the ECB shall be anchored in a 150mm wide by 150mm deep trench. The trench shall be backfilled with earth and compacted.

400.31.4 Flow Check Dams

400.31.4.1 Temporary Straw Bale Flow Check Dam

The straw bale flow check dam shall consist of a minimum of 3 bales. Each bale is to be embedded at least 75mm into the channel bottom and shall be anchored in place with two (2) - 1.2m wooden stakes, driven through the bale and 600mm below ground.

Accumulated sediments shall be excavated and levelled prior to demobilization from the site after initial construction and at the end of the warranty period. Straw bales are to be removed at the end of the warranty period.

400.31.4.2 Temporary Rock Flow Check Dam

The temporary rock flow check dam shall extend to the top of the banks so that dam overtopping does not cause bank erosion. Rock shall be embedded a minimum of 150mm into the ditch bottom and banks. No geotextile is required for temporary rock flow check dams.

Accumulated sediments shall be excavated and levelled prior to demobilization from the site after initial construction and at the end of the warranty period. Temporary rock flow check dams are to be removed at the end of the warranty period.

400.31.4.3 Permanent Rock Flow Check Dam

The requirements of temporary rock flow check dams shall apply except rock shall be placed on geotextile and the dam shall remain in place permanently.

400.31.5 Sediment Traps

400.31.5.1 General

The channel bottom shall be deepened in accordance with the dimensions provided in the Drawings or Special Provisions. If dimensions are not specified on the Drawings, the sediment trap shall be excavated within the channel cross-section at least 0.3m below the design grade.

The Contractor shall monitor the sediment trap during construction and cleanout accumulated sediments as required to maintain the function of the sediment trap.

If specified to be temporary, no sediment trap maintenance is required after construction is complete.

If specified to be permanent, the contractor shall cleanout the sediment trap at the conclusion of the warranty period, unless directed otherwise by the Engineer.

A permanent rock sediment trap shall include a permanent sediment trap and a rock flow check dam.

A temporary rock/straw sediment trap shall include a temporary sediment trap and a rock/straw flow check dam.

400.31.6 Turbidity Curtains

A turbidity curtain is required when there is permanent water level/flow and a sediment trap is not feasible.

Turbidity curtains shall be in accordance with OPSP 219.260, OPSS 805 and installed per manufacturer's instructions.

Turbidity curtains shall be sized and anchored to ensure the bottom edge of the curtain is continuously in contact with the waterbody bed so that sediment passage from the enclosed area is prevented. The curtain must be free of tears and capable of passing the base flow from the drainage works. Turbidity curtain locations shall be approved by the Engineer.

Turbidity curtains are to remain functional until work in the enclosed area is completed. Prior to relocating or removing turbidity curtains, accumulated sediment is to be removed from the drain and levelled. Where a turbidity curtain remains in place for more than two weeks it shall be inspected for damage or clogging and replaced, repaired, or cleaned as required. No additional payment shall be made for the replacement and maintenance of turbidity curtains during construction.

400.32 GRASSED WATERWAYS AND OVERFLOW SWALES

Grassed waterways and overflow swales typically follow low ground along the historic flow route. The cross-section shall be saucer shaped with a nominal 1m bottom width, 8:1 side slopes and 300mm depth, unless stated otherwise in the Special Provisions.

All grassed waterways are to be permanently vegetated. Grassed waterways shall be seeded with the seed mixture specified in Specification 400.30.2– *SURFACE RESTORATION - Seeding*.

Overflow swales in field areas which are not designated as grassed waterways shall not be seeded.

400.33 BUFFER STRIPS

Open drains shall include minimum 3m wide, permanently vegetated, buffer strips on each side of the drain, unless alternative dimensions are specified on the Drawings. Catchbasins shall include a minimum 1m vegetated buffer around the catchbasin, unless riprap is placed for sediment control.

400.34 POLLUTION

The Contractor shall keep their equipment in good repair. The Contractor or any landowner shall not spill or cause to flow any polluted material into the drain that is not acceptable to the MECF. The local MECF office and the Engineer shall be contacted if a polluted material enters the drain. The Contractor shall refill or repair equipment away from open water. If the Contractor causes a spill, the Contractor is responsible to clean-up the spill in accordance with MECF clean-up protocols.

400.35 SPECIES AT RISK

If a Contractor encounters a known Species at Risk designated by the MECF, MNR or DFO, the Contractor shall notify the Engineer immediately and follow applicable authority's guidelines for work around the species.

400.36 SITE CLEANUP

The Contractor shall remove all surplus materials from the job site at the end of the project prior to demobilization. The Contractor shall locate the disposal site for all materials to be disposed of. Disposal of materials shall comply with applicable regulations. Unless specified otherwise, the cost to dispose of all surplus materials shall be included in the price of other tender items.

400.37 MAINTENANCE CORRIDOR

The maintenance corridor along the route of the drain, as defined in the report, Drawings, and Specification 400.4 - *WORKING AREA* and 400.6 - *ACCESS*, shall be kept free of obstructions, ornamental vegetation and structures. When future maintenance is undertaken, the cost of removing such items from the corridor shall be assessed to the landowner.

STANDARD SPECIFICATIONS**FOR****OPEN DRAINS****TABLE OF CONTENTS**

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410 STANDARD SPECIFICATION FOR OPEN DRAINS**410.1 DESCRIPTION**

Work under this item shall include the supply of labour, equipment and materials required for: channel excavation to the cross-section specified, leveling or disposal of all excavated material (spoil) as directed, reconstruction of all intercepted drains as required and any other items related to open drain construction as required by the Schedule of Tender Prices, Special Provisions or the Drawings.

410.2 MATERIALS

Refer to **400 Standard Specifications for Drain Construction** for any materials required for open drain construction.

410.3 CONSTRUCTION**410.3.1 Excavation**

The bottom width and the side slopes of the ditch shall be as shown on the profile drawing. If the channel cross-section is not specified in the Special Provisions it shall be a 1m bottom width with 1.5m horizontal to 1m vertical (1.5:1) bank slope. At locations along the drain where the specified side slopes change there shall be a transitional length of not less than 5m between the varying side slopes. At locations along the drain where the specified bottom width changes there shall be a transitional length of not less than 5m. In all cases there shall be a smooth transition between changes in any part of the channel cross-section. Where the bottom width of the existing ditch matches the specified bottom width, ditch excavation shall be completed without disturbing existing banks.

410.3.2 Low Flow Channels

Unless specified otherwise in the Special Provisions, all intermittent open drains with a bottom width greater than 1.8m and a grade less than 0.07%, shall have a low flow channel. The bottom of the low flow channel shall be the grade shown on the profiles, and shall have a U-shaped cross-section with an average top width of 0.5m and a minimum depth of 0.3m. The low flow channel will not be seeded and may meander along the main channel bottom provided it remains at least 0.3m from the toe of the main channel bank slope.

410.3.3 Line

The drain shall be constructed according to the alignment shown on the drawings or shall follow the course of the existing ditch. All bends shall have a minimum inside radius of 2m. There shall be a smooth transition between changes in the channel alignment. The Contractor shall contact the Engineer before removing any bends or irregularities in an existing ditch.

410.3.4 Grade Control

The profile shows the grade line for the bottom of the ditch. Cuts may be shown on the profile from the existing top of bank and/or from the existing ditch bottom to the new ditch bottom. These cuts are shown for the convenience of the Contractor and are not recommended for quantity estimate or grade control. Accurate grade control must be maintained by the Contractor during ditch excavation. The ditch bottom elevation should be checked every 50 metres and compared to the elevation on the profile.

Benchmarks are identified on the Contract Drawings. The Engineer will confirm all benchmark elevations prior to construction.

410.3.5 Variation from Design Grade

A variation of greater than 25mm above the design grade line may require re-excavation. Excavation below design grade up to 150mm is recommended so that sediment accumulation during or following excavation will not place the ditch bottom above the design grade at completion. Under some circumstances the Engineer may direct that over excavation greater than 200mm will have to be backfilled. No additional payment will be made if backfilling is required to remedy over excavation.

410.3.6 Excavated Material

Excavated material (spoil) shall be deposited on either or both sides of the drain within the specified working area as directed in the Special Provisions. The Contractor shall verify the location for the spoil with each landowner before commencing work on their property. If not specified, spoil shall be placed on the low side of the ditch or opposite trees and fences. The spoil shall be placed a minimum 1m from the top of the bank. No excavated material shall be placed in tributary drains, depressions, or low areas such that water is trapped behind the spoil bank. Swales shall be provided through the leveled or piled spoil at approximately 60m intervals to prevent trapping water behind the spoil bank.

The excavated material shall be placed and leveled to a maximum depth of 250mm; unless otherwise instructed. If excavating more than 450mm topsoil shall be stripped, stockpiled separately and replaced over the leveled spoil, unless stated otherwise in the Special Provisions. The edge of the spoil bank furthest from the ditch shall be feathered down to existing ground. The edge of the spoil bank nearest the ditch shall have a maximum slope of 2:1. The material shall be leveled such that it may be cultivated with conventional equipment without causing undue hardship on farm machinery.

Wherever clearing is necessary prior to leveling, the Contractor shall remove all stumps and roots from the working area. No excavated material shall cover any logs, brush or rubbish of any kind. Large stones in the leveled spoil that are greater than 300mm in diameter shall be moved to the edge of the spoil bank nearest to the ditch but in general no closer than 1m to the top of bank.

Lateral channels that outlet into the drain shall be tapered over a distance of 10m to match the grade of drain excavation. No additional payment will be made for this work. Where the elevation difference between the lateral channel and the drain is greater than 450mm, a rock chute or similar bank protection approved by the Engineer shall be provided. Additional payment may be allowed for this work.

Where it is specified to straighten any bends or irregularities in the alignment of the ditch or to relocate any portion of an existing ditch, the excavation from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and old ditch, no additional payment will be allowed for backfilling the existing ditch.

The Contractor shall contact the Engineer if a landowner indicates in writing that spoil on the owner's property does not need to be leveled. The Engineer may release the Contractor from the obligation to level the spoil and the Engineer shall determine the credit to be applied to the Contractor's payment. No additional compensation is provided to the owner if the spoil is not leveled.

The Engineer may require the Contractor to obtain written statements from any or all of the landowners affected by the leveling of the spoil. Final determination on whether or not the leveling of spoil meets the specification shall be made by the Engineer.

410.3.7 Excavation at Existing Bridge and Culvert Sites

The Contractor shall excavate the drain to the specified depth under all bridges and to the full width of the structure unless specified otherwise in the Special Provisions. All necessary care and precautions shall be taken to protect permanent structures. Temporary bridges may be removed and left on the bank of the drain. In cases where the design grade line falls below the top of footings, the Contractor shall take care to not over-excavate below the grade line. The Contractor shall notify the Engineer if excavation of the channel exposes the footings of the bridge or culvert, so the Engineer can make an evaluation.

The Contractor shall clean through all pipe culverts to the grade line and width specified on the profile. The Contractor shall immediately contact the Engineer after a culvert cleanout if it is found that the culvert bottom is above the grade line or where the structural integrity of the culvert is questionable. Material resulting from cleanout through bridges or culverts shall be levelled on the adjacent private lands or hauled offsite at the expense of the bridge/culvert owner.

410.3.8 Bridges and Culverts

The size and material for any new ditch crossings shall be as outlined in the Special Provisions. For culvert installation instructions, refer to **400 Standard Specifications for Construction of Drains**, the Drawings, and the Special Provisions.

If directed on the drawings that the existing crossing is to be salvaged for the owner, the Contractor shall carefully remove the existing crossing and place it beside the ditch or haul to a location as specified by the owner. If the existing crossing is not to be saved then the Contractor shall remove and dispose of the existing crossing. Disposal by burying on-site must be approved by the Engineer and the owner.

All new pipe crossings shall be installed at invert elevations as specified on the Drawings, typically a minimum of 50mm below design grade. If the ditch is over excavated greater than 200mm below design grade, the Contractor shall confirm with the Engineer the elevations for installation of the new crossing.

For backfill and surface restoration, refer to **400 Standard Specifications for Construction of Drains**, the Drawings, and the Special Provisions.

Any crossings assembled on-site shall be assembled in accordance with the manufacturer's specifications. Installation of private crossings during construction must be approved by the Engineer.

410.3.9 Obstructions

All trees, brush, fallen timber and debris shall be removed from the ditch cross-section and as required for spreading of the spoil. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. In wooded or heavily overgrown areas all cleared material may be pushed into piles or rows along the edge of the cleared path and away from leveled spoil. All dead trees along either side of the drain that may impede the performance of the drain if allowed to remain and fall into the ditch, shall be removed and put in piles, unless directed otherwise by the Engineer.

410.3.10 Tile Outlets

The location of all existing tile outlets may not be shown on the profile for the drain. The Contractor shall contact each owner and ensure that all tile outlets are marked prior to commencing excavation on the owner's property. If a marked tile outlet or the tile upstream is damaged due to construction, it shall be replaced at the Contractor's expense. Additional payment will be allowed for the repair or replacement of any unmarked tile outlets encountered during excavation. In all cases, if an existing tile outlet requires replacement the Contractor shall confirm the replacement tile outlet with the Engineer. Where riprap protection exists at any existing tile outlet such protection shall be removed and replaced as necessary to protect the outlet after reconstruction of the channel.

If any tile outlet becomes plugged as a result of construction, the Contractor shall remove the obstruction.

410.3.11 Completion

At the time of final inspection, all work in the contract shall have the full dimensions and cross-sections specified.



The Corporation of the Township of Huron-Kinloss

Schedule "A"

NOTICE TO ALL CONTRACTORS

CORPORATE STATEMENT

OCCUPATIONAL HEALTH AND SAFETY

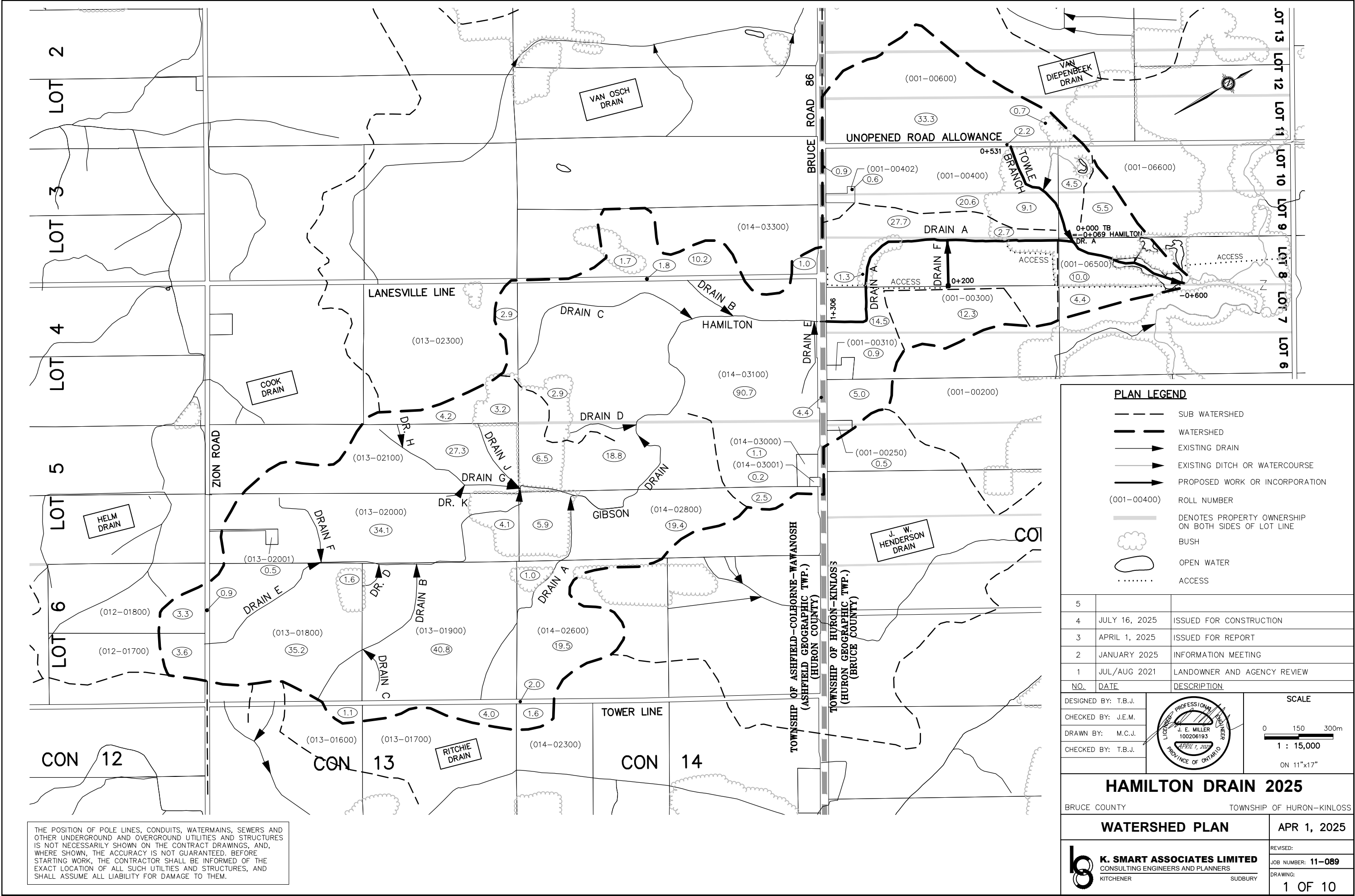
The Corporation of the Township of Huron-Kinloss, in the County of Bruce, is committed to ensuring that a high standard of health and safety is provided and maintained for all employees, visitors, guests, contractors, agents and others on our premises.

Accordingly, a corporate health and safety policy and procedure manual has been adopted and implemented and shall be adhered to.

ALL CONTRACTORS SHALL:

- Demonstrate establishment and maintenance of a health and safety program with objectives and standards consistent with applicable legislation and with The Corporation of the Township of Huron-Kinloss health and safety policies and requirements.
- Submit a copy of a Workers Safety and Insurance Board (WSIB) clearance certificate.
- Include health and safety provisions in their management systems to reach and maintain consistently a high level of health and safety.
- Ensure that workers in their employ are aware of hazardous substances that may be in use at their place of work and wear appropriate personal protective equipment as may be required.
- Upon request at any time from award to completion of contract, submit proof of fulfillment of above responsibilities.

Your co-operation and assistance in this matter is appreciated and vital to the Health and Safety of all.



PLAN LEGEND

- SUB WATERSHED
- WATERSHED
- EXISTING DRAIN
- EXISTING DITCH OR WATERCOURSE
- PROPOSED WORK OR INCORPORATION
- ROLL NUMBER
- DENOTES PROPERTY OWNERSHIP ON BOTH SIDES OF LOT LINE
- BUSH
- OPEN WATER
- ACCESS

5		
4	JULY 16, 2025	ISSUED FOR CONSTRUCTION
3	APRIL 1, 2025	ISSUED FOR REPORT
2	JANUARY 2025	INFORMATION MEETING
1	JUL/AUG 2021	LANDOWNER AND AGENCY REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY: T.B.J.
CHECKED BY: J.E.M.
DRAWN BY: M.C.J.
CHECKED BY: T.B.J.



SCALE
0 150 300m
1 : 15,000
ON 11"x17"

HAMILTON DRAIN 2025

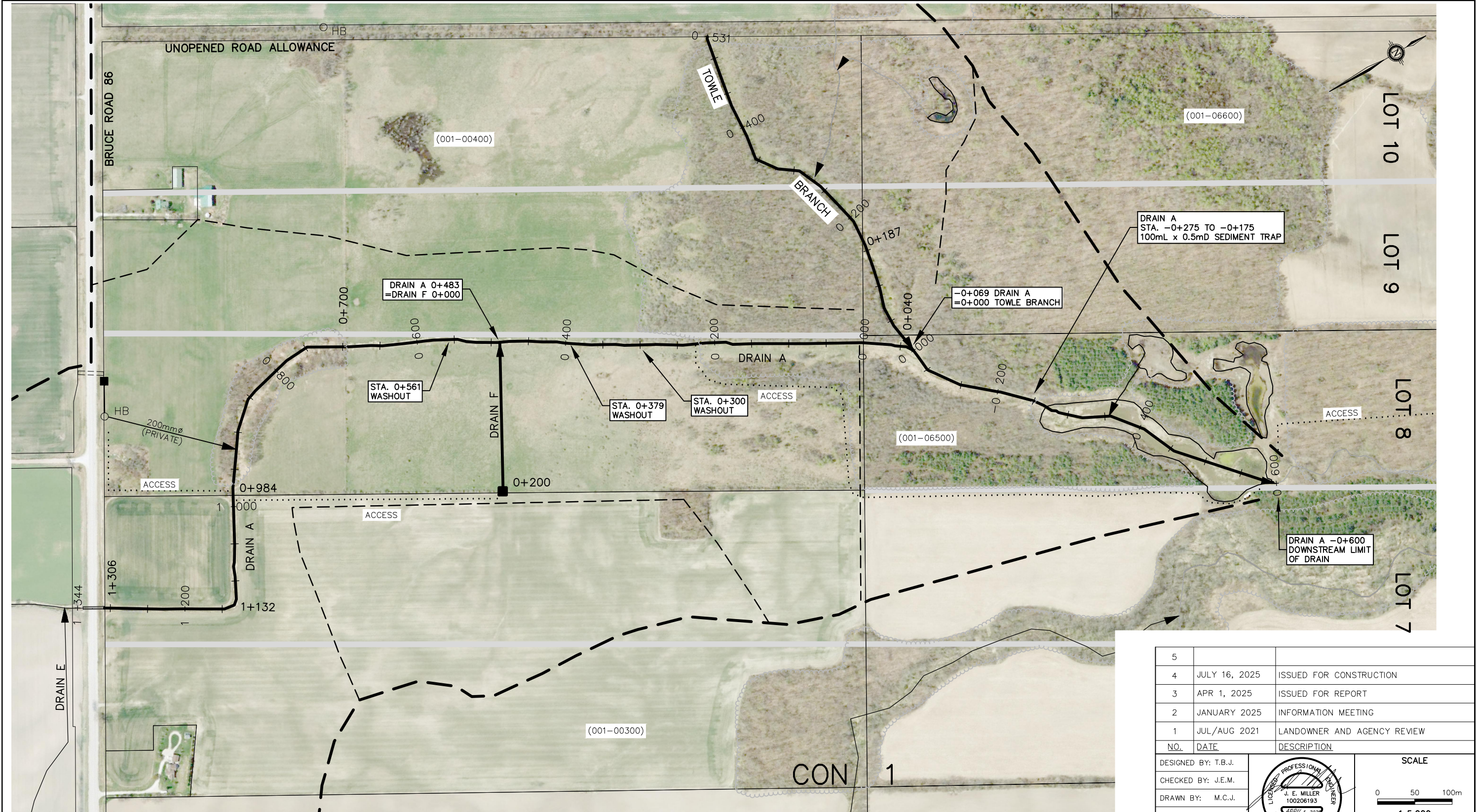
BRUCE COUNTY TOWNSHIP OF HURON-KINLOSS

WATERSHED PLAN

APR 1, 2025

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

REVISED:
JOB NUMBER: 11-089
DRAWING:
1 OF 10



THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL BE INFORMED OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PLAN LEGEND

- SUB WATERSHED
- WATERSHED
- EXISTING DRAIN
- EXISTING DITCH OR WATERCOURSE
- PROPOSED WORK OR INCORPORATION

- (001-00400) ROLL NUMBER
- DENOTES PROPERTY OWNERSHIP ON BOTH SIDES OF LOT LINE
- BUSH
- OPEN WATER
- ACCESS

5		
4	JULY 16, 2025	ISSUED FOR CONSTRUCTION
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DESIGNED BY: T.B.J.
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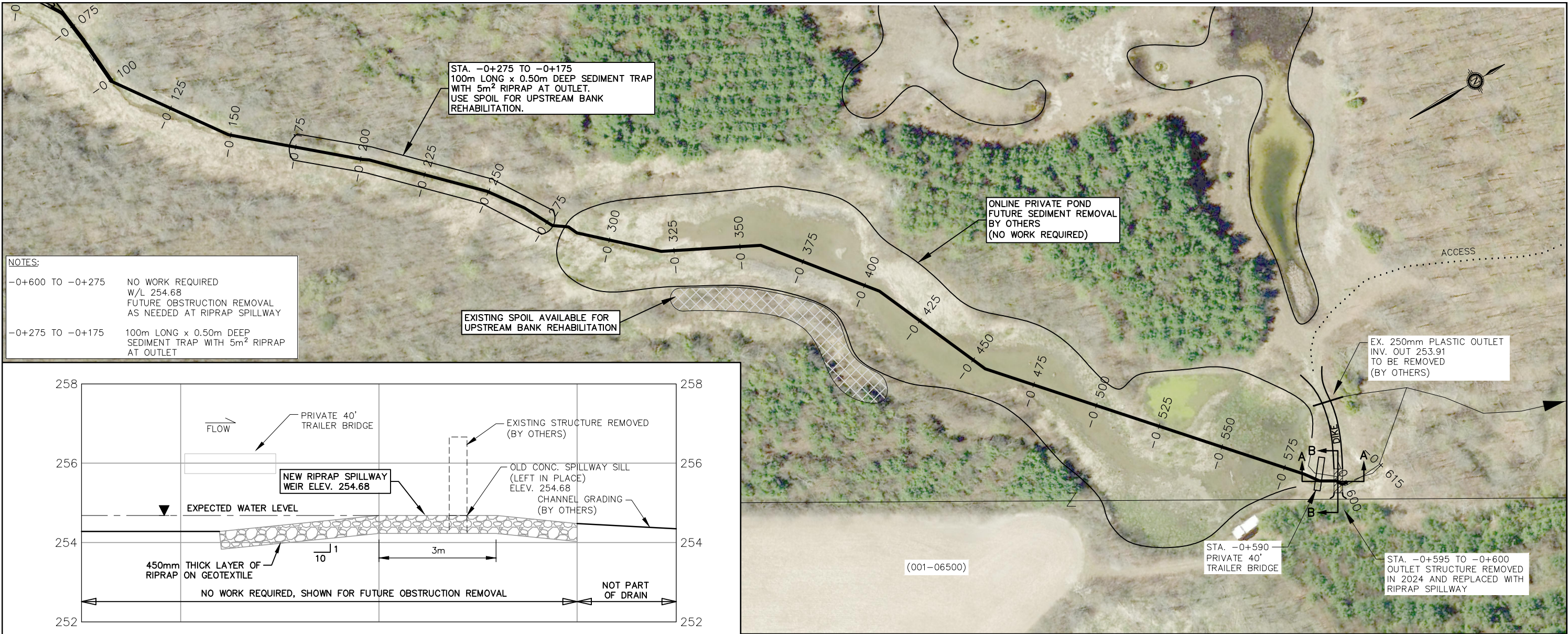


SCALE
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1:5,000
ON 11"x17"

HAMILTON DRAIN 2025

BRUCE COUNTY TOWNSHIP OF HURON-KINLOSS

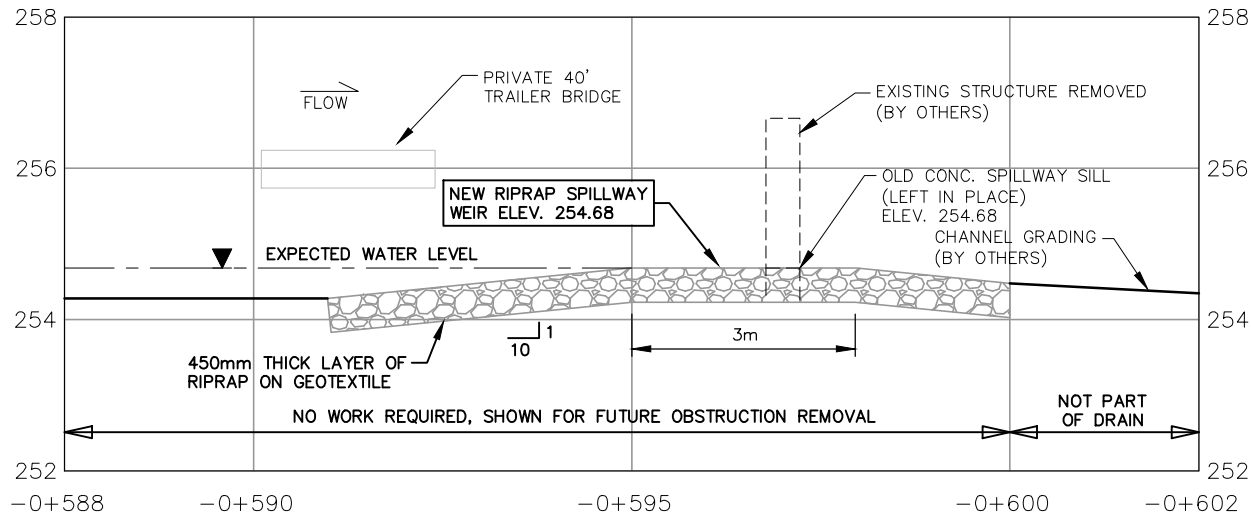
ENLARGEMENT PLAN	APRIL 1, 2025
 K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS KITCHENER SUDBURY	REVISED: JOB NUMBER: 11-089 DRAWING: 2 OF 10



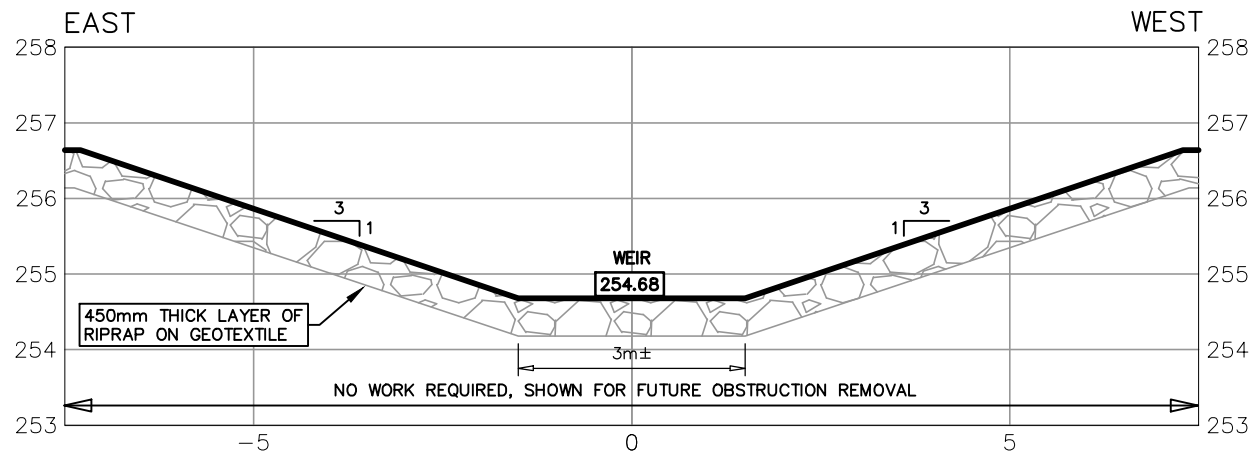
NOTES:

-0+600 TO -0+275 NO WORK REQUIRED
W/L 254.68
FUTURE OBSTRUCTION REMOVAL
AS NEEDED AT RIPRAP SPILLWAY

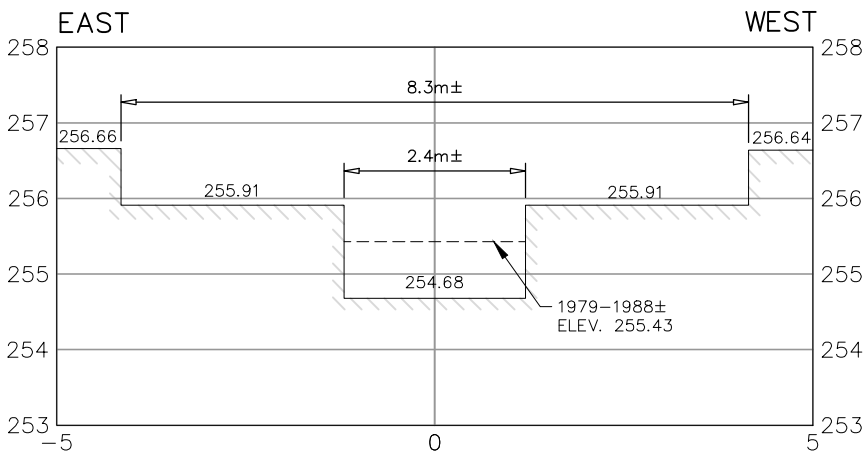
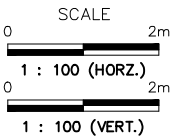
-0+275 TO -0+175 100m LONG x 0.50m DEEP
SEDIMENT TRAP WITH 5m² RIPRAP
AT OUTLET



EXISTING PROFILE AT SPILLWAY (COMPLETED BY OTHERS)
(SECTION A-A)

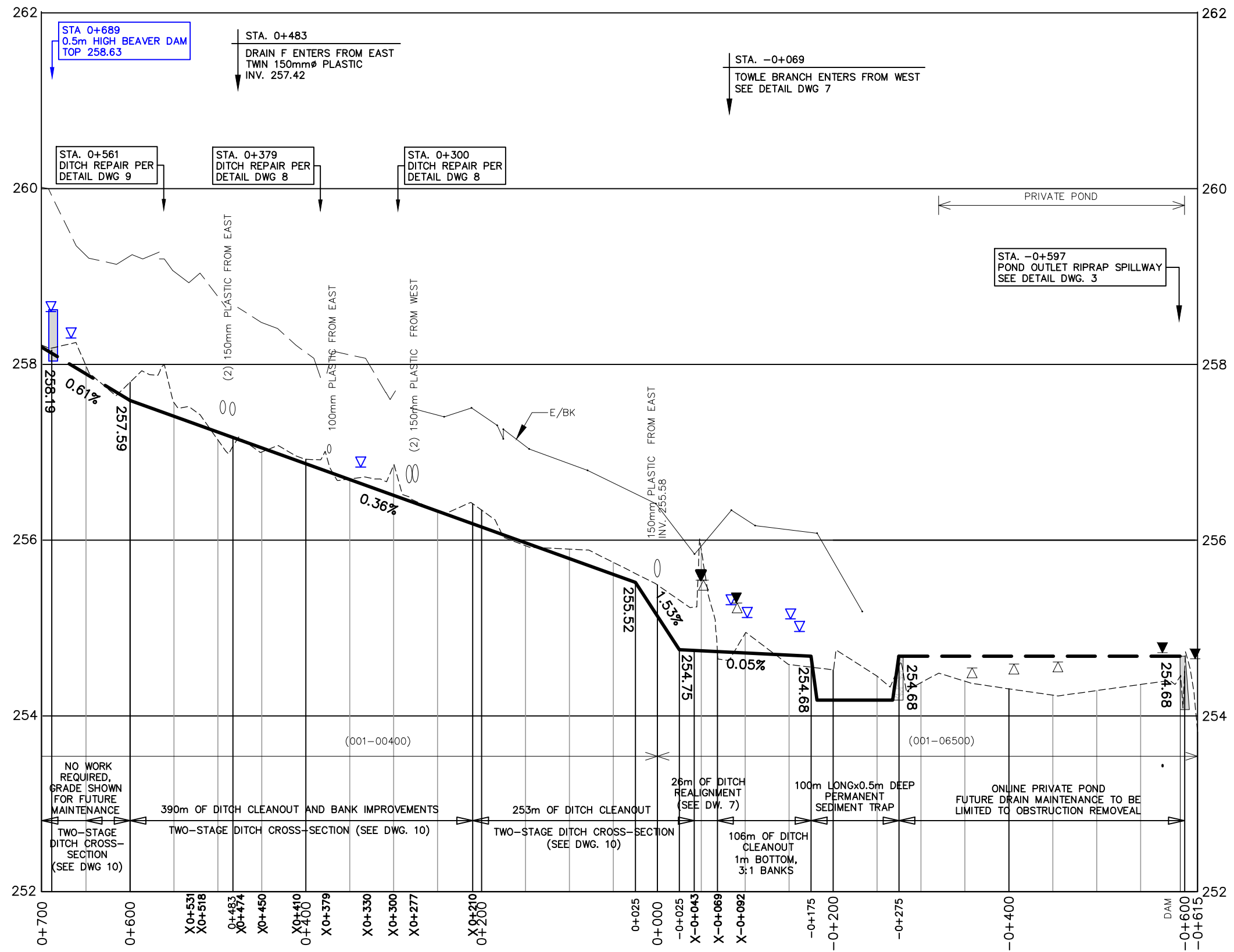


DRAIN A STA. -0+597±
EXISTING RIPRAP SPILLWAY (COMPLETED BY OTHERS)
(SECTION B-B)



DRAIN A STA. -0+597±
PRE-2024 CONCRETE OUTLET STRUCTURE
(REMOVED ABOVE 254.68 BY OTHERS)

5		
4	JULY 16, 2025	ISSUED FOR CONSTRUCTION
3	APRIL 1, 2025	ISSUED FOR REPORT
2	JANUARY 2025	INFORMATION MEETING
1	JUL/AUG 2021	LANDOWNER AND AGENCY REVIEW
NO.	DATE	DESCRIPTION
DESIGNED BY:	T.B.J.	
CHECKED BY:	J.E.M.	
DRAWN BY:	M.C.J.	
CHECKED BY:	T.B.J.	
		SCALE
		0 15 30m
		1 : 1,500 (PLAN)
		ON 11"x17"
HAMILTON DRAIN 2025		
BRUCE COUNTY		TOWNSHIP OF HURON-KINLOSS
DRAIN A DETAIL STA. -0+600 TO -0+000		APRIL 1, 2025
		REVISED:
		JOB NUMBER: 11-089
		DRAWING
		3 OF 10



DRAIN A

CONSTRUCTION SPECIFICATIONS – SPECIFIC NOTES

(001–06500)
–0+600 TO –0+275 NO WORK REQUIRED.
–0+275 TO –0+175 CONSTRUCT 100m LONG BY 0.5m DEEP PERMANENT SEDIMENT TRAP WITH 5²m RIPRAP AT OUTLET. (SPOIL TO BE USED FOR BANK REHABILITATION. SEE DWG. 8 & 9). EXCESS SPOIL TO BE LEVELED & SEEDED
–0+175 TO –0+069 106m OF DITCH CLEANOUT
–0+069 TO –0+043 26m OF DITCH REALIGNMENT AND 60m² RIPRAP ON NORTH BANK.
–0+043 TO 0+000 43m OF DITCH CLEANOUT.
(010–04000)
–0+000 TO 0+210 210m OF DITCH CLEANOUT.
0+210 TO 0+600 390m OF DITCH IMPROVEMENT, INCLUDES BOTTOM CLEANOUT AND BANK WORK PER CROSS-SECTIONS ON DWG 10. HYDROSEED BANKS WHERE DIRECTED BY ENGINEER. HYDROSEEDING PAID SEPARATELY UNDER HYDROSEED ITEM
0+300 WASHOUT REPAIR ON EAST BANK PER DETAIL DWG. 8
0+379 WASHOUT REPAIR ON EAST BANK PER DETAIL DWG. 8
0+483 10m² RIPRAP AT BRANCH F TILE OUTLETS PER DETAIL DWG 9
0+561 WASHOUT REPAIR ON WEST BANK PER DETAIL DWG. 9
0+689 REMOVE BEAVER DAM
0+600 TO 0+700 NO WORK REQUIRED, UNLESS DIRECTED BY THE ENGINEER.

LEGEND

▽ WATER LEVEL SURVEYED JUNE 10, 2025
▼ WATER LEVEL SURVEYED APRIL 23, 2024
△ TOP OF SEDIMENT (SURVEYED MARCH 25, 2021)
X 0+300 STATION WITH CROSS-SECTION


5		
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1	JUL/AUG 2021	LANDOWNER AND AGENCY REVIEW
NO.	DATE	DESCRIPTION

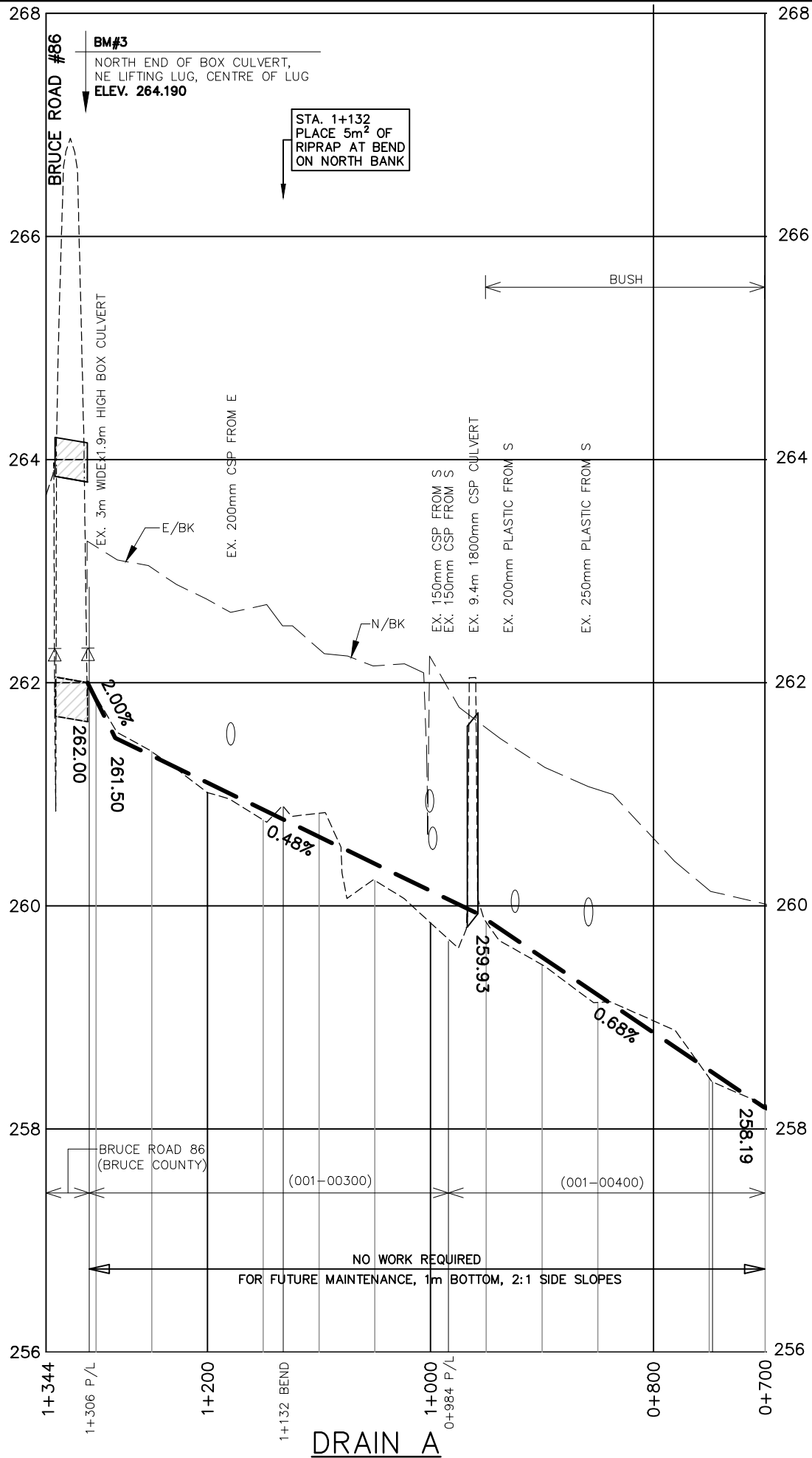
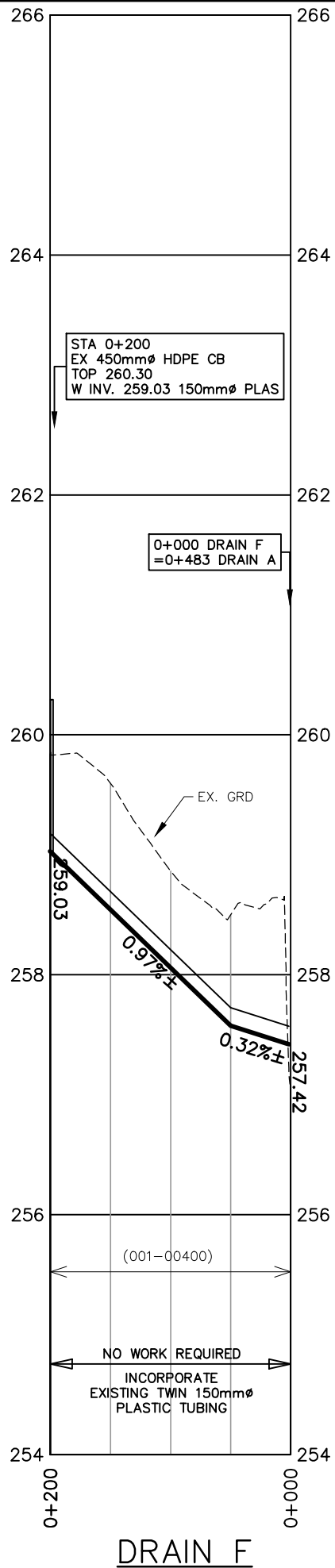
DESIGNED BY: T.B.J.
CHECKED BY: J.E.M.
DRAWN BY: M.C.J.
CHECKED BY: T.B.J.

SCALE
0 50 100m
1 : 5000 (HORZ.)
0 1m
1 : 50 (VERT.)
ON 11"x17"

HAMILTON DRAIN 2025

BRUCE COUNTY TOWNSHIP OF HURON–KINLOSS

DRAIN A PROFILE	APRIL 1, 2025
 K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS KITCHENER SUDBURY	REVISED: JOB NUMBER: 11–089 DRAWING: 4 OF 10



CONSTRUCTION SPECIFICATIONS—SPECIFIC NOTES

DRAIN A

001-00400
0+700 TO 0+984 NO WORK REQUIRED, UNLESS DIRECTED BY ENGINEER.

0+958 TO 0+967 INCORPORATE 9.4m LONG 1800mm \varnothing CSP CULVERT.

001-00300
0+984 TO 1+306 NO WORK REQUIRED, UNLESS DIRECTED BY ENGINEER.

1+132 PLACE 5m² OF RIPRAP AT BEND ON NORTH BANK.

DRAIN F

001-00400
0+000 TO 0+200 INCORPORATE EXISTING TWIN 150mm \varnothing PLASTIC TUBING.

0+200 INCORPORATE EXISTING 450mm \varnothing PLASTIC CATCHBASIN

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0 1m
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ON 11"x17"

HAMILTON DRAIN 2025

BRUCE COUNTY TOWNSHIP OF HURON-KINLOSS

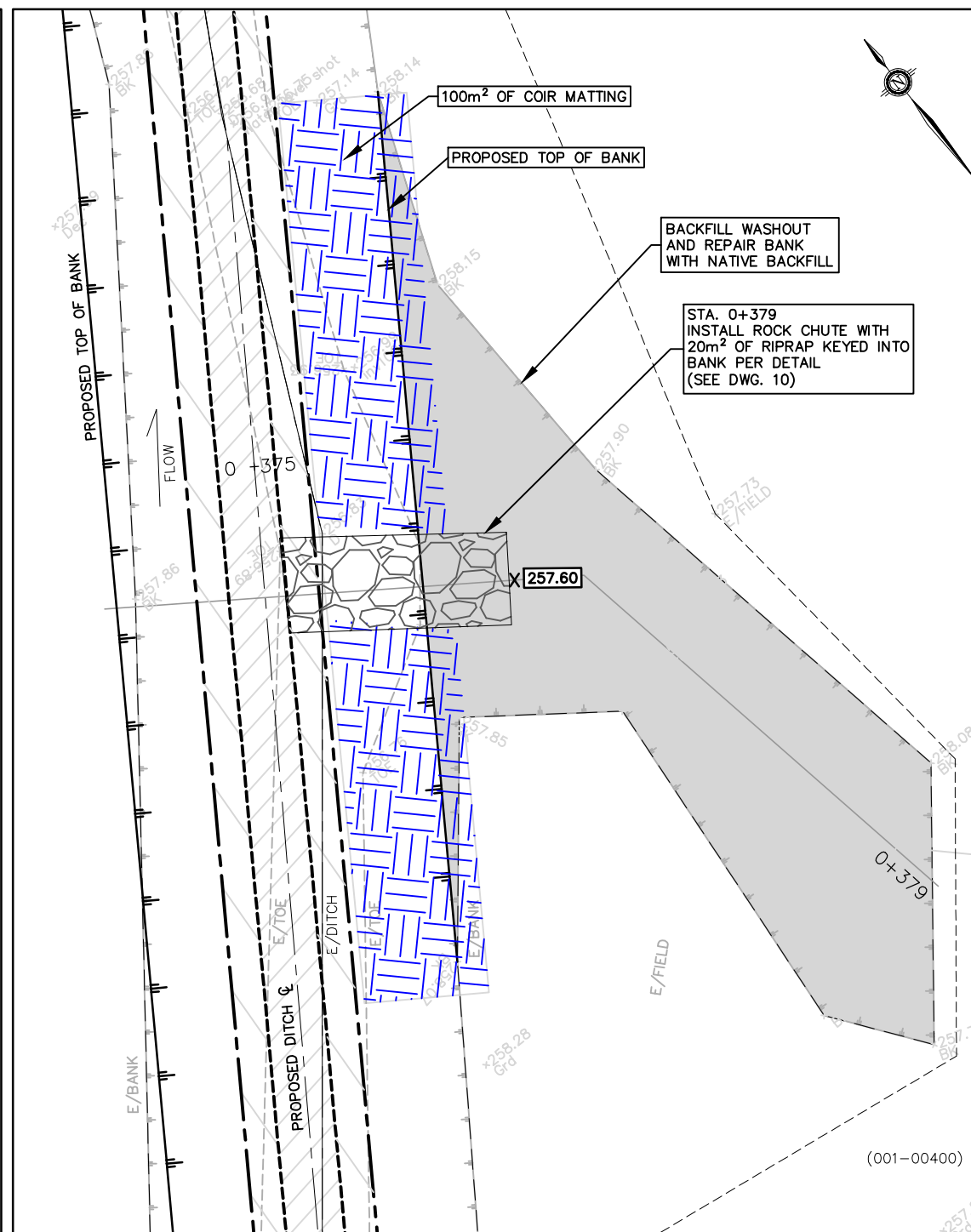
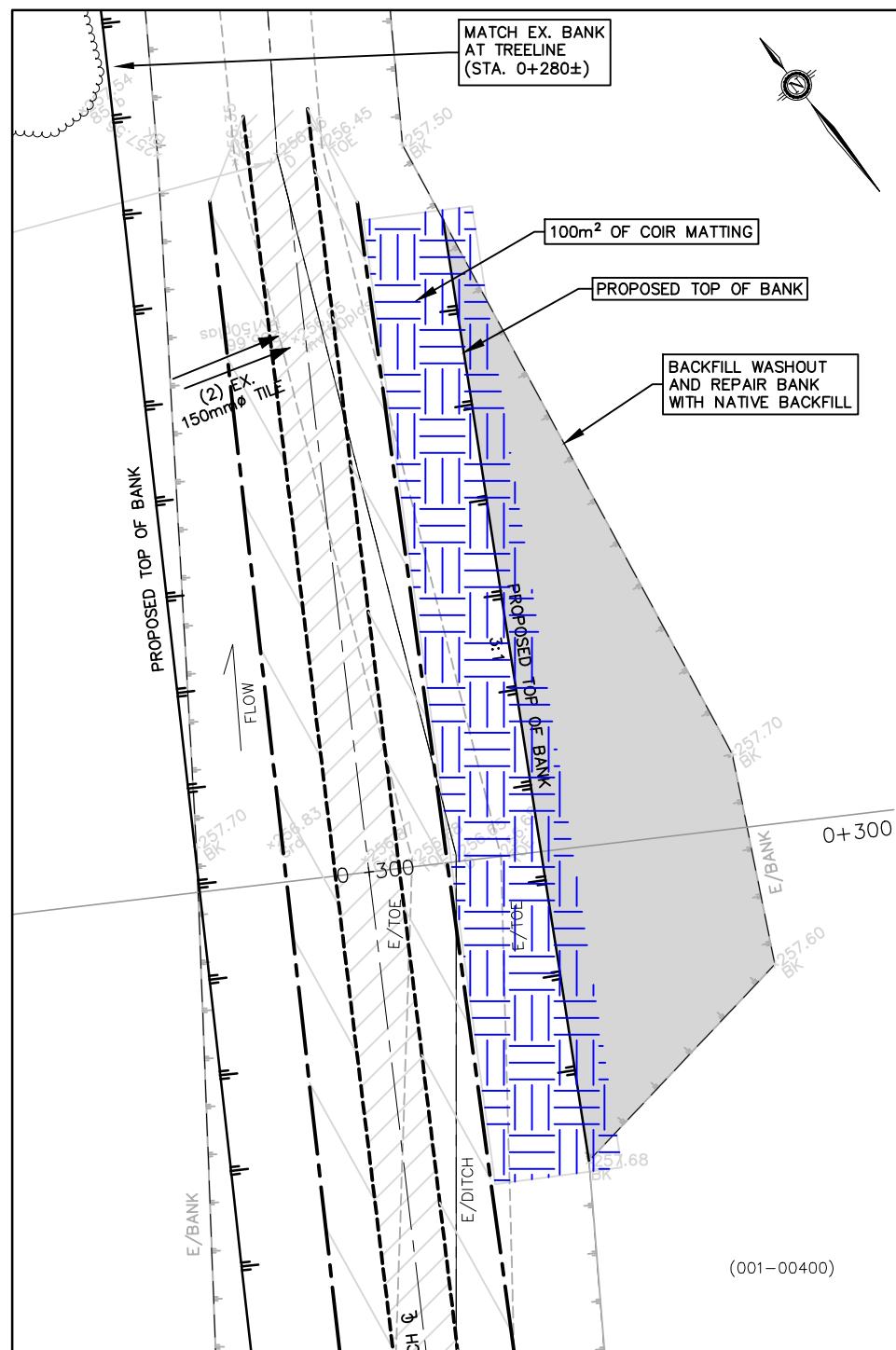
DRAIN A AND DRAIN F PROFILES APRIL 1, 2025

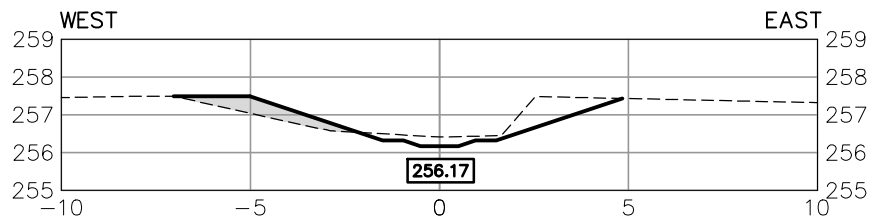
K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

REVISED:

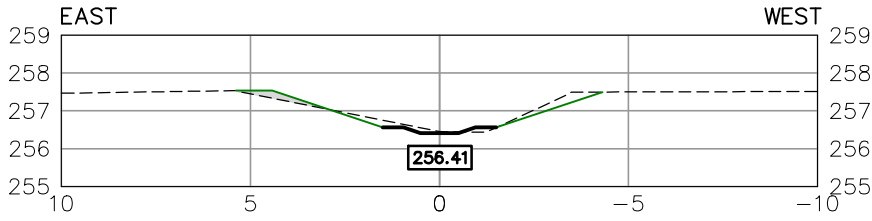
JOB NUMBER: **11-089**

DRAWING
5 OF 10

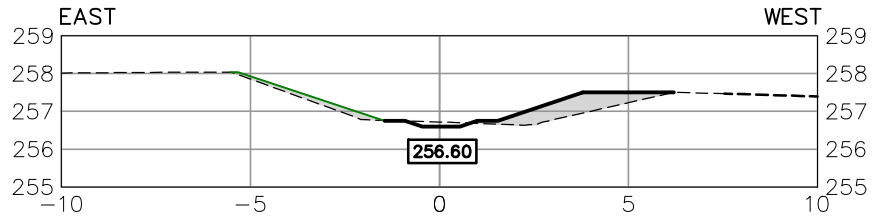




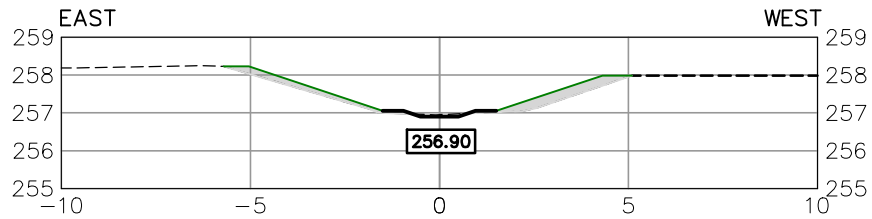
DRAIN A STA. 0+210



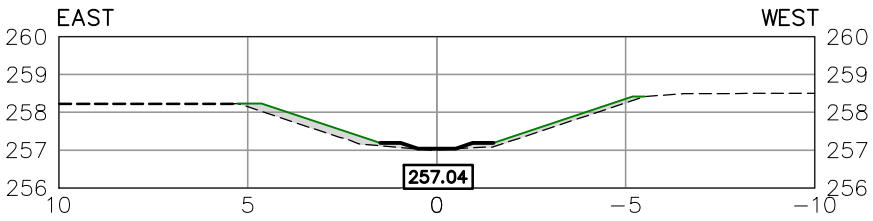
DRAIN A STA. 0+277



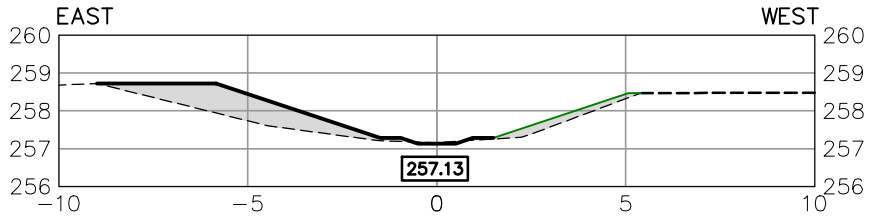
DRAIN A STA. 0+330



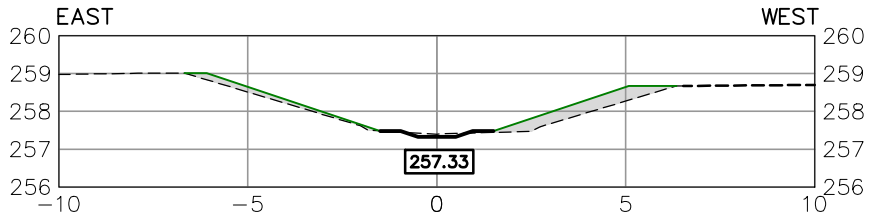
DRAIN A STA. 0+410



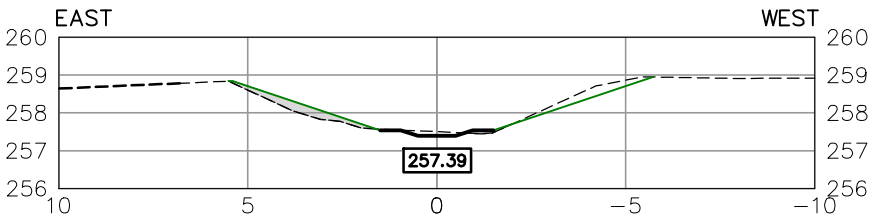
DRAIN A STA. 0+450



DRAIN A STA. 0+474



DRAIN A STA. 0+518



DRAIN A STA. 0+531

SPECIAL PROVISIONS – GENERAL NOTES

1. WORKING AREA

FOR A CLOSED DRAIN UP TO 2m DEEP THE WORKING AREA SHALL BE A 10m WIDTH ON EITHER SIDE OF THE TRENCH OR ANY COMBINATION NOT EXCEEDING 20m. FOR CLOSED DRAINS DEEPER THAN 2m THE WORKING AREA SHALL BE INCREASED TO 30m. IF ANY PART OF THE DRAIN IS CLOSE TO A PROPERTY LINE THEN THE PROPERTY LINE SHALL BE ONE OF THE LIMITS OF THE WORK AREA. WHERE ANY PART OF THE DRAIN IS ON A ROAD ALLOWANCE, THE ROAD ALLOWANCE SHALL BE THE WORKING AREA. RESTRICTED OR INCREASED WORKING AREAS WILL BE DESCRIBED IN DETAIL IN THE SPECIFIC CONSTRUCTION NOTES.

2. ACCESS

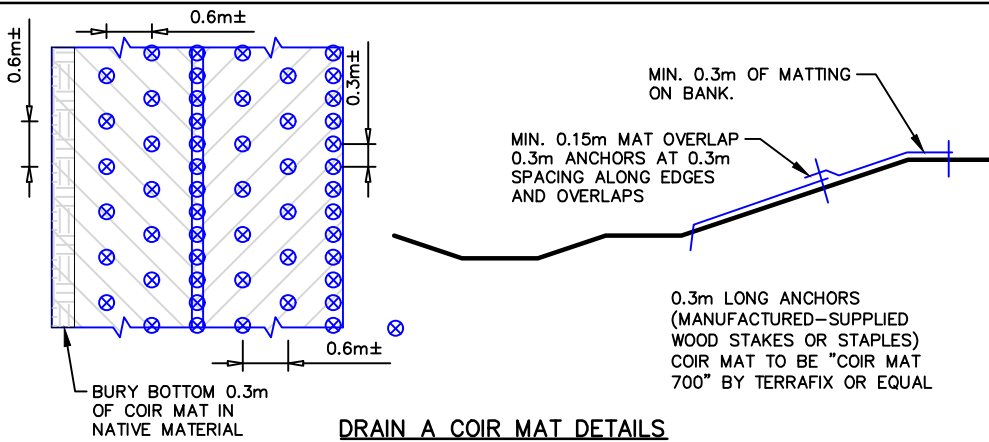
ACCESS TO THE WORKING AREA SHALL BE FROM ROAD ALLOWANCES AND AS DESIGNATED ON THE DRAWINGS AND/OR SPECIFIC NOTES. NO OTHER ACCESS ROUTES SHALL BE USED UNLESS FIRST APPROVED BY THE ENGINEER AND THE AFFECTED LANDOWNER. SPECIFICATIONS RELATED TO CONSTRUCTION WILL APPLY TO THE ACCESS ROUTES. CONTRACTOR SHALL MAKE GOOD ANY DAMAGES CAUSED BY USING THE DESIGNATED ACCESS ROUTES. THE CONTRACTOR SHALL CONTACT EACH OWNER PRIOR COMMENCING CONSTRUCTION ON EACH PROPERTY.

3. PRE AND POST CONSTRUCTION MEETINGS

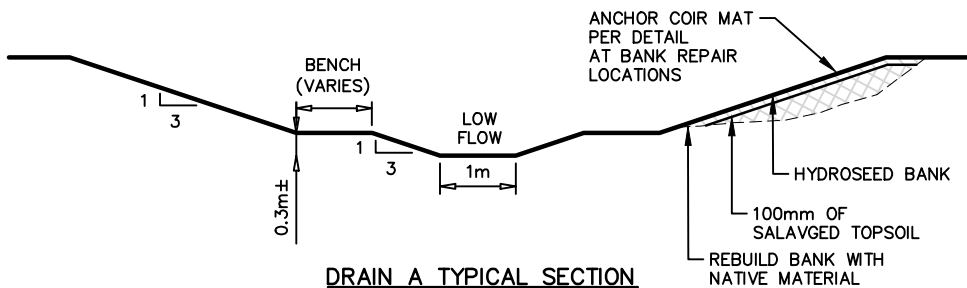
THE CONTRACTOR WILL BE REQUIRED TO ATTEND PRE-AND POST-CONSTRUCTION SITE MEETINGS WITH THE ENGINEER AND LANDOWNERS BEFORE STARTING AND AFTER FINISHING THE WORK.

LEGEND

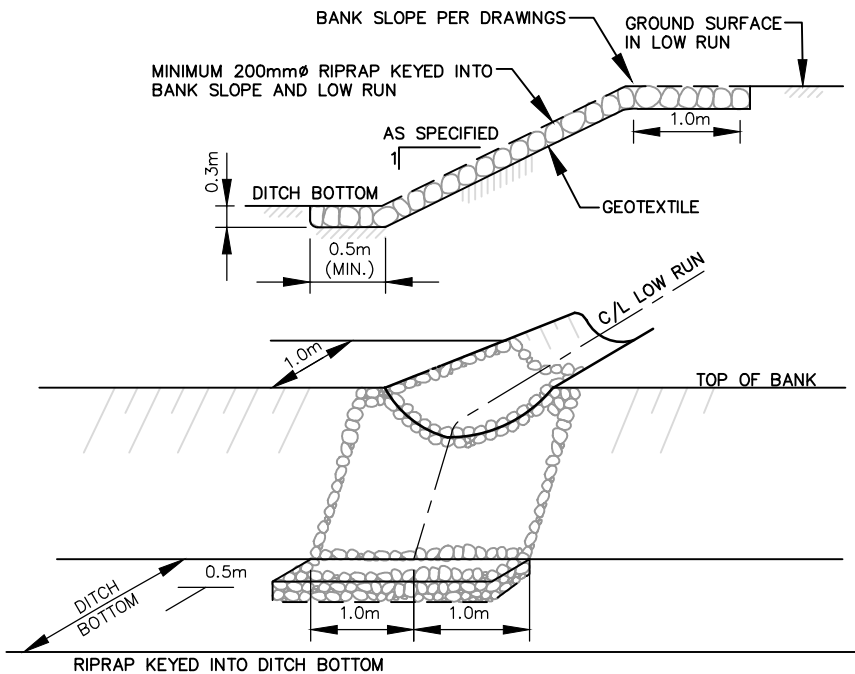
MAINTAIN EXISTING BANK.
MINIMAL BANK DISTURBANCE ANTICIPATED



DRAIN A COIR MAT DETAILS



DRAIN A TYPICAL SECTION



ROCK CHUTE
NOT TO SCALE

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ON 11"x17"

HAMILTON DRAIN 2025	
BRUCE COUNTY	TOWNSHIP OF HURON-KINLOSS

DRAIN A IMPROVEMENT CROSS SECTIONS	APRIL 1, 2025
	REVISED:
K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS KITCHENER SUDBURY	JOB NUMBER: 11-089
	DRAWING: 10 OF 10