

Bid Documents for

Township of Norwich Gore Municipal Drain

Contract No.

300054906.0000

October 2024

Prepared by:

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35 Perry Street
Woodstock ON N4S 3C4 CANADA**

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Gore Municipal Drain Township of Norwich

<u>Tender Summary</u>		
Issue	Project Particulars	Document Reference
Contract No.	300054906.0000	-
Owner	Township of Norwich Contact: Dirk Kramer, Drainage Superintendent	A.1.1 and A.7.5
Contract Administrator	R.J. Burnside & Associates Limited Contact: Jacob Rooke	A.1.2, A.1.3
Tender Closing Date	Friday, November 29, 2024	A.7.5
Tender Closing Time	2:00:00 p.m. (14:00 hrs.)	A.7.5
Estimated Tender Value	\$657,240	(See Engineer's Report)
Certified Cheque Required	Yes	A.10.1
Amount of Certified Cheque	\$65,724	A.10.1
Bid Bonding	10 % of bid price	A.10.2; A.16.1
Required Insurance Amount	\$5,000,000.00 (CGL and Auto)	A.11.1, D.1.2, GC 6.03.02.01
Parties to be named as Co-insureds	<ul style="list-style-type: none"> • Township of Norwich • R.J. Burnside & Associates Limited • County of Oxford • County of Brant • Norfolk County 	A.11.1 and D.1.2
Traffic Plan Required & Submission Deadline (Owner and Contract Administrator)	YES – Submission 7 days prior to work commencement. Approval required prior to work commencing.	D.1.7; E.4.6; E.4.8; SP6, SP8
Reference Documents	<ul style="list-style-type: none"> • DFO Letter of Advice 23-HCAA-02357 • Permit No. LPRCA 133/24 	Reference Documents
Required Work Period Completion Date	September 30, 2025 (Substantial Performance)	D.1.1
Restricted Timing Windows	In accordance with specific conditions of DFO Letter of Advice and coordination with LPRCA No in water works between October 1st and July 15th	Reference Documents
General Conditions of Contract	OPSS.MUNI.100 (November 2019)	C.2.1
Warranty Holdback	20% of the statutory holdback or \$1,000, whichever is greater	G - Article III (b) iii, GC 8.02.04.05
Pre-Construction Meeting	Prior to commencement of work	F - Special Provisions
Notice of Final Inspection	2 days prior to meeting	F - Special Provisions
Warranty Period Required	1 (one) year from Declaration of Substantial Completion	GC 7.16.02

Township of Norwich

Gore Municipal Drain

Contract No.: 300054906.0000

Index to Bid Documents

Document

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BURNSIDE

Document A

Instructions to Bidders

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1 THE WORK

- 1.1 The work (“Work”) on the Main Drain includes the installation of approximately 1,963 m of CDT and HDPE pipe, 14 concrete structures, one road crossing with approximately 23 m of PVC, 1,219 m of channel deepening, two stilling basins and the removal of approximately 7,500 m² of woodlot area. The Drain is located at beginning at Lot 2, Concession 5, Township of Norwich, County of Oxford, proceeding to Lot 23, Concession 14, County of Brant (“Place of the Work”) for the Township of Norwich (“Owner”), as is more particularly described in the Bid Documents (as defined in Section 3.1 of these Instructions to Bidders) and Contract (as defined in Section 3.2 of these Instructions to Bidders).
- 1.2 The firm of R.J. Burnside & Associates Limited is the “Contract Administrator” who will be administering this request for Bids and administering the Contract that may be awarded as a result of this request for Bids.
- 1.3 All inquiries regarding this Work, or this request for Bids, are only to be directed in writing to the Contract Administrator’s representative as follows:

Name: Jacob Rooke
Address: 35 Perry Street, Woodstock ON N4S 3C4
Telephone: (519) 340-2005
Facsimile: (519) 941-8120
Email: Jacob.rooke@rjburnside.com

2 WORK AND BIDDERS

- 2.1 The scope of Work is more particularly described in the Bid Documents.
- 2.2 The Owner is requesting Bids (as defined in Section 7.2 of these Instructions to Bidders) in connection with the Work from qualified contractors (in the case of an advertised tender), or from the pre-qualified or invited contractors listed below (if applicable). Each contractor who responds to this request for Bids is defined as a Bidder (collectively, the “Bidders”).

3 BID DOCUMENTS AND CONTRACT

3.1 Bid Documents

- .1 The Bid Documents consist of:
 - (i) Document A – Instructions to Bidders;
 - (ii) Document B – Bid;

- (iii) the drawings and specifications listed in Document E (collectively, the “Drawings and Specifications”)
 - (iv) the Contract;
 - (v) all Addenda (as defined in Section 6.4 of these Instructions to Bidders) that were issued in writing by the Owner or Contract Administrator prior to the Bid Closing Time (as defined in Section 7.5 of these Instructions to Bidders).
- .2 The Owner’s Purchasing By-law and procurement policies and procedures (if applicable) are incorporated into the Bid Documents by reference and shall take priority over the other provisions in these Instructions to Bidders with respect to procurement policies and procedures to be followed by the Owner during the Owner’s consideration and selection process. Copies of the Owner’s Purchasing By-law and procurement policies and procedures (if applicable) are available for review by the Bidders at the offices of the Owner.
- 3.2 The Contract for this request for Bids (“Contract”) consists of:
- .1 Agreement between Owner and Contractor listed in Document G;
 - .2 Documents describing clarifications, if any are requested and accepted by the Owner following the Bid Closing Time;
 - .3 General Conditions of Contract, (OPSS.MUNI 100, November 2019), as modified by the Supplemental General Conditions;
 - .4 Supplemental General Conditions listed in Document C;
 - .5 the Drawings and Specifications (Document E), and the General Requirements (Document D);
 - .6 Addenda that were issued in writing by the Owner or Contract Administrator prior to the Bid Closing Time;
 - .7 Instructions to Bidders (Document A) and Bid (Document B); and
 - .8 Special Provisions listed in Document F.
- 3.3 One copy of the Bid Documents for bidding purposes will be issued to each Bidder by the Contract Administrator (or the Owner, if applicable) at the address set out in Section 1.3 provided that the Bidder has provided the Contract Administrator with its full name, address, telephone and facsimile numbers, e-mail address and contact person.
- 3.4 In accordance with Section 3.3, Bid Documents must be obtained from the Contract Administrator (or the Owner if applicable), and Bidders shall provide the required fee (if applicable) and information to the Contract Administrator. Bidders not meeting these criteria are subject to disqualification at the Owner’s sole and absolute discretion.
- 3.5 Additional sets of the Bid Documents may be obtained by Bidders, at a cost, and subject to available printing time, by contacting the office which issued the original set of Bid Documents.

- 3.6 The Contract Administrator may issue notices to each Bidder at the applicable address they have provided pursuant to Section 3.3.

4 EXAMINATION OF THE PLACE OF THE WORK

- 4.1 The Bidder is fully responsible for obtaining all information required for the preparation of their Bid and, prior to submitting a Bid, the Bidder shall have visited and carefully examined the Place of the Work and the surrounding area in a reasonable and prudent manner and satisfied itself as to the scope and character of the Work and all conditions and information affecting the Work and how the Work is to be completed, including, without limitation, the nature and location of the Work, working areas, storage areas, local features including private property and utilities, access to and at the Place of the Work, weather conditions and any other factors which may influence the performance of the Work and/or the pricing of the Work.
- 4.2 In addition to the Bid Documents, the following reference documents (collectively, the “Reference Documents”) shall also be issued to each Bidder by the Contract Administrator (or the Owner, if applicable) at the address set out in Section 1.3, provided that the Bidder has provided the Contract Administrator with the fee and information required by Section 3.3:

- **DFO Letter of Advice 23-HCAA-02357**
- **LPRCA Permit No. 133/24**

The Reference Documents are provided for reference and information only and do not form part of the Bid Documents or Contract. The Owner and the Contract Administrator make no representation or warranty with respect to the accuracy or completeness of the Reference Documents and the Bidder is responsible for obtaining its own independent legal and technical advice with respect to the Reference Documents. Any comments in the Reference Documents on potential construction problems and possible methods are intended only for the guidance of the design engineer and are not to be relied upon by the Bidder. Therefore, the Bidders should make their own interpretations, and draw their own conclusions, on the information presented in the Reference Documents. Without limiting the generality of the foregoing, the Bidders will make their own assessments as to how the subsurface conditions may affect the Work, their proposed operations and pricing. The number of boreholes and/or test pits on which the Reference Documents are based may not be sufficient to determine all the factors that may affect construction methods, costs and performance of the Work. No claim for extras relating to work required to deal with conditions anticipated in the soils report will be entertained. The Bidder may, at its costs, excavate test pits or undertake other investigations to explore the existing conditions, provided that the excavation of test pits must be pre-approved by the Owner in writing.

5 PRE-BID MEETING

5.1 Not Applicable.

6 DISCREPANCIES, OMISSIONS, AMBIGUITIES, COMMENTS, AND

ADDENDA

- 6.1 The Bidder shall review information furnished to it by or on behalf of the Owner (including, without limitation, the Bid Documents) in a reasonable and prudent manner and satisfy itself that they (including, without limitation, the scope of the Work) are complete and clear.
- 6.2 Bidders finding discrepancies, omissions, errors, departures from good practice and ambiguities, or having other questions or comments in respect of the Bid Documents or any other information furnished to it by or on behalf of the Owner or having any doubt as the meaning of the Bid Documents or any other information furnished to it by or on behalf of the Owner (including, without limitation, any uncertainty as to the proper manner of completing the Bid) shall notify the Contract Administrator immediately in writing (but not later than four (4) days before the Bid Closing Time), by fax or email only using the contact information of the Contract Administrator set out in Section 1.3 of these Instructions to Bidders.
- 6.3 The Owner reserves the right to distribute copies of any or all notices which it receives from the Bidders and the Owner's responses to such notices to all Bidders.
- 6.4 Prior to the Bid Closing Time, the Owner may change or add to any provision or part of the Bid Documents at any time or times (including, without limitation, appendices, supplemental information and other documents). Any changes or additions to the Bid Documents will be issued in writing by the Contract Administrator as a formal Addendum (collectively, the "Addenda" and individually, the "Addendum") to those Bidders who have provided the Owner with the information required by Section 3.3. In the Addendum, the Owner may, having regard to the circumstances, extend the Bid Closing Time. The Owner and Contract Administrator will not be responsible for oral explanations or instructions; any such oral explanations or instructions do not alter the Bid requirements or Bid Documents and should not be relied upon by the Bidders.
- 6.5 Bidders are responsible for ensuring that they have received all Addenda issued prior to the Bid Closing Time through contacting the bid issuing office for confirmation, or through other means.

7 SUBMISSION OF BIDS

1.1 7.1 In accordance with Section 7.5 of these Instructions to Bidders, Bidders shall deliver one (1) original of the Bid in a large sealed opaque envelope that should be clearly marked as Gore Municipal Drain and 300054906.0000, and with the name and address of the Bidder.

7.2 The bid for the Work (the “Bid”) shall be comprised of the following:

- .1 Bid Form;
- .2 the Security (if applicable, and as defined in Section 10.1 of these Instructions to Bidders);
- .3 Appendix “A” – List of Bid Documents;
- .4 Appendix “B” – Subcontractors;
- .5 Appendix “C” – Schedule;
- .6 Appendix “D” – Residency;
- .7 Appendix “E” – Proposed Alternatives to the Work;
- .8 Appendix “F” – List of Experience; and
- .9 Appendix “G” – Schedule of Unit Prices

the forms of all of which are set out in Document B – Bid. In addition, Appendices “A” to “G”, inclusive, are also described in Section 20 of these Instructions to Bidders.

7.3 Bidder initiated alternatives:

- .1 Beyond the mandatory requirement to submit a price for the Work as specified, the Bidders have the option of submitting proposed alternatives to the Work (“Proposed Alternatives to the Work”) which:
 - (i) present economical, environmental or technical benefits;
 - (ii) are consistent with the requirements set out in the Bid Documents (including, without limitation, the Drawings and Specifications); and
 - (iii) still produce the desired end result.
- .2 Bidders shall submit Proposed Alternatives to the Work as Appendix “E” – Proposed Alternatives to the Work. Without limiting the generality of the foregoing, the Proposed Alternatives to the Work shall include, without limitation, the following:
 - (i) a complete description with drawings, specifications and other information;
 - (ii) the reason for proposed substitution;

- (iii) the differences between the specified work and the Proposed Alternatives to the Work and the necessary revisions to other work to accommodate the Proposed Alternatives to the Work;
- (iv) the amount by which the Bid Price will be increased or decreased; and
- (v) such other necessary information to permit an accurate analysis of the Proposed Alternatives to the Work.

.3 The Bidders understand that:

- (i) the Owner may accept any of the Proposed Alternatives to the Work and corresponding alternative prices in any order or combination, including all or none;
- (ii) the price adjustments due to the Proposed Alternatives to the Work will not be taken into account during the Bid evaluation process;
- (iii) Proposed Alternatives to the Work and the related price adjustments are open for acceptance by the Owner for the same period of time as the Bid;
- (iv) the Work and the contract price in the Contract shall reflect the Proposed Alternatives to the Work and related price adjustment, if any, accepted by the Owner at the time of Acceptance (as defined in Section 13.2 of these Instructions to Bidders);
- (v) acceptance of any Proposed Alternatives to the Work will not affect the date for Substantial Performance of the Work as set out in Document D; and
- (vi) acceptance of any Proposed Alternatives to the Work will not affect the list of Subcontractors set out in Appendix "B" – Subcontractors unless the Bidder specifically indicates a change to the list in the Proposed Alternatives to the Work and this change is accepted by the Owner.

7.4 All Bids must be legible, in paper form and filled out in ink or typewritten. No telephoned, facsimile or email transmissions of the Bid will be accepted. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed in these Instructions to Bidders.

- 7.5 Bids must be delivered to the following location:

Township of Norwich
285797 Airport Road
Norwich, ON N0J 1P0

Attention: Dirk Kramer, Drainage Superintendent

before **2:00:00 p.m.** local time as displayed by the clock at such location on **Friday, November 29, 2024** (the date and time shall be the “Bid Closing Time”). The Owner may, in its sole and absolute discretion, extend the Bid Closing Time by issuing an Addendum.

- 7.6 Each Bid will be marked by the Owner with the time and date it was received. A Bid received after the Bid Closing Time will be disqualified and returned unopened.
- 7.7 The Bid is irrevocable by the Bidder submitting same and shall remain in effect and open for acceptance by the Owner for a period of ninety (90) days after the Bid Closing Time. Without limiting the generality of any other provision in the Bid Documents, the Acceptance of the Bid may take place at any time during such period of irrevocability. Except as expressly set out in these Instructions to Bidders, once submitted, a Bid may not be amended but if the Bid was submitted prior to the Bid Closing Time, such Bid may be withdrawn and a new complete Bid submitted prior to the Bid Closing Time. Where more than one (1) Bid is submitted by a Bidder prior to the Bid Closing Time, the last Bid to be received shall be deemed to have revoked and superseded any prior Bid by the applicable Bidder. Any new Bids must be submitted in accordance with the requirements of these Instructions to Bidders.
- 7.8 All costs and expenses incurred by the Bidders in connection with the Bids (including, without limitation, costs and expenses arising from involvement in any pre-qualification process conducted by the Owner, the preparation and submittal of the Bids, any clarifications requested by the Owner and visits to the Place of the Work) shall be borne by the Bidders and the Owner is not liable to pay for such costs and expenses or to otherwise reimburse or compensate the Bidders in connection with the Bids, provided that in the event the Owner breaches its obligations under this request for Bids, if any, or the Owner breaches its duty of care arising from this request for Bids, if any, the Owner may be responsible for the reasonable costs incurred by the Bidder in preparing its Bid, subject in any event to the limits in Section 17.2.

8 BID FORM AND BID PRICE

- 8.1 Bidders shall submit their Bids using the Bid Form and appendices (“Appendices”) described in Section 7.2 of these Instructions to Bidders. All sections of the Bid Form, including all applicable Appendices which are required by these Instructions to Bidders to be submitted by the Bidders, should

be completed. Without limiting the generality of the foregoing, all blanks must be filled in and all entries for unit prices, lump sums, extensions and totals should be filled in, as appropriate (unless a 48 hour deferred item breakdown submission, or variation thereof, is allowed per Appendix G of Document B). Bids not completed in full may, in the sole and absolute discretion of the Owner, be disqualified. Apart from the completion of any blanks, a Bidder may not make amendments to the pre-printed wording of the forms comprising the Bid. Any such amendments made, whether on the face of such forms or contained elsewhere in the Bid may, in the sole and absolute discretion of the Owner, result in disqualification of the Bid.

- 8.2 The Bid Price shall include all applicable federal and provincial sales taxes, excise taxes, and other taxes, including the HST (referred to separately in Appendix “G”), customs and duties. The Bid Price shall be set out in the Bid Form.
- 8.3 The receipt of any and all Addenda modifying the Bid Documents must be acknowledged by the Bidder when completing Section 1.1 of the Bid Form.

9 BID SIGNING

- 9.1 The Bids shall be signed in accordance with the requirements of this Article 9. Note that the use of seals, while encouraged when available, is not mandatory.
- .1 Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words “Sole Proprietor” under the signature.
 - .2 Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word “Partner” under each signature. Affix seal to each signature.
 - .3 Limited Company: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer’s capacity in which the signing officer acts, under each signature. Affix the corporate seal.
 - .4 Joint Venture: Each and every party of the joint venture shall sign under their respective seals in a manner appropriate to such party as described above.

10 BID DEPOSIT AND CONTRACT SECURITY

- 10.1 All Bidders shall include with each Bid:

A certified cheque in an amount equal to \$65,724 made payable to the Owner as a Bid Deposit. This cheque shall be held by the Owner as Contract Security for the successful Bidder.

The bid deposits of all but the lowest two Bidders will be returned within thirty (30) days after the Bid closing date. The bid deposit of the lowest Bidder will be retained by the Owner as Contract Security until the Contract has achieved Substantial Performance. The other bid deposit will be returned once a Bid has been accepted and a Contract has been executed by the Owner and successful Bidder.

10.2 As an alternative to the requirements of Section 10.1 above, Bidders may choose to provide the following:

.1 An executed Bid Bond issued by a surety authorized to transact the business of suretyship in Ontario, in the latest form approved by the CCDC which is valid for a period of ninety (90) days after the Bid Closing Time, representing not less than ten percent (10%) of the amount of the Bid Price (the “Security”); and

.2 An executed Agreement to Bond issued by a surety authorized to transact the business of suretyship in Ontario, in the form attached as Attachment “A”, or similar standard industry form generally in keeping with Attachment “A”, which is valid for a period of ninety (90) days after the Bid Closing Time indicating that the Bidder is able to obtain from such surety a Performance Bond and a Labour and Material Payment Bond each for 100% of the Total Bid Price as required and in the form specified by the Contract. The cost of such Performance Bond and Labour and Material Payment Bond shall be included in the Bid Price.

10.3 Without prejudice to any other remedy or right which may be available to the Owner, the Security shall be forfeited if the Bidder refuses or fails to sign the Contract within five (5) days of being presented by the Contract Administrator with the Contract for execution.

11 INSURANCE

11.1 In addition to the other obligations elsewhere in the Contract, the successful Bidder shall be required to comply with the insurance requirements set out in Document D.

12 OWNERSHIP

12.1 All material and information delivered to the Owner by the Bidders in connection with or in relation to the Bids, including, without limitation, the Bids (collectively, the “Bid Materials”) shall be the sole and absolute property of the Owner.

13 BID OPENING

- 13.1 Bids will be opened by the Owner in public at the **Township of Norwich office, 285767 Airport Road, Norwich, ON N0J 1P0** at a date and time to be advised by the Owner. Public release of bid information will be strictly limited to Bidders' names and, only if required by the Owner's Purchasing By-law and procurement policies and procedures (if applicable), total bid prices.
- 13.2 The acceptance ("Acceptance") of the Bid from the successful Bidder shall be made by the Owner only in writing. The Contract Administrator may, on behalf of the Owner, issue a written notice to the successful Bidder notifying them that Acceptance has occurred and their Bid has been accepted by the Owner.
- 13.3 The selected Bidder will be required to execute and return three (3) copies of the Contract within five (5) days of being presented by the Contract Administrator with the Contract for execution, while recognizing that upon Acceptance, the Contract will be formed and binding on the Owner and the Bidder. The Contract between the selected Bidder and the Owner shall be composed of the documents referred to in Section 3.2 of these Instructions to Bidders, as amended from time to time. Upon execution by Contractor and Owner copies will be distributed to all parties.

14 CLARIFICATION OF BIDS

- 14.1 The Owner reserves the right, at any time or times, following the Bid Closing Time, to request that any one or more Bidders clarify its Bid and such Bidders shall submit responses to such request within two (2) days following the date of the receipt of such request, or within such other time as the Owner may require. Without limiting the generality of the foregoing, the Owner may request clarification where any one or more Bidder's intent is unclear (including, without limitation, where there is an irregularity or omission in the information or documents provided by the Bidder in their Bid). The Owner may, in its sole and absolute discretion, choose to meet with one, some or all of the Bidders to clarify aspects of their Bids. The Owner may require Bidders to submit supplementary documents clarifying any matters contained in their Bids or the Owner may prepare a written interpretation of any aspect of a Bid (including, without limitation, meeting minutes) and seek the respective Bidder's acknowledgement of that interpretation.
- 14.2 The supplementary documents submitted by the Bidders which have been accepted by the Owner and the written interpretations prepared by the Owner which have been acknowledged by the relevant Bidders shall be considered to form part of the applicable Bids of those Bidders.

- 14.3 After the Bid Closing Time, only the supplementary documents submitted by the Bidders based on specific requests by the Owner for purposes of clarification which have been accepted by the Owner and written interpretations prepared by the Owner which have been acknowledged by the relevant Bidder shall be considered as additions to the Bid of the applicable Bidder, subject to the right of the Owner to correct or recalculate contained in Section 15.2 or the exercise of any other right or remedy available to the Owner.
- 14.4 The Owner is not obliged to seek clarification of any aspect of a Bid or to have discussions or other communication regarding clarifications with any Bidder.

15 SELECTION PROCESS AND RESERVED RIGHTS

- 15.1 The Owner's consideration and selection process will be based on which Bidder has provided a Bid which the Owner determines in its sole and absolute discretion to be the most beneficial to, and in the best interests of, the Owner. While price is an important factor in the consideration and selection process, the Owner may, in its sole and absolute discretion, consider many other factors during this process including, without limitation, the following, which are not listed in any particular order of importance or priority:
- .1 The contents of the Bid Form and Appendices "A" through "G";
 - .2 The Owner's Purchasing By-law and/or procurement policies and procedures, if any; and
 - .3 Any other factor which the Owner determines in its sole and absolute discretion to be in the Owner's best interests.
- 15.2 The following shall apply with respect to this request for Bids and the selection of a successful Bidder for the Contract:
- .1 The Owner reserves the right to, as the interests of the Owner may require, reject or retain for consideration and acceptance any or all Bids or part or parts thereof and waive informalities or irregularities without liability on the part of the Owner or the Contract Administrator;
 - .2 The lowest Bid Price or any Bid will not be necessarily accepted;
 - .3 The Owner may defer or cancel the project or this request for Bids for any reason (including, without limitation, the costs exceed the Owner's budget or approvals or permissions required from external agencies or authorities are not obtained or may not be obtained in accordance with the Owner's scheduling requirements);

- .4 In the event that a Bid contains an arithmetical error or inconsistency, the Owner reserves the right, in its sole and absolute discretion, to correct or recalculate the error, and to accept the Bid with the adjusted price. Without limiting the generality of the foregoing, any unit prices submitted by the Bidder will be deemed to represent the Bidder's intention and any amount calculated by multiplying estimated quantities by unit prices will be corrected accordingly; and
 - .5 Bids that, without limitation, are improperly prepared, not in compliance with all of the requirements of the Bid Documents, incomplete, unsigned, improperly signed, conditional, qualified, illegible, obscure or contain reservations, additions not called for, arithmetical errors, omissions, erasures, alterations, or irregularities of any kind may, in the Owner's sole and absolute discretion, be considered informal or irregular and may be rejected or disqualified or be retained by the Owner for consideration and acceptance.
- 15.3 In addition to any other right or remedy the Owner may have in connection with the Bid Documents, if one or more of the Bid Prices is in excess of the Owner's budget, the Owner may, in its sole and absolute discretion:
- .1 Enter into negotiations or discussions with one or more of the Bidders (even if such Bidder's Bid Price is not in excess of the Owner's budget) in connection with the Bid Documents (including, without limitation, the scope of Work, the amount of the Bid Price, the schedule to complete the Work and the Contract provisions) or clarify any outstanding issues and attempt to finalize the terms of the Contract. The negotiations and discussions may take place contemporaneously or consecutively and the Owner will have no obligation to enter into negotiations or have discussions on similar or other terms or offer any modified terms to any Bidder. If the negotiations or discussions are successful, the Owner and the selected Bidder will enter into the finalized form of Contract; or
 - .2 If at any time the Owner forms the opinion that a mutually acceptable Contract is not likely to be reached within a reasonable time, give the Bidder(s) written notice to terminate the negotiations and discussions, in which even the Owner may then open discussions with another Bidder(s), terminate the Request for Bids or otherwise act pursuant to its rights and remedies in connection with the Bid Documents.
- Notwithstanding any negotiations or discussions between the Owner and the Bidders pursuant to this provision, the Bids shall remain irrevocable in accordance with the Bid Documents.
- 15.4 The Owner may exercise any one or more of its rights and remedies in relation to this request for Bids (including, without limitation, the rejection of Bids) without explanation to the Bidders.

16 BONDS

- 16.1 If the bonding alternative is selected, the successful Contractor will be required to provide a Performance and a Labour and Material Payment Bond, each in the amount indicated in Section 10.2 of this document, to the Owner with the executed Contract.

17 ACCEPTANCE OF CONDITIONS

- 17.1 By submitting a Bid to the Owner, Bidders acknowledge that they have read and agree to be bound by the Bid Documents.
- 17.2 The Bidder shall have no claim against, or entitlement to damages against, the Owner, the Contract Administrator or its advisors in connection with this request for Bids or otherwise in connection with this process (including, without limitation, claims or damages arising from (i) rejection of its Bid, (ii) cancellation of the Project, (iii) a breach, fundamental or otherwise, of the obligations under this request for Bids, if any, or (iv) breach of a duty of care arising from this request for Bids, if any) for an amount in excess of the reasonable costs incurred by the Bidder in preparing its Bid, and, in any event, the Bidder, by submitting a Bid, waives any claim for loss of profits if no Contract is entered into with the Bidder for any reason or under any circumstance whatsoever.

18 OWNER'S MATERIALS AND DISCLOSURE OF INFORMATION

- 18.1 All materials, drawings, specifications, information and documents obtained by, given to or made available to, the Bidder in connection with this request for Bids (including, without limitation, the Reference Documents and Bid Documents) (collectively, the "Owner's Materials") are not the property of the Bidders. The Owner's Materials shall not be used for any purpose other than replying to this request for Bids and the fulfillment of any subsequent Contract. The issue of the Owner's Materials does not confer a license or grant for any other purpose.
- 18.2 Upon request of the Owner, all of the Owner's Materials, in any form or media, shall be immediately returned to the Owner. The Owner and the Contract Administrator make no representation or warranty with respect to, and the Owner and the Contract Administrator accept no responsibility for, the accuracy or completeness of the Owner's Materials and the Bidder is responsible for obtaining its own independent legal and technical advice with respect to the Owner's Materials and making its own independent research and inquiries regarding all information contained in the Owner's Materials.

- 18.3 Bidders shall not discuss, disclose or communicate, directly or indirectly, any details pertaining to or in connection with their Bid to anyone not specifically involved in their Bid (including, without limitation, any other Bidder) without the prior written approval of the Owner. Without limiting the generality of the foregoing, each Bid shall be submitted without any connection, knowledge, comparison of figures or arrangement with any other Bidder and each Bidder will be responsible to ensure that its participation in this process is conducted fairly and without collusion or fraud.
- 18.4 Each Bidder and each shareholder, partner or joint venture member of the Bidder will not have any interest whatsoever in the Bid of any other Bidder, either directly or indirectly, nor will it enter into any arrangement, agreement or understanding before the Bid Closing Time that would have such a result nor will it have any other conflict of interest.
- 18.5 Bidders must not disclose any details pertaining to their Bid and the selection process, or the outcome thereof, in whole or in part to anyone not specifically involved in their Bid, without the prior written approval of the Owner. Without limiting the generality of the foregoing, Bidders shall not issue a news release or other public announcement or otherwise disclose any information pertaining to any details of their Bid, or the outcome thereof, or the selection process, in whole or in part, without the prior written approval of the Owner.

19 GOVERNING LAW

- 19.1 The Bid Documents shall be governed by the laws of Ontario and the federal laws of Canada applicable therein.

20 APPENDICES TO THE BID FORM

20.1 Appendix “A” to the Bid Form – List of Bid Documents

- 20.1.1 Appendix “A” to the Bid Form lists the Bid Documents.

20.2 Appendix “B” to Bid Form – Subcontractors

- 20.2.1 The Bidder shall complete Appendix “B” to the Bid Form indicating the subcontractors (“Subcontractors”) it intends to employ to carry out each portion of the Work indicated therein. Subcontractors are subject to approval by the Owner. Once the Contract is signed by the Owner, no substitution of the Subcontractors approved by the Owner will be permitted unless approved by the Owner.

20.3 Appendix “C” to the Bid Form – Schedule

- 20.3.1 The Work shall be carried out in accordance with the schedule contained in Document D for the Bid Price.

20.3.2 The Bidders have the option of providing on Appendix “C” to the Bid Form which is an alternative schedule for the Work and the applicable amount by which the Bid Price will be adjusted. The Owner may, in its sole and absolute discretion, accept such alternative schedule for the Work and, in such event, the Bidder’s obligation to carry out the Work in accordance with the schedule contained in Document D and the Bid Price shall be both amended accordingly.

20.4 Appendix “D” to the Bid Form – Residency

20.4.1 The Bidders shall indicate in Appendix “D” to the Bid Form their applicable residency.

20.5 Appendix “E” to the Bid Form – Proposed Alternatives to the Work (if any)

20.5.1 The Bidder’s Proposed Alternatives to the Work, if any, shall be attached as Appendix “E” to the Bid Form.

20.6 Appendix “F” to the Bid Form – List of Experience

20.6.1 The Bidders shall indicate in Appendix “F” to the Bid Form their list of experience on projects of a similar nature completed within the last five years.

20.7 Appendix “G” to the Bid Form – Schedule of Unit Prices

20.7.1 The Bidders shall complete Appendix “G” - Schedule of Unit Prices as per the requirements listed in the Appendix “G” - “General Notes”.



BURNSIDE

Document B

Bid

BID FORM

TO: Township of Norwich
285797 Airport Road
Norwich, ON N0J 1P0

Attn: Dirk Kramer, Drainage Superintendent

DATE: _____, 2024

SUBMITTED BY: _____
Bidder's Legal Name

ADDRESS: _____
Bidder's Business Address

PROJECT NAME: Gore Municipal Drain

CONTRACT NUMBER: 300054906.0000

1.1 The undersigned (the "Bidder"), hereby declares that it has received and carefully examined all of the Bid Documents as set out in Section 3.1 of the Instructions to Bidders and has visited the Place of the Work and familiarized itself with all of the conditions affecting the Work as described in the Bid Documents with respect to Work and with all of the provisions of the Bid Documents including, without limitation, the form of the Contract. Without limiting the foregoing, the undersigned also acknowledges having received and carefully examined all of the following Addenda and having included all aspects thereof in their bid:

Addendum No.	Date	Included in Bid (✓)

(Notes: If no Addenda are issued then this table shall be left blank. It is not necessary to submit copies of each Addendum with the Bid.)

- 1.2 In accordance with, and subject to, the Contract (including, without limitation, GC 8.01.02), the Bidder hereby offers to perform and complete the Work (including, without limitation, furnishing all products, materials, construction machinery, tools, equipment, plant, labour, and supervision necessary for the proper completion of the Work and the contract security, permits, insurance and transportation) to attain Substantial Performance of the Work in accordance with the schedule contained in Document D of the Bid Documents, for the price bid (“Bid Price”) of: the total of the amounts calculated by multiplying the actual measured and approved quantities by the applicable unit prices combined with the completed lump sum price components of the Work, all as set out in Appendix “G”, as adjusted pursuant to the Contract.

The Bid Price includes, without limitation, all applicable federal and provincial sales taxes, excise taxes and other taxes, including the HST, customs and duties.

In addition, the Bidder shall confirm that the Bid Price/Estimated Contract Price is set out in Appendix “G”.

- 1.3 The Bidder agrees that time is of the essence and, if this Bid is accepted by the Owner, the Bidder agrees that it shall immediately commence the Work, including all mobilization work and submit initial shop drawings.
- 1.4 The Bidder declares that it has visited and carefully examined the Place of the Work and the surrounding area in a reasonable and prudent manner and satisfied itself as to the scope and character of the Work and all conditions and information affecting the Work and how the Work is to be completed, including, without limitation, the nature and location of the Work, working areas, storage areas, local features including private property and utilities, access to and at the Place of the Work, weather conditions and any other factors which may influence the performance of the Work and/or the pricing of the Work.
- 1.5 The Bidder is responsible for each Subcontractor’s solvency, the contents of each Subcontractor’s bid and for each Subcontractor’s obligations as contemplated pursuant to the Bid Documents.
- 1.6 The Bidder represents and warrants that each of the Subcontractors set out in Appendix “B” is reliable and competent to carry out the Work in accordance with the Bid Documents, that the Bidder has consulted with each of the listed Subcontractors and has ascertained to the Bidder’s complete satisfaction that they are fully acquainted with the extent and nature of the work involved, and of the requirements of the construction schedule, and that all such Subcontractors shall execute the Work to conform to the requirements of the Bid Documents and the construction schedule. If awarded the Contract, the Bidder shall only employ the Subcontractors set out in Appendix “B”, as approved by the Owner, for the Work.

- 1.7 This Bid shall remain firm and irrevocable and open for acceptance by the Owner at any time for ninety (90) days after the Bid Closing Time, whether or not, any other Bid has been previously accepted by the Owner. This Bid shall expire upon written notice of rejection to the Bidder by the Owner or ninety (90) days after the Bid Closing Time, whichever first occurs.
- 1.8 We enclose herewith the Security, on the understanding that, without prejudice to any other right or remedy which may be available to the Owner, the Security may be used to compensate the Owner for any damages, costs or expenses that the Owner may incur as a result of the Bidder's failure to comply with, or breach of, the Bid or Bid process described in these Instructions to Bidders (including, without limitation, in the event that the Bidder attempts to withdraw its Bid prior to the expiry of ninety (90) days from the Bid Closing Time, or in the event that the Owner accepts the Bidder's Bid and the Bidder refuses or fails to sign the Contract or otherwise honour the Bid).
- 1.9 It is understood that all prices quoted in this Bid are in Canadian funds.
- 1.10 If notified in writing by the Owner (or Owner's agent) of acceptance of this Bid within ninety (90) days of the Bid Closing Time, we will execute the Contract within five (5) days of being presented by the Contract Administrator with the Contract for execution, while recognizing that upon the Acceptance the Contract will be formed and binding on the Owner and the Bidder, and furnish the Contract Security as specified in Section 10 of the Instructions to Bidders.

Without prejudice to any other right or remedy which may be available to the Owner, in the event that we do not execute the Contract within five (5) days of being presented by the Contract Administrator with the Contract for execution, the Owner may, in its discretion, accept any other Bid, request new bids or carry out the Work in any other way the Owner deems best, and the Security may be used to compensate the Owner for any damages, costs or expenses that the Owner may incur as a result of taking such action.

- 1.11 The following documentation comprising the Bid is enclosed:
 - .1 This Bid Form;
 - .2 The Security (as defined in Section 10 of the Instructions to Bidders);
 - .3 Appendix "A" – List of Bid Documents;
 - .4 Appendix "B" – Subcontractors;
 - .5 Appendix "C" – Schedule;
 - .6 Appendix "D" – Residency;
 - .7 Appendix "E" – Proposed Alternatives to the Work;

- .8 Appendix “F” – List of Experience; and
 - .9 Appendix “G” – Schedule of Unit Prices.
- 1.12 If this Bid is made by more than one person then each of the persons making this Bid agrees to be bound by it jointly and severally.
- 1.13 All capitalized terms used but not defined herein will have the definitions given to them in Document A – Instructions to Bidders.
- 1.14 The Bidder represents, warrants and covenants to the Owner that:
- .1 All instructions and directions in the Bid Documents for the preparation and submission of this Bid have been complied with;
 - .2 This Bid is made without any connection, knowledge, comparison of figures or arrangement with any other person, corporation or other entity making another Bid for the Work and is, in all respects, fair and without collusion or fraud;
 - .3 No member of the municipal council of the Owner (as applicable) and no officer or employee of the Owner is, or will become interested directly or indirectly as a contracting party, partner, shareholder, security or otherwise, in the performance of the Contract, or in the supply of materials or services, work or business to which it relates, or in any portion of the profits thereof, or in any of the monies to be derived therefrom; and
 - .4 The Bidder agrees to be bound by the Bid Documents.
- 1.15 The Bidder declares and warrants that, in addition to all other Health & Safety requirements, it has considered and incorporated appropriate COVID-19 protocols and procedures into its Workplan, in keeping with current provincial best practices/guidelines for construction sites, and that submitted pricing properly reflects these measures. Upon Award, the successful bidder will be required to submit their COVID-19 plan to the Owner for record purposes.

SIGNED BY THE BIDDER AS OF THE DATE FIRST WRITTEN ABOVE.

FULL LEGAL COMPANY NAME

ADDRESS OF COMPANY

NAME/TITLE OF OFFICER

SIGNATURE OF OFFICER
AND COMPANY SEAL

TELEPHONE NUMBER

FAX NUMBER

EMAIL ADDRESS

APPENDIX “A”

LIST OF BID DOCUMENTS

The Bid Documents consist of:

- (a) Document A – Instructions to Bidders;
- (b) Document B – Bid (see Section 1.11 of Bid Form);
- (c) Document D – General Requirements;
- (d) the drawings and specifications listed in Document E (collectively, the “Drawings and Specifications”);
- (e) the Contract; and
- (f) all Addenda that were issued in writing by the Owner, or Contract Administrator, prior to the Bid Closing Time.

APPENDIX “D”

RESIDENCY

The Bidder **__is or __is not** a resident of Canada within the meaning of the Income Tax Act (Canada). Please check applicable description.

APPENDIX “E”

PROPOSED ALTERNATIVES TO THE WORK (IF ANY)

[See Section 7.3 of the Instructions to Bidders.]

APPENDIX “G”
SCHEDULE OF UNIT PRICES

General Notes

- i) Where alternative materials are listed, Bidders shall indicate a Unit Price for each alternative, but shall extend only the lowest Unit Price.
- ii)
- | | | |
|----------------|---------|------------------------------------|
| m ³ | denotes | Cubic Metre (compacted or in situ) |
| m | denotes | Linear Metre |
| LS | denotes | Lump Sum |
| ea | denotes | each |
| m ² | denotes | Square Metre |
| t | denotes | Tonne (2,204.6 lbs.) |
| ha | denotes | Hectare |
| hrs | denotes | Hours |
| CB | denotes | catchbasin |
| CDT | denotes | concrete drain tile |
| CSP | denotes | corrugated steel pipe |
| c/w | denotes | complete with |
| DICB | denotes | ditch Inlet catchbasin |
| JB | denotes | junction box |
| OB | denotes | observation box |
| ROW | denotes | right of way |
| S & I | denotes | supply and install |
| Sta. | denotes | Station (chainage) |
- iii) [All sections of the Schedule of Unit Prices must be completed **in full** and submitted as part of the Bid].

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 13

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A1	Mobilization and demobilization (SP 0)	1	LS		
A2	Construct temporary rock check dam (OPSD 219.211). (SP 1) (Sta. -1+219)	1	LS		
A3	Supply & Install 40 tonne of 19 mm clearstone as substrate. (SP 2) (Sta. -1+220 to -1+130)	40	t		
A4	Channel deepening and spoil leveling (approx. 419 m averaging 0.2 m deepening) (SP 3) (Sta. -1+219 to -0+800)	419	m		
A5	Channel deepening and spoil leveling (approx. 790 m averaging 0.50 m deepening) (SP 3) (Sta. -0+800 to Sta. -0+010)	790	m		
A6	Clear and grub a 10 m working width along the specified channel bank. (approx. 750 m) (SP 6) (Sta. -0+750 to 0+00)	750	m		
A7	Construction of 2 stilling basins, including rip-rap erosion protection as per the accompanying details. (SP 4) (Sta. -0+510 to -0+500 & -0+010 to 0+000)	2	Ea.		
A8	Bank reconstruction and repair (approx. 15 m) (SP 5) (Sta. -0+060 to Sta. -0+045)	15	m		
A9	a) Supply 12 m of 1,800 mm CSP (galvanized finish, 125 mm x 25 mm corrugations; 2 mm thickness). b) Install 12 m CSP culvert and restore crossing as per accompanying details. c) Remove and dispose of existing culvert and granular off-site. (SP 7) (Sta. -0+247 to -0+235)	12	m		
		1	LS		
		1	LS		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 14

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A10	Supply & install 6 m of 750 mm dia. solid dual-wall HDPE outlet pipe (320 kPa) c/w rodent grate. (SP 8) (Sta. 0+000 to 0+006)	1	LS		
A11	a) Supply approx. 394 m of 600 mm dia. 2000D CDT and required geo-textile.	394	m		
	b) Install approx. 394 m of 600 mm dia. CDT via wheel trencher.	394	m		
	c) Destroy existing Gore Municipal Drain (twin 450 mm CDT approx. 394 m) (SP 8) (Sta. 0+006 to Sta. 0+400)	394	m		
A12	Connect 2 existing 150 mm private tiles. (SP 10) (Sta. 0+199 & Sta. 0+299)	2	Ea.		
A13	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB.	1	LS		
	c) Remove and dispose of ex. CB off-site (SP 9) (Sta. 0+400)	1	LS		
A14	a) Supply approx. 433 m of 600 mm dia. 2000D CDT and required geo-textile.	433	m		
	b) Install approx. 433 m of 600 mm dia. CDT via wheel trencher.	433	m		
	c) Destroy existing Gore Municipal Drain (twin 450 mm CDT approx. 193 m) (SP 8) (Sta. 0+400 to Sta. 0+839)	193	m		
A15	a) Connect existing 100 mm private tile (Sta. 0+424).	1	LS		
	b) Supply approx. 24 m of 150 mm dia. solid dual-wall HDPE pipe (320 kPa).	24	m		
	c) Install approx. 24 m of 150 mm dia. Solid dual-wall HDPE pipe (320 kPa). (SP 10) (Sta. 0+400 to Sta. 0+424)	24	m		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 15

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd1

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A16	Supply & install 6 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w 45 degree elbow via excavator on 19 mm clear stone bedding. (SP8) (Sta. 0+576 to Sta.0+582)	1	LS		
A17	a) Supply one (1) 900 mm x 1,200 mm inline concrete JB. b) Install one (1) 900 mm x 1,200 mm concrete JB. (SP 9) (Sta. 0+593)	1	LS		
A18	a) Supply approx. 12 m of 525 mm dia. 2000D CDT and required geo-textile. b) Install approx. 12 m of 525 mm dia. CDT via excavator on 19 mm clear stone bedding. (SP 8) (Sta. 0+593, 12 m O/S)	12	m		
A19	a) Supply one (1) 900 mm x 1,200 mm offset concrete CB. b) Install one (1) 900 mm x 1,200 mm concrete CB. c) Remove and dispose of ex. CB off-site (SP 9) (Sta. 0+593, 12 m O/S)	1	LS		
A20	a) Connect existing Gore Municipal Drain (400 mm CDT) as per accompanying details. b) Connect existing private drain (400 mm CDT) as per accompanying details. (SP 10) (Sta. 0+593, 12 m O/S)	1	LS		
A21	a) Supply approx. 6 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa). b) Install approx. 6 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa) via excavator on 19 mm clear stone bedding. (SP 8) (Sta. 0+839 to 0+845)	6	m		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 16

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd2

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A22	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 0+845)	1	LS		
A23	a) Supply approx. 155 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa).	155	m		
	b) Supply approx. 310 m of 100 mm dia. perforated plastic drainage pipe c/w sock.	310	m		
	c) Install approx. 155 m of 600 mm dia. Solid dual-wall HDPE pipe (320 kPa) & approx. 310 m of 100 mm dia. perforated plastic drainage pipe c/w sock via excavator on 19 mm clear stone bedding. Stone is to extend to mid-point of pipe as per accompanying details. (SP 8) (Sta. 0+845 to 1+000)	155	m		
A24	Supply & install 11 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w 2, 45 degree elbows via excavator on 19 mm clear stone bedding. (SP 8) (Sta. 1+000 to Sta. 1+011)	1	LS		
A25	Restore approx. 1,700 m ² lawn area. (SP 11) (Sta. 0+845 to Sta. 1+011)	1,700	m ²		
A26	Clear & grub approx. 14 trees along the proposed alignment. (SP 6) (Sta. 0+845 to Sta. 1+011)	14	Ea.		
A27	a) Restore existing asphalt driveway (approx. 105 m ²)	105	m ²		
	b) Restore existing gravel driveway (approx. 135 m ²) (SP 12) (Sta. 0+876 to 0+883 & Sta. 0+937 to 0+946)	135	m ²		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 17

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd3

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A28	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 0+910)	1	LS		
A29	Supply & install 9 m of 450 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w 2, 45 degree elbows via excavator on 19 mm clear stone bedding. (SP 8) (Sta. 1+464 to Sta. 1+473)	1	LS		
A30	a) Supply approx. 195 m of 400 mm dia. CDT and required geo-textile.	195	m		
	b) Install approx. 195 m of 400 mm dia. CDT via wheel trencher. (SP 8) (Sta. 1+473 to 1+668)	195	m		
A31	a) Supply one (1) 600 mm x 600 mm inline concrete JB.	1	LS		
	b) Install one (1) 600 mm x 600 mm concrete JB. (SP 9) (Sta. 1+668)	1	LS		
A32	a) Supply approx. 10 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa).	10	m		
	b) Install approx. 10 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w connection to existing DICB as per accompanying details. (SP 8) (Sta. 1+668, 10 m O/S)	10	m		
A33	a) Supply approx. 318 m of 200 mm dia. CDT and required geo-textile.	318	m		
	b) Install approx. 318 m of 200 mm dia. CDT via wheel trencher. (SP 8) (Sta. 1+668 to 1+986)	318	m		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 18

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd4

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A34	a) Supply one (1) 600 mm x 600 mm inline concrete CB. b) Install one (1) 600 mm x 600 mm concrete CB. (SP 9) (Sta. 1+986)	1 1	LS LS		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 19

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Public Property

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A35	Grout existing Gore Municipal Drain as per accompanying details. (SP14) (Sta. 0+593 to Sta. 1+986)	1	LS		
A36	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB. b) Install one (1) 900mm x 1,200mm concrete CB. c) Locate and Connect existing 100mm private tile (SP 10) (SP9) (Sta. 1+011)	1 1 1	LS LS LS		
A37	a) Supply approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa). b) Install approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w connection to existing DICB as per accompanying details. (SP 8) (Sta. 1+011, 4 m O/S)	4 4	m m		
A38	Cross existing 200 mm steel gas main including required coordination with Enbridge Inc. and compliance with third party requirements within the vicinity of the main. (SP 15) (Sta. 1+015)	1	LS		
A39	a) Supply approx. 23 m of 600 mm dia. PVC SDR-35. b) Install approx. 23 m of 600 mm dia. PVC SDR-35 via the open cut method. c) Restore Base Line Road restoration as per accompanying notes and details. (SP 13) (Sta. 1+011 to 1+034)	23 1 1	m LS LS		
A40	Cross existing Execulink Telecom trunk fibre line. Deflect line above proposed pipe as shown on accompanying details. (Sta. 1+033)	1	LS		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 20

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Public Property-Cont'd

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A41	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 1+034)	1	LS		
A42	a) Supply approx. 66 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa).	66	m		
	b) Supply approx. 100 m of 525 mm dia. solid dual-wall HDPE pipe (320 kPa).	100	m		
	c) Supply approx. 332 m of 100 mm dia. Perforated plastic drainage pipe c/w sock.	332	m		
	d) Install approx. 66 m of 600 mm dia. solid dual-wall HDPE pipe (320 kPa), approx. 100 m of 525 mm dia. solid dual-wall HDPE pipe (320 kPa) & approx. 332 m of 100 mm dia. perforated plastic drainage pipe c/w sock via excavator on 19 mm clear stone bedding. Stone is to extend to mid-point of pipe as per accompanying details. (SP 8) (Sta. 1+034 to 1+200)	166	m		
A43	Restore approx. 1,500 m ² lawn area. (SP 11) (Sta. 1+034 to 1+200)	1,500	m ²		
A44	a) Clear & grub approx. 5 trees along the proposed alignment. (SP 6) (Sta. 1+034 to 1+100)	5	Ea.		
A45	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 1+100)	1	LS		
A46	a) Supply one (1) 600 mm x 600 mm offset concrete DICB.	1	LS		
	b) Install one (1) 600 mm x 600 mm concrete DICB. (SP 9) (Sta. 1+100)	1	LS		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 21

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd1

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A47	a) Supply approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa).	4	m		
	b) Install approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w connection to offset DICB as per accompanying details. (SP 8) (Sta. 1+100, 4 m O/S)	4	m		
A48	a) Connect 2 existing 150 mm private tiles.	2	Ea.		
	b) Supply approx. 12 m of 150 mm dia. solid dual-wall HDPE pipe (320 kPa).	12	m		
	c) Install approx. 12 m of 150 mm dia. solid dual-wall HDPE pipe (320 kPa).	12	m		
	d) Remove & dispose of existing private drain approx. 50 m of 150 mm HDPE pipe. (SP 10) (Sta. 1+100 & Sta. 1+150)	50	m		
A49	Remove & dispose of 3 existing concrete catchbasins. (Sta. 1+010, Sta. 1+010 & Sta. 1+150)	3	Ea.		
A50	Restore existing gravel driveway (approx. 150 m ²) (SP 12) (Sta. 1+130 to 1+140)	150	m ²		
A51	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 1+200)	1	LS		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 22

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Private Property-Cont'd2

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
A52	a) Supply approx. 264 m of 525 mm dia. Solid dual-wall HDPE pipe (320 kPa).	264	m		
	b) Supply approx. 528 m of 100 mm dia. perforated plastic drainage pipe c/w sock.	528	m		
	c) Install approx. 264 m of 525 mm dia. solid dual-wall HDPE pipe (320 kPa) & approx. 528 m of 100 mm dia. perforated plastic drainage pipe c/w sock via excavator on 19 mm clear stone bedding. Stone is to extend to mid-point of pipe as per accompanying details. (SP 8) (Sta. 1+200 to 1+464)	264	m		
A53	a) Supply one (1) 900 mm x 1,200 mm inline concrete JB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete JB. (SP 9) (Sta. 1+294)	1	LS		
A54	a) Supply approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa).	4	m		
	b) Install approx. 4 m of 300 mm dia. solid dual-wall HDPE pipe (320 kPa) c/w connection to existing DICB as per accompanying details. (SP 8) (Sta. 1+294, 4 m O/S)	4	m		
A55	Restore existing gravel driveway (approx. 150 m ²) (SP12) (Sta. 1+332 to 1+342)	150	m ²		
A56	a) Supply one (1) 900 mm x 1,200 mm inline concrete CB.	1	LS		
	b) Install one (1) 900 mm x 1,200 mm concrete CB. (SP 9) (Sta. 1+294)	1	LS		
A57	Restore approx. 1,500 m ² lawn area. (SP 11) (Sta. 1+200 to 1+464)	1,500	m ²		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES

R. J. Burnside & Associates Limited

Project No. 300054906

Page No. 23

Contractor: ***

Address: ***

Contract Title: Gore Municipal Drain

Gore Municipal Drain - Contingencies

ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	UNIT PRICE	CONTRACT TOTAL
B1	Tile connections & existing tile reconnections to the drain (as approved by the Engineer). (SP 16)				
	a) 100 mm dia. pipe - Connection	5	ea.		
	b) 150 mm dia. pipe - Connection	5	ea.		
B2	Install drain on specified depth of 19 mm dia. crushed clear stone bedding (c/w supply of materials) in areas of soil instability, as directed by Contract Administrator. (SP 17)				
	a) 150 mm depth bedding and backfill to pipe springline	100	m		
	b) 300 mm depth bedding, wrapped in geotextile and backfill to springline	100	m		
B3	Install drain utilizing trench box in areas of soil instability or where adequate horizontal separation from existing infrastructure cannot be met as directed by the Contract Administrator. (SP 18)	50	m		
B4	Removal of wheel trencher due to large stones. (SP19)	5	Ea.		
B5	Supply and install a 450 mm thickness of OPSS R50 quarry stone rip-rap with geotextile underlay. (SP 20)	50	m ²		
B6	Supply and install OPSS 19 mm (3/4") clear crushed stone (SP 21)	50	t.		
B7	Supply and install OPSS granular B material. (SP22)	50	t.		
				SUBTOTAL:	

SCHEDULE OF UNIT PRICES/SUMMARY

SCHEDULE

Gore Municipal Drain - Private Property	\$
Gore Municipal Drain - Private Property-Cont'd	\$
Gore Municipal Drain - Private Property-Cont'd1	\$
Gore Municipal Drain - Private Property-Cont'd2	\$
Gore Municipal Drain - Private Property-Cont'd3	\$
Gore Municipal Drain - Private Property-Cont'd4	\$
Gore Municipal Drain - Public Property	\$
Gore Municipal Drain - Public Property-Cont'd	\$
Gore Municipal Drain - Public Property-Cont'd1	\$
Gore Municipal Drain - Public Property-Cont'd2	\$
Gore Municipal Drain - Contingencies	\$
SUB-TOTAL Bid Price/Estimated Contract Price	\$
HST (@ 13%)	\$
TOTAL Bid Price/Estimated Contract Price	\$

All amounts in this Appendix "G" are in Canadian dollars.

The estimated quantities set out in this Appendix "G" are only approximate and the actual measured and approved quantities may vary from such estimated quantities.

The lump sum amounts and unit prices set out in this Appendix "G" shall apply to the Contract and are inclusive of all costs and expenses required to perform and complete the Work including, without limitation, all applicable federal and provincial sales taxes, excise taxes and other taxes, insurance, permits, customs, duties and transportation, except for the HST (referred to separately in this Appendix "G").

PROPOSED START DATE: _____

PROPOSED COMPLETION DATE: _____



BURNSIDE

Document C

General Conditions of Contract

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C.2	SUPPLEMENTAL GENERAL CONDITIONS.....	2

C.1 OPSS.MUNI 100 GENERAL CONDITIONS OF CONTRACT

Please note that the November 2019 edition of the Ontario Provincial Standards for Roads and Public Works – General Conditions of Contract (OPSS.MUNI 100 November 2019) are deemed to form part of this document.

A copy can be obtained by contacting the Contract Administrator or by visiting the Ontario Provincial Standards website: www.raqsa.mto.gov.on.ca.

C.2 SUPPLEMENTAL GENERAL CONDITIONS

C.2.1 General Conditions

The words General Conditions in this Contract shall mean the Ontario Provincial Standards for Roads and Public Works - General Conditions of Contract, dated November 2019 (OPSS.MUNI 100). All requirements of these General Conditions shall apply except as amended herein.

If there is any conflict between the General Conditions of Contract and the Supplemental General Conditions, the Supplemental General Conditions shall take precedence.

C.2.2 Designation of Parties

Where the words "Department", "Minister", "Ministry", "Legislature", "Town", "Corporation" or any other words of similar intent are used in the General Conditions, they shall be understood as meaning "Owner".

Where the words "Engineer", "Authority" or "Contract Administrator" are used in this Contract they shall be understood as meaning R.J. Burnside & Associates Limited, or any other delegate designated by the Owner.

C.2.3 Amendments to General Conditions

C.2.3.1 Modify "Major Item" definition in GC 1.04 as follows:

Subsection a), replace "\$100,000" with "\$500,000".
Subsection b), replace "5%" with "15%".

C.2.3.2 Add "Substantial Performance" definition to GC 1.04 as follows:

1. The Work/Contract is substantially performed,
 - a) when the improvement to be made under the Contract or a substantial part thereof is ready for use or is being used for the purposes intended; and
 - b) when the improvement to be made under the Contract is capable of completion or, where there is a known defect, correction, at a cost of not more than,
 - i. 3 percent of the first \$1,000,000 of the Contract price;
 - ii. 2 percent of the next \$1,000,000 of the Contract price;
 - iii. 1 percent of the balance of the Contract price.

2. For the purposes of this Contract, where the improvement or a substantial part thereof is ready for use or is being used for the purposes intended and the Owner and the Contractor agree not to complete the improvement expeditiously, the price of the services or materials remaining to be supplied and required to complete the improvement shall be deducted from the Contract price in determining Substantial Performance.

C.2.3.3 Add "Completion" definition to GC 1.04 as follows:

The Work/Contract shall be deemed to be completed and services or Materials shall be deemed to be last supplied to the improvement when the price of completion, correction of a known defect or last supply is not more than the lesser of,

- a) 1 percent of the Contract price; and
- b) \$5,000.

C.2.3.4 GC 2.01.01

a) shall be deleted and replaced with:

- a) The Contractor's attention is drawn to the presence of underground utilities, which may affect the work. The locations indicated on the Contract Drawings represent, to the best of the Owner's knowledge, the approximate location of such utilities. The Contractor shall be responsible for obtaining all utility stake outs as per GC 7.01.09 as well as any inspection or test pits required and the inspection of any manholes, catch basins, sewers or vaults necessary to locate any utility.

C.2.3.5 Amend GC 2.01.02 (a) as follows:

Add "Geotechnical or" immediately prior to "Subsurface Report".

C.2.3.6 Replace GC 2.02.01 with:

.01 In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following descending order from highest to lowest:

- a) Articles of Agreement
- b) Addenda
- c) Contract Drawings (except included standard drawings such as OPSDs)
- d) Bid
- e) General Requirements
- f) Special Provisions
- g) Standard Specifications

- h) Supplemental General Conditions
- i) OPSS.MUNI 100 General Conditions of Contract (Nov./2019)
- j) Standard Drawings (e.g., OPSDs)
- k) Working Drawings.

Later dates shall govern within each of the above categories of documents.

C.2.3.7 Amend GC 3.01.11 as follows:

The existing paragraph becomes .11 a) and the following is added:

- .11 b) The Contractor shall, at any time so required by the Contract Administrator, during construction or during the warranty period, make such openings to such extent through any part of the Work as the Contract Administrator may direct for inspection or testing purposes. Upon the completion of the inspections the Contractor shall forthwith make the work good again to the satisfaction of the Contract Administrator. Should the work so opened be found, in the opinion of the Contract Administrator, to be not in compliance with the Contract in any respect, the whole of the expense, including the cost of inspection, shall be borne by the Contractor; but if the work so opened up is found to be in compliance with the Contract, the said expense shall be borne by the Owner (unless the Contract Administrator was not properly notified prior to concealment of the work, in which case the cost will be borne solely by the Contractor).
- .11 c) Should the Contractor refuse to make such openings and reinstatements as ordered by the Contract Administrator, then the Contract Administrator may proceed with the work in any manner deemed appropriate in the Contract Administrator's opinion. The cost of such work shall be paid by the Contractor or deducted by the Owner from any monies due to the Contractor.

C.2.3.8 Replace GC 3.02.06 with:

- .06 Work related to the Working Drawings shall not proceed until the Working Drawings have been initialled or signed, and dated, by the Contract Administrator and marked as "Reviewed" or "Reviewed as Noted".

- C.2.3.9 Add the following to GC 3.07 Delays:
- .05 Extension(s) to Contract Time shall only be considered if, in the sole opinion of the Contract Administrator, the delay impacts the construction schedule's critical path.
- C.2.3.10 Add the following to GC 3.0 Administration of the Contract:
GC 3.16 Site Meetings
- .01 The Contractor's site superintendent shall attend regular construction progress meetings and special site meetings as required by the Contract Administrator. Minutes of these meetings, prepared and issued by the Contract Administrator, shall be deemed to be accurate records of these meetings in the absence of timely notice to the contrary.
- C.2.3.11 Add the following to GC 4.01 Working Area:
- .02 The Owner maintains a right of access to the Working Area for the purpose of performing the Owner's own work.
- C.2.3.12 Amend GC 5.02.02 to include the following after "Contract":
- Where the Contract Administrator requires documentary evidence substantiating that materials supplied by the Contractor comply with the terms of the Contract, such evidence must be provided by the Contractor in the form of a certified copy of a laboratory report from a recognized testing company or equivalent documentation acceptable to the Contract Administrator. The Contractor shall pay for the entire cost of such testing including sampling and shipping of samples, at no additional cost to the Owner.
- C.2.3.13 Add the following to GC 7.01.01 Site Visit:
- .02 The Owner may arrange for test pit excavations and/or informational site visit(s) during the tender period in order to provide prospective Bidders with an opportunity to gather additional information regarding soil/groundwater conditions and/or particular issues and concerns impacting upon the staging/completion of the Work. All prospective Bidders are encouraged to avail themselves of this resource. The Contractor warrants that sufficient site information gathering has been undertaken and factored into the Bid, either through attendance at the site visit(s) arranged for by the Owner (if any), or through the Contractor's own investigations undertaken outside of the Owner-organized site visits.

C.2.3.14 Add the following to GC 7.01.07.01 Schedule:

The Contractor's schedule is subject to review and acceptance by the Owner and the Contract Administrator. The Contractor shall complete the Work in accordance with the accepted schedule and ultimately by the scheduled date for substantial performance as required by the Contract.

C.2.3.15 Add the following to GC 7.01.08.01:

Furthermore, the Contractor is required to carry out a review of the Contract Documents for errors and inconsistencies, applying a standard of care expected of an experienced and prudent contractor, and report the findings of said review to the Contract Administrator.

C.2.3.16 Add the following to GC 7.06.01:

In order to mitigate traffic hazards, materials and/or equipment shall not be stored within 3 m of the travelled portion of any roadway unless proper protection measures are in place. Excavations within 3 m of the travelled roadway shall be either backfilled or protected by proper measures after hours and on non-working days.

C.2.3.17 Add the following to GC 7.06 Maintaining Roads and Detours:

.12 Prior to moving off site before each weekend, Statutory Holiday, or any non-working day(s), the Contractor shall ensure that all required traffic and pedestrian control measures are in place. Roadways/sidewalks accessible to the public shall be graded to a smooth surface with dust control (water/calcium chloride) applied where/when necessary. The Contractor shall appoint a designated representative to regularly check the above measures during the Contractor's absence from the site and to remedy any issues which may arise in a timely manner. No additional payment will be made for this work.

C.2.3.18 Amend GC 7.10.04 as follows:

Change "7 Days" to "15 Days".

C.2.3.19 Replace GC 7.14.01 Limitation of Operations with the following:

.01 The Contractor shall not carry out operations under the Contract on Saturdays, Sundays, Statutory Holidays, or at night without permission, in writing, from the Contract Administrator, with the exception of urgent Work required to maintain the Working Area in a safe and satisfactory condition. In all cases and at all times, the Contractor is required to monitor and maintain the Working

Area in a safe and satisfactory manner and to respond to issues in a timely manner, whether or not direction from the Contract Administrator is given in this regard.

C.2.3.20 Add the following to GC 7.16 Warranty:

.04 If the Contract Administrator notifies the Contractor in writing of defects or deficiencies prior to expiration of the Warranty Period, the Contractor shall remedy such defects or deficiencies, notwithstanding that the rectification work may commence after or extend beyond the end of the Warranty Period.

C.2.3.21 Add the following to GC 7.0 Contractor's Responsibilities and Control of the Work:

GC 7.19 Standard of Care

.01 In performing this Contract the Contractor shall exercise a standard of care, skill, judgement and diligence that would normally be exercised by an experienced, skilled and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that, throughout this Contract, the Contractor's obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of care, skill, judgement and diligence in respect of any products, subcontractors, suppliers, personnel or procedures which it may recommend to the Owner or employ on the Project.

.02 The Contractor represents, covenants and warrants to the Owner that:

a) The personnel it assigns to the Project are appropriately experienced;

b) It has sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the Owner's approval, in the event of death, incapacity, removal or resignation; and

c) There are no pending, threatened or anticipated claims that would have a material effect on the financial ability of the Contractor to perform the Work under the Contract.

.03 The Contractor shall perform the Work so as to avoid disturbing the occupants of the place of the Work and any adjacent structures or the public in general, and shall respect and comply with local regulations and requirements regarding permitted work hours, noise levels and work conditions. The Contractor, without in any way limiting its responsibilities under this Contract, shall

take all reasonable steps to avoid interference with fire exits, site access and egress, continuity of electric power and all other utilities, to suppress dust and noise, to avoid conditions likely to propagate mould or fungus of any kind and shall take all other steps reasonably necessary to promote and maintain the safety and comfort of the occupants of the place of the Work and any adjacent structures and the public in general, and/or to maintain access to and the operation of the same. Without the Owner's prior approval, the Contractor shall not permit any worker or subcontractors to use any existing facilities including, without limitation, elevators, washrooms, entrances and parking areas other than those designed by the Owner.

C.2.3.22 Replace GC 8.02.04.01.02, Proper Invoice inclusions/requirements, with:

0.2 A Proper Invoice shall include:

- a) The Contractor's name and address.
- b) The date of the Proper Invoice and the period during which the services or materials were supplied.
- c) Information identifying the authority, whether in the Contract or otherwise, under which the services or materials were supplied.
- d) A description, including quantity where appropriate, of the services or materials that were supplied.
- e) The amount payable for the services or materials that were supplied and the payment terms.
- f) The name, title, telephone number and mailing address of the person to whom payment is to be sent.
- g) A current Clearance Certificate from the Workplace Safety and Insurance Board (WSIB).
- h) A Statutory Declaration and proof that any disputes with subcontractors/suppliers have been resolved or are in adjudication.
- i) A "Unit Payment Schedule", the format for which may be provided by the Contract Administrator, which will include:
 - The Item List, Item No., and Contract Quantity for each item precisely as it appears in the "Schedule of Unit Prices";
 - The Unit of Payment and the Unit Price;
 - The Contract Total for each item as it appears in the "Schedule of Unit Prices";
 - A summary of "Payable Quantities" in the following format:
 - i. Previous Quantity Paid;

- ii. Payable Quantity Requested this Invoice;
- iii. Total Quantity Payable to Date.
- Total Payment to Date for each Item;
- Unit Payment Schedule Summary Page showing:
 - i. Total Work to Date;
 - ii. Total Holdbacks to Date;
 - iii. Total Payable to Date;
 - iv. Previous Payments;
 - v. Subtotal of Requested Payment (per Invoice);
 - vi. HST for Requested Payment (per Invoice);
 - vii. Total Requested Payment including HST (per Invoice).
- Proof of payable material quantities (e.g., weigh scale/truck tickets).
- All payable Change Orders/Extra Work/Additional Work ratified by the Owner including supporting documentation such as detailed breakdown of labour, equipment, materials and entitlements;
- Any advanced payment for material on-site, including invoices/proof of payment;
- The amount of liens, Owner's set-off and deductions for deficient work.

Proper Invoice submissions not meeting the above minimum requirements shall be deemed improper and shall therefore not trigger the requirement for payment within 28 days until such time as all Proper Invoice submission requirements have been met; only then will the invoice submission package be deemed a Proper Invoice requiring payment to be made within 28 days, unless a notice of non-payment is subsequently issued in accordance with the Construction Act.

C.2.3.23 Add the following to GC 8.02.04.05.01 b):

...and the value of any deficiencies, all as estimated solely by the Contract Administrator. The Owner is entitled to retain a special holdback, representing approximately 200% of the estimated value of deficiencies and outstanding or incomplete work (which is not outstanding or incomplete for reasons beyond control of the Contractor). This 200% holdback can be tracked either as a single aggregate special holdback, or through unpaid or partially paid line items in the Schedule of Unit Prices, or some combination of the two as determined by the Contract Administrator. Furthermore, the full 200% aggregate special holdback will be released in two stages, as follows:

1. First release upon completion of at least half of the outstanding/

- incomplete Work and deficiencies.
2. Second and Final Release upon completion of all outstanding/incomplete Work and deficiencies.

The Contract Administrator may choose to exercise discretion with respect to any potential variance from the process and stages outlined above.

C.2.3.24 Add the following to GC 8.02.04.05.03:

- c) a release by the Contractor in a form satisfactory to the Contract Administrator releasing the Owner from all further claims relating to the Contract, qualified by stated exceptions such as outstanding work or matters arising out of subsection GC 3.13, Claims, Negotiations, Mediation;
- d) a statutory declaration in a form satisfactory to the Contract Administrator that all liabilities incurred by the Contractor and the Contractor's Subcontractors in carrying out the Contract have been discharged except for statutory holdbacks properly retained

C.2.3.25 Add the following to GC 8.02.04.05 Substantial Performance Payment and Substantial Performance Statutory Holdback Release Payment Certificates:

- .06 The Owner shall retain ten percent (10%), representing statutory holdback, of all payments due as shown on Substantial Performance Progress Payment in accordance with GC 8.02.04.01.02 e).

This Substantial Performance Statutory Holdback Release Payment Certificate referred to in GC 8.02.04.05.03 shall only relate to eighty percent (80%) of the statutory holdback (i.e., eight percent (8%) of the value of completed work) in respect of Work performed up to the date of Substantial Performance ("Initial Part of the Statutory Holdback") with the remaining twenty percent (20%) of such statutory holdback (i.e. two percent (2%) of the value of completed work) being referred to as the "Remaining Part of the Statutory Holdback". In addition to the other conditions referred to in GC 8.02.03.05.03, prior to payment of the Initial Part of the Statutory Holdback becoming due, the Contractor shall also provide satisfactory proof to the Owner to the effect that there are no liens, garnishees, attachments, charges or monies due in respect of, or relating to, the Work or Contract.

The Remaining Part of the Statutory Holdback shall be retained by the Owner and shall not be due and payable to the Contractor until the expiration of the warranty period and satisfactory rectification of all identified deficiencies and required completion of incomplete Work. At the Contractor's option, the Remaining Part of the Statutory Holdback may be released earlier if the Contractor provides an irrevocable Letter of Credit, in a form satisfactory to the Owner, equal to the amount of the Remaining Part of the Statutory Holdback, as a substitute for the Remaining Part of the Statutory Holdback, to be retained until the expiration of the warranty period and satisfactory rectification of all identified deficiencies and required completion of incomplete Work.

C.2.3.26 Add the following to GC 8.02.05.08 Payment for Work by Subcontractors:

- .03 Where the Contractor arranges for additional work to be performed by a Subcontractor based upon a pre-approved lump sum price, the Owner will pay the Contractor the Subcontractor's lump sum price plus a mark-up calculated on the following basis:
- a) ten percent (10%) of the first \$5,000; plus
 - b) five percent (5%) of the amount in excess of \$5,000.

C.2.3.27 Replace GC 8.02.09.01 Liquidated Damages with the following:

- .01 It is agreed by the parties to the Contract that if all the Work called for under the Contract is not substantially performed within the number of working days or calendar date set forth elsewhere in the Contract, as extended in accordance with GC 3.07 or elsewhere in the Contract, the Owner will sustain a loss or damage. The parties hereto agree that the Contractor will pay to the Owner the sum of **[One Thousand Five Hundred Dollars (\$1,500.00) + HST]** as liquidated damages for each and every calendar day's delay in finishing the work in excess of the number of working days or calendar date prescribed. Liquidated damages are not to be construed as a penalty but as a reasonable genuine pre-estimate of the damages expected to be incurred by the Owner as a result of late completion.

C.2.3.28 Add the following to GC 8.02 Payment:

GC 8.02.10 Deemed Acceptance

.01 No payment by the Owner under the Contract or use or review of the Work by the Owner shall be deemed acceptance of work which is not in accordance with the Contract.

C.2.3.29 Add the following to GC 8.02 Payment:

GC 8.02.11 Liens

.01 If any liens arising from the performance of the Work are registered against the Working Area or Project, the Contractor shall vacate or discharge such liens within thirty (30) days.



BURNSIDE

Document D

General Requirements

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D.1 GENERAL REQUIREMENTS

D.1.1 Contract Time

The Work under this Contract shall be substantially performed by September 30, 2025. This completion date is contingent upon Acceptance occurring within three (3) weeks of the Bid Closing Time. The completion date will be adjusted accordingly should Acceptance occur beyond the three (3) week period following the Bid Closing Time. Weather conditions will not constitute a basis for extension of the completion date unless, in the sole opinion of the Contract Administrator, conditions have varied substantially from what is reasonably considered normal for the season(s) (i.e., in the event of abnormal inclement weather).

D.1.2 Insurance Requirements

The successful Bidder is required to provide certificates/proof of insurance for all mandatory coverage required by the General Conditions of Contract.

In addition, in accordance with GC 6.03.01 General, the Contractor shall provide all risks property insurance as per GC 6.03.05.01.

The insurance policies shall name the following parties as additionally insured:

- Township of Norwich
- R.J. Burnside & Associates Limited
- County of Oxford
- County of Brant
- Norfolk County

and shall insure the Contractor and the above named in the same manner and to the same extent as if a separate policy had been issued to each.

In addition to the above requirements, if blasting operations are used in the Contract, the Contractor shall take out and keep in force an insurance policy providing coverage for blasting operations to the same limits as set out in the General Conditions.

Contractors are hereby specifically notified that any loss or damage to the Work caused by the action of the elements including rain storms, wind storms, floods, etc., shall be sustained and borne by the Contractor at their own expense. Any material and additional work required to make good any loss or damage to work previously completed shall be borne at the cost of the Contractor and no claims for extra payment will be considered.

D.1.3 OPSS & OPSD

Relevant Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) in effect at the Official Closing Time, which are related to, or integral to the Work, apply to this Contract unless otherwise noted. OPSS "Municipal Oriented Specifications" will apply unless this project has been specifically designated as an MTO type "Provincial Oriented" project.

D.1.4 Schedule of Work

Upon being awarded the Contract, the Contractor shall forthwith supply to the Contract Administrator for approval a copy of a detailed planned Schedule of Work, showing clearly that the Work will be completed within the stipulated time.

D.1.5 Contract Administrator's Field Office

A separate field office for the Contract Administrator **will not** be required for this Contract.

D.1.6 Winter Work

No additional payment will be considered for the protection of the Work as required by the relevant OPSS for cold weather or winter conditions. The Contractor is encouraged to schedule their work to avoid placing concrete, asphalt or other temperature sensitive materials in cold weather and to avoid freezing of granular material during the operations employing these materials. Where the Contractor's schedule shows work involving temperature sensitive materials during a time frame where cold weather conditions may potentially or can be reasonably expected to occur, the price in the Schedule of Unit Prices shall be deemed to include the necessary cold weather provisions and no additional costs will be considered.

D.1.7 Provision for Traffic

All references in the Contract to the Manual of Uniform Traffic Control Devices (MUTCD), including all Parts and Divisions thereof, or MTO Traffic Control Manual for Roadway Work Operations, or Traffic Control Manual for Roadway Operations Field Editions are hereby deleted and replaced by the following books of the Ontario Traffic Manual (OTM):

- Book 5 – Regulatory Signs
- Book 6 – Warning Signs
- Book 7 – Temporary Conditions (& Temporary Conditions Field Edition)
- Book 11 – Pavement, Hazard and Delineation Markings
- Book 12 – Traffic Signals

Any reference in the Contract to OTM shall be deemed to be the Ontario Traffic Manual (Books 5, 6, 7, 11 and 12).

The Contractor shall comply with the applicable requirements of the above Ontario Traffic Control Manual book(s).

The Contractor shall be responsible for providing signing and traffic control in accordance with the Ontario Traffic Manual (OTM) and the OTM Book 7 Temporary Conditions - Field Edition.

Access shall be maintained at all times to any entrances within the limits of the Contract.

The Contractor is responsible for notifying any affected emergency agencies, transportation agencies, businesses, residents, etc., regarding access/traffic disruptions.

The Contractor shall provide a watchman or other suitable employee to inspect and maintain the signs, barricades and pedestrian ramps on a daily basis as well as weekends and other times when the Contractor is not working.

The Contractor shall provide an adequate number of traffic control persons to direct traffic at any time during construction as required by the Contract Administrator.

If there is no separate payment item for this work, then the costs are deemed to be included in the Bid Price.

D.1.8 Dust and Mud Control

The Contractor will be responsible for dust control as deemed necessary by the Owner during construction by watering and calcium application as directed by the Contract Administrator. Clean-up of mud tracking off site shall similarly be the Contractor's responsibility.

D.1.9 Disposal of Materials

The Contractor shall dispose of all waste and/or surplus materials in a disposal area selected by the Contractor in accordance with OPSS 180. The site shall be located off the Municipal right-of-way. The Contractor shall be responsible for all work involved in disposing the waste or excess material including trucking, access roads, levelling, and all haulage and/or dumping fees applicable.

The Contractor shall identify the disposal area and provide a release from the disposal area owner upon completion of the work.

Where any materials are designated to be salvaged, the Contractor can consult the appropriate special provisions for direction.

D.1.10 Environmental Requirements

It is intended that the Work proposed be executed in such a manner which, to the fullest possible extent, minimizes any adverse effect on the cultural and natural environment of the project area. The environmental conditions of the Contract stated herein must be complied with in all respects. It is a responsibility of the Contractor that all personnel be sufficiently instructed so that the Work is carried out in a manner consistent with minimizing environmental impact. The Contractor is expected to undertake the Work in such a manner that allows for the local area to be restored. It will also be required that the Contractor employ all reasonable precautions to minimize the impact of construction on the upstream and downstream environments. Restoration shall not be undertaken as a final project task but shall be initiated as soon as excavation or backfilling/compaction activities have been completed.

Permits and Authorization

The requirements set out in any permits issued for the project shall form part of this Contract and shall be strictly adhered to.

Any deviation from the prescribed requirements and/or methods contained in or implied by the permits as issued and this Contract will result in a work stoppage until such time as the Contractor produces suitably approved or revised permits acknowledging the proposed deviation. All costs associated with revised work permits will be solely the responsibility of the Contractor.

Refueling Areas

The Contractor shall undertake a detailed review of the proposed route of construction to plan access routes and fuelling areas. Refuelling and maintenance of equipment shall not be undertaken in or adjacent to a watercourse. Suitable fuelling and maintenance areas shall be established away from the waterway and all maintenance and fuelling conducted in these areas. The locations of such areas are subject to review by the Contract Administrator. Procedures for the interception and rapid cleanup and disposal of spillages that do occur shall be submitted to the Contract Administrator for review prior to starting work. All materials required for cleanup of fuel spillages shall be maintained readily accessible on site.

The exception of these fuelling locations requirements shall be generators, cranes, backhoes or shovels which may be fuelled at other than the designated fuelling areas. However, no fuelling of backhoes shall be carried out within 30 m of any watercourse.

Any spills apt to cause impairment to the natural environment must be immediately reported by the Contractor to the Contract Administrator and to the local Ministry of the Environment District Office.

Sediment Basins & Settling Ponds

The Contractor shall take all precautions so as not to affect the quality of water as it passes through the area and to prevent eroded material from construction operations from entering streams, watercourses or private property. Appropriate sediment retention measures shall be incorporated in the Work to ensure that sediment discharge to watercourses adjacent to the working area is minimized.

The Contractor shall provide rock check dams and straw bale flow checks and any other sediment or erosion control devices either indicated on the Contract Drawings, detailed in the Special Provisions, as specified by the Permit Issuing Authorities, or as directed by the Contract Administrator.

Sediment traps or similar sediment protection shall be constructed for receiving the discharge from dewatering operations. Temporary sediment traps shall be constructed in advance of any work where eroded materials could enter the watercourse. The overflow rate from settling or sedimentation ponds shall be such that the solids carryover is minimal. The Contractor shall incorporate filter berms or sandbags, as required, to retard and filter run-off prior to discharge to the watercourse.

In general, concentrated run-off from un-stabilized areas shall be intercepted and diverted to stabilized areas under sheet flow conditions. Any water pumped for the purposes of trench or structure excavation or dewatering shall be directed to a settling basin or other device to reduce suspended solids content prior to discharge to a storm sewer, drainage ditch or natural watercourse.

The Contractor shall clean and maintain the sediment traps as required. The traps shall be cleaned when approximately fifty percent (50%) filled with sediment and as directed by the Contract Administrator. The sediment traps shall be maintained until embankment slopes and ditches in the area are reinstated. The traps shall then be removed and the area restored to its original grade or as shown on the Contract Drawings.

The Contractor shall not permit any excavated materials or other material to be deposited in any watercourses except as indicated in the Contract Documents such as rip rap, river stone or clear stone.

The following is a partial list of precautionary measures the Contractor may elect to employ in order to execute the Work within the requirements noted above. NOTE: This listing shall not be taken to represent the full range of precautionary measures available to the Contractor.

1. The use of heavy construction machinery on the streambed and banks shall be avoided unless specifically approved.
2. Where the stream is relocated or diverted temporarily, such relocation or diversion should be done through dry construction. The channel of the new stream (including all slope protection) must be completed before the old stream is diverted into the new channel.
3. The disturbance of low vegetation cover should be avoided as much as possible; the disturbance of soil cover should be minimized and disturbed areas should be vegetated or otherwise protected from erosion as soon as possible.

4. Fill material and excavated materials should be located away from the watercourse and protected from erosion.
5. Any constriction of flow should be compatible with streambed material to prevent erosion or other damage caused by an increased velocity in flow. Stream flow must be maintained throughout the construction period so as not to interfere with fish migration and spawning or other downstream users.
6. Where water quality impairment is unavoidable, measures to protect downstream users must be taken.
7. Upon completion of the project, any temporary fill, culverts, refuse, etc. must be removed from the construction area and deposited in an approved disposal area away from the site.
8. The inlet and the outlet of any culverts should be protected against erosion.
9. All exposed areas should be redeemed or re-vegetated immediately after construction is completed.

Measurement for Payment

No direct measurement of quantities will be made for this work unless specifically noted in the Schedule of Unit Prices. The work will be administered as being part of the related environmental protection items or as part of the overall site work.

NOTE:

Fish Habitat Definition According To The Fisheries Act Of Canada

Fish habitat means "spawning ground and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes".

Dam Definition According To The Lakes And Rivers Improvement Act

Dam is "a dam or any work which forwards, holds back or diverts water".

D.1.11 Existing Conditions

The Contractor shall clean up and restore all disturbed areas to condition equal to or better than existing conditions using materials equal to or better than existing materials. This includes the removal and disposal of all layout materials, string lines, batter boards and other such materials.

The Contractor shall maintain flow in all existing sewers, drains, ditches, watercourses, house and inlet connections, as applicable.

Sanitary sewers shall not be used for the discharge of water from excavations or dewatering operations.

D.1.12 Damage by Vehicles and Other Equipment

If at any time, in the opinion of the Contract Administrator, damage is being or is likely to be done to any highway or any improvement thereon, other than such portions as are part of the Work, by the Contractor's vehicles or other equipment, whether licensed or unlicensed, the Contractor shall, on the direction of the Contract Administrator and at the Contractor's own expense make changes in or substitutions for such vehicles or other equipment or shall alter loading or shall in some manner remove the cause of such damage to the satisfaction of the Contract Administrator.

D.1.13 Measurement and Payment

Unless otherwise noted in the Schedule of Unit Prices, no measurement of quantities will be made for the General Work and no direct payment will be made for any of the General Work. The cost of such work shall be deemed to be reasonably distributed within the overall cost of the Work.

Payment for payable items shall be based upon the lump sum or unit price bid, as listed in the Schedule of Unit Prices, using actual "as-constructed" quantities (or plan quantities) as determined by the Contract Administrator. In the event of conflict between the Schedule of Unit Prices and OPSS, the basis of payment indicated in the Schedule shall take precedence (as modified by "pay lines" or payment clauses indicated elsewhere in these documents, if applicable).

D.1.14 Dewatering

The Contractor shall dewater excavations/trenches, and maintain the groundwater level at least 0.5 m below the excavation bases, thereby facilitating proper completion of the Work in reasonably dry, stable conditions.

D.1.15 Compaction

Unless otherwise noted, all granular materials shall be compacted to 100 percent (100%) SPMDD and all subsoil to 95 percent (95%) SPMDD.

D.1.16 Utilities

The Contractor's attention is drawn to the possible presence of underground utilities. The locations of such, if indicated on the drawings represent to the best of the Owner and Contract Administrator's knowledge, the approximate location of such utilities. The Contractor shall be responsible for all utility stakeouts as per GC7.01.16 as well as any inspection or test pits required and the inspection of any manholes, catchbasins, sewers or vaults necessary to locate any utility. The Contractor shall be wholly responsible for the accuracy of the information gathered by their own forces.

The work site may also be located directly adjacent to high voltage power transmission and telephone lines. The Contractor shall be aware of such lines at all times and shall utilize equipment and methodologies in the undertaking of the Work that do not constitute a hazard or safety violation under the Occupational Health and Safety Act.



BURNSIDE

Document E

Specifications and Drawings

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Appendix E – Standard Drain Specifications

1.0 General Drain Specifications

1.1 Scope of Specifications

This specification covers the general conditions governing the construction of a Municipal Drain under the most recent revision of the Drainage Act and amendments. All work shall be done in accordance with current and applicable Ontario Provincial Standard Specifications and Drawings (OPSS and OPSD).

1.2 Benchmarks

Benchmarks shall be set at intervals along the course of the work at locations shown on the accompanying plan and/or profile. The Contractor or landowner shall be held liable for the cost of re-establishing benchmarks destroyed. Attention is drawn to Section 13 of the Drainage Act.

1.3 Stakes/Flags/Markers

Stakes, flags or markers are typically set at intervals throughout the course of the work, at all fences and property lines. The Contractor or landowner shall be held liable for the cost of replacing any stakes removed or destroyed.

1.4 Profile

The Drain is to be excavated or installed to regular gradient lines as shown on the profiles. These gradients show the bottom of the finished drain (open or closed) and are governed entirely by the benchmarks. In the case of closed drains, the gradient is that of the invert of the tile. The profiles show the approximate depth from the surface of the ground to the invert of the tile or drain bottom at the point where the stations are set and from the average bottom of the open drain as taken at the time of survey. Open drains shall be brought to an even gradient in the bottom to prevent standing water. For closed drains, a variation of 25 mm (unless specified otherwise) from the gradient may be deemed sufficient reason for the work to be rejected and required to be rebuilt.

1.5 Clearing

Clearing means the cutting of all standing trees, brush, bushes and other vegetation to a maximum height of 300 mm above original ground level as well as the removal of felled materials and windfalls. Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents.

The work shall consist of clearing all areas of earth excavation, earth surfaces to be covered by embankments up to and including 1.2 m in height, and any other areas specified in the Contract Documents.

No trees, brush or bushes are to be left inside the slopes of the Drain, whether they are located within the limits of the excavation or not. Brush cleared in accordance with the above shall be piled in a location and in a manner satisfactory to the Engineer for burning by the Owner. Unless otherwise specified or directed, these piles shall be a minimum of 100 m apart and shall contain only cleared material. All work shall be done in accordance with OPSS 201.

1.6 Close Cut Clearing

Close Cut Clearing means the cutting of all standing trees, stumps, brush, bushes and other vegetation at original ground level and the removal of felled materials and windfalls. Grubbing means the removal of all stumps, roots, embedded logs, debris and secondary growth. Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents.

The work shall consist of close cut clearing all earth surfaces to be covered by embankments greater than 1.2 m in height, and any other areas specified in the Contract Documents.

No trees, stumps, brush or bushes are to be left inside the slopes of the Drain whether they are located within the limits of the excavation or not. Brush cleared in accordance with the above shall be piled in a location and in a manner satisfactory to the Engineer for burning by the Owner. Unless otherwise specified or directed, these piles shall be a minimum of 100 m apart and shall contain only cleared material. All work shall be done in accordance with OPSS 201.

1.7 Brushing

Brushing means the grinding or chipping to ground level of vegetation in the working space under 150 mm in diameter by means of a hydraulic brushing attachment used with an excavator or approved equivalent. This includes grinding or chipping all standing trees, stumps, brush, bushes and other vegetation to original ground level.

Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

1.8 Grubbing

Grubbing means the removal of all stumps, roots, embedded logs, debris and secondary growth.

The work shall consist of grubbing all areas of earth excavation, earth surfaces to be covered by embankments up to and including 1.2 m in height and any other areas specified in the Contract Documents.

Grubbing is not required in swamps. Mechanical stump cutters are permitted, provided the entire root structure is removed. Depressions remaining after grubbing shall be backfilled with suitable earth material and compacted to avoid settlement. When clearing has been previously completed by others, all secondary growth, brush and debris shall be removed.

Piled boulders and surface boulders that are not specified in the Contract Documents for removal and lie within areas to be grubbed shall be removed. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

1.9 Removal of Surface Boulders and Removal of Piled Boulders

Piled Boulders means any cobbles, boulders or rock fragments that have been placed in fence rows or piles.

Rock means rock as defined in OPSS 206.

Surface Boulder means any boulder or rock fragment that measures 200 mm or greater in any one dimension, extends a minimum of 200 mm above original ground and can be removed without excavation.

The work shall consist of the removal of surface boulders and removal of piled boulders within the areas specified in the Contract Documents. Depressions remaining after removal shall be backfilled with suitable earth material and compacted to avoid settlement. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

1.10 Fences

The Contractor will be permitted to remove fences to the extent necessary to allow the construction of the Drain and to dispose of any excess material according to the specifications. Any such fences shall be carefully handled to cause no unnecessary damage. Unless allowance has been provided, such fences shall be replaced by the Contractor in as good a condition as found. The Contractor shall supply all material necessary to properly reconstruct any fences. The Contractor shall not leave any fence

open when he is not at work in the immediate area and shall replace the fence in a timely manner, all to the satisfaction of the Engineer.

1.11 Standing Crops and Livestock

Should a property owner wish to harvest any crop along an access route or within the construction working space as set out in the Engineer's Report, then it shall be the responsibility of the property owner to do so prior to construction. Provisions for the loss of, or damage to, crops along the access route or in the construction area ("Working Space") have been made in the Report and such loss or damage shall not be the liability of the Contractor.

The Contractor shall contain construction operations to the working space and width specified. As long as the construction operations are contained within the specified working space, the Contractor shall not be responsible for damages to crops along the course of the Drain.

It shall be the responsibility of the property owners to keep their livestock clear of the construction area upon receiving 24 hours advance notice by the Contractor. After receiving proper notice, the Owner of the property upon which a drain is being constructed shall be liable for any loss or damage to livestock, the Drain, drain materials or the Contractor's equipment caused by their livestock.

1.12 Notification of Agencies

The Contractor shall notify the appropriate agency before performing any work affecting the land or property of the Ontario Ministry of Transportation (MTO), railway, telephone, pipeline or public utility or regulatory agency. The Contractor shall further agree to perform the work affecting such lands or property in accordance with the specifications and approval/permit of the applicable agency.

1.13 Final Inspections

After substantial completion of the work, but prior to demobilization and final removal of all equipment and materials from the site, the Contractor **must** arrange an on-site **Final** Inspection of the work with the engineer to ensure all aspects of the work have been satisfactorily completed and/or that arrangements have been made to expedite the completion of any outstanding "minor" items or deficiencies. All the work included in the contract, at the time of the Final Inspection, must have the full dimensions and cross-sections called for in the plans and specifications. Notification to the Engineer of this Final Inspection shall be provided at least five days prior and it shall be completed as soon as possible or as soon thereafter as weather conditions permit.

2.0 Specifications for Open Drains

2.1 Geometry

The Drain shall have the full bottom width, at the gradient, specified or shown on the accompanying plan(s), profile(s) and detail sheet(s).

2.2 Alignment

The Drain shall run in straight lines throughout each course except at intersections, where it shall run on a minimum curve of 15 m radius unless otherwise specified. If the work consists of the improvement of an existing open drain, then the centre line of the existing drain may be the centre line of the finished work unless otherwise specified.

2.3 Excavated Material

A clear buffer of at least 3 m shall be left between the top edge of the open drain and the excavated material. Excavated material shall be placed on the side specified or, if not specified, on the lower side of the Drain or on the side opposite trees or fences. No excavated material is to be left in any low runs intended to conduct water into the open drain. It shall be deposited, spread and leveled to a maximum depth of 150 mm, unless specified otherwise and left in a manner such that the lands on which it is spread may be cultivated with adjacent lands by use of ordinary farm machinery. Material excavated in land that is timbered, may be spread to the depth specified or to a maximum depth of 300 mm, whichever is greater. In cultivated areas, the Contractor shall remove stones and boulders on the surface greater than 100 mm diameter from the excavated material and dispose of them in an approved location. Treatment of excavated material shall be to the satisfaction of the Engineer. After the excavated material has been spread and leveled, it shall be seeded as specified.

2.4 Surface Water Inlets

Surface water inlets to the Drain shall be provided through the leveled spoil on each property at obvious natural low runs or at other locations as specified by the Engineer on site at the time of construction. No excavated material shall be left in, or any damage done to a ditch, furrow, pipe, tile or depression that is intended to conduct water into an open drain. The Drain bank at all such inlets shall be riprapped as directed by the Engineer and reimbursed under the appropriate contract item.

2.5 Outlets

During the construction of an open drain, the Contractor shall guard against damaging the outlet of any tributary drain or pipes encountered. The Contractor will be reimbursed for damage to unmarked outlet pipes under the appropriate contract item.

2.6 Access Culverts

All culverts shall be installed with the invert a minimum of 10% of its diameter or as specified below the gradient and the firm bottom of the Drain.

All pipes installed under these specifications shall be carefully bedded to ensure uniform bearing throughout its entire length.

Except where requiring concrete cradle or encasement, all pipes shall be bedded on granular fill as specified or as shown on the contract drawings. Bedding shall be hand placed, tamped and consolidated throughout. Granular fill and bedding shall be gravel or crushed stone having no particles over 20 mm in size, except where otherwise specified.

Concrete cradle and concrete encasement shall be placed as shown on the drawings, and the concrete shall be minimum 25 megapascals (MPa).

From the top of the bedding material to a point 150 mm below the existing grade of the laneway, backfill material shall be clean pit run gravel meeting OPSS Granular B or approved equivalent. The material shall be placed in lifts not to exceed 300 mm in depth and all granular materials shall be compacted to 100% standard proctor maximum dry density (SPMDD) and all subsoil or previously excavated material to 95% SPMDD.

The final 150 mm of the excavation shall be filled with clean crushed gravel conforming to OPSS Granular A specifications. The material shall be placed in lifts not exceeding 150 mm in depth and shall be thoroughly compacted to 100% SPMDD.

2.7 Excavation at Bridge Sites

The excavation at bridge sites shall be to the full depth of the Drain and as nearly as possible the full width of the Drain as specified for the bridge location. The excavation at a bridge site shall be made in a manner to protect the structural integrity of any permanent bridge. A temporary bridge may be carefully removed to allow excavation. The removal of a bridge is to be done in such a manner to cause no damage to the bridge components. Temporary bridges removed to allow excavation shall be replaced in as good a condition as found, so far as material allows. Replacing of such bridges shall be to the satisfaction of the Engineer. The Contractor shall immediately notify the

Engineer if it becomes apparent that excavating to a specified gradient will endanger or underpin any culvert or bridge. The Contractor shall cease excavation at the bridge or culvert site until the Engineer instructs the Contractor to proceed.

2.8 Seeding

Unless indicated otherwise in the Special Provisions, the Contractor shall seed all disturbed areas which includes newly excavated drain banks and leveled spoil (where specified) with the OPSS (MTO) Standard Roadside Seed Mix, consisting of 55% Creeping Red Fescue, 27% Kentucky Bluegrass, 15% Perennial Ryegrass and 3% White Clover, at an application rate of 100 kg/10,000 m², plus a nurse crop of Fall Rye Grain or Winter Wheat Grain at an application rate of 60 kg/10,000 m², at the end of each working day.

2.9 Temporary Sediment Controls

Unless indicated otherwise in the Special Provisions, the Contractor shall install an approved sediment control measure at the downstream end of the open drain excavation and at any other locations specified. The Contractor shall remove any accumulated sediment at regular intervals or as directed by the Engineer. The Contractor shall then remove these temporary measures, and any accumulated sediment therein, after the new open drain has stabilized and only after authorized by the Engineer or the Drainage Superintendent.

2.10 Permanent Sediment/Stilling Basins

The Contractor shall construct and maintain sediment control or stilling basins as specified in the Special Provisions.

2.11 Rip-Rap and Non-woven Geotextile

Rip-Rap – The Contractor shall supply and install a 450 mm thickness of 150 mm to 300 mm (R-50) diameter quarry stone rip rap with filter cloth underlayment for culvert and pipe outlets. This will include areas of the existing bank where erosion or bank slumping has occurred, as directed on-site by the Engineer. For the area surrounding catchbasins, unless noted otherwise, the contractor shall supply and install a 300 mm thickness of 100 to 150 mm (R-10) diameter quarry stone rip-rap with filter cloth underlayment.

Non-Woven Geotextile - All geotextile used for tile wrapping under these specifications shall be non-woven Terrafix[®] 200R (or equivalent). All geotextile used under these specifications for heavy duty applications such as under rip-rap surrounding catchbasins, and at tile outlets into drains shall be non-woven Terrafix[®] 270R (or equivalent).

3.0 Specifications for Closed Drains

3.1 Materials

Tile, tubing and pipe materials supplied by the Contractor shall be approved by the Engineer prior to being incorporated in the work. The Contractor shall be responsible for the unloading and placement of all materials required for the Municipal Drain construction. Such unloading and placement shall be undertaken in a manner acceptable to the Engineer using only the specified and approved access routes and working space.

Concrete Drain Tile (CDT) - All CDT installed under these specifications shall have a circular cross section with a minimum 2000D, meeting the latest revision of CSA A257.1-14 and ASTM C412. The manufacturer shall provide the Engineer with a copy of all available test results for the materials being shipped to the project site. The Engineer shall have the right to order any additional tests he deems necessary to be performed on the tile taken from inventory prior to shipment from the manufacturer's plant. The cost of such additional tests shall be borne by the Contractor.

Plastic Drainage Tubing (PDT) - All PDT installed under these specifications shall be manufactured in accordance with the latest revision of the Drainage Guide for Ontario, as published by the Ministry of Agriculture and Food.

Corrugated Steel Pipe (CSP) - All CSP installed under these specifications shall be galvanized spiral wound corrugated steel pipe. All corrugated steel pipe installed under these specifications shall conform to CSA G401.

- CSP tile outlet pipes shall be up to 1,200 mm in diameter and 2.0 mm in thickness and shall have 68 mm x 13 mm corrugations unless specified otherwise.
- CSP culverts shall be up to 1,000 mm in diameter and 2.8 mm in thickness and shall have 68 mm x 13 mm corrugations unless specified otherwise. CSP culverts equal to and larger than 1,200 mm in diameter shall be 3.5 mm in thickness and shall have 125 mm x 25 mm corrugations unless specified otherwise.

High Density Polyethylene (HDPE) Pipe - All corrugated or dual wall smooth walled HDPE pipe (Armtex BOSS 2000® or equivalent) installed under these specifications as culverts or as part of a new closed drain shall be manufactured in accordance with the latest revision of OPSS 1840 and shall have a pipe stiffness of 320 kPa.

- All perforated dual-wall smoothwalled HDPE pipe joining systems shall be soil-tight split coupler unless specified otherwise, conforming to CSA B182.8. As specified, perforated pipe shall include a knitted sock or non-woven geotextile covering (Terrafix® 200R or equivalent).

- All solid dual-wall smoothwalled HDPE pipe shall be soil-tight split coupler, unless specified otherwise, conforming to CSA B182.8.
- All watertight solid dual-wall HDPE pipe joining systems shall be water-tight bell and spigot, complete with gasketed connections unless specified otherwise, conforming to CSA B182.6.

Non-Woven Geotextile - All geotextile under these specifications shall conform to OPSS 1860. All geotextile used for tile wrapping under these specifications shall be non-woven Terrafix® 200R (or equivalent). All geotextile used under these specifications for heavy duty applications such as under rip-rap surrounding catchbasins, and at tile outlets into drains shall be non-woven Terrafix® 270R (or equivalent).

3.2 Drain Gradient and Verification

The proposed gradient shall be established using laser grade control equipment, cross-head boning rods together with horizontal sight-bars at stations above and below the point where the tile is being laid or other method acceptable to the Engineer.

If the Engineer has not checked the tile, inspection points shall be left at intervals of not greater than 50 m for sections with gradients less than 0.5% and at intervals of not greater than 30 m for sections with gradients above 0.5%. Inspection points shall also be left at all structures and all changes in gradient. Other inspections points may be required from time to time as requested by the Engineer.

3.3 Tile Laying Including Topsoil Stripping

In the case of the installation of CDT, and unless specified otherwise in the Special Provisions, the Contractor shall strip the topsoil a full width of the trenching machine plus 0.3 m on each side prior to installing the new tile with the trencher as part of the work under the appropriate item and no extra payment will be made for this stripping. After installation, confirming gradient, blinding, and back filling of the trench, the topsoil shall be replaced throughout the entire length of the Drain. The Contractor shall take into consideration the settlement of the backfill material over the trench prior to replacing the topsoil.

All CDT shall be installed with a wheel-type trencher and each tile shall be laid firmly and carefully in a smooth bottomed trench so that successive tiles align both vertically and horizontally as tightly as possible; the maximum allowable space between successive tiles shall be 6 mm.

All joints of the CDT must be completely wrapped with geotextile (Terrafix® 200R or equivalent) as part of the work under the appropriate item and no extra payment will be made for this wrapping. The wrap on each joint shall be a minimum of:

- 300 mm wide for tile sizes smaller than 450 mm diameter.
- 600 mm wide for tile sizes 450 mm diameter and above.

The Contractor is reminded that the widths of the tile trenches are to be kept to a minimum. It is recommended that the minimum trench width be 300 mm greater than the outside diameter of the tile or 150 mm on each side of the tile being installed. It is recommended that the maximum trench width be 600 mm greater than the outside diameter of the tile or 300 mm on each side of the tile being installed.

All PDT shall be installed with a self-propelled drainage plow.

All obstructions, dirt or foreign material shall be removed from the inside of the tile prior to laying.

Tile drains shall be constructed at an offset from, and parallel to, any existing drain, defined watercourse or low run. The Contractor shall exercise care not to disturb any existing private or municipal tile drains which follow the same course as the new drain.

3.4 Reconnection of Existing Private Tile

Any subsurface drain encountered by the Contractor when constructing a Municipal Drain under these specifications shall be reconnected to itself and not connected to the new Municipal Drain, unless approved otherwise by the Engineer. The accepted practice for reconnecting existing tile drains will be to compact sub-base material from the new trench bottom to the underside of the existing tile. Rigid pipe, HDPE (320 kPa) or approved equivalent, with a diameter equal or larger than the existing tile with a minimum length of 0.6 m beyond the trench width to the existing tile. This connection shall be made only where the existing tile is operable and in good condition. When completing backfilling of the Municipal Drain trench at such a location, the Contractor shall take sufficient care to ensure that the new connecting pipe is not damaged.

The Contractor shall provide a unit price per connection and the unit price shall include the supply of all material, labour and equipment necessary to make the connection. Further, the Contractor shall keep a written record of all sub-surface drains encountered. All connections completed shall be reviewed daily with the Engineer and a summary of all subdrains shall be provided to the landowner.

3.5 Connection of Existing Private Tiles to Municipal Drain

A subsurface drain encountered during construction can be connected to the Municipal Drain if requested by the landowner and approved by the Engineer prior to commencement of the connection. The Drain shall be connected to the Municipal Drain either by core drilling through the CDT or a prefabricated fitting for HDPE. The core

shall be drilled on-site and backfilled as per the specified detail included within the drawings. Any tile drains connected to the Municipal Drain shall have the downstream end of the tile plugged to prevent entry of foreign material into the tile.

3.6 Trench Backfilling

As the laying of the tile progresses, partial filling or blinding shall be made at the sides of the trench sufficient to hold the tiles securely in place. The Contractor shall place the remainder of the excavated material carefully when backfilling the trench. Any excess backfill material shall be mounded over the trench such that future settlement and compaction around the new tile can occur without creating a depression over the width of the trench. The Contractor shall not operate construction equipment over any backfilled trench, except as specified in Trench Crossings. Care shall be exercised in backfilling the trench to see that no stone or boulder capable of damaging the tile is used in the backfill material adjacent to the tile. In no case shall stones having a diameter greater than 150 mm be used in backfill material within 300 mm of the tile. The Contractor shall backfill any open tile trenches at the end of each working day except for inspection points as specified. The Contractor shall be entirely responsible for any damage to the new tile throughout the warranty period.

3.7 Trench Crossings

The Contractor shall not cross any backfilled trench with any construction equipment or vehicles, except at only **one** designated crossing location on each property which shall be marked in an acceptable manner. The Contractor shall ensure that the bedding and backfill material at this designated crossing location is properly placed and compacted to adequately support the equipment and vehicles that may cross the trench. The Contractor may undertake any other approved work to ensure the integrity of the tile at the crossing location. The Contractor shall ensure that no equipment or vehicles are allowed to travel along the length of any trench. The Contractor shall be entirely responsible for any damage to the new tile throughout the warranty period.

3.8 Outlet Protection

The outlet end of a tile drain shall normally consist of a 6 m length of CSP or HDPE fitted with a rodent proof grating which is hinged at the top to allow the exit of foreign material from the tile. An outlet marker shall be supplied and installed.

Unless otherwise specified, the end of the CSP or HDPE shall be protected with the type of riprap on geotextile as specified by the Engineer from a point 500 mm above the Drain bottom on the opposite side of the Drain, across the Drain bottom, and for the full height of the Drain side slope where the pipe is located. The minimum width of this riprap shall be equal to the outside diameter of the outlet pipe plus 2 m.

3.9 Precast Concrete Structures

Junction Box (JB) means an acceptable precast concrete structure installed and buried below the surface of the ground to facilitate two or more tiles meet and connect.

Catchbasin (CB) or Ditch Inlet Catchbasin (DICB) means an acceptable precast concrete structure installed at or slightly below the surface of the ground where two or more tiles meet and connect and that is intended to accommodate surface water.

Unless specified otherwise, JB's, CB's, and DICB's shall be supplied by a precast manufacturer meeting the Engineer's approval. An "approximate elevation of top" of each structure has been indicated on the "Structures Table"; however, each structure shall be placed onsite such that the exact horizontal and vertical location in the field is as directed by the Engineer. All structures shall have a knock out, set at a minimum of 100 mm above the elevation of the outlet or as specified, placed in **all** sides not used by the Municipal Drain. Knock outs must be of a size capable of connecting a HDPE pipe with a minimum inside diameter of 250 mm. All structures shall have a minimum 300 mm deep sump, unless specified otherwise.

Non-shrink grouting material, unless specified otherwise, shall be placed around all pipes connected to the structure. In addition, the exterior of all grouted connections shall be completely wrapped with geotextile (similar to a wrapped joint). Geotextile shall also be placed in the joints between all sections of the box and around the full perimeter of the box at these joints. For the area surrounding catchbasins, unless noted otherwise, the contractor shall supply and install a 300 mm thickness of 100 to 150 mm (R10) diameter quarry stone rip rap with filter cloth underlayment.

Hot dipped galvanized, heavy duty, three-sided protruding type bird cage grates, shall be supplied for all CB's, DICB's or OB's, unless specified otherwise. All DICB's shall have a slope of 2H:1V, unless specified otherwise. Grates shall be fastened to the structure using non-corrosive fasteners as recommended by the Ontario Farm Safety Association. JB's shall have no sump and shall have a minimum 150 mm thick solid reinforced concrete tops.

Post and sign type markers shall be supplied and installed at each at or above ground structure.

3.10 Stripping for Deep Tile Installation

Where the tile installation depth exceeds the digging or plowing depth of the Contractor's equipment, the Contractor shall undertake any stripping that may be necessary in a manner such that when restored, the topsoil returns uncontaminated to the top of the stripped area. This would normally mean that the topsoil would be stripped and piled

separately from the subsoil. The Contractor shall have regard for the working space provided for such stripping operations. Unless approved otherwise by the Engineer prior to work being undertaken, stripping shall be done using a hydraulic excavator. The cost of any stripping shall be included in the price provided for the tile installation.

3.11 Stone removal

The Contractor shall remove and dispose of any stones larger than 100 mm that remain on the surface of the working space after completion of construction.

4.0 Specifications for Road Crossing (open cut method)

4.1 General

When a drainage works crossing of a Road is to be carried out by the open cut method, the following specifications shall apply as well as OPSS 401 and 410. Under these specifications, the Contractor shall supply all labour, equipment and material unless specified otherwise in the Special Provisions.

4.2 Excavated Material

All excavated material removed from the traveled portion of the road and 1.3 m or the full width of the gravel shoulder, whichever is greater, on each side of the traveled portion shall be disposed of off the site by the Contractor in a location approved by the Engineer or the Municipality. No excavated material shall be spread on the right-of-way without the written consent of the Engineer or the Municipality. The excavated material from a trench beyond a point 1.3 m from the traveled portion or beyond the outside edge of the gravel shoulder may be placed in the trench in the case of covered drains.

4.3 Bedding

All pipes installed under these specifications shall be carefully bedded so as to ensure uniform bearing throughout its entire length.

Except where requiring concrete cradle or encasement, all pipes shall be bedded on granular fill as specified or as shown on the contract drawings. Bedding shall be hand placed, tamped and consolidated throughout. Granular fill and bedding shall be gravel or crushed stone having no particles over 20 mm in size, except where otherwise specified.

Concrete cradle and concrete encasement shall be placed as shown on the drawings, and the concrete shall be minimum 25 MPa.

4.4 Backfilling

The material and the method for backfilling the excavated area on the traveled portion of the right-of-way and for 1.3 m or the full shoulder width on each side shall conform to the following specifications, or as directed by the Engineer or Municipality.

From the top of the bedding material to a point 300 mm below the existing grade of the road, backfill material shall be clean pit run gravel meeting OPSS Granular B or approved equivalent. The material shall be placed in lifts not to exceed 300 mm in depth

and all granular materials shall be compacted to 100% SPMDD and all subsoil or previously excavated material to 95% SPMDD.

The final 300 mm of the excavation shall be filled with clean crushed gravel conforming to OPSS Granular A specifications. The material shall be placed in lifts not exceeding 150 mm in depth and shall be thoroughly compacted to 100% SPMDD.

4.5 Precast Concrete Structures

The type, location and the elevation of all structures in the right-of-way shall be as specified by the Engineer, and as indicated on the "Structures Table".

4.6 Notice

Before commencing work on any right-of-way, the Contractor shall furnish at least seven days' notice in writing to the Engineer and Road Authority having jurisdiction over said right-of-way. A copy of this notice shall also be sent to the Municipality's Drainage Engineer.

4.7 Maintenance

The Contractor shall maintain the road surface at the road crossing until the Engineer or Road Authority has approved the work. Such maintenance shall include keeping the road surface free from pot-holes and the application of calcium chloride at the rate of two pounds per square metre to the finished surface for the entire width of the excavation.

The Contractor shall give the Engineer or Road Authority four days' notice in writing that the work has been completed, and if the work has been approved, the Contractor will no longer be responsible for maintenance of the said portion of the right-of-way.

4.8 Permits and Traffic

The Contractor shall be responsible for providing the Road Authority at least seven days' notice in writing before commencing any work on any right-of-way. If the crossing is on a right-of-way that requires a Municipal or Provincial Permit, the Contractor shall ensure that the Permit is obtained before any work commences.

The Contractor shall be responsible for providing, erecting, maintaining and removing all signage and traffic control in accordance with the Ontario Traffic Manual (OTM) and the OTM Book 7 Temporary Conditions - Field Edition as noted in Document D of the Tender/Contract.

2. CONTRACT DRAWINGS

The Work required under this Contract shall be performed in strict accordance with the following drawings:

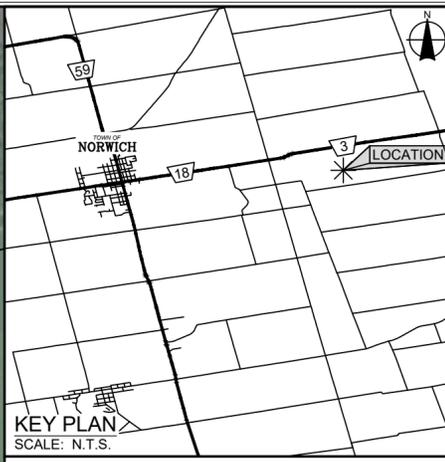
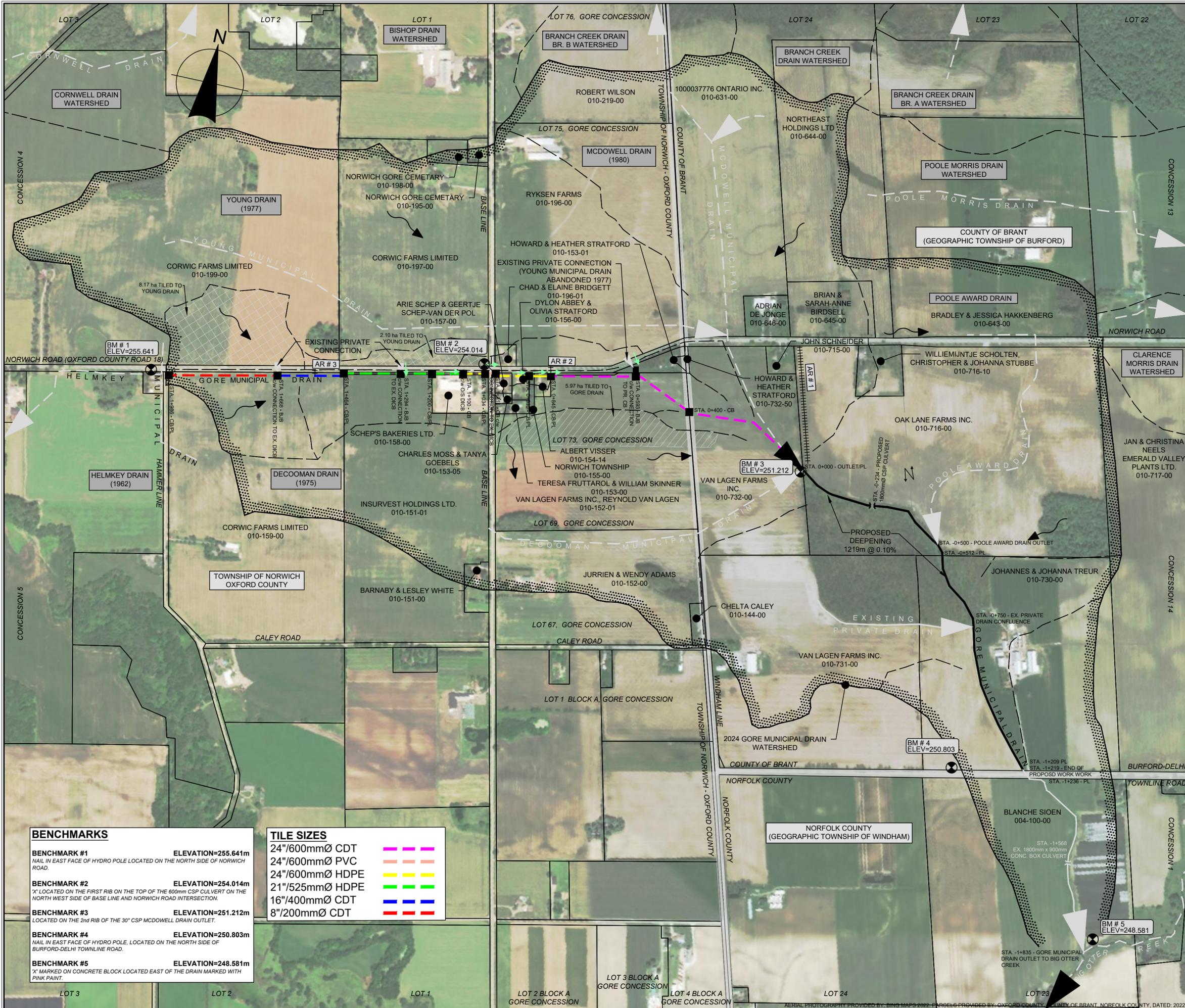
<u>Drawing No.</u>	<u>Drawing Title</u>
1 of 12	Watershed Plan
2 of 12	STA. -1+882 to -0+600
3 of 12	STA. -0+600 to 0+569
4 of 12	STA. 0+569 to 0+780
5 of 12	STA. 0+780 to 0+985
6 of 12	STA. 0+985 to 1+195
7 of 12	STA. 1+195 to 1+1405
8 of 12	STA. 1+405 to 1+615
9 of 12	STA. 1+615 to 1+806
10 of 12	STA. 1+806 to 1+986
11 of 12	Notes & Details (1 of 2)
12 of 12	Notes & Details (2 of 2)

<u>Catchbasin Drawing No.</u>	<u>Drawing Title</u>
1 of 4	Catch Basin Details
2 of 4	Catch Basin Details
3 of 4	Catch Basin Details
4 of 4	Catch Basin Details

These drawings are the Contract Drawings and form part of this Contract. Additional drawings showing details in accordance with which the Work is to be constructed may be furnished from time to time by the Contract Administrator, if found necessary, to supplement or supersede the drawings hereto attached. Such additional drawings shall thereupon become a part of this Contract. The Contract Drawings are complementary to the Contract Documents; any item or information found in one applies to both.

The Contractor shall be governed by the figured dimensions, as given on the drawings. The Contractor shall confirm all relevant dimensions and report any discrepancies to the Contract Administrator immediately.

Where required dimensions are not shown in figures, the Contractor shall obtain the said dimensions from the Contract Administrator before proceeding with the construction of the portion of the Work to which they refer. In every case, detailed drawings shall take precedence over general drawings. In no instance shall dimensions be scaled from drawings.



LEGEND

WATERSHED BOUNDARY	
SUB WATERSHED BOUNDARY	
DRAIN LOCATION & DIRECTION	
BENCHMARK NUMBER	
PROPOSED STRUCTURE	
SURFACE CULVERT	
DIRECTION OF SURFACE FLOW	
ROLL NUMBER	(010-199-00)
SHARED ROLL NUMBER	

- Notes
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 2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
 4. All property lines are approximate and for information purposes only.

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Professional Engineers Ontario
Limited Licensee
 Name: W. P. MACINTYRE
 Number: 100179975
 Category: Civil
 Limitations: *Task M, Inters*
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 Association of Professional Engineers of Ontario

No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

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 web www.rjburnside.com

Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 NOJ 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 WATERSHED PLAN

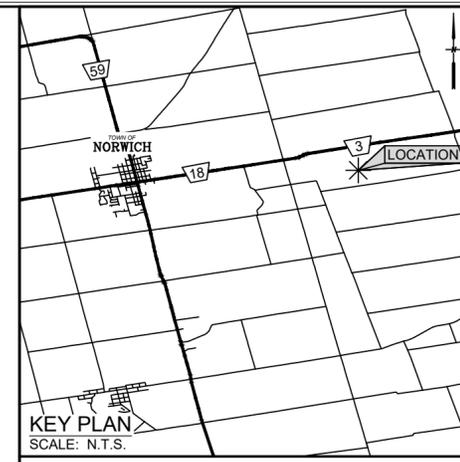
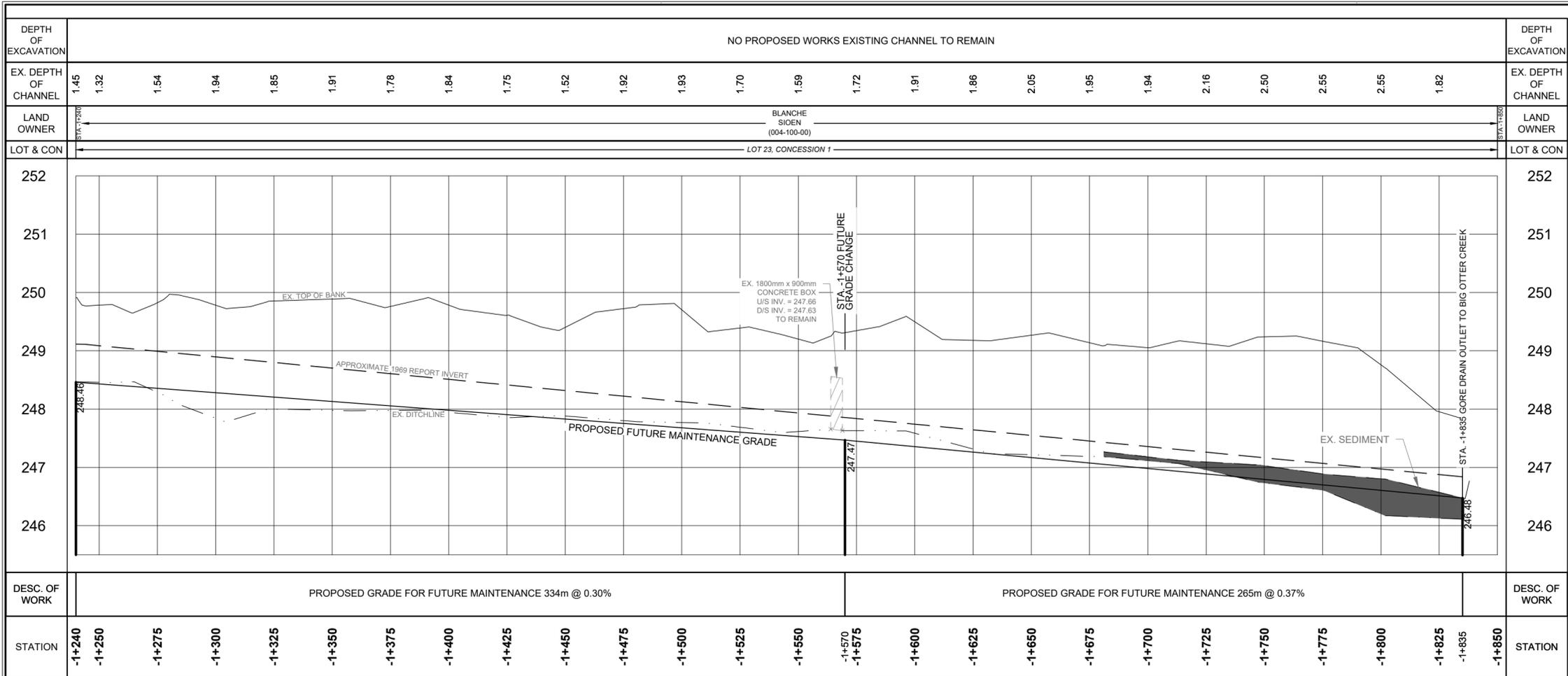
Designed	Checked	Drawn	Checked	Drawing No.
JR	WPM	JR	WPM	01 of 12
Date	Project No.			
23/08/09	300054906.0000			
Scale	0 100 200 400m			
1:7,500				

BENCHMARKS

BENCHMARK #1 NAIL IN EAST FACE OF HYDRO POLE LOCATED ON THE NORTH SIDE OF NORWICH ROAD.	ELEVATION=255.641m
BENCHMARK #2 "X" LOCATED ON THE FIRST RIB ON THE TOP OF THE 600mm CSP CULVERT ON THE NORTH WEST SIDE OF BASE LINE AND NORWICH ROAD INTERSECTION.	ELEVATION=254.014m
BENCHMARK #3 LOCATED ON THE 2nd RIB OF THE 30" CSP MCDOWELL DRAIN OUTLET.	ELEVATION=251.212m
BENCHMARK #4 NAIL IN EAST FACE OF HYDRO POLE, LOCATED ON THE NORTH SIDE OF BURFORD-DELHI TOWNSHIP ROAD.	ELEVATION=250.803m
BENCHMARK #5 "X" MARKED ON CONCRETE BLOCK LOCATED EAST OF THE DRAIN MARKED WITH PINK PAINT.	ELEVATION=248.581m

TILE SIZES

24"/600mmØ CDT	
24"/600mmØ PVC	
24"/600mmØ HDPE	
21"/525mmØ HDPE	
16"/400mmØ CDT	
8"/200mmØ CDT	



LEGEND

- DEPTH OF SEDIMENT
- DEPTH OF EXCAVATION
- EXISTING CULVERT
- PROPOSED SUBSTRATE MATERIAL

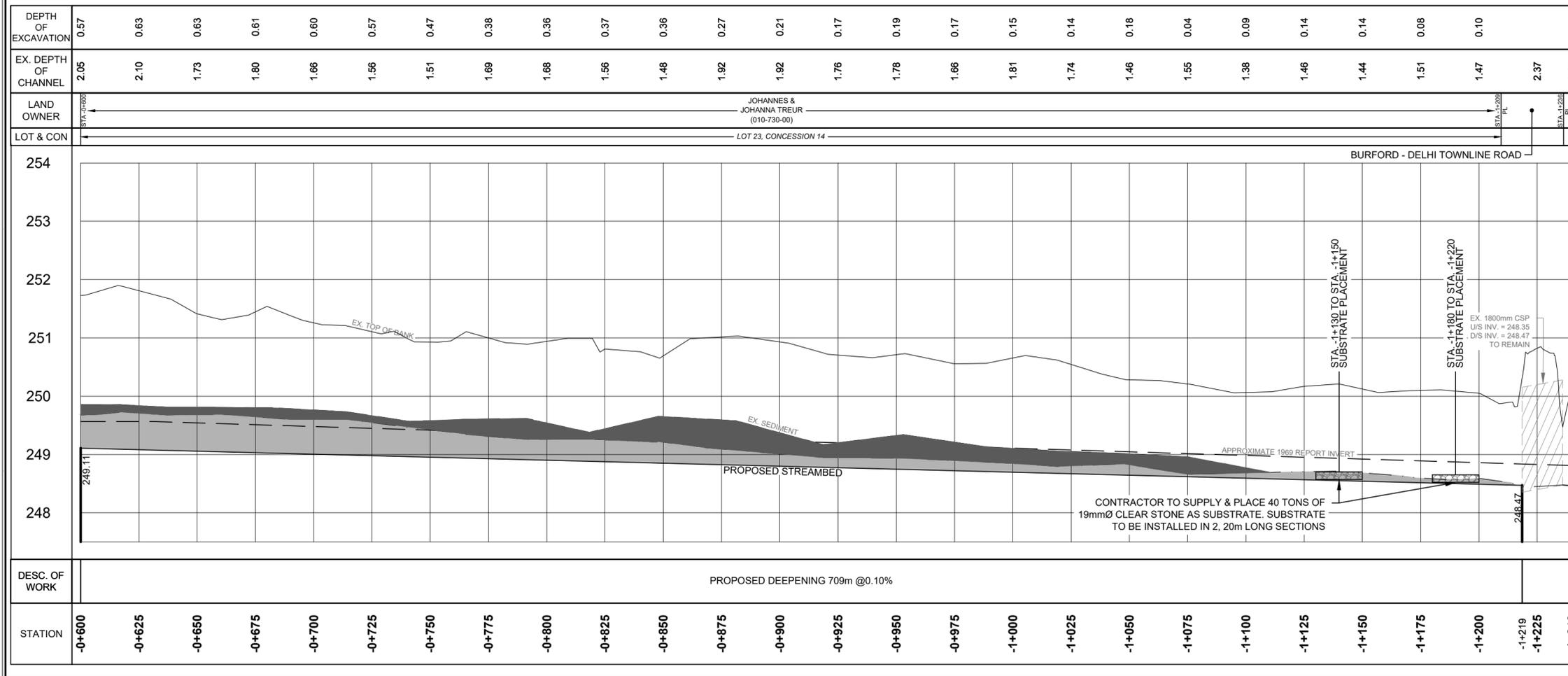
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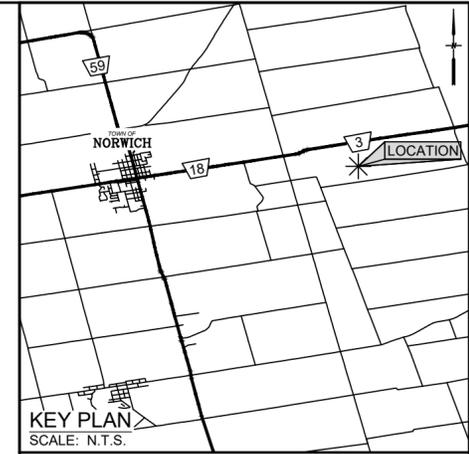
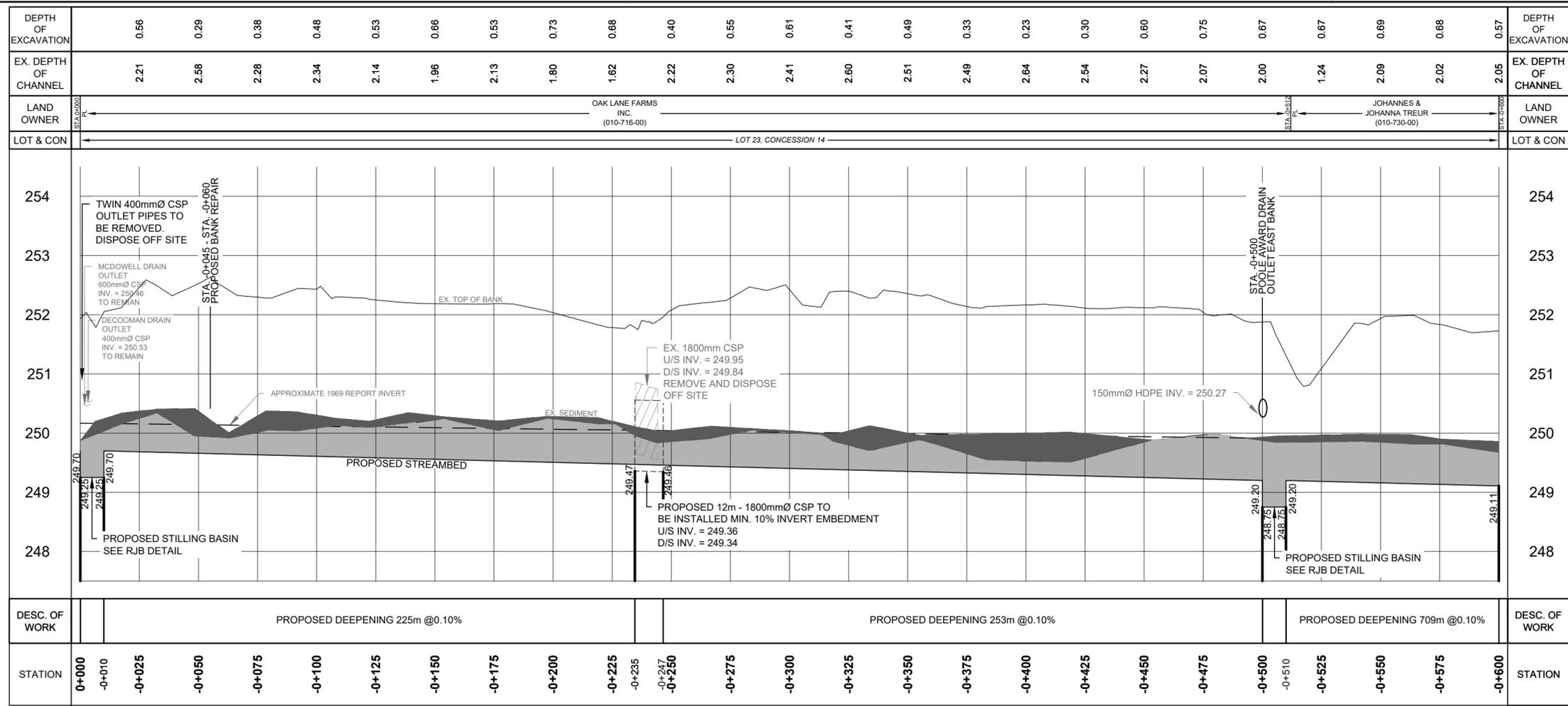
BURNSIDE

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 web www.rjburnside.com

Client
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 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 STA. -1+882 to -0+600

Designed JR	Checked WPM	Drawn AM	Checked JR	Drawing No. 02 of 12
Date 23/08/09	Project No. 300054906.0000			Scale Horizontal 1:1,500 Vertical 1:60



LEGEND

DEPTH OF SEDIMENT	
DEPTH OF EXCAVATION	
EXISTING CULVERT	
PROPOSED SUBSTRATE MATERIAL	

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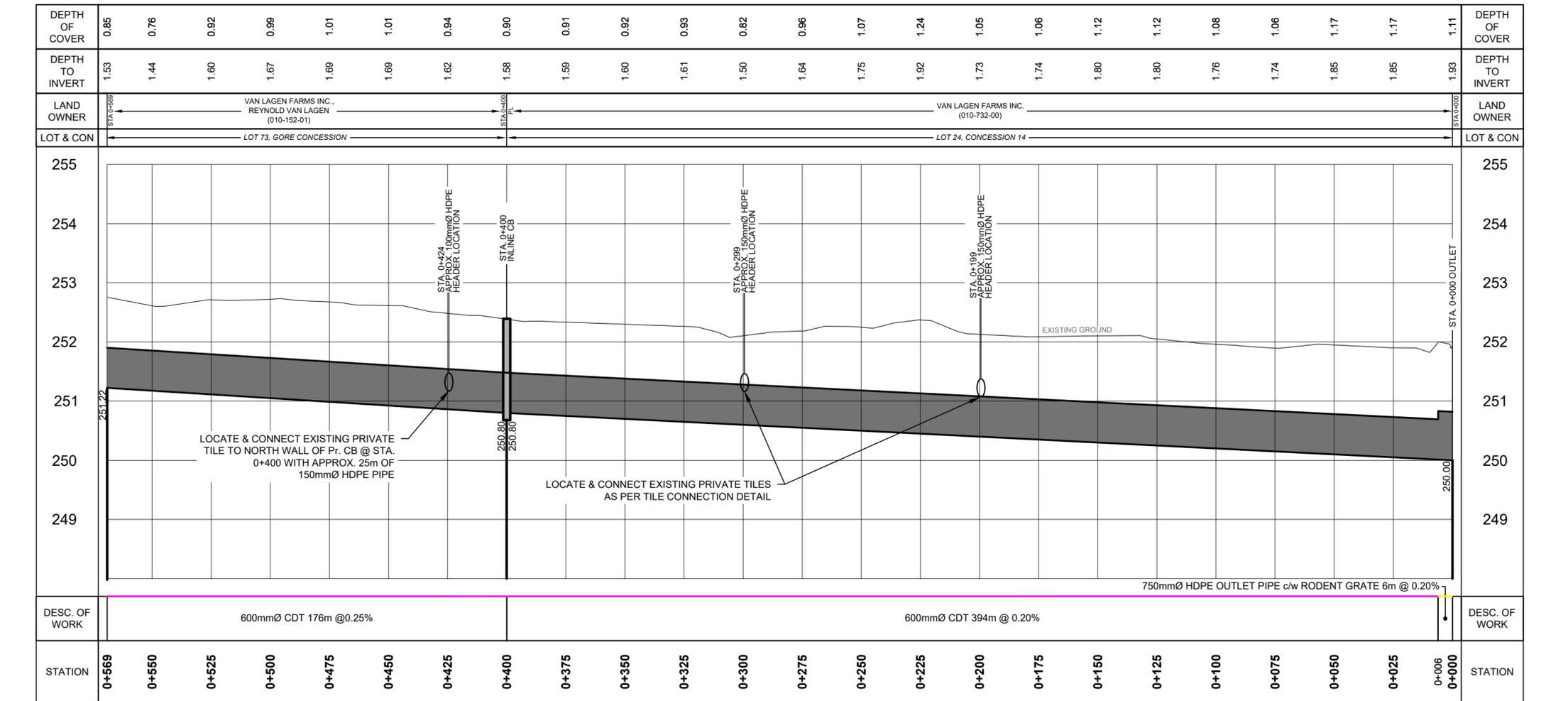
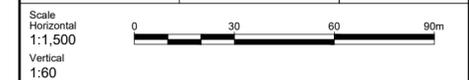
No.	Issue / Revision	Date	Auth.
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 285767 AIRPORT ROAD
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 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 STA. -0+600 to 0+569

Designed JR	Checked WPM	Drawn AM	Checked WPM	Drawing No. 03 of 12
Date 23/08/09	Project No. 300054906.0000			



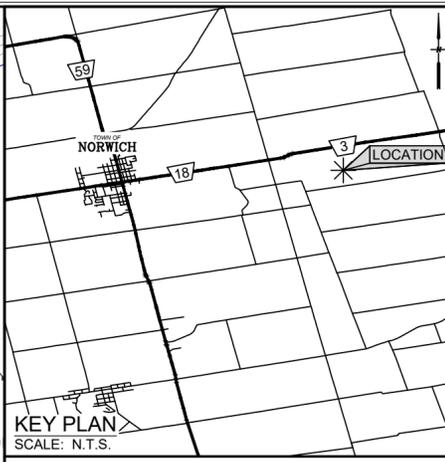
File: \\sherlock\Shared\Work Areas\054906\Gore MD\03_Production\DWG\054906 - PLAN AND PROFILE.dwg Date Plotted: May 28, 2024 - 9:29 AM

NOTE:
 • EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.

RYKSEN FARMS
(010-196-00)

HOWARD & HEATHER STRATFORD
(010-196-00)

VAN LAGEN FARMS INC.
(010-152-01)



LEGEND

DRAIN LOCATION & DIRECTION
 OPEN DRAIN (solid line with arrow)
 CLOSED DRAIN (dashed line with arrow)

BENCHMARK NUMBER (circle with crosshair)
 BENCHMARK LOCATION (circle with crosshair and 'BM # ?')

PROPOSED STRUCTURE (solid black rectangle)
 TREE LINE (wavy line)
 DECIDUOUS TREE (circle with crosshair)
 CONIFEROUS TREE (starburst symbol)
 PROPOSED 45° ELBOW (curved arrow)

ROLL NUMBER (010-152-01)

Notes

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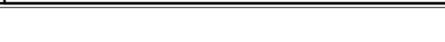
Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT

STA. 0+569 to 0+780

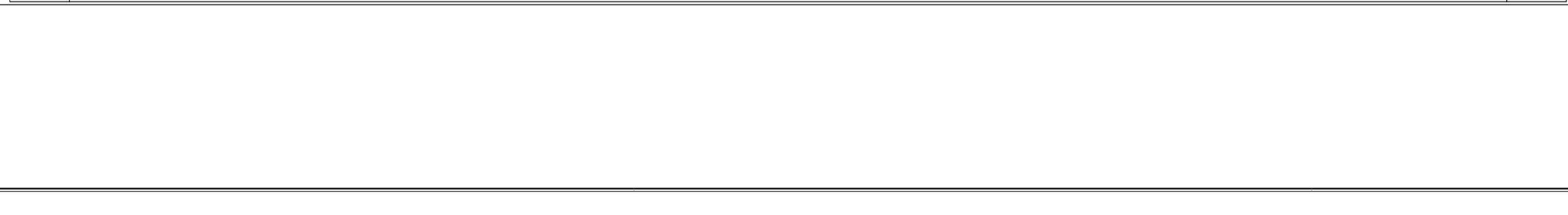
Designed	Checked	Drawn	Checked	Drawing No.
JR	WPM	AM	WPM	04 of 12

Date	Project No.
23/08/09	300054906.0000

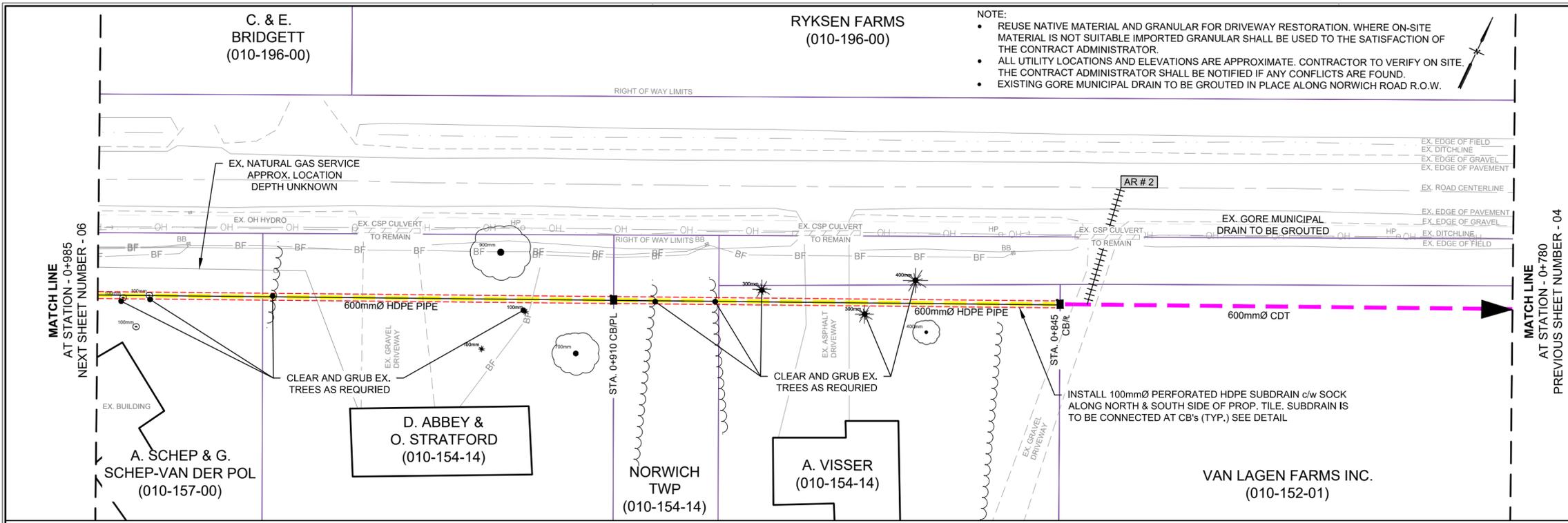


MATCH LINE
 AT STATION - 0+780
 NEXT SHEET NUMBER - 05

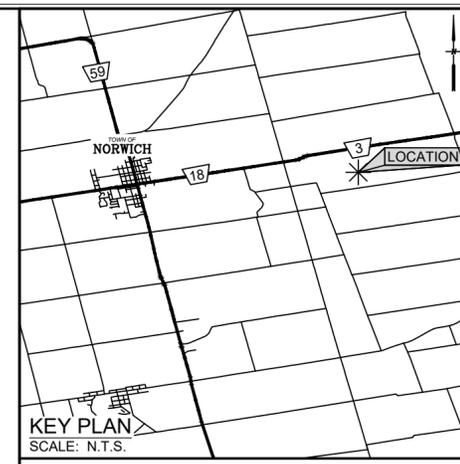
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DEPTH TO INVERT	1.68	1.68	1.67	1.67	1.66	1.64	1.63	1.65	1.66	1.66	1.64	1.63	1.61	1.60	1.58	1.58	1.58	1.57	1.56	1.55	1.54	1.53	1.57	1.63	1.64	1.62	1.60	1.59	1.57	1.50	1.48	1.49	1.50	1.51	1.52	1.52	1.53	1.56	1.58	1.57	1.54
LAND OWNER	VAN LAGEN FARMS INC., REYNOLD VAN LAGEN (010-152-01)																																								
LOT & CON	LOT 73, GORE CONCESSION																																								
255																																							255		
254	EX. NORWICH ROAD CENTERLINE																																						254		
253	EX. GROUND																																						253		
252	EX. NORWICH ROAD DITCH LINE																																						252		
251	APPROXIMATE 1917 REPORT INVERT																																						251		
DESC. OF WORK	600mmØ CDT 246m @0.25%																																						DESC. OF WORK		
STATION	0+780	0+760	0+740	0+720	0+700	0+680	0+660	0+640	0+620	0+600	0+593	0+582	0+580	0+576	0+569	STATION																									



File: \\sherlock\shared\work\area\054906 - Gore MD\03_Production\DWG\054906 - PLAN AND PROFILE.dwg Date Plotted: May 28, 2024 - 9:29 AM



- NOTE:
- REUSE NATIVE MATERIAL AND GRANULAR FOR DRIVEWAY RESTORATION. WHERE ON-SITE MATERIAL IS NOT SUITABLE IMPORTED GRANULAR SHALL BE USED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
 - ALL UTILITY LOCATIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY ON SITE. THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED IF ANY CONFLICTS ARE FOUND.
 - EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.



LEGEND

DRAIN LOCATION & DIRECTION: OPEN DRAIN (solid line with arrow), CLOSED DRAIN (dashed line with arrow)

BENCHMARK NUMBER: BM # ?

BENCHMARK LOCATION: (circle with crosshair)

DESC. (Description): (square)

PROPOSED STRUCTURE: (square)

TREE LINE: (wavy line)

DECIDUOUS TREE: (circle with horizontal lines)

CONIFEROUS TREE: (circle with vertical lines)

PROPOSED 45° ELBOW: (L-shaped symbol)

ROLL NUMBER: (010-152-01)

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 Number: 100179975
 Category: CIVIL
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01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

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Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT

STA. 0+780 TO 0+985

Designed JR	Checked WPM	Drawn AM	Checked WPM	Drawing No. 05 of 12
Date 23/08/09	Project No. 300054906.0000			

Scale
 Horizontal: 1:500
 Vertical: 1:50

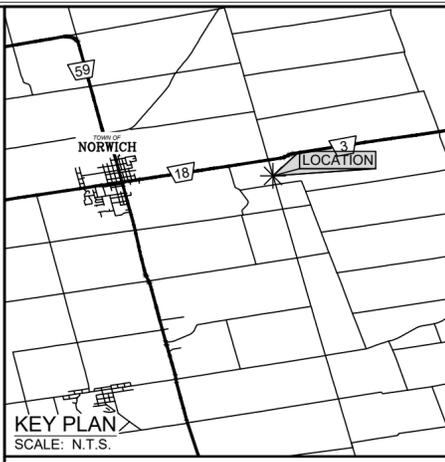
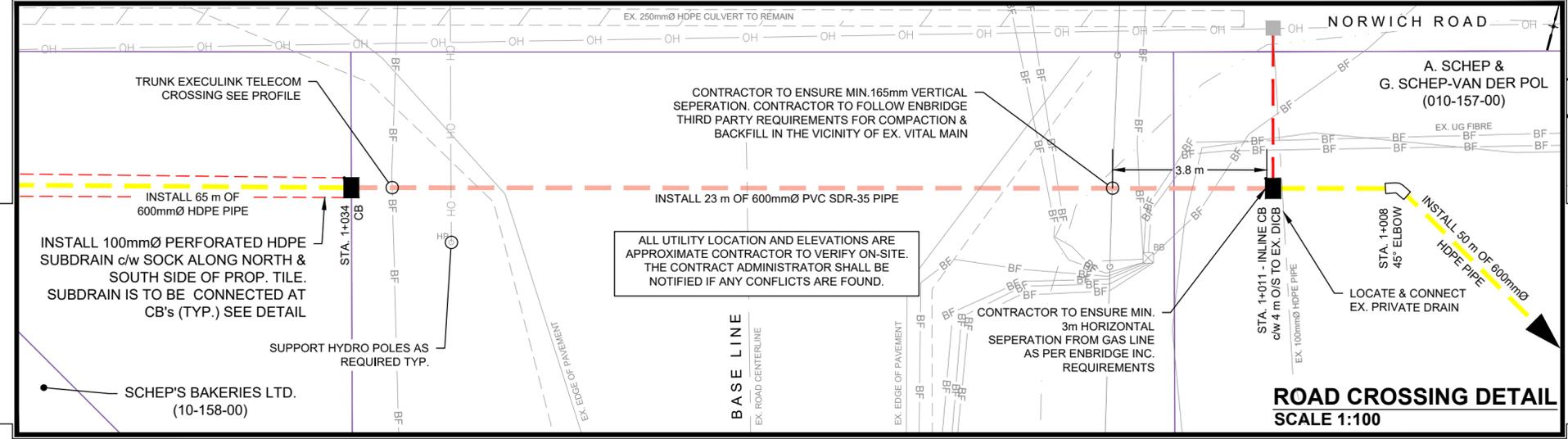
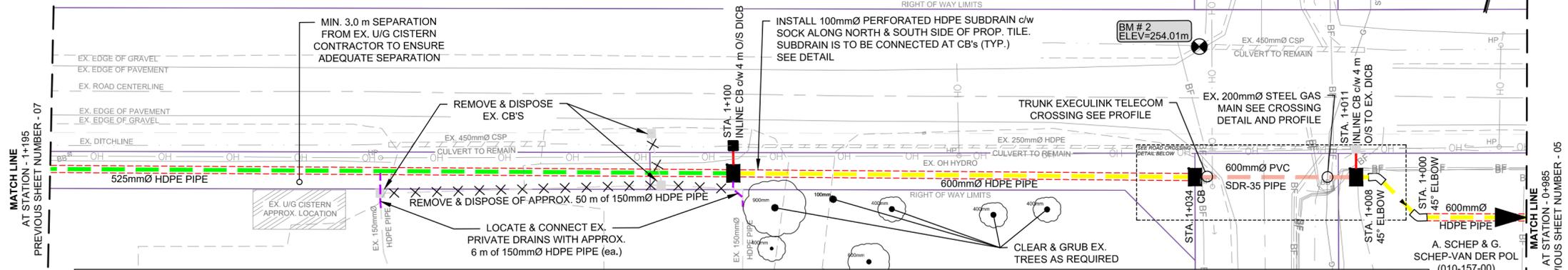
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DEPTH TO INVERT	2.98	2.52	2.39	2.14	1.95	2.00	2.11	2.22	2.27	2.35	2.24	2.27	2.29	2.23	2.15	2.01	1.75	1.88	1.99	2.02	1.92	1.92	1.98	1.86	1.77	1.71	1.66	1.65	1.70	1.77	1.75	1.72	1.70	1.66	1.63	1.63	1.65	1.66	1.66	1.67	1.67	DEPTH TO INVERT									
LAND OWNER	ARIE SCHEP & GEERTJE SCHEP-VAN DER POL (010-157-00)										DYLON ABBEY & OLIVIA STRATFORD (010-156-00)										NORWICH TOWNSHIP (010-155-00)										ALBERT VISSER (010-154-14)										VAN LAGEN FARMS INC., REYNOLD VAN LAGEN (010-152-01)										LAND OWNER
LOT & CON	LOT 71, GORE CONCESSION										LOT 72, GORE CONCESSION										LOT 73, GORE CONCESSION										LOT 74, GORE CONCESSION										LOT & CON										
256																																									256										
255																																									255										
254																																									254										
253																																									253										
252																																									252										
DESC. OF WORK	600mmØ HDPE PIPE 101m @ 0.10%																				600mmØ HDPE PIPE 65m @ 0.10%										600mmØ HDPE PIPE 6m @ 0.25%										600mmØ CDT 246m @ 0.25%										DESC. OF WORK
STATION	0+985		0+980		0+960		0+940		0+920		0+910		0+900		0+880		0+860		0+845		0+840		0+839		0+820		0+800		0+780														STATION								

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- ALL PROPOSED CB LEADS TO BE 300mmØ HDPE PIPE @ 2.0% UNLESS OTHERWISE SPECIFIED.
- BASE LINE RESTORATION IS TO BE AS PER OXFORD COUNTY ENGINEERING STANDARDS SEE NOTES FOR PROPOSED PAVEMENT AND GRANULAR STRUCTURE.
- REUSE NATIVE MATERIAL AND GRANULAR FOR DRIVEWAY RESTORATION. WHERE ON-SITE MATERIAL IS NOT SUITABLE IMPORTED GRANULAR SHALL BE USED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.

CORWIC FARMS LIMITED
(010-197-00)

C. & E. BRIDGETT
(010-196-00)



LEGEND

DRAIN LOCATION & DIRECTION	OPEN DRAIN
	CLOSED DRAIN
BENCHMARK NUMBER	BENCHMARK LOCATION
	DESC.
PROPOSED STRUCTURE	
TREE LINE	
DECIDUOUS TREE	
CONIFEROUS TREE	
PROPOSED 45° ELBOW	
ROLL NUMBER	(010-157-00)

NOT FOR CONSTRUCTION

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 4. All property lines are approximate and for information purposes only.

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 Name: W. P. MACINTYRE
 Number: 100179975
 Category: CIVIL
 Limitations: *Paul M. Inters*
 This license is subject to the limitations as detailed on the certificate.
 Association of Professional Engineers of Ontario

DEPTH OF COVER	0.99	1.00	1.01	1.01	1.01	1.02	0.98	0.93	0.88	0.91	1.05	1.12	1.12	1.08	1.05	1.07	1.07	1.08	1.07	1.06	1.13	1.27	1.34	1.40	1.44	1.33	1.22	1.16	1.23	1.31	1.36	1.45	1.48	1.56	1.64	1.62	0.87	1.26	1.52	1.83	1.83	1.90	DEPTH OF COVER								
DEPTH TO INVERT	1.57	1.58	1.59	1.59	1.59	1.60	1.56	1.51	1.46	1.49	1.63	1.70	1.70	1.66	1.63	1.65	1.65	1.66	1.65	1.72	1.79	1.93	2.00	2.06	2.10	1.99	1.88	1.82	1.89	1.97	2.02	2.11	2.14	2.18	2.26	2.24	1.49	1.92	2.18	2.49	2.49	2.56	DEPTH TO INVERT								
LAND OWNER	NORWICH ROAD ROW																				BASE LINE ROW										ARIE SCHEP & GEERTJE SCHEP-VAN DER POL (010-157-00)										LAND OWNER										
LOT & CON	LOT 1, CONCESSION 5																				LOT 71, GORE CONCESSION										LOT 71, GORE CONCESSION										LOT & CON										
DESC. OF WORK	525mmØ HDPE PIPE 100m @0.10%																				600mmØ HDPE PIPE 66m @0.10%										600mmØ PVC SDR-35 PIPE 23m @0.10%										600mmØ HDPE PIPE 101m @0.10%										DESC. OF WORK
STATION	1+195	1+180	1+160	1+140	1+120	1+100	1+080	1+060	1+040	1+034	1+020	1+011	1+000	0+985	1+195	1+180	1+160	1+140	1+120	1+100	1+080	1+060	1+040	1+034	1+020	1+011	1+000	0+985	1+195	1+180	1+160	1+140	1+120	1+100	1+080	1+060	1+040	1+034	1+020	1+011	1+000	0+985	STATION								

No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

BURNSIDE
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 web www.rjburnside.com

Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 STA. 0+985 to 1+195

Designed JR	Checked WPM	Drawn AM	Checked WPM	Drawing No. 06 of 12
Date 23/08/09	Project No. 300054906.0000			
Scale Horizontal 1:500	0 5.0 10.0 20.0 30.0m			
Vertical 1:50	0 1.0 2.0 3.0m			

- NOTE:
- ALL PROPOSED CB LEADS TO BE 300mmØ HDPE PIPE @ 2.0% UNLESS OTHERWISE SPECIFIED.
 - REUSE NATIVE MATERIAL AND GRANULAR FOR DRIVEWAY RESTORATION, WHERE ON-SITE MATERIAL IS NOT SUITABLE IMPORTED GRANULAR SHALL BE USED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
 - EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.

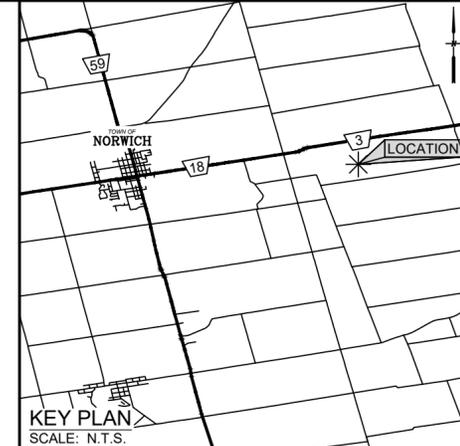
CORWIC FARMS LIMITED
(010-199-00)

INSURVEST HOLDINGS LTD.
(10-158-00)

INSTALL 100mmØ PERFORATED HDPE SUBDRAIN c/w SOCK ALONG NORTH & SOUTH SIDE OF PROP. TILE. SUBDRAIN IS TO BE CONNECTED AT CB'S (TYP.) SEE DETAIL

MATCH LINE
AT STATION - 1+405
PREVIOUS SHEET NUMBER - 08

MATCH LINE
AT STATION - 1+195
PREVIOUS SHEET NUMBER - 06



LEGEND

DRAIN LOCATION & DIRECTION: OPEN DRAIN (arrow), CLOSED DRAIN (dashed line)

BENCHMARK NUMBER: BM # ?

BENCHMARK LOCATION: (circle with crosshair)

PROPOSED STRUCTURE: (square)

TREE LINE: (wavy line)

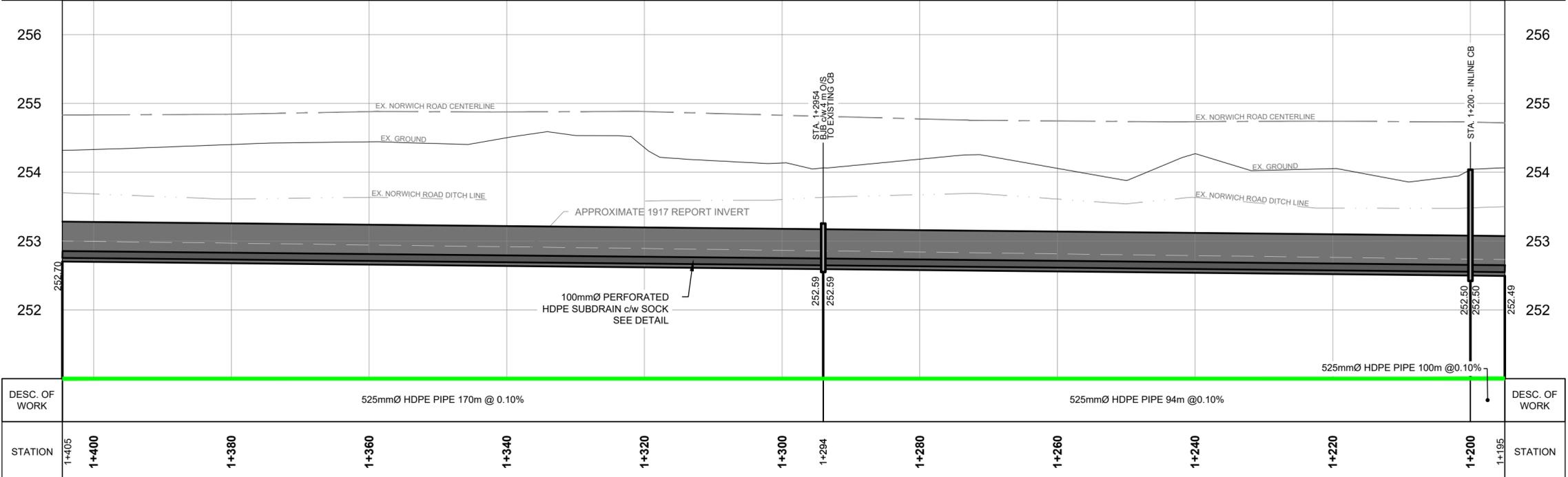
DECIDUOUS TREE: (circle with dot)

CONIFEROUS TREE: (starburst)

PROPOSED 45° ELBOW: (L-shaped symbol)

ROLL NUMBER: (101-158-00)

DEPTH OF COVER	1.05	1.07	1.10	1.12	1.15	1.17	1.18	1.19	1.20	1.20	1.19	1.19	1.28	1.36	1.33	1.33	1.16	1.00	0.98	0.96	0.96	0.88	0.93	0.98	1.03	1.09	1.09	1.00	0.92	0.83	0.75	0.96	1.15	1.01	0.92	0.94	0.95	0.88	0.79	0.82	0.96	DEPTH OF COVER	
DEPTH TO INVERT	1.63	1.65	1.68	1.70	1.73	1.75	1.76	1.77	1.78	1.78	1.77	1.77	1.86	1.94	1.91	1.91	1.74	1.58	1.56	1.54	1.54	1.46	1.51	1.56	1.61	1.67	1.67	1.58	1.50	1.41	1.33	1.54	1.73	1.59	1.50	1.52	1.53	1.46	1.37	1.40	1.54	DEPTH TO INVERT	
LAND OWNER	NORWICH ROAD ROW																																										LAND OWNER
LOT & CON	LOT 1, CONCESSION 5																																										LOT & CON



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Name: W. P. MACINTYRE
Number: 100179975
Category: CIVIL
Limitations: *Task M Interests*
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Association of Professional Engineers of Ontario

No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

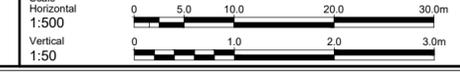
BURNSIDE
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web www.rjburnside.com

Client
TOWNSHIP OF NORWICH
285767 AIRPORT ROAD
NORWICH, ONTARIO
N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT

STA. 1+195 to 1+1405

Designed JR	Checked WPM	Drawn AM	Checked WPM	Drawing No. 07 of 12
Date 23/08/09	Project No. 300054906.0000			



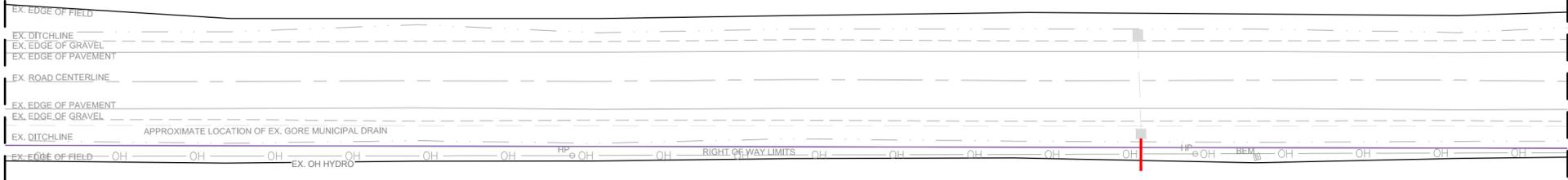
- NOTE:
- ALL PROPOSED CB LEADS TO BE 300mmØ HDPE PIPE @ 2.0% UNLESS OTHERWISE SPECIFIED.
 - EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.

CORWIC FARMS LIMITED
(010-199-00)

RIGHT OF WAY LIMITS

MATCH LINE
AT STATION - 1+806
NEXT SHEET NUMBER - 10

MATCH LINE
AT STATION - 1+615
PREVIOUS SHEET NUMBER - 08



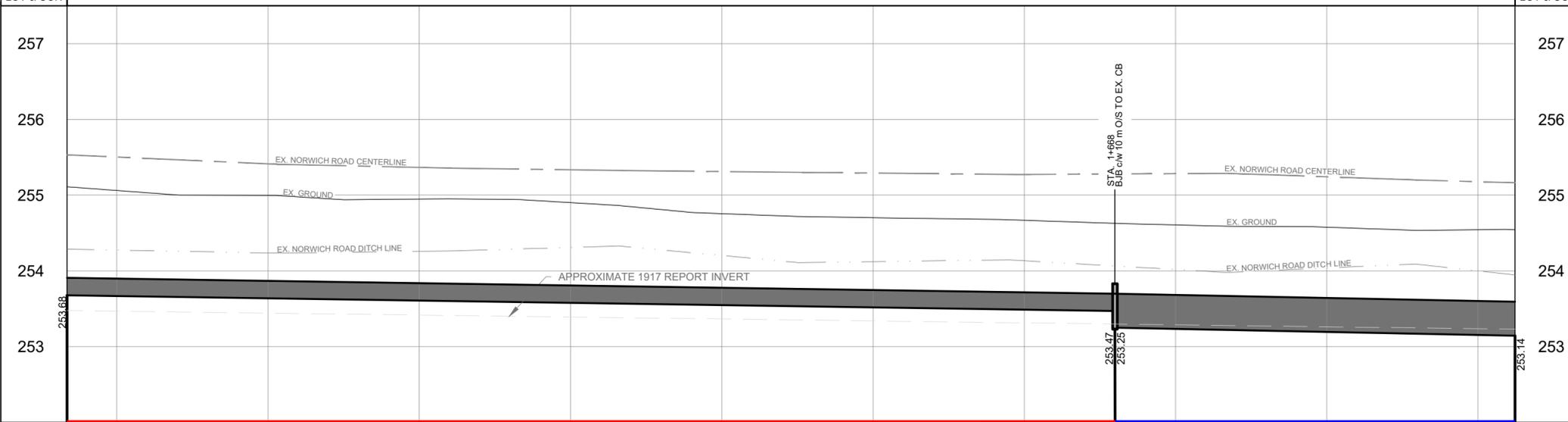
200mmØ CDT

400mmØ CDT

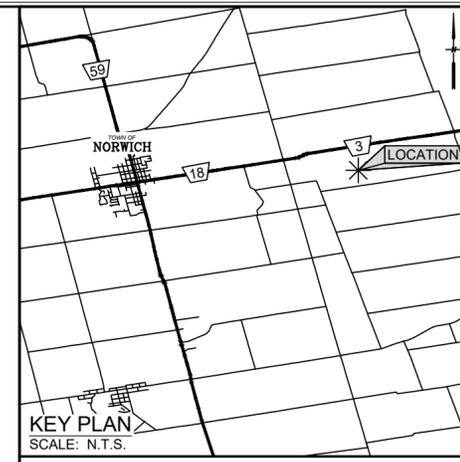
STA. 1+668
B.M. # 10
O/S TO EX. CB

CORWIC FARMS LIMITED
(010-159-00)

DEPTH OF COVER	1.19	1.16	1.13	1.12	1.12	1.13	1.11	1.09	1.10	1.11	1.12	1.12	1.12	1.09	1.07	1.04	1.00	0.98	0.97	0.96	0.96	0.95	0.95	0.96	0.96	0.95	0.94	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.92	0.93	0.93	0.92	0.93	0.94	DEPTH OF COVER
DEPTH TO INVERT	1.42	1.39	1.36	1.35	1.35	1.36	1.34	1.32	1.33	1.34	1.35	1.35	1.35	1.32	1.30	1.27	1.23	1.21	1.20	1.19	1.19	1.18	1.18	1.19	1.19	1.18	1.17	1.16	1.38	1.37	1.37	1.37	1.37	1.38	1.38	1.38	1.38	1.37	1.38	1.39	DEPTH TO INVERT	
LAND OWNER	CORWIC FARMS LIMITED (010-159-00)																																								LAND OWNER	
LOT & CON	LOT 2, CONCESSION 5																																								LOT & CON	



DESC. OF WORK	200mmØ CDT 318m @0.15%																				400mmØ CDT 195m @0.20%										DESC. OF WORK
STATION	1+806	1+800	1+780	1+760	1+740	1+720	1+700	1+680	1+668	1+660	1+640	1+620	1+615	STATION																	



LEGEND

- DRAIN LOCATION & DIRECTION: OPEN DRAIN (solid line with arrow), CLOSED DRAIN (dashed line)
- BENCHMARK NUMBER: BM # ?
- BENCHMARK LOCATION: (circle with crosshair)
- DESC. (Proposed Structure): (square)
- TREE LINE: (wavy line)
- DECIDUOUS TREE: (circle with horizontal lines)
- CONIFEROUS TREE: (starburst)
- PROPOSED 45° ELBOW: (L-shaped symbol)
- ROLL NUMBER: (010-159-00)

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Name: W. P. MACINTYRE
Number: 100179975
Category: Civil
Limitations: *Task M, Intyre*
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No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

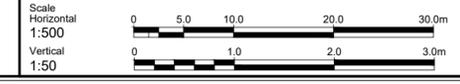
BURNSIDE

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web www.rjburnside.com

Client
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285767 AIRPORT ROAD
NORWICH, ONTARIO
N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
STA. 1+615 to 1+806

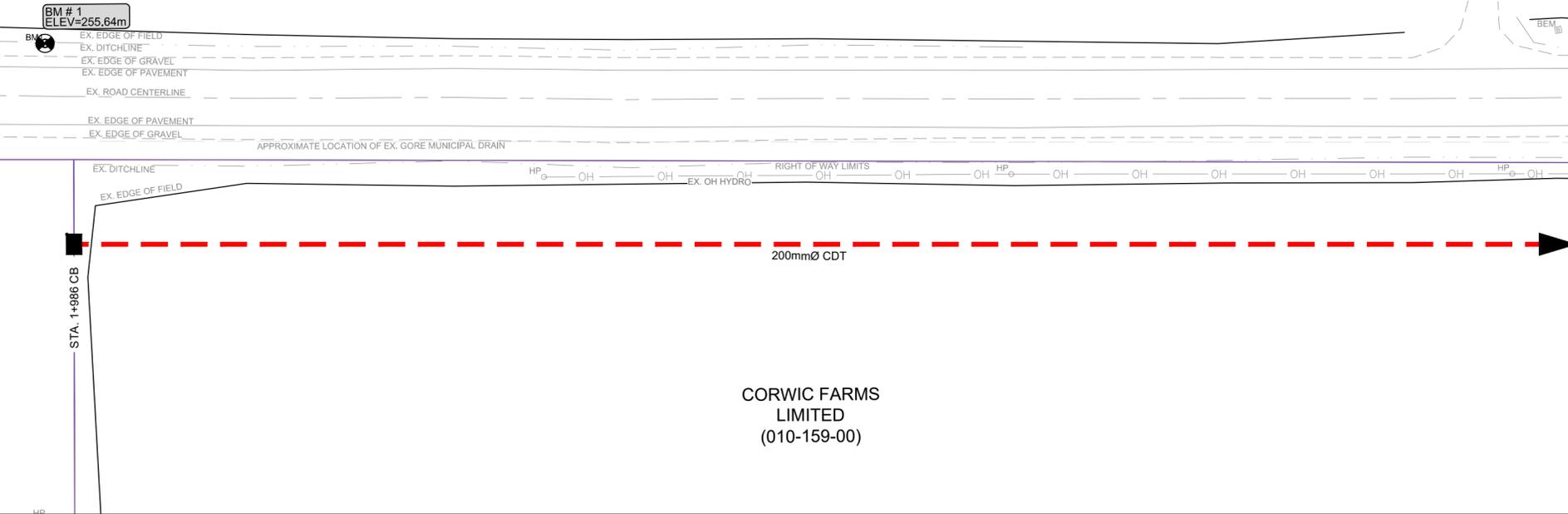
Designed JR	Checked WPM	Drawn AM	Checked WPM	Drawing No. 09 of 12
Date 23/08/09	Project No. 300054906.0000			



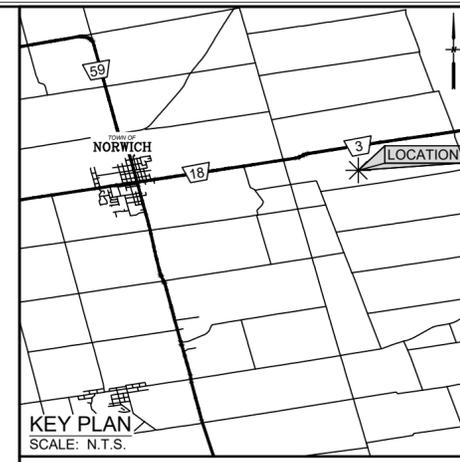
NOTE:
 • EXISTING GORE MUNICIPAL DRAIN TO BE GROUTED IN PLACE ALONG NORWICH ROAD R.O.W.

CORWIC FARMS LIMITED
 (010-199-00)

RIGHT OF WAY LIMITS



MATCH LINE
 AT STATION - 1+806
 PREVIOUS SHEET NUMBER - 09



LEGEND

- DRAIN LOCATION & DIRECTION: OPEN DRAIN (solid line with arrow), CLOSED DRAIN (dashed line)
- BENCHMARK NUMBER: BM # ?
- BENCHMARK LOCATION: (circle with crosshair)
- DESC. (Description): (square)
- PROPOSED STRUCTURE: (square)
- TREE LINE: (wavy line)
- DECIDUOUS TREE: (circle with horizontal lines)
- CONIFEROUS TREE: (starburst)
- PROPOSED 45° ELBOW: (L-shaped line)
- ROLL NUMBER: (1-234)

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 Category: CIVIL
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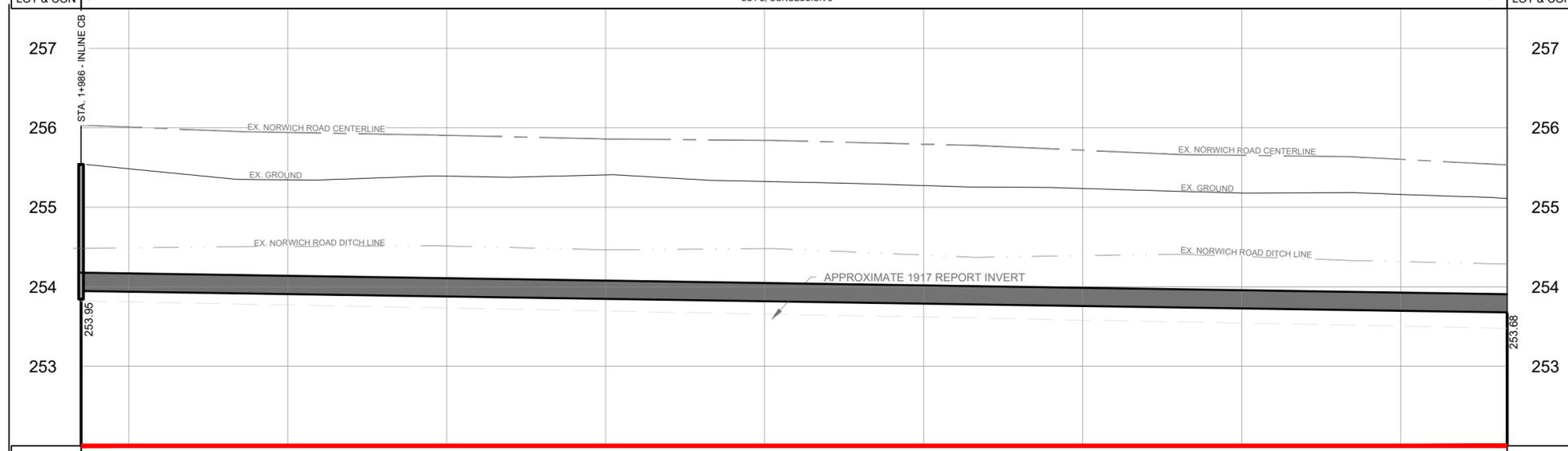
Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 STA. 1+806 to 1+986

Designed	Checked	Drawn	Checked	Drawing No.
JR	WPM	AM	WPM	10 of 12
Date	Project No.			
23/08/09	300054906.0000			

Scale
 Horizontal: 1:500
 Vertical: 1:50

DEPTH OF COVER	1.36	1.32	1.28	1.23	1.20	1.21	1.22	1.24	1.27	1.28	1.28	1.27	1.27	1.26	1.26	1.25	1.25	1.26	1.25	1.24	1.23	1.23	1.22	1.23	1.24	1.25	1.23	1.23	1.22							
DEPTH TO INVERT	1.59	1.55	1.51	1.46	1.43	1.44	1.45	1.47	1.50	1.51	1.51	1.52	1.54	1.56	1.55	1.52	1.51	1.51	1.50	1.50	1.49	1.49	1.48	1.48	1.49	1.48	1.48	1.47	1.46	1.45	1.46	1.47	1.48	1.46	1.46	1.45
LAND OWNER	CORWIC FARMS LIMITED (010-159-00)																																			
LOT & CON	LOT 2, CONCESSION 5																																			
DESC. OF WORK	200mmØ CDT 318m @0.15%																																			
STATION	1+986	1+980	1+960	1+940	1+920	1+900	1+880	1+860	1+840	1+820	1+806																	1+806								



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- CHANNEL NOTES:**
- ALL CHANNEL WORKS SHALL BE IN ACCORDANCE WITH THE PROVIDED TABLE, PROFILE, AND SPECIFICATIONS.
 - ALL CHANNEL WORKS SHALL CONFORM TO THE GENERAL SPECIFICATIONS.
 - ALL CHANNEL WORKS AND EXCAVATIONS SHALL CONFORM TO THE GOVERNING OPSS AND OPSD.
 - ACCESS TO THE CHANNEL AND WORKING SPACE SHALL BE EXECUTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
 - SPOIL SHALL BE SPREAD ON THE DESIGNATED CHANNEL BANK, A MINIMUM OF 2m FROM THE TOP OF THE BANK, UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE SPECIAL PROVISIONS OR AT THE TIME OF CONSTRUCTION.
 - ALL OUTLET PIPES AFFECTED BY THE EXCAVATION SHALL HAVE RIP-RAP EROSION PROTECTION (MINIMUM 2m²) PLACED BELOW THE OUTLET.
 - ALL OUTLET PIPES DAMAGED DURING THE EXCAVATION SHALL BE REPLACED SECURELY WITH CORRUGATED STEEL PIPE (CSP) OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE TO THE SATISFACTION OF THE ENGINEER.
 - ALL OUTLET PIPES SHALL HAVE A RODENT GRATE.

- PIPE NOTES:**
- ALL PIPE AND PIPE WORKS SHALL CONFORM TO THE GENERAL SPECIFICATIONS.
 - ALL CONCRETE DRAINAGE TILE (CDT) SHALL BE NON-REINFORCED 2000D RATED, OR APPROVED EQUAL.
 - ALL HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE DUAL-WALL, 320 kPa PIPE STIFFNESS, OR APPROVED EQUAL.
 - ALL PVC (POLYVINYL CHLORIDE) SDR (STANDARD DIMENSIONAL RATIO) SHALL BE 35, OR APPROVED EQUAL.
 - ALL CORRUGATED STEEL PIPE (CSP) SHALL BE GALVANIZED AND CONFORM TO THE GENERAL SPECIFICATIONS.
 - ALL OUTLET PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HDPE).
 - HDPE OUTLET PIPES SHALL BE COMPLETE WITH A BELL CONNECTION TO FIT AROUND THE LAST SECTION OF CDT. THIS CONNECTION SHALL BE GEOTEXTILE WRAPPED.
 - ALL OUTLET PIPES SHALL HAVE A RODENT GRATE AND RIP-RAP PROTECTION.

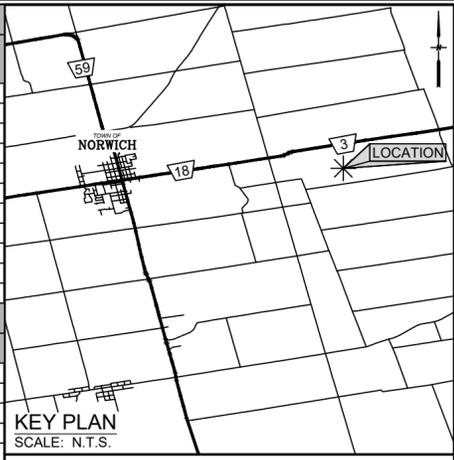
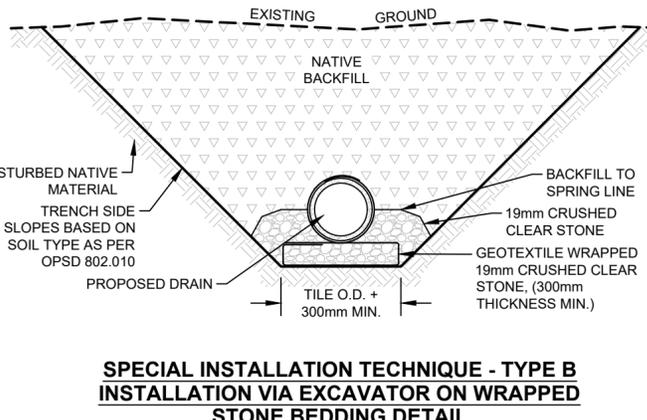
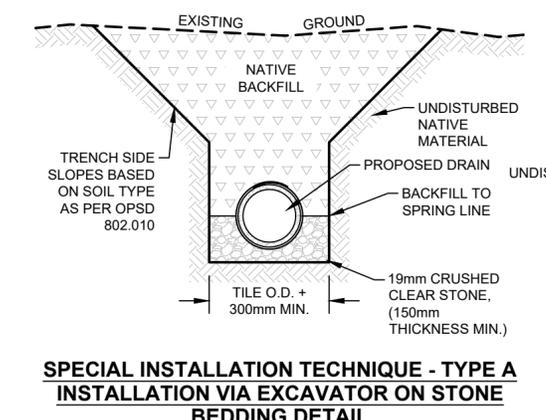
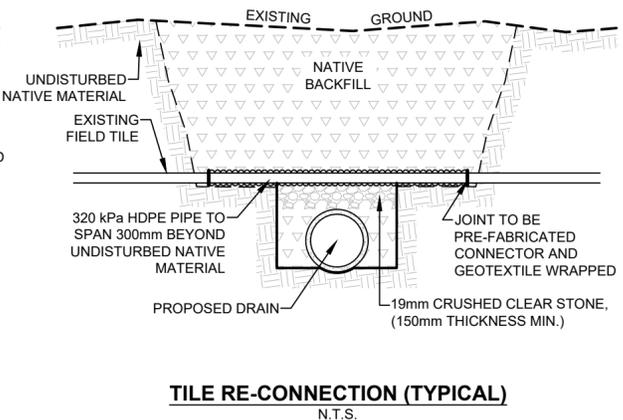
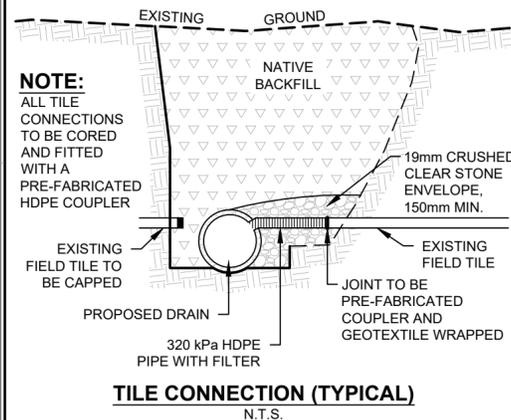
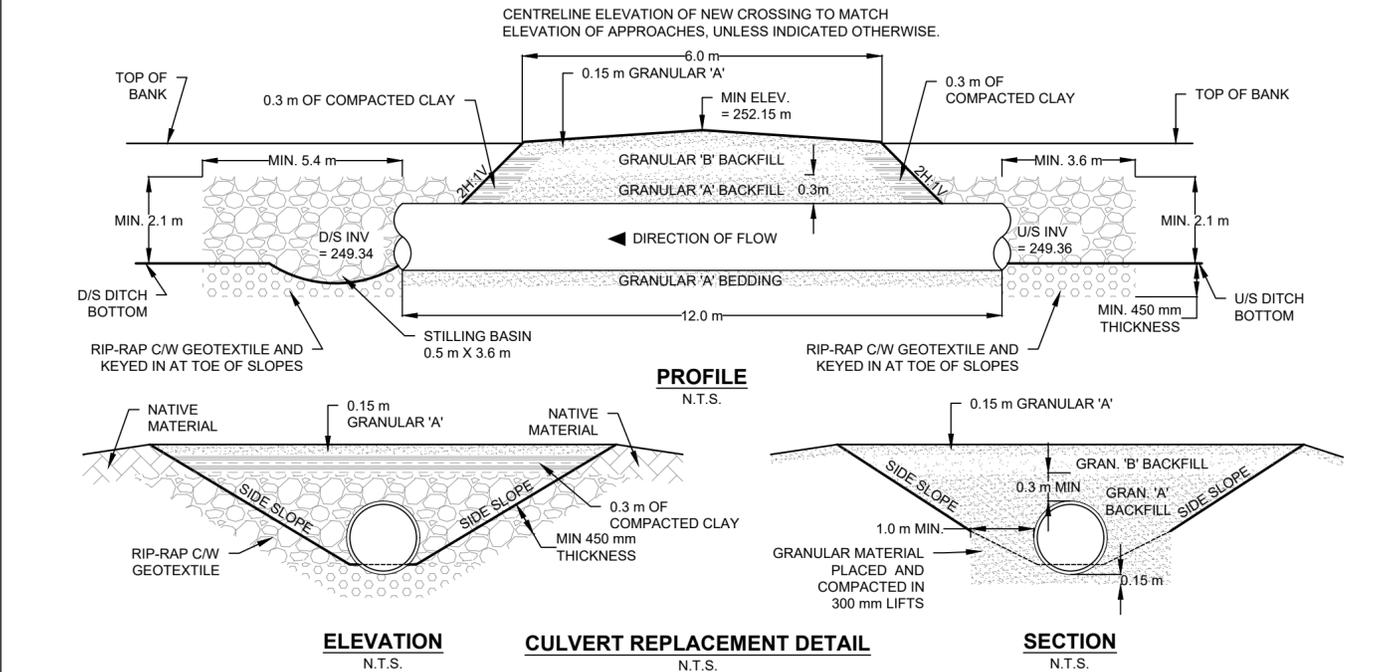
- STRUCTURE NOTES:**
- ANY VARIATION FROM THE ELEVATIONS AND DIMENSIONS OF THESE STRUCTURES MUST BE APPROVED BY THE ENGINEER.
 - STRUCTURES NOT MANUFACTURED AS SPECIFIED MAY BE REJECTED FOR USE AND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - ALL ABOVE GRADE STRUCTURES SHALL HAVE A MINIMUM SUMP OF 300mm UNLESS OTHERWISE NOTED; BURIED STRUCTURES ARE NOT REQUIRED TO BE BENCHED.
 - ALL ABOVE GRADE STRUCTURES SHALL HAVE BIRDCAGE GRATES TO SUIT AND RIP-RAP C/W GEOTEXTILE UNDERLAY FOR ONE METRE AROUND THE STRUCTURE, UNLESS INDICATED OTHERWISE IN THE SPECIAL PROVISIONS.
 - ALL ABOVE GRADE STRUCTURES ARE TO HAVE POSTS AND MARKERS.
 - ALL GRATES AND COVERS SHALL BE FASTENED TO THE STRUCTURE IN AN APPROVED MANNER.
 - ALL STRUCTURES MUST HAVE PLUGGED INLETS IN THE SIDES NOT UTILIZED BY THE MUNICIPAL DRAIN TO ACCOMMODATE A 250mm Ø HDPE PIPE SET 0.10m ABOVE THE OUTLET INVERT, UNLESS OTHERWISE NOTED. ALL PLUGGED INLETS MUST HAVE THEIR LOCATION IDENTIFIED ON THE INSIDE OF THE STRUCTURE.
 - ALL CONNECTIONS TO STRUCTURES MUST BE MADE USING RIGID PIPE WHICH MUST SPAN FROM THE STRUCTURE TO UNDISTURBED NATIVE SOIL.
 - WHERE 900mm X 1200mm STRUCTURES ARE SPECIFIED, THE MUNICIPAL DRAIN INLETS AND OUTLETS SHALL BE INSTALLED IN THE 1200mm WALLS AND THE PLUGGED INLETS SHALL BE IN THE 900mm WALLS, UNLESS NOTED OTHERWISE.
 - ALL STRUCTURES SHALL BE CAST WITH A MINIMUM OF A 150mm HIGH RISER SECTION TO ALLOW FOR ADJUSTMENT OF THE TOP ELEVATION TO SUIT FIELD CONDITIONS; ACCORDINGLY NO MONOLITHIC STRUCTURES WILL BE PERMITTED.
 - ALL 600mm X 600mm DICB TO HAVE A 2:1 SLOPE AND ALL 900mm X 1200mm DICB TO HAVE A 3:1 SLOPE WITH CORRESPONDING BIRDCAGE GRATES.

- CULVERT NOTES:**
- TO BE INSTALLED ON WELL COMPACTED GRANULAR "A" TO FINISHED GRADE AND RIP-RAP AS SHOWN.
 - NO RIP-RAP IS REQUIRED ON VEGETATED DITCH SIDESLOPES THAT ARE UNDISTURBED BY CONSTRUCTION.
 - CULVERTS SHALL BE INSTALLED WITH THE INVERT BURIED AS SPECIFIED IN SPECIAL PROVISIONS.
 - ALL RIP-RAP MUST BE INSTALLED ON APPROVED GEOTEXTILE.
 - ALL RIP-RAP MUST BE 200mm TO 400mm IN SIZE AND 500mm DEEP.
 - ALL SIDE SLOPES FOR CULVERT CROSSINGS SHALL BE 1H:1V FROM LANE/ROAD EDGE TO DITCH BOTTOM.
 - FOR RIP-RAP PROTECTION END TREATMENTS, THE LENGTH OF THE RIP-RAP SHOULD BE EXTENDED THREE (3) TIMES THE DIAMETER OF THE CULVERT ON THE DOWNSTREAM END AND TWO (2) TIMES THE DIAMETER OF THE CULVERT ON THE UPSTREAM END.
 - FOR RIP-RAP PROTECTION END TREATMENTS, THE HEIGHT OF THE RIP-RAP SHALL BE INSTALLED 0.3m ABOVE THE TOP OF THE CULVERT ON THE DOWNSTREAM AND UPSTREAM ENDS.

PIPE TABLE: MAIN DRAIN						
PIPE MATERIAL	JOINING METHOD	DIAMETER (mm)	STATION		APPROX. LENGTH (m)	NOTES
			FROM	TO		
HDPE	BELL & SPIGOT	750	0+000	0+006	6	OUTLET PIPE c/w RODENT GRATE, MIN. 320 kPa STIFFNESS
CONCRETE	GEOTEXTILE WRAPPED	600	0+006	0+576	570	2000D
HDPE	BELL & SPIGOT	600	0+576	0+582	6	MIN. 320 kPa STIFFNESS, c/w 45° ELBOW @ MIDPOINT
CONCRETE	GEOTEXTILE WRAPPED	600	0+582	0+839	257	2000D
HDPE	BELL & SPIGOT	600	0+839	1+011	172	MIN. 320 kPa STIFFNESS, c/w TWO 45° ELBOWS
PVC	BELL & SPIGOT	600	1+011	1+034	23	MIN. SDR-35
HDPE	BELL & SPIGOT	600	1+034	1+100	66	MIN. 320 kPa STIFFNESS
HDPE	BELL & SPIGOT	525	1+100	1+464	364	MIN. 320 kPa STIFFNESS
HDPE	BELL & SPIGOT	450	1+464	1+473	9	MIN. 320 kPa STIFFNESS, c/w TWO 45° ELBOWS
CONCRETE	GEOTEXTILE WRAPPED	400	1+473	1+668	195	2000D
CONCRETE	GEOTEXTILE WRAPPED	200	1+668	1+986	318	2000D

STRUCTURE TABLE: MAIN DRAIN						
STATION	TYPE	SIZE	TOP/ LOW WALL ELEV. (m)	GRATE	NOTES	
0+400	CB	900 mm x 1200 mm	252.35	BIRDCAGE	CONNECT EX. PRIVATE TILE (NORTH WALL)	
0+593	BJB	900 mm x 1200 mm	N/A	N/A	SEE CB DETAILS	
0+593	O/S CB 12m NORTH	900 mm x 1200 mm	252.50	BIRDCAGE	CONNECT EX. TILES (NORTH & WEST WALLS), SEE DRAWINGS	
0+845	CB	900 mm x 1200 mm	253.60	BIRDCAGE	CONNECT SUBDRAINS AS PER DETAIL	
0+910	CB	900 mm x 1200 mm	254.00	BIRDCAGE	CONNECT SUBDRAINS AS PER DETAIL	
1+011	CB	900 mm x 1200 mm	254.00	BIRDCAGE	CONNECT EX. DICB (NORTH WALL), CONNECT EX. PRIVATE TILE (SOUTH WALL), SEE DRAWINGS	
1+034	CB	900 mm x 1200 mm	254.40	BIRDCAGE	CONNECT SUBDRAINS AS PER DETAIL	
1+100	CB	900 mm x 1200 mm	254.00	BIRDCAGE	CONNECT SUBDRAINS AS PER DETAIL. CONNECT EX. PRIVATE TILE (SOUTH WALL)	
1+100	O/S DICB 4 m NORTH	600 mm x 600 mm	253.50	BIRDCAGE	SEE CB DETAILS	
1+200	CB	900 mm x 1200 mm	254.00	BIRDCAGE	CONNECT SUBDRAINS AS PER DETAIL. SEE DRAWINGS	
1+294	BJB	900 mm x 1200 mm	N/A	N/A	CONNECT SUBDRAINS AS PER DETAIL. CONNECT EX. DICB (NORTH WALL)	
1+464	CB	900 mm x 1200 mm	254.20	BIRDCAGE	SEE CB DETAILS	
1+668	BJB	600 mm x 600 mm	N/A	N/A	CONNECT EX. DICB (NORTH WALL)	
1+986	CB	600 mm x 600 mm	255.50	BIRDCAGE	SEE CB DETAILS	

CHANNEL TABLE: MAIN DRAIN						
STATION		LENGTH (m)	TYPE	MIN. BOTTOM WIDTH (m)	SIDE SLOPES	NOTES
FROM	TO					
0+000	-0+010	10	TRAPEZODIAL	VARIES	2H:1V	SEE STILLING BASIN DETAIL
-0+010	-0+235	225	TRAPEZODIAL	3.5m	2H:1V	SEE DRAWINGS
-0+235	-0+247	12	CULVERT	N/A	N/A	1800mm CSP, SEE DETAIL
-0+247	-0+500	253	TRAPEZODIAL	3.5m	2H:1V	SEE DRAWINGS
-0+500	-0+510	10	TRAPEZODIAL	VARIES	2H:1V	SEE STILLING BASIN DETAIL
-0+510	-1+219	709	TRAPEZODIAL	2.5	2H:1V	SEE DRAWINGS



BENCHMARKS

BENCHMARK #1 NAIL IN EAST FACE OF HYDRO POLE LOCATED ON THE NORTH SIDE OF NORWICH ROAD.	ELEVATION=255.641m
BENCHMARK #2 X LOCATED ON THE FIRST RIB ON THE TOP OF THE 600mm CSP CULVERT ON THE NORTH WEST SIDE OF BASE LINE AND NORWICH ROAD INTERSECTION.	ELEVATION=254.014m
BENCHMARK #3 LOCATED ON THE 2ND RIB OF THE 30" CSP MCDOWELL DRAIN OUTLET.	ELEVATION=251.212m
BENCHMARK #4 NAIL IN EAST FACE OF HYDRO POLE, LOCATED ON THE NORTH SIDE OF BURFORD-DELHI TOWNSHIP ROAD.	ELEVATION=250.803m
BENCHMARK #5 X MARKED ON CONCRETE BLOCK LOCATED EAST OF THE DRAIN MARKED WITH PINK PAINT.	ELEVATION=248.581m

- Notes
- This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
 - The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 - This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
 - All property lines are approximate and for information purposes only.

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 Name: W. P. MACINTYRE
 Number: 100179975
 Category: CIVIL
 Limitations: *See Limitations*
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 Association of Professional Engineers of Ontario

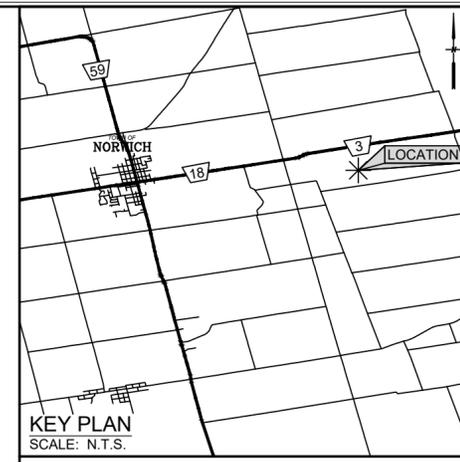
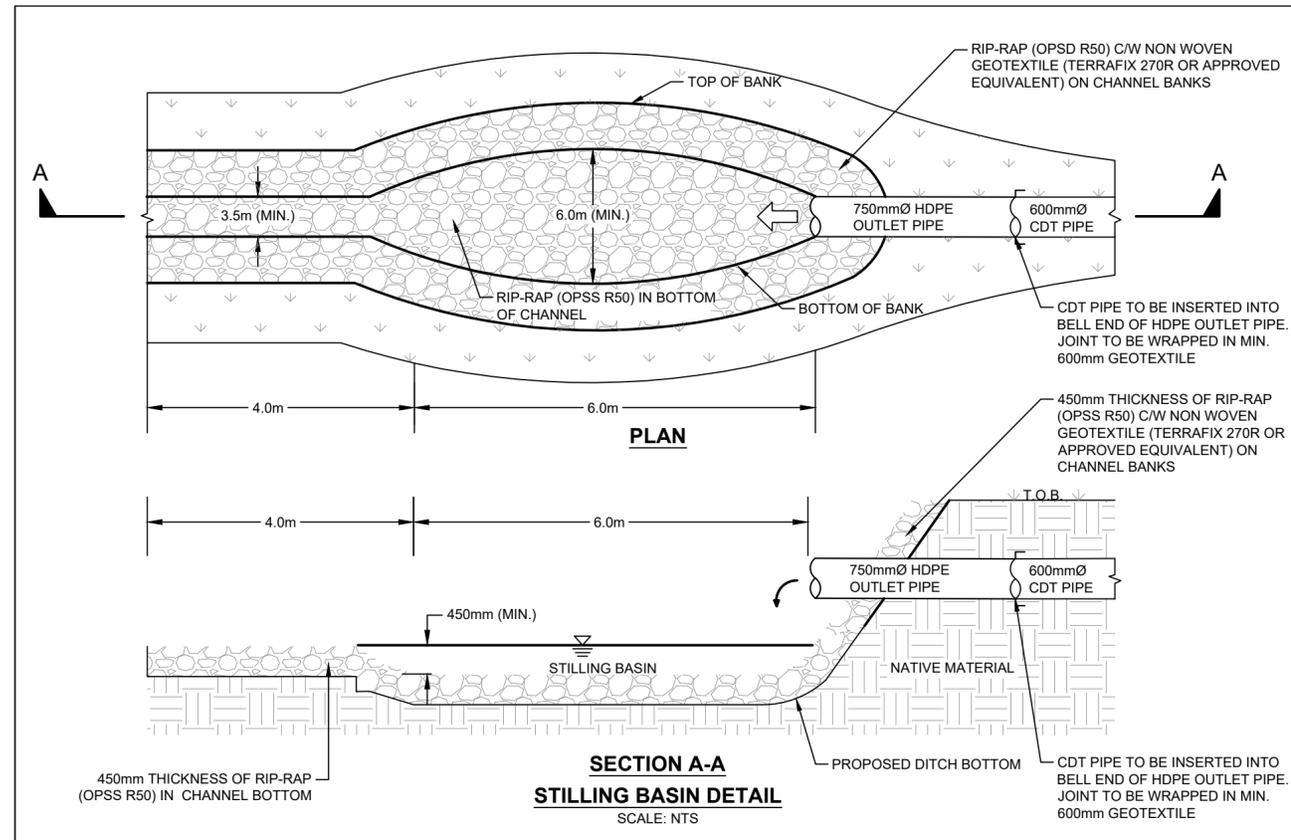
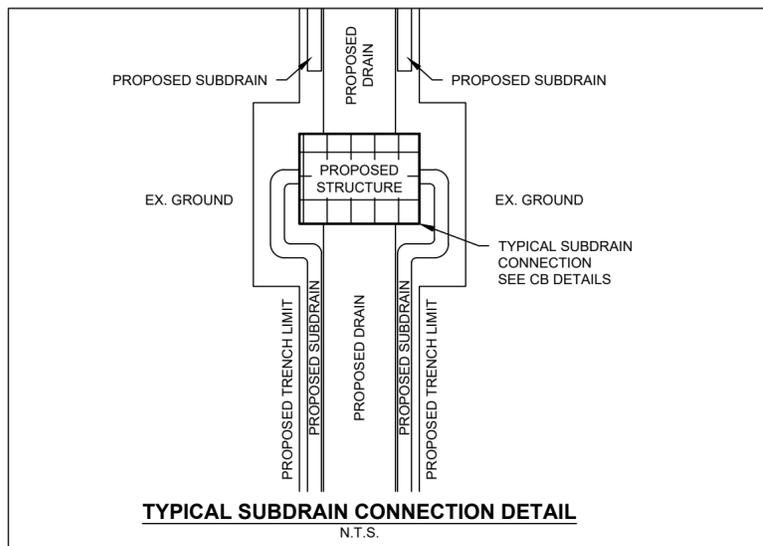
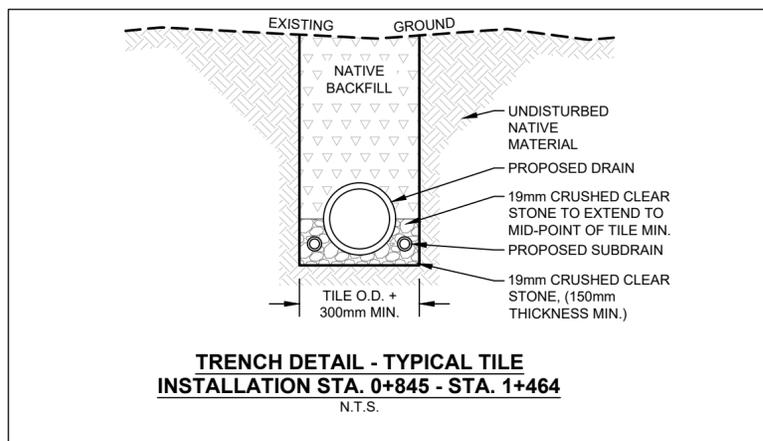
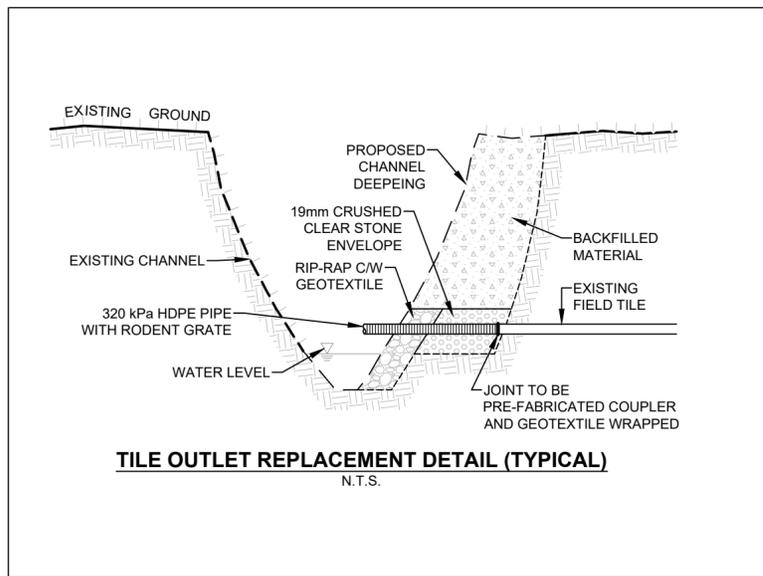
No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

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Client
TOWNSHIP OF NORWICH
 285767 AIRPORT ROAD
 NORWICH, ONTARIO
 N0J 1P0

Drawing Title
GORE MUNICIPAL DRAIN IMPROVEMENT
 NOTES & DETAILS (01 OF 02)

Designed	Checked	Drawn	Checked	Drawing No.
JR	WPM	AM	JR	11 of 12
Date	Project No.			
23/08/09	300054906.0000			
Scale	0 50 100 200 300m			
1:5,000				



BENCHMARKS

BENCHMARK #1 NAIL IN EAST FACE OF HYDRO POLE LOCATED ON THE NORTH SIDE OF NORWICH ROAD.	ELEVATION=255.641m
BENCHMARK #2 *X LOCATED ON THE FIRST RIB ON THE TOP OF THE 600mm CSP CULVERT ON THE NORTH WEST SIDE OF BASE LINE AND NORWICH ROAD INTERSECTION.	ELEVATION=254.014m
BENCHMARK #3 LOCATED ON THE 2nd RIB OF THE 30" CSP MCCOWELL DRAIN OUTLET.	ELEVATION=251.212m
BENCHMARK #4 NAIL IN EAST FACE OF HYDRO POLE, LOCATED ON THE NORTH SIDE OF BURFORD-DELHI TOWNLINER ROAD.	ELEVATION=250.803m
BENCHMARK #5 *X MARKED ON CONCRETE BLOCK LOCATED EAST OF THE DRAIN MARKED WITH PINK PAINT.	ELEVATION=248.581m

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Number: 100179975
Category: Civil
Limitations: *Task M Inters*
This licence is subject to the limitations as detailed on the certificate.
Association of Professional Engineers of Ontario

No.	Issue / Revision	Date	Auth.
01	ISSUED FOR INFORMATION MEETING	2023/08/31	GN
02	ISSUED FOR ENGINEERS REPORT	2024/05/29	WPM

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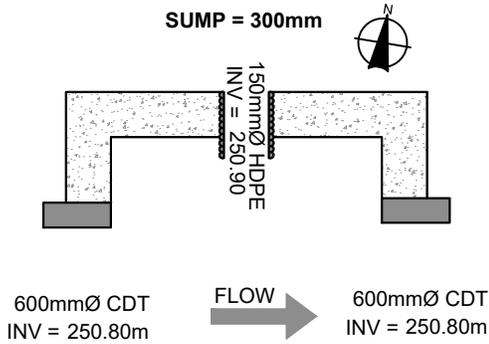
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GORE MUNICIPAL DRAIN IMPROVEMENT

NOTES & DETAILS (02 OF 02)

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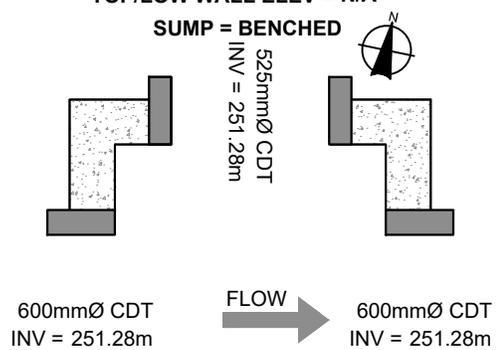
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TOP/LOW WALL ELEV = 252.35m
SUMP = 300mm



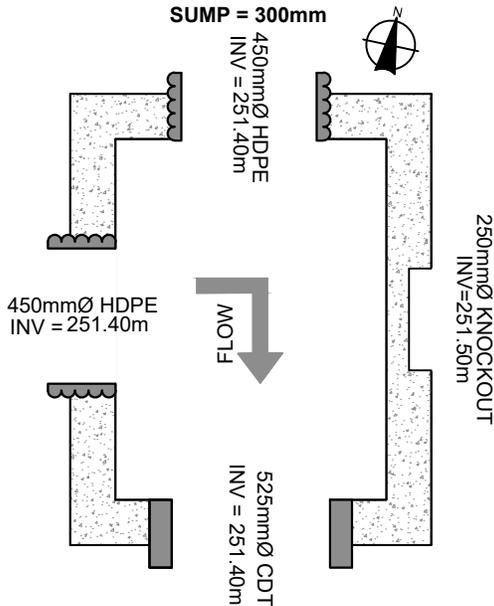
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BJB
1200mmX900mm
TOP/LOW WALL ELEV = N/A
SUMP = BENCHED



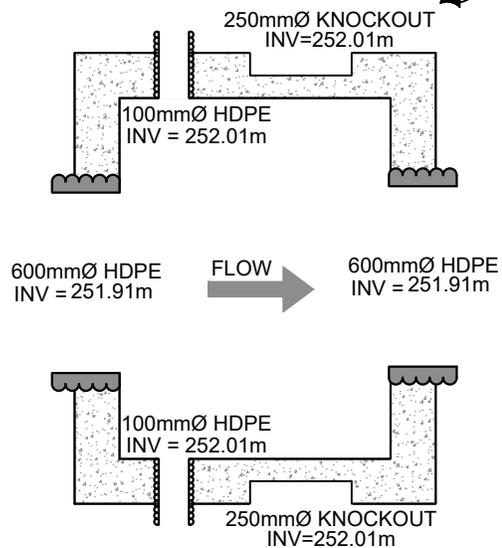
STATION 0+593

O/S CB 12m N
1200mmX900mm
TOP/LOW WALL ELEV = 252.50m
SUMP = 300mm



STATION 0+845

CB
1200mmX900mm
TOP/LOW WALL ELEV = 253.60m
SUMP = 300mm



NOTES:

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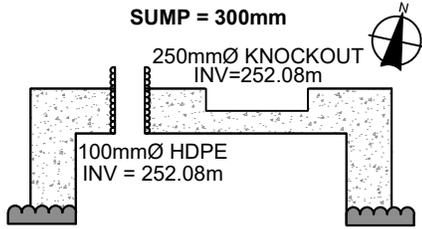
Drawing Title

**GORE MUNICIPAL DRAIN
IMPROVEMENT
CATCH BASIN DETAILS**

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Scale	Project No.		
N.T.S.		300054906.0000	

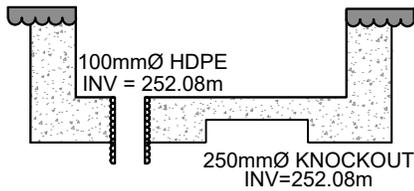
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TOP/LOW WALL ELEV = 254.00m
SUMP = 300mm



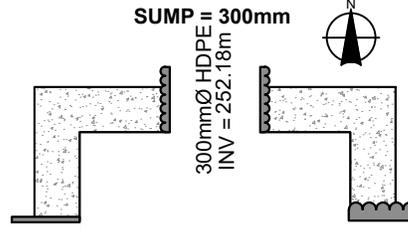
600mmØ HDPE
INV = 251.98m

FLOW → 600mmØ HDPE
INV = 251.98m



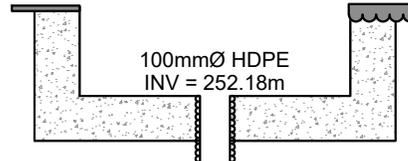
STATION 1+011

CB
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SUMP = 300mm



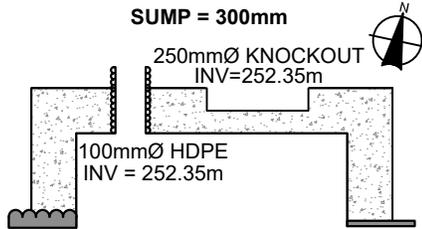
600mmØ PVC
INV = 252.23m

FLOW → 600mmØ HDPE
INV = 252.08m



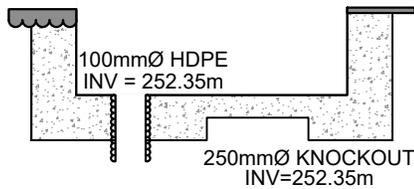
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CB
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TOP/LOW WALL ELEV = 254.40m
SUMP = 300mm



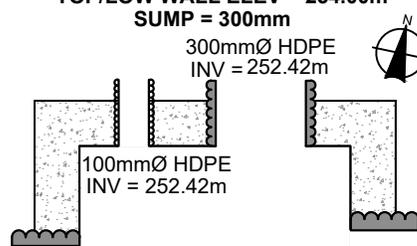
600mmØ HDPE
INV = 252.25m

FLOW → 600mmØ PVC
INV = 252.25m



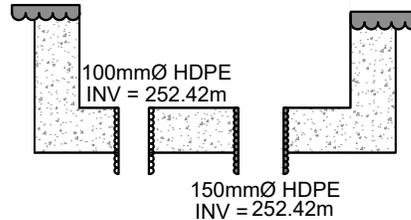
STATION 1+100

CB
1200mmX900mm
TOP/LOW WALL ELEV = 254.00m
SUMP = 300mm



525mmØ HDPE
INV = 252.40m

FLOW → 600mmØ HDPE
INV = 252.32m



NOTES:

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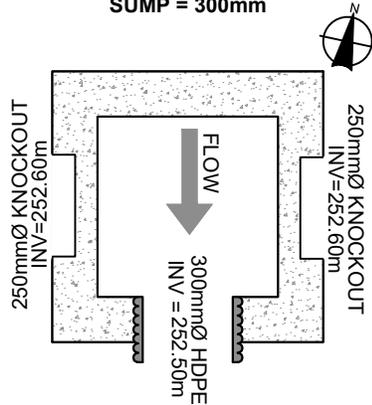
285767 AIRPORT ROAD
NORWICH, ONTARIO
N0J 1P0

Drawing Title

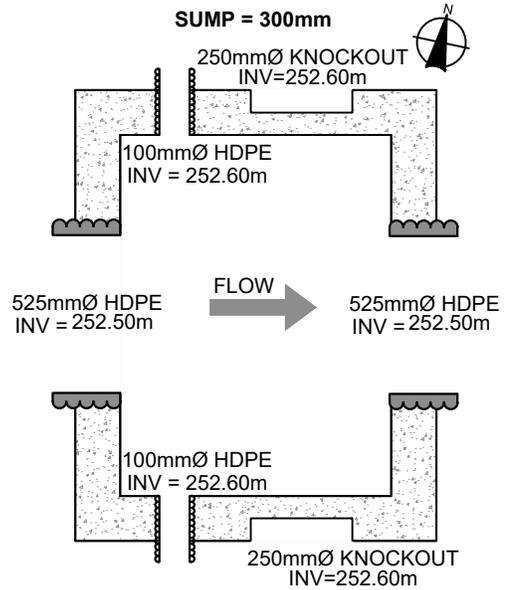
**GORE MUNICIPAL DRAIN
IMPROVEMENT
CATCH BASIN DETAILS**

Drawn	Checked	Date	Drawing No.
JR	WPM	2022/03/18	
Scale	Project No.		2
N.T.S.	300054906.0000		

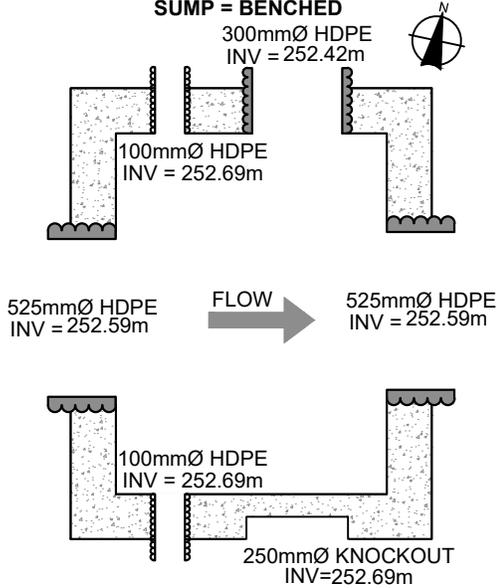
STATION 1+100
 O/S DICB 4m N
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 TOP/LOW WALL ELEV = 253.50m
 SUMP = 300mm



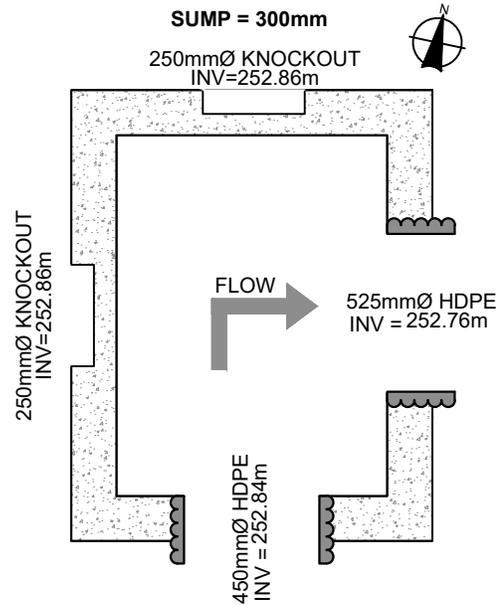
STATION 1+200
 CB
 1200mmX900mm
 TOP/LOW WALL ELEV = 254.00m
 SUMP = 300mm



STATION 1+294
 BJB
 1200mmX900mm
 TOP/LOW WALL ELEV = N/A
 SUMP = BENCHED



STATION 1+464
 CB
 1200mmX900mm
 TOP/LOW WALL ELEV = 254.20m
 SUMP = 300mm



NOTES:

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4. ALL HDPE PIPE SHOWN IS BASED ON DUAL-WALL HDPE (320kPa) PIPE DIMENSIONS.



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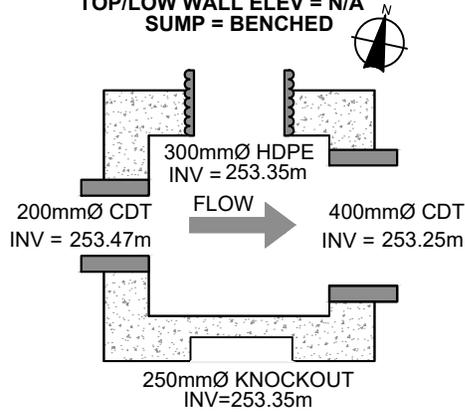
285767 AIRPORT ROAD
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 N0J 1P0

Drawing Title

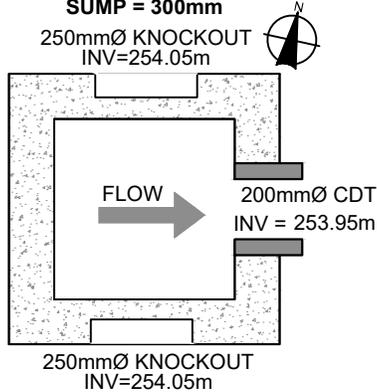
**GORE MUNICIPAL DRAIN
 IMPROVEMENT
 CATCH BASIN DETAILS**

Drawn	Checked	Date	Drawing No.
JR	WPM	2022/03/18	
Scale	Project No.		3
N.T.S.	300054906.0000		

STATION 1+668
BJB
600mmX600mm
TOP/LOW WALL ELEV = N/A
SUMP = BENCHED



STATION 1+986
CB
600mmX600mm
TOP/LOW WALL ELEV = 255.50m
SUMP = 300mm
250mmØ KNOCKOUT
INV=254.05m



NOTES:

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285767 AIRPORT ROAD
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 N0J 1P0

Drawing Title

**GORE MUNICIPAL DRAIN
 IMPROVEMENT**
CATCH BASIN DETAILS

Drawn	Checked	Date	Drawing No.
JR	WPM	2022/03/18	4
Scale	Project No.		
N.T.S.	300054906.0000		



BURNSIDE

Document F
Special Provisions

Appendix F – Special Provisions

Gore Municipal Drain

These **Special Provisions** are specific directions for this project and detail requirements not encompassed by the **Standard Drain Specifications**.

Special Provisions shall take precedence over the **Standard Drain Specifications** where a conflict between them may exist.

1.0 Standard Drain Specifications

All work for this project shall also be governed by **Appendix E - Standard Drain Specifications**. The Contractor is fully responsible for a reasonable and prudent review of these Standards to have a complete and clear understanding of the scope and character of the work.

2.0 Description and Location

The proposed drain is located on Lots 1 and 2, Concession 5 and Lots 71, 72 and 73, Gore Concession, Norwich Township, County of Oxford. Further the drain extends through The County of Brant on Lots 23 and 24, Concession 14 and Norfolk County on Lot 23, Concession 1 where it outlets to Big Otter Creek.

The Gore Municipal Drain includes approximately 1,219 m of channel deepening, 1,986 m of closed drain work, and 1 road crossing. The location of the work is shown in the enclosed plan.

3.0 Instruction and Process

3.1 Pre-Construction Meeting

The Contractor **MUST** arrange an on-site Pre-Construction Meeting with the Engineer, Drainage Superintendent and affected landowners before any equipment or materials are moved onto the site and before any work is commenced on this project.

Furthermore, the Contractor shall also provide notification of the commencement of in-water work (if required) to the DFO and Long Point Region Conservation Authority (LPRCA) or any other applicable agency(s) at least ten (10) working days prior to the initiation of the work.

3.2 Working Space

The area being provided to the Contractor to undertake the work is described herein and the maximum widths are specified on the table entitled '*Working Space*'.

Table 1: Working Space - Main Drain

Station	Max. Width (m)	Comments
Sta. -1+219 to Sta. 0+000	10 m working space	Access to this portion of the Main Drain (Open) will be directly from Burford-Delhi Townline Road to and subsequently following the proposed drain alignment as shown on the plan.
Sta. 0+000 to Sta. 0+845	20 m working space	Access to this portion of Main Drain (Closed) will be from Norwich Road to: <ul style="list-style-type: none"> • AR#1 on the Oak Lane Farms Inc. property (Roll No. 010-716-00) and subsequently following the proposed drain alignment as shown on the plan.
Sta. 0+845 to Sta. 1+011	15 m working space	Access to this portion of Main Drain (Closed) will be from Norwich Road to: <ul style="list-style-type: none"> • AR#2 on the A. Visser property (Roll No. 010-154-14) and subsequently following the proposed drain alignment as shown on the plan.
Sta. 1+011 to Sta. 1+464	15 m working space	Access to this portion of Main Drain (Closed) will be directly from Norwich Road and subsequently following the proposed drain alignment as shown on the plan. This portion of drain is to be installed on the Norwich Road ROW.
Sta. 1+464 to Sta. 1+986	20 m working space	Access to this portion of Main Drain (Closed) will be from Norwich Road to: <ul style="list-style-type: none"> • AR#3 on the Corwic Farms Limited property (Roll No. 010-159-00) and subsequently following the proposed drain alignment as shown on the plan.
<p><u>NOTES:</u></p> <p>(1) The Contractor shall contain their construction operations to as narrow a width as possible, so as to prevent damage to lands, crops, bush, etcetera and shall not exceed the widths indicated.</p> <p>(2) The Contractor shall be entirely responsible for any damage to lands, crops, etcetera, beyond the widths and locations of both the access routes and the working spaces specified, caused by the Contractor, their Subcontractors or their employees while undertaking the work.</p>		

Station	Max. Width (m)	Comments
<p>(3)The Engineer's approval MUST BE OBTAINED BEFORE exceeding the maximum widths indicated.</p> <p>(4) Access to the working space shall be public roads or as specified. All routes must be approved by the Engineer and Drainage Superintendent prior to construction.</p>		

3.3 Access Routes

The access routes for construction shall be from specified locations on Norwich Road to the drain, as specified in the table 'Working Space' and on the enclosed plan. The Contractor shall confirm these access routes with the Engineer, Drainage Superintendent and affected landowners prior to commencing any work.

The width of the access route on each property shall be a maximum of 6 m. Any increase of this width shall be at the discretion of the Engineer.

3.4 Alternative Installation Method

An alternative installation method may be proposed and bid accordingly by the Contractor at the time of submission. Closed sections of the drain specified to be installed by wheel trencher may be installed using an excavator and a minimum 150 mm of 19 mm dia. clear crushed stone (or approved equal). **No extra payment shall apply per item when the Contractor specifies this method at the time of bidding.**

3.5 Private Systematic Drainage Systems

The Contractor is advised that at the time of submission of this report, both systematic and random drainage systems were known by the Engineer in the area of the installation of the proposed drain.

The location of existing private drainage systems shall be discussed at the pre-construction meeting and existing systems affected by the drain shall be located by the Contractor and reviewed with the Engineer and affected landowners prior to construction.

3.6 Utilities Investigation

The Contractor shall locate all utilities prior to construction. A utility investigation was conducted during the design stage to determine possible conflicts prior to construction. The following utilities were noted in the area of the proposed drain:

- A telephone cable north of Burford-Delhi Townline Road within the road ROW.
- Execulink Telecom fibre lines (numerous) and services South of Norwich Road within the road ROW and on private property.

- One 50 mm dia. private gas service located South of Norwich Road from Base Line to the Dylon Abbey & Olivia Stratford property.
- One invisible dog fence at the property line of the Arie Schep and Gertrude Schep-Van Der Pol property line.
- One 200 mm dia. steel gas main located directly east of Base Line. Special attention to this crossing will be required by Enbridge Gas (Enbridge) who must be on-site during construction. Enbridge has been involved throughout the process and has provided specific crossing requirements certified by an internal pipeline engineer. Enbridge has noted that third party requirements will be required within the vicinity of the Main.
- One 50 mm dia. trunk Execulink Telecom fibre line located directly west of Base Line. Special attention to this crossing as it will need to be deflected above the pipe during installation.
- Overhead power lines along the Norwich Road ROW. Hydro poles shall be supported as required during construction.

3.7 Staging of Construction

The Contractor shall stage the construction to ensure that the site is left each day with appropriate controls to avoid erosion. Any excavated spoil areas shall be protected with silt fence or other measures to avoid erosion during construction, as directed by the Contract Administrator. All channel works shall be completed during periods of low or no flow. Additional erosion measures shall be paid for as extra items on an as directed basis.

3.8 Construction Document Errors

Any issues during construction with respect to errors or omissions with the design drawings or documents, the constructability of the system, etc. must be brought to the attention of the Contract Administrator immediately. It is expected that a clear communication channel will exist between the Contractor and the Contract Administrator and that any discrepancies relating to construction of the work will be remedied immediately. Work resulting from failure to seek clarification with the Contract Administrator by the Contractor will be the responsibility of the Contractor to remedy at no extra charge to the project and must be completed to the satisfaction of the Engineer prior to demobilization.

3.9 Final Inspection

After substantial completion of the work and prior to demobilization and removal of equipment and materials from the site, the Contractor MUST arrange an on-site FINAL inspection of the work with the Engineer. This is to ensure all aspects of the work have been satisfactorily completed and/or that arrangements have been made to expedite the completion of any outstanding minor items or deficiencies. Notification to the Engineer of this Final Inspection shall be provided at least two days prior.

3.10 Deficiencies

Deficient items such as catchbasin markers, grate tabs, rodent grates, additional rip-rap, etc. shall be remedied by the Contractor during the warranty period and paid at the Contract price. If the Contractor fails to complete the work within a reasonable timeframe in the opinion of the Engineer and/or the Municipality, the work shall be completed by a Contractor of the Engineer's choosing and the cost of the work deducted from the Contract holdback.

3.11 Liquidated Damages

In addition to GC 8.02.09.01 and the supplemental general specifications any breach of the Contract terms by the Contractor may be subject to **daily liquidated damages of \$500** at the discretion of the Contract Administrator. Pertinent examples may include but are not limited to:

- Work outside the timing windows stated in the Contract.
- Failure to install applicable erosion and sediment controls prior to completing other construction activities.
- Failure to meet Substantial Performance of the Contract by the date specified in the Contract Documents.

4.0 Agency Project Requirements

4.1 Long Point Region Conservation Authority (LPRCA)

Attention is drawn to the LPRCA permit. All work is to be in accordance with the terms of this permit and the mitigation practices described in the Engineer's Report.

4.2 Ministry of Environment, Conservation, and Parks (MECP)

The contractor will be responsible for ensuring no extirpated, endangered, threatened, or special concern species or their habitats are adversely affected during construction.

4.3 Fisheries and Oceans Canada (DFO)

Attention is drawn to the DFO letter of advice in Appendix D. All work is to be done in accordance with the terms in the letter of advice. Relevant mitigation measures are highlighted below:

- Works shall be done in accordance with the DFO best management practices and the mitigation practices described in the Engineer's Report.
- 2, 20 m long gravel additions directly upstream of Burford-Delhi Townline Road.
- Leaving one bank untouched and avoiding aquatic vegetation in the channel bottom.

DFO has provided requirements for the in-water work on the proposed drain, specifying that it be completed during the **summer coldwater timing window (July 1 to October 15)** due to fish spawning restrictions as a Fisheries Class 'D' channel.

5.0 Description of Work

This section includes specific instructions pertaining to the drain construction and shall be in addition to any specifications noted in the Standard Drain Specifications. The numbering of each item references the corresponding item in the schedule of unit prices. Each Item shall be bid as a lump sum price unless otherwise noted. **For the lump sum price bid, unless otherwise noted, the Contractor shall provide the following items:**

Section A – Gore Municipal Drain

SP0 Mobilization

This item covers the Contractors costs associated with the transportation and/or accommodation (meals and lodging) of labour, equipment, offices, conveniences, temporary facilities, construction plant and other items not required to form part of the permanent works and not covered by other items in the Schedule of Unit Prices. This line item shall only apply to the first/ primary mobilization/demobilization required to fulfill the Contract. Additional mobilization costs will not be paid if the Contractor chooses to leave the site on their own accord following the initial mobilization. However, if at the discretion of the Contract Administrator a situation warrants the Contractor to demobilize from site to complete the remainder of the work at a later date, the costs associated with this may be negotiated with the Contract Administrator and paid as an extra item.

Payment at the Lump Sum price set out in the schedule of unit prices for mobilization and demobilization will be made as follows:

- 50% payable on first Payment Certificate
- 50% payable on Substantial performance Payment Certificate.

SP 1 Temporary Rock Flow Check Dam

The Contractor shall install a temporary rock flow check dam prior to commencement of any work on the remainder of the proposed drain; Refer to OPSD 219.211.

After the completion of the work and when instructed by the Contract Administrator, the rock flow check dam shall be removed. The excess stone shall be incorporated into the surrounding channel features.

SP 2 Substrate Placement

The Contractor shall supply and install 19 mm dia. clear stone as substate in 20 m long lengths in the base of the proposed channel to the satisfaction of the Contract Administrator and the Department of Fisheries and Oceans Canada (DFO). Substrate is to be placed between:

- Sta. -1+200 to Sta. -1+180
- Sta. -1+150 to Sta. -1+130

Special attention is drawn to DFO file number 23-HCAA-02357.

SP 3 Channel Deepening

All required work for channel deepening shall take place within the specified working space where a 10 m ROW has been provided. Spreading and levelling of spoil shall be completed within the working ROW to a maximum depth of 150 m. Spoil shall not be spread within 2 m from the top of the ditch bank. The topsoil from the spoil placement area shall be stripped and spread back over the spoil within the working ROW.

The channel side slopes shall be excavated at 2H:1V. Channel deepening shall commence at the toe of the slope of the far channel bank where the bank slope is carried to the channel bottom elevation. Excavation will be completed in the channel bottom and on the near channel bank, where required. Vegetation on the far channel bank shall remain in place.

If during construction there is excavated subsoil material deemed unsuitable by the Contract Administrator for spreading in the ROW, it shall be loaded and trucked off-site by the Contractor for disposal and paid for at an additional cost.

SP 4 Stilling Basin

A permanent stilling basin shall be installed immediately downstream of the outlet pipe at Sta. 0+000 as per the accompanying details to the satisfaction of the Contract Administrator. Additionally, a permanent stilling basin shall be installed immediately downstream of the Poole Award Drain outlet pipe at Sta. -0+500.

The basin shall be lined with approximately 20 m² of round river stone (450 mm thickness of 150 to 300 mm dia.) in the base of the stilling basin and spillway from Sta. 0+000 to -0+010 and from Sta. -0+500 to Sta. -0+510.

Additionally, approximately rip-rap (450 mm thickness of 150 to 300 mm (OPSS R50) diameter quarry stone with geotextile underlay) shall be installed on the side banks for the above-mentioned stations and on the same bank as the outlet pipes as erosion protection.

SP 5 Bank Repair

Bank reconstruction and armouring shall be installed as specified on the accompanying details to the satisfaction of the Contract Administrator. Each installation shall consist of compacted clay fill (or approved equal), an approximate 450 mm thickness of 150 mm to 300 mm (R50) dia. quarry stone rip-rap complete with geotextile underlay. Each installation should return the top and toe of the banks to their design locations as specified on the accompanying drawing set.

All geotextile shall be non-woven Terrafix 270R or approved equivalent.

SP 6 Clearing and Grubbing (OPSS.MUNI.201)

Specification: All work shall be in accordance with sections 2.15 to 2.1.9 of the general specifications located within Appendix E and OPSS.MUNI.201.

Clearing/Brushing: This item includes cutting, grinding, and/or chipping all standing trees, stumps, brush, bushes, and other vegetation to the existing ground level.

Trees measuring 150 mm dia. or more shall be felled, delimbed, cut into lengths no longer than 4 m, and stacked within the working space ROW to the satisfaction of the Contract Administrator.

Vegetation under 150 mm dia. shall be disposed of by the Contractor using one of the following three methods:

- Chipped in place by an excavator equipped with a hydraulic brushing attachment.
- Chipped using a woodchipper and piled or spread within the bush ROW.
- Piled and burned in accordance with the Township's burning regulations and by-law(s).

The method preferred by the Contractor shall be discussed at the pre-construction meeting and shall be at the discretion of and completed to the satisfaction of the Owner and Contract Administrator.

Grubbing: Tree stumps, boulders, and other vegetative debris shall be grubbed and removed from the site to the satisfaction of the Contract Administrator. The burying of grubbed materials shall not be permitted unless specific permission is given to the Contract Administrator by the relevant landowner (email is acceptable).

Locations and Approximate Quantities:

The contractor shall make all reasonable efforts to limit the number of ornamental tree removal along the rural residential properties. Tree removal shall be discussed at the pre-construction meeting.

Sta. -0+750 to Sta. 0+000 - Clear and grub a 10 m wide working ROW.

Sta. 0+845 to Sta. 1+011 - Clear and grub approximately:

- 11, 200 mm dia. to 400 mm dia. coniferous trees.
- 3, 200 mm dia. deciduous trees.

Sta. 1+034 to Sta. 1+100 – Clear and grub approximately:

- 3, 400 mm dia. deciduous trees.
- 1, 900 mm dia. deciduous tree.
- 1, 100 mm dia. deciduous tree.

SP 7 Open Drain Crossing Sta. -0+235 to Sta. -0+247

The drain crossing shall be completed as per the Standard Drain Specifications and installed as per the details on the accompanying drawing set.

Agency Requirements: Culvert shall be installed in dry weather in low or no flow channel conditions as per best management practices. If installation in low or no flow channel conditions is not possible a steel sheet dam shall be installed on the upstream end of the installation and stored water shall be pumped around using an approved pump scheme and paid for as an extra cost.

Staging: The area of the proposed culvert installation shall first be excavated according to the ditch profile. Following this it shall be excavated for the placement of granular materials, placement of culvert and backfilled.

Construction: The proposed 1,800 mm dia. CSP shall be installed on a minimum of 150 mm depth of 19 mm dia. crushed clear stone or Granular A material compacted to a minimum of 98% Standard Proctor Dry Density (SPDD). The bedding material shall continue to a minimum of 300 mm above the pipe. The remaining backfill shall be select native material if it is deemed suitable by the contract administrator at the time of construction. All unsuitable excavated material shall be removed and disposed of off-site by the contractor. At the contract administrator's discretion imported OPSS Granular 'B' shall be used for backfill and supplied as a contingency item. The installation of the Granular 'B' material shall apply under the original crossing line item. A minimum 150 mm topcoat depth of compacted Granular 'A' material shall be installed for the travelled portion of the crossing.

Granular material shall be placed a maximum of 300 mm depth lifts and compacted to a minimum of 98% SPDD prior to the next lift being added.

Existing Culvert: The contractor shall remove and dispose of the existing culvert off-site.

Note: Any settlement or impact to the crossing shall be the sole responsibility of the Contractor, per the Standard Drain Specifications. Any voids surrounding the pipe appearing post construction under the warranty period to the Owner shall be included with the cost of this line item. The Owner shall be contacted by the Contractor regarding any issues pertaining to the pipe installation on their property, prior to leaving the site. Issues shall be remedied to the satisfaction of the Contract Administrator and the Owner.

SP 8 Concrete Drainage Tile and High-Density Polyethylene Pipe

All concrete drainage tile shall be Heavy Duty 2000D. All HDPE pipe shall be solid dual-wall (320 kPa) bell and spigot gasketed pipe.

The tile shall be installed as per the Standard Specifications. The installation of the new pipe **shall be by the wheel trencher unless specified otherwise**. All tile required to be installed via excavator shall be installed on a 19 mm clear stone bedding as per details on the accompanying drawing set. Where perforated subdrains are proposed, the clear stone shall extend to the mid-point of the proposed municipal tile a minimum of 50 mm above the top of the subdrains as per the accompanying detail. The cost to supply the clear stone bedding shall be included in the price of the associated line item.

Prior to the installation of the new tile, in all locations the Contractor shall strip the topsoil from the area of the proposed tile trench for the entire width of the wheel trencher/excavator. The topsoil shall be stockpiled separately from native subsoil and subsequently replaced to the satisfaction of the Contract Administrator. This shall be included as part of the work under the appropriate item. An extra payment will not be made for the stripping, stockpiling and replacing of topsoil.

Under no circumstances will frozen topsoil be levelled or placed over top of the drain. If the Contractor elects to install the drain during winter months, the Contractor shall return to the site and level the topsoil when conditions are appropriate. No additional mobilization charges shall be made for returning to the site to conduct the levelling of topsoil.

The proposed drain shall be generally bid and installed considering information highlighted in the table below:

Station Range	Comments
Sta. 0+000 to Sta. 0+845	<ul style="list-style-type: none"> • The downstream end of the concrete drainage tile at Sta. 0+006 shall be placed inside the bell end of the proposed outlet pipe. The joint between the two pipes shall be wrapped in a minimum 0.6 m width of geotextile (Terrafix 200R or equivalent). • A rodent grate shall be installed on the outlet pipe. • The existing twin CSP outlet pipes shall be removed and disposed of off-site by the Contractor. • The Contractor shall verify the location of the existing municipal drain in various locations and the proposed drain shall generally follow the existing municipal drain alignment. The existing drain shall be destroyed. • For the HDPE tiles to be installed with a 45-degree elbow, the Contractor shall cut the HDPE at the midpoint and install the elbow in this location. The HDPE pipe shall be installed securely into the elbow to the satisfaction of the Contract Administrator.
Sta. 0+845 to Sta. 1+011	<ul style="list-style-type: none"> • The contractor is to install the proposed drain with an excavator on stone bedding as per the details on the accompanying drawing set. The clear stone is to extend to the midpoint of the proposed 600 mm HDPE pipe. • The Contractor shall minimize damage to lawn area and take all reasonable efforts to minimize disturbance to ornamental trees. • The proposed drain alignment is offset from the existing. The existing drain is to be grouted within the Norwich Road ROW. • Special attention is drawn to utility crossings. The Contractor is required to locate all utilities prior to any excavation. The engineer shall be notified of any potential utility conflicts.
Sta. 1+011 to Sta. 1+034	<ul style="list-style-type: none"> • The Contractor is to utilize the open cut method of installation for the Base Line, road crossing. PVC SDR-35 is proposed and shall be installed with an excavator on stone bedding as per the details on the accompanying drawing set. • Special attention is drawn to utility crossings in this location. Enbridge 3rd party documentation is to be followed within the vicinity of the existing 200 mm gas main. The Contractor is required to coordinate the crossing agreement with Enbridge Gas Inc..

<p>Sta. 1+034 to Sta. 1+464</p>	<ul style="list-style-type: none"> • The contractor is to install the proposed drain with an excavator on stone bedding as per the details on the accompanying drawing set. The clear stone is to the midpoint of the proposed 600 mm / 525 mm HDPE pipe. • The Contractor may elect to utilize a trench box installation method where adequate horizontal separation cannot be achieved between the existing underground cistern. The Contractor shall immediately notify the Contract Administrator to gain approval. • The Contractor shall minimize damage to lawn area and take all reasonable efforts to minimize disturbance to ornamental trees. • The proposed drain alignment is offset from the existing. The existing drain is to be grouted within the Norwich Road ROW. • Special attention is drawn to utility crossings. The Contractor is required to locate all utilities prior to any excavation. The engineer shall be notified of any potential utility conflicts.
<p>Sta. 1+464 to Sta. 1+986</p>	<ul style="list-style-type: none"> • For the HDPE tiles to be installed with a 45-degree elbow, the Contractor shall cut the HDPE at the midpoint and install the elbow in this location. The HDPE pipe shall be installed securely into the elbow to the satisfaction of the Contract Administrator. • The proposed drain alignment is offset from the existing. The existing drain is to be grouted within the Norwich Road ROW.

SP 9 Catchbasin/Junction Box Installation

The proposed catchbasins shall be installed as per the Standard Drain Specifications and where applicable orientated as depicted on the accompanying details. The Contractor shall ensure that positive drainage to the proposed catchbasins and complete minor grading works where required to the satisfaction of the Contract Administrator.

The Contractor shall supply and place a minimum of 1 m width of rip-rap and geotextile on all sides of the catchbasins.

The Contractor shall utilize excess on-site material from adjacent tile and structure installation to construct directional berms where identified on the accompanying plans. Directional berms shall at a minimum match the height of the DICB high wall and feather into the existing topography.

Junction boxes shall extend a minimum 300 mm from the top of the pipe to the base of the concrete lid and shall have a minimum of 0.6 m of cover.

The Contractor shall include the cost to complete all the necessary municipal tile connections c/w parging on the interior and exterior of the proposed catchbasin as part of the associated line item. Each catchbasin shall be installed with tabs, and an approved post and marker. Any existing catchbasins are to be removed and disposed of offsite by the contractor.

SP 10 Connections to the Proposed Municipal Drain

All connections to proposed structures shall include the cost to connect the tile to the proposed structure including the parging of both the interior and exterior of the structure to the satisfaction of the contract administrator. The Contractor shall ensure that connections are properly supported to prevent settlement. All connections shall be installed via an excavator on 19 mm clear stone bedding. The cost to supply the clear stone bedding shall be included in the price of the associated line item. Proposed connections are summarised below:

Sta. 0+199: Locate and connect existing 150 mm dia. HDPE header to proposed drain.

Sta. 0+299: Locate and connect existing 150 mm dia. HDPE header to proposed drain.

Sta. 0+424: Locate and connect existing 100 mm dia. HDPE header to north wall of proposed CB at Sta. 0+400 with approximately 24 m of 100 mm dia. snap-coupler dual wall HDPE pipe.

Sta. 0+593: Locate and connect existing Gore Municipal Drain (400 mm dia. CDT) to west wall of proposed offset CB at Sta. 0+593 with approximately 6 m of 450 mm dia. dual wall (320 kPa) bell and spigot HDPE pipe. Locate and connect existing private drain (400 mm dia. CDT) to north wall of proposed offset CB at Sta. 0+593 with approximately 6 m of 450 mm dia. dual wall (320 kPa) bell and spigot HDPE pipe. The downstream end of the existing CDT tiles shall be placed inside the bell end of the proposed HDPE pipes. The joint between the two pipes shall be wrapped in a minimum 0.4 m width of geotextile (Terrafix 200R or equivalent).

Sta. 1+011: Locate and connect existing 100 mm dia. HDPE private drain to south wall of proposed CB at Sta. 1+011.

SP 11 Restoration of Grassed Areas

The Contractor shall be responsible for restoring any disturbed grassed areas on rural residential and industrial lands. The disturbed areas are to be fine graded, free of stones, raked and seeded with Canada #1 grass seed mixture at an application rate of 100 kg / 10,000 m² to the satisfaction of the Contract Administrator.

SP 12 Laneway Restoration

The Contractor shall be responsible for restoring any disturbed laneways along the course of construction. Select native material shall be used for backfill within the crossings if it is deemed suitable granular material by the Contract Administrator at the time of construction. In the case of unsuitable native material imported Granular 'B' shall be used for backfill and paid for as a contingency item.

The Contractor shall reinstall the existing topcoat material when restring the laneway to the satisfaction of the Contract Administrator.

SP 13 Base Line Road Crossing

Base Line road crossing is proposed as an open cut crossing between Sta. 1+011 and 1+034. The installation shall be as per the Standard Drain Specifications and installed as per the details on the accompanying drawing set.

Construction: The top width of the road crossing shall match the existing road crossing. The proposed pipe shall be installed on a minimum 150 mm depth of geotextile wrapped 19 mm dia. clear crushed stone or Granular A material compacted to a minimum 98% Standard Proctor Dry Density (SPDD). The bedding material shall continue to 300 mm above the pipe at a minimum. Select native material shall be stockpiled once excavated and used for backfill within the crossing if it is deemed suitable granular material by County of Oxford at the time of construction. All unsuitable excavated material shall be removed and disposed of off-site by the Contractor. In this case, imported OPSS Granular B shall be used for backfill. Base coat and topcoat depths are to be confirmed at the time of construction by the Contractor. At a minimum 40 mm of HL3, 50 mm of HL4, 150 mm of Granular A and 450 mm of Granular B shall be used or match existing depths whichever is greater.

Granular material shall be placed in maximum 300 mm depth lifts and compacted with an approved vibratory plate compactor to a minimum 98% SPDD prior to the next lift being added.

Traffic Control Plan: A traffic control plan shall be prepared and submitted to County of Oxford, the Township of Norwich and the Contract Administrator by the Contractor a minimum of ten (10) days prior to the proposed start of construction of the crossing. The plan must be approved by County of Oxford and the Township of Norwich and implemented by the Contractor prior to the beginning of the crossing construction. The Contractor shall provide all labour, signage, equipment, etc. as per Ontario Traffic Manual (OTM) Book 7 to complete the crossing.

Note: Any settlement or impact caused to the road shall be the sole responsibility of the Contractor, per the Standard Drain Specifications. Any voids surrounding the pipe shall be filled with grout by the Contractor during construction or appearing under the warranty period shall be included with the cost of this line item. The Owner of the road ROW shall be contacted by the Contractor regarding any issues pertaining to the pipe installation on their property, prior to leaving the site. Issues shall be remedied to the satisfaction of the Contract Administrator and the Owner.

SP 14 Grouting

The existing Gore Municipal Drain shall be completely filled with grout where it exists within the Norwich Road ROW to the satisfaction of the Contract Administrator. The existing drain is approximately:

Approximate Station Range	Tile Size (1917 Profile)
Sta. 0+593 to Sta. 1+011	300 mm
Sta. 1+011 to Sta. 1+294	250 mm
Sta. 1+294 to Sta. 1+560	200 mm
Sta. 1+560 to Sta. 1+775	150 mm
Sta. 1+775 to Sta. 1+986	100 mm

Note: Any settlement or impact caused to the road as a result of deficiencies with the grouting of existing crossings shall be the sole responsibility of the Contractor.

SP 15 Enbridge Gas Inc. Utility Crossing

The Contractor shall be responsible for entering a crossing agreement with Enbridge Gas Inc. for the proposed crossing at Sta. 1+015. Preliminary approval for the crossing has been obtained conditional to the crossing agreement being finalized and that Section 10 of the Third-Party Requirements document be followed for all work within the vicinity of the existing 200 mm dia. steel main. The crossing agreement and third-party documents have been included for reference.

The Contractor shall be responsible for all communications and coordination with Enbridge regarding the crossing. The crossing shall be constructed to the satisfaction of Enbridge Gas and the Contract Administrator.

The Engineer and Contract Administrator shall be included on all communication with Enbridge and shall be notified of any proposed changes in design. Proposed changes must be approved by the Engineer prior to construction.

Section B – Contingency Items

This section covers work that may be required for this project. These items shall apply only as and when approved by the Engineer.

If a scenario arises where the quantity of a contingency item is such that it exceeds the quantity specified in the schedule of unit prices by more than 150%, the Contract Administrator may issue a project change order and request revised unit pricing as required. Should this occur the Contractor shall provide a unit pricing for such a contingency item within one (1) working day.

SP 16 Connection of Existing Tiles

General: The unit price bid for these items shall include all labour, equipment, and material required to reconnect/connect existing private tile drains encountered during construction to the drain.

Missed connections and/or reconnections during construction shall be completed by the Contractor during the warranty period and paid at the contract price. If the Contractor fails to complete the connection and/or reconnection within a reasonable timeframe in the opinion of the Engineer and/or the Municipality, the work shall be completed by a Contractor of the Engineer's choosing and the cost of the work deducted from the contract holdback.

Please refer to the Standard Drain Specifications (Sections E.3.4 and E.3.5) for additional information.

Typically, existing private tiles encountered during construction will be connected to themselves per the detail in the accompanying drawings. In circumstances where, in the opinion of the Engineer, reconnection is not possible, private tiles may be connected to the new drain as noted and with the downstream side of the existing tile capped.

Installation shall include appropriately sized PDT or solid HDPE dual-wall (320 kPa) pipe (or approved equal), connected to the new pipe using a core drilled hole and manufactured HDPE coupler fitting, with 19 mm dia. clear crushed stone backfill under the connection and a minimum of 150 mm over top of the connection per the accompanying detail. Connections directly into the new drain without the use of a coupler will not be permitted.

SP 17 Special Installation Techniques (Poor Trenching Conditions)

If poor construction conditions are encountered where, in the opinion of the Contractor, it is not feasible to use the wheel trencher, the Contractor shall immediately inform the Contract Administrator to obtain approval to switch to:

- a) Installation on a minimum depth of 150 mm of 19 mm dia. clear crushed stone (or approved equal) with 19 mm clear crushed stone backfill up to the springline of the pipe at a minimum.
- b) Installation on a minimum depth of 300 mm of geotextile wrapped 19 mm dia. clear crushed stone (or approved equal) with 19 mm clear crushed stone backfill up to the springline of the pipe at a minimum.

For the additional unit price bid per lineal metre of trench, the Contractor shall install the pipe on 19 mm ($\frac{3}{4}$ inch) diameter clear crushed stone, or on geotextile wrapped 19 mm ($\frac{3}{4}$ inch) diameter clear crushed stone, as described in the schedule of unit prices per the detail in the accompanying drawings, with a hydraulic excavator instead of a wheel trencher. The Contractor shall note that the wrapping of tile joints still applies under original items. The cost to supply 19 mm dia. clear crushed stone and/or geotextile shall be included as part of the Contractors bid in this line item.

The Contractor shall keep a list of stations where these installation techniques were used, to be confirmed with the Contract Administrator on a daily basis.

This item shall be used only when the soil conditions encountered are such that a wheel trencher cannot, in the opinion of the Contract Administrator, be used effectively to install the pipe. The Contractor must receive approval from the Engineer prior to using either of these techniques. When soil conditions are again favourable in the opinion of the Contractor and the Contract Administrator, the wheel trencher must again be used for tile installation as soon as possible. Failure to use the wheel trencher for installation when soil conditions are favourable in the opinion of the Contract Administrator may result in non-payment of this contingency item.

All costs are to be included in the associated special installation technique contingency costs. No extra payment will be made for the removal of the wheel trencher, crew downtime, or other costs for this transition when the Contractor is required to change to a special installation technique.

SP 18 Trench Box Installation

If adequate horizontal separation cannot be met from existing infrastructure or if poor construction conditions are encountered where in the opinion of the Contractor, it is not feasible to install using the above specified installation techniques, the Contractor shall immediately inform the Contract Administrator to obtain approval to switch to a trench box installation method. The Contractor must receive approval from the Engineer prior to using this method of installation.

For the additional unit price bid per lineal metre of trench, the Contractor shall supply a pre-engineered trench box for installation. The Contractor shall be responsible for the design and size of the trench box used to the satisfaction of the Contract Administrator.

The Contractor shall keep a list of stations where these installation techniques were used, to be confirmed with the Contract Administrator on a daily basis.

All costs are to be included in the associated special installation technique contingency costs. No extra payment will be made for the removal of the wheel trencher, crew downtime, or other costs for this transition when the Contractor is required to change to a special installation technique.

SP 19 Removal of Wheel Trencher

When large boulders or stony areas force the removal of the wheel trencher from the trench for cleanout and stone removal, prior to recommencing with the wheel trencher, the Contractor shall be paid a fixed sum as a contingency for each time this takes place between periods of continuous wheel trenching.

For the unit bid price per occurrence, the Contractor shall specify the cost for the removal of the wheel trencher as a result of large stones and/or poor soil conditions, as required for continued pipe installation with the wheel trencher. This cost shall include the time to complete the transition and the downtime for the working crew during the transition.

The Contractor shall keep a detailed list and time of each instance and review each pullout of the trencher with the Contract Administrator at the end of each working day. Stones or obstructions causing the wheel trencher removal shall be kept to the side of the trench as evidence for the Contract Administrator for the wheel removal.

Pullouts of the trencher without sufficient evidence from the Contractor shall not be paid under this item at the discretion of the Contract Administrator.

In cases where the wheel trencher is removed to immediately switch to a special installation technique, the contingency for this item will not apply. Under this scenario, the additional contingency payment for the applicable alternate installation method will be applicable only.

SP 20 Supply and Install OPSS R50 Rip-Rap Erosion Protection

For the unit price bid per square metre, the Contractor shall supply and install a 450 mm thickness of 150 to 300 mm (OPSS R50) diameter quarry stone rip-rap with geotextile underlay. These unit prices shall be used for payment for any rip-rap installed in addition to those quantities already specified in other items and for credit for any quantities of rip-rap deleted from other items. Additionally, this will include areas of existing channel bank where erosion or bank slumping has occurred, as directed on-site by the Contract Administrator.

SP 21 Supply and Install OPSS 19 mm dia. Clear Crushed Stone

For the unit price bid per tonne, the Contractor shall supply 19 mm ($\frac{3}{4}$ inch) dia. clear crushed stone. These unit prices shall be used for payment for any 19 mm clear crushed stone installed in addition to those quantities already specified in other items and for credit for any quantities of 19 mm clear crushed stone deleted from other items.

The Contractor shall then install the clear stone as directed by the Contract Administrator.

SP 22 Supply and Install OPSS Granular 'B' Material

For the unit price bid per tonne, the Contractor shall supply OPSS Granular 'B' material. These unit prices shall be used for payment for any Granular 'B' material installed in addition to those quantities already specified in other items and for credit for any quantities of Granular 'B' deleted from other items.

The Contractor shall then install the granular material as directed by the Contract Administrator.

Equipment Specification and Data Sheet(s)



In order to properly conduct an analysis on the requested crossing the following general information and appropriate data sheets are required to be completed.

Steps:

1. Complete the *Applicant – Information and Details* document for each crossing application
2. Add and complete the *Data Sheet – Equipment or Vehicle with Tires* for EACH piece of equipment
3. Add and complete the *Data Sheet – Equipment with Tracks* for EACH piece of equipment
4. Return fully completed general information and data sheets and any other pertinent information

Applicant Information

Applicant Name:	
Applicant Contact Person Name:	
Email:	
Phone Number:	
Applicant Reference/File Number:	

Details

Description and Purpose of Crossing:				
Location Indicator (legal land description, PIN, etc.)				
GPS Coordinates (Latitude & Longitude Decimal Degree):				
Duration:	Temporary		Permanent	
Start Date:		End Date:		
Equipment or Vehicle with Tires:	Yes	No	Datasheet:	
Equipment with Tracks:	Yes	No	Datasheet:	

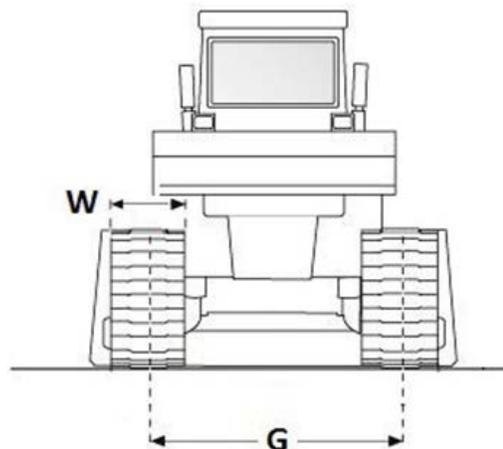
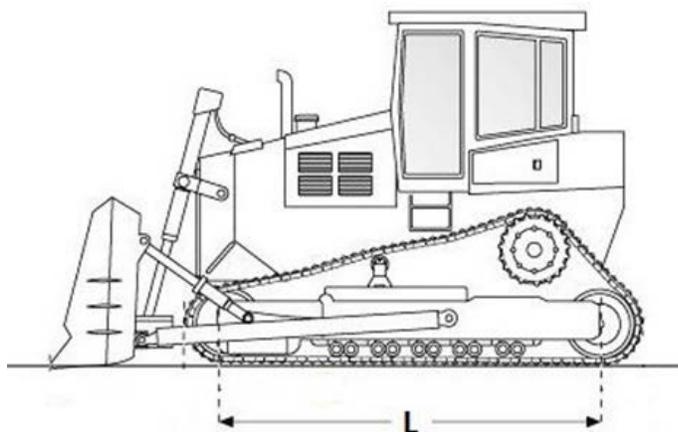
Data Sheet – Equipment with Tracks

Complete this data sheet for each piece of equipment with tracks.

Equipment with Tracks

INDICATE UNITS

Manufacturer:			
Model:			
Equipment Description:			
Fully Loaded Gross Vehicle Weight:			
	Track Shoe Width (refer to W below)	Track Length on Ground (refer to L below)	Track Gauge (on centre) (refer to G below)
Units			
Track			



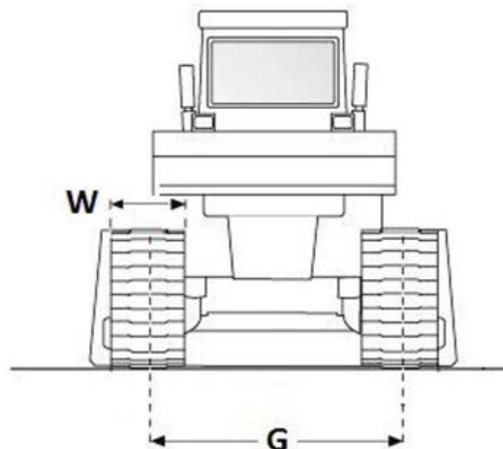
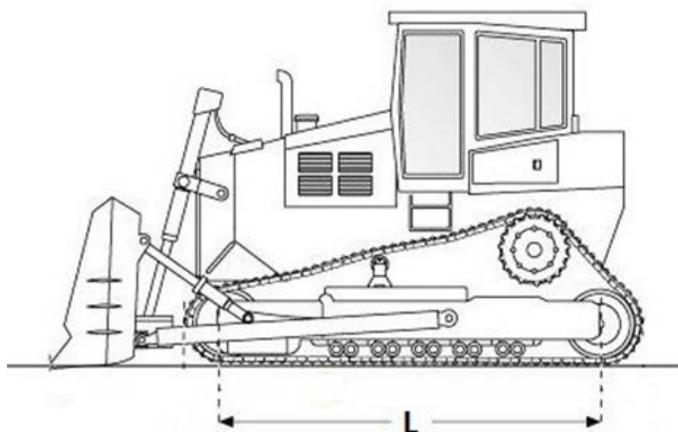
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Model:			
Equipment Description:			
Fully Loaded Gross Vehicle Weight:			
	Track Shoe Width (refer to W below)	Track Length on Ground (refer to L below)	Track Gauge (on centre) (refer to G below)
Units			
Track			



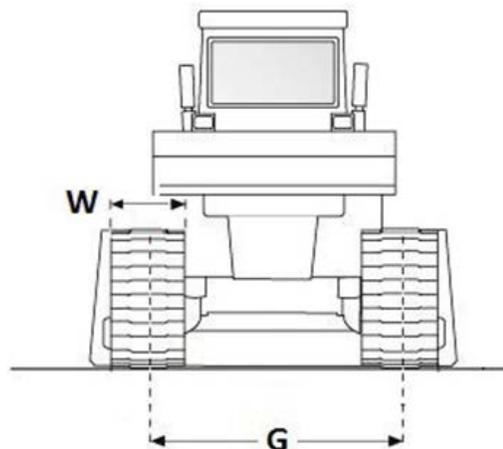
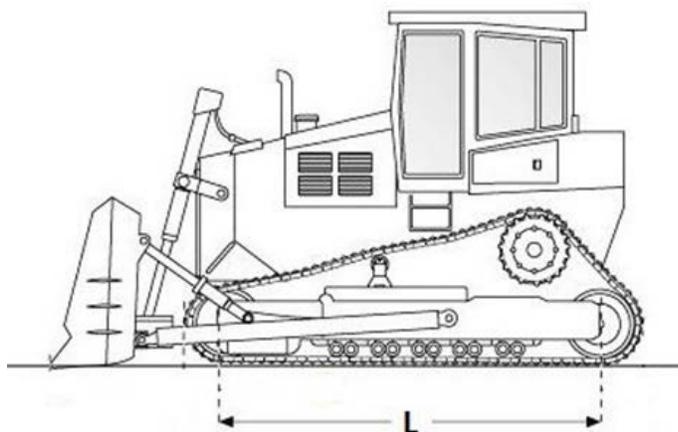
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Fully Loaded Gross Vehicle Weight:			
	Track Shoe Width (refer to W below)	Track Length on Ground (refer to L below)	Track Gauge (on centre) (refer to G below)
Units			
Track			



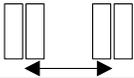
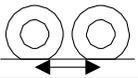
Data Sheet – Equipment or Vehicle with Tires

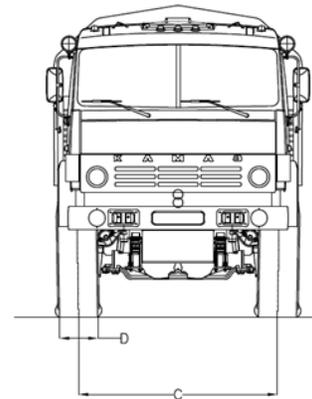
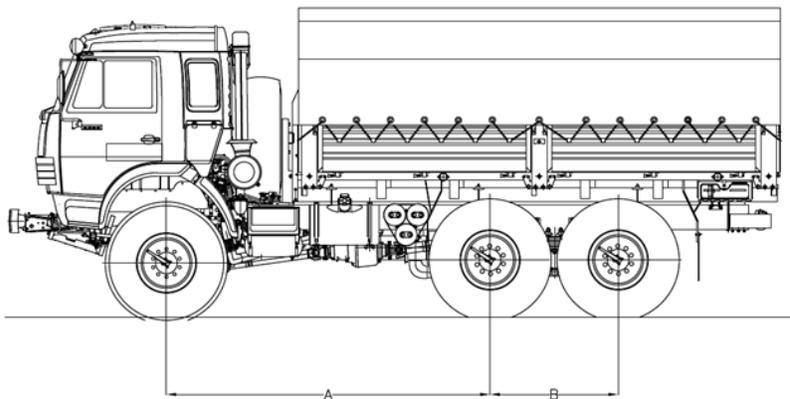


Complete this data sheet for **EACH** piece of equipment or vehicle with tires.
EXCLUSION: pick up trucks of one ton or less

Equipment or Vehicle with Tires

INDICATE UNITS

Manufacturer:						
Model:						
Equipment Description:						
Fully Loaded Gross Vehicle Weight:						
Road legal without overweight permit?		Yes			No	
Axle	Maximum Loaded Weight PER Axle	Number of Tires PER Axle	Tire Width (refer to D below)	Tire Pressure	Distance between Tire Set Centerlines (refer to C below)	Centerline Distance to Previous Axle (refer to A below) (refer to B below)
						
Units						
Steering						
2 nd						
3 rd						
4 th						
5 th						
6 th						
7 th						



Data Sheet – Equipment or Vehicle with Tires

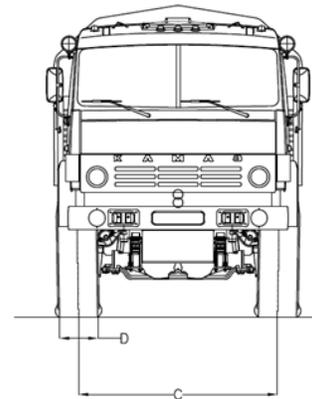
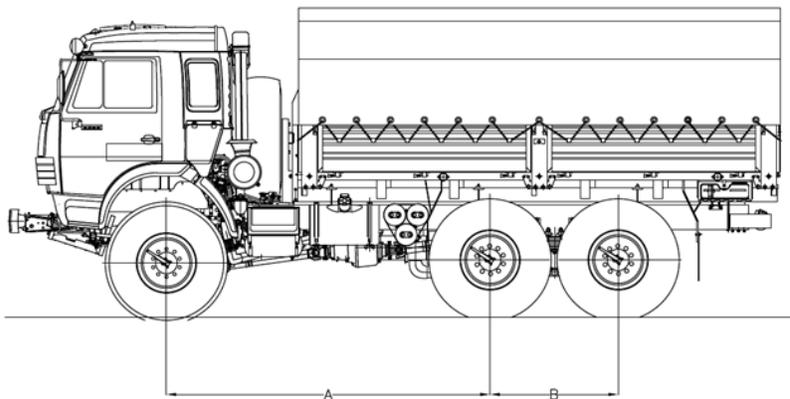


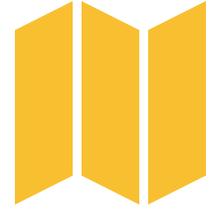
Complete this data sheet for **EACH** piece of equipment or vehicle with tires.
EXCLUSION: pick up trucks of one ton or less

Equipment or Vehicle with Tires

INDICATE UNITS

Manufacturer:						
Model:						
Equipment Description:						
Fully Loaded Gross Vehicle Weight:						
Road legal without overweight permit?		Yes			No	
Axle	Maximum Loaded Weight PER Axle	Number of Tires PER Axle	Tire Width (refer to D below)	Tire Pressure	Distance between Tire Set Centerlines (refer to C below)	Centerline Distance to Previous Axle (refer to A below) (refer to B below)
Units						
Steering						
2 nd						
3 rd						
4 th						
5 th						
6 th						
7 th						





Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard

STANDARD

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Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard

1 Introduction

This document is intended for anyone involved in planning or carrying out work in the vicinity of Enbridge Gas Distribution and Storage's (GDS) network. It summarizes the requirements to be followed and specifies the technical requirements aimed at protecting GDS's facilities, and by extension, ensuring public and worker safety.

Within this document, "third party" refers to an individual or organization that is not employed by, or performing work under, contract to GDS. These requirements are applicable to work done by individuals such as homeowners, landowners, other utility companies, excavators, constructors, and contractors.

Third parties must follow the regulations and legislation applicable to their work in addition to these requirements. It is understood that all legal provisions applicable to work carried out around natural gas facilities take precedence over this document.

The terms "gas lines", "gas pipelines", and "mains" used throughout this document apply equally to natural gas mains and service lines, as well as any other component of GDS's natural gas systems found on public or private land.

All work in the vicinity of gas facilities must adhere to the requirements set forth in this document. Work includes, but is not limited to, any ground disturbance in the vicinity of facilities or equipment crossing. Ground disturbance includes, but is not limited to, activities associated with excavation, directional drilling, blasting, piling, compaction, boring, ploughing, grading, backfilling, and hand digging.

A locate of the facilities must be requested at least five business days prior to beginning any work. Locates are required before ground disturbance takes place.

2 Terms and Definitions

The following is a list of terms found in this document and their definitions.

applicant: The owner of the proposed work.

blaster: The person or persons responsible for setting the charges and performing the blast.

blasting, surface: An operation involving the excavation of rock foundations for various types of structures, grade construction for highways or railroads, or canals (trenches) for water supply or collection purposes.

blasting, tunnel: Operations involving the piercing of below-ground (generally horizontal) opening in rock.

compaction: Any vibration-generating operation that will result in a potential increase of the density of soils or controlled backfill materials. The means to increase the density may be static or dynamic.

constructor: A person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer (as defined by Occupational Health & Safety Act).

contractor or excavator: Any individual, partnership, corporation, public agency, or other entity that intends to dig, bore, trench, grade, excavate, hammer into, or break ground with mechanical equipment or explosives in the vicinity of a gas pipeline or related facility.

EGI: Enbridge Gas Inc.

facility: Any Enbridge Gas Distribution, Transmission, Storage pipeline, main, service, regulator station or storage facility and its related components.

Gas Distribution and Storage (GDS): Enbridge Gas Distribution and Storage, Gazifère Inc., Niagara Gas Transmissions Limited, 2193914 Canada Limited.

ground disturbance: Any work, operation, or activity on or under the existing surface resulting in a disturbance or displacement of the soil or ground cover. Ground disturbance can include, but is not limited to: activities associated with excavation, directional drilling, blasting, piling, compaction, boring, ploughing, grading, backfilling, and hand digging.

hand dig: To excavate using either a shovel with a wooden or fiberglass handle, or using hydro vacuum excavation equipment. The use of picks, bars, stakes, or other earth piercing devices are not considered hand digging.

independent engineering consultant: A professional engineer who is registered with the provincial or state professional engineering association and a holder of a certificate of authorization (C of A).

locate service provider: Any entity that performs locates under the terms of a locate service agreement.

pile: Any vertical or slightly slanted structural member introduced or constructed in the soil in order to transmit loads and forces from the superstructure to the subsoil; the structural member can also be used as a component of a retaining wall system.

pile driving: The placement of piles carried out by gravity hammer, vibratory hammer, auger, pressing, screwing, or any combinations of the above methods.

positive identification: Visually locating (daylighting, exposing, digging test holes to determine) the location, depth, and size of a below-grade facility by using either vacuum excavating or hand digging. This includes elevation or alignment changes that can alter the depth or direction of the pipe (e.g., 45° and 90° elbows, fittings, plugs, weldolets, flanges, branch piping, known abandoned facilities, etc.).

pre-Engineering review: A process by which third parties can request a pre-engineering review for any potential conflict analysis.

professional engineer: An engineer registered and licensed with the provincial professional engineering association in the jurisdiction in which the engineer is practicing.

rural: All areas outside urban areas.

temporary support: The support of gas pipelines before or during an excavation to protect the pipeline from its own weight and to minimize deflection stresses.

third party: An individual or organization that is not employed by or performing work under contract to GDS (e.g., homeowners, other utility companies, contractor, excavators, constructors, etc.).

urban: An area with a population of at least 1,000 and a density of 400 or more people per square kilometer.

vital pipeline: A subset of pipelines that are critical to the safe and reliable operation of the natural gas system. Damages to vital mains could result in significant negative impact to public and worker safety or significant customer outages. This subset of mains consists of CER-regulated (Canada Energy Regulator) pipelines, transmission pipelines, and select distribution pipelines.

3 General Requirements

3.1 CER-Regulated Pipelines and Vital Pipelines

The CER regulates natural gas, oil, and commodity pipelines that extend beyond provincial, territorial, or national boundaries. All work in the prescribed area (within 30 m [100 ft] from each side of the CER-regulated pipeline) must be reviewed by the applicable CER-regulated operating company prior to commencing. This review is a regulatory requirement of the CER.

Mains are designated as vital pipelines by GDS. These include, but are not limited to, any pipeline NPS 16 or larger, transmission pipelines, CER-regulated pipelines, all pipelines operated by Storage and Transmission Operations (STO), and select distribution pipelines. The designation of a vital pipeline may change at the discretion of GDS. Vital Pipelines will be identified through locates. In these requirements, special considerations for CER-regulated pipelines and vital pipelines will be highlighted.

All work within 5 m (16 ft) from either side of lines operated by STO must be approved by GDS prior to commencing. For all other vital pipelines, all ground disturbance work within 3 m (10 ft) from either side of the vital pipeline must be approved by GDS prior to commencing. Approval by GDS may include specific conditions that third parties must follow. GDS may require representation on site for any ground disturbance work within the vicinity of vital pipelines and CER-regulated pipelines.

3.2 When Observation Is Required

A GDS representative is required to be on site to ensure the excavation or third-party activity is being safely completed near a pipeline when:

- Excavation with mechanical equipment will occur within 5 m (16 ft) of CER-regulated pipelines and all lines operated by STO.
- Excavation with mechanical equipment may take place within 3 m (10 ft) of vital pipelines and pipeline segments.
Once the pipeline is exposed, mechanical excavation is then permitted up to 1 m (3.3 ft) from the pipeline.
- It is anticipated that blasting will take place within 30 m (100 ft) of any pipeline.
- Any other situations which requires observation, as deemed necessary by EGI.

3.3 Safe Excavation

Mechanical excavation is not permitted within 5 m (16 ft) of CER-regulated pipelines and 3 m (10 ft) of vital pipelines, unless verified visually. After the exact location of the main is verified visually, mechanical excavation is allowed up to 1.0 m (3.3 ft) from the pipeline. Within 1 m (3.3 ft) of the CER-regulated or vital pipeline, only hand digging or hydro-excavation is allowed.

Mechanical excavation may not begin within 3 m (10 ft) of the pipe until:

- The pipe has been exposed by the excavator, under the supervision of GDS, by hand at the point of crossing, or the pipeline company has located the pipe and confirmed that it is at least 0.6 m deeper than the proposed excavation.
- The excavation is parallel, or the pipe has been exposed by hand to confirm the location of the pipe.

For all non-vital pipelines, mechanical excavation is not allowed within 1 m (3.3 ft) of the locate marks of the pipeline, until the exact location of the pipeline has been visually verified. The excavator must expose the pipeline by hand digging or hydro-excavation. Once the pipeline is exposed, mechanical excavation is then permitted up to 0.3 m (1 ft) from the pipeline. Within 0.3 m (1 ft) of any pipeline, only hand digging or hydro-excavation is permitted.

Only handheld compaction equipment may be used within 1 m (3.3 ft) of the sides or top of all gas pipelines. When ground conditions make hand excavation impractical (e.g., frost), the pipeline company may permit excavation to within 1 m (3.3 ft) of the pipeline if the pipeline company considers it safe to do so and directly supervises the excavation.

Spoil from excavation must not be piled on the pipeline or its easement.

3.4 Minimum Cover Requirements

[Table 3-1: Minimum Cover Requirements on page 8](#) defines mains and services cover requirements. In all cases where the depth of cover requirements cannot be met, contact GDS to review depth of the cover requirements.

Table 3-1: Minimum Cover Requirements

Pipeline	Location	Minum Cover m (ft)
Mains	Under traveled surfaces (roads), road crossings	1.2 m (4 ft)
	Right-of-ways	1 m (3.3 ft)
	Highways	1.5 m (5 ft)
	Water crossings, and below drainage and irrigation ditches	1.2 m (4 ft)
Services	Private property	0.5 m (1.6 ft)
	Road crossings	0.9 m (2.9 ft)

3.5 Points of Thrust

Additional precautions may need to be taken when working in the vicinity of points of thrust. Points of thrust occur at pipeline fittings such as elbows (45° or 90°), end caps, weld tees, reducers, closed valves, and reduced port valves. If a point of thrust is identified through the locate process, GDS may require additional time to review the proposed work area. In the event that the excavation involves exposing a point of thrust or exposing an area near a point of thrust, GDS may provide written specific instructions that are to be followed. Failure to follow these instructions can result in significant harm to persons, property, or the environment.

3.6 Repair of Damaged Pipe and Pipe Coating

In all cases where the pipeline or the pipeline coating is damaged by construction activities, GDS must be contacted immediately and the excavation left open until GDS personnel have made the necessary repairs.

3.7 Encroachment

Permanent awnings and roof structures are prohibited above GDS's facilities within public rights-of-way or GDS's rights-of-way. GDS will not accept responsibility for any damages resulting from maintenance or operation of its facilities to encroaching structures within the public or GDS rights-of-way. Examples of encroaching structures include: bus shelters, street benches, and garbage bins.

GDS requires approval for all permanent structures to be built within 7 m (22.9 ft) of GDS's vital pipelines. This requirement is in place to allow GDS sufficient access and working space should an inspection or repair be needed.

3.8 Tree Planting

When planting trees, the gas pipeline in and near the area of excavation must be located to ensure enough clearance is maintained between the pipeline and the tree.

For all vital pipelines (including CER and transmission pipelines), trees or large shrubs must maintain a horizontal clearance between the edge of the root ball or open bottom container to the adjacent edge of the existing pipelines of not less than 3.0 m (10 ft), or as specified in any applicable easement agreement.

For all other pipelines, a minimum horizontal clearance of 1.2 m (4 ft) is recommended between the edge of the root ball or open bottom container and adjacent edge of the existing gas pipeline.

In cases where the recommended clearance cannot be achieved, GDS may specify the installation of a root deflector.

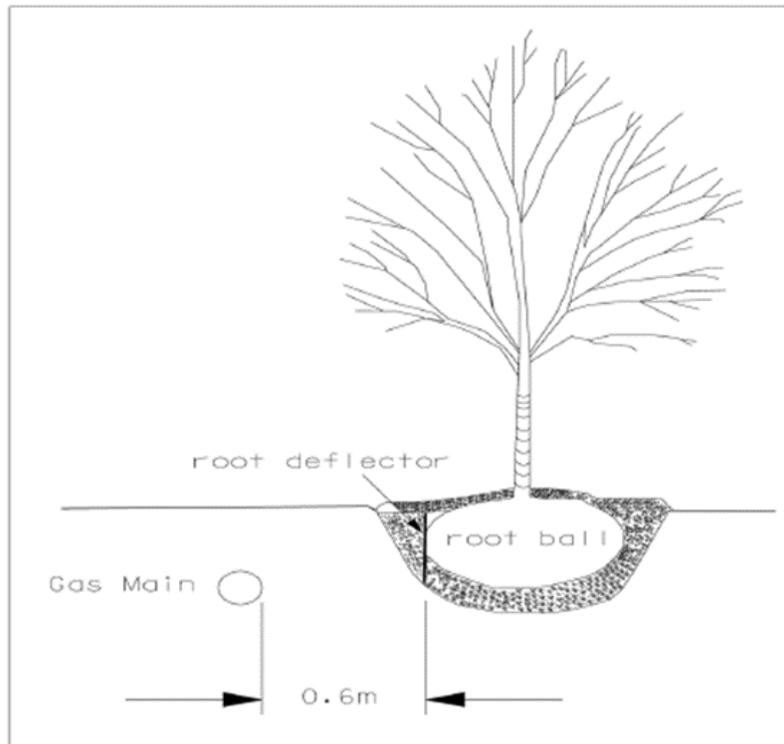
3.8.1 Root Deflectors

A root deflector is a physical barrier placed between tree roots and pipelines to prevent damage to the pipelines. A root deflector can be made from 1/4 in thick rigid plastic, fiberglass, or other non-degradable material. The root deflector is intended to prevent the root tips from attaching to the gas main.

Typically, root deflectors are straight barriers or encircle the tree. If installed as a straight barrier, the root deflector should be installed at a minimum 0.6 m (2 ft) from the pipeline on the tree-side of the pipeline. Also, it should extend parallel to the pipeline in both directions for 1.2 m (4 ft) measured from the centre of the tree trunk.

Root deflectors usually have a collar to keep the top of the deflector at ground level, and extend down to the bottom of the root-ball as shown in [Figure 1: Example of a Root Deflector](#).

Figure 3-1: Example of a Root Deflector



3.9 Sewer and Drain Cleaning

Prior to sewer clearing activity using mechanical cutting or high pressure jetting equipment, the third party should call into [Ontario One Call](#) at 1-800-400-2255 for a

cross bore sewer safety inspection. An EGI employee or contractor will attempt to attend the site within two hours to complete the inspection.

4 Minimum Clearance from Other Structures

The following clearances must be maintained between the circumference of the gas pipeline and other underground structures:

Table 4-1: Minimum Clearance Between Gas Pipelines (Less than NPS 16) and Other Underground Structures

Direction	Minimum Clearance m (ft)
Horizontal	0.6 m (2 ft)
Vertical	0.3 m (1 ft)

Table 4-2: Minimum Clearance Between CER-regulated Pipelines and Vital Pipelines and Other Underground Structures

Direction	Minimum Clearance m (ft)
Horizontal	1 m (3.3 ft)
Vertical	0.6 m (2 ft)

Additional clearance or mitigation may be required for installations (such as transit systems or power transformers) that will introduce DC stray current interference or AC fault hazards.

Note



For all pipelines (including vital pipelines), when drilling parallel to the pipeline, a minimum horizontal clearance measured from the edge of the pipeline to the edge of the final bore hole of 1 m (3.3 ft) is required.

5 Pipeline Location Verification

5.1 Surface Road Work

Surface road work applies to ground disturbance on travelled roadways related to the removal of hard-surfaces only. For any ground disturbance work, locates must be obtained prior to commencing and the excavator must ensure accuracy of the locate by reviewing the locate paperwork with the physical locate markings. Surface road work can be completed without the requirement to positively identify EGI pipelines, provided no mechanical equipment will be used within 1 m (3.3 ft) horizontally of the located pipelines. If mechanical excavation is required within 1 m (3.3 ft) of the locate during any surface road work or work that will take place deeper than removal of the hard surface, the excavator must follow rules outlined in [5.2 Subgrade Road Work on page 11](#) for positive identification requirements.

5.2 Subgrade Road Work

Subgrade road work is any road work exceeding the depth required for removal of the hard surface that enters the sub-surface. The boundary area for the pipeline is the distance that is identified off the locate marks of the pipeline and applicable boundary areas are highlighted in [Table 5-1: Boundary Areas on page 11](#).

Table 5-1: Boundary Areas

Pipeline	Boundary Area
Vital pipelines (\geq NPS 24)	3 m (10 ft)
Vital pipelines ($<$ NPS 24)	2 m (6 ft)
Non-vital pipelines (all sizes)	1 m (3 ft)

Note



Work within the boundary areas must comply with the positive identification requirements set in [Table 8-2: Pipeline Location Verification Requirements for Vital Pipelines on page 22](#) and [Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines on page 22](#).

If these guidelines cannot be complied with, the excavator must submit a variance request work package. No variance will be provided for work within 1 m (3.3 ft) of any pipeline. The variance work package must include, at a minimum, the following information:

- Pre-Engineering design.
- Location of EGI facilities with respect to proposed excavation area (vertical and horizontal offsets).
- Location of proposed excavation area (vertical and horizontal offsets off permanent landmarks).
- Pipeline protection plan.

If a variance is requested, the excavator must also provide a physical barrier (e.g., silt fence), which would denote the boundary of the pipeline, where possible.

[8.2 Drilling Parallel to Pipelines on page 21](#) and [Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines on page 22](#) indicate GDS's minimum requirements for the verification of the pipeline location based on the nature of the work. The frequency and location of test holes may change at the

discretion of GDS. Additional test holes may be required to sufficiently confirm the location of the pipeline (e.g., regulator stations).



Note

Non-mechanical equipment must be used when working within 1 m (3.3 ft) of any pipeline. If mechanical equipment is required for use around non-vitals, the pipeline must be positively identified using hand tools or hydro-excavation. Once the non-vital pipeline location has been visually identified through positive identification requirements listed in the [8.2 Drilling Parallel to Pipelines on page 21](#) and [Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines on page 22](#), mechanical equipment can be used up to 0.3 m (1 ft) of the non-vital pipeline and 1 m (3.3 ft) of a vital pipeline.

When using hydro-vacuum excavation as an alternative to hand digging, see [9 Hydro-Excavation on page 25](#) for safe operating practices.

6 Operation of Heavy Equipment

6.1 General

Additional precautions are necessary when equipment in excess of the weights listed in [Table 5: Vehicle Load Restrictions](#) is operated in the vicinity of buried facilities where no pavement exists or where grading operations are taking place.

Table 6-1: Vehicle Load Restrictions

Pipe Material	Weight/Axle Maximum Allowable Load kg (lb)
Plastic	7,000 kg (15,400 lb)
Steel	10,000 kg (22,046 lb)

Prior to any crossing, the location of the gas main must first be staked out by a GDS representative.

The excavator is responsible for confirming the location and depth of the main. Test hole spacing must not exceed 50 m (160 ft).

6.2 Equipment Moving Across the Pipeline

Crossing locations for heavy equipment must be kept to a minimum.

The crossing locations must be determined by GDS after reviewing:

- The nature of the construction operation.
- The types and number of equipment involved.
- The line and depth of the existing gas main.

The use of equipment is contingent upon the review by GDS. Once the crossing locations have been established, heavy equipment is restricted to crossing at these

locations only. It is the responsibility of the third party to inform their personnel of the crossing location restrictions.

Pipelines may require additional protection at crossing locations by constructing berms or installing steel plates over the pipeline.

Unless expressly allowed by the temporary crossing consent, equipment that crosses pipelines must be subject to the following conditions:

- The numbers of crossings back and forth must be kept to a minimum.
- Equipment must not remain stationary on top of a pipeline.
- Equipment must not cross with loaded side boom or other unbalanced loads.
- Equipment must cross perpendicular (not parallel) to the pipeline. The crossing angle for installations must be within 45° to 90° (with preference for as close to perpendicular as possible).
- Equipment must operate at slow speeds when crossing a pipeline in order to minimize loading impact.
- Existing cover over a pipeline must not be reduced; any loss of cover (e.g., due to rutting) must be promptly restored prior to crossing.
- Vibratory compaction equipment must not operate within 1.2 m (4 ft) of a pipeline.

6.3 Equipment Moving Along the Pipeline

Heavy equipment can be operated parallel to existing pipelines provided that a minimum offset of both:

- 1 m (3.3 ft) is maintained on pipeline sizes less than NPS 16.
- 2 m (6.6 ft) on pipeline sizes NPS 16 and larger, unless otherwise directed by GDS.

Only lightweight, rubber-tired equipment may be operated directly over the existing gas pipelines, unless a minimum pipe cover of twice the pipe diameter or 1 m (3.3 ft) (whichever is greater) can be verified. The use of all other equipment is contingent upon review and approval by GDS.

Unless expressly allowed by the temporary crossing consent, equipment moving along pipelines is subject to the following conditions:

- Equipment must operate at slow speeds when moving along a pipeline.
- Existing cover over a pipeline must not be reduced; any loss of cover (e.g., due to rutting) must be promptly restored prior to moving along the pipeline.

- Vibratory compaction equipment must not operate within 1.2 m (4 ft) of a pipeline.

Note



When crossing perpendicular to a pipeline that is smaller than NPS 16 (excluding vital pipelines), the vertical clearance outlined in Table 2: Minimum Clearance Between Gas Pipelines (Less than NPS 16) and Other Underground Structures may be used as long as all positive identification requirements are also followed.

Note



When crossing perpendicular to a pipeline that is NPS 16 or larger, or crossing any CER-regulated pipelines or vital pipelines, a minimum vertical clearance of 1 m (3.3 ft) is required; [8 Horizontal Directional Drilling on page 20](#).

7 Support of Gas Pipelines

7.1 General

The support requirements specified in this section are the minimum requirements. GDS must be notified regarding the support of any gas main. GDS has complete discretion in the approval of any support system. Additionally, if a pipeline is to be exposed for longer than one month, approval must be sought from GDS and work must follow the requirements outlined in [3 General Requirements on page 6](#). Third parties must not depart from these support requirements unless a professional engineer working for or on behalf of the third party has designed an alternative method. Any alternative method must be comparable to these specifications and be, in the opinion of the professional engineer, consistent with good engineering practices. The alternative specification must be documented, approved by a professional engineer and provided to GDS for review prior to the commencement of work. The third party is responsible for the adequate support of the buried gas pipelines exposed during excavation according to this section.

Prior to any crossing, the location of the gas main must first be staked out by a GDS representative.

7.2 Support of Gas Pipelines Perpendicular to Excavation

Temporary support refers to the support of gas pipelines prior to or at the time of excavation to protect the pipeline from deflection due to its own weight while it is exposed. Temporary support must remain in place until the backfill material underneath the pipeline is compacted adequately to restore support of the pipeline.

Before trenching beneath a main or service, temporary support must be erected for pipelines if the unsupported span of pipe in the trench exceeds the length indicated in [Table 7-1: Maximum Span without Support Beam on page 15](#).

Note



For pipelines larger than NPS 16, GDS must be contacted. Contact information can be found in the [12 Contact Information on page 32](#).

When temporary support is required, [Table 7-2: Support Beam Sizes and Maximum Span Between Beam Supports on page 15](#) indicates the required beam for a given span. The beam must be a continuous length grade No. 1 Spruce-Pine-Fir (S-P-F) or equivalent. For spans exceeding 4.5 m (15 ft), a continuous length timber beam may not be available. In that case, steel I-beams (or equivalents) can be used as the support beam. Steel beam selection must be certified by a professional engineer and submitted to GDS for review.

Table 7-1: Maximum Span without Support Beam

Pipe Size (NPS)	Steel m (ft)	PE (polyethylene) m (ft)
1/2	2 m (6.6 ft)	1 m (3.3 ft)
3/4 to 1-1/4	2.5 m (8.2 ft)	1.25 m (4.1 ft)
2	3 m (10 ft)	1.5 m (5 ft)
3 to 4	4.5 m (15 ft)	1.75 m (6 ft)
6	6 m (20 ft)	2 m (7 ft)
8	7 m (23 ft)	2 m (7ft)
10	8.5 m (28 ft)	-
12	10 m (33 ft)	-
16	11.5 m (38 ft)	-

Table 7-2: Support Beam Sizes and Maximum Span Between Beam Supports

Pipe Size (NPS)	Steel	Plastic	
	≤ 4.5 m	≤ 2 m	≤ 4.5 m
1/2 to 2	4 × 6	4 × 6	6 × 8
3 to 6	-	6 × 6	8 × 8

Note



In all cases where the support beam size requirements cannot be met, GDS must be contacted to review support beam requirements.

The beam must be placed above the pipe with the ends of the beam resting on firm undisturbed soil. The beam must not bear directly on the gas pipeline. The pipe must be supported from the beam with rope, canvas sling, or equivalent in a manner that will prevent damage to the pipe and coating and eliminate sag. The spacing between the ropes must not exceed 1 m (3.3 ft); see [Figure 7-1: Support of Gas Pipelines Crossing Excavations on page 18](#).

Backfill material underneath the exposed pipeline must be compacted to a minimum of 95% compaction. Sand padding must be placed to a level 150 mm (6 in) below and above the main. For additional details, see [10 Backfilling on page 26](#).

Perform compaction with the loose lift height not exceeding 200 mm (8 in) or one-quarter of the trench width, whichever is less. Injecting water into the backfill beneath the pipe is not an acceptable method of compaction.

All temporary support on pipelines must be removed before backfilling. Adequate support must remain in place until the backfill material has restored support.

7.3 Support of Pipelines Parallel to Excavation

Two cases exist for pipelines parallel to an excavation:

- Trench < 1.2 m deep
- Trench > 1.2 m deep

In either instance, the pipeline must not be exposed unless it is necessary to provide direct support.

Trench wall support may not be required for excavations provided the pipeline meets all of the following criteria:

- Depth is less than 1.2 m (4 ft).
- the pipeline is at least 0.6 m (2 ft) from the edge of the excavation or outside the 45° line projected upward from the trench bottom; see [Figure 7-3: Influence Lines for Gas Pipelines Adjacent to Excavations on page 20](#).
- Soil is stable (type 1 or 2, see [Table 15-1: Soil Types on page 34](#))

If the pipe does not meet these requirements and the soil is soft clay or sand (soil types 3 and 4), then the excavation must be suitably shored to prevent movement of the pipe. The shoring must remain in place until the backfill material has restored support.

Trench wall support is required for excavations if any one of the following conditions exist:

- Depth is \geq 1.2 m (4 ft).
- The pipeline is closer to the edge of the excavation than the minimum allowed distance indicated [Table 7-3: Minimum Allowed Distance from Main to Excavation on page 17](#).
- Depth is < 1.2 m (4 ft) and the soil is unstable (type 3 or 4, see [Table 15-1: Soil Types on page 34](#)).

Note

Adequate support must remain in place until the backfill material has restored support.

Minimum distances from the edge of the trench to the pipeline in which the excavation influences pipelines are shown in [Table 7-3: Minimum Allowed Distance from Main to Excavation on page 17](#). The pipeline must be supported if these minimum distances cannot be met.

Table 7-3: Minimum Allowed Distance from Main to Excavation

Trench Depth (m)	Soil ^a Type 1 and 2	Soil ^a Type 3 and 4
1.2 m (3.9 ft)	0.9 m (3 ft)	0.9 m (3 ft)
1.5 m (4.9 ft)	0.9 m (3 ft)	0.9 m (3 ft)
1.8 m (5.9 ft)	0.9 m (3 ft)	0.9 m (3 ft)
2.1 m (6.9 ft)	0.9 m (3 ft)	0.9 m (3 ft)
2.4 m (7.9 ft)	0.9 m (3 ft)	0.9 m (3 ft)
2.7 m (8.9 ft)	0.9 m (3 ft)	1 m (3.3 ft)
3 m (9.8 ft)	0.9 m (3 ft)	1.5 m (4.9 ft)
3.3 m (10.8 ft)	0.9 m (3 ft)	1.8 m (5.9 ft)
3.6 m (11.8 ft)	0.9 m (3 ft)	2.2 m (7.2 ft)
3.9 m (12.8 ft)	0.9 m (3 ft)	2.5 m (8.2 ft)
4.2 m (13.8 ft)	0.9 m (3 ft)	3 m (9.8 ft)
4.5 m (14.8 ft)	1 m (3.3 ft)	3.4 m (11.2 ft)
4.8 m (15.7 ft)	1.5 m (4.9 ft)	3.8 m (12.5 ft)
5.1 m (16.7 ft)	2 m (6.6 ft)	4.1 m (13.5 ft)
5.4 m (17.7 ft)	2.5 m (8.2 ft)	4.6 m (15.1 ft)
5.7 m (18.7 ft)	3 m (9.8 ft)	5 m (16.4 ft)
6 m (19.7 ft)	3.4 m (11.2 ft)	5.5 m (18 ft)

a. As defined in the Occupational Health and Safety Act.

For pipelines where the trench bottom is below the water table, the trench must be suitably shored as per the trench wall support requirements.

Any pipeline that is exposed for a length greater than indicated in [Table 7-1: Maximum Span without Support Beam on page 15](#) requires a field assessment.

For steel and polyethylene pipelines within the minimum distances given in [Table 7-3: Minimum Allowed Distance from Main to Excavation on page 17](#), support must remain in place until backfill material restores support.

Figure 7-1: Support of Gas Pipelines Crossing Excavations

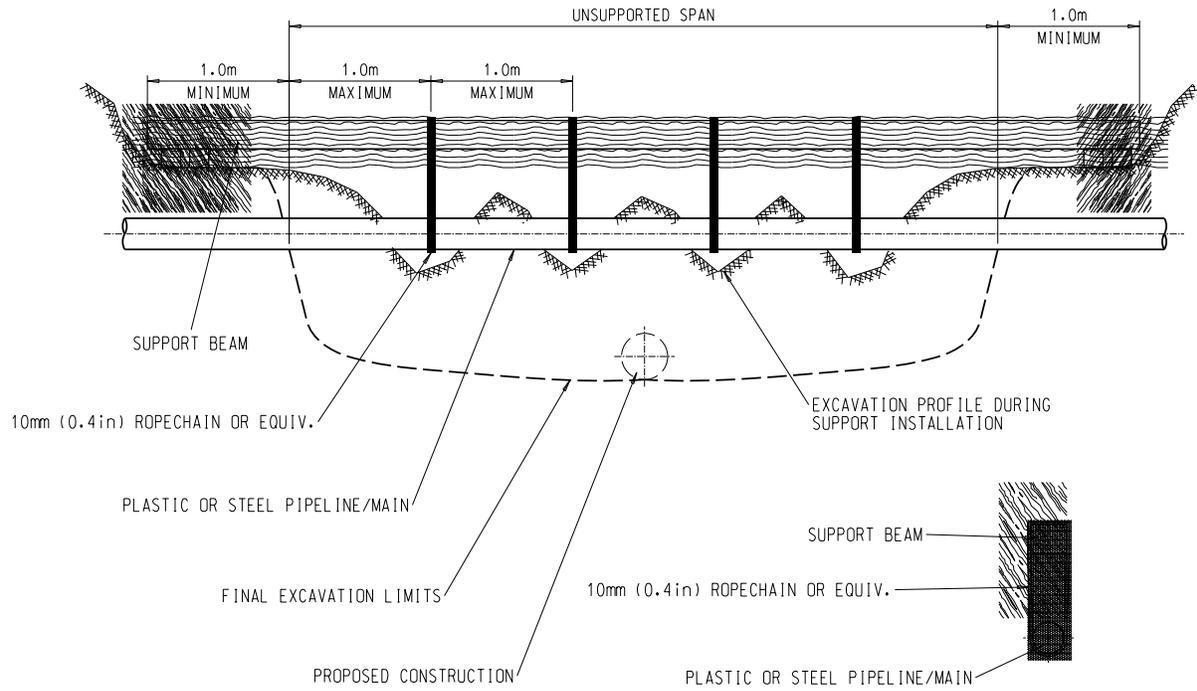
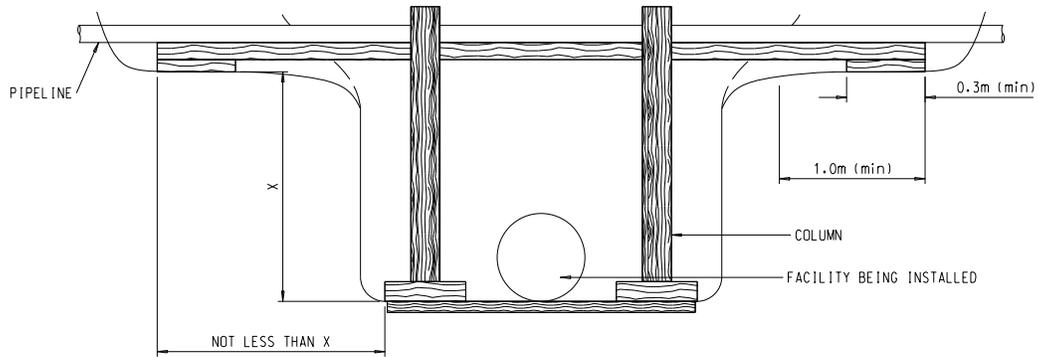


Figure 7-2: Typical Temporary Supports for Pipelines Crossing the Trench – Span Exceeds 4.5 m



NOTES:

1. LAMINATED 4X6 TIMBER BEAM REQUIRED BENEATH ALL NPS 1/2 - NPS 2.
2. LAMINATED 6X6 TIMBER BEAM REQUIRED BENEATH ALL NPS 3 - NPS 6.
3. LAMINATED 8X8 TIMBER BEAM REQUIRED BENEATH ALL NPS 8 - NPS 12.
4. COLUMN SIZE SHALL MATCH LAMINATED TIMBER BEAM REQUIREMENT.
5. COLUMN TO BE SPACED AS SPECIFIED BY PIPELINES AND STATIONS OPERATIONS ENGINEERING.
6. PLASTIC PIPE AND COATING ON STEEL PIPE TO BE PROTECTED FROM SUPPORTS AND STRAPPINGS WITH A PIECE OF RUBBER TIRE OR EQUIVALENT.
7. PLASTIC PIPE MUST BE SUITABLY STRAPPED TO PREVENT MOVEMENT OFF THE BEAM.
8. ADDITIONAL SUPPORTS WILL BE REQUIRED AT MECHANICAL COUPLINGS OR VALVES.

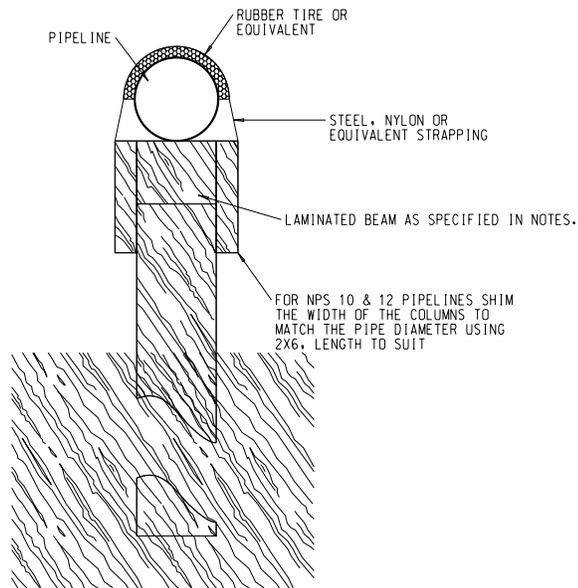
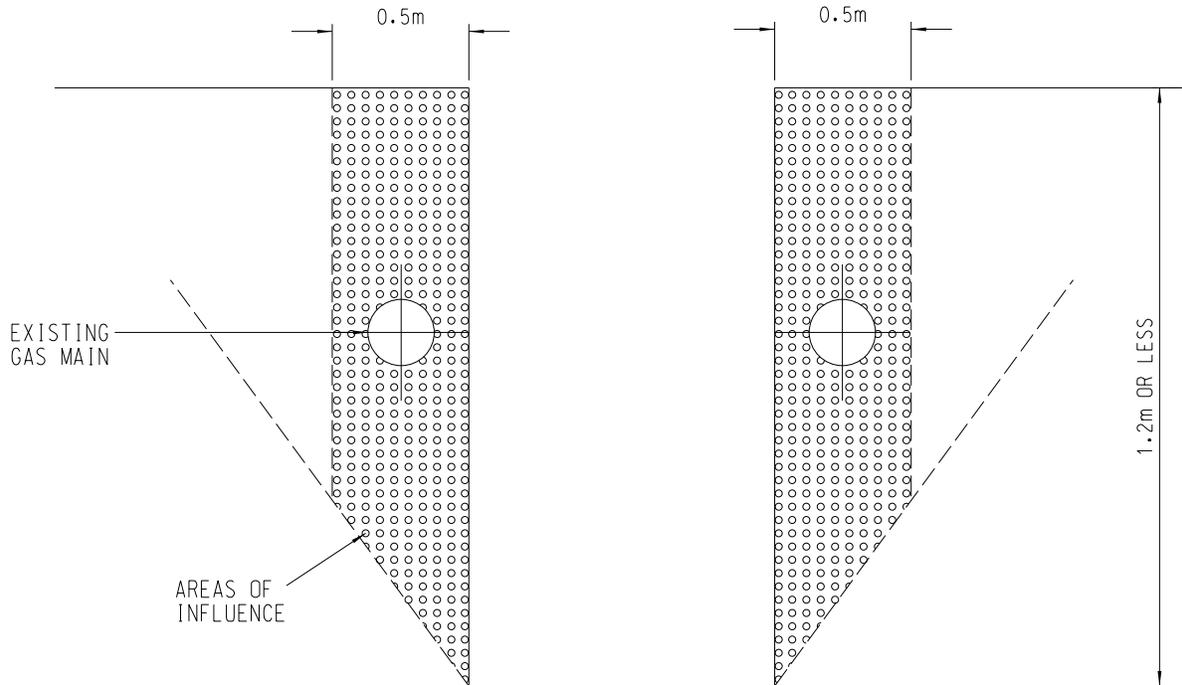


Figure 7-3: Influence Lines for Gas Pipelines Adjacent to Excavations



NOTE:
IF PIPE IS IN SHADED AREA AND SOIL IS TYPE 3 OR 4, THE TRENCH IS REQUIRED TO BE SHORED.

8 Horizontal Directional Drilling

8.1 General

Horizontal directional drilling (HDD) or directional boring is a steerable trenchless method of installing underground facilities. Trenchless technology is used where utilities being crossed are positively identified to confirm location.

For installations using any other type of drilling or augering equipment in the vicinity of gas facilities, GDS must be contacted.

In all cases, positive identification holes are required to visually verify the drill head's location (including depth) relative to the measurement of the tracking equipment. For positive identification hole requirements, see [Figure 8-2: Pipeline](#)

[Location Verification and Clearance Requirements for HDD for crossing all pipelines \(including Vital Pipelines\) on page 25](#). For pipeline location verification and clearance requirements for all horizontal directional drilling see [Table 8-1: Pipeline Location Verification and Clearance Requirements for HDD for all Pipelines \(including Vital Pipelines\) on page 21](#).

If these guidelines cannot be complied with, a variance request work package must be submitted. No variance will be provided for work within 1 m (3.3 ft) of any pipeline. The variance work package must include, at a minimum, the following information:

- Pre-Engineering design.
- Location of EGI facilities with respect to proposed installation area (vertical and horizontal offsets).
- Location of proposed installation area (vertical and horizontal offsets off permanent landmarks).
- Pipeline protection plan.

If a variance is requested, a physical barrier (e.g., silt fence) must also be provided, which would denote the boundary of the pipeline, where possible.

Table 8-1: Pipeline Location Verification and Clearance Requirements for HDD for all Pipelines (including Vital Pipelines)

Location of Work Relative to Pipeline ^a	Required Verification of Pipe Location by Hand Digging or Hydro-Excavation
Crossing below pipeline (HDD)	<p>All sides of pipeline (including below pipeline) exposed to 1.0 m (3.3 ft) from the pipeline's sidewalls.</p> <p>Additional positive identification hole at 2.0 m to 4.0 m (6.6 ft to 13.1 ft) prior to the daylight hole at the crossing, to verify depth and trajectory of drill head and backreamer.</p>
Crossing above pipeline (HDD)	<p>Top of pipeline and all sides exposed to 1.0 m (3.3 ft) or 1.0 m (3.3 ft) below the proposed installation.</p> <p>Additional positive identification hole at 2.0 m to 4.0 m (6.6 ft to 13.1 ft) prior to the positive identification hole at the crossing, to verify depth and trajectory of drill head and backreamer.</p>

a. See [Figure 8-2: Pipeline Location Verification and Clearance Requirements for HDD for crossing all pipelines \(including Vital Pipelines\) on page 25](#).

8.2 Drilling Parallel to Pipelines

When the proposed route is parallel to a natural gas pipeline at a perpendicular distance of 3 m (10 ft) or less, positive identification must be performed at intervals of no more than 10 m (33 ft) along the drilling path so that the precise location of the drilling head and backreamers (if any) can be verified visually. These

excavations must be sufficiently wide to see the entire width of the drilling head, backreamers, and structures from entry point to exit point.



Note

The location of the pipeline must be visually confirmed as per the requirements set out in [Table 8-2: Pipeline Location Verification Requirements for Vital Pipelines on page 22](#) and [Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines on page 22](#).



Note

For all pipelines (including vital pipelines), when drilling parallel to the pipeline, a minimum horizontal clearance of 1 m (3.3 ft) is required.

Table 8-2: Pipeline Location Verification Requirements for Vital Pipelines

Location of Work Relative to Pipeline ^a	Required Verification of Pipe Location by Hand Digging or Hydro-excavation
Work parallel to pipe, within 1 m (3.3 ft)	Spacing of test holes must not exceed 4.5 m (15 ft)
Work parallel to pipe, between 1 m (3.3 ft) and boundary area of pipeline based on size	Spacing of test holes must not exceed 4.5 m (15 ft) ^b
Crossing below pipeline (open excavation)	Top and sides of pipeline, and 0.6 m (2 ft) below the pipeline
Crossing above pipeline (open excavation)	Top and sides of pipeline, or 0.6 m (2 ft) below the proposed installation

a. Test holes must expose top and sides of pipeline

b. For work parallel to pipe, between 1 m (3.3 ft) and boundary area of pipeline based on size, for rural applications, test holes must be completed for any change in direction of the pipeline every 23 m (75 ft).

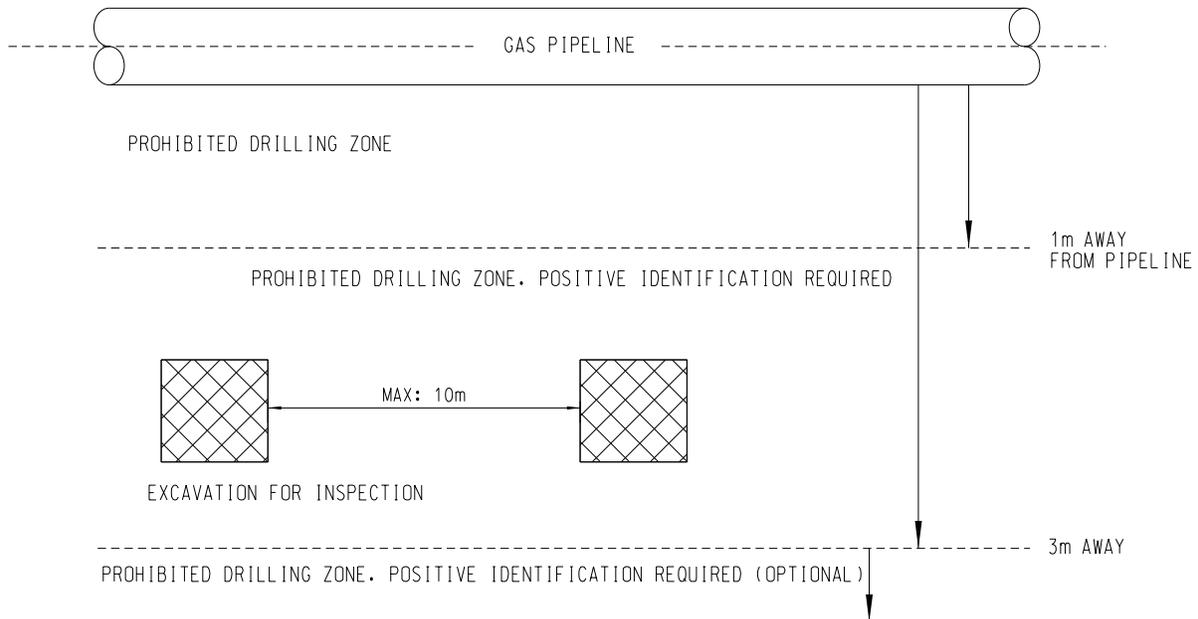
Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines

Location of Work Relative to Pipeline	Required Verification of Pipe location by hand digging or hydro-excavation
Work parallel to pipe, inside of boundary area (1 m [3.3 ft])	Spacing of test holes must not exceed 4.5 m (15 ft)
Crossing below pipeline (open excavation)	For less than NPS 12: Top of pipeline and all sides of the pipeline, or 0.3 m (1 ft) below the pipeline For NPS 12 and larger: Top of pipeline and all sides of the pipeline, or 0.6 m (2 ft) below the pipeline
Crossing above pipeline (open excavation)	For less than NPS 12: Top of pipeline and all sides of the pipeline, or 0.3 m (1 ft) below the proposed installation For NPS 12 and larger: Top of pipeline and all sides of the pipeline, or 0.6 m (2 ft) below the proposed installation

No drilling installation may be performed within a distance of 1 m (3.3 ft) or less from either side of the pipeline. This buffer zone must be clearly designated and

marked off around the work area. This prohibited zone may be widened in some cases.

Figure 8-1: Drilling Parallel to Pipelines



8.3 Drilling Across Pipelines

When the proposed drill path crosses a GDS pipeline, the pipeline must be exposed to the desired depth of the crossing to ensure that the natural gas pipeline is not affected and that the required clearance is maintained during all drilling operations. All minimum clearances must be measured from the outer edge of the drill, including backreamers (if any), to the outer circumference of the pipeline.

To ensure that the directional drilling operation will not result in damage to the pipeline, the following positive identification hole requirements must be followed:

- A positive identification hole must be created that is sufficiently wide enough to see the drill head and backreamer entering the excavation at a minimum

of 1 m (3.3 ft) before crossing the pipeline. See [Figure 8-2: Pipeline Location Verification and Clearance Requirements for HDD for crossing all pipelines \(including Vital Pipelines\) on page 25](#) positive identification hole 1.

- A second positive identification hole must be created prior to reaching the pipeline such that the precise location of the drill head and backreamer (if any) can be verified visually. The positive identification hole must be sufficiently wide to measure the depth and trajectory of the drill head and backreamer. See [Figure 8-2: Pipeline Location Verification and Clearance Requirements for HDD for crossing all pipelines \(including Vital Pipelines\) on page 25](#) positive identification hole 2.

When drilling across pipelines that are smaller than NPS 16 (excluding vital pipelines), the vertical clearance, measured from the edge of the pipeline to the edge of the final bore hole, may follow the vertical clearance outlined in [Table 4-1: Minimum Clearance Between Gas Pipelines \(Less than NPS 16\) and Other Underground Structures on page 10](#) as long as all positive identification requirements are also followed.

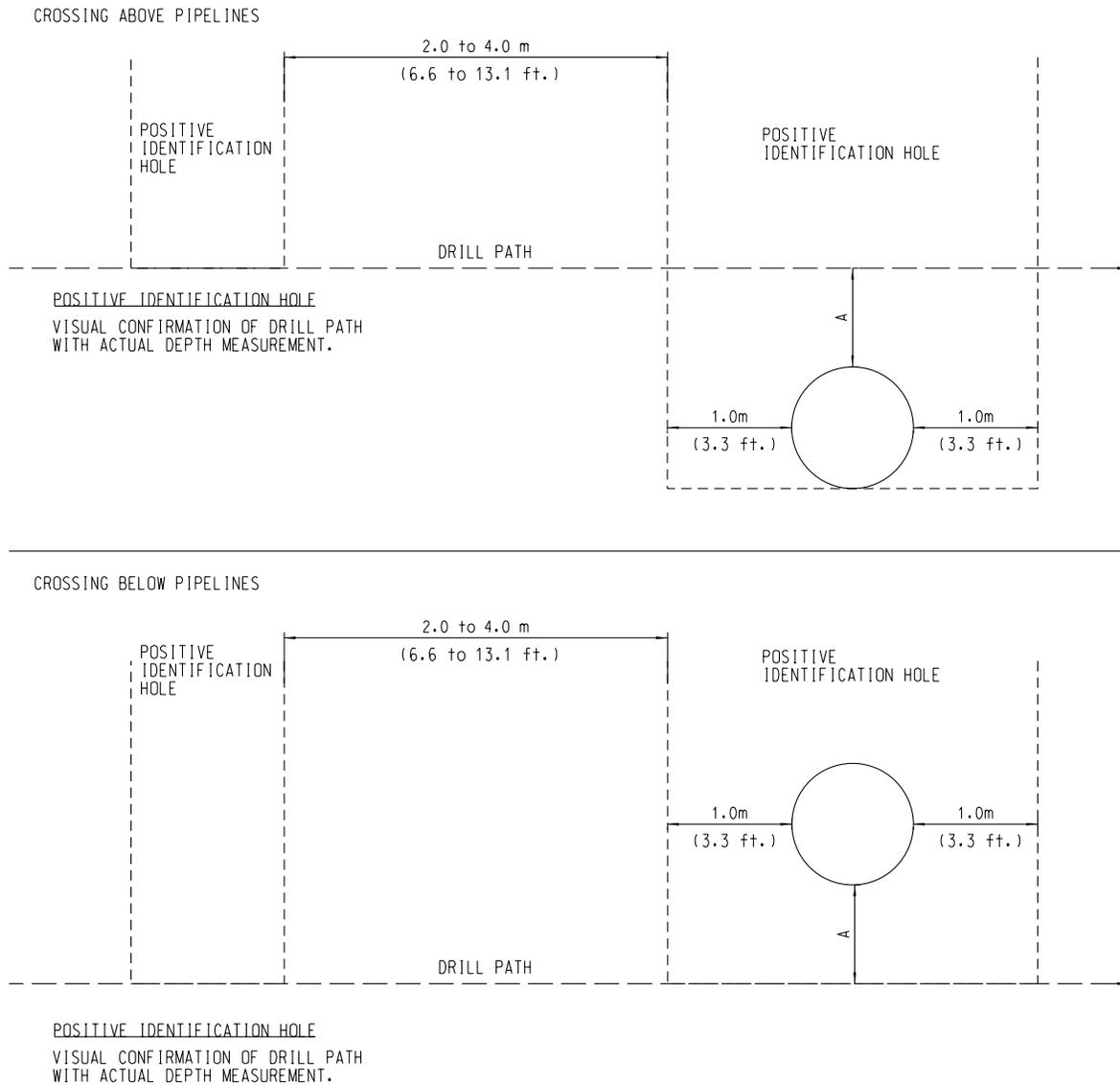
When drilling across pipelines that are NPS 16 or larger, or crossing any CER-regulated pipelines or vital pipelines, a minimum vertical clearance, measured from the edge of the pipeline to the edge of the final bore hole, of 1 m (3.3 ft.) is required.

Note



The location of the pipeline must be visually confirmed as per the requirements set out in [Table 8-2: Pipeline Location Verification Requirements for Vital Pipelines on page 22](#) and [Table 8-3: Pipeline Location Verification Requirements for All Other Pipelines on page 22](#). For specified minimum clearances, see [4 Minimum Clearance from Other Structures on page 10](#).

Figure 8-2: Pipeline Location Verification and Clearance Requirements for HDD for crossing all pipelines (including Vital Pipelines)



9 Hydro-Excavation

9.1 General

Hydro-excavation, also known as hydrovac, is the non-destructive process in which pressurized water is utilized as a method of excavation through loosening and suction of soil, rocks, and other earth materials. Hydro-excavation machines are an alternative to hand digging to locate and expose pipelines.

9.2 Hydro-Excavation Requirements

The following requirements must be met at all times when excavating with hydro-excavation technology:

- Spinning tip nozzles must be used for hydrovac excavations with water pressures that must not exceed the maximum water pressure of 17,236 kPa (2,500 psi) during excavation. Pressure measures must be permanently monitored using a calibrated device mounted on either the hydro-excavation machine (truck and pump), or the wand when using a spinning tip nozzle.
- The wand must never remain motionless during excavation. The wand must never point to the plant at any time.
- A distance of 20 cm (8 in) between the end of the pressure wand nozzle and the plant or subsoil must be maintained. The nozzle must never be inserted into the subsoil while excavating above the plant.
- Hydro-excavation equipment and nozzles must have been specifically designed for use above buried gas lines or other reasonably expected underground gas plants.
- A device capable of stopping the excavation on demand must be installed, such as an approved automatic electronic shut-off or valve on the wand.
- If heated water is used during excavation, the temperature and pressure of the water must not exceed 100 °F (38 °C) and 17,250 kPa (2,500 psi), respectively.
- The excavator must contact the gas utility if any damage to a gas plant occurs while using hydro-excavation technology or any other method of excavation.

10 Backfilling

The gas pipeline must be inspected by GDS for damages before backfilling the excavation. It is the third party's responsibility to ensure that the gas pipeline is not undermined or endangered in any way. If any damage occurs, GDS must be contacted immediately.

The following principles must be followed:

- The backfill does not harm the pipe or coating throughout the installation process and while in service.
- The use of native material (especially with respect to anode installation) and minimize haul out must be maximized.
- A reliable and stable installation must be created and the use of dams included when appropriate.

The Company permits the use of any compacting device that:

- Will compact backfill sufficiently to eliminate any settlement of the pipe or ground surface.
- Will not cause any deformation or damage to the pipe or coating.
- Will not cause any damage to any adjacent building, structure or utility.
- Will not cause any damage to any tree, shrub, tended lawn, or ground cover.

When backfilling where the finished grade has not been established, sufficient soil must be placed over the trench to allow for settlement.

Backfilling must be done in such a manner as to prevent any rocks from being placed at or near the surface of the pipe. Native excavated material must be used as backfill unless otherwise directed by GDS. Where native material is unsuitable, 150 mm (6 in) of approved earth or sand padding must be placed over the pipe for protection, to a minimum depth of 300 mm (12 in). Each layer must be compacted thoroughly by manual tamping. Topsoil must not be used for backfilling.

Aggregate backfill must be replaced in 200 mm (8 in) layers. Each layer must be thoroughly compacted by pneumatic tampers or an equivalent method acceptable to GDS to ensure no settlement. The final layer must be smoothed down with a grader (or a rake for small scale projects) and must be tamped flush or slightly higher than the surrounding ground surface in order to prevent ponding of water and accommodate any future soil subsidence over the trench line.

Backfilling a flooded trench is not allowed. The third party is responsible for the removal of water from the trench, before backfilling. If backfilling on a slope, the backfill must first be placed from the bottom of the slope, then the filling should continue by building upwards. This prevents large voids in the backfill that can occur when the backfill is dumped from the top of a slope.

Backfill and compaction within road allowances must be completed in accordance with the local governing authority.

Unshrinkable fill or other engineered backfill material must be installed only when requested by the municipalities, local governing authority, or as directed by GDS. The approved unshrinkable fill must be batched at a ready-mix plant with a specified maximum compressive strength of 0.7 MPa at 28 days and minimum slump of 150 mm (6 in). After curing, it must be excavatable using hand tools and must meet any governing agency requirements. The pipe and valve assemblies must be sand padded before placement of unshrinkable fill. The third party must ensure that placement of the unshrinkable fill does not displace sand padding or directly contact the pipeline.

If the bulk backfill material contains rocks, stones, or frozen material, pipelines must be padded with padding material to a minimum depth of 150 mm (6 in) over the pipe and fittings. If the location requires the backfill material to be tamped, the padding material must also be tamped.

The final covering of gas pipelines must adhere to municipal requirements.

11 Blasting and Pile Driving

11.1 General

Blasting and pile driving activities in the vicinity of GDS facilities require prior approval by GDS. The [Blasting and Pile Driving Form](#), provided by GDS, must be submitted by the owner of the proposed work for all blasting and pile-driving operations. The request must be submitted a minimum of four weeks prior to the beginning work to allow sufficient time for review.

11.2 Blasting

Before any blasting operation in the vicinity of a gas pipeline can occur, the hazards to the GDS facility must be evaluated. Responsibility for the design of the blast and any resultant damage is borne entirely by the party using the explosives.

A recognized independent blasting consultant must be retained at the applicant's expense to perform an evaluation of the blast design. The independent blasting consultant must be an independent engineering consultant specialized in blasting. A copy of the stamped consultant's validation report must be submitted to GDS for review if blasting is to occur within 30 m (100 ft) of GDS facilities.

If in the opinion of GDS or an independent blasting consultant, blasting cannot be carried out without affecting the facility's integrity, alternatives must be considered, including the replacement or relocation of the affected facility at the applicant's expense. In these situations, additional time must be allowed to obtain the necessary permits and to complete the necessary construction work. In the event a third party is affected as a result of the blasting operations, all expenses associated therewith incurred by GDS must also be at the applicant's expense.

Ontario: The third party must comply with the Ontario Provincial Standard Specification (OPSS 120 – General Specification for the Use of Explosives) in addition to GDS's blasting requirements.

Quebec: The third party must comply with Quebec's Acts regarding explosives (CQLR c E-22 and CQLR c E-22, r 1) and Safety Code (CQLR c S-2.1, r 4), in addition to GDS's blasting requirements.

11.2.1 Surface and Tunnel Blasting Application Process

For subsurface blasting application requirements, refer to the Surface Blasting section of the [Blasting and Pile Driving Form](#).

For tunnel blasting application requirements, refer to the Surface Blasting section of the [Blasting and Pile Driving Form](#) in addition to the Tunnel Blasting section.

To assist with the preparation of the form, locates must be requested to determine the location of the facilities.

11.2.2 Guidelines for Blasting

The information provided in this section is not to be construed as an exhaustive list of performance specifications, but rather a guide for conducting blasting in the vicinity of GDS's facilities. The third party is responsible for ensuring that all blasting work is performed in a good and workmanlike manner in accordance with all applicable laws, codes, by-laws, and regulations.

The third party will be held liable for and indemnify GDS in relation to any and all damage directly or indirectly caused or arising as a result of blasting operations carried out by the applicant, its employees, contractors, or those for whom the applicant is responsible by law. Prior to blasting operations, a site meeting must be arranged with an authorized representative of the applicant and a GDS representative to confirm the location of GDS's facilities and details of the proposed blast.

GDS's pipelines must not be excavated prior to blasting. If excavation is unavoidable, then the pipeline must be properly supported according to GDS's requirements as stated in [7 Support of Gas Pipelines on page 14](#).

The third party must take suitable precautions to protect the exposed pipeline from fly-rock .

Explosives must be of a type that cannot propagate between holes or be desensitized due to compression pressures. Explosives must not be left in the drill hole overnight.

If a surface blast is located less than 10 m (33 ft) from pipeline; creates its first blast hole at a depth equal to the top of the pipeline; and the depth of subsequent blast holes exceeds one half of the horizontal distance to the closest portion of the pipeline, then the required independent blasting consultant's report must specifically address the impact of these conditions. This is not applicable for tunnel blasting operations. The blasting consultant is responsible for the monitoring of blasting vibrations with a portable seismograph capable of transmitting data instantaneously (e.g., via email or cellular) to the required reviewer in the vicinity of GDS's facilities is mandatory to confirm that predicted vibration levels are respected. On a daily basis, a copy of the seismographic report must be provided to GDS.

Peak particle velocity (PPV) must be limited to 50 mm/s (2 in/s) and maximum amplitude must be limited to 0.15 mm (0.006 in).

11.2.3 Post Blasting

A leak survey must be completed at the end of each day of blasting. Upon completion of daily blasting operations and within 30 days after the final blasting, GDS will conduct a leak survey of the pipeline at the third party's expense. Leak surveys will also be completed at the end of each day of blasting. Damage that has resulted from the blasting will be repaired at the third party's expense. A summary of all blasting operations including blasting logs, vibration control, seismograph reports, and other pertinent information must be provided to GDS by the third party daily and at the completion of blasting operations.

11.3 Pile Driving

General pile installation or compaction activities in the vicinity of GDS's facilities must be evaluated by GDS prior to beginning. Any resultant damage as a result of these activities will be borne entirely by the third party undertaking the proposed work.

If in the opinion of GDS, the particular pile installation or compaction operation cannot be carried out without affecting the pipeline or facility integrity, the following must be considered:

- Risk analysis or mitigation program for the proposed operation.
- Alternative construction methods.
- Relocation or replacement of the facility.

All costs incurred will be covered by the third party undertaking the proposed work and final approval for the work will be granted by GDS.

Piles installed using an auger must satisfy the locating and clearance requirements listed in [5 Pipeline Location Verification on page 10](#) and [4 Minimum Clearance from Other Structures on page 10](#), respectively. GDS must provide approval for the installation of piles within 3 m (10 ft) of a vital pipeline.

The third party is responsible for all costs related to customer interruption as well as costs incurred because of work delays. In the event a third party is affected as a result of the pile installation or compaction operations, all expenses associated therewith incurred by GDS will be passed to the third party.

11.3.1 Pile Driving Application Process

The application to pile drive or do compaction work must be sent to GDS via the [Blasting and Pile Driving Form](#).

This work must be completed under the supervisor of qualified personnel. Vibration results must be provided to GDS on a daily basis.

11.3.2 Pile Installation and Compaction Work

The information provided in this section is not to be construed as an exhaustive list of performance specifications, but rather a guide for conducting pile installation and compaction work in the vicinity of GDS's facilities. The third party is responsible for ensuring that all pile installation and compaction work is performed in accordance with all applicable laws, codes, by-laws, and regulations.

Operations must not be permitted within a standoff distance of 3.0 m (10 ft) from the pipeline or other natural gas facility, unless approved by GDS.

Prior to pile installation or compaction work, a site meeting with an authorized representative of the third party and a GDS representative (for the Damage Prevention contact, see [12 Contact Information on page 32](#)) must be arranged by the third party, to confirm the location of GDS's facilities and the details of the proposed work.

It is recommended that during the design phase, pile installation or compaction work drawings be sent to Markups for review (see [12 Contact Information on page 32](#)).

The pipeline should not be excavated prior to the piling or compaction operation. If excavation of the pipeline is necessary, then it must be properly supported in accordance with [7 Support of Gas Pipelines on page 14](#).

The following situations require the opinion of an independent professional engineer:

- Compaction of soils or backfill rated at 10,000 ft-lbs (13,600 Nm) or higher at a stand-off distance of 6 m (20 ft) or less from the pipeline.
- Pile driving at a stand-off distance of 10 m (33 ft) or less from the pipeline facility.
- High-energy dynamic compaction for the rehabilitation of soils at a stand-off distance of 30 m (100 ft) or less from the pipeline.

- Type 4 soil as defined in Article 226 of the Occupational Health and Safety Act and Regulations for Construction Projects (see [Table 15-1: Soil Types on page 34](#)).

For these situations, the appropriate number of seismographs to monitor vibrations is mandatory. The seismographs must be portable with the capability of transmitting data instantaneously (e.g., via email or cellular). This control will confirm the intensity of the vibrations generated by the pile installation or compaction work as projected. Furthermore, reports of recorded intensities must be provided on a regular basis or at the request of GDS.

The peak particle velocity (PPV) measured on the pipeline, or at the closest point of the related structure with respect to the work, must not exceed 50 mm/s (2 in/s). Furthermore, the maximum displacement for the vertical or horizontal component corresponding to the above stated vibration intensity must not exceed 50 mm (2 in) at any given length of the pipeline in question.

If the PPV or displacement limit is surpassed, all operations must stop notwithstanding any delays or costs incurred by the third party or owner of the proposed work. GDS requires that the cause of these higher vibrations or displacements be investigated. GDS may arrange for a leak survey to be conducted. GDS Engineering must approve resumption of operations. Should a situation with low energy compaction operations with a soil cover of less than 1.5 m (5 ft) above the pipeline at a stand-off distance of 3 m (10 ft) or less from a pipeline be encountered, GDS may require the opinion of an independent engineering consultant.

In addition, if a Type 3 soil (see [Table 15-1: Soil Types on page 34](#)) is present on site, GDS may require the opinion of an independent engineering consultant.

The use of an auger may be required in order to avoid the use of piles.

All operations must comply with the Provincial Occupational Health and Safety Act and Regulations for Construction Projects, other applicable laws and regulations, as well as all applicable GDS specifications, standards, and guidelines.

11.3.3 Post Pile Driving Process

The third party must send GDS the items that follow within five business days of the completion of the pile installation via pile driving or compaction operations:

- A summary of all operations.
- Pile driving and compaction logs.
- Vibration control records.
- Seismograph records.

On completion of each day's work, and approximately 30 days after all work is completed, GDS will arrange to conduct a leak survey of the facility. If damage to GDS's facilities is found, it will be repaired by the third party. An invoice will be sent to the third party responsible for the work.

12 Contact Information

Location	Contact
Enbridge Gas Inc 500 Consumers Road North York, ON M2J 1P8	Markups: Mark-Ups@enbridge.com Ontario One Call Locates: 1-800-400-2255 Damage Prevention: 1-866-922-3622 Emergency: 1-866-763-5427 and 1-877-969-0999
Enbridge Gas Inc Storage and Transmission Operations Locates (Dawn) 3332 Bentpath Line P.O. Box 1180 Dresden, ON N0P 1M0	Ontario One Call Locates: 1 (800) 400-2255 Locates: 1-800-265-5260 ext 5102236 Stacey.Smith@enbridge.com Locates: 1-800-265-5260 ext 5102184 Janice.Langstaff@enbridge.com
Enbridge Gas Inc Storage and Transmission Operations Locates (Tecumseh) 3501 Tecumseh Road, Mooretown, Ontario N0N 1M0	Field Operations: 519-312-0176 jay.moore@enbridge.com Field Operations: 519-862- 6004 jason.japp@enbridge.com Tecumseh Control Room: 519-862-6012 Emergency: 1-800-255-1431
Gazifère 706 Boulevard Greber Gatineau, QC J8V 3P8	Locates: 1-800-663-9228 Planning Dept.: 1-819-776-8804 Emergency: 1-819-771- 8321, press 1

Note



The website www.clickbeforeyoudig.com gives access to the damage prevention centres in Canada, and allows locate requests to be made for each province.

13 References

- [IS_F_172 Blasting and Pile Driving Form](#)

14 Document Governance

For document control and maintenance purposes, the following tables capture important information related to this document.

Control and Maintenance

Category	Value
Owned By	Pipeline Engineering
Review Interval	Every three years
MOC-Related	No

Revision History

Table 14-1: September 29, 2021 Release

Release Date	Version	Project Number	RFC Number	Prepared By	Approved By
2021-09-29	1.1.1	n/a	4983	Hooman Zahedi, Supervisor, Pipeline Engineering	Todd Piercey, Manager, Pipeline Engineering
Doc ID	Scope	Document & Section		Summary of Changes	
ST-1E-30A8-8E30	GDS	Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard		Corrected tyop in 11.2 Blasting	

Table 14-2: June 30, 2021 Release

Release Date	Version	Project Number	RFC Number	Prepared By	Approved By
2021-06-30	1.1	n/a	4922	Hooman Zahedi, Supervisor, Pipeline Engineering	Todd Piercey, Manager, Pipeline Engineering
Doc ID	Scope	Document & Section		Summary of Changes	
ST-1E-30A8-8E30	GDS	Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard		Revise tree clearance restrictions in section 3.8.	

Table 14-3: April 28, 2021 Release

Release Date	Version	Project Number	RFC Number	Prepared By	Approved By
April 28, 2021	1.0	6513-20	None	Emily Varga, EIT I, Pipeline Engineering	Todd Piercey, Manager Pipeline Engineering
Doc ID	Scope	Document & Section		Summary of Changes	
ST-1E-30A8-8E30	GDS	Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard		Initial version.	

15 Soil Types

Table 15-1: Soil Types

Type	Definition
Type 1	<ul style="list-style-type: none"> • Hard, very dense, and only able to be penetrated with difficulty by a small sharp object. • Low natural moisture content and a high degree of internal strength. • No signs of water seepage. • Can be excavated only by mechanical equipment.
Type 2	<ul style="list-style-type: none"> • Very stiff, dense, and can be penetrated with moderate difficulty by a small sharp object. • Low to medium natural moisture content and a medium degree of internal strength. • Damp appearance after it is excavated.
Type 3	<ul style="list-style-type: none"> • Stiff-to-firm and compact-to-loose in consistency or is previously-excavated soil. • Exhibits signs of surface cracking. • Exhibits signs of water seepage. • If dry, may run easily into a well-defined conical pile. • Low degree of internal strength.
Type 4	<ul style="list-style-type: none"> • Soft to very soft and very loose in consistency, very sensitive, and upon disturbance is significantly reduced in natural strength. • Runs easily or flows, unless it is completely supported before excavating procedures. • Almost no internal strength. • Wet or muddy. • Exerts substantial fluid pressure on its supporting system.



BURNSIDE

Document G

Articles of Agreement

G. ARTICLES OF AGREEMENT

.....
Contract No. 300054906.0000

THIS AGREEMENT made the _____ day of _____ 20__

BY AND BETWEEN:

.....
(herein and throughout the Contract Documents
called the "Contractor")

TOWNSHIP OF NORWICH

- and -

.....
(herein and throughout the Contract Documents
called the "Owner")

WITNESSETH

That the Owner and the Contractor in consideration of the fulfilment of their respective promises and obligations herein set forth covenant and agree with each other as follows:

ARTICLE I

- (a) This Agreement applies to the supply of all labour, material and equipment necessary to complete the Work as set out in this Contract.
- (b) This Agreement, together with the documents listed in clause 3.2 of Document A of the Bid Documents constitute the "Contract" and are to be read herewith and form part of the Contract as fully and completely to all intents and purposes as though all the stipulations thereof had been embodied herein.
- (c) _____ The date from which this Contract is to be in force is the _____ day of _____, 20__.

- (d) Interest
- (i) Subject to GC 8.02.04.09, Interest for Late Payment and GC 8.02.04.10, Interest for Negotiations and Claims, should either party fail to make payments as they become due under the terms of the Contract or in an award by arbitration or court, interest at a variable nominal rate per annum equal on each day to the Bank Rate then in effect plus one and one-half percent (1.5%) on the outstanding payment shall also become due and payable until payment.
 - (ii) Subject to GC 8.02.04.09, Interest for Late Payment and GC 8.02.04.10, Interest for Negotiations and Claims, interest shall apply at the rate and in the manner prescribed by the preceding section on the amount of any claim advanced and for which the Contractor is thereafter entitled to payment, either pursuant to GC 3.13, Dispute Resolution of the General Conditions, or otherwise, from the date the amount would have been due and payable under the Contract, had it not been in dispute, until the date it is paid.
- (e) The Contract supersedes all prior negotiations, representations, or agreements, either written or oral, relating in any manner to the Work, including the Bid Documents that are not expressly listed as forming part of the Contract Documents. The Contract may be amended only as provided in the Contract Documents. The Contract Documents shall enure to the benefit of and be binding upon the parties hereto, their respective successors and permitted assigns.
- (f) Notwithstanding any other provision(s) in the Contract Documents, in the event of a pandemic (e.g., COVID-19), as declared by the World Health Organization, the terms put forth in this subsection will take precedence and apply to this Contract. Should circumstances arise due to a pandemic which significantly frustrate the Contractor's ability to perform and/or complete the Work, to a degree which, in the sole judgement of the Contract Administrator (in consultation with the Owner and the Contractor), renders continuation of the Work substantially inefficient or impractical and/or completion of the Work impossible, then the Owner may suspend the Work or terminate the Contract, as appropriate under said circumstances.

In the event of a Work suspension, the duration of which would be initially determined and subsequently adjusted as necessary by the Contract Administrator (in consultation with the Owner and the Contractor), the Contractor will be reimbursed by the Owner for reasonable direct costs associated with the suspension (e.g., demobilization/remobilization costs, directly related administrative costs, other specific/direct costs as approved by the Contract Administrator). Consequential/indirect costs or losses

incurred by the Contractor and all subcontractors/suppliers (e.g., loss of profit, loss of opportunity, business impact costs, special or any other incidental/indirect/consequential cost or loss) are excluded from consideration for reimbursement by the Owner in their entirety. The Contract Administrator, in a fair and balanced manner, will be the sole arbiter with respect to determination of qualifying direct costs and excluded indirect/consequential costs. The Contract Time shall be extended for a period of time matching the duration of the suspension, at a minimum, or such longer period of time as deemed appropriate by the Contract Administrator to account for schedule inefficiencies associated with suspending and restarting the Work.

In the event of Contract termination, the Contractor will be reimbursed by the Owner for reasonable direct costs associated with the termination (e.g., payment for all Work performed up to the date of termination as verified by the Contract Administrator, directly related administrative costs, material restocking fees, full payment for materials which cannot be returned/restocked, demobilization, direct subcontract cancellation costs – excluding all associated consequential/indirect costs or losses incurred by subcontractors and suppliers, other specific/direct costs as approved by the Contract Administrator). Consequential/indirect costs or losses incurred by the Contractor and all subcontractors/suppliers (e.g., loss of profit, loss of opportunity, business impact costs, special or any other incidental/indirect/consequential cost or loss) are excluded from consideration for reimbursement by the Owner in their entirety. The Contract Administrator, in a fair and balanced manner, will be the sole arbiter with respect to determination of qualifying direct costs and excluded indirect/consequential costs.

ARTICLE II

THE CONTRACTOR UNDERTAKES AND AGREES:

- (a) To do all the work and furnish all the labour, equipment, materials, tools, plant, appliances and transportation necessary or proper for the performing and completing of the Work, as set forth in the Contract Documents, and in the manner and within the time specified in the Contract Documents and otherwise do and fulfill everything indicated by the Contract Documents.

The Contract Documents are intended to cover and provide for proper completed work in all respects, and everything necessary to carry out this intent which may reasonably be implied from the Contract Documents must be done by the Contractor, even if not explicitly referred to.

- (b) The Contractor shall guarantee the Work free from any defects in materials and workmanship under normal operating conditions throughout the Warranty Period as defined in the Contract.
- (c) The decision of the Contract Administrator is to be final and binding on the Contractor and the Owner as to the nature and cause of any defects and deficiencies in the Work and as to the remedy required for each and as to which party shall bear the cost of such remedy. Failure to comply with the directions of the Contract Administrator within forty-eight (48) hours after written notice may result in the Contract Administrator having the work performed by others and the cost thereof being deducted from the amount due to the Contractor.
- (d) To furnish the following:
- i) Tender Deposit and Contract Security.
 - ii) Evidence of all Insurance required by the Contract Documents.
 - iii) Current Clearance Certificate from the Workplace Safety & Insurance Board (WSIB).
- (e) The Contractor hereby acknowledges and agrees that the cost of any item of work reasonably inferred to be necessary for proper completion of the Work, yet not specifically listed in the Schedule of Unit Prices is considered to be incorporated in the prices that are listed in Schedule of Unit Prices. The Contractor further acknowledges and agrees that the prices listed in Schedule of Unit Prices include, without limitation, duties, taxes, royalties, permits, customs, insurance, contract security, handling, transportation, overhead, profit and all other charges and expenses, except only for the Value Added Tax.

- (f) The Contractor also acknowledges and agrees that:
- (i) The estimated quantities in the Schedule of Unit Prices are only approximate and are not a representation, warranty or guarantee of the number of units of each item that will be a part of the Work and the measured quantities of completed work or materials may vary from such estimated quantities. Such variation will not invalidate the Contract or the prices in Schedule of Unit Prices and the Owner shall have no liability or obligation to the Contractor in regard to such variation including, without limitation, incidental, consequential, direct, loss of profits, loss of opportunity, loss of good will, loss of revenue, special or other damages.
 - (ii) With the exception of the lump sum amounts for completed items set out in Schedule of Unit Prices, payment will only be made for the actual measured quantities of completed work performed or materials furnished as a part of the Work, as determined in accordance with the Contract Documents.
- (g) These amounts may be subject to adjustments as provided in the Contract Documents.
- (h) As such payments become due, the Contractor shall, in accordance with the terms of its agreements with any Subcontractors, pay all of its Subcontractors in full on account of work properly performed or Materials properly supplied, as applicable, less any holdback monies retained in compliance with the *Construction Act* (Ontario).

ARTICLE III

THE OWNER UNDERTAKES AND AGREES:

- (a) The Owner shall pay Contractor, for the performance of the Work, in accordance with the Contract Documents, the following:
 - (i) for the completed lump sum components of the Work, the lump sum amounts set out in Schedule of Unit Prices; and
 - (ii) for the completed unit price components of the Work, the aggregate amount of the actual number of units of measurement of each item multiplied by the appropriate unit price that is set out in the Schedule of Unit Prices.
- (b) Subject to, and in accordance with, the provisions of the Contract Documents, and the *Construction Act* (Ontario), the Owner shall:
 - (i) Make monthly progress payments to the Contractor on account of the Work performed when due in the amount verified by the Contract Administrator together with such Value Added Taxes as may be applicable to such amount verified by the Contract Administrator;
 - (ii) Upon Substantial Performance of the Work, pay to Contractor eighty percent (80%) of the statutory holdback (i.e., eight percent (8%) of the value of completed work) in respect of Work performed up to the date of Substantial Performance when due together with such Value Added Taxes as may be applicable to such payment.
 - (iii) The holdback amount for the warranty period will be \$1,000 or twenty percent (20%) of the statutory holdback, whichever is greater.
 - (iv) Upon the expiry of the Warranty Period, and rectification of all deficiencies and required completion of incomplete Work, pay to Contractor the remaining amount of the statutory holdback (i.e., two percent (2%) of the value of completed work) in respect of the Work performed up to the date of Substantial Performance, which the Owner has retained, when due together with such Value Added Taxes as may be applicable to such payment.

ARTICLE IV

All communications in writing between the parties or between them and the Contract Administrator shall be deemed to have been received by the addressee if sent to:

The Contractor at:

Or by fax

Or by email

- and to the Owner at:

Township of Norwich
ATTN: Dirk Kramer
Drainage Superintendent
285797 Airport Road
Norwich, ON N0J 1P0

- and to the Contract Administrator at:

R.J. Burnside & Associates Limited
ATTN: Jacob Rooke
35 Perry Street
Woodstock, ON N4S 3C4

Or by fax (519) 941-8120

Or by email Jacob.rooke@rjburnside.com

ARTICLE V

This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective successors, executors, administrators and assigns. Note that the use of seals, while encouraged when available, is not mandatory.

IN WITNESS WHEREOF the Contractor and the Owner have respectively affixed their corporate seals and the hands of their proper officers on or about the day and year first above written.

Contractor

For the Contractor/Signature & Seal

Date Signed

Witness

TOWNSHIP OF NORWICH

Owner

For the Owner/Signature & Seal

Date Signed

Witness



BURNSIDE

Reference Documents

**[Note: Reference Documents do not form
part of the Bid or Contract Documents]**



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Ontario and Prairies Region
Fish and Fish Habitat
Protection Program
867 Lakeshore Road
Burlington, ON L7S 1A1

Région de l'Ontario et des Prairies
Programme de la protection
du poisson et de son habitat
867 Lakeshore Road
Burlington, ON L7S 1A1

March 28, 2024

Our file / Notre référence

23-HCAA-02357

Township of Norwich
ATTENTION: Dirk Kramer
285767 Airport Road
Norwich, Ontario, N0J 1P0

**Subject: Drain Improvement, Gore Municipal Drain, Class D, Norwich –
Implementation of Measures to Avoid and Mitigate the Potential for Prohibited
Effects to Fish and Fish Habitat**

Dear Dirk:

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on November 16, 2023. We understand that you propose the following:

- Deepen up to 1,239 linear meters of Gore Drain;
- Replace one culvert at Burford-Delhi Townline Road;
- Install two 20m long sections of gravel to the drain.

Our review considered the following information:

- Request for review form and supporting documents submitted to DFO on November 16, 2023;
- Email and Teams meeting correspondence between Colby Nolan (DFO), Jacob Rooke (RJ Burnside) and Paul MacIntyre (RJ Burnside) from March 7 to March 18, 2024.

Your proposal has been reviewed to determine whether it is likely to result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*; and
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*.

The aforementioned outcomes are prohibited unless authorized under their respective legislation and regulations.

To avoid and mitigate the potential for prohibited effects to fish and fish habitat (as listed above), we recommend implementing the measures outlined in your plan, in addition to the following listed below:

- Plan in-water work, undertaking or activity to respect timing windows (i.e. NO in-water work between October 1 – July 15);
- Preserve or avoid existing gravel and cobble substrates where possible.

Canada

- Clearing of riparian vegetation should be kept to a minimum, when practicable, prune or top the vegetation instead of grubbing/uprooting;
 - Remove vegetation from one side of the drain only;
 - Limit removal of vegetation on the working side as best as possible;
- Develop and implement an Erosion and Sediment Control Plan to avoid the introduction of sediment into any waterbody during all phases of the work, undertaking or activity;
 - Conduct works during low or no flow;
 - Work in the dry where possible;
 - Minimize duration of in-water work;
 - Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation; and
 - Temporary flow check dam at the downstream end of work location to limit sedimentation into downstream watercourses.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not require an authorization under the *Fisheries Act* or permit under the *Species at Risk Act*.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (<http://www.dfo-mpo.gc.ca/pnw-ppc/index-eng.html>) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to remain in compliance with the *Fisheries Act*, the *Species at Risk Act* and the *Aquatic Invasive Species Regulations*.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of fish habitat. Such notifications should be directed to (<http://www.dfo-mpo.gc.ca/pnw-ppc/contact-eng.html>).

Notify this office at least 10 days before starting any in-water works. Send your notification to Colby Nolan (Colby.Nolan@dfo-mpo.gc.ca) and the DFO 10 notification mailbox: DFO.OP.10DayNotification-Notification10Jours.OP.MPO@dfo-mpo.gc.ca. A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Colby Nolan at our Burlington office by email at Colby.Nolan@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,



Andrea Doherty
Senior Biologist

Copy: Jacob Rooke – RJ Burnside
Paul MacIntyre – RJ Burnside
Colby Nolan – DFO



Long Point Region Conservation Authority

PERMIT No. LPRCA-133/24
PROHIBITED ACTIVITIES, EXEMPTIONS AND PERMITS
(CONSERVATION AUTHORITIES ACT - ONTARIO REGULATION 41/24)

4 Elm Street
Tillsonburg, ON
N4G 0C4
Phone (519) 842-4242
Fax (519) 842-7123
www.lprca.on.ca

Permission has been granted to:			
Applicant:	<u>County of Brant</u>	Telephone:	<u>N0E 1A0</u>
Address:	<u>25 Park Ave, Brant</u>	Email:	<u></u>
	<u>N0E 1A0</u>		
Agent:	<u>Jacob Rooke</u>	Telephone:	<u>519-340-2005</u>
Address:	<u>35 Perry Street, Woodstock</u>	Email:	<u>N0E 1A0</u>
	<u>N4S 1J8</u>		
Location/Address of works: <u>467 Norwich Road & 464 Burford-Delhi Townline Road</u>			
Lot:	<u>23, 24</u>	Concession:	<u>14</u>
Municipality:	<u></u>		
Description of Works:	<u>to deepen the Gore Municipal Drain an average of 0.60m (2 feet) for approximately 1,239m (4065 feet).</u>		
	<u></u>		
Type of fill:	<u>n/a</u>		

This permit is valid on the above location only for the period of:

DATE: October 30, 2024 to October 30, 2026

This permit shall be subject to the following conditions:

The Applicant and owner, by acceptance of and in consideration of the issuance of this permit, agrees to the following conditions:

GENERAL CONDITIONS: (SEE REVERSE SIDE OF PERMIT)

<u>SPECIFIC CONDITIONS:</u>
1. Locations and dimensions of proposed works must be as indicated on the enclosed copy of the work permit application dated February 13, 2024 and the Engineer's Report for the Gore Municipal Drain (May 2024).

GENERAL CONDITIONS:

1. This permit does not preclude any approvals required by any other laws or regulations.
2. Temporary sediment & erosion control measures shall be installed around any disturbed and/or exposed ground or excavated material stockpiles, remain in place until the site has been suitably stabilized, and must be monitored regularly to ensure effectiveness. Remedial/Emergency measures must be taken at any sign of failure. This step is considered necessary to prevent the undesirable migration of silt.
3. The Conservation Authority should be contacted within 48 hours prior to the commencement of construction.
4. Authorized representatives of the Long Point Region Conservation Authority may at any time enter onto the lands which are described herein in order to make any surveys, examinations or inspections which are required for the purpose of insuring that the work(s) authorized by this permit are being carried out according to the terms of this permit.
5. It is the responsibility of the permittee to ensure the development is located within the extent of the property boundaries owned by the proponent.
6. This permit is not assignable.
7. The project shall be carried out generally as per the plans submitted in support of the application as they may be amended by conditions of this permit.
8. This approval does not guarantee the soundness of the proposed work and it is the responsibility of the permittee to monitor and maintain the construction activity to ensure the integrity of the work.
9. The applicant agrees to maintain all existing drainage patterns.
10. Any activity or development other than that identified in this permit application must be reviewed by the LPRCA; at which time, staff will determine if additional approvals or an amended permit will be required.
11. Permits are valid for two years. No notice will be issued on expiration of the permit and it is the responsibility of the permittee to ensure a valid permit is in effect at the time work is occurring.
12. **Within the wetland, dredged material be placed on both sides of drain, two times higher than the general specifications (300 mm) and packed on both sides of the drain to retain surface water on the landscape.**



BURNSIDE

Document B – Bid

**Bidders Shall Submit This
Document with Their Bid**