



## ENGINEER'S REPORT

(Drainage Act, RSO 1990, c. D.17)

**PROJECT** | **Upper Portion of the  
Taylor Drain Improvements**  
(Geographic Township of Colchester South)  
Town of Essex, County of Essex  
**Project No. D23-071**

September 29, 2025

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## PREAMBLE

### **MUNICIPAL DRAINS AND THE DRAINAGE ACT**

The "Drainage Act" is one of the oldest pieces of legislation in Ontario, passed in 1859. It provides a democratic procedure for the construction, improvement and maintenance of drainage works. A procedure whereby the Municipality may assist in providing a legal drainage outlet for surface and subsurface waters not attainable under common law. Accordingly, provides much-needed assistance to facilitate the problems of obtaining a legal drainage outlet, engineering and cost distribution.

The Drainage Act provides a legal procedure by which an "area requiring drainage" may receive an outlet drain constructed to dispose of excess stormwater runoff to a sufficient outlet. This drainage infrastructure is otherwise known as a "Municipal Drain". Municipal Drains are identified by Municipal By-Law that adopts an Engineer's Report. The drainage engineer has the obligation to prepare an unbiased Engineer's Report based on information presented in written form, orally, and from visual inspection; in accordance with currently accepted design criteria. These reports form the legal basis for construction and management of the Municipal Drain. As such, an Engineer's Report shall contain specific details such as plans, profiles, and specifications that define the location, size and depth of the drainage infrastructure, together with establishing how costs are shared amongst all stakeholders.

Through the democratic procedure, the Engineer's Report is presented to all Stakeholders in front of Municipal Council (or a Drainage Board appointed by Council) for consideration. The Drainage Act provides an appeal process to address various aspects of Municipal Drains. These appeal bodies are the Court of Revision, the Ontario Drainage Tribunal and the Drainage Referee.

For additional information, Fact Sheets, and reference materials regarding the Drainage Act and Municipal Drains, please visit: <https://www.ontario.ca/page/agricultural-drainage>

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**PROJECT** | **Upper Portion of the  
Taylor Drain Improvements**  
(Geographic Township of Colchester South)  
Town of Essex, County of Essex  
**Project No. D23-071**

September 29, 2025

**Mayor and Municipal Council**

Corporation of the Town of Essex  
33 Talbot Street South  
Essex, Ontario, N8M 1A8

**I. INTRODUCTION**

In accordance with the instructions received by email on August 8, 2023, from the Town of Essex, we have completed the necessary survey, examinations, investigations, etc. and have prepared the following report that provides for the necessary improvements to ensure a sufficient outlet for the upper portion of the drainage system. The overall project includes the necessary improvements to facilitate conveyance through the open channel, and a review and/or improvements of various access structures along the course of the drain. These investigations were initiated by a resolution passed by Council for our firm to investigate the necessary improvements to the Upper Part of the Taylor Drain. All of which are in accordance with the provisions of the Drainage Act. A plan showing the alignment of the Upper Portion of the Taylor Drain, the general location of the subject access structures, and the general details of the proposed improvements, together with identifying all lands affected within the watershed of the drain. All of these details are included herein as part of this report.

The initial request established through our appointment was to provide an Engineer's Report to replace a single access structure within the Taylor Drain. Upon conducting the required On-Site Meeting for this project, and subsequent to reviewing the details of the governing reports and by-laws, the project scope was modified and expanded to review subsequent access structure and include provisions associated with future maintenance of the Upper Portion of the Taylor Drain.

Our appointment and the works related to the Municipal Drain improvements proposed under this report are being prepared in accordance with Section 78 of the "Drainage Act, RSO 1990, Chapter D.17, as amended in 2021". We have performed all of the necessary surveys, investigations, etc., for the proposed improvements to the Taylor Drain, and we report thereon as follows.

**II. WATERSHED CHARACTERISTICS AND BACKGROUND**

The Upper Portion of the Taylor Drain is located within the Town of Essex, beginning at its top end between Lot 10 and Lot 11, Concession 2, along the south side of 3rd Concession Road. It extends easterly along

the south side of 3rd Concession Road to approximately the midpoint of Lot 13, then continues southeasterly through private lands to the west side of McCormick Road. From there, the drain runs briefly south along McCormick Road before crossing to the east side, where it continues southeasterly through private lands to the south side of County Road 20. From this point, the remainder of the drain is referred to as the Lower Portion of the Taylor Drain. This portion extends easterly, meandering between County Road 20 and adjacent private lands to the south, before terminating in the Cedar Creek flats within private lands at the east limit of Lot 39, Concession 1. From this point, the open channel continues as a natural watercourse, forming a tributary of the Cedar Creek watershed.

The Upper Portion of the Taylor Drain is an irregularly shaped watershed encompassing approximately 571 hectares (1410 acres), all within the Town of Essex. It forms part of the larger Cedar Creek watershed, with the vast majority of the affected lands being used for agricultural production. The watershed has modest terrain and fair topographic relief, with the drain characterized by a steep gradient in its upper reaches, a relatively flat middle section, and a modest gradient downstream. Overall, the channel exhibits a fair natural slope, with an average gradient of approximately 0.15%.

The Upper Portion of the Taylor Drain is primarily underlain by Brookston Clay Loam and Harrow Loam soils, with pockets of Tuscola Fine Sandy Loam and Colwood Fine Sandy Loam. These soils fall within the following Hydrologic Soil Group classifications:

Brookston Clay Loam, Tuscola Fine Sandy Loam and Colwood Fine Sandy Loam soils – Classified as Hydrologic Soil Group C & D, which is described as a low to very low infiltration rate when thoroughly wetted and consists primarily of soils with a layer that impedes downward movement of water with moderately fine to fine soil structure. As a result, these soils typically require effective artificial sub-surface drainage to be productive.

Harrow Loam soils – Classified as Hydrologic Soil Group A, which is described as having high infiltration rates when thoroughly wetted and consists primarily of deep, well to excessively drained sand or gravels and has a high rate of water transmission.

### **Definition of Access Structures**

Access structures within a Municipal Drain are drainage pipes or culverts placed within the open channel to convey runoff while providing vehicular access to adjacent properties. These structures may take the form of a simple **access bridge** beneath a driveway or a combination of an access bridge with an extended section to enclose a lawn or boulevard area, commonly referred to as **lawn piping**. When combined, the bridge and lawn piping are considered an **enclosure**.

### **III. DRAINAGE HISTORY**

From our review of the Town of Essex's drainage records, we found various Engineer's Reports prepared through the provisions of the Drainage Act for the entire length of the Taylor Drain. Based on this information, we have utilized the following relevant Engineer's Report as a reference for carrying out this project:

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## **Taylor Drain**

- a) **April 7, 1923**, Engineer's Report for the "Taylor Drain", prepared by J.J. Newman, C.E., was carried out through the Township of Colchester South By-Law. The improvements completed under this report included the deepening and improvements of the existing open drain from its top end between Lot 10 and Lot 11 at Station 0+000.0, downstream to a point along County Road 20, at approximately Station 4+400.0. The works conducted through this by-law included brushing, grubbing, and drain excavation along this reach of the drain, together with enlarging various culverts through this reach of the drain.

Through our review of the 1923 report, we found that **Bridge 3**, as referenced in this report, had been previously identified, enlarged, and improved.

- b) **July 29, 1966**, Engineer's Report for the "Upper Portion of the Taylor Drain", prepared by C.G.R. Armstrong, P.Eng., was carried out through the Township of Colchester South By-Law No. 1112. The improvements completed under this report included the excavation of the existing open drain for the upper reach of the drainage system, from its top end between Lot 10 and Lot 11 at Station 0+000.0, downstream to the south end of the ERCA Greenway Corridor crossing at McCormick Road, identified herein as Station 3+659.4. The works conducted through this by-law included brushing, grubbing, and drain excavation along this reach of the drain, together with the enclosure of the drain within Lot 11, Concession 2.

It should be noted that a subsequent Reconsidered Report was prepared and submitted later that same year, dated November 3, 1966. This report included the upstream extension of the drain enclosure through Lot 11. Based on existing conditions, it appears that a large portion of the improvements identified in this Reconsidered Report were installed. However, the governing By-Law references the original report dated July 29, 1966. It is therefore assumed that the Reconsidered Report was adopted in practice and its details implemented. As part of this work, the original installation of **Enclosure 1**, as referenced in this report, was carried out under the 1966 report.

- c) **April 26, 1968**, Reconsidered Engineer's Report for the "Outlet Portion of the Taylor Drain", prepared by C.G.R. Armstrong, P.Eng., was carried out through the Township of Colchester South By-Law No. 1163. The improvements completed under this report included brushing, grubbing and excavation of the open drain from a point where the drain turns easterly along County Road 20, identified herein as Station 4+219.8, to the most downstream point of the Taylor Drain at its outlet into the Natural Watercourse at Station 6+353.4. These drain improvements also included the construction of a new access bridge and the underpinning of an existing farm access bridge.
- d) **July 6, 1979**, Reconsidered Engineer's Report for the "Taylor Drain", prepared by Maurice Armstrong, P.Eng., was carried out through the Township of Colchester South By-Law No. 1494. The improvements completed under this report included excavation and brushing the drain from the downstream portion of the enclosure in Lot 11, Concession 2 at Station 0+689.7, downstream to a point where the drain crosses to the south side of County Road 20 and commences easterly, at approximately Station 4+232.0.

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Further to our review of the 1979 report, we find that between the 1966 report and the 1979 report, **Enclosure 2**, as referenced in this report, was installed. Therefore, identified within the 1979 report.

- e) **August 15, 1986**, Engineer's Report for the "Maintenance Schedule – Taylor Drain", prepared by N.J. Peralta, P.Eng., was carried out through the Township of Colchester South By-Law No. 1812. This report generally provides for the reassessment of costs for the entire length of the Taylor Drain, so that costs for future maintenance works on this drain may be fairly assessed.

From our detailed research of the above Engineer's Reports, we have determined that the Upper Portion of the Taylor Drain has been designated as a Municipal Drain through the provisions of the Drainage Act. The entire length of this Municipal Drain has been defined and governed by the portions of 1966, 1968, and 1979 Engineer's Reports and By-Laws and extends from Station 0+000.0 to approximately Station 6+353.4.

As it relates to the area of land contributing to this drainage system, the 1986 report would encompass the entire watershed boundary limits contributing flows to the Taylor Drain from the upstream lands. As such, this report was utilized as a starting point in establishing the area of land contributing to the proposed improvements and establishing the distribution of all future maintenance costs. Furthermore, we have also researched and reviewed several governing reports for all abutting watersheds to confirm all changes for the completion of the necessary analysis and determinations that formed part of this project.

Further to our review, we find that **Enclosure 1**, **Enclosure 2**, and **Bridge 3**, which form part of this report and are within the Upper Portion of the Taylor Drain, were constructed and/or identified within the above-mentioned By-Laws. Therefore, those identified would be considered legal entities with respect to this Municipal Drain and may be eligible to have the costs for their replacement and/or improvements shared with the lands and roads within the drain watershed contributing their runoff into the drain, upstream of said structures.

#### **IV. PRELIMINARY EXAMINATION AND ON-SITE MEETING**

After reviewing all of the drainage information provided by the Town of Essex, we arranged for an On-Site Meeting to be scheduled for November 8, 2023. The following people were in attendance at this meeting:

**Table 1 - On-Site Meeting Attendance**

<b>Name</b>	<b>Affiliated Property</b>
Brian Scott	Landowner – 3702 3rd Concession Road
Todd Clifford	Landowner – 2811 County Road 20
Tom Brew	Landowner – 3714 3rd Concession Road
Bill Elford	Landowner – 3602 3rd Concession Road
John Walsh	Landowner – 3685 3rd Concession Road
Paul Struhar	Landowner – 3693 3rd Concession Road
Eugene Berecz	Landowner – 2710 County Road 20
Richard Kokovai	Landowner – 3757 3rd Concession Road
Dave Robertson	Landowner – 2070 McCormick Road
Emily Stajfer	Landowner – 1550 Ridge Road
Mike Lavin	Landowner – 4975 11 Concession Road
Susan Ascott	Landowner – 2834 County Road 20
Joe Holman	Landowner – 3718 3rd Concession Road
Mark Fishleigh	County of Essex Highways
Tanya Tuzlova	Essex Drainage Clerk
Lindsay Dean	Essex Drainage Superintendent
Kiara Kirkland	N.J. Peralta Engineering Ltd.
Tony Peralta, P.Eng.	N.J. Peralta Engineering Ltd.

The following information was discussed:

1. Upon introductions, it was generally discussed that various drainage improvement requests for the Taylor Drain had been submitted to the Town of Essex. These requests include:
  - a. The initial request to replace an existing access bridge over the Taylor Drain for Andrew & Suzan Struhar (720-07100).
  - b. A request to review an existing enclosure over the Taylor Drain for Todd & Debbie Clifford (680-03200).
  - c. A request to review an existing enclosure over the Taylor Drain adjacent to the 3<sup>rd</sup> Concession Road that appears to support the roadway and access to an existing fire hydrant.
2. Mr. Peralta further explained that a Municipal Drain is a communally accepted and owned drainage infrastructure that has been created through the provisions of the Drainage Act of Ontario. This Act provides for a democratic procedure for the construction, improvement, and maintenance of the drainage works. A Municipal Drain is adopted, administered, and maintained through Municipal By-Law. Therefore, once adopted as a Municipal Drain, the By-Law provides the Municipality with the authority to enter private lands, as the caretaker of the communal infrastructure. The Municipality's role is to ensure the drain is kept up and maintained on the watershed's behalf.
3. Mr. Peralta further explained the purpose of the "On-Site Meeting". He explained that this meeting is a mandatory requirement of the Drainage Act and is intended to be the initial step in the process to provide a general introduction to the project and to help establish a general scope of work based on the submitted request and subsequent discussions of this meeting.

4. Mr. Peralta elaborated on the engineering roles for this project. He explained that he was appointed by the Town of Essex, through the provisions of the Drainage Act, to prepare an Engineer's Report for the necessary improvements to the Taylor Drain to address the request for improvements within the drainage system.
5. Mr. Peralta shared the general history of the Taylor Drain and outlined the various reports that govern the entire length of the Taylor Drain. From this review, it was determined that the Municipal Drain is generally governed by three (3) reports (1966, 1968, and 1979). Each of which governs over specific sections of the Municipal Drain.
6. Mr. Peralta advised that this project is under the jurisdiction of the Department of Fisheries and Oceans (DFO), the Essex Region Conservation Authority (ERCA), and the Ministry of Natural Resources (MNR). As such, further consultation with these agencies will be initiated.
7. Mr. Peralta further explained that through the provisions of the Drainage Act, landowners who contribute to and/or benefit from the drainage works are assessed their fair share of the project costs. Based on the likely scope of work intended for the Taylor Drain, assessments may be levied to all affected owners based on the added benefits to the overall system and/or the contribution of runoff from each property. The landowners were advised that, at this early stage of the project, the scope, analysis, and design have yet to be considered. Therefore, the details and potential costs associated with the project have yet to be established.
8. Mr. Peralta explained the overall drainage report, future maintenance, and potential appeal processes, together with reviewing grant eligibility with the landowners.
9. Mr. Peralta opened up discussions with the landowners and requested that they provide their comments and concerns regarding the Taylor Drain, as it relates to this overall project. He further explained that the information shared at this meeting will help establish the overall scope and direction of this project.
10. Various landowners had questioned their contributions to the drainage system and whether they would expect to see costs associated with this project. Mr. Peralta clarified that should the scope of the project focus solely on the drainage structures in question, properties that contribute runoff from their land, and reside upstream of the subject structures, would likely be assessed costs with this project.
11. Mr. Struhar confirmed that his family had requested the replacement of their farm access bridge. He further outlined that the current access is in very poor condition, and the current access top width does not meet farming equipment needs. As such, he recommended that the replacement access bridge include a suitable top width for farming practices. Mr. Peralta identified that he has found that the majority of farmers tend to request that the replacement access bridge be accompanied with a minimum top width of 9.10 metres (30.0 feet). However, he further clarified that as part of their preliminary design, these details can be reviewed prior to finalizing these details.
12. Mr. Clifford identified that the concerns brought forward to the Town were specific to the extreme storm event that occurred in August 2023, where runoff overtopped the enclosure structure and

created some erosion. However, he felt that the structure itself was still in good physical condition and did not show signs of impeding flows during normal storm conditions. It was identified that, following the adjournment of the meeting, we could conduct a review of the structure.

13. At the conclusion of the discussions, we advised that we would remain in close consultation with landowners who would be directly affected by the proposed drainage improvements to review the details of the proposed works.
14. Following the conclusion of the meeting, a small group of people accompanied Mr. Clifford to review the condition of his enclosure structure. Upon review of the structure, both Mr. Peralta and Ms. Dean confirmed that the structure did not appear to impede flow in the drain, nor be deficient in structural integrity. Therefore, it was determined that the structure did not require replacement at this time.

#### **V. FURTHER INVESTIGATIONS, FIELD SURVEY, AND CHANGES IN SCOPE**

Based on the details of the On-Site meeting, it was confirmed that the enclosure structure for Todd & Debbie Clifford (680-03200) would not require replacement at this time and that the scope of work established for this project would focus on the replacement of the access bridge for Andrew & Suzan Struhar (720-07100) and the existing enclosure for the Town of Essex.

Following the On-Site Meeting and through the progression of this project, Lindsay Dean had informed us that the existing access portion of an enclosure serving the lands of Mohit Nayar (730-00600)/[Parcel 115] and Kornelia Franz (730-06100)/[Parcel 116] has developed sinkholes over top of the existing driveway. Upon conducting a site visit, it was determined that the existing access culvert portion of the enclosure had reached the end of its service life and was in need of replacement. Through discussion with the affected landowners, it was determined that the replacement of this drainage structure shall form part of the improvements to the Taylor Drain.

Based on the information gathered at the On-Site Meeting and the refinement of the scope of work through consultation with affected landowners, we arranged for our Survey Crew to conduct a topographic survey of the site. This work included obtaining all necessary levels and details of the existing access structures, as well as surveying a considerable distance upstream and downstream of each structure to establish an appropriate design grade profile for the installation of the new structures.

Upon reviewing the survey information, we identified several discrepancies between the design information contained in the governing By-Laws and the existing conditions of the Upper Portion of the Taylor Drain, with drain grades and elevations found to be significantly different from those prescribed in the By-Law. Based on this new information, we reviewed the findings with the Town's Drainage Superintendent. From these discussions, it was agreed that the project scope shall be expanded to include new design grades and elevations for the Upper Portion of the Taylor Drain, to ensure the drain has a sufficient outlet and to establish parameters for future maintenance.

Based on this amendment to the scope of work, our detailed survey had expanded to commence at the top end of the Municipal Drain at the point between Lot 10 and Lot 11 and extended downstream to a point

where the Taylor Drain crosses County Road 20, east of McCormick Road. These detailed investigations were conducted to verify the existing drain parameters throughout the project site and to analyze and achieve a sufficient outlet for the Municipal Drain. The survey also included reviewing existing benchmarks and establishing new ones from previous work carried out on the drain, which were then used to set a relative site benchmark near the location of the new access bridge. We also took numerous cross-sections of the Taylor Drain throughout the surveyed length, as necessary, for us to complete our review, analysis, and design.

To establish the watershed area, we investigated and reviewed all of the past Engineer's Reports on the Taylor Drain. We also carried out cross-checks of the watershed limits utilizing the most recent reports of the numerous drains in the vicinity of the Taylor Drain. In addition, we utilized current LiDAR information to cross-check the watershed limits at various locations throughout the watershed. All of the above investigations not only provided us with the correct watershed area but also provided us with accurate information to assist us with the preparation of our Construction Schedule of Assessment and Future Maintenance Schedules of Assessment for this project.

## **VI. REGULATORY REQUIREMENTS THROUGH ENVIRONMENTAL AGENCIES**

As a regulatory requirement, through the provisions of the Drainage Act, applicable Federal and Provincial legislation and policy must be considered when completing drainage works.

The Drainage Act specifically identifies the rights of the Conservation Authority, through the Conservation Authorities Act, for all Municipal Drains within their jurisdiction. Upon receiving the request for improvements to the Taylor Drain, and prior to our appointment to this project, the Town of Essex had submitted a notice to the Essex Region Conservation Authority (ERCA) as required through Section 78(2) of the Drainage Act, for their comments and concerns related to the requested works. Prior to the scheduled On-Site Meeting, we received the initial comments from the ERCA. The ERCA had confirmed that the Taylor Drain is located within the regulated limits through Section 28 of the Conservation Authorities Act and is subject to the necessary permitting for the proposed works.

The initial comments provided by the ERCA also confirmed the need to obtain approvals and/or authorizations from the appropriate governing agencies associated with the Fisheries Act and the Endangered Species Act as part of our regulatory obligations through provisions of the Drainage Act.

With respect to the Department of Fisheries and Oceans (DFO) concerns and comments, we have performed a project-based self-assessment for the subject drainage works according to the guidelines and requirements established by the DFO and as listed on their website.

The Ministry of the Environment, Conservation and Parks (MECP) currently regulates the Endangered Species Act, 2007. New regulation provisions under Ontario Regulation 242/08, Section 23.9, allow the Municipality to conduct repairs, maintenance, and improvements within existing Municipal Drains, under the Drainage Act, and these works are exempt from Sections 9 and 10 of the Endangered Species Act, so long as the rules in the regulation are followed. If eligible, the regulatory provision allows Municipalities to give notice to the Ministry by registering their drainage activities through an online registry system.

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## **VII. FURTHER INVESTIGATIONS, HYDRAULIC ANALYSIS, AND DESIGN REQUIREMENTS**

Municipal Drains were created based on the requirements, guidelines, land use and the desired level of service required at the time of their installation. Based on a historical review of Municipal Drains in Essex County, drainage systems were typically designed to a level of service equal to (or below) the modern 2-year return period (50% chance of occurring each year). With time and evolution, design standards change to meet current climate conditions, design requirements, and improved materials, together with changes to the landscape within the watershed. As such, the replacement of existing drainage infrastructure may require improvements to meet current standards and guidelines.

"A Guide for Engineers Working Under the Drainage Act in Ontario" - OMAFA Publication 852 (2018), is the current reference documentation used by Engineers carrying out work on Municipal Drains through provisions of the Drainage Act. Based on this document, the 2-year return period storm design (50% chance of occurring each year) is the recommended design standard for the minor flow path (channel) applied to Municipal Drains within rural Ontario, specific to open drain channels and low-hazard agricultural access crossings. The exception is for residential, industrial, and commercial properties where flooding could create significant damage to the surrounding properties, a higher 5-year (20% chance of occurring each year) to 10-year (10% chance of occurring each year) return period storm design could be utilized. Considering the lands adjacent to the Upper Part of the Taylor Drain are predominantly rural land-use, a minimum two (2) year return period storm design was utilized for the evaluation of the minor flow path for the open drain. The major flow path (overland) conveys the less frequent, more extreme storm events. The 1:100-year return period (1% chance of occurring each year) is the regional storm event that has been confirmed by the ERCA as their major flow path design standard.

Residential, major agricultural culverts or bridge structures within a Municipal Drain require a 5-year to 10-year return period (20% to 10% chance of occurring each year, respectively) as the recommended design criteria. Considering most of the agricultural crossings are of low-hazard variety, a 5-year return period was utilized in the analysis of the residential and agricultural crossings. For culverts in Municipal Drains crossing Municipal Roads, a 10-year return period (10% chance of occurring each year) storm is the recommended design criterion.

## **VIII. FINDINGS AND RECOMMENDATIONS**

Based on the topographic survey, detailed investigations, discussions and reviews with affected landowners, Municipal Staff, and environmental agencies, together with information derived from the On-Site Meeting and other directions issued for this project, we have established the general requirements to adequately address the necessary improvements to the Taylor Drain. Our findings and recommendations are outlined in the following paragraphs.

### **ERCA, DFO and MNRF/MECP Considerations**

During the course of our investigations, this drainage project was discussed and reviewed in detail with Ashley Gyori and Summer Locknick, of the ERCA, to address the regulatory requirements, concerns, and comments related to this Municipal Drain. The Upper Portion of the Taylor Drain is located within the regulated area and is under the jurisdiction of the ERCA. Therefore, an ERCA Permit is required for the

improvements to the Taylor Drain. Further to the above, the ERCA provided us with their comments and concerns through email correspondence, and said correspondence is included herein in **Appendix "A"**.

With respect to the Department of Fisheries and Oceans (DFO) concerns and comments, the proposed works within this Municipal Drain were "self-assessed" by the Engineer, through the DFO website and the utilization of the "Guidance for Maintaining and Repairing Municipal Drains in Ontario" to determine whether this project shall be reviewed by the DFO. The Taylor Drain, where the drainage structures are to be replaced, has been established as Class 'F' by the DFO. Based on the DFO Self-Assessment website and the guidance document, we have determined that the project activities would not require a DFO review for the works proposed under this project, so long as standard measures for fish habitat and migration are implemented. A copy of the DFO "Best Management Practices – Culvert Replacements in Municipal Drain" document is also included within **Appendix "A"**.

The Ministry of Natural Resources (MNR) transitioned the responsibilities of the Species at Risk Provincial Legislation to the Ministry of the Environment, Conservation and Parks (MECP). Section 23.9 of the Endangered Species Act, 2007 allows the Municipality to conduct eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08. In recognition of the impact that these species may experience as a result of the subject works, the Town of Essex has comprehensive mitigation measures as well as species identification guides for reference. These references shall be provided to the successful Tenderer and shall be available for viewing at the Municipal Office for those interested.

Through correspondence with the ERCA, the DFO, and our review through the Endangered Species Act, we have provided for all of the ERCA, DFO, and MECP concerns and comments in our design and recommend that these drainage works be constructed in total compliance with all of the above.

### **Taylor Drain Improvements**

From our investigations, examinations, calculations, discussions, and determinations with the affected parties, the following findings were noted, and recommendations regarding the general improvements required for the Taylor Drain are provided as follows:

#### **Taylor Drain Parameters:**

Based on our detailed survey, investigations, examinations, discussions and review with the affected Owners, we offer the following findings and recommendations relative to the drainage works to be carried out within the Upper Portion of the Taylor Drain.

1. Top End Abandonment – Station 0+000.0 to Station 0+311.2: We find that the Engineer's Report prepared by C.G.R. Armstrong, P.Eng., dated November 3rd, 1966, currently governs the design parameters for the top end of the Upper Portion of the Taylor Drain from Station 0+000.0 to Station 0+311.2. Upon our review of this report, we found inconsistencies with existing configuration, grades, and elevations relative to this governing report. This report identifies approximately 300.0 metres of open channel configuration at its most upstream portion of the drain. However, the current configuration appears to be either filled-in and/or includes a drainage tile enclosure through this section. Through discussions with Town Staff, and given that this portion of the drain

only accepts flows from the adjacent roadway with no contribution from private lands, we determined that it provides no benefit to the broader watershed. Accordingly, it was established that this section of the Taylor Drain, now heavily modified relative to the governing by-law, serves solely the adjacent roadway. As such, we recommend that the Taylor Drain, from Station 0+000.0 to Station 0+311.2, be abandoned in accordance with Section 19 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

2. New Design Grades and Elevations – Station 0+311.2 to Station 4+219.8: Our review indicates that the existing drain parameters throughout much of the Upper Portion of the Taylor Drain do not align with those established in the governing by-law. The design parameters are currently governed by the Engineer's Report prepared by Maurice Armstrong, P.Eng., dated July 6, 1979, which applies from Station 0+311.2 to the crossing at County Road 20 (east of McCormick Road) at Station 4+219.8. Our review identified significant inconsistencies between the existing drain conditions and the parameters set out in the governing report. Accordingly, adjustments to the design gradient were necessary to reflect the current conditions of the drain and existing culverts. As part of this report, we have prepared a new design profile for the Upper Portion of the Taylor Drain that maintains conveyance through the Outlet Portion of the Taylor Drain, governed by the April 26, 1968, Reconsidered Report prepared by C.G.R. Armstrong, P.Eng. The updated profile and cross-sections are provided strictly for future maintenance purposes; no physical excavation work will be undertaken as part of this project.
3. New Updated Maintenance Schedule of Assessment: Further to our review of the drain parameters and governing reports, we have found that since the completion of the August 15th, 1986, Engineer's Report and By-Law, various changes have taken place within the drainage area and around the watershed boundaries. In general, many properties have been subdivided and/or merged, drainage patterns have been altered, and land uses have changed. All of the above changes are not properly reflected by the Schedule of Assessment contained within the governing By-Law, and it is necessary to prepare a new Maintenance Schedule of Assessment to properly account for all of the lands and roads affected by the Upper Portion of the Taylor Drain.

### **Taylor Drain Access Structure Improvements**

Municipal Drains provide an outlet for storm runoff from their watershed and may extend along roadways or through private lands. To maintain access, drain crossings are constructed across open channels, whether to provide ingress and egress along public roads or simply to allow private landowners to move between portions of their property. These crossings are essential infrastructure for both public and private access. The opening size of each crossing is determined by the volume of runoff contributing to the drainage system, together with its rate of flow, specific to its location within the watershed. Sections 17 and 18 of the Drainage Act establish the mechanism for constructing, improving, or reconstructing crossings that are recognized as legal entities within a Municipal Drain. As part of this project, we were asked to investigate specific access structures within the Upper Portion of the Taylor Drain. Our review indicates that these structures were identified in past Engineer's Reports. To determine a basis for their replacement or improvement, we analyzed each structure according to the following criteria:

1. The vintage of each structure.
2. The condition of the existing culvert and headwalls.
3. The culvert size and/or capacity requirements.
4. The invert elevations of the culvert pipe relative to the design grade (where applicable).

From our survey, investigations, and the criteria mentioned above, we find and recommend the following:

Enclosure 1 - Mohit Nayar (730-00600)/[Parcel 115], Kornelia Franz (730-06100)/[Parcel 116], and the Town of Essex for 3rd Concession Road

The existing access crossing and lawn enclosure, extending from Station 0+311.2 to Station 0+689.7, provides access from 3rd Concession Road to the respective lands while enclosing the open drain along the frontage of Parcel 116 (Lot 11, Concession 2). This entire enclosure was originally installed under the November 3, 1966, Engineer's Report prepared by C.G.R. Armstrong, P.Eng. According to that report, the downstream portion consisted of a shared driveway culvert approximately 15.24 metres (50.00 ft.) in length, constructed of 900mm (36") corrugated steel pipe. The upstream end connected to a catch basin, from which an additional 372.20 metres (1,221.13 ft.) of concrete drainage tile (300mm to 400mm diameter) extended upstream, supplemented by an overland conveyance swale and catch basins. The combined enclosure has a total length of 387.40 metres (1,271.00 ft.). Only this described portion is currently recognized as a legal entity of the Taylor Drain.

Our review indicates that the current enclosure is approximately 378.50 metres in total length. The downstream portion includes a 21.40-metre driveway culvert serving both properties, with a stacked concrete headwall at the downstream end and a concrete catch basin at the upstream end. The remaining length consists of concrete tile with an accompanying overland conveyance swale. Along the frontage of the Kornelia Franz homestead (Parcel 116), the conveyance swale has been further enclosed with approximately 28.10 metres (92.20 ft.) of 400mm concrete and corrugated steel pipe. This enclosure of the conveyance swale was not part of the 1966 Report and does not appear to have been included in the original installation. In comparison to the 1966 Report, the current enclosure appears shorter than originally specified, with a 6.10-metre (20.00 ft.) culvert extension added to the downstream access portion, as well as the additional enclosure of the swale along the Franz property frontage. These modifications were never included in any By-Laws and therefore, are not presently recognized as legal components of the Taylor Drain.

In terms of performance, the enclosure and swale system are adequately sized for at least the 1:5-year storm event and are set to appropriate grades and elevations. The upstream tile remains in fair condition with years of serviceable life remaining. In contrast, the corrugated steel driveway culvert, associated headwall, and concrete catch basin are in poor condition and have reached the end of their service life.

The details of our findings were reviewed with the affected landowners, and the owners confirmed their preference that the shared driveway culvert be replaced with a similar driveway width using the most economical materials and end treatments available. Based on our evaluation, we recommend replacing the existing access portion, between Station 0+668.3 to Station 0+691.3, with 23.00 metres (75.46 ft.) of 900mm diameter, 320 kPa smoothwall HDPE pipe, with a sloped quarried limestone end treatment at the downstream end and a 600mm x 1200mm ditch inlet catch basin to replace the existing catch basin structure, at the upstream end. The rest of the enclosure shall remain unchanged. The resulting enclosure

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will total 380.10 metres (1,247.05 ft.) in length. As a legal entity of the Taylor Drain, the cost of replacing this access portion shall be shared among the access users and all lands and roads within the upstream watershed. These details are summarized in the Construction Schedule of Assessment included in this report. In addition, provisions have been made for the future maintenance and/or replacement of this structure, herein identified as **Enclosure 1**.

#### Enclosure 2 - Town of Essex for 3rd Concession Road

The existing drain enclosure extending from Station 1+795.8 to Station 2+059.3 serves both to protect the roadway and to provide access to an existing fire hydrant located along the frontage of Parcel 100, within Lot 13, Concession 2. This enclosure was originally identified in the July 6, 1979, Engineer's Report prepared by Maurice Armstrong, P.Eng. However, the original installation of this enclosure was never identified within any previous By-Law. According to that report, the enclosure consisted of approximately 264.90 metres (869.09 ft.) of 600mm (24") corrugated steel pipe with vertical headwalls, together with an overland conveyance swale above. As such, only this described portion is currently recognized as a legal entity of the Upper Portion of the Taylor Drain.

Our review of the existing conditions indicates that the current enclosure measures approximately 263.50 metres (864.50 ft.) and includes sheet pile headwalls shaped to match the accompanying conveyance swale. The conveyance swale also includes 5.50 metres (18.04 ft.) of 600mm corrugated steel pipe providing access to an existing fire hydrant. This hydrant crossing was not included in the 1979 Report and appears to have been installed subsequently.

In terms of performance, the combined enclosure pipe and conveyance swale are adequately sized for at least the 1:5-year storm event and are set to appropriate grades and elevations. However, the fire hydrant crossing obstructs flow through the system. In addition, the enclosure pipe and sheet pile headwalls are in poor condition and have reached the end of their serviceable life. Based on our evaluation, we recommend that this structure be replaced in its entirety as part of this report.

Based on our findings, we recommend that the entire enclosure be replaced with 264.00 metres (866.14 ft.) of 600mm diameter, 320kPa smoothwall high-density polyethylene (HDPE) pipe, with sloped quarried limestone end treatments at both ends, while maintaining the overland conveyance swale. We further recommend replacing the existing fire hydrant access with 11.00 metres (36.09 ft.) of twinned 900mm diameter, 320kPa smoothwall HDPE pipe with sloped quarried limestone end treatments, designed to match the carrying capacity of the overland conveyance swale. The new enclosure shall extend from Station 1+795.3 to Station 2+059.3.

Through the 1979 By-Law, the purpose of this upstream enclosure was not clearly defined. However, given the variable soils and evidence of roadway instability along this section, it is our understanding that the original enclosure was installed primarily for the benefit of the roadway. Accordingly, the Road Authority shall assume responsibility for the costs associated with the enclosure pipe and conveyance swale. The costs related to the fire hydrant crossing shall be assessed solely to the Town of Essex Water Department, as the governing utility.

These details are summarized in the Construction Schedule of Assessment included in this report. In addition, provisions have been made for the future maintenance and/or replacement of this structure, herein identified as **Enclosure 2**.

#### Bridge 3 – Andrew & Suzan Struhar (720-07100)/[Parcel 103]

The existing farm access bridge extending from existing Station 2+622.2 to Station 2+628.2 serves as the primary access to the agricultural lands of Andrew & Suzan Struhar (720-07100)/[Parcel 103], within Lot 13, Concession 2. This farm crossing structure was originally identified within the initial April 7, 1923, Engineer's Report prepared by J.J. Newman, C.E. Therefore, this structure is considered a legal entity with respect to the Taylor Drain. The existing structure consists of 6.00 metres of 1800mm diameter corrugated steel pipe, with stacked concrete pieces end treatments. This structure has further been labelled herein as **Bridge 3**.

We find the existing culvert is slightly undersized with respect to the minimum 1:5-year peak storm event. Additionally, the entire access bridge is found to be in poor physical condition and has reached the end of its serviceable lifespan. Based on our evaluation, we recommend that this structure be replaced as part of this report.

Through our discussions with the owner's representative, Mr. Paul Struhar, we were advised that he would like to see the replacement of this access bridge include a wider top width to facilitate larger farm equipment. As a result, he has requested that we include provisions in this report to provide a minimum of 9.10 metres (30.00 ft.) driveway top width using the most economical materials and end treatments available. Based on our review with the property owner, we recommend that the existing access bridge be replaced with 17.00 metres (55.77 ft.) of 1800mm diameter, Aluminized steel Ultra-Flo pipe, together with sloped quarried limestone end treatments, resulting in a driveway top width of approximately 9.10 metres (30.00 ft.), extending from Station 2+612.7 to Station 2+629.7. As a result of these discussions, this report and the works proposed herein have been prepared on that basis.

With this structure deemed a legal entity with respect to this Municipal Drain, the costs for the standard 6.10 metres (20.00 ft.) access bridge top width shall be shared by the adjoining Bridge Owner and the lands and roads within the watershed, located upstream of this structure. The additional top width, beyond the 6.10 metres (20.00 ft.), shall be assessed entirely to the Bridge Owner. These details have been summarized within the Construction Schedule of Assessment included in this report. As part of this report, provisions have also been made to address future maintenance and/or replacement of this structure, identified herein as **Bridge 3**.

#### **Taylor Drain Access Structure Improvements Summary**

In summary, we have reviewed the specified existing structures within the Taylor Drain and provided our recommendations as detailed herein. Our recommendations include the improvements to **Enclosure 1**, **Enclosure 2** and **Bridge 3**, together with which shall be performed in accordance with this report and the attached specifications. Furthermore, all of the above shall be carried out in accordance with Section 17, Section 18, and Section 78 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

**IX. ALLOWANCES AND COMPENSATION**

All of the physical work carried out under this project is located within and adjacent to the 3rd Concession Road right-of-way, and/or private lands. Furthermore, all areas disturbed by this work are specified for full restoration. Therefore, these works shall not require land to be taken, nor result in any loss of production of agricultural property or any indirect damages to the non-agricultural areas. Therefore, no allowances or compensation shall be provided under Sections 29 and 30 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2021".

**X. ESTIMATE OF COST**

Our estimate of the total cost of this work, including all incidental expenses, is the sum of **TWO HUNDRED EIGHTY-ONE THOUSAND ONE HUNDRED FORTY-NINE DOLLARS (\$281,149.00)** made up as follows:

CONSTRUCTION ITEMS					
Item	Description	Est Qty	Unit	Unit Price	Total
1.	<b>Enclosure 1 Replacement                      (Station 0+668.3 to Station 0+691.3);</b> Excavate, completely remove and dispose of the existing culvert, end treatment, and catchbasin associated with the driveway portion of the enclosure; Provide all labour and equipment to construct a new enclosure consisting of 23.00 metres (75.46 ft.) of 900mm diameter, 320kPa Smoothwall High Density Polyethylene (H.D.P.E.) plastic pipe with water-tight gasketed joining system, including sloped quarried limestone end treatment, 600mm x 1200mm pre-cast concrete ditch inlet catch basin, 1.90 metres deep, with galvanized steel honeycomb grate with horizontal grade, installation of floatation anchors, granular bedding, granular backfill within driveway limits, granular transition, excavation, compaction, topsoil, seeding and mulching, clean-up and restoration, complete.	1	Lump Sum	\$ 35,000.00	\$ 35,000.00
2.	<b>Enclosure 2 Replacement                      (Station 1+795.3 to Station 2+059.3);</b> Completely remove and replace the existing enclosure culvert, fire hydrant access, and end treatment.				

Item	Description	Est Qty	Unit	Unit Price	Total
a)	Excavate, completely remove and dispose of the existing enclosure and end treatments, in its entirety; Provide all labour and equipment to construct a new enclosure consisting of 264.0 metres (866.14 ft.) of 600mm diameter, 320kPa Smoothwall High Density Polyethylene (H.D.P.E.) plastic pipe with water-tight gasketed joining system, including sloped quarried limestone end treatment and transitions, installation of floatation anchors, granular bedding, native backfill, excavation, compaction, topsoil, seeding and mulching, clean-up and restoration, complete.	1	Lump Sum	\$ 96,900.00	\$ 96,900.00
b)	Excavate, completely remove and dispose of the existing fire hydrant access culvert and end treatments, in its entirety; Provide all labour and equipment to construct a new fire hydrant access with twinned 6.10 metres (36.09 ft.), total of 12.2 metres (40.00 ft.), of 900mm diameter, 320kPa Smoothwall HDPE pipe with water-tight gasketed joining system, including sloped quarried limestone end treatment, installation of floatation anchors, granular bedding, granular backfill within driveway limits, granular transition, excavation, compaction, topsoil, seeding and mulching, clean-up and restoration, complete.	1	Lump Sum	\$ 16,900.00	\$ 16,900.00
3.	<b>Bridge 3 Replacement (Station 2+612.7 to Station 2+629.7);</b> Excavate, completely remove and dispose of the existing access culvert and end treatments, in its entirety; Provide all labour, equipment and materials to construct a new access bridge consisting of 17.00 metres (55.77 ft.) of 1800mm diameter 2.8mm thick, Aluminized Steel Corrugated Ultra-Flo Pipe with 190mm x 19mm Corrugations, including sloped quarried limestone end treatments, granular bedding and backfill, granular approaches and transitions, granular backfill in all gore areas, tile extension and diversion, excavation, compaction, topsoil, seeding and mulching, cleanup and restoration, complete.	1	Lump Sum	\$ 44,000.00	\$ 44,000.00
4.	Net HST for the above construction items (1.76%)				\$ 3,393.00
<b>TOTAL FOR CONSTRUCTION =</b>					<b>\$ 196,193.00</b>

INCIDENTALS		
1.	Report, Estimates and Specifications	\$ 16,700.00
2.	Survey, Assistance, Expenses and Drawings	\$ 26,700.00
3.	Updated Maintenance Schedule	\$ 13,400.00
4.	Re-Establish Profile Grades	\$ 10,100.00
5.	Duplicating Report and Drawings	\$ 200.00
6.	Estimated Cost for Letting Contract	\$ 2,000.00
7.	Estimated Cost for Part-Time Inspection, Supervision and Project Management during Construction (approx. 2.5 weeks duration)	\$ 13,600.00
8.	Net HST on the above items (1.76%)	\$ 1,456.00
9.	Estimate Cost for ERCA Permit	\$ 800.00
<b>TOTAL FOR INCIDENTALS =</b>		<b>\$ 84,956.00</b>
<b>TOTAL FOR CONSTRUCTION</b> (brought forward) =		<b>\$ 196,193.00</b>
<b>TOTAL ESTIMATE =</b>		<b>\$ 281,149.00</b>

**XI. DRAWINGS AND SPECIFICATIONS**

As part of this report, we have attached the design drawings for the improvements proposed under this project. The design drawings show the alignment of the Upper Portion of the Taylor Drain, the associated watershed limits, and the approximate location of the specified structures within this drain. These drawings further illustrate the required improvements and ancillary works associated with this Municipal Drain. The design drawings are attached to the back of this report and are labelled herein as **Appendix "B"**. The drawings attached herein have been reduced in size and the scale therefore varies. However, full-scale drawings can be viewed at the Essex Municipal Office, if required.

Furthermore, we have prepared General Specifications and Special Provisions, which set out the required construction and future maintenance details for the various aspects of the works to be conducted under this report.

**XII. CONSTRUCTION SCHEDULE OF ASSESSMENT**

We would recommend that all of the costs associated with the improvements to the Upper Portion of the Taylor Drain, including all related incidental expenses, be charged against the lands and roads affected per the attached **Construction Schedule of Assessment**.

It should be noted that the attached Construction Schedule of Assessment shall be utilized only for the sharing of all of the costs associated with the work being provided for under this report, and said

Construction Schedule of Assessment should not be utilized, under any circumstance, for the sharing of any future maintenance works conducted to any portion of the Municipal Drainage System established herein.

### **Assessment Components**

The total individual assessments, within the Construction Schedule of Assessments, are comprised of four (4) separate assessment components, including:

- i. *Benefit is defined as advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures, as it relates to Section 22 of the Drainage Act.*
- ii. *Outlet Liability is defined as part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet, as it relates to Section 23 of the Drainage Act.*
- iii. *Special Non-Proratable (Section 26) Assessment is defined as; in addition to all other sums lawfully assessed against the property of a public utility or road authority under this Act, and despite the fact that the public utility or road authority is not otherwise assessable under the Act, the public utility or road authority shall be assessed for and shall pay all the increase of cost of such drainage works caused by the existence of the works of the public utility or road authority.*

### **XIII. ASSESSMENT RATIONALE**

#### **Open Channel Assessment Rationale**

Benefit Assessment - The removal of accumulated sediment from the open channel will improve water flow through the drainage system. Cleaning the drain will restore its hydraulic capacity and ensure a sufficient outlet for the system. Properties located near the Upper Portion of the Taylor Drain will directly benefit from these improvements, as the risk of floodwater backup and property damage is reduced. Accordingly, the Benefit Assessment shown in the Maintenance Schedule of Assessment has been levied against these nearby properties, in accordance with the definition provided above.

Outlet Assessment – According to the parameters set within Section 23 of the Drainage Act, all lands which utilize the Municipal Drain as a drainage outlet may be assessed for Outlet Liability. As further outlined within Section 23(3) of the Drainage Act, the Outlet Assessment is "**...based on the volume and rate of flow of the water artificially caused to flow...**". Based on the characteristics of the lands that contribute flow to the Upper Portion of the Taylor Drain, runoff factors have been applied based on the land use of each property to reflect the actual amount of water that is artificially collected and discharged into this Municipal Drain. Therefore, developed lands (residential, commercial, industrial lots and roads) have an increased run-off factor applied to their assessment. Contrarily, lands which have surface (or subsurface) runoff that exits the watershed, or contain woodlots, would have a decreased run-off factor applied to their

assessment. Furthermore, additional factors have been included in these outlet assessments that relate to soil types and the location of where each property's runoff enters the Upper Portion of the Taylor Drain.

### **Access Structure Assessment Rationale**

Benefit Assessment - Properties which reside adjacent to the open drain are entitled to access their lands. These lands gain an advantage from an access structure constructed within the Municipal Drain for the purposes of accessing their lands. Therefore, a Benefit Assessment is levied against those properties that gain an advantage related to the betterment of their lands, based on the definition provided above.

Outlet Assessment – According to the parameters set within Section 23 of the Drainage Act, all lands which utilize the Municipal Drain as a drainage outlet may be assessed for Outlet Liability. As further outlined within Section 23(3) of the Drainage Act, the Outlet Assessment is “...**based on the volume and rate of flow of the water artificially caused to flow...**”. Based on the characteristics of the lands that contribute flow to the drainage system, runoff factors have been applied based on the land use of each property to reflect the actual amount of water that is artificially collected and discharged through the proposed structures. Therefore, developed lands (residential, commercial lots and roads) have an increased run-off factor applied to their assessment. Contrarily, lands which have surface (or subsurface) runoff that exits the watershed, or contain woodlots, would have a decreased run-off factor applied to their assessment.

## **XIV. COST DISTRIBUTION OF CONSTRUCTION SCHEDULE OF ASSESSMENT**

### **Assessments Shared with the Watershed**

Based on the details of this project, we have established our construction assessment rationale and determinations relative to the various improvements being carried out to the Upper Portion of the Taylor Drain. Through this review, we have determined that specific components of this project shall be assessed for the lands and roads within the Upper Portion of the Taylor Drain watershed. These components include the following:

- a) Updated Maintenance Schedule of Assessment: As part of this project, a new Maintenance Schedule of Assessment has been prepared to more fairly distribute future maintenance costs. Since the completion of the governing 1986 schedule, a number of changes have occurred within the drainage area and watershed boundaries. These include property subdivisions and consolidations, altered drainage patterns, and changes in land use. As a result, the current governing schedule does not adequately reflect these changes or properly account for all lands and roads affected by the Upper Portion of the Taylor Drain. The engineering costs for preparing the updated Maintenance Schedule of Assessment total an estimated **\$13,636.00**. These costs shall be assessed to all lands and roads within the Upper Portion of the watershed, as outlined in the accompanying schedule forming part of this report. Generally speaking, the costs will be shared among all properties who benefit from the existence of the drain, together with all upstream lands and roads that contribute runoff to the Upper Portion of the Taylor Drain.
- b) Re-Establishing Design Profile Grades: As part of the overall project scope, the Upper Portion of the Taylor Drain was reviewed relative to the governing design grades and elevations. As a result,

the design grades for the Upper Portion of the Taylor Drain were re-established to coincide with the existing and/or proposed drainage structures in order to maximize conveyance. The engineering costs for establishing the new profile design grades have been assessed to all lands and roads within the Upper Portion of the Taylor Drain watershed, per the accompanying Maintenance Schedule of Assessment that forms part of this project. All associated costs for these works amount to a total estimated cost of **\$10,278.00**. These costs shall be assessed to all upstream lands and roads that contribute their runoff to the Upper Portion of the Taylor Drain.

As a result of the above, the total cost to be assessed to the lands and roads within the Upper Portion of the Taylor Drain watershed is an estimated value of **\$23,914.00**. Generally speaking, these costs have been distributed per the Maintenance Schedule of Assessment, based on the Open Channel Assessment Rationale principles outlined above.

### **Assessments Related to Access Structures for Private Lands**

Through our investigations, we determined that the access structures identified in this report require improvements. Where an access structure has been formally recognized in past By-Laws as part of the Municipal Drain, it is considered a legal entity. In such cases, the costs of improving the access portion of the structure are shared between the bridge user and the upstream lands. This is because upstream flows contribute both to the design sizing and to the ongoing wear and deterioration of the structure. Accordingly, the costs for these improvements are distributed among the adjacent property owners, as well as all upstream lands and roads that contribute runoff through the structure. The costs for access structures have been shared with all affected landowners in accordance with the details and percentages outlined below:

#### **Enclosure 1 – Mohit Nayar (730-00600)/[Parcel 115], Kornelia Franz (730-06100)/[Parcel 116], and the Town of Essex for 3<sup>rd</sup> Concession Road**

With respect to Enclosure 1, this structure consists of both an access portion and a lawn piping portion. Only the access portion requires replacement as part of this report. The access portion is recognized as a legal entity of the Upper Portion of the Taylor Drain and serves as the primary access to adjoining agricultural lands. The estimated construction and incidental costs for a standard 6.10-metre (20.00 ft.) top-width access bridge shall be shared between the structure user and all upstream lands and roads that outlet through this portion of the drain. To accommodate larger farm equipment, the Owner of Parcel 115 has requested that the existing wider top width be maintained. The additional width beyond the standard 6.10 metres shall be assessed solely to this property. The sharing percentage for a standard-width access bridge has been established based on the structure's location relative to the entire reach of the drain. Accordingly, the structure user's share, including the cost of the added top width, is assessed as a Benefit Assessment, while the share assigned to upstream Owners for the standard-width portion is assessed as an Outlet Assessment, as detailed in the Construction Schedule of Assessment.

In order to accommodate the lawn piping portion of the overall enclosure, the upstream end of the access portion requires a catch basin to receive flows from upstream. If the upstream enclosure did not exist, the upstream end of the access portion would instead be finished with a sloped quarried limestone end treatment, similar to the downstream end. Since the upstream catchbasin is necessary to serve the upstream

enclosure, and an end treatment is also required for the access portion, the cost of the catchbasin shall be shared equally among all affected parties.

Bridge 3 – Andrew & Suzan Struhar (720-07100)/[Parcel 103]

With respect to Bridge 3, this structure is recognized as a legal entity of the Upper Portion of the Taylor Drain and serves as the primary access to adjoining agricultural lands. The estimated construction and incidental costs for a standard 6.10-metre (20.00 ft.) top-width access bridge shall be shared between the structure user and all upstream lands and roads that outlet through this portion of the drain. To accommodate larger farm equipment, the Owner of Parcel 103 has requested that a wider top width be provided. The additional width beyond the standard 6.10 metres shall be assessed solely to this property. The sharing percentage for a standard-width access bridge has been established based on the structure’s location relative to the entire reach of the drain. Accordingly, the structure user’s share, including the cost of the added top width, is assessed as a Benefit Assessment, while the share assigned to upstream Owners for the standard-width portion is assessed as an Outlet Assessment, as detailed in the Construction Schedule of Assessment.

In summary, the cost for the specified drainage structures shall be shared with the affected landowner and to upstream landowners (if applicable) in accordance with the details outlined below:

**Table 2 - Cost Sharing for Access Structures Improvements**

Bridge No.	Owner	% to Benefitting Owner	% to Upstream Lands and Roads
1	Mohit Nayar (730-00600)	49.8%	10.3%
	Kornelia Franz (730-06100)	36.4%	
	Town of Essex (For 3rd Concession Road)	3.5%	
3	Andrew & Suzan Struhar (720-07100)	65.0%	35.0%

As a result of the above, the total cost to be assessed to the affected lands and roads within the Upper Portion of the Taylor Drain watershed is an estimated value of **\$102,798.00**

**Special Non-Proratable Assessments**

Enclosure 2 - Town of Essex for 3<sup>rd</sup> Concession Road

With respect to Enclosure 2, this structure consists of both an access portion and a lawn piping portion and is being replaced in its entirety. The structure is recognized as a legal entity of the Upper Portion of the Taylor Drain, serving both to protect the adjacent 3rd Concession Road and to provide access to an existing fire hydrant. Because this structure serves public infrastructure, the full construction and incidental costs are the responsibility of the public entities it benefits. Under Section 26 of the Drainage Act, any increased costs to the drainage works caused by the presence of a public utility or roadway shall be borne by the responsible authority. Accordingly, the primary enclosure, which protects the adjacent roadway, shall be assessed entirely to the Town of Essex Roads Department. Similarly, the access portion required for the fire hydrant shall be assessed entirely to the Town of Essex Water Department. All associated costs are assessed as a Benefit Assessment to the respective entities and are identified below as a “Special Non-Proratable Assessment,” as further detailed in the Construction Schedule of Assessment.

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The Special Assessments outlined below are to provide additional clarification and summarize the assessments listed under Section 6 of the Construction Schedule of Assessment, based on the assessment rationale determined in the preceding paragraphs:

- a) We determined that a Special Assessment shall be assessed to the **Town of Essex Roads Department** for the increase in cost to the project related to the replacement of Enclosure 2, which serves as protection against damage to the 3rd Concession Road. This extra **non-proratable** cost to the project consists of all construction works associated with Construction Item 2a, within this report. The estimated net increase in cost to the project caused by the above special improvements in the Upper Portion of the Taylor Drain, together with all related incidental expenses, is **\$130,151.00**.

The above estimated Special Assessment to the Town of Essex Roads Department pursuant to **Section 26** of the Drainage Act is listed under Section 6 of the Construction Schedule of Assessment and is to be **non-proratable**. The incidental cost portion associated with the above net cost consists of an amount of **\$31,545.00**.

Once the construction of this work is completed, the Town of Essex Roads Department shall be assessed for the **actual construction costs** for Construction Item 2a, together with its share of the project's incidental costs associated with these works, in the estimated amount of **\$31,545.00**. This combined total represents the actual Section 26 Special Assessment amount to be assessed to the Town of Essex Roads Department for this work, and this actual amount shall replace the estimated amount outlined in Section 6 of the Construction Schedule of Assessment when charging out the works to the affected lands and roads.

- b) We determined that a Special Assessment shall be assessed to the **Town of Essex Water Department** for the increase in cost to the project related to the replacement of the fire hydrant access along the 3rd Concession Road. This extra **non-proratable** cost to the project consists of all construction works associated with Construction Item 2b, within this report. The estimated net increase in cost to the project caused by the above special improvements in the Taylor Drain, together with all related incidental expenses, is **\$24,286.00**.

The above estimated Special Assessment to the Town of Essex Roads Department pursuant to **Section 26** of the Drainage Act is listed under Section 6 of the Construction Schedule of Assessment and is to be **non-proratable**. The incidental cost portion associated with the above net cost consists of an amount of **\$7,089.00**.

Once the construction of this work is completed, the Town of Essex Roads Department shall be assessed for the **actual construction costs** for Construction Item 2b, together with its share of the project's incidental costs associated with these works, in the estimated amount of **\$7,089.00**. This combined total represents the actual Section 26 Special Assessment amount to be assessed to the Town of Essex Water Department for this work, and this actual amount shall replace the estimated amount outlined in Section 6 of the Construction Schedule of Assessment when charging out the works to the affected lands and roads.

### **Distribution of Unforeseen Costs**

The non-proratable assessments to the Town of Essex do not include any unforeseen costs that may arise during construction, nor do they include any potential costs for appeals to the Court of Revision, Tribunal or Referee. Any costs to the project associated with dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment, including all Section 6 non-proratable assessments, as well as any Special Benefit Assessments on a pro-rata basis, or as otherwise established in any decisions from these forums.

Furthermore, during construction, it may become necessary to temporarily or permanently relocate existing utilities that may conflict with the works outlined within this report. Under these circumstances, the relocation of these utilities shall be assessed for any relocation costs against the public utility having jurisdiction in accordance with Section 26 of the Drainage Act. In accordance with Section 69 of the Drainage Act, the utility company is allowed the option to carry out this work utilizing their own forces and at their own cost. However, should they not exercise this option within a reasonable time, the Municipality may arrange to have this work completed and the costs for this work shall be charged to the appropriate public utility. Furthermore, any unforeseen construction costs directly related to the Section 26 works shall be assessed entirely, as an extra, to the applicable Road Authority or Utility.

### **Agricultural Grants and Grant Eligibility**

The Ministry of Agriculture, Food and Agribusiness (OMAFRA) issued Administrative Policies for the Agricultural Drainage Infrastructure Program (ADIP). This program provides financial assistance for eligible costs and assessed lands pursuant to the Drainage Act. Sections 85 to 90 of the Drainage Act allow the Minister to provide grants for various activities under said Act. Sections 85 and 87 make it very clear that grants are provided at the discretion of the Minister. Based on the current ADIP, "lands used for agricultural purposes" may be eligible for a grant in the amount of 1/3 of their total assessment. The policy defines "lands used for agricultural purposes" as those lands eligible for the "Farm Property Class Tax Rate". The Municipal Clerk has provided this information to the Engineer from the current property tax roll, and the Engineer has further confirmed this information with the AGMaps Geographic Information Portal Services through OMAFRA. Properties that meet the criteria for "lands used for agricultural purposes" are shown in the attached Assessment Schedules under the subheading "**5. PRIVATELY OWNED – AGRICULTURAL LANDS (grantable)**" and/or "**6. SPECIAL NON-PRO-RATEABLE ASSESSMENTS – (AGRICULTURAL – grantable)**" are expected to be eligible for the 1/3 grant from OMAFRA. Under these provisions, we expect that this project will qualify for the grant normally available for agricultural lands. We would, therefore, recommend that the Town of Essex make an application, on their behalf, for a Grant from the OMAFRA in the amount of 1/3 of their total assessment for this project, in accordance with the provisions of Sections 85 and 88 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021". Even though it is our opinion that certain lands will likely be eligible for grants, there is no guarantee that these lands will qualify or that grants may be available in the future.

During our investigations, we determined that some agricultural lands, which may be used for agricultural purposes, are not currently eligible for this grant primarily because they do not have a Farm Tax Classification. These lands are as follows:

**Table 3 - Agricultural Lands Not Eligible for Grant**

Parcel ID Number	Roll Number	Owner's Name
16	690-00900	UCG Land Inc.
41	720-02701	Ali Abdulkader
107	720-07400	Peter & Bonnie Hayes
108	720-07405	RTZ Consulting Group Inc.
109	720-07500	Richard Kokovai & Jo-Dee Browni
119	760-02300	Judith Salisbury-Creed & William Salisbury
120	760-02400	Merlin & Lorna Warkentin
121	760-02500	Diana Woodiwiss
126	760-02800	Matthew & Mandi Stapleton
143	720-04500	Farmers Gas Co Ltd.

These lands, in the Schedules of Assessment, have been categorized and listed under the heading “**5. PRIVATELY OWNED – AGRICULTURAL LANDS (non-grantable)**” which means that these properties would not be eligible for the OMAFA grant. If these agricultural lands, qualify for the Farm Tax Classification, it would be anticipated that they would have been eligible for the grant. From our research into how the Farm Tax Classifications are determined, and from further discussions with OMAFA representatives, in order to gain a Farm Tax Classification, the Owner would need to meet the following criteria:

- 1) Property Owner must be a Canadian Citizen or Permanent Resident of Canada
- 2) Registered Farm Business that generates a minimum gross income of \$7,000.00.

For the agricultural lands currently listed under the heading “**5. PRIVATELY OWNED – AGRICULTURAL LANDS (non-grantable)**” one of the above items is likely the reason why they are not eligible for the OMAFA grant. Therefore, we encourage these eligible landowners who meet these criteria to apply to become eligible for this grant. For more information on the Farm Property Class Tax Rate Program, please visit: <http://omafra.gov.on.ca/english/policy/ftaxfaq.html>

As part of this project, we have provided a Maintenance Schedule of Assessment for the Upper Portion of the Taylor Drain. It should be noted that the preparation of the new Maintenance Schedule of Assessment under Section 76 of the Drainage Act is not normally eligible for the grant. However, according to Section 2.3(e) of the OMAFA “Agricultural Drainage Infrastructure Program: Administrative Policies”, where the cost of developing new Assessment Schedules is less than 25% of the engineering costs for the total project, the engineering cost expended towards the preparation of the schedules shall be eligible for the grant. Since the engineering costs for the preparation of Maintenance Schedules of Assessment included herein are less than 25% of the overall engineering costs, we would expect that all of the agricultural assessments associated with the preparation of the new maintenance schedule **shall** be eligible for the grant.

We would, therefore, recommend that all of the costs associated with the preparation of these new Maintenance Schedules of Assessment be charged against the lands and roads affected per the attached Construction Schedule of Assessment included herein. Lands that are used for agricultural purposes have been listed in the Construction Schedule of Assessment under Subheading “**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable)**” and/or “**6. SPECIAL NON-PRO-RATEABLE ASSESSMENTS – (AGRICULTURAL – grantable)**”

## **XV. FUTURE MAINTENANCE**

### **Upper Portion of the Taylor Drain – Open Drain**

After the completion of all of the works associated with this Engineer's Report, we would recommend that the Upper Portion of the Taylor Drain as established within this report, be kept up and maintained in the future through the Town of Essex and at the expense of the lands and roads included within the Maintenance Schedules of Assessment attached herein and labelled **Appendix "C"**.

When future maintenance works are performed over the Upper Portion of the Taylor Drain, we recommend that the cost for these works of future maintenance shall be shared by the abutting landowners and upstream affected lands and roads, following the same proportions established within the **Upper Portion of the Taylor Drain - Future Maintenance Schedule of Assessment (Station 0+000.0 to Station 4+219.8)** included within **Appendix "C"**. This Schedule of Assessment has been developed based on an assumed cost of **\$50,000.00** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are adjacent to and situated upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **\$50,000.00** worth of future maintenance work is expended on the entire length of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work.

The attached Future Maintenance Schedules of Assessment for the Upper Portion of the Taylor Drain are to be utilized only for the maintenance of the open drain, together with the flushing of sediment material within any existing access and municipal roadway crossing structures in the drain. If spot maintenance is performed within the specified reach of the drain, it is recommended that only those lands adjacent and upstream of the maintenance site be assessed for any future costs. It shall be noted that these schedules shall not be utilized for any other maintenance and repair works being conducted to any of the existing access or roadway crossing structures. These existing structures are to be assessed in a different fashion, as outlined below.

### **Taylor Drain - Working Corridors and Access Routes**

Access routes and working corridors have either been established in previous By-Laws or established within this Engineer's Report to help facilitate the necessary drainage improvements and future maintenance of the Taylor Drain. The lands in which these working corridors and access routes have been established have currently or previously been compensated for and shall remain in perpetuity for initial construction and future maintenance works on the Upper Portion of the Taylor Drain. Therefore, when construction and/or future maintenance works are being conducted, the Contractor shall be expected to keep all future equipment and forces within the established working corridors for any future maintenance performed on the Upper Portion of the Taylor Drain. All of which have been identified within the Engineer's Reports dated November 3, 1966, prepared by C.G.R. Armstrong, P.Eng. and July 6, 1979, prepared by Maurice Armstrong, P.Eng.

**Taylor Drain – Access Structures**

It should be noted that for the Upper Portion of the Taylor Drain, this report establishes a mechanism for the Town to carry out future maintenance of the specified drainage structures. This ensures that the costs of such maintenance can be fairly assessed to the appropriate lands and roads.

Should any works of maintenance be required in the future to the structures identified within this report, the following provisions with respect to cost-sharing for each of same, shall be shared by the abutting landowner and upstream affected lands and roads in accordance with the following provisions:

Enclosure 1 – Mohit Nayar (730-00600)/[Parcel 115], Kornelia Franz (730-06100)/[Parcel 116], and the Town of Essex for 3<sup>rd</sup> Concession Road

The overall enclosure extending from Station 0+311.2 to Station 0+691.3 provides access from 3rd Concession Road to the respective lands while enclosing the open drain along the frontage of Parcel 116 (Lot 11, Concession 2) and the 3rd Concession Road, together with providing an access to Parcels 115 and 116. The total length of this enclosure consists of 380.1 metres (1,247.05 ft.). The overall enclosure consists of access portions and lawn piping.

Access Portion

The access portion of the enclosure extends from Station 0+668.3 to Station 0+691.3. For Parcel 116, the access portion consists of the equivalent 10.00 metres (32.81 ft.) of pipe, and Parcel 115 consists of the equivalent 16.0 metres (52.49 ft.). Both of which are constructed together with granular backfill and end treatments. The costs for the access portions of the enclosure shall be shared between the owner gaining said access as a Benefit Assessment and all upstream owners of lands and roads within the drain's watershed as an Outlet Liability. As noted previously, since the upstream catch basin is necessary to serve the upstream enclosure, and an end treatment is also required for the access portion, the cost of the catchbasin, at Station 0+668.3, shall be shared equally among all affected parties.

Taking all of the above under consideration, when future maintenance is required for the access portion of Enclosure 1, between Station 0+668.3 to Station 0+691.3, we recommend the following cost-sharing provisions:

**Table 4 - Enclosure 1 - Access Portion (Station 0+668.3 to Station 0+691.3)**

<b>Parcel No.</b>	<b>Owners</b>	<b>Future Maintenance Share</b>
--	Town of Essex Roads Department (For 3rd Concession Road)	3.5%
115	Mohit Nayar (730-00600)	49.8%
116	Kornelia Franz (730-06100)	36.4%
--	Upstream Lands and Roads	10.3%

Lawn Piping Portion

As it relates to the remainder of the enclosure between Station 0+311.2 and Station 0+668.3, this section is primarily identified as the lawn piping portion installed under the 1966 By-Law. The purpose of the upstream lawn piping was not clearly defined. From our review, the existing home on Parcel 116 (Franz) is in close proximity to the Upper Portion of the Taylor Drain and benefits from the existence of the lawn piping adjacent to the homestead. Therefore, from Station 0+646.3 to Station 0+668.3, if any maintenance or repairs are required to the existing lawn piping and conveyance swale, adjacent to Parcel 116 (Franz), the cost of these works shall be assessed entirely to the abutting property owner. However, beyond the limits of the homestead, from Station 0+311.2 to Station 0+646.3, the lawn piping appears to have been installed largely for the benefit of the roadway. Accordingly, the Road Authority shall be responsible for any future maintenance costs associated with this additional length of lawn piping and associated catch basins. These costs shall be assessed to the Town of Essex as the governing Road Authority.

It shall be noted that a conveyance swale exists above the lawn piping portion of the enclosure. Any further enclosure of this conveyance swale shall not form part of the Upper Portion of the Taylor Drain. Responsibility for any repairs or improvements to this infrastructure shall rest solely with the entity requiring it.

Taking all of the above under consideration, should future maintenance be required to the entire length of the lawn piping portion of Enclosure 1, between Station 0+311.2 and Station 0+668.3, we recommend the following cost-sharing provisions:

**Table 5 - Enclosure 1 - Lawn Piping Portion (Station 0+311.2 to Station 0+668.3)**

Parcel No.	Owners	Future Maintenance Share
--	Town of Essex Roads Department (For 3rd Concession Road)	95.5%
116	Kornelia Franz (730-06100)	4.5%

Enclosure 2 - Town of Essex for 3<sup>rd</sup> Concession Road

This existing Enclosure 2 between Station 1+795.8 to Station 2+059.3 serves both to protect the roadway and to provide access to an existing fire hydrant located along the frontage of Parcel 100, within Lot 13, Concession 2. The enclosure has been installed primarily for the benefit of the roadway. Accordingly, the Road Authority shall be assessed **100%** for all future maintenance costs associated with the enclosure pipe and overland conveyance swale. Any future maintenance costs related to the fire hydrant crossing shall be assessed **100%** to the Town of Essex Water Department, as the governing utility.

Bridge 3 – Andrew & Suzan Struhar (720-07100)/[Parcel 103]

This access bridge, located between Station 2+612.7 to Station 2+629.7, has a total culvert length of 17.00 metres (55.77 ft.), and currently serves as the primary access for the associated agricultural. When future maintenance is performed on this structure, it shall be maintained in the future on the basis that **65.0%** of all maintenance costs for said access bridge shall be assessed as a Benefit to the bridge user, and the remaining **35.0%** of the maintenance costs shall be assessed as an Outlet Liability against the lands and

roads within the watershed lying upstream of said access bridge. The percentages above account for the bridge users' share of the increased pipe length beyond the standard 6.10 metre (20.00 ft.) minimum driveway top width.

**Primary Access Bridges with Cost Sharing:**

Access bridge structures that are considered a primary access to the associated property relative to the Upper Portion of the Taylor Drain and have cost-sharing provisions associated with each are those that have been previously identified and/or improved under an existing Engineer's Report passed through Municipal By-Law. The sharing percentages between the abutting owner and the upstream lands and roads affected by each structure have been established on the basis of where it is located relative to the entire reach of the drain and based on a standard bridge top width of 6.10 metres (20.00 ft.).

As noted above, part of the future maintenance cost of each access bridge shall be assessed as a "Benefit Assessment" against the property or properties served by the access. The remainder of the maintenance cost will be assessed as "Outlet Assessments" only to the lands and roads upstream of each access bridge and prorated to the assessments shown in the same proportions established within the **Schedule of Assessment for Future Drainage Structure Maintenance** attached herein and labelled **Appendix "C"**. This Schedule of Assessment has been developed on the basis of an assumed cost of **\$10,000.00** and the future maintenance costs for each affected access bridge structure within the drain shall be levied pro rata on only the affected lands and roads that are situated upstream of the particular access bridge for which future maintenance works has been carried out.

We would further recommend that the identified access bridge structures in this drain, for which future maintenance costs are to be shared with upstream lands and roads within the watershed, be maintained by the Town, and that said maintenance work would include works to the access bridge culvert, their bedding and backfill, end treatment, and any other ancillary work. Should concrete, asphalt, or other special surfaces over these access bridge driveways require removal as part of the maintenance work, these surfaces should be repaired or replaced as part of the work. Likewise, if any fencing, gate, decorative walls, guard rails or other special features exist that will be impacted by the maintenance work, they are also to be removed and restored or replaced as part of the bridge maintenance work. However, the cost of the supply and installation of any surface material other than Granular "A" material, and the cost of removal and restoration or replacement, if necessary, of any special features, shall be totally assessed to the benefiting adjoining owner served by said access bridge and/or road crossing structures.

**Public Utility and Road Authority:**

As noted above, Enclosure 2 within the Upper Portion of the Taylor Drain is within or under the jurisdiction of a road authority or public utility. Therefore, under no circumstances shall any of the costs for the maintenance or replacement of these structures be assessed to any upstream lands or roads within the drain's watershed. Furthermore, when future maintenance is required to these structures, each governing road authority or public utility may elect to carry out the future works on these structures using their own forces, through Section 69 of the Drainage Act, if they choose to do so. If these structures are to be replaced under an Engineer's Report through the provisions of the Drainage Act, it is recommended that Section 26 be utilized for the increased cost to the project as a result of their existence.

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**Future Maintenance Summary**

All of the above provisions for the future maintenance of the Upper Portion of the Taylor Drain shall remain as aforesaid until otherwise varied and/or determined under the provisions of the "Drainage Act, RSO. 1990, Chapter, D.17, as amended 2021", or subsequent amendments made thereto.

All of which is respectfully submitted,

**N.J. PERALTA ENGINEERING LTD.**



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Antonio B. Peralta, P.Eng.

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**CONSTRUCTION SCHEDULE OF ASSESSMENT**

**1. CANADA LANDS:**

Parcel ID Number	Tax Roll Number	Conc. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
112	730-00100	2	Pt. Lot 12	32.03	10.00	4.047	Agriculture Canada	\$ -	\$ 56.00	\$ 56.00
118	730-06300	2	Pt. Lot 12	18.73	18.73	7.579	Agriculture Canada	\$ -	\$ 174.00	\$ 174.00
<b>Total on Canada Lands.....</b>								<b>\$ -</b>	<b>\$ 230.00</b>	<b>\$ 230.00</b>

**3. MUNICIPAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
		3rd Concession Road			18.14	7.341	Town of Essex	\$ 2,355.00	\$ 4,675.00	\$ 7,030.00
		Ferriss Road			5.97	2.416	Town of Essex	\$ 28.00	\$ 1,128.00	\$ 1,156.00
		McCormick Road			6.62	2.679	Town of Essex	\$ 132.00	\$ 255.00	\$ 387.00
		Ridge Road			4.82	1.951	Town of Essex	\$ -	\$ 165.00	\$ 165.00
		McLean Road			0.40	0.162	Town of Essex	\$ 11.00	\$ 287.00	\$ 298.00
		County Road 20			14.54	5.884	County of Essex	\$ 95.00	\$ 497.00	\$ 592.00
<b>Total on Municipal Lands.....</b>								<b>\$ 2,621.00</b>	<b>\$ 7,007.00</b>	<b>\$ 9,628.00</b>

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
3	680-02301	Gore	Pt. Lot 17	0.40	0.40	0.163	Earl & Elaine Richardson	\$ -	\$ 8.00	\$ 8.00
4	680-02400	Gore	Pt. Lot 17	0.42	0.42	0.170	Tonya Vinson	\$ -	\$ 7.00	\$ 7.00
5	680-02500	Gore	Pt. Lot 18	0.44	0.44	0.179	Brian & Mary-Anne Deslippe	\$ -	\$ 9.00	\$ 9.00
6	680-02550	Gore	Pt. Lot 18	1.73	1.73	0.699	Kevin McCandless	\$ -	\$ 37.00	\$ 37.00
8	680-02700	Gore	Pt. Lot 18	0.38	0.38	0.155	Andrea & Vedran Abidinovic	\$ -	\$ 7.00	\$ 7.00
9	680-02800	Gore	Pt. Lot 18	0.55	0.55	0.224	Mark & Julie Affleck	\$ -	\$ 11.00	\$ 11.00
11	680-02901	Gore	Pt. Lot 19	0.53	0.53	0.213	Leonard & Romy Mayea	\$ -	\$ 13.00	\$ 13.00
12	680-02920	Gore	Pt. Lot 19	0.79	0.79	0.319	Matthew Needham	\$ -	\$ 14.00	\$ 14.00
14	680-03001	Gore	Pt. Lot 19	0.72	0.72	0.290	Marc & Patricia Prail	\$ 9.00	\$ 13.00	\$ 22.00
17	690-00950	Gore	Pt. Lot 16	1.84	1.84	0.744	Shawn & Darrelle Mulder	\$ -	\$ 29.00	\$ 29.00
18	690-01000	Gore	Pt. Lot 16	0.54	0.54	0.218	Jayson & Tanya Dupuis	\$ -	\$ 10.00	\$ 10.00
20	690-01150	Gore	Pt. Lot 16	1.40	1.40	0.568	Patricia Laing	\$ -	\$ 28.00	\$ 28.00
21	690-01200	Gore	Pt. Lot 16	0.45	0.45	0.181	Robert McCloskey & Susan Hutchins	\$ -	\$ 8.00	\$ 8.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: Continued**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
22	690-01300	Gore	Pt. Lot 16	0.54	0.54	0.218	Ryan Irving & Brooke White	\$ -	\$ 10.00	\$ 10.00
23	690-01400	Gore	Pt. Lot 16	0.72	0.72	0.290	Allan & Anne Hamill	\$ -	\$ 15.00	\$ 15.00
24	690-01500	Gore	Pt. Lot 16	0.75	0.75	0.303	Paul & Christine Lepain	\$ -	\$ 17.00	\$ 17.00
25	690-01600	Gore	Pt. Lot 16	0.78	0.78	0.316	Barry & Lucy Pretty	\$ -	\$ 17.00	\$ 17.00
26	690-01700	Gore	Pt. Lot 16	0.72	0.72	0.292	Sherry Kane	\$ -	\$ 12.00	\$ 12.00
27	690-01800	Gore	Pt. Lot 17	1.23	1.23	0.499	Beverley Murray	\$ -	\$ 19.00	\$ 19.00
28	690-01900	Gore	Pt. Lot 17	0.33	0.33	0.133	Lukas Riediger & Melissa Green	\$ -	\$ 9.00	\$ 9.00
29	690-02000	Gore	Pt. Lot 17	0.44	0.44	0.177	Monte Pidskalny & Tricia Schmelz	\$ -	\$ 9.00	\$ 9.00
30	690-02100	Gore	Pt. Lot 17	0.55	0.55	0.221	Carolyn Campbell	\$ -	\$ 10.00	\$ 10.00
31	690-02200	Gore	Pt. Lot 17	0.33	0.33	0.133	Jennifer Chadsey	\$ -	\$ 8.00	\$ 8.00
32	690-02300	Gore	Pt. Lot 17	1.81	1.81	0.731	Isaac & Anna Martens	\$ -	\$ 37.00	\$ 37.00
35	690-02510	Gore	Pt. Lot 17	3.33	3.33	1.349	Shane & Krystle Martin	\$ -	\$ 43.00	\$ 43.00
36	690-02550	Gore	Pt. Lot 17	0.90	0.90	0.366	Alma Lepp	\$ -	\$ 10.00	\$ 10.00
37	690-02600	Gore	Pt. Lot 17	0.57	0.57	0.232	David & Elizabeth Salter	\$ -	\$ 11.00	\$ 11.00
38	690-02650	Gore	Pt. Lot 17	0.69	0.69	0.279	Nancy Oakley	\$ -	\$ 16.00	\$ 16.00
39	720-00010	2	Pt. Lots 12 to 14	9.24	9.24	3.739	Essex Region Conservation Authority	\$ 53.00	\$ 386.00	\$ 439.00
40	720-00020	2	Pt. Lots 15 to 19	18.95	1.88	0.761	Essex Region Conservation Authority	\$ 76.00	\$ 36.00	\$ 112.00
42	720-02800	2	Pt. Lot 15	1.62	1.62	0.656	Kristine & Hannah Cojocar	\$ 71.00	\$ 28.00	\$ 99.00
43	720-02900	2	Pt. Lot 15	0.70	0.70	0.283	Joyce Hedges	\$ 17.00	\$ 12.00	\$ 29.00
45	720-03100	2	Pt. Lot 15	0.28	0.28	0.114	Hydro One Networks Inc.	\$ 3.00	\$ 6.00	\$ 9.00
46	720-03200	2	Pt. Lot 15	0.25	0.25	0.100	Leslie & Ashley McFarland	\$ 11.00	\$ 6.00	\$ 17.00
47	720-03280	2	Pt. Lot 15	9.18	9.18	3.714	David & Pamela Robertson	\$ 93.00	\$ 63.00	\$ 156.00
48	720-03290	2	Pt. Lot 15	9.18	9.18	3.716	Nanette Blais	\$ 80.00	\$ 91.00	\$ 171.00
49	720-03300	2	Pt. Lot 15	9.18	9.18	3.715	Richard Kehl	\$ 24.00	\$ 81.00	\$ 105.00
54	720-03505	2	Pt. Lot 14	0.09	0.09	0.037	Enbridge Gas Inc.	\$ -	\$ 4.00	\$ 4.00
57	720-03650	2	Pt. Lot 14	0.52	0.52	0.209	Amilcar & Margaret Carreira	\$ 24.00	\$ 14.00	\$ 38.00
58	720-03700	2	Pt. Lot 14	1.50	1.50	0.605	Jerome & Gloria Mcleod	\$ 25.00	\$ 25.00	\$ 50.00
59	720-03800	2	Pt. Lot 14	1.01	1.01	0.409	Sharon Jackson	\$ -	\$ 16.00	\$ 16.00
60	720-03900	2	Pt. Lot 14	1.59	1.59	0.642	Lloyd & Karen Iler	\$ -	\$ 19.00	\$ 19.00
61	720-04000	2	Pt. Lot 14	0.64	0.64	0.259	Justin Irvine	\$ -	\$ 16.00	\$ 16.00
62	720-04100	2	Pt. Lot 14	0.64	0.64	0.259	Lois Charette	\$ -	\$ 15.00	\$ 15.00
64	720-04250	2	Pt. Lot 14	0.54	0.54	0.219	Catherine & Karen Simon	\$ -	\$ 11.00	\$ 11.00
68	720-04700	2	Pt. Lot 13	0.44	0.44	0.179	Jordan Vlodarchyk	\$ -	\$ 28.00	\$ 28.00
69	720-04750	2	Pt. Lot 13	1.04	1.04	0.419	St. Francis Advocates	\$ -	\$ 62.00	\$ 62.00
70	720-04800	2	Pt. Lot 13	0.05	0.05	0.022	Enbridge Gas Inc.	\$ -	\$ 8.00	\$ 8.00
71	720-04900	2	Pt. Lot 13	0.73	0.73	0.295	Nancy French	\$ -	\$ 48.00	\$ 48.00
72	720-04901	2	Pt. Lot 13	0.60	0.60	0.244	Manuel & Victoria Mendes	\$ -	\$ 37.00	\$ 37.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: Continued**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
73	720-05000	2	Pt. Lot 13	0.60	0.60	0.244	Virginia Schaafsma Cooke & Sanda Cooke	\$ -	\$ 38.00	\$ 38.00
75	720-05200	2	Pt. Lot 13	0.61	0.61	0.249	Irene Cappelli	\$ -	\$ 38.00	\$ 38.00
76	720-05300	2	Pt. Lot 13	0.92	0.92	0.371	Barrie & Deborah Brimmer	\$ -	\$ 64.00	\$ 64.00
77	720-05400	2	Pt. Lot 13	0.46	0.46	0.186	Dolores Duncan	\$ -	\$ 36.00	\$ 36.00
78	720-05401	2	Pt. Lot 13	0.99	0.99	0.402	Ronald & Lisa Suzor	\$ -	\$ 72.00	\$ 72.00
80	720-05500	2	Lot 12	0.67	0.67	0.272	Jasmin, Jean-Paul & Tania St. Pierre, Colton Williams	\$ -	\$ 28.00	\$ 28.00
81	720-05502	2	Lot 12	0.48	0.48	0.194	Sherrylyn Blanchard-Childs & Robert Blanchard	\$ -	\$ 28.00	\$ 28.00
82	720-05509	2	Pt. Lot 12	0.69	0.69	0.278	Richard Melton & Linda Liberato	\$ -	\$ 44.00	\$ 44.00
83	720-05600	2	Pt. Lot 12	0.29	0.29	0.119	Barbara Cookson	\$ -	\$ 17.00	\$ 17.00
84	720-05700	2	Pt. Lot 12	0.46	0.46	0.186	Gary & Diana Wright	\$ -	\$ 43.00	\$ 43.00
85	720-05701	2	Pt. Lot 12	0.44	0.44	0.177	759765 Ontario Limited	\$ -	\$ 16.00	\$ 16.00
87	720-05900	2	Pt. Lot 12	0.26	0.26	0.107	Brett Allen & Kaylee Marontate	\$ -	\$ 5.00	\$ 5.00
88	720-06000	2	Pt. Lot 12	0.39	0.39	0.159	John Walsh	\$ -	\$ 14.00	\$ 14.00
89	720-06100	2	Pt. Lot 12	0.22	0.22	0.091	Garland Davis	\$ -	\$ 6.00	\$ 6.00
90	720-06200	2	Pt. Lot 12	1.26	1.26	0.511	Classy Caps MFG. Inc.	\$ -	\$ 45.00	\$ 45.00
91	720-06300	2	Pt. Lot 12	0.24	0.24	0.097	Jeffrey & Sharon Mertz	\$ -	\$ 4.00	\$ 4.00
92	720-06400	2	Pt. Lot 12	0.52	0.52	0.209	Richard Gyorgy & Kelly Mertz	\$ -	\$ 10.00	\$ 10.00
93	720-06500	2	Pt. Lot 12	1.22	1.22	0.494	William & Margaret Ayres	\$ -	\$ 17.00	\$ 17.00
94	720-06501	2	Pt. Lot 12	0.72	0.72	0.292	Vincenzo & Antonina Esposito	\$ -	\$ 15.00	\$ 15.00
95	720-06600	2	Pt. Lot 12	2.12	2.12	0.857	1522148 Ontario Inc.	\$ -	\$ 64.00	\$ 64.00
96	720-06601	2	Pt. Lot 12	0.45	0.45	0.183	Zachary & Madeleine Klein	\$ -	\$ 8.00	\$ 8.00
97	720-06602	2	Pt. Lot 12	1.76	1.76	0.712	2801690 Ontario Inc.	\$ -	\$ 80.00	\$ 80.00
98	720-06700	2	Pt. Lot 12	3.13	3.13	1.266	Colchester South Township	\$ -	\$ 638.00	\$ 638.00
99	720-06709	2	Pt. Lot 12	1.76	1.76	0.712	Edward & Verginica Krizan	\$ -	\$ 153.00	\$ 153.00
101	720-06900	2	Pt. Lot 13	4.14	4.14	1.677	John & Denise Walsh	\$ 118.00	\$ 369.00	\$ 487.00
102	720-07000	2	Pt. Lot 13	2.47	2.47	1.001	Patricia & Paul Struhar	\$ 57.00	\$ 170.00	\$ 227.00
104	720-07105	2	Pt. Lot 14	1.65	1.65	0.669	Miroslav & Sara Mihek	\$ -	\$ 41.00	\$ 41.00
110	720-07600	2	Pt. Lot 15	5.00	5.00	2.023	Paul & Yvonne Gratton	\$ -	\$ 40.00	\$ 40.00
114	730-00470	2	Pt. Gore Lot	2.00	2.00	0.809	Thomas & Edward Affleck	\$ 38.00	\$ 128.00	\$ 166.00
122	760-02600	3	Pt. Lot 14	24.69	16.70	6.758	Paul & Cassandra Giroux	\$ -	\$ 100.00	\$ 100.00
123	760-02601	3	Pt. Lot 14	0.51	0.51	0.205	Cody Roath & Rian Desbiens	\$ -	\$ 15.00	\$ 15.00
125	760-02702	3	Pt. Lot 14	1.04	1.04	0.422	Austin & Erika Ferriss	\$ -	\$ 26.00	\$ 26.00
127	760-02900	3	Pt. Lot 14	1.54	1.54	0.625	Thomas Brew	\$ -	\$ 29.00	\$ 29.00
128	760-03000	3	Pt. Lot 14	0.56	0.56	0.229	Wayne & Carol Bedal	\$ -	\$ 18.00	\$ 18.00
129	760-03050	3	Pt. Lot 13	0.72	0.72	0.290	Brian Scott	\$ 1.00	\$ 90.00	\$ 91.00
131	760-03150	3	Pt. Lot 13	0.55	0.55	0.223	Brenda Ross	\$ 4.00	\$ 61.00	\$ 65.00
134	760-03250	3	Pt. Lot 13	0.46	0.46	0.186	Shelley Parks Mueller & Bernard Parks	\$ 21.00	\$ 55.00	\$ 76.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: Continued**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
140	770-00250	3	Pt. Lot 11	1.69	1.69	0.684	Steven Johnson & Keegan O'Neil	\$ 67.00	\$ 171.00	\$ 238.00
142	730-00010	2	Pt. Lots 10, 11, Gore Lot, and 12	11.35	0.93	0.376	Essex Region Conservation Authority	\$ -	\$ 81.00	\$ 81.00
<b>Total on Privately Owned - Non-Agricultural Lands:</b>								<b>\$ 825.00</b>	<b>\$ 4,326.00</b>	<b>\$ 5,151.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
1	680-02200	Gore	Pt. Lot 17	21.85	10.20	4.128	Emily Stajfer, Helen Klomp, Veronica Boleratz & Ann Denzinger	\$ -	\$ 62.00	\$ 62.00
2	680-02300	Gore	Pt. Lot 17	29.06	29.06	11.759	George & Albert Gondosch	\$ -	\$ 180.00	\$ 180.00
7	680-02600	Gore	Pt. Lot 18	70.87	36.96	14.958	Cedar Branches Farms Inc.	\$ -	\$ 211.00	\$ 211.00
10	680-02900	Gore	Pt. Lot 19	48.45	15.00	6.070	2277151 Ontario Inc.	\$ -	\$ 142.00	\$ 142.00
13	680-03000	Gore	Pt. Lot 19	48.60	9.00	3.642	Mark Bacon	\$ 12.00	\$ 75.00	\$ 87.00
15	680-03100	Gore	Pt. Lot 19	18.92	3.00	1.214	Dennis & Lari Sabbe	\$ -	\$ 41.00	\$ 41.00
19	690-01100	Gore	Pt. Lot 16	27.04	27.04	10.945	Hilary Laing	\$ -	\$ 173.00	\$ 173.00
33	690-02400	Gore	Pt. Lot 16 & 17	112.59	112.59	45.565	Neal & Tracy Huber	\$ -	\$ 656.00	\$ 656.00
34	690-02500	Gore	Pt. Lot 17	35.29	13.55	5.484	1808236 Ontario Limited	\$ -	\$ 64.00	\$ 64.00
44	720-03000	2	Pt. Lot 15	7.97	7.97	3.226	Justin Drouillard, Deana Borri & Julianna Segatto	\$ 215.00	\$ 74.00	\$ 289.00
50	720-03400	2	Pt. Lot 15	16.81	16.81	6.802	Anna Momcilovic	\$ -	\$ 105.00	\$ 105.00
51	720-03401	2	Pt. Lot 15	10.00	10.00	4.046	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 63.00	\$ 63.00
52	720-03500	2	Pt. Lot 14	8.98	8.98	3.635	Douglas & Josie Holland	\$ 184.00	\$ 83.00	\$ 267.00
53	720-03504	2	Pt. Lot 14	48.28	48.28	19.538	Karl & Sandy Neudorf	\$ 542.00	\$ 328.00	\$ 870.00
55	720-03600	2	Pt. Lot 14	16.95	16.95	6.858	Antonio & Sylvina Marcelino	\$ 209.00	\$ 123.00	\$ 332.00
56	720-03601	2	Pt. Lot 14	9.59	9.59	3.883	Hudson Plante & Elizabeth McGregor	\$ 288.00	\$ 128.00	\$ 416.00
63	720-04200	2	Pt. Lot 14	33.19	33.19	13.430	Catherine & Karen Simon	\$ -	\$ 224.00	\$ 224.00
65	720-04300	2	Pt. Lot 14	32.02	32.02	12.957	Eugene Berecz	\$ 385.00	\$ 264.00	\$ 649.00
66	720-04400	2	Pt. Lot 13	14.99	14.99	6.067	Pereira's Construction Inc.	\$ -	\$ 340.00	\$ 340.00
67	720-04600	2	Pt. Lot 13	13.43	13.43	5.435	2206711 Ontario Ltd.	\$ -	\$ 360.00	\$ 360.00
74	720-05100	2	Pt. Lot 13	13.29	13.29	5.379	2466827 Ontario Ltd.	\$ -	\$ 389.00	\$ 389.00
79	720-05403	2	Pt. Lot 12 & 13	14.58	14.58	5.899	2466827 Ontario Ltd.	\$ -	\$ 277.00	\$ 277.00
86	720-05800	2	Pt. Lot 12	18.55	18.55	7.508	Irene Cappelli	\$ -	\$ 404.00	\$ 404.00
100	720-06800	2	Pt. Lots 12 13	171.71	171.71	69.491	Michael & Helen Lavin	\$ 987.00	\$ 5,991.00	\$ 6,978.00
103	720-07100	2	Pt. Lot 13	38.89	38.89	15.738	Andrew & Suzan Struhar	\$ 37,326.00	\$ 1,370.00	\$ 38,696.00
105	720-07200	2	Pt. Lot 14	33.02	33.02	13.362	Nancy Ford	\$ 554.00	\$ 290.00	\$ 844.00
106	720-07300	2	Pt. Lot 14	11.77	11.77	4.765	David & Sharon McCarthy	\$ -	\$ 96.00	\$ 96.00
111	720-07700	2	Pt. Lot 15	116.99	5.00	2.023	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 40.00	\$ 40.00

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable): Continued**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
113	730-00400	2	Pt. Gore Lot	44.26	44.26	17.910	Judith & Thomas Affleck	\$ 171.00	\$ 1,019.00	\$ 1,190.00
115	730-00600	2	Pt. Lot 11	63.71	51.30	20.761	Mohit Nayyar	\$ 23,081.00	\$ 1,708.00	\$ 24,789.00
116	730-06100	2	Pt. Lot 11	44.79	14.67	5.937	Kornelia Franz	\$ 17,086.00	\$ 1,746.00	\$ 18,832.00
117	730-06200	2	Pt. Lot 12	52.97	52.97	21.436	Roy & Cindy Fields	\$ 442.00	\$ 1,956.00	\$ 2,398.00
124	760-02700	3	Pt. Lot 14	49.12	10.00	4.047	Silva Homes Inc.	-	\$ 43.00	\$ 43.00
130	760-03108	3	Pt. Lot 13	47.04	9.00	3.642	Shelley Parks Mueller & Bernard Parks	-	\$ 165.00	\$ 165.00
132	760-03200	3	Pt. Lot 13	51.58	18.00	7.285	Shelley Parks Mueller & Bernard Parks	\$ 129.00	\$ 430.00	\$ 559.00
133	760-03225	3	Pt. Lot 13	0.99	0.99	0.402	Shelley Parks Mueller & Bernard Parks	\$ 23.00	\$ 110.00	\$ 133.00
135	760-03300	3	Pt. Lot 13	47.36	34.36	13.905	3670 Con 3 Harrow Inc.	\$ 332.00	\$ 1,433.00	\$ 1,765.00
136	760-03302	3	Pt. Lot 13	5.12	5.12	2.073	3670 Con 3 Harrow Inc.	\$ 128.00	\$ 392.00	\$ 520.00
137	760-03400	3	Pt. Lot 12	74.54	15.51	6.277	Iler Farms Incorporated	\$ 356.00	\$ 572.00	\$ 928.00
138	770-00100	3	Gore Lot	67.80	10.00	4.047	1924979 Ontario Ltd.	\$ 261.00	\$ 606.00	\$ 867.00
139	770-00200	3	Pt. Lot 11	50.24	50.23	20.328	Gorski Farms Inc.	\$ 727.00	\$ 3,239.00	\$ 3,966.00
141	770-03900	3	Pt. Lot 12	62.87	20.00	8.094	Wilfred O'Neil	\$ 399.00	\$ 759.00	\$ 1,158.00
<b>Total on Privately Owned - Agricultural Lands (grantable):</b>								<b>\$ 83,837.00</b>	<b>\$ 26,731.00</b>	<b>\$ 110,568.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (non-grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
16	690-00900	Gore	Pt. Lot 16	45.95	12.00	4.856	UCG Land Inc.	-	\$ 71.00	\$ 71.00
41	720-02701	2	Pt. Lot 15	16.21	16.21	6.559	Ali Abdulkader	\$ 469.00	\$ 121.00	\$ 590.00
107	720-07400	2	Pt. Lot 14	7.91	7.91	3.202	Peter & Bonnie Hayes	-	\$ 69.00	\$ 69.00
108	720-07405	2	Pt. Lot 15	9.32	9.32	3.772	RTZ Consulting Group Inc.	-	\$ 72.00	\$ 72.00
109	720-07500	2	Pt. Lot 15	9.32	9.32	3.772	Richard Kokovai & Jo-Dee Browni	-	\$ 66.00	\$ 66.00
119	760-02300	3	Pt. Lot 15	10.00	5.00	2.023	Judith Salisbury-Creed & William Salisbury	-	\$ 56.00	\$ 56.00
120	760-02400	3	Pt. Lot 15	15.02	5.00	2.023	Merlin & Lorna Warkentin	-	\$ 36.00	\$ 36.00
121	760-02500	3	Pt. Lot 14	25.11	17.00	6.880	Pollmar Holdings	-	\$ 135.00	\$ 135.00
126	760-02800	3	Pt. Lot 14	1.71	1.71	0.690	Matthew & Mandi Stapleton	-	\$ 38.00	\$ 38.00
143	720-04500	2	Pt. Lot 13	0.001	0.001	0.0004	Farmer's Gas Co Ltd.	-	\$ 2.00	\$ 2.00
<b>Total on Privately Owned - Agricultural Lands (non-grantable):</b>								<b>\$ 469.00</b>	<b>\$ 666.00</b>	<b>\$ 1,135.00</b>

**6. SPECIAL NON PRO-RATEABLE ASSESSMENTS (non-agricultural Sec.26):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
A		Roads Department					Town of Essex	\$ 130,151.00	- \$	130,151.00
B		Water Department					Town of Essex	\$ 24,286.00	- \$	24,286.00
<b>Total on Special Non Pro-Rateable Assessments (non-agricultural Sec.26)</b>								<b>\$ 154,437.00</b>	<b>- \$</b>	<b>\$ 154,437.00</b>
<b>TOTAL ASSESSMENT</b>					<b>1409.91</b>	<b>570.584</b>		<b>\$ 242,189.00</b>	<b>\$ 38,960.00</b>	<b>\$ 281,149.00</b>

1 Hectare = 2.471 Acres

# SPECIFICATIONS

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## STANDARD SPECIFICATIONS

General  
(Revised January 2024)

### **I. GENERAL CONDITIONS FOR SPECIFICATIONS**

The specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials, and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these standard specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section or sections from the Canadian Construction Documents Committee (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works.

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

### **II. REVIEW OF SITE, PLANS, AND SPECIFICATIONS**

As part of the Tender process, each tenderer shall visit the site(s) and review all documentation associated with the project prior to their tender submission and satisfy themselves with the full extent of the scope of work and conditions to complete the project. The Contractor may request, at any time prior to the closing of the tender, to examine any associated information available from the Drainage Superintendent and/or Consulting Engineer. Claims that there are any misunderstandings of the terms and conditions of the Contract related to site conditions will not be permitted.

The quantities identified within the Construction Items, Drawings and/or Specifications are estimates only and are intended for the sole purpose of identifying the general extent of the proposed work. The tenderer shall be responsible to verify the quantities for accuracy prior to submitting their tender.

### **III. MAINTENANCE PERIOD**

The successful tenderer shall guarantee and warrant the work for a period of twelve (12) months from the time that substantial completion is issued. Upon the expiry of the maintenance period, with ordinary wear and tear, the work shall remain in such condition as will meet with the approval of the Consulting Engineer, and it will be responsible for rectification in a manner satisfactory to the Consulting Engineer. The cost thereof, of any imperfect work due to or arising from materials, equipment or plant incorporated into or used in the construction thereof, or due to or arising from workmanship or methods of construction, that is discovered by any means at any time prior to the issuance of the Final Certificate. The Consulting Engineer shall decide as to the nature, extent, cause of, and responsibility for imperfect work and the necessity for and the method of rectification thereof. In the event that the Contractor fails to comply with the above and address any deficiencies, the Municipality may complete these deficiencies, with the guidance of the Consulting Engineer, to make such repairs or complete such works, and the whole costs, charges and/or expenses so incurred may be deducted from any amount due or collected from the Contractor.

### **IV. LIABILITY OF THE CONTRACTOR**

The Contractor, its agents, workforce and/or sub-contractors, shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other objects that it may encounter during the course of the work. The Contractor will be responsible for any damage caused by it to any person, property, public utilities, and/or municipal infrastructure. The Contractor shall indemnify and save harmless, the Municipality and the Consulting Engineer for any damages which it may cause or sustain during the progress of the work. The Contractor shall not hold the Municipality or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

### **V. GENERAL COORDINATION**

The Contractor shall be responsible for the coordination with other organizations, agencies, and utility companies in connection with the works. The Contractor shall not take action against the Municipality or the Engineer for delays caused by the site being unavailable to them by the Municipality or Consulting Engineer because of the acts, omissions, conduct or misconduct of other organizations or utility companies engaged in other work.

### **VI. LEGAL SURVEY BARS AND MONUMENTS**

The Contractor is to note that legal survey bars may exist within the work site, and it shall take whatever steps necessary to protect these features. If any iron bar or monument is damaged or removed by the Contractor, it shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to restore same, all at the Contractor's expense.

### **VII. MAINTAINING CONVEYANCE**

The drainage works shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be completed during times when the drain is dry or frozen.

When performing excavation work, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. The Contractor shall be responsible to maintain permanent flow at all times. Temporary damming of flow is permitted to conduct the necessary works. However, the Contractor is responsible to monitor and ensure no damage occurs as a result of its actions. Under no circumstances shall temporary damming be permitted for an extended period (ie. overnight, etc.) without a suitable water control plan approved by the Drainage Superintendent, Consulting Engineer and/or the Conservation Authority.

#### **VIII. APPROVALS, PERMITTING, AND INSPECTION**

The works proposed under this project is subject to the approval, inspection, regulations, and by-laws of all Municipal, Provincial, and Federal entity, or any other agency having jurisdiction associated with the drainage works established herein. The Contractor shall ensure that all applicable permits and approvals are procured from all affected authorities prior to carrying out any of the prescribed works identified within the Contract, or in the vicinity of any public utility, railway and/or road authority.

The drainage works forming part of this project, including all appurtenances, shall be completely inspected by the Town Drainage Superintendent and/or the Consulting Engineer's Inspector prior to its completion. Under no circumstance shall the Contractor commence the construction or backfill of any underground feature without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation. The Contractor shall provide a minimum of forty-eight (48) hours' notice to the Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. All works shall be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend these working hours.

Upon completion of the works and prior to the demobilization and removal of all equipment and materials from the site, the Contractor shall notify the Drainage Superintendent and/or Consulting Engineer to arrange a final inspection of the works. The final inspection is intended to ensure that all aspects of the drainage work are satisfactorily completed and/or identify any outstanding deficiencies. Any outstanding deficiencies shall be addressed expeditiously as weather permits.

#### **IX. TRAFFIC CONTROL**

The Contractor shall ensure that the travelling public is always protected while utilizing the roadway for its access. The Contractor shall be required to carry out all the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close any roads for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality, County, or Provincial Roads Departments (if applicable) and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access

at least 48 hours in advance of same. All detour routes shall be established in consultation with the Municipality and County Roads Department (if applicable).

Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused.

The Contractor shall note that any deviation from the specified access for the construction of the culvert without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price. Where applicable, the Contractor shall be responsible for any damage caused by them to any portion of the road right-of-way. They shall take whatever precautions are necessary to avoid damage to the roadway. Any damage to the roadway must be restored to its' original condition upon completion of the works.

#### **X. FENCING AND/OR STRUCTURES**

Where it is necessary to take down any fence and/or structure to proceed with the work, same shall be done by the Contractor across or along that portion of the work where such fence and/or structure is located. The Contractor shall be required to exercise extreme care in the removal of any fencing and/or structure, to ensure minimum damage to same. The Contractor shall be required to replace any fence and/or structure that is taken down in order to proceed with the work, and the fence and/or structure shall be replaced in a neat and workmanlike manner. The Contractor shall not be required to procure any new materials for rebuilding the fence and/or structure provided that it has used reasonable care in the removal and replacement of same. When any fence and/or structure is removed by the Contractor, and the Owner thereof deems it advisable and procures new material for replacing the fence and/or structure so removed, the Contractor shall replace the fence and/or structure using new materials and the materials from the present fence and/or structure shall remain the property of the Owner.

#### **XI. BENCHMARKS**

For use by the Contractor, Benchmarks have been established along the course of the work. The plans include details illustrating the available Benchmarks and the work to be carried out. Benchmarks have been indicated and the Elevations have been shown and shall be utilized by the Contractor in carrying out its work. The Contractor shall note that specific design elevations and grades have been provided for the proposed works. The plans also set out side slopes, bottom width, and other requirements relative to its installation. In all cases, the Contractor is to utilize the specified Benchmarks to establish the identified elevations and grades. The Contractor shall ensure that it takes note of the direction of flow and sets all grades to match the direction of flow within the drain.

## **XII. ENVIRONMENTAL CONSIDERATIONS**

Prior to commencing work, the Contractor must familiarize themselves with all associated environmental approvals and mitigations. The Contractor shall review the results of any environmental reviews performed for the project, including documents for the purpose of identification of known Species at Risk within the project area and mitigation measures for species and habitat protection. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all Species at Risk and their habitats throughout the course of construction. The Contractor will be responsible for providing the necessary equipment and materials required by any mitigation plans and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

## **XIII. FINAL CLEANUP AND RESTORATION**

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken. Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition. The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no work shall be left in any untidy or incomplete state before subsequent portions are undertaken.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include, but not be limited to, all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense. All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. In the event that the Contractor fails to satisfactorily clean up any portion of these accesses, the Consulting Engineer shall order such cleanup to be carried out by others and the cost of same to be deducted from any monies owing to the Contractor.

## **XIV. GENERAL CONDITIONS**

- a) The Drainage Superintendent or Consulting Engineer shall have the authority to carry out minor changes to the work where such changes do not lessen the efficiency of the work.
- b) The Contractor shall provide a sufficient number of layout stakes and grade points so that the Drainage Superintendent and Consulting Engineer can review same and check that the work will generally conform with the design and project intent.
- c) The Contractor will be responsible for any damage caused by it to any portion of the Municipal Road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of the road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If

any part of the travelled portion of the road is damaged by the Contractor, the Municipality shall have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality. The Contractor, upon completing the works, shall clean all debris and junk, etc., from the roadside of the drain, and leave the site in a neat and workmanlike manner. The Contractor shall be responsible for keeping all public roadways utilized for hauling materials free and clear of mud and debris.

- d) The Contractor will be required to submit to the Municipality, a Certificate of Good Standing from the Workplace Safety and Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Municipality, a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before Final Payment is made to the Contractor.
- e) The Contractor shall furnish a Performance and Maintenance Bond along with a separate Labour and Material Payment Bond within ten (10) days after notification of the execution of the Agreement by the Owner unless otherwise established within the Tender Documents. One copy of said bonds shall be bound into each of the executed sets of the Contract. Each Performance and Maintenance Bond and Labour and Material Payment Bond shall be in the amount of 100% of the total Tender Price. All Bonds shall be executed under corporate seal by the Contractor and a surety company, authorized by law to carry out business in the Province of Ontario. The Bonds shall be acceptable to the Owner in every way and shall guarantee faithful performance of the contract during the period of the contract, including the period of guaranteed maintenance which will be in effect for twelve (12) months after substantial completion of the works.

The Tenderer shall include the cost of bonds in the unit price of the Tender items as no additional payment will be made in this regard.

- f) The Contractor shall be required, as part of this Contract, to provide Comprehensive Liability Insurance coverage for not less than \$5,000,000.00 on this project unless otherwise established in the Tender Documents, and shall name the Municipality and its' officials, and the Consulting Engineer and its staff as additional insured under the policy. The Contractor must submit a copy of this policy to both the Municipal Clerk and the Consulting Engineer prior to the commencement of work.
- g) Monthly progress orders for payment shall be furnished the Contractor by the Drainage Superintendent. Said orders shall be for not more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 60 days after the final acceptance and completion of the work and payment shall not be authorized until the Contractor provides the following:
  - i) a Certificate of Clearance for the project from the Workplace Safety and Insurance Board
  - ii) proof of advertising
  - iii) a Statutory Declaration, in a form satisfactory to the Consulting Engineer and the Municipality, that all liabilities incurred by the Contractor and its Sub-Contractors in carrying out the Contract have been discharged and that all liens in respect of the Contract and Sub-Contracts thereunder have expired or have been satisfied, discharged or provided for by payment into Court.

The Contractor shall satisfy the Consulting Engineer or Municipality that there are no liens or claims against the work and that all of the requirements as per the Construction Act, 2018 and its' subsequent amendments have been adhered to by the Contractor.

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## STANDARD SPECIFICATIONS FOR NEW ACCESS BRIDGE INSTALLATIONS

(Revised March 2025)

### **I. GENERAL INFORMATION FOR SPECIFICATIONS**

These specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials, and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these Standard Specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section, or sections from the Canadian Construction Documents Committee (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works.

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

### **II. REMOVAL OF BRUSH, TREES, AND DEBRIS**

Where there is any brush, trees, or debris along the course of the drainage works, including the full width of the access, all such brush, trees or debris shall be close-cut and grubbed out, and the whole shall be chipped up for recycling, burned, hauled away or satisfactorily disposed of by the Contractor at its expense. Prior to and during the course of the burning operations, the Contractor shall comply with the guidelines prepared by the Air Quality Branch of the Ontario Ministry of the Environment and shall ensure that the Environmental Protection Act is not violated. The Contractor will be required to notify the local fire authorities and cooperate with them in the carrying out of any work. The removal of brush and trees shall be carried out in close consultation with the Drainage Superintendent or Consulting Engineer to ensure that no decorative trees or shrubs are disturbed by the operations of the Contractor that can be saved. It is the intent of this project to save as many trees and bushes as practical within the roadway allowances and on private lands.

The Contractor shall protect all other trees, bushes, and shrubs located along the length of the drainage works except for those trees that are noted within the accompanying drawings or in consultation with the

Drainage Superintendent, the Consulting Engineer, and the affected Owner(s). The Contractor shall note that protecting and saving the trees may require the Contractor to carry out handwork around the trees, bushes, and shrubs to complete the necessary final site grading and restoration.

Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain to stand, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

The Contractor shall remove all deleterious materials and debris along the course of the open drain and any such materials located in the bridge culverts while carrying out its cleaning of same. All such deleterious materials and debris shall be loaded up and hauled away by the Contractor to a site to be obtained by it at their expense.

If applicable, where identified on the drawings, and to ensure a safe separation distance is maintained, the Contractor shall install tree protection fencing at the projected limit of the excavation and beneath the drip line of the identified tree(s). The fencing shall be comprised of orange vinyl snow fencing secured at 3.00-metre intervals with iron T-posts driven 600mm into the ground and should be in place until construction work is completed. During construction, no equipment, materials, or tools shall be stored beyond the tree protection fencing.

### **III. UTILITIES**

The Contractor will be responsible at all times for complete investigation to determine the location of all such utilities or structures known or unknown, and it shall indemnify and save harmless the Engineer and the Municipality for any responsibility, injury, or liability arising from any damage to such utilities or structures by the Contractor.

The Contractor shall protect all other services located in the vicinity of the proposed drainage works including any sanitary sewers and connections, watermains and connections, telephone and gas services, along with any private systems and services. Any damaged components shall be replaced by the Contractor, totally at its own expense and it shall fully restore the functionality of same.

The Contractor shall further contact or notify such Utility Company or Commission of its intention to carry out work in the area and cooperate with such Utility Company or Commission in the location, maintenance and preservation of all such utilities. The location of the pipes and appurtenances as shown on the drawings is approximate and may be changed by the Engineer if deemed advantageous for the progress of the work.

### **IV. NOTICE OF PROJECT COMMENCEMENT AND HOURS OF OPERATION**

The Contractor shall provide a minimum of forty-eight (48) hours' notice to the Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. The installation of the culvert structure is to be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend such working hours.

## **V. EXCAVATIONS, REMOVALS AND DISPOSALS**

All excavation shall be made in compliance with the drawings and in such a manner and at such depths and widths as will give ample room for installing the pipe, the bracing, sheeting, or otherwise supporting the sides of the excavation and for the pumping of groundwater if encountered. The Contractor is fully responsible for the safety of all its men and equipment and must conform completely with the provisions of the "Construction Safety Act" and "Regulations for Construction Projects".

Where an existing culvert is being replaced, the Contractor shall be required to excavate and completely remove the existing culvert and headwalls in their entirety, as well as any other deleterious materials that may be encountered in removing such materials, unless otherwise noted. All unsuitable or deleterious materials from the excavation and removal of existing culverts and the drain shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor and it shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor will be responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

The Contractor is to note that when replacing the existing structures, it shall be required to excavate a trench having a width not less than the new pipe outside diameter plus a 600mm working width on both sides of the new pipe.

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out any topsoil placement along all specified or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works.

The bottom of the trenches must be carefully excavated and trimmed to the elevation and shape of the bottom of the pipe. The bottom of the trenches shall be recessed to receive the pipe in order to allow the pipe to be uniformly supported for its entire length. Corrections in the depth of excavation caused by the Contractor excavating to an extent greater than that required for the elevation of the pipe shall be made by bedding the pipe with 20mm (3/4") clear stone granular material is placed at the time that the pipes are being installed, at the Contractor's expense.

No extras will be allowed for excavating any hardpan, boulders, rocks, ice or other obstacles found in the excavation or in the line of the trench or for any pumping or baling of water required in the excavation of the work. The trench must be drained or pumped in order to avoid the necessity of making joints under water. The trench must also be drained to avoid any possibility of groundwater entering the pipe in the trench until the installation has been successfully completed.

## **VI. PIPE INSTALLATION**

The new pipe shall be set in the alignment and to the grade elevations established in the accompanying drawings. The same shall not be altered unless otherwise directed by the Drainage Superintendent or Consulting Engineer prior to construction of same. Any changes relative to the culvert must be approved by the Consulting Engineer prior to proceeding with construction.

The Contractor shall lay the culvert pipe to the lines, levels, and grades as shown in the accompanying drawings or as may be laid out and established by the Engineer prior to the time of construction. The Contractor shall be held responsible for said lines, levels and grades of the pipe and should the Engineer determine that the Contractor has not satisfactorily adhered to such lines, levels and grades, it may direct the Contractor to take up and re-lay any portion of the drain which does not conform to such lines, levels and grades. In the event that the required pipe length is less than 6.10 metres (20.00 ft.), the smaller length must be installed near the centre of the culvert.

Laser control must be provided to maintain drain lines and grades, and the Contractor shall have a qualified Operator to set up and operate the equipment. In some instances, but only at the discretion of the Engineer, an approved system of batter boards may be utilized for this purpose; However, the cost of placing grade stakes and determining the cut information shall be provided by or paid for entirely by the Contractor.

The Contractor should note that, because the pipe is being installed with an excavator, it is expected that they will provide a minimum of 150mm (6") of either compacted MTO Granular "A", Granular "B" (Type II) or 20mm (3/4") clear stone bedding material, as outlined within OPSS Form 1010 The Contractor shall ensure that a good firm base is provided under the drain pipe, and they shall provide for this item as part of their tender price.

### **HDPE Pipe Installation**

When HDPE plastic pipes are specified, they shall be joined together with the use of a water-tight bell and gasket joining system, secured in accordance with the Manufacturer's recommendations. The minimum length of a continuous pipe section shall be no less than 6.10 metres (20.00 ft.). The HDPE plastic pipe for this installation must be of the length, size, and strength identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and the Consulting Engineer prior to its placement in the drain.

For new smoothwall HDPE culvert pipes that are shown on the Drawings to have sloped quarried limestone erosion protection at their ends, both ends of the pipe shall be securely anchored against floatation utilizing two (2) steel T-bar fence posts having a minimum length of 1.80 metres (6.00 ft.) or approved equal, on each side of the pipe, together with heavy steel galvanized wire secured between them across the top of the pipe. The top of each post shall be set no higher than the top of the proposed culvert. Pipe anchors shall be installed in accordance with the "**Floatation Anchor Details**" outlined herein.

### **Aluminized Steel Pipe Installation**

When Aluminized Steel Corrugated Hel-Cor pipe and/or Aluminized Steel Type II UltraFlo pipe is specified, the culvert shall be installed with a minimum number of couplers and longer pipe sections are to be utilized whenever possible. Under no circumstances shall the culvert sections be less than 4.00 metres in length. All pipe lengths shall be of the size and gauge noted in the drawings and shall be coupled together with Aluminized Steel Type II 10C having a thickness consistent with the culvert pipe material. The overall pipe for this installation must be of the length, size, and thickness as identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement in the drain.

### **General Pipe Installation**

The Contractor shall be required to provide all labour, equipment, and materials to set the pipe to the required design grades. Where couplers are required, the Contractor shall utilize the appropriate coupler provided by

and per the specifications of the Manufacturer. The Contractor shall supply all material and labour to provide a non-woven filter cloth wrap around the full circumference of the coupler joint connection, as part of their tender price. The filter cloth wrap connection shall be a minimum of 250mm (10") wider than the width of the proposed coupler and shall overlap a minimum of 200mm (8"), as available from Underground Specialties Inc., of Windsor, Ontario, or equal. The specific type to be utilized shall be approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement. The installation of all joints must be inspected and approved by the Drainage Superintendent or Consulting Engineer prior to any backfilling of same.

The Contractor shall also note that the placement of the culvert is to be performed totally in the dry, and it shall be prepared to take whatever steps are necessary to ensure same, all to the satisfaction of the Drainage Superintendent and/or Consulting Engineer. The installation of the complete length of pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation.

All pipe materials shall be stored and handled by the Contractor at its own expense. It shall be responsible for the safe storage of all materials, for obtaining storage areas, for the safe transportation and distribution of all the materials at the job site, and for inspection in order to determine defects and breakage. No additional recompense will be allowed to the Contractor for any loss incurred by it in the storage and handling of the materials.

Pipe, fittings, and all accessory appurtenances must be loaded and unloaded by lifting with means of a hoist or a skid to avoid shock or damage. Under no circumstances shall any drain material or materials for drain appurtenances be dropped.

If the culvert is laid in freezing weather, the Contractor shall take all the necessary precautions to prevent damage to the pipe or to any of the materials used in the construction of the work. In addition, the Contractor shall take care that no frozen ground or backfill is placed in the trench backfilling adjacent to the culvert. All pipe and the various other materials used in the placing of said pipe shall be installed in strict compliance with the Manufacturer's recommendations.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the culvert pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve the said installation.

## **VII. DRAINAGE STRUCTURE INSTALLATION**

Where required, all materials for the catch basins shall comply with Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) with respect to materials, qualities, and installation details. The catch basins and maintenance holes shall be founded on a good, dry, firm, undisturbed earth base for its entire bottom surface area, or 20mm (3/4") clear stone bedding, if necessary. Corrections in depth of excavation caused by the Contractor excavating to an extent greater than that required for the structures shall

be backfilled to the proper grade elevation by embedding the catch basin maintenance holes floor area with 20mm (3/4") clear stone granular bedding. A sump is to be provided in each structure which shall be a minimum of 450mm deep measured from the proposed invert of the covered drain or connection to the proposed concrete floor elevation of the structure. The structure shall be set to allow for connection of all of the inlet and outlet pipes and shall be installed as shown and detailed on the Drawings. The top elevation of the structure shall be installed to the elevations noted on the Drawings or as further directed by the Drainage Superintendent or the Consulting Engineer. All structure sections and adjustment units shall be joined together with standard gasket material, caulking, or grout as required by the Manufacturer, or as set out in the applicable OPSS and OPSD.

All structures, where applicable, shall include a minimum of two (2) adjustment units in accordance with OPSD 704.011. All work shall be completed as shown and detailed on the Drawings.

The Contractor shall connect all covered drains and connections in the catch basin maintenance holes with the use of a mortar joint or standard rubber boot cast into the units by the Manufacturer. Said mortar joint shall be provided at the internal and exterior of the catch basin maintenance holes wall for the full circumference of the covered drain and be of a sufficient mass to produce a sealed joint, all to be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. Where possible, the Contractor shall employ a standard factory fitting or adapter to connect between the various pipes, tiles, and catch basin maintenance holes, otherwise a mortar joint connection can be utilized.

#### **VIII. CULVERT BACKFILL**

Where the new culvert pipe is located under the driveway, the Contractor shall backfill the entire trench for the width of the driveway with Granular "B" (Type II) or Granular "A", or locally approved equivalent compacted in place to a minimum 98% of Standard Proctor Density with the exception of the top 300mm which should be backfilled with Granular "A" material also compacted in place to a Standard Proctor Density of 100%. Where the new culvert pipe is located along the lawn area, the Contractor shall be required to backfill the entire trench with good clean native backfill material with the exception of the top 100mm which shall be good clean black loamy topsoil readied for seeding and mulching. It should be noted that if there is a shortage of native backfill material available, the Contractor shall supply same all at its own expense. The Contractor should also note that prior to commencing its excavation that all existing topsoil should be scavenged for reuse on the project; if there is a shortage, the Contractor shall be required to supply the balance of the topsoil needed, all at its own expense. All of the native backfill material shall be compacted in place to a minimum Standard Proctor Density of 96%.

All backfill material shall be placed in compacted in maximum lifts of approximately 300mm thick. The Contractor is required to provide whatever mechanical equipment necessary, such as jumping jack and/or plate tamper, in order to achieve the necessary compaction levels, especially along the haunches of the new pipe. All areas shall be graded in accordance with the profile and cross-sections shown in the accompanying drawings, including provision of cross-fall on boulevard areas as shown and detailed in accordance with the "**Typical Driveway Crossing Backfill Detail**" outlined herein.

## **IX. BRIDGE END PROTECTION**

### **Sloped Quarried Limestone Erosion Protection**

When specified, the Contractor shall install sloped quarried limestone end protection at both ends of the pipe, or where shown, on a slope no steeper than 1.50 horizontal to 1.00 vertical and shall extend from the end of the new pipe to the top elevation shown. The top 305mm (12") of backfill material over the ends of the pipe, from the invert of said pipe to the top of the driveway elevation of the culvert, shall be quarried limestone. The quarried limestone to be placed on the sloped ends of the culvert shall be underlain with a synthetic non-woven geotextile filter fabric. The sloped quarried limestone protection is to be rounded as shown on the plan details and shall also extend along the drain side slopes to a point directly in line with the ends of the culvert pipe. All work shall be completed to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer.

The quarried limestone shall be provided as shown and detailed and shall vary in size from a minimum of 100mm (4") to a maximum of 250mm (10"). The quarried limestone pieces shall be carefully tamped into place with the use of a shovel bucket so that, when complete, the quarried limestone erosion protection shall be consistent, uniform, and tightly laid in place. Prior to placing the quarried limestone, the Contractor shall place non-woven geotextile filter fabric "MacTex MX140" conforming to OPSS 1860 Class 1 or approved equal, as an underlay underneath all areas to be covered in quarried limestone erosion protection. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone. The placement of the geotextile filter fabric and the quarried limestone, and the completion of the quarried limestone erosion protection shall be conducted to the satisfaction of the Drainage Superintendent and/or Consulting Engineer. Sloped quarried limestone erosion protection shall be installed in accordance with the "**Typical Quarried Limestone End Protection Detail**" outlined herein.

### **Precast Interlocking Concrete Block Headwalls**

When precast interlocking concrete block headwalls are specified, the concrete blocks shall be rectangular in shape with square corners and be a minimum size of 600mm x 600mm x 1200mm (2' x 2' x 4'), as available from Underground Specialties Inc./Wolseley Inc. (Canada) or approved equal. Blocks with modified lengths may be utilized to fill in staggered sections of the block wall. All blocks shall be cast in one pour with no cold joints and shall have a minimum compression strength of 20MPa at 28 days. All precast concrete blocks shall be formed with interlocking pockets and tenons and each block shall be assembled in a staggered formation to prevent sliding at the interface between blocks. All precast concrete blocks shall be uniform in size with relatively smooth and consistent joints and shall have a stone exterior finish. Each block shall be fitted with a lifting ring that will not interfere with the assembly of the block wall once they are set in place. Cap blocks shall be utilized on the top course of the wall with the top of the cap blocks having a stone exterior finish. The precast interlocking concrete block headwalls are available from Underground Specialties Inc./Wolseley Inc. (Canada) or approved equal.

Precast interlocking blocks that abut the pipe shall be cast as one solid piece and shall be cut and shaped to fit closely around the perimeter of the pipe. The face of the wall shall not extend beyond the end of the pipe. All minor gaps between the blocks and the pipe shall be sealed with no shrink grout for the full depth of the blocks. At the base of the wall, a base block shall be used at the bottom of the interlocking block wall. The base block shall be founded on a firm solid base. When necessary, the Contractor shall provide a minimum of 200mm thickness of level compacted granular bedding, or a lean concrete footing, as a firm foundation for the blocks. The base block shall be set level and shall convey a vertical projection throughout its full height and shall include

filter cloth behind the wall for the full height of the blocks to prevent soil migration through any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum "MacTex MX140" meeting OPSS Class I. Both headwalls shall be assembled concurrently with a continuous uni-axial geogrid SG350, or equal, installed across the entire structure at every second course of blocks, to tie each headwall to the other. In the event that the distance between headwalls exceeds 10.00 metres (32.81 ft.), the Contractor shall install the uni-axial geogrid for a distance of 3.00 metres (9.84 ft.) inward from each headwall and at every second course. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtex Construction Products or approved equal.

The blocks shall extend up from the pipe invert and cross the full width of the drain and be embedded a minimum of 500mm into the drain banks. Where required for the top of the block wall to match the height of the completed driveway, the Contractor shall embed the bottom course of blocks into the drain bottom at the appropriate depth to achieve the required top elevation of the wall.

**The Contractor shall arrange for the Supplier to provide interlocking block layout drawings outlining block assembly of the proposed headwall to the Consulting Engineer for approval prior to proceeding with fabrication and assembly of same.** The Contractor shall arrange with the Supplier for technical assistance with the assembly of the structure on-site in full accordance with the requirements of the Supplier. All assembly installation shall be carried out to avoid any damage to the pipe and shall follow the Supplier's recommendation in every respect to ensure a proper and safe installation.

The precast interlocking concrete block headwalls shall be installed vertically and shall extend from the end of the new pipe to the top elevation of the driveway. Under no circumstances shall the interlocking block wall be installed with an outward projection. When complete, the outside face of the headwall shall be installed flush with the end of the proposed culvert. The precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. Headwalls are to be installed so that daylighting is provided off the travelled roadway if required. The daylighting is to be designed to deflect outwardly from approximately the extreme roadside face of the new culvert to a point just beyond the top bank of the drain. The outward projection of the new headwalls shall be deflected at approximately a 45-degree angle, and the maximum outward deflection shall not be greater than shown on the accompanying Drawings, parallel to the projection of the straight portion of the finished wall. The straight portion of the precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. The Contractor shall also be required to backfill the area behind the new headwall with granular fill.

The Contractor shall also be required to satisfactorily backfill the area in behind the new headwall with granular fill as already specified in the preceding paragraphs for backfilling of the bridge culvert. The top elevation of the headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation unless shown on the drawings. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. Block Headwalls shall be installed in accordance with the "**Precast Interlocking Concrete Block Headwall End Protection Details**" outlined herein.

Provided that the proposed headwall design complies with the provisions outlined under this heading, together with "Figure 4 – Typical Precast Interlocking Concrete Block Vertical Headwall End Protection Detail," the submission of the headwall shop drawings will not require a third-party Engineer's seal. However, if an alternative headwall design is proposed that deviates from the established specifications, the shop drawings

shall bear the seal and signature of an Engineer certifying that the design meets the minimum design standards and includes fabrication details, hardware, reinforcing schedules, etc. for review and approval.

Upon completion of the headwall installation, the Contractor shall also provide sloped quarried limestone erosion protection adjacent and along all of the new concrete headwalls, at the general locations and to the widths shown within the details included therein. Furthermore, the installation of the quarried limestone shall adhere to the parameters outlined in **Section IX. Sloped Quarried Limestone Erosion Protection – Concrete Block Headwalls.**

#### **Concrete-Filled Jutebag Headwalls**

When specified, the Contractor shall install new concrete jute bag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jute bag headwalls, the Contractor shall place the bags so that the completed headwall will have an inward batter from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one (1) unit horizontal to five (5) units vertical. The Contractor shall satisfactorily backfill behind the jutebag headwalls with granular material similar to the rest of the structure, and the same compaction levels specified herein for backfilling the adjacent culvert. The placing of the jute bag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

The concrete jute bag headwalls shall be constructed by filling jute bags with concrete. All concrete used to fill the jute bags shall have a minimum compressive strength of 21MPa in 28 days and shall be provided and placed only as a wet mix. Under no circumstance shall the concrete to be used for filling the jute bags be placed as a dry mix. The jute bags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jute bags shall be filled with concrete so that when they are laid flat, they will be approximately 100mm (4") thick, 305mm (12") to 380mm (15") wide and 460mm (18") long. The completed jute bag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the side slopes of the drain.

If indicated on the Drawings, daylighting may be installed off the travelled roadway, and the same are designed to deflect outwardly. The outward deflection shall be deflected at the specified angle to the straight portion of the finished headwall. The top elevations of the daylighted headwalls are to be set no less than 75mm (3") below the existing ground elevation unless otherwise designed. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or Consulting Engineer.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete-filled bags with a layer of plain concrete, minimum 150mm (6") thick, and hand trowelled to obtain a brushed finish appearance. If the cap is made more than 150mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars (or equivalent mesh) set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete-filled jute bags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids. All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21MPa in 28 days and include 6% ± 1% air entrainment. Concrete-filled jute bag headwalls shall be installed in accordance with the **"Typical Concrete Filled Jute Bag Headwall End Protection Details"** outlined herein.

**X. SLOPED QUARRIED LIMESTONE EROSION PROTECTION FOR VERTICAL HEADWALLS**

The sloped quarried limestone erosion protection shall be embedded into the side slopes of the drain at a minimum thickness of 305mm and shall be underlain in all cases with a synthetic filter mat. The filter mat shall not only be laid along the flat portion of the erosion protection but also contoured to the exterior limits of the quarried limestone and the unprotected slope. The width and slope of the general erosion protection shall be as established in the accompanying drawing or as otherwise directed by the Drainage Superintendent and/or the Consulting Engineer during construction. In placing the erosion protection, the Contractor shall carefully tamp the quarried limestone pieces into place with the use of a shovel bucket so that the erosion protection when completed will be consistent, uniform and tightly laid. In no instance shall the quarried limestone protrude beyond the exterior contour of the unprotected drain side slopes along either side of said protection. The synthetic filter mat to be used shall be **non-woven** geotextile MacTex MX140 conforming to OPSS 1860 Class I, as available from Armtec Construction Products, or approved equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm (4") to a maximum of 250mm (10"), and is available from Walker Aggregates, in Amherstburg, Ontario, or approved equal. Sloped quarried limestone erosion protection shall be installed in accordance with the "**Typical Quarried Limestone End Protection Detail**" outlined herein.

**XI. ANCILLARY WORK**

During the course of any repair or improvements, the Contractor will be required to protect or extend any existing tile ends or swales to maintain the drainage from the adjacent lands. All existing tiles within the proposed alignment shall be extended utilizing Boss 1000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the "**Standard Lateral Tile Detail**" outlined herein unless otherwise noted. Connections shall be made using a Manufacturer's coupling wherever possible. Openings into new pipes shall be neatly saw-cut to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer. For other connections, the Contractor shall utilize a grouted connection. Grouted mortar joints shall be composed of three (3) parts of clean, sharp sand to one (1) part of Portland Cement with just sufficient water added to provide a stiff plastic mix. The mortar joint shall be of sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal. The Contractor is to note that any intercepted pipes along the length of the existing pipes are to be extended and diverted to the downstream end of the new pipe unless otherwise noted in the accompanying drawings.

Where the culvert installation interferes with the discharge of an existing swale, the Contractor shall re-grade the existing swales to allow for the surface flows to freely enter the drain. Any disturbed grass areas shall be fully restored with topsoil, seed and mulch. The Contractor shall also be required as part of the culvert replacement to excavate and widen the drain bottom where required to fit the new pipes in order to provide a smooth transition between the new culvert installation and the existing drain.

The Contractor, when doing their excavation or any other portion of the work, shall be very careful not to interfere with, plug up or damage, any existing surface drains, swales and lateral or main tile ends. If it is found that said existing drains are interfered with in any way, the Contractor will be required to unplug or repair said drains immediately, at no extra cost to the project. If it is found that any existing lateral tiles or main tile drains or tile ends have been cut off or damaged in any way during the course of the work, the Contractor will be required to either repair or replace same, to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

The Contractor shall take steps to protect all legal survey bars during the course of its work. If any bars are removed or damaged, the Contractor shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to replace same, all at its cost.

All of the work required towards the installation and improvements to all structures shall be performed in a neat and workmanlike manner and the general site shall be restored to its' original condition, and all of same is to be performed to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

## **XII. TOPSOIL, SEED AND MULCH**

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out the topsoil placement along all specified newly excavated and filled or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works. The Contractor shall be required to use the scavenged topsoil stripped from the drain banks. The balance of the topsoil required shall be obtained by the Contractor at its own expense.

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged or disturbed by the structure installation and/or removal, and place topsoil and seed and mulch over said areas including any specific areas noted on the Drawings. The Contractor shall be required to provide all the material and to cover the above-mentioned surface areas with approximately 50mm of good, clean, dry topsoil on slopes and 100mm of good, clean, dry topsoil on horizontal surfaces, fine graded and spread in place ready for seeding and mulching. The Contractor is to note that prior to fine grading the topsoil over the backfilled areas, positive drainage is to be provided off of these areas and into the swales, and the Contractor shall also be required to make minor changes where necessary to ensure same. The Contractor shall be required to restore all existing grassed areas and roadway boulevard areas damaged by the culvert work and shall provide topsoil and seed and mulch over all of these areas. The placing and grading of all topsoil shall be carefully carried out according to Ontario Provincial Standard Specifications, Form 802, dated November 2010, or as subsequently amended or as amended by these Specifications. Once the topsoil has been properly placed and fine-graded, the Contractor shall seed and mulch the area. Seeding and mulching operations shall be carried out according to Ontario Provincial Standard Specifications, Form 572, dated November 2003, or as subsequently amended or as amended by these Specifications. The seeding mixture shall be OSECO Seed Mixture Canada No. 1, as available from Morse Growers Supply in Leamington, or equal. As part of the seeding and mulching operation, the Contractor will be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with OPSS 1103.05.03 dated November 2016, or as subsequently amended, to ensure that the grass seed will be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All work shall be completed to the satisfaction of the Drainage Superintendent or the Consulting Engineer.

All of the work relative to the placement of topsoil and the seeding and mulching operation shall be meticulously done and completed in a good and workmanlike manner all to the satisfaction of the Drainage Superintendent or Consulting Engineer.

**XIII. FINAL CLEANUP AND RESTORATION**

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken.

All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. Before authorizing Final Payment, the Drainage Superintendent or the Consulting Engineer shall inspect the work in order to be sure that the proper restoration has been performed. In the event that the Contractor fails to satisfactorily clean up any portion of these accesses, the Consulting Engineer shall order such cleanup to be carried out by others and the cost of same to be deducted from any monies owing to the Contractor.

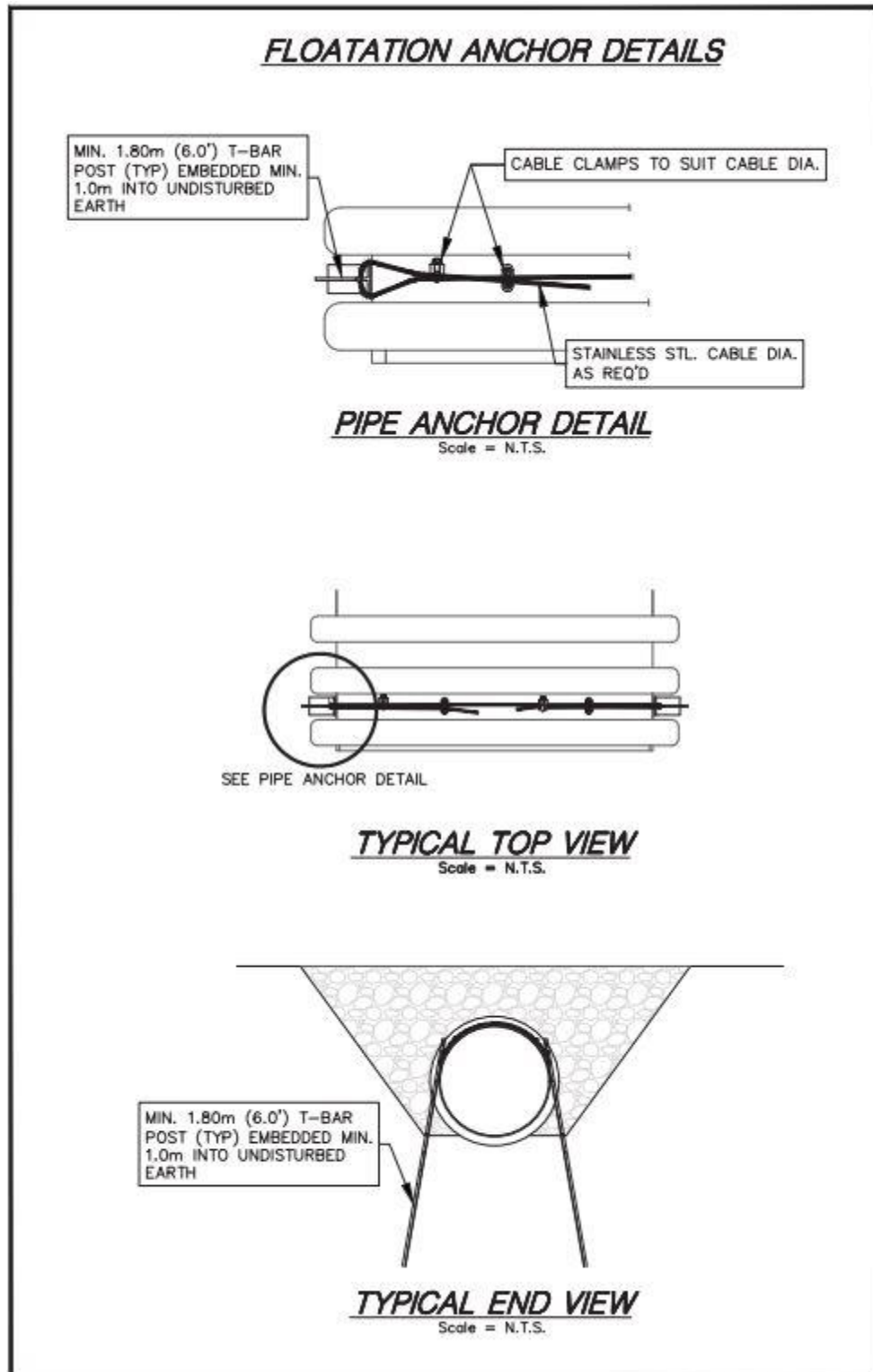


Figure 1 - Flotation Anchor Details

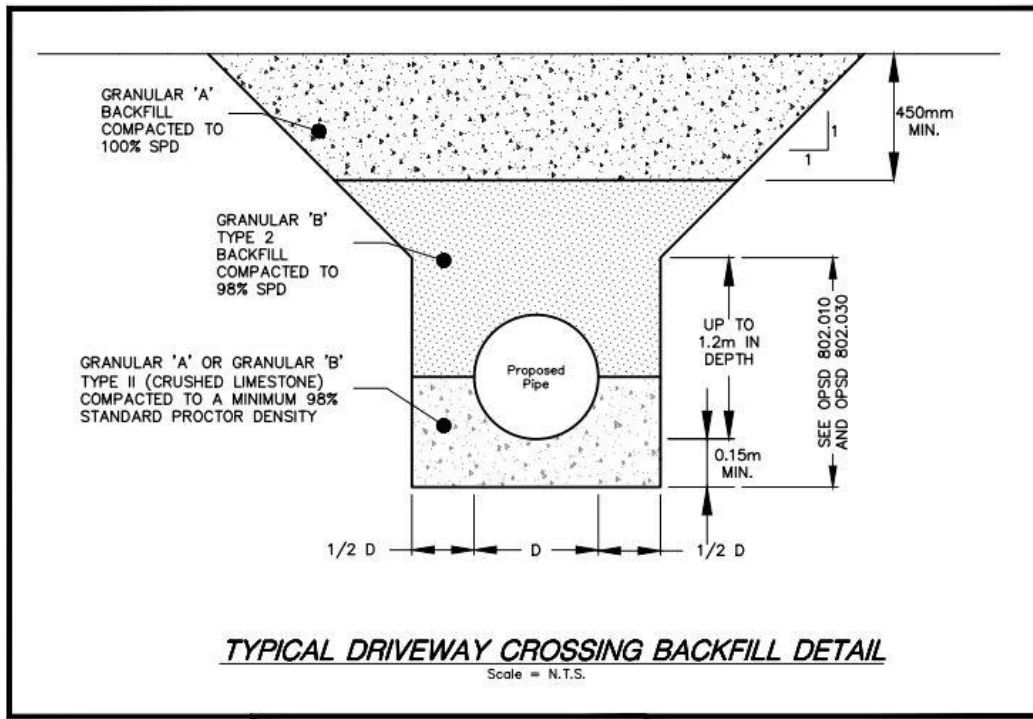


Figure 2- Typical Driveway Crossing Backfill Detail

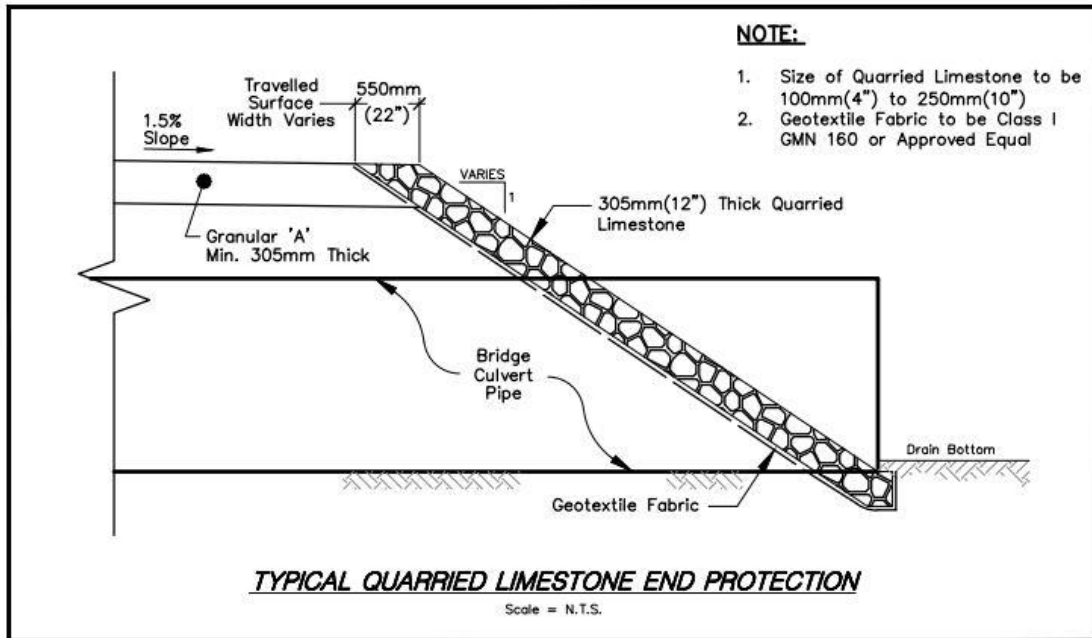


Figure 3 - Typical Quarried Limestone End Protection Detail

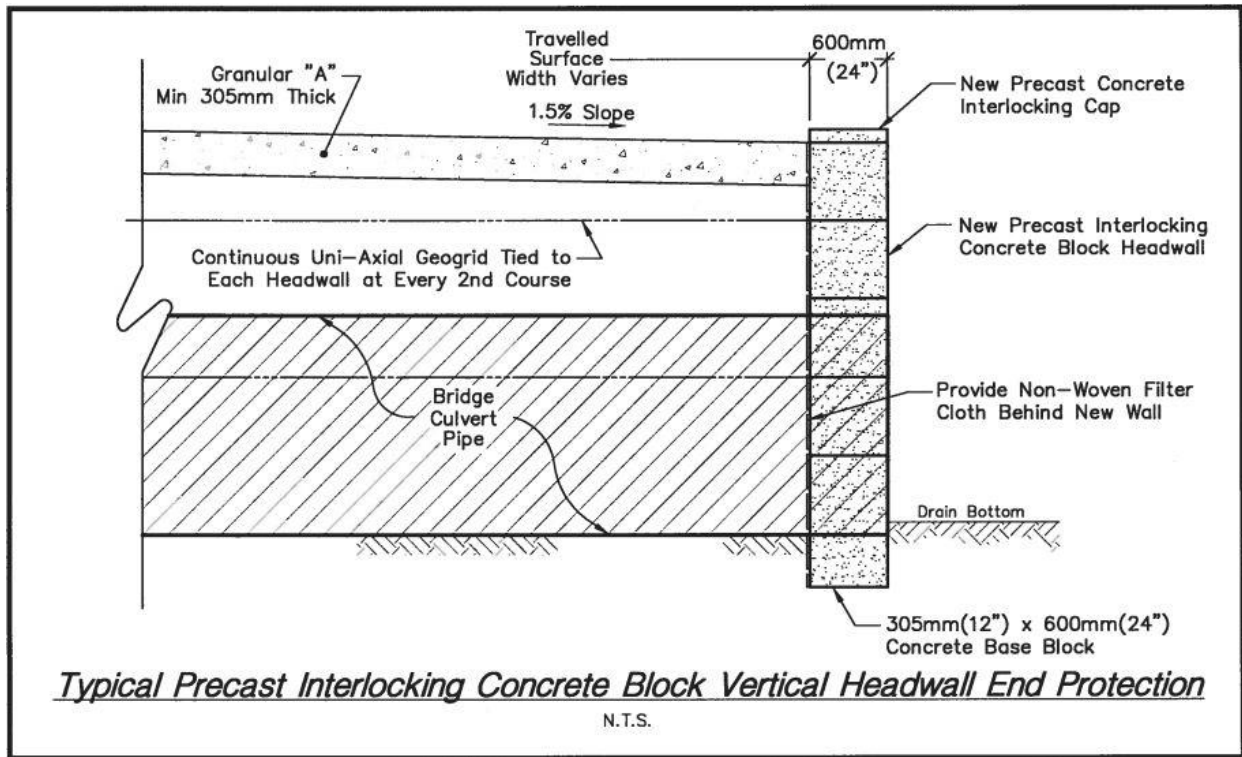


Figure 4 - Typical Precast Interlocking Concrete Block Vertical Headwall End Protection Detail

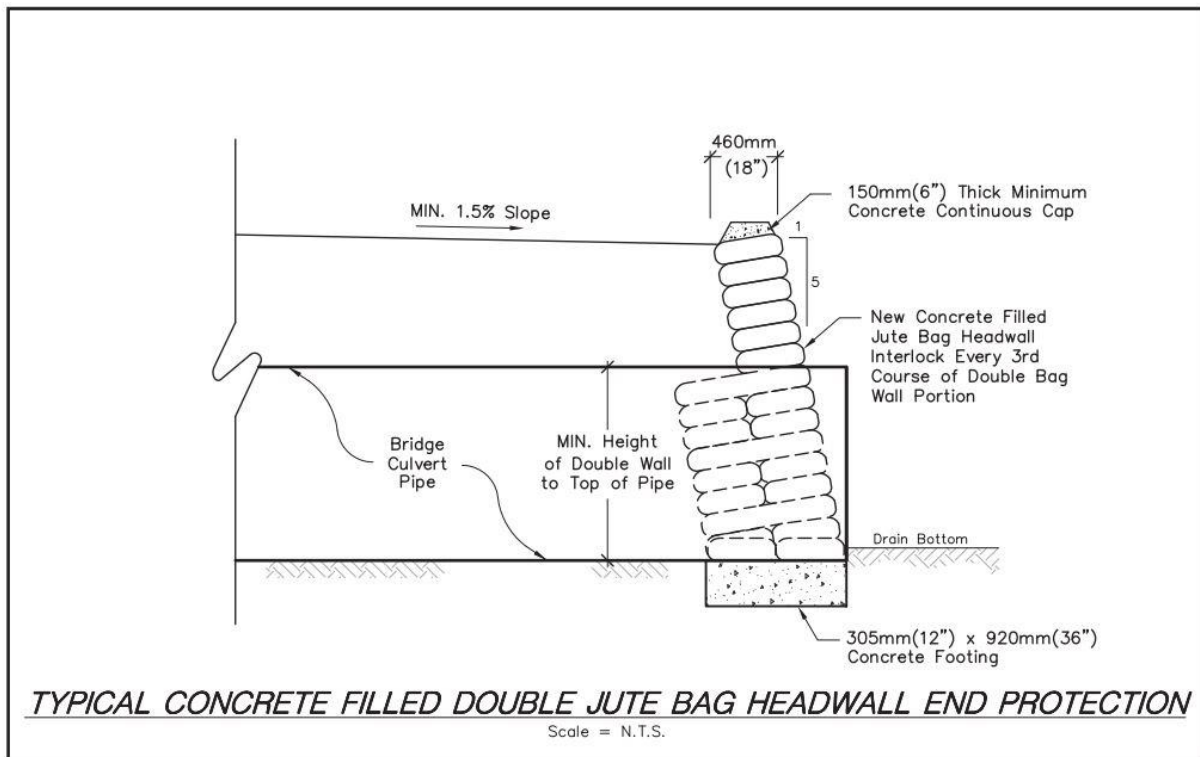


Figure 5 - Typical Concrete Filled Double Jute Bag Headwall End Protection Detail

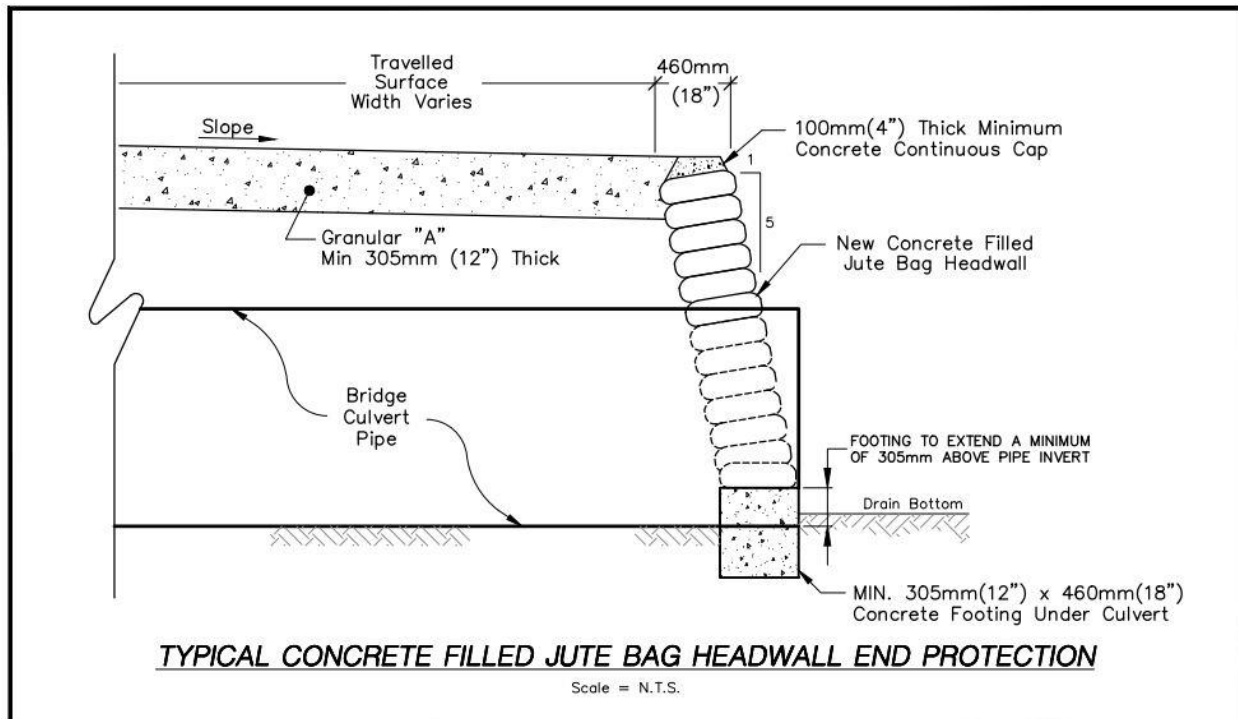


Figure 6 - Typical Concrete Filled Jute Bag Headwall End Protection Detail

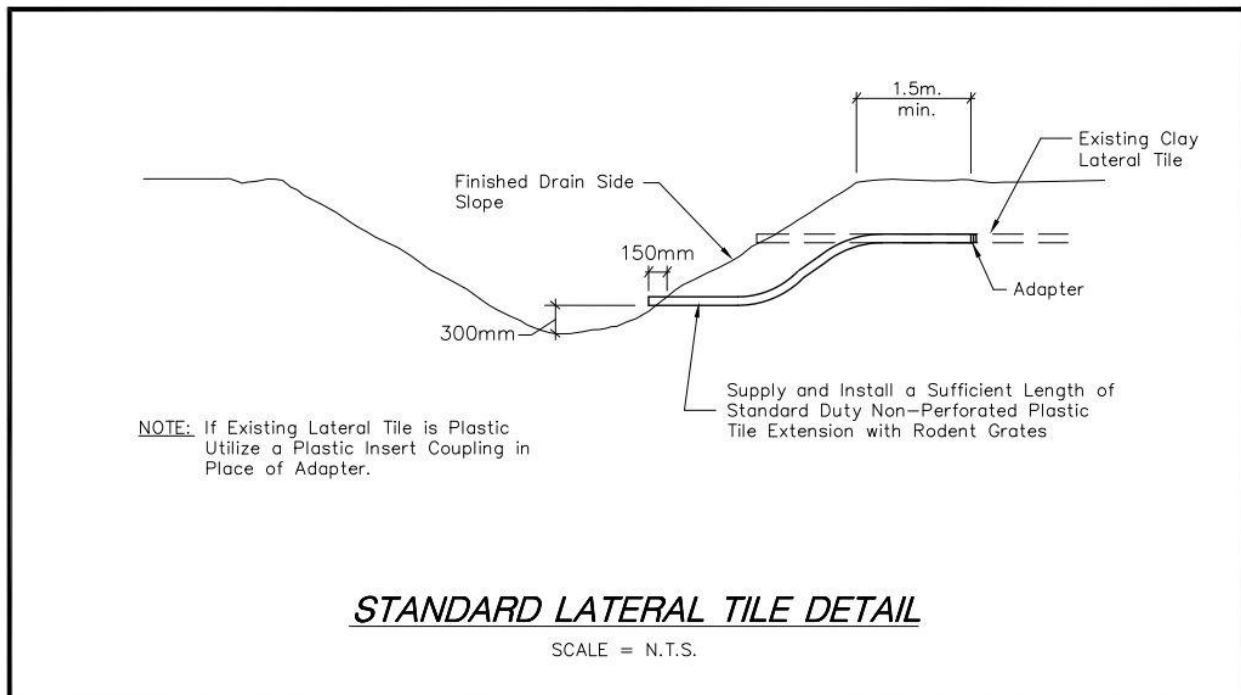


Figure 7 - Standard Lateral Tile Detail

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**STANDARD SPECIFICATIONS**  
FOR ENCLOSURE/COVERED DRAIN INSTALLATIONS  
(Revised January 2024)

**I. GENERAL INFORMATION FOR SPECIFICATIONS**

These specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these standard specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section or sections from the Canadian Construction Documents Committee (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

**II. TRAFFIC CONTROL**

The Contractor shall ensure that the travelling public is always protected while utilizing the roadway for its access. The Contractor shall be required to carry out all the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close the road for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality and County Roads Departments (if applicable) and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access at least 48 hours in advance of same. All detour routes shall be established in consultation with the Municipality and County Roads Department.

Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused.

The Contractor shall note that any deviation from the specified access for the construction of the enclosure/covered drain without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price. Where applicable, the Contractor shall be responsible for any damage caused by them to any portion of the road right-of-way. They shall take whatever precautions are necessary to avoid damage to the roadway. Any damage to the roadway must be restored to its' original condition upon completion of the works.

### **III. REMOVAL OF BRUSH, TREES AND DEBRIS**

Where there is any brush, trees or debris along the course of the drainage works, including the full width of the access, all such brush, trees or debris shall be close-cut and grubbed out, and the whole shall be chipped up for recycling, burned, hauled away or satisfactorily disposed of by the Contractor at its expense. Prior to and during the course of the burning operations, the Contractor shall comply with the guidelines prepared by the Air Quality Branch of the Ontario Ministry of the Environment and shall ensure that the Environmental Protection Act is not violated. The Contractor will be required to notify the local fire authorities and cooperate with them in the carrying out of any work. The removal of brush and trees shall be carried out in close consultation with the Drainage Superintendent or Consulting Engineer to ensure that no decorative trees or shrubs are disturbed by the operations of the Contractor that can be saved. It is the intent of this project to save as many trees and bushes as practical within the roadway allowances and on private lands.

The Contractor shall protect all other trees, bushes, and shrubs located along the length of the drainage works except for those trees that are established within the accompanying drawings or in consultation with the Drainage Superintendent, the Consulting Engineer, and the affected Owner(s). The Contractor shall note that protecting and saving the trees may require the Contractor to carry out handwork around the trees, bushes, and shrubs to complete the necessary final site grading and restoration.

Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain to stand, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

The Contractor shall remove all deleterious materials and debris along the course of the open drain and any such materials located in the bridge culverts while carrying out its cleaning of same. All such deleterious

materials and debris shall be loaded up and hauled away by the Contractor to a site to be obtained by it at their expense.

If applicable, where identified on the drawings, and to ensure a safe separation distance is maintained, the Contractor shall install tree protection fencing at the projected limit of the excavation and beneath the drip line of the identified tree(s). The fencing shall be comprised of orange vinyl snow fencing secured at 3.00-metre intervals with iron T-posts driven 600mm into the ground and should be in place until construction work is completed. During construction, no equipment, materials or tools shall be stored beyond the tree protection fencing.

#### **IV. FENCING AND/OR STRUCTURES**

Where it is necessary to take down any fence and/or structure to proceed with the work, same shall be done by the Contractor across or along that portion of the work where such fence and/or structure is located. The Contractor shall be required to exercise extreme care in the removal of any fencing and/or structure, to ensure minimum damage to same. The Contractor shall be required to replace any fence and/or structure that is taken down in order to proceed with the work, and the fence and/or structure shall be replaced in a neat and workmanlike manner. The Contractor shall not be required to procure any new materials for rebuilding the fence and/or structure provided that it has used reasonable care in the removal and replacing of same. When any fence and/or structure is removed by the Contractor, and the Owner thereof deems it advisable and procures new material for replacing the fence and/or structure so removed, the Contractor shall replace the fence and/or structure using new materials and the materials from the present fence and/or structure shall remain the property of the Owner.

#### **V. UTILITIES**

The Contractor will be responsible at all times for complete investigation to determine the location of all such utilities or structures known or unknown, and it shall indemnify and save harmless the Engineer and the Municipality for any responsibility, injury, or liability arising from any damage to such utilities or structures by the Contractor.

The Contractor shall protect all other services located in the vicinity of the proposed drainage works including any sanitary sewers and connections, watermains and connections, telephone and gas services, along with any private systems and services. Any damaged components shall be replaced by the Contractor, totally at its own expense and it shall fully restore the functionality of same.

The Contractor shall further contact or notify such Utility Company or Commission of its intention to carry out work in the area and cooperate with such Utility Company or Commission in the location, maintenance and preservation of all such utilities. The location of the pipes and appurtenances as shown on the drawings is approximate and may be changed by the Engineer if deemed advantageous for the progress of the work.

**VI. NOTICE OF PROJECT COMMENCEMENT AND HOURS OF OPERATION**

The Contractor shall provide a minimum of forty-eight (48) hours' notice to the Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. The installation of the culvert structure is to be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend such working hours.

**VII. EXCAVATIONS, REMOVALS AND DISPOSALS**

All excavation shall be made in compliance with the drawings and in such a manner and at such depths and widths as will give ample room for installing the pipe, the bracing, sheeting, or otherwise supporting the sides of the excavation and for the pumping of groundwater if encountered. The Contractor is fully responsible for the safety of all its men and equipment and must conform completely with the provisions of the "Construction Safety Act" and "Regulations for Construction Projects".

Where an existing culvert is being replaced, the Contractor shall be required to excavate and completely remove the existing culvert and headwalls in their entirety, as well as any other deleterious materials that may be encountered in removing such materials, unless otherwise noted. All unsuitable or deleterious materials from the excavation and removal of existing culverts and the drain shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor and it shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor will be responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

The Contractor is to note that when replacing the existing structures, it shall be required to excavate a trench having a width not less than the new pipe outside diameter plus a 600mm working width on both sides of the new pipe.

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out any topsoil placement along all specified or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works.

The bottom of the trenches must be carefully excavated and trimmed to the elevation and shape of the bottom of the pipe. The bottom of the trenches shall be recessed to receive the pipe in order to allow the pipe to be uniformly supported for its entire length. Corrections in the depth of excavation caused by the Contractor excavating to an extent greater than that required for the elevation of the pipe shall be made by bedding the pipe with 20mm (3/4") clear stone granular material is placed at the time that the pipes are being installed, at the Contractors expense.

No extras will be allowed for excavating any hardpan, boulders, rocks, ice or other obstacles found in the excavation or in the line of the trench or for any pumping or baling of water required in the excavation of the work. The trench must be drained or pumped in order to avoid the necessity of making joints under water. The trench must also be drained to avoid any possibility of groundwater entering the pipe in the trench until the installation has been successfully completed.

## **VIII. PIPE INSTALLATION**

The new pipe shall be set in the alignment and to the grade elevations established in the accompanying drawings. The same shall not be altered unless otherwise directed by the Drainage Superintendent or Consulting Engineer prior to construction of same. Any changes relative to the enclosure/covered drain must be approved by the Consulting Engineer prior to proceeding with construction.

The Contractor shall lay the enclosure/covered drain pipe to the lines, levels, and grades as shown in the accompanying drawings or as may be laid out and established by the Engineer prior to the time of construction. The Contractor shall be held responsible for said lines, levels and grades of the drain pipe and should the Engineer determine that the Contractor has not satisfactorily adhered to such lines, levels and grades, it may direct the Contractor to take up and re-lay any portion of the drain which does not conform to such lines, levels and grades. In the event that the required pipe length is less than 6.10 metres (20.00 ft.), the smaller length must be installed near the centre of the culvert.

Laser control must be provided to maintain drain lines and grades, and the Contractor shall have a qualified Operator to set up and operate the equipment. In some instances, but only at the discretion of the Engineer, an approved system of batter boards may be utilized for this purpose; However, the cost of placing grade stakes and determining the cut information shall be provided by or paid for entirely by the Contractor.

The Contractor should note that, because the pipe is being installed with an excavator, it is expected that they will provide a minimum of 150mm (6") of either compacted MTO Granular "A", Granular "B" (Type II) or 20mm (3/4") clear stone bedding material, as outlined within OPSS Form 1010 The Contractor shall ensure that a good firm base is provided under the drain pipe, and they shall provide for this item as part of their tender price.

### **HDPE Pipe Installation**

When HDPE plastic pipes are specified, they shall be joined together with the use of a water-tight bell and gasket joining system, secured in accordance with the Manufacturer's recommendations. The minimum length of a continuous pipe section shall be no less than 6.10 metres (20.00 ft.). The HDPE plastic pipe for this installation must be of the length, size, and strength identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and the Consulting Engineer prior to its placement in the drain.

For new smoothwall HDPE culvert pipes that are shown on the Drawings to have sloped quarried limestone erosion protection at their ends, both ends of the pipe shall be securely anchored against floatation utilizing two (2) steel T-bar fence posts having a minimum length of 1.80 metres (6.00 ft.) or approved equal, on each side of the pipe, together with heavy steel galvanized wire secured between them across the top of the pipe. The top of each post shall be set no higher than the top of the proposed culvert. Pipe anchors shall be installed in accordance with the "Floatation Anchor Details" outlined within the accompanying drawings.

### **Aluminized Steel Pipe Installation**

When Aluminized Steel Corrugated Hel-Cor pipe and/or Aluminized Steel Type II UltraFlo pipe is specified, the culvert shall be installed with a minimum number of couplers and longer pipe sections are to be utilized whenever possible. Under no circumstances shall the culvert sections be less than 4.00 metres in length. All pipe lengths shall be of the size and gauge noted in the drawings and shall be coupled together with Aluminized Steel Type II 10C having a thickness consistent with the culvert pipe material. The overall pipe for this installation

must be of the length, size, and thickness as identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement in the drain.

### **General Pipe Installation**

The Contractor shall be required to provide all labour, equipment and materials to set the pipe to the required design grades. Where couplers are required, the Contractor shall utilize the appropriate coupler provided by and per the specifications of the Manufacturer. The Contractor shall supply all material and labour to provide a non-woven filter cloth wrap around the full circumference of the coupler joint connection, as part of their tender price. The filter cloth wrap connection shall be a minimum of 250mm (10") wider than the width of the proposed coupler and shall overlap a minimum of 200mm (8"), as available from Underground Specialties Inc., of Windsor, Ontario, or equal. The specific type to be utilized shall be approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement. The installation of all joints must be inspected and approved by the Drainage Superintendent or Consulting Engineer prior to any backfilling of same.

The Contractor shall also note that the placement of the enclosure/covered drain is to be performed totally in the dry, and it shall be prepared to take whatever steps are necessary to ensure same, all to the satisfaction of the Drainage Superintendent and/or Consulting Engineer. The installation of the complete length of pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation.

All pipe materials shall be stored and handled by the Contractor at its own expense. It shall be responsible for the safe storage of all materials, for obtaining storage areas, for the safe transportation and distribution of all the materials at the job site, and for inspection in order to determine defects and breakage. No additional recompense will be allowed to the Contractor for any loss incurred by it in the storage and handling of the materials.

Pipe, fittings, and all accessory appurtenances must be loaded and unloaded by lifting with means of a hoist or a skid to avoid shock or damage. Under no circumstances shall any drain material or materials for drain appurtenances be dropped.

If the drain pipe is laid in freezing weather, the Contractor shall take all the necessary precautions to prevent damage to the pipe or to any of the materials used in the construction of the work. In addition, the Contractor shall take care that no frozen ground or backfill is placed in the trench backfilling adjacent to the drain pipe. All pipe and the various other materials used in the placing of said pipe shall be installed in strict compliance with the Manufacturer's recommendations.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the culvert pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve the said installation.

## **IX. DRAINAGE STRUCTURE INSTALLATION**

Where required, all materials for the catchbasins shall comply with Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) with respect to materials, qualities, and installation details. The catchbasins and maintenance holes shall be founded on a good, dry, firm, undisturbed earth base for its entire bottom surface area, or 20mm (3/4") clear stone bedding, if necessary. Corrections in depth of excavation caused by the Contractor excavating to an extent greater than that required for the structures shall be backfilled to the proper grade elevation by embedding the catchbasin maintenance holes floor area with 20mm (3/4") clear stone granular bedding. A sump is to be provided in each structure which shall be a minimum of 450mm deep measured from the proposed invert of the covered drain or connection to the proposed concrete floor elevation of the structure. The structure shall be set to allow for connection of all of the inlet and outlet pipes and shall be installed as shown and detailed on the Drawings. The top elevation of the structure shall be installed to the elevations noted on the Drawings or as further directed by the Drainage Superintendent or the Consulting Engineer. All structure sections and adjustment units shall be joined together with standard gasket material, caulking, or grout as required by the Manufacturer, or as set out in the applicable OPSS and OPSD.

All structures, where applicable, shall include a minimum of three (3) adjustment units in accordance with OPSD 704.011. All work shall be completed as shown and detailed on the Drawings.

The Contractor shall connect all covered drains and connections in the catchbasin maintenance holes with the use of a mortar joint or standard rubber boot cast into the units by the Manufacturer. Said mortar joint shall be provided at the internal and exterior of the catchbasin maintenance holes wall for the full circumference of the covered drain and be of a sufficient mass to produce a sealed joint, all to be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. Where possible, the Contractor shall employ a standard factory fitting or adapter to connect between the various pipes, tiles, and catchbasin maintenance holes, otherwise a mortar joint connection can be utilized.

## **X. ENCLOSURE/COVERED DRAIN BACKFILL**

Where the new enclosure/covered drain pipe is located under the driveway, the Contractor shall backfill the entire trench for the width of the driveway with Granular Type II "B" or Granular "A", or locally approved equivalent compacted in place to a minimum 98% of Standard Proctor Density with the exception of the top 300mm which should be backfilled with Granular "A" material also compacted in place to a Standard Proctor Density of 100%. Where the new enclosure/covered drain pipe is located along the lawn area, the Contractor shall be required to backfill the entire trench with good clean native backfill material with the exception of the top 100mm which shall be good clean black loamy topsoil readied for seeding and mulching. It should be noted that if there is a shortage of native backfill material available, the Contractor shall supply same all at its own expense. The Contractor should also note that prior to commencing its excavation that all existing topsoil should be scavenged for reuse on the project; if there is a shortage, the Contractor shall be required to supply the balance of the topsoil needed, all at its own expense. All of the native backfill material shall be compacted in place to a minimum Standard Proctor Density of 96%.

All backfill material shall be placed in compacted in maximum lifts of approximately 300mm thick. The Contractor is required to provide whatever mechanical equipment necessary, such as jumping jack and/or plate tamper, in order to achieve the necessary compaction levels, especially along the haunches of the new

pipe. All areas shall be graded in accordance with the profile and cross-sections shown in the accompanying drawings, including provision of cross-fall on boulevard areas as shown therein.

#### **XI. CONSTRUCTING NEW SWALES**

The Contractor shall provide all labour, equipment, and materials in order to construct the swales, to the lines, levels, and grades as is shown and detailed in the accompanying drawings. The centreline of the finished swale grade elevation and swale cross-section, at various locations along the length of the drain, are to be provided as shown and detailed in the design drawings. The Contractor shall be required to strictly adhere to this swale design unless otherwise directed and approved by the Consulting Engineer.

The swale shall generally be constructed with a V-section centered over the proposed lawn piping, or as the alignment shows in the drawings, to ensure positive flow of the surface drainage into the sloped quarried limestone end treatments which act as outlets for the swale sections or other surface inlet structures, if applicable. All materials excavated from the swale including all deleterious materials shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense.

The alignment of the swales throughout shall be to the satisfaction of the Drainage Superintendent and the Consulting Engineer. All of the work shall be done in a neat, thorough, and workmanlike manner also to their full satisfaction.

#### **XII. SLOPED QUARRIED LIMESTONE EROSION PROTECTION**

When specified, the Contractor shall install sloped quarried limestone end protection at both ends of the pipe, or where shown, on a slope no steeper than 1.50 horizontal to 1.00 vertical and shall extend from the end of the new pipe to the top elevation shown. The top 305mm (12") of backfill material over the ends of the pipe, from the invert of said pipe to the top of the driveway elevation of the enclosure/covered drain, shall be quarried limestone. The quarried limestone to be placed on the sloped ends of the enclosure/covered drain shall be underlain with a synthetic non-woven geotextile filter fabric. The sloped quarried limestone protection is to be rounded as shown on the plan details and shall also extend along the drain side slopes to a point directly in line with the ends of the culvert pipe. All work shall be completed to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer.

The quarried limestone shall be provided as shown and detailed and shall vary in size from a minimum of 100mm (4") to a maximum of 250mm (10"). The quarried limestone pieces shall be carefully tamped into place with the use of a shovel bucket so that, when complete, the quarried limestone erosion protection shall be consistent, uniform, and tightly laid in place. Prior to placing the quarried limestone, the Contractor shall place non-woven geotextile filter fabric "MacTex MX140" conforming to OPSS 1860 Class 1 or approved equal, as an underlay underneath all areas to be covered in quarried limestone erosion protection. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone. The placement of the geotextile filter fabric and the quarried limestone, and the completion of the quarried limestone erosion protection shall be conducted to the satisfaction of the Drainage Superintendent and/or Consulting Engineer.

### **XIII. PRECAST INTERLOCKING CONCRETE BLOCK HEADWALLS**

When precast interlocking concrete block headwalls are specified, the concrete blocks shall be rectangular in shape with square corners and be a minimum size of 600mm x 600mm x 1200mm (2' x 2' x 4'), as available from Underground Specialties Inc./Wolseley Inc. (Canada) or approved equal. Blocks with modified lengths may be utilized to fill in staggered sections of the block wall. All blocks shall be cast in one pour with no cold joints and shall have a minimum compression strength of 20MPa at 28 days. All precast concrete blocks shall be formed with interlocking pockets and tenons and each block shall be assembled in a staggered formation to prevent sliding at the interface between blocks. All precast concrete blocks shall be uniform in size with relatively smooth and consistent joints and shall have a stone exterior finish. Each block shall be fitted with a lifting ring that will not interfere with the assembly of the block wall once they are set in place. Cap blocks shall be utilized on the top course of the wall with the top of the cap blocks having a stone exterior finish. The precast interlocking concrete block headwalls are available from Underground Specialties Inc./Wolseley Inc. (Canada), or approved equal.

Precast interlocking blocks that abut the pipe shall be cast as one solid piece and shall be cut and shaped to fit closely around the perimeter of the pipe. The face of the wall shall not extend beyond the end of the pipe. All minor gaps between the blocks and the pipe shall be sealed with no shrink grout for the full depth of the blocks. At the base of the wall, a base block shall be used at the bottom of the interlocking block wall. The base block shall be founded on a firm solid base. When necessary, the Contractor shall provide a minimum of 200mm thickness of level compacted granular bedding, or a lean concrete footing, as a firm foundation for the blocks. The base block shall be set level and shall convey a vertical projection throughout its full height and shall include filter cloth behind the wall for the full height of the blocks to prevent soil migration through any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum "MacTex MX 140" meeting OPSS Class I. Both headwalls shall be assembled concurrently with a continuous uni-axial geogrid SG350, or equal, installed across the entire structure at every second course of blocks, to tie each headwall to the other. In the event that the distance between headwalls exceeds 10.00 metres (32.81 ft.), the Contractor shall install the uni-axial geogrid for a distance of 3.00 metres (9.84 ft.) inward from each headwall and at every second course. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtex Construction Products or approved equal.

The blocks shall extend up from the pipe invert and cross the full width of the drain and be embedded a minimum of 500mm into the drain banks. Where required for the top of the block wall to match the height of the completed driveway, the Contractor shall embed the bottom course of blocks into the drain bottom at the appropriate depth to achieve the required top elevation of the wall.

**The Contractor shall arrange for the Supplier to provide interlocking block layout drawings outlining block assembly of the proposed headwall to the Consulting Engineer for approval prior to proceeding with fabrication and assembly of same.** The Contractor shall arrange with the Supplier for technical assistance with the assembly of the structure on-site in full accordance with the requirements of the Supplier. All assembly installation shall be carried out to avoid any damage to the pipe and shall follow the Supplier's recommendation in every respect to ensure a proper and safe installation.

The precast interlocking concrete block headwalls shall be installed vertically and shall extend from the end of the new pipe to the top elevation of the driveway. Under no circumstances shall the interlocking block wall be installed with an outward projection. When complete, the outside face of the headwall shall be installed flush with the end of the proposed culvert. The precast interlocking concrete block headwall shall be installed

perpendicular to the drain banks. Headwalls are to be installed so that daylighting is provided off the travelled roadway, if required. The daylighting is to be designed to deflect outwardly from approximately the extreme roadside face of the new culvert to a point just beyond the top bank of the drain. The outward projection of the new headwalls shall be deflected at approximately a 45-degree angle, and the maximum outward deflection shall not be greater than shown on the accompanying Drawings, parallel to the projection of the straight portion of the finished wall. The straight portion of the precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. The Contractor shall also be required to backfill the area behind the new headwall with granular fill.

The Contractor shall also be required to satisfactorily backfill the area in behind the new headwall with granular fill as already specified in the preceding paragraphs for backfilling of the bridge culvert. The top elevation of the headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation, unless shown on the drawings. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. The installation of the precast interlocking concrete block headwalls shall also comply with the "Block Headwall Installation Instructions for Culverts" provided by Underground Specialties Inc./Wolseley Inc., or equal.

Upon completion of the headwall installation, the Contractor shall also provide sloped quarried limestone erosion protection adjacent and along all of the new concrete headwalls, at the general locations and to the widths shown within the details included therein. Furthermore, the installation of the quarried limestone shall adhere to the parameters outlined in Section XV. Sloped Quarried Limestone Erosion Protection – Concrete Block Headwalls.

#### **XIV. CONCRETE-FILLED JUTEBAG HEADWALLS**

When specified, the Contractor shall install new concrete jutebag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jutebag headwalls, the Contractor shall place the bags so that the completed headwall will have an inward batter from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one (1) unit horizontal to five (5) units vertical. The Contractor shall satisfactorily backfill behind the jutebag headwalls with granular material similar to the rest of the structure, and the same compaction levels specified herein for backfilling the adjacent culvert. The placing of the jutebag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

The concrete jutebag headwalls shall be constructed by filling jutebags with concrete. All concrete used to fill the jutebags shall have a minimum compressive strength of 21MPa in 28 days and shall be provided and placed only as a wet mix. Under no circumstance shall the concrete to be used for filling the jutebags be placed as a dry mix. The jutebags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jutebags shall be filled with concrete so that when they are laid flat, they will be approximately 100mm (4") thick, 305mm (12") to 380mm (15") wide and 460mm (18") long. The completed jutebag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the side slopes of the drain.

If indicated on the Drawings, daylighting may be installed off the travelled roadway, and the same are designed to deflect outwardly. The outward deflection shall be deflected at the specified angle to the straight portion of the finished headwall. The top elevations of the daylighted headwalls are to be set no less than 75mm (3")

below the existing ground elevation, unless otherwise designed. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or Consulting Engineer.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete-filled bags with a layer of plain concrete, minimum 150mm (6") thick, and hand trowelled to obtain a brushed finish appearance. If the cap is made more than 150mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars (or equivalent mesh) set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete-filled jutebags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids. All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21MPa in 28 days and include 6% ± 1% air entrainment.

#### **XV. SLOPED QUARRIED LIMESTONE EROSION PROTECTION – CONCRETE BLOCK HEADWALLS**

The sloped quarried limestone erosion protection shall be embedded into the side slopes of the drain at a minimum thickness of 305mm and shall be underlain in all cases with a synthetic filter mat. The filter mat shall not only be laid along the flat portion of the erosion protection but also contoured to the exterior limits of the quarried limestone and the unprotected slope. The width and slope of the general erosion protection shall be as established in the accompanying drawing or as otherwise directed by the Drainage Superintendent and/or the Consulting Engineer during construction. In placing the erosion protection, the Contractor shall carefully tamp the quarried limestone pieces into place with the use of a shovel bucket so that the erosion protection when completed will be consistent, uniform and tightly laid. In no instance shall the quarried limestone protrude beyond the exterior contour of the unprotected drain side slopes along either side of said protection. The synthetic filter mat to be used shall be **non-woven** geotextile MacTex MX 140 conforming to OPSS 1860 Class I, as available from Armtex Construction Products, or approved equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm (4") to a maximum of 250mm (10"), and is available from Walker Aggregates, in Amherstburg, Ontario, or approved equal.

#### **XVI. BENCHMARKS**

For use by the Contractor, we have established a Benchmark at the location where the structures are being replaced. The Drawings include details illustrating the work to be carried out. Benchmarks have been indicated and the Elevations have been shown and shall be utilized by the Contractor in carrying out its work. The Contractor shall note that a specific design elevation grade has been provided for the invert at each end of the pipe in the accompanying Drawings. The Drawings also sets out the pipe size, materials, and other requirements relative to the installation of the enclosure/covered drain structure. In all cases, the Contractor is to utilize the specified drain grade to set any new pipe installation. The Contractor shall ensure that it takes note of the direction of flow and sets all pipes to assure that all grades flow from upstream to downstream to match the direction of flow within the drain.

## **XVII. ANCILLARY WORK**

During the course of any repair or improvements, the Contractor will be required to protect or extend any existing tile ends or swales to maintain the drainage from the adjacent lands. All existing tiles shall be extended utilizing Boss 1000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the “**Standard Lateral Tile Detail**” unless otherwise noted. Connections shall be made using a Manufacturer’s coupling wherever possible. Openings into new pipes shall be neatly saw-cut to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer. For other connections, the Contractor shall utilize a grouted connection. Grouted mortar joints shall be composed of three (3) parts of clean, sharp sand to one (1) part of Portland Cement with just sufficient water added to provide a stiff plastic mix. The mortar joint shall be of sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal. The Contractor is to note that any intercepted pipes along the length of the existing pipes are to be extended and diverted to the downstream end of the new pipe unless otherwise noted in the accompanying drawings.

Where the enclosure/covered drain installation interferes with the discharge of an existing swale, the Contractor shall re-grade the existing swales to allow for the surface flows to freely enter the drain. Any disturbed grass areas shall be fully restored with topsoil, seed and mulch. The Contractor shall also be required as part of the enclosure/covered drain replacement to excavate and widen the drain bottom where required to fit the new pipes in order to provide a smooth transition between the new culvert installation and the existing drain.

The Contractor, when doing their excavation or any other portion of the work, shall be very careful not to interfere with, plug up or damage, any existing surface drains, swales and lateral or main tile ends. If it is found that said existing drains are interfered with in any way, the Contractor will be required to unplug or repair said drains immediately, at no extra cost to the project. If it is found that any existing lateral tiles or main tile drains or tile ends have been cut off or damaged in any way during the course of the work, the Contractor will be required to either repair or replace same, to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

The Contractor shall take steps to protect all legal survey bars during the course of its work. If any bars are removed or damaged, the Contractor shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to replace same, all at its cost.

All of the work required towards the installation and improvements to all structures shall be performed in a neat and workmanlike manner and the general site shall be restored to its' original condition, and all of same is to be performed to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

## **XVIII. TOPSOIL, SEED AND MULCH**

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out the topsoil placement along all specified newly excavated and filled or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works. The Contractor shall be required to use the scavenged topsoil stripped from the drain banks. The balance of the topsoil required shall be obtained by the Contractor at its own expense.

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged or disturbed by the structure installation and/or removal, and place topsoil and seed and mulch over said areas including any specific areas noted on the Drawings. The Contractor shall be required to provide all the material and to cover the above-mentioned surface areas with approximately 50mm of good, clean, dry topsoil on slopes and 100mm of good, clean, dry topsoil on horizontal surfaces, fine graded and spread in place ready for seeding and mulching. The Contractor is to note that prior to fine grading the topsoil over the backfilled areas, positive drainage is to be provided off of these areas and into the swales, and the Contractor shall also be required to make minor changes where necessary to ensure same. The Contractor shall be required to restore all existing grassed areas and roadway boulevard areas damaged by the enclosure/covered drain work, and shall provide topsoil and seed and mulch over all of these areas. The placing and grading of all topsoil shall be carefully carried out according to Ontario Provincial Standard Specifications, Form 802, dated November 2010, or as subsequently amended or as amended by these Specifications. Once the topsoil has been properly placed and fine graded, the Contractor shall seed and mulch the area. Seeding and mulching operations shall be carried out according to Ontario Provincial Standard Specifications, Form 572, dated November 2003, or as subsequently amended or as amended by these Specifications. The seeding mixture shall be OSECO Seed Mixture Canada No. 1, as available from Morse Growers Supply in Leamington, or equal. As part of the seeding and mulching operation, the Contractor will be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with OPSS 1103.05.03 dated November 2016, or as subsequently amended, to ensure that the grass seed will be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All work shall be completed to the satisfaction of the Drainage Superintendent or the Consulting Engineer.

All of the work relative to the placement of topsoil and the seeding and mulching operation shall be meticulously done and completed in a good and workmanlike manner all to the satisfaction of the Drainage Superintendent or Consulting Engineer.

#### **XIX. FINAL CLEANUP AND RESTORATION**

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken.

All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. Before authorizing Final Payment, the Drainage Superintendent or the Consulting Engineer shall inspect the work in order to be sure that the proper restoration has been performed. In the event that the Contractor fails to satisfactorily clean up any portion of these accesses, the Consulting Engineer shall order such cleanup to be carried out by others and the cost of same to be deducted from any monies owing to the Contractor.

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# **SPECIAL PROVISIONS**

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**PROJECT****Upper Portion of the  
Taylor Drain Improvements**  
(Geographic Township of Colchester South)  
Town of Essex, County of Essex  
**Project No. D23-071****I. GENERAL SCOPE OF WORK**

These Special Provisions, along with the Report, Appendices, Standard Specifications and the accompanying drawings, consider the furnishings of all labour, equipment and materials required for the performance of all operations related to the improvements on the Upper Portion of the Taylor Drain, within the Geographic Township of Colchester South. The Upper Portion of the Taylor Drain is an open Municipal Drain beginning at its top end between Lot 10 and Lot 11, Concession 2, along the south side of 3rd Concession Road. It extends easterly along the south side of 3rd Concession Road to approximately the midpoint of Lot 13, then continues southeasterly through private lands to the west side of McCormick Road. From there, the drain runs briefly south along McCormick Road before crossing to the east side, where it continues southeasterly through private lands to the south side of County Road 20. The work under this project comprises of the removal and replacement of various access bridges and enclosures within this Upper Portion of the Taylor Drain.

The Contractor shall provide all labour, equipment and materials to complete the removal and replacement of three (3) existing access bridges and enclosures. These works include the removal of existing culverts and headwalls, the installation of new culvert pipes, new end protection comprising of sloped quarried limestone end protection, granular bedding, granular approach and backfill, granular transition areas, and all ancillary work related thereto including cleanup and restoration. The proposed work is intended to address the replacement of deteriorated structures in accordance with the current standards.

All work shall be carried out in accordance with these Special Provisions and Standard Specifications that serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. The Contractor shall review the information outlined within **Appendix "A"**. The works shall be further carried out in accordance with the accompanying drawings labelled herein as **Appendix "B"**. Where there are differences between the Special Provisions and the Standard Specifications included herein, the Special Provisions shall govern. The works shall be of the size, type, depth, etc., as is shown in the accompanying drawings, as determined from the **Benchmark**, and as may be further laid out at the site at the time of construction. All work carried out under this project shall be completed to the satisfaction of the Drainage Superintendent or the Consulting Engineer.

## **II. CONSERVATION AUTHORITY AND DFO CONSIDERATIONS**

The Contractor shall be required to implement stringent erosion and sedimentation controls during the course of the work to minimize the amount of silt and sediment being carried downstream. It is intended that work on this project be carried out during relatively dry weather to ensure the proper site and drain conditions and to avoid conflicts with sediment being deposited into the outlet drainage systems. All disturbed areas shall be restored as quickly as possible with grass seeding and mulching installed to ensure a protective cover and to minimize any erosion from the work site subsequent to construction. The Contractor may be required to provide temporary silt fencing and straw bales as outlined further in these specifications.

All of the work shall be carried out in accordance with any permits or authorizations issued by the Conservation Authority or the Department of Fisheries and Oceans (DFO), copies of which shall be provided, if available. The Contractor is advised that no work shall be carried out in the existing drain from March 15 to July 15, of any given year.

As part of its work, the Contractor shall implement the following measures that shall ensure that any potential adverse effects on fish and fish habitat shall be mitigated:

- a) As per standard requirements, work shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be done in the dry.
- b) All disturbed soils on the drain banks and within the channel, including spoil, must be stabilized immediately upon completion of work. The restoration of the site must be completed to a like or better condition than what existed prior to the works. The spoil material must be hauled away and disposed of at a suitable site or spread an appropriate distance from the top of the drain bank to ensure that it is not washed back into the drain.
- c) To prevent sediment entry into the Drain, in the event of an unexpected rainfall, silt barriers and/or traps must be placed in the channel during the works and until the site has been stabilized. All sediment and erosion control measures are to be in accordance with related Ontario Provincial Standards. It is incumbent on the proponent and its contractors to ensure that sediment and erosion control measures are functioning properly and are maintained/upgraded as required.
- d) Silt or sand accumulated in the barrier traps must be removed and stabilized on land once the site is stabilized.
- e) All activities including maintenance procedures should be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicular refueling and maintenance should be conducted away from the water.

Not only shall the Contractor comply with all of the above, but it shall also be required to further comply with any mitigation measures included within the email correspondence with the Conservation Authority. Furthermore, the Contractor shall also review and comply with the "Best Management Practices – Culvert Replacements in Municipal Drains" document prepared by the DFO, included within **Appendix "A"**.

### **III. MECP CONSIDERATIONS**

Under the Species at Risk Provincial Legislation, set in place with the Ministry of Environment, Conservation and Parks (MECP), Section 23.9 of the Endangered Species Act, 2007, allows the Municipality to conduct eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08.

In recognition of the potential impacts that Species at Risk may experience as a result of the subject works, the Town of Essex has provided comprehensive mitigation measures as well as species identification guides for reference. These documents, entitled "*Species at Risk Mitigation Plan for Drainage Works*" will be provided to the Contractor. With the results of said review, including documents for the purpose of identification of known Species at Risk within the project area and mitigation measures for species and habitat protection. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all Species at Risk and their habitats throughout the course of construction.

The Contractor will be responsible for providing the necessary equipment and materials required by the mitigation plans and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

### **IV. ACCESS TO WORK AND WORKING CORRIDORS**

#### Initial Construction

The Contractor is advised that the majority of the work to be carried out on this project extends along the south side of the 3rd Concession Road, and along the course of the existing open Municipal Drain within private lands. The Contractor shall have access for the full width of the roadway abutting the proposed drainage works. The Contractor may use the entire width of the 3rd Concession Road right-of-way as necessary to permit the completion of the work required to be carried out for this project. Furthermore, for structures located along the roadway, the Contractor shall have access to the subject private lands abutting the 3rd Concession right-of-way limit for a distance of 8.00 metres, necessary to perform the new access bridge installation and driveway transition.

For Bridge 3, the Contractor is advised that all of the work to be carried out on this project extends onto private lands currently owned by Andrew & Suzan Struhar (720-07100). The Contractor shall have access from the 3rd Concession Road onto the subject lands and may use 6.10 metres (20.00 ft.) width of the grassed laneway within the subject property to the farm access bridge, located immediately west of 3715 3rd Concession Road. Once access is obtained to the subject access bridge, the Contractor shall have access along both sides of the Upper Portion of the Taylor Drain for a distance of 8.0 metres from the top of the bank for a total length of 30.0 metres along the drain, centred over the proposed access bridge. Under no circumstances shall the Contractor utilize other private lands without written consent from the affected Owner(s).

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### Future Maintenance

Once all construction has been completed for this project, the Contractor shall be expected to keep all future equipment and forces within the following working corridors for any future maintenance performed on the alignment of the Upper Portion of the Taylor Drain:

1. **From Station 0+000.0 to Station 0+311.2:** This section, which previously formed part of the Upper Portion of the Taylor Drain, is no longer under the jurisdiction of the Municipal Drain. As it is located within the municipal road allowance for the 3rd Concession Road and functions as part of the roadway drainage system, maintenance and responsibility for this section shall rest solely with the Town of Essex.
2. **From Station 0+311.2 to Station 0+691.3:** When future maintenance is required for this section of the Upper Portion of the Taylor Drain, the Contractor shall be expected to keep the construction equipment and forces as outlined within the Reconsidered Engineer's Report prepared by C.G.R. Armstrong, P.Eng., dated November 3, 1966.
3. **From Station 0+691.3 to Station 4+219.8:** When future maintenance is required for this section of the Upper Portion of the Taylor Drain, the Contractor shall be expected to keep the construction equipment and forces as outlined within the Reconsidered Engineer's Report prepared by Maurice Armstrong, P.Eng., dated July 6, 1979.

### General

Under no circumstances shall the Contractor utilize other private lands for access to the project site. The Contractor shall note that any deviation from the above-mentioned access without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include, but not be limited to, all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense.

## **V. EXCAVATION, REMOVALS AND DISPOSAL**

The Contractor shall be required to excavate and completely remove any deleterious materials that may be encountered in removing the existing culverts and appurtenances. The Contractor shall also be required to completely dispose of all deleterious materials to a site to be obtained by it at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor, and any work at the disposal site shall be established between the Contractor and the Site Owner. The Contractor shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor shall be

responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

As part of the work, the Contractor shall be required to excavate, transition and clean the drain bottom for a distance of 5.00 metres (15.00 ft.) both upstream and downstream of the access bridge pipe. The sediment material from this excavation shall under no circumstance be utilized for the backfilling of any of the access bridge pipe, and this material must be totally trucked away and disposed of at a site to be obtained by it at its own expense.

## **VI. SPECIAL PROVISIONS FOR ACCESS STRUCTURE REPLACEMENT AND IMPROVEMENTS**

### **General**

The Contractor shall provide all material, labour, and equipment to replace the existing access bridges, and enclosures within the Upper Portion of the Taylor Drain requiring work, as outlined on the plans, the Schedule of Items, and in these specifications.

The existing culvert pipes slated to be removed from the existing access bridges and enclosures along the Upper Portion of the Taylor Drain shall be replaced with new materials, with all pipes having the minimum thickness, corrugation profiles and strength as shown on the plans. All culvert pipes within this project shall be set to the grades as shown on the plans or as otherwise established herein and the Town Drainage Superintendent or the Consulting Engineer may make minor changes to the bridge alignment as they deem necessary to suit the site conditions.

### **Culvert Replacement and Improvements – Upper Portion of the Taylor Drain**

The Contractor shall provide for the construction and improvements to the structures along the Upper Portion of the Taylor Drain. We are providing below not only the general description of the works being carried out for each structure, but also detailed information regarding any special provisions also being provided as part of the structure improvements, as follows:

#### **Enclosure 1 - Mohit Nayar (730-00600)/[Parcel 115], Kornelia Franz (730-06100)/[Parcel 116], and the Town of Essex for 3rd Concession Road**

The Contractor shall completely remove the existing corrugated steel pipe and end treatments and dispose of same as outlined previously in these specifications. The Contractor shall then supply and install a new pipe as set out in the plans, cross sections and profile forming part of the details for **Enclosure 1** on the plans. Enclosure 1 shall be backfilled according to the preceding specifications, and according to the Typical Backfill Details included in the accompanying drawings.

At the west end of the enclosure, the Contractor shall replace the existing concrete catch basin with a new 600mm x 1200mm Ditch Inlet Catch Basin (OPSD 705.040 – Type A) at Station 0+668.3, and reconnect all existing tiles, together with the replacement access culvert. The Contractor shall also note that the existing line ditch between the existing driveways shall be restored and maintained to ensure surface water conveyance.

The Contractor's attention is also drawn to the presence of an existing hydro pole and support wire located in the vicinity of the proposed work. The Contractor shall make every effort to avoid the hydro pole and support wire and shall at all times be responsible for their protection and care throughout the course of the work. Prior to commencing work, a pre-construction meeting shall be held where a representative from Hydro One shall be invited to discuss the particulars of working around these hydro poles and support wires. Should additional support, bracing, and or holding of the existing hydro pole be required by Hydro One, the Contractor shall be responsible for arranging with Hydro One to ensure that these measures are implemented to the full satisfaction of the utility company.

### **Enclosure 2 - Enclosure 2 - Town of Essex for 3rd Concession Road**

The Contractor shall completely remove the existing corrugated steel pipe and steel sheet pile end treatments. Furthermore, the Contractor shall also remove the existing corrugated steel fire hydrant access culvert. All of which shall be disposed of as outlined previously in these specifications. The Contractor shall then supply and install a new pipe as set out in the plans, cross sections and profile forming part of the details for **Enclosure 2**. Enclosure 2 shall be backfilled according to the preceding specifications, and according to the Typical Backfill Details included in the accompanying drawings.

In addition to the installation of the new enclosure pipe, the contractor shall maintain the existing overland conveyance swale through the length of the enclosure. In association with the conveyance swale, the contractor shall also install a new fire hydrant access culvert consisting of twinned 900mm diameter HDPE plastic pipe with bell and gasketed joints. A 5.0-metre-long conveyance swale transition shall be installed at both ends of the new access. The Contractor's attention is drawn to the presence of an existing fire hydrant and hydrant valve that are all located adjacent to the existing culvert pipe. It is the Contractor's responsibility to protect said water components at all times during excavations and installation of the new enclosure pipe. If the hydrant valve or hydrant lead is found to be in direct conflict with the proposed culvert pipe, the Contractor is to notify the Town Drainage Superintendent or Consulting Engineer immediately so that the Town Water Department can make provisions to lower the water service as necessary to avoid conflict with the new culvert pipe. The Contractor shall not in any way perform any work on the water service or water metre without explicit permission and supervision from the Town Water Department. The Contractor is to consider all of this when pricing the installation of the new enclosure and should note that no additional payments will be made due to the existence of or conflict with the existing water service, meter, hydrant, hydrant valve or hydrant lead.

For any existing pipe connections to the new enclosure, the Contractor shall utilize manufacturer fittings, insert-a-tee at both ends, whenever possible. Only in the event than an appropriate fitting is not available, should mortar joint connections be considered. The mortar joint shall be provided between the connection to the covered drain, with the mortar joint being of sufficient mass to produce a sealed joint, all to be performed to the full satisfaction of the Town Drainage Superintendent or Consulting Engineer. The Contractor shall also be required to cut and trim the portion of the lateral pipe inside the enclosure pipe to the full satisfaction of the Town Drainage Superintendent or Consulting Engineer. The Contractor is to note that any intercepted pipes along the length of the covered drain are to be extended and connected to the new pipe unless otherwise noted in the accompanying drawings. Lateral drains shall be extended with high-density polyethylene pipe equivalent in diameter to the existing lateral drain. All of such work shall be performed to the full satisfaction of the Town Drainage Superintendent or the Consulting Engineer and shall not be backfilled until it is inspected by them.

At both ends of the new enclosure, the Contractor shall provide a sloped quarried limestone end treatment with a 5.0-metre-long quarried limestone erosion protection transition to the open conveyance swale, all carried out in accordance with these specifications.

**Bridge 3 - Bridge 3 – Andrew & Suzan Struhar (720-07100)/[Parcel 103]**

The Contractor shall completely remove the existing corrugated steel pipe, together with any end protection and dispose of same as outlined previously in these specifications. The Contractor shall then supply and install a new pipe as set out in the plans, cross sections and profile forming part of the details for **Bridge 3**. The Contractor shall also note the existing line ditches along the eastern property line. The Contractor shall provide sloped quarried limestone end treatments at each end of the new culvert installation and further extend the quarried limestone easterly to provide erosion protection for the outlets of the existing line ditches.

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# APPENDIX "A"

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## **APPENDIX A-1**

### Essex Region Conservation Authority Correspondence

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## Kiara Kirkland

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**From:** Ashley Gyori <AGyori@erca.org>  
**Sent:** October 6, 2025 2:14 PM  
**To:** Tony Peralta  
**Cc:** Dean, Lindsay; Tuzlova, Tanya (ttuzlova@essex.ca)  
**Subject:** RE: Upper Portion of the Taylor Drain Improvements - Town of Essex - D23-071  
**Attachments:** Appointment of Engineer for the Taylor Drain culvert Drainage-2023-04.pdf; N.J. Peralta Engineering july4.docx; 20250927 - D23071- PRELIMINARY Upper Portion of the Taylor Drain Improvements.pdf

Good afternoon Tony,

Thank you for providing the attached Preliminary Drawings for the Upper Portion of the Taylor Drain improvements, Project No. D23-071. I've had an opportunity to review the preliminary drawings and the available information and can confirm that our office is supportive of this proposal, as presented in the preliminary stages.

We look forward to receiving the Final Drainage Report and Drawings. A completed Application for Permit form will be required from the municipality.

If you have any questions, please do not hesitate to contact me.

Kind regards,



ASHLEY GYORI  
Regulations Analyst  
Essex Region Conservation Authority  
360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6  
[agyori@erca.org](mailto:agyori@erca.org) • [essexregionconservation.ca](http://essexregionconservation.ca)

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**VACATION ALERT: I WILL BE AWAY FROM THE OFFICE FROM SEPTEMBER 25<sup>TH</sup>, 2025, UNTIL OCTOBER 6<sup>TH</sup>, 2025.**

The ERCA Office is open to the public **Tuesdays, Wednesdays and Thursdays** to provide "counter service"; however, services continue to be delivered online and through email. Please consult ERCA's website for more information and direction regarding online services (i.e. permitting, cottage bookings, seasonal passes etc.).

---

**From:** Tony Peralta <tony@peraltaengineering.com>  
**Sent:** September 27, 2025 10:51 AM  
**To:** Ashley Gyori <AGyori@erca.org>; Drainage <drainage@ERCA.org>  
**Cc:** Dean, Lindsay <ldean@essex.ca>; Tuzlova, Tanya (ttuzlova@essex.ca) <ttuzlova@essex.ca>  
**Subject:** Upper Portion of the Taylor Drain Improvements - Town of Essex - D23-071

Good morning Ashley,

Further to the below correspondence and based on ERCA's request, we are providing you with the preliminary design proposal for the above-noted project.

The work proposed under this project is to address various requests for bridge and enclosure improvements on the Upper Portion of the Taylor Drain. In summary, this project includes the following:

- Enclosure 1 - Replacement of the access portion of an existing enclosure for Parcels 730-06100 (Franz) and 730-00600 (Nayar).
- Enclosure 2 – Replacement of an existing enclosure and fire hydrant crossing for the Town of Essex (3<sup>rd</sup> Concession Road).
- Bridge 3 – Replacement of an existing access bridge for Parcel 720-07100 (Struhar).
- The abandonment of the most upstream portion of the Municipal Drain, which currently only serves the 3<sup>rd</sup> Concession Road.
- Re-establishment of the drain design grades and elevations for the Upper Portion of the Taylor Drain.
- Provide updated maintenance schedules of assessment for the Upper Portion of the Taylor Drain.

Attached, you will find our preliminary design proposal for the above-noted project. Each of the replacement access bridge and enclosure structures has been designed to handle the minimum 5-year return storm event, together with maintaining overland conveyance (where applicable).

We have reviewed the DFO website as it relates to the Fisheries Act and have performed a "Self Assessment" for this project. Also, as it relates to the Endangered Species Act, we have contacted the Town of Essex to ensure that this project is covered under the new ESA Regulation 242/08.

We trust that this information is satisfactory. However, if you have any questions, concerns, or require additional information regarding the details outlined above, please contact us at your earliest opportunity, as we intend to move towards the final design stage and finalize this report shortly.

Regards,

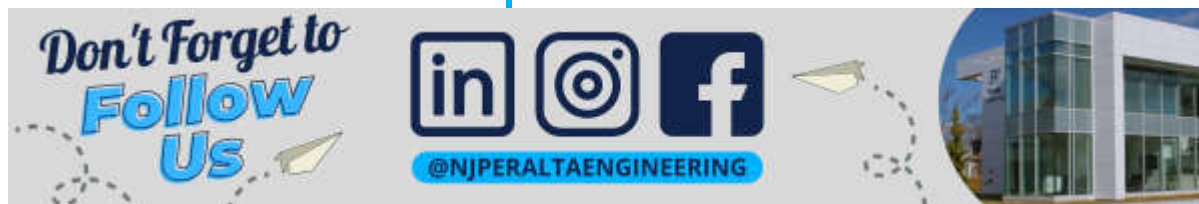


**Tony Peralta, P.Eng.**

[tony@peraltaengineering.com](mailto:tony@peraltaengineering.com) | 519-733-6587 x 122

N.J. Peralta Engineering Ltd. - Consulting Engineers  
45 Division St. N., Kingsville ON N9Y 1E1

[peraltaengineering.com](http://peraltaengineering.com)



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**From:** Ross, Calvin <[cross@essex.ca](mailto:cross@essex.ca)>

**Sent:** August 8, 2023 10:05 AM

**To:** Tony Peralta <[tony@peraltaengineering.com](mailto:tony@peraltaengineering.com)>

**Cc:** Malandrucolo, Joe <[jmalandrucolo@essex.ca](mailto:jmalandrucolo@essex.ca)>; Girard, Kevin <[kgirard@essex.ca](mailto:kgirard@essex.ca)>; Dean, Lindsay <[ldean@essex.ca](mailto:ldean@essex.ca)>; Nussio, Norman <[nnussio@essex.ca](mailto:nnussio@essex.ca)>; Tuzlova, Tanya <[ttuzlova@essex.ca](mailto:ttuzlova@essex.ca)>; Woods, Abbie

<[awoods@essex.ca](mailto:awoods@essex.ca)>

**Subject:** FW: Drainage Act Section 78 - Appointment of Engineer

Good morning,

Please see attached letter regarding Appointment of Engineer and comments below from ERCA.

Thanks,  
Calvin



**Calvin Ross**  
Legislative Clerk | Legal & Legislative Services  
P: 519.776.7336 ext. 1144 | F: 519.776.8811  
E [cross@essex.ca](mailto:cross@essex.ca) | [www.essex.ca](http://www.essex.ca)  
33 Talbot Street S. Essex, ON N8M 1A8



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**From:** Summer Locknick <[SLocknick@erca.org](mailto:SLocknick@erca.org)>  
**Sent:** Wednesday, July 26, 2023 2:55 PM  
**To:** Ross, Calvin <[cross@essex.ca](mailto:cross@essex.ca)>  
**Cc:** Dean, Lindsay <[ldean@essex.ca](mailto:ldean@essex.ca)>  
**Subject:** RE: Drainage Act Section 78 - Appointment of Engineer

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Good afternoon Calvin,

Thank you for providing the Section 78 Notice for the Taylor Drain and the additional information. I've reviewed the information and the location of the proposed works and can provide the following information.

A review of our floodplain mapping for the Taylor Drain indicates that this drain is located within an area that is under the jurisdiction of the Essex Region Conservation Authority (ERCA) (Section 28 of the *Conservation Authorities Act*). Prior to undertaking works, a permit is required from this office.

At this time, we do not expect that there will be any extraneous comments or concerns with respect to this project; however, the engineering report should confirm that the proposed works do not result in any adverse impacts to the level of service of the drain and that there are no negative impacts upstream or downstream. We cannot be more specific in this regard without an actual proposal to review.

Prior to the appointed engineer moving forward with the final design for any proposed works, we kindly request that they provide this office with the opportunity to review the proposed design so that any ERCA comments can be addressed.

Please note that ERCA does not review applications on behalf of external agencies (i.e. DFO, MECP, MNR). It is the proponent's responsibility to ensure that all applicable legislation is adhered to and that all authorizations have been obtained.

If you have any questions, please do not hesitate to contact me.

Kind regards,



SUMMER LOCKNICK  
Regulations Analyst  
Essex Region Conservation Authority  
360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6  
P. 519-776-5209 ext.349 • C. 519-791-5789  
[slocknick@erca.org](mailto:slocknick@erca.org) [essexregionconservation.ca](http://essexregionconservation.ca)

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**From:** Ross, Calvin <[cross@essex.ca](mailto:cross@essex.ca)>  
**Sent:** Thursday, July 6, 2023 12:28 PM  
**To:** Drainage <[drainage@ERCA.org](mailto:drainage@ERCA.org)>  
**Cc:** Malandrucolo, Joe <[jmalandrucolo@essex.ca](mailto:jmalandrucolo@essex.ca)>; Girard, Kevin <[kgirard@essex.ca](mailto:kgirard@essex.ca)>; Dean, Lindsay <[ldean@essex.ca](mailto:ldean@essex.ca)>; Nussio, Norman <[nnussio@essex.ca](mailto:nnussio@essex.ca)>; Tuzlova, Tanya <[ttuzlova@essex.ca](mailto:ttuzlova@essex.ca)>; Woods, Abbie <[awoods@essex.ca](mailto:awoods@essex.ca)>  
**Subject:** Drainage Act Section 78 - Appointment of Engineer

Good afternoon,

At its Regular Meeting on July 4, 2023, Council passed the following resolution:

---

<b>Moved By</b>	Deputy Mayor Shepley
<b>Seconded By</b>	Councillor Allard

**That** Drainage Report-2023-04 entitled Appointment of an Engineer under Section 78 of the Drainage Act to replace culverts on the Taylor Drain prepared by Lindsay Dean, Drainage Superintendent dated July 4, 2023 be received; and

**That** Council appoint N.J. Peralta Engineering Ltd under Section 78 of the Drainage Act to replace culverts in the Taylor Drain in accordance to Section 22 of the Town of Essex Procurement By-law 2129.

**Carried**

Details regarding this project are contained in the report attached.

This email serves as the notification under Section 78 of the Drainage Act as follows:

**Notice to conservation authority**

(2) An engineer shall not be appointed under subsection (1) until thirty days after a notice advising of the proposed drainage works has been sent to the secretary-treasurer of each conservation authority that has jurisdiction over any of the lands that would be affected. R.S.O. 1990, c. D.17, s. 78 (2); 2010, c. 16, Sched. 1, s. 2 (28).

After 30 days from today, **N.J. Peralta Engineering Ltd** will be appointed to this project.

Thanks,



**Calvin Ross**  
Legislative Clerk | Legal & Legislative Services  
P: 519.776.7336 ext. 1144 | F: 519.776.8811  
E: [cross@essex.ca](mailto:cross@essex.ca) | [www.essex.ca](http://www.essex.ca)  
33 Talbot Street S. Essex, ON N8M 1A8



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## **APPENDIX A-2**

### DFO Best Management Practices

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## Best Management Practices – Culvert Replacements in Municipal Drains

This document describes the conditions on which one may proceed with a culvert replacement in a municipal drain without DFO approval/notification. All municipal, provincial, or federal legislation that applies to the work being proposed must be respected. If the conditions/requirements below cannot be met, please complete the drain notification form and submit it to the Fisheries Protection Program form review at: [FisheriesProtection@dfo-mpo.gc.ca](mailto:FisheriesProtection@dfo-mpo.gc.ca).

### Potential Impacts to Fish Habitat

- Infilling fish habitat by encroachment of the water crossing footprint or channel realignment to accommodate culvert
- Harmful substrate alteration of fish habitat (e.g. blockage of groundwater upwellings, critical SAR habitat, spawning areas)
- Removal of riparian vegetation and cover along the banks of the municipal drain
- Removal of edge habitat (e.g. undercut bank, shallower areas with lower velocity, aquatic vegetation) creation of barriers to fish movement (e.g. perched crossings, velocity barriers, alteration of the natural stream gradient)
- Alteration of channel flow velocity and/or depth (e.g. oversized culvert resulting in insufficient depth for fish passage at low flow or undersized culvert resulting in a flow velocity barrier at high flow)
- Alteration of channel morphology and sediment transport processes caused by the physical structure of the crossing resulting in upstream and downstream sediment aggradation/erosion
- Re-entry of sediment that was removed/stockpiled into the watercourse
- Erosion downstream from sudden release of water due to the failure of site isolation
- Stranding of fish in isolated ponds following de-watering of the site
- Impingement or entrainment of fish when de-watering pumps are used
- Short term or chronic transport of deleterious substances, including sediment, into fish habitat from construction or road drainage

### Requirements

The following requirements must be met:

- There are no aquatic Species at Risk present in the work zone or impact zone. To confirm there are no aquatic Species at Risk present, refer to the document, [A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario](http://www.dfo-mpo.gc.ca/Library/356763.pdf) which can be found at: <http://www.dfo-mpo.gc.ca/Library/356763.pdf>. Links for Ontario Conservation Area specific fish and mussel maps that include critical habitat extents and a list of aquatic Species at Risk found within the conversation authority boundary can be found on Page 5 of [A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario](http://www.dfo-mpo.gc.ca/Library/356763.pdf).
- The culvert is embedded into the streambed and must allow for the free passage of fish.
- The work involves like-for-like replacements of existing road or private access culverts on all drain types without SAR.
- On C and F Drains only, this can also include replacements with extensions and end walls for the purposes of providing the property or road with safe access, but the project permanent footprint will not increase more than 250 m<sup>2</sup> below the high water mark.
- The project does not involve replacing a bridge or arch with one or more culverts installed in parallel or a larger-diameter culvert with more than one culvert installed in parallel.

- The project does not involve building more than one culvert installed in parallel on a single watercourse crossing site (e.g. twin culvert).
- The project does not involve temporarily narrowing the watercourse to an extent or for a duration that is likely to cause erosion, structural instability or fish passage problems.
- The municipal drain has no flow/low flow or is frozen to the bottom at the time of the replacement.
- In-water work is scheduled to respect timing windows (Tables 1 and 2) to protect fish, including their eggs, juveniles, spawning adults, and/or the organisms upon which they feed.
- The work can be conducted using the Culvert Removal Method described below and Standard Measures to Avoid Causing *Serious Harm to Fish* will be implemented when required.

Note: If your project must be conducted without delay in response to an emergency (e.g. the project is required to address an emergency that poses a risk to public health or safety or to the environment or property), you may apply for an Emergency Authorization (<http://www.dfo-mpo.gc.ca/asp/forceDownload.asp?FilePath=/pnw-ppe/reviews-revues/Emergency-Authorizations-Autorisations-Urgences-eng.pdf>).

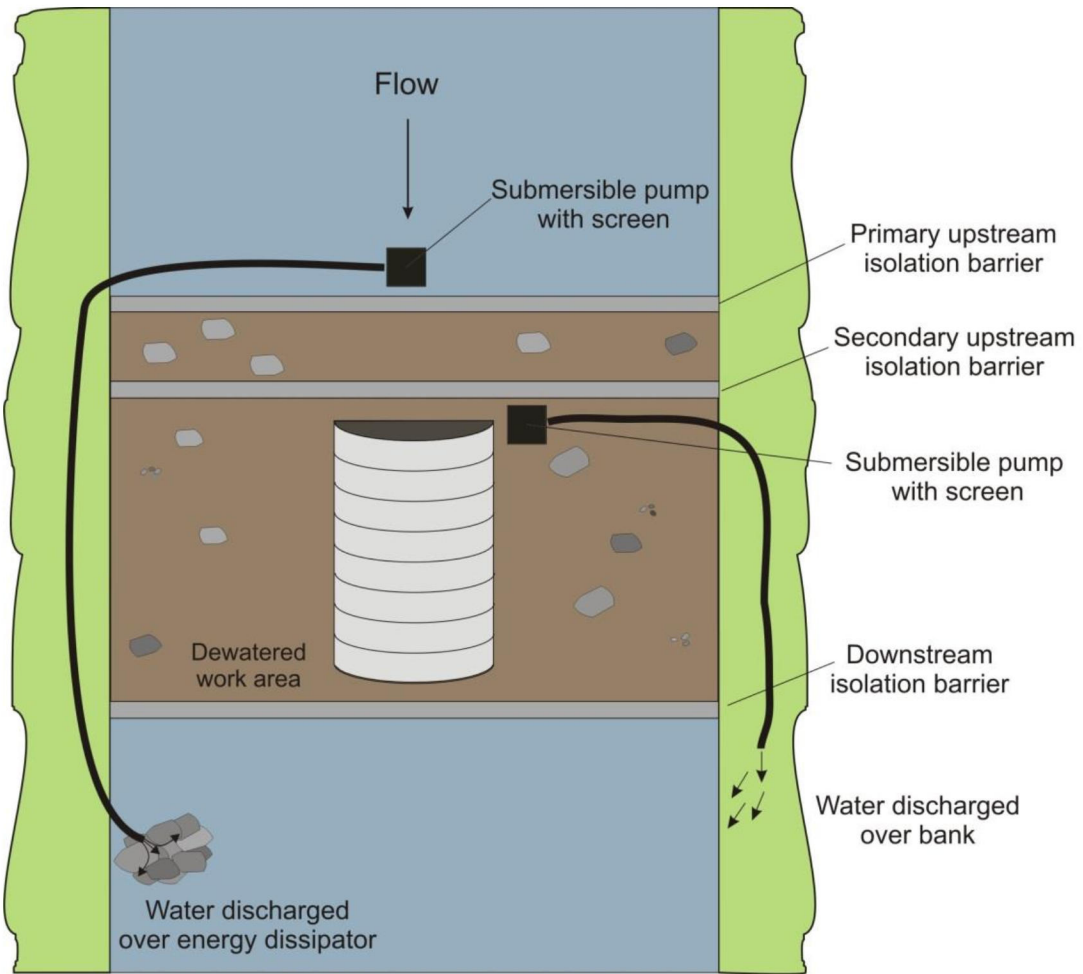
### **Culvert Removal Methodology**

- Plan/manage the work site in a manner that prevents sediment from entering the municipal drain by installing sediment and erosion control materials where required. Ensure that a sediment and erosion control plan is developed and modified as necessary for the site.
- Where required, install effective erosion and sediment control measures before starting work to prevent sediment from entering the municipal drain.
- Implement site isolation measures when in-water work is required.
  - Install an impervious barrier upstream of the work area (Figure 1). If possible, install a secondary barrier upstream of the work area for added protection.
  - Attempt to drive out the fish from the work area and then install the impervious barrier downstream of the work area. This may reduce or eliminate the need for a fish salvage.
  - When the drain is flowing, maintain downstream flows (e.g. bypass water around the work site using pumps or flume pipes; Figure 2). Provide temporary energy dissipation measures (e.g. rip-rap) at discharge point of the hose or temporary outlet pipe when required. Routinely inspect bypass pump and hose or pipe to ensure proper operation. Inspect discharge point for erosion and reposition hose/pipe or install additional temporary energy dissipation material as needed.
  - Dewater the isolated work area. The hose for a pump may discharge along the top of the bank into existing vegetation; however, the area should be monitored for signs of erosion. Reposition the hose or install additional temporary energy dissipation material as needed.
  - A fish screen with openings no larger than 2.54 mm (0.10 inches) should be equipped on any pump used during the operation. Note: Additional information regarding fish screens can be found in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline document (<http://www.dfo-mpo.gc.ca/Library/223669.pdf>).
  - Collect any fish present in the isolated work area and relocate them downstream.
  - Fish salvage operations must be conducted under a license issued by the Ontario Ministry of Natural Resources and Forestry (MNRF). The MNRF should be contacted well in advance of any work to obtain the required fish collection license.
- Install the culvert so that it is embedded into the streambed; ensure the culvert remains passable (e.g. does not become perched) by fish and wildlife.

- Decommission the site isolation in a manner that minimizes the introduction of sediment. The downstream isolation barrier shall gradually be removed first, to equalize water levels inside and outside of the isolated area and to allow suspended sediments to settle.
- Stabilize and remove waste from the site.
- Where required, maintain effective erosion and sediment control measures until complete re-vegetation of disturbed areas is achieved.



**Figure 2. Isolation of Site**



**Figure 3. Isolation and Bypass Diversion when Working In-Water**

## Timing Windows

Figure 1 and Tables 1 and 2 can be used to determine the Restricted Activity period for the drain based on its classification. Note: Timing windows identified on [Conservation Authority](#) permits or [Ministry of Natural Resources](#) (Government of Ontario) work permits may differ and take precedence.



**Figure 1. Ontario's Northern and Southern Region boundaries for determining application of restricted activity timing windows.**

**Table 1. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Northern Region. Dates represent when work should be avoided.**

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 1 TO JULY 15
B	SEPTEMBER 1 TO JULY 15
C	APRIL 1 TO JULY 15
D	SEPTEMBER 1 TO JULY 15
E	APRIL 1 TO JULY 15

**Table 2. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Southern Region. Dates represent when work should be avoided.**

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 15 TO JULY 15
B	MARCH 15 TO JULY 15
C	MARCH 15 TO JULY 15
D	OCTOBER 1 TO JULY 15
E	MARCH 15 TO JULY 15

### Standard Measures to Avoid Causing *Serious Harm to Fish*

When implementing a culvert removal project in a municipal drain, the *Fisheries Act* still requires an individual/company to ensure they avoid causing *serious harm to fish* during any activities in or near water. The following advice will help one avoid causing harm and comply with the *Act* (for additional information see <http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html>).

1. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
2. Whenever possible, operate machinery on land above the high water mark or on ice and in a manner that minimizes disturbance to the banks and bed of the municipal drain.
  - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks.
  - Limit machinery fording of the municipal drain to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the municipal drain are required, construct a temporary crossing structure.
  - Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
  - Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
3. Install effective sediment and erosion control measures before starting work to prevent sediment from entering the municipal drain. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
4. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the municipal drain and runoff water is clear.
5. Undertake all in-water activities in isolation of open or flowing water while maintaining the natural flow of water downstream and avoid introducing sediment into the municipal drain.
6. Ensure applicable permits for relocating fish are obtained and relocate any fish that become trapped in isolated pools or stranded in newly flooded areas to the main channel of the watercourse.
7. Ensure that the water that is being pumped/diverted from the site is filtered (sediment remove) prior to being released (e.g. pumping/diversion of water to a vegetated area).
8. Implement measures for containing and stabilizing waste material (e.g. dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
9. Stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
10. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
11. Remove all construction materials from site upon project completion.

# **APPENDIX "B"**

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PLAN, PROFILE, SECTIONS & DETAILS

OF THE

# UPPER PORTION OF THE TAYLOR DRAIN IMPROVEMENTS

IN THE

TOWN OF ESSEX (Geographic Township of Colchester South)

IN THE

COUNTY OF ESSEX • ONTARIO

**TOWN OF ESSEX**

MAYOR: SHERRY BONDY  
CLERK: JOSEPH MALANDRUCCOLO  
DRAINAGE SUPERINTENDENT: LINDSAY DEAN

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

--- DENOTES OVERALL WATERSHED LIMITS

- - - DENOTES SUB-WATERSHED LIMITS

⊗ DENOTES PARCEL IDENTIFICATION NUMBER

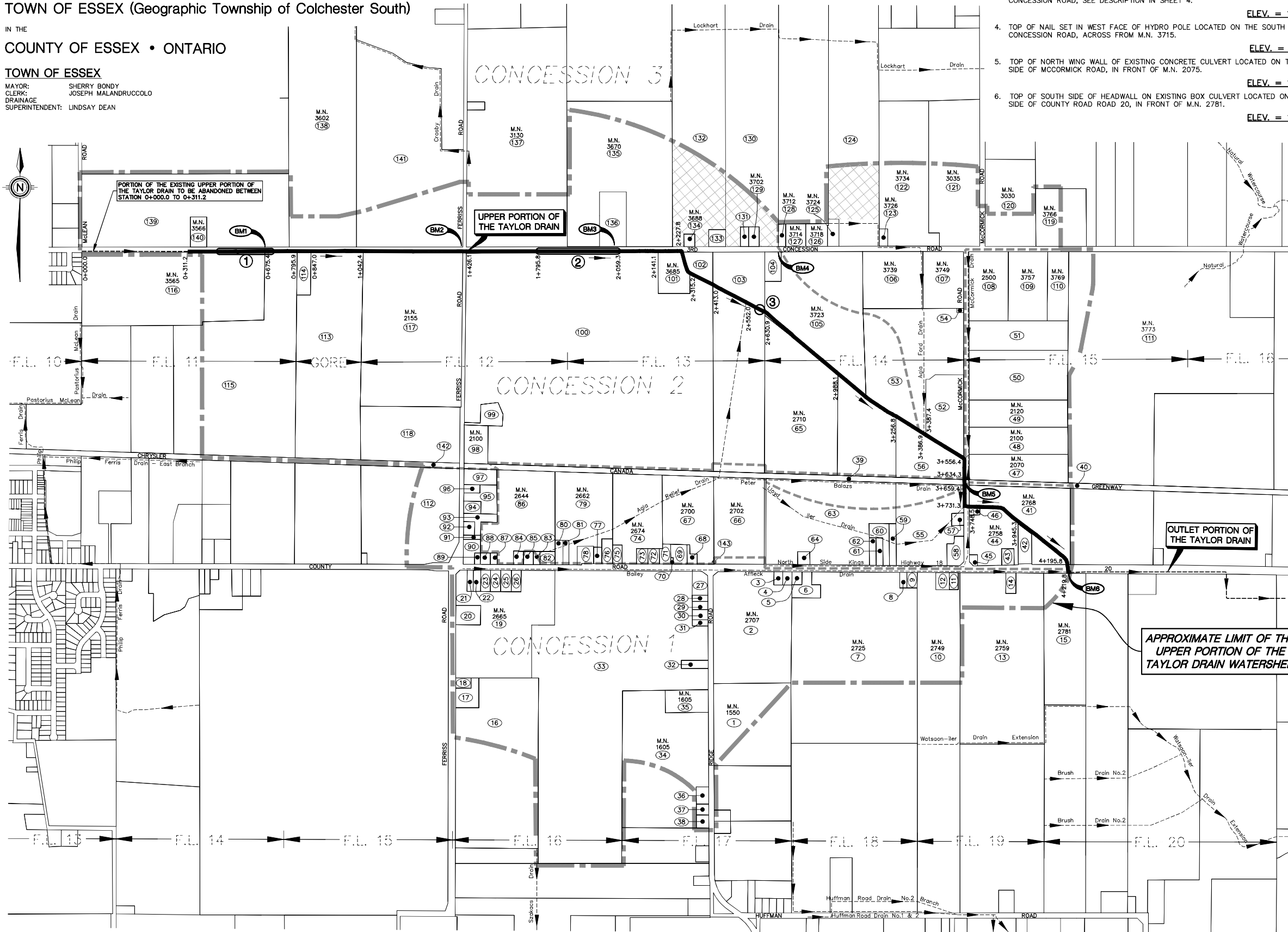
⊗ DENOTES STRUCTURE IDENTIFICATION NUMBER AND LOCATION

▨ DENOTES SURFACE DRAINAGE ONLY

**BENCHMARKS**

- TOP OF NAIL SET IN SOUTHEAST FACE OF THE EXISTING HYDRO POLE LOCATED ON THE NORTH SIDE OF 3RD CONCESSION ROAD, ACROSS OF M.N. 3565. **ELEV. = 187.179m**
- TOP OPERATING NUT OF EXISTING FIRE HYDRANT LOCATED ON THE NORTHWEST CORNER OF INTERSECTION OF CONCESSION ROAD 3 AND FERRIS ROAD. **ELEV. = 186.402m**
- TOP OPERATING NUT OF EXISTING FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF 3RD CONCESSION ROAD, SEE DESCRIPTION IN SHEET 4. **ELEV. = 185.828m**
- TOP OF NAIL SET IN WEST FACE OF HYDRO POLE LOCATED ON THE SOUTH SIDE OF 3RD CONCESSION ROAD, ACROSS FROM M.N. 3715. **ELEV. = 187.374m**
- TOP OF NORTH WING WALL OF EXISTING CONCRETE CULVERT LOCATED ON THE WEST SIDE OF MCCORMICK ROAD, IN FRONT OF M.N. 2075. **ELEV. = 185.143m**
- TOP OF SOUTH SIDE OF HEADWALL ON EXISTING BOX CULVERT LOCATED ON THE SOUTH SIDE OF COUNTY ROAD ROAD 20, IN FRONT OF M.N. 2781. **ELEV. = 184.213m**

PARCEL I.D.	ROLL #	OWNER
1	680-02200	Emily Stajfer, Helen Klomp, Veronica Boleratz & Ann Denzinger
2	680-02300	George & Albert Gondosch
3	680-02301	Earl & Elaine Richardson
4	680-02400	Tony Vrsan
5	680-02500	Brian & Mary-Anne Deslippe
6	680-02550	Kevin McCombes
7	680-02600	Cedar Branches Farms Inc.
8	680-02700	Andrea & Vedran Abidinovic
9	680-02800	Mark & Julie Affleck
10	680-02850	2277151 Ontario Inc.
11	680-02901	Leonard & Romy Mayea
12	680-02920	Mathew Needham
13	680-03000	Mark Bacon
14	680-03001	Marc & Patricia Prall
15	680-03100	Dennis & Lori Sabbe
16	680-03900	UCG Land Inc.
17	690-00950	Shawn & Darrelle Mulder
18	690-01000	Joyson & Tanya Dupuis
19	690-01150	Henry Long
20	690-01150	Patricia Long
21	690-01200	Robert McCloskey & Susan Hutchins
22	690-01300	Ryan Irving & Brooke White
23	690-01400	Alan & Anne Hamill
24	690-01500	Paul & Christine Lepain
25	690-01600	Barry & Lucy Pretty
26	690-01700	Sherry Kane
27	690-01800	Beverley Murray
28	690-01900	Lukas Riediger & Melissa Green
29	690-02000	Monte Piskalny & Tricia Schmetz
30	690-02100	Carolyn Campbell
31	690-02200	Jennifer Chadsey
32	690-02300	Isaac & Anna Martens
33	690-02400	Neal & Tracy Huber
34	690-02500	1808236 Ontario Limited
35	690-02510	Shane & Krystle Martin
36	690-02550	Alma Lega
37	690-02600	David & Elizabeth Saiter
38	690-02650	Nancy Oakley
39	720-00010	Essex Region Conservation Authority
40	720-00020	Essex Region Conservation Authority
41	720-02701	All Abdulkafer
42	720-02800	Kristine & Hannah Cojocar
43	720-02900	Joyce Hedges
44	720-03000	Justin Drouillard, Deana Borri & Julianna Segatto
45	720-03100	Hydro One Networks Inc.
46	720-03200	Leslie & Ashley McFarland
47	720-03280	David & Pamela Robertson
48	720-03290	Nanette Biais
49	720-03300	Richard Kehl
50	720-03400	Anna Marcolivic
51	720-03401	Donald Rempel & Sherri Wallace-Rempel
52	720-03500	Douglas & Josie Holland
53	720-03504	Kari & Sandy Neudorf
54	720-03505	Enbridge Gas Inc.
55	720-03600	Antonio & Sylvia Marcolino
56	720-03601	Hudson Plante & Elizabeth McGregor
57	720-03650	Amilcar & Margaret Correia
58	720-03700	Jerome & Gloria McLeod
59	720-03800	Sharon Jackson
60	720-03900	Lloyd & Karen Iler
61	720-04000	Justin Irvine
62	720-04100	Lois Charette
63	720-04200	Catherine & Karen Simon
64	720-04250	Catherine & Karen Simon
65	720-04300	Eugene Berezic
66	720-04400	Pereira's Construction Inc.
67	720-04500	2206711 Ontario Ltd.
68	720-04700	Jordan Vlodarsky
69	720-04750	St. Francis Advocates
70	720-04800	Enbridge Gas Inc.
71	720-04900	Nancy French
72	720-04901	Manuel & Victoria Mendes
73	720-05000	Virginia Schaafsma Cooke & Sanda Cooke
74	720-05100	2468827 Ontario Ltd.
75	720-05200	Irene Cappelli
76	720-05300	Barrie & Deborah Brimmer
77	720-05400	Dolores Duncan
78	720-05401	Ronald & Lisa Suzor
79	720-05403	2468827 Ontario Ltd.
80	720-05500	1522148 Ontario Inc.
81	720-05502	Sherrilyn Blanchard-Childs & Robert Blanchard
82	720-05509	Richard Melton & Linda Liberato
83	720-05600	Barbara Cookson
84	720-05700	Gary & Diana Wright
85	720-05701	759765 Ontario Limited
86	720-05800	Irene Cappelli
87	720-05900	Brett Allen & Kaylee Maronate
88	720-06000	John Walsh
89	720-06100	Gorland Davis
90	720-06200	Classy Caps MFG. Inc.
91	720-06300	Jeffrey & Sharon Mertz
92	720-06400	Richard Gyorgy & Kelly Mertz
93	720-06500	William & Margaret Ayres
94	720-06501	Vincenzo & Antonina Esposto
95	720-06600	1522148 Ontario Inc.
96	720-06601	Zachary & Madeline Klein
97	720-06602	2801690 Ontario Inc.
98	720-06700	Colchester South Township
99	720-06709	Edward & Virginia Krizan
100	720-06800	Michael & Helen Lavin
101	720-06900	John & Denise Walsh
102	720-07000	Patricia & Paul Struhar
103	720-07100	Andrew & Suzan Struhar
104	720-07105	Miroslav & Sara Mizek
105	720-07200	Nancy Ford
106	720-07300	David & Sharon McCarthy
107	720-07400	Peter & Bonnie Hayes
108	720-07405	RTZ Consulting Group Inc.
109	720-07500	Richard Kokovic & Joe-Dee Brownl
110	720-07600	Paul & Yvonne Gratton
111	720-07700	Donald Rempel & Sherri Wallace-Rempel
112	730-00100	Agriculture Canada
113	730-00400	Judith & Thomas Affleck
114	730-00470	Thomas & Edward Affleck
115	730-00600	Mohit Nayar
116	730-06100	Marcella Franz
117	730-06200	Roy & Cindy Fields
118	730-06300	Agriculture Canada
119	760-02300	Judith Salisbury-Creed & William Salisbury
120	760-02400	Merlin & Lorna Warkentin
121	760-02500	Diana Woodwiss
122	760-02600	Paul & Cassandra Giroux
123	760-02601	Cody Roth & Rian Desblais
124	760-02700	Silva Homes Inc.
125	760-02702	Austin & Erika Ferris
126	760-02800	Matthew & Mandi Stapleton
127	760-02900	Thomas Brew
128	760-03000	Wayne & Carol Bedal
129	760-03050	Brian Scott
130	760-03108	Shelley Parks Mueller & Bernard Parks
131	760-03150	Brenda Ross
132	760-03200	Shelley Parks Mueller & Bernard Parks
133	760-03225	Shelley Parks Mueller & Bernard Parks
134	760-03250	Shelley Parks Mueller & Bernard Parks
135	760-03300	3670 Con 3 Harrow Inc.
136	760-03302	3670 Con 3 Harrow Inc.
137	760-03400	Iler Farms Incorporated
138	770-00100	1924879 Ontario Ltd.
139	770-00200	Gorski Farms Inc.
140	770-00250	Steven Johnson & Keegan O'Neill
141	770-03600	Wilfred O'Neill
142	730-00100	Essex Region Conservation Authority
143	720-04500	Farmers Gas Co. Ltd.



**WATERSHED PLAN**  
Scale = 1:7,000

ENGINEER'S SEAL:



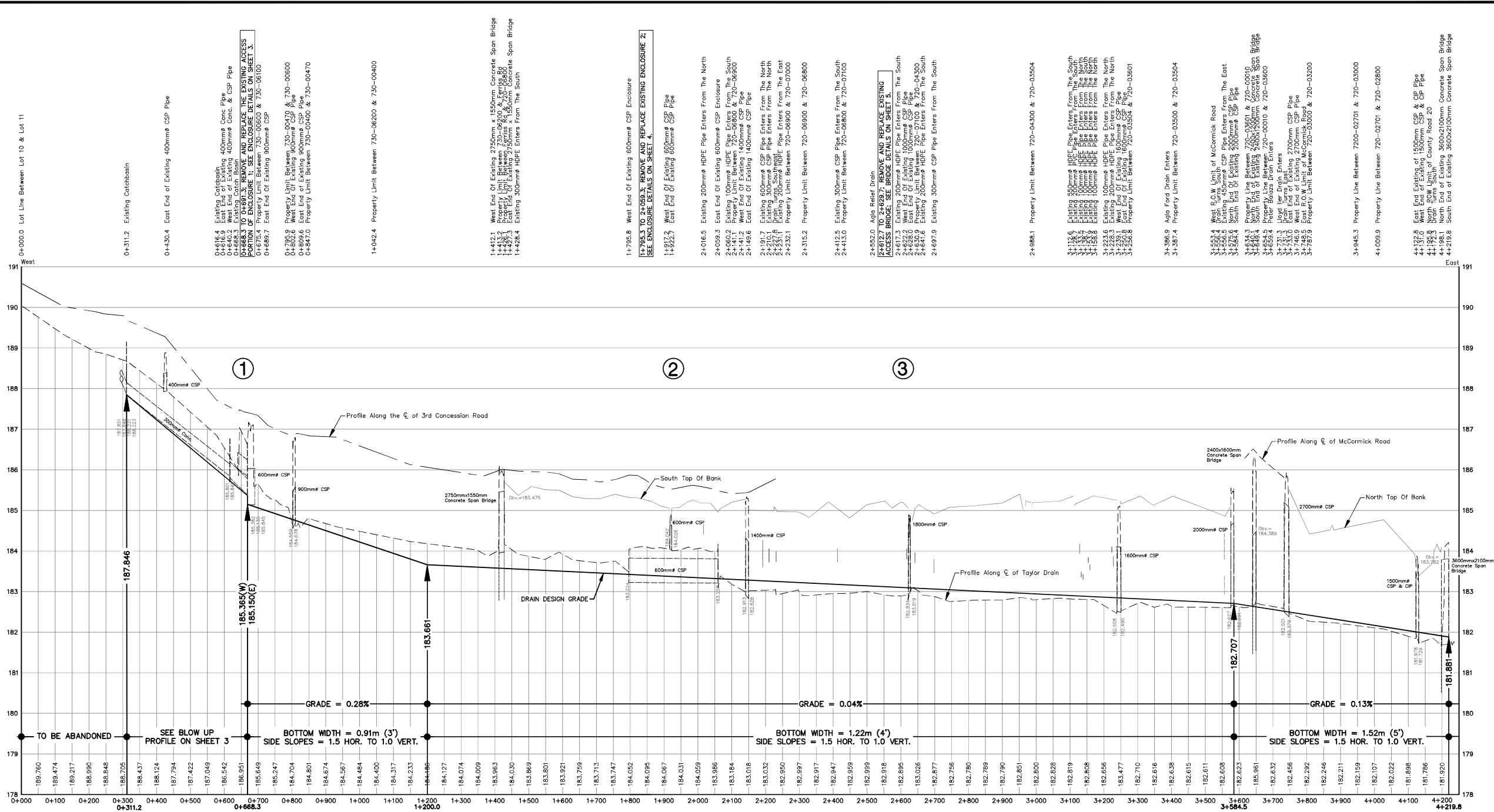
N.J. Peralta Engineering Ltd.  
Consulting Engineers

45 Division Street North P. 519-733-6587  
Kingsville, ON F. 519-733-6588  
N9Y 1E1 Canada peraltaengineering.com

DESIGNED BY: A.B.P. DRAWN BY: A.S.B. CHECKED BY: A.B.P.

PROJECT No.: D23-071 SHEET No.: 1 OF 5

DATE: SEPTEMBER 29, 2025



**PROFILE - TAYLOR DRAIN**  
Scale = 1:6000 Hor.  
Scale = 1:50 Ver.

**PROJECT NOTES:**

**GENERAL NOTES:**

1. THE ACCURACY OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED BY THE OWNER OR N.J. PERALTA ENGINEERING LTD. OTHER UTILITIES MAY BE PRESENT OR THE UTILITIES SHOWN MAY DIFFER IN SIZE OR LOCATION. CONTRACTOR SHALL LOCATE AND VERIFY DEPTHS OF ALL UTILITIES PRIOR TO CONSTRUCTION AND ADVISE THE ENGINEER OF ANY CONFLICTS. SUPPORT UTILITIES WHEN ENCOUNTERED.
2. ALL PLAN DIMENSIONS AND ELEVATIONS SHOWN IN METRES UNLESS OTHERWISE NOTED. DIMENSIONS DENOTE HORIZONTAL DISTANCE AROUND GROUND UNLESS OTHERWISE NOTED.
3. ALL PIPE DIAMETERS SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.
4. PROPERTY LINES SHOWN ARE APPROXIMATE AND BASED ON TOWN OF ESSEX (COUNTY OF ESSEX) GIS INFORMATION AND LIMITED PROPERTY MARKERS FOUND DURING TOPOGRAPHIC SURVEY. PROPERTY LINES SHOWN ARE FOR GENERAL REFERENCE ONLY AND SHALL NOT BE USED TO ESTABLISH OR CONFIRM PROPERTY BOUNDARIES. STATION LABELS FOR PROPERTY LINES ARE APPROXIMATE.
5. CONTRACTOR SHALL LAY OUT NEW WORK BASED ON LOCATIONS OF EXISTING STRUCTURES AND MAY ADJUST THE LOCATION OF PROPOSED WORK TO SUIT EXISTING CONDITIONS DURING CONSTRUCTION WITH APPROVAL BY THE ENGINEER AND/OR THE TOWN DRAINAGE SUPERINTENDENT.

**DRAIN NOTES:**

6. ALL NEW PLASTIC DRAIN PIPE TO BE TO BE BOSS 2000 PIPE (320 kPa) WITH WATER-TIGHT ULTRA STAB JOINING SYSTEM (BELL AND GASKET) BY ARMTEC, OR APPROVED EQUAL DUAL-WALL SMOOTHWALL INSIDE CORRUGATED OUTSIDE HDPE PIPE WITH 320 kPa STIFFNESS AND BELL AND GASKET WATERTIGHT JOINTS. MINIMUM 300mm COVER, UNLESS OTHERWISE NOTED.
7. INSTALL FLOTATION ANCHORS AT ENDS OF ALL HDPE PLASTIC PIPE WITH SLOPED END TREATMENT. SEE DETAIL ON SHEET 4.
8. PROVIDE SLOPED QUARRIED LIMESTONE END TREATMENTS ON ALL CULVERT ENDS. SEE DETAIL ON SHEET 5.
9. BACKFILL OF NEW DRAIN ENCLOSURES SHALL BE PER TYPICAL BACKFILL DETAIL.
10. DRAINS CROSSING ABOVE WATERMAINS SHALL HAVE PIPE SECTIONS CENTERED OVER THE WATERMAIN. MINIMUM CLEAR VERTICAL OF 0.50m UNLESS STATED OTHERWISE OR APPROVED BY THE ENGINEER OR TOWN.
11. PROPOSED SWALES SHALL BE CENTERED OVER THE PROPOSED ENCLOSURE ALIGNMENT.

**RESTORATION NOTES:**

1. PLACE MINIMUM 4" (100mm) THICK TOPSOIL ON NEW CUT DITCH AND SWALE BANKS, AND ALL DISTURBED AREAS. HYDRA-SEED TO GRASS PER OPSS 804.
2. PROVIDE TEMPORARY SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH OPSS 805. SEE OPSD 219.130 AND OPSD 219.180.
3. CONTRACTOR SHALL PROTECT ALL PRIVATE FEATURES (SUCH AS FENCES, SPRINKLERS, FLOWER BEDS, ETC.). IN THE EVENT THAT A PRIVATE FEATURE IS IN THE ALIGNMENT OF THE NEW DRAINAGE INFRASTRUCTURE, THE CONTRACTOR SHALL CAREFULLY REMOVE AND RE-INSTALL THE PRIVATE FEATURE TO ITS ORIGINAL STATE, UNLESS OTHERWISE NOTED.
4. GRAVEL DRIVEWAY SHALL BE RESTORED WITH MINIMUM 300mm THICK GRANULAR 'A' (OR MATCH EXISTING THICKNESS). SEE DETAIL ON SHEET 5.
5. ASPHALT DRIVEWAYS SHALL BE RESTORED WITH MINIMUM 100mm THICK HL3 ASPHALT SURFACE (OR MATCH EXISTING THICKNESS) WITH MINIMUM 300mm THICK GRANULAR 'A' BASE. SEE DETAIL ON SHEET 5.

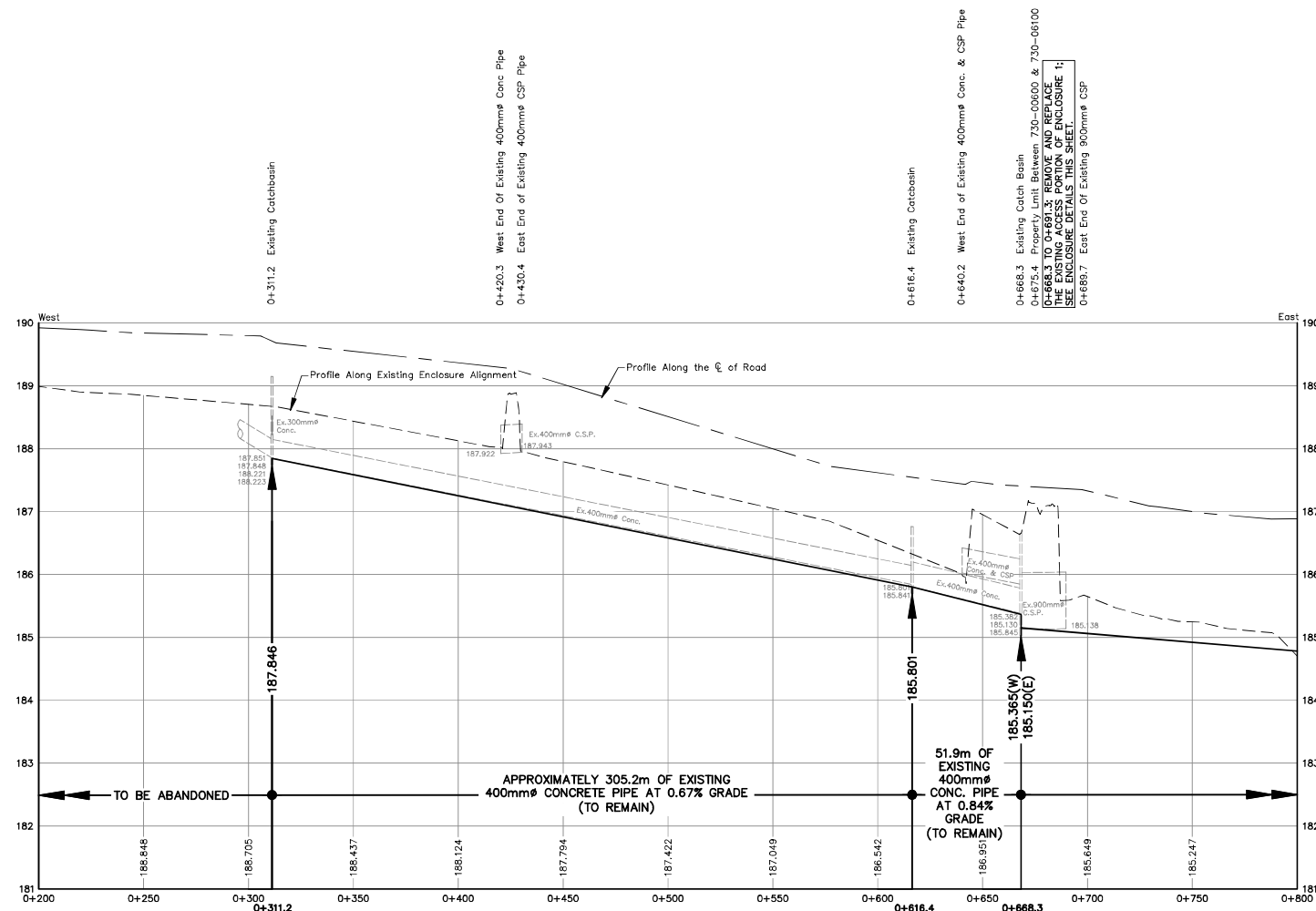
THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

ENGINEER'S SEAL:  
  
 A.B. PERALTA  
 100138683  
 PROVINCE OF ONTARIO

**Peralta Engineering**  
 Consulting Engineers  
 N.J. Peralta Engineering Ltd.  
 45 Division Street North, Kingsville, ON N9Y 1E1 Canada  
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 F: 519-733-6588  
 peraltaengineering.com

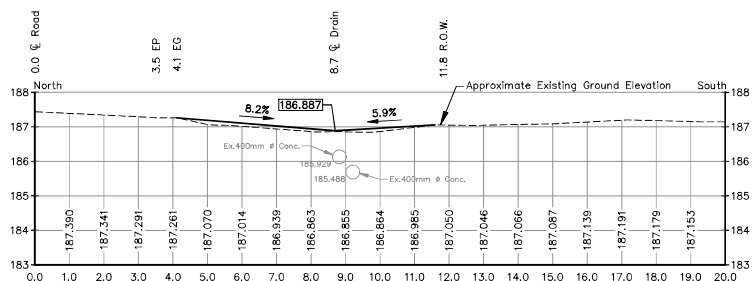
DESIGNED BY: A.B.P.	DRAWN BY: A.S.B.	CHECKED BY: A.B.P.
PROJECT No.: D23-071	SHEET No.: 2 OF 5	

DATE: SEPTEMBER 29, 2025



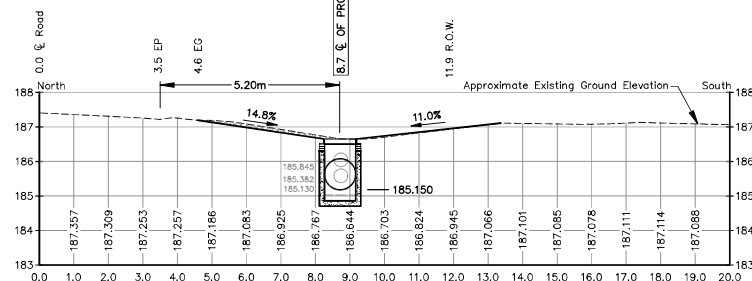
**BLOWUP PROFILE (0+312 TO 0+683.3)**

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Scale = 1:50 Ver.



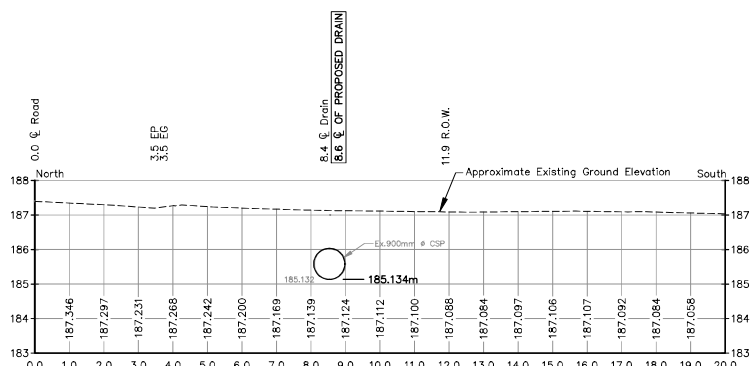
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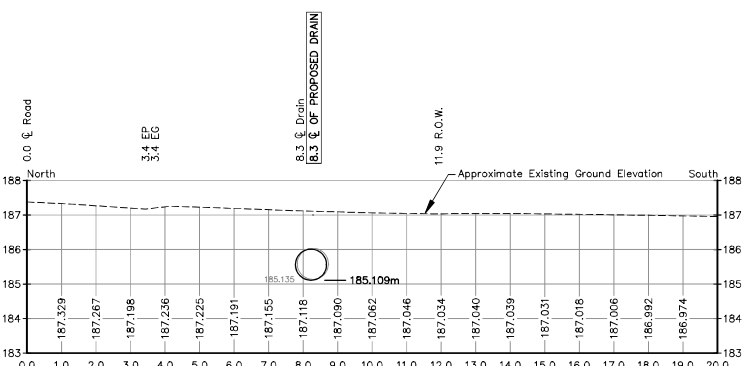
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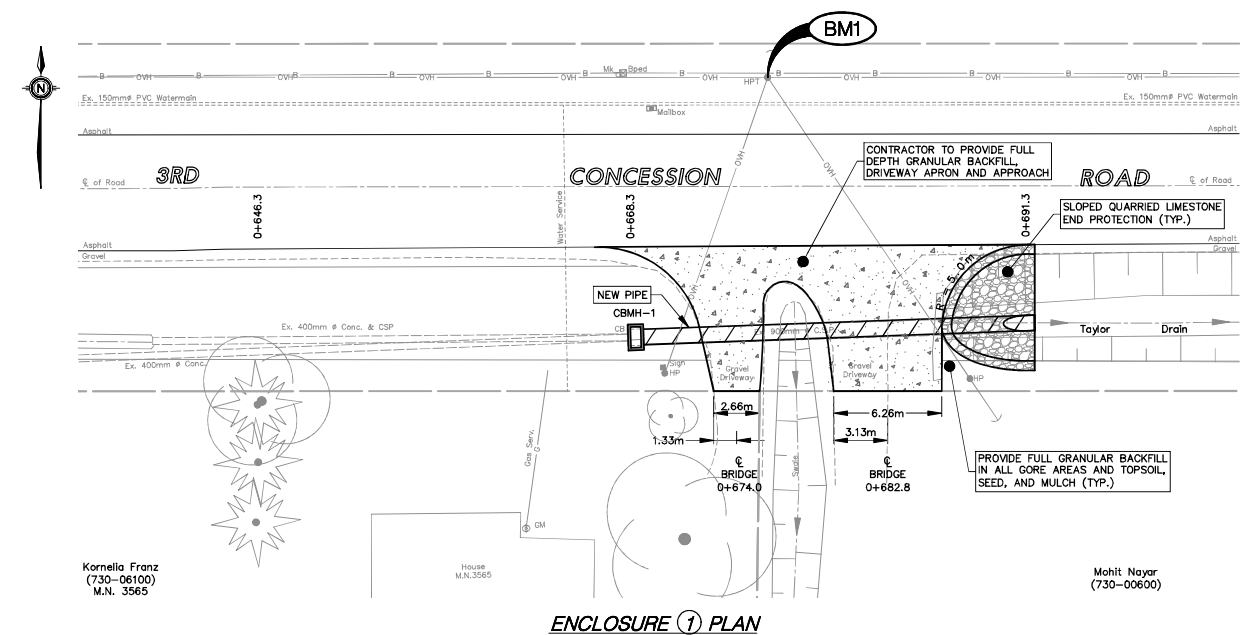
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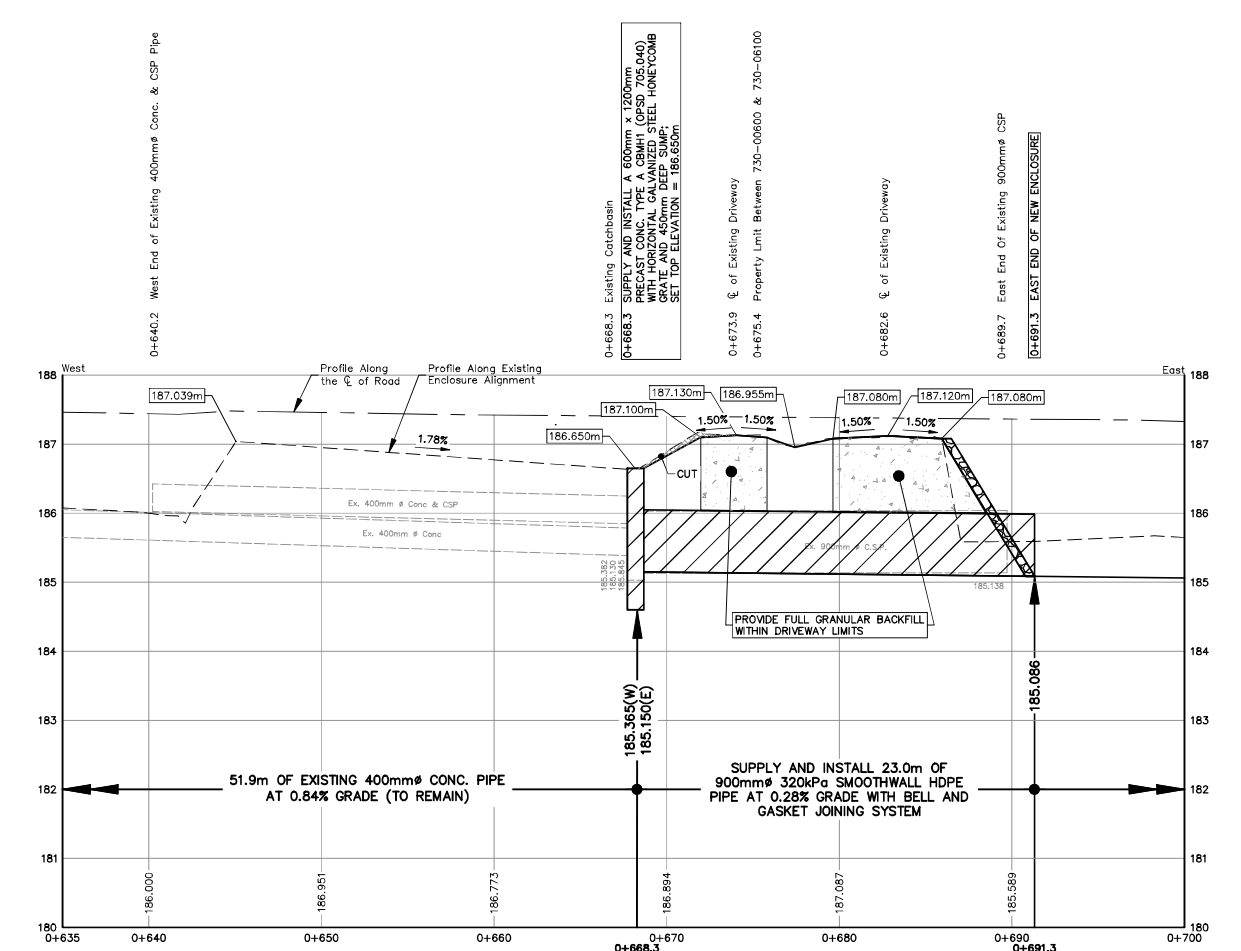
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Scale = 1:100



**ENCLOSURE (1) PLAN**

Scale = 1:200



**ENCLOSURE (1) PROFILE**

Scale = 1:200 Hor.  
Scale = 1:50 Ver.

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

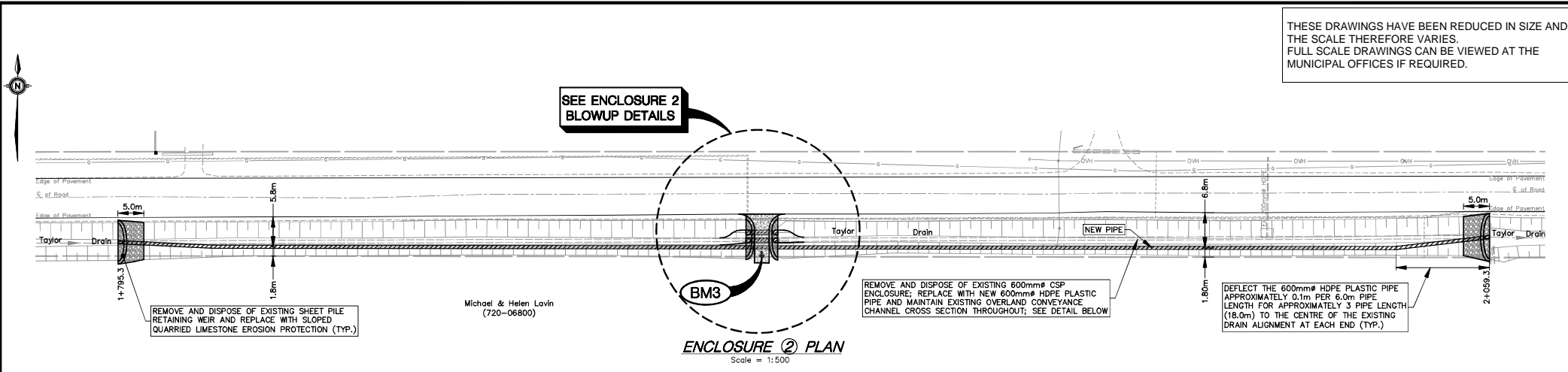
ENGINEER'S SEAL:

**Peralta Engineering**  
NJ. Peralta Engineering Ltd.  
Consulting Engineers

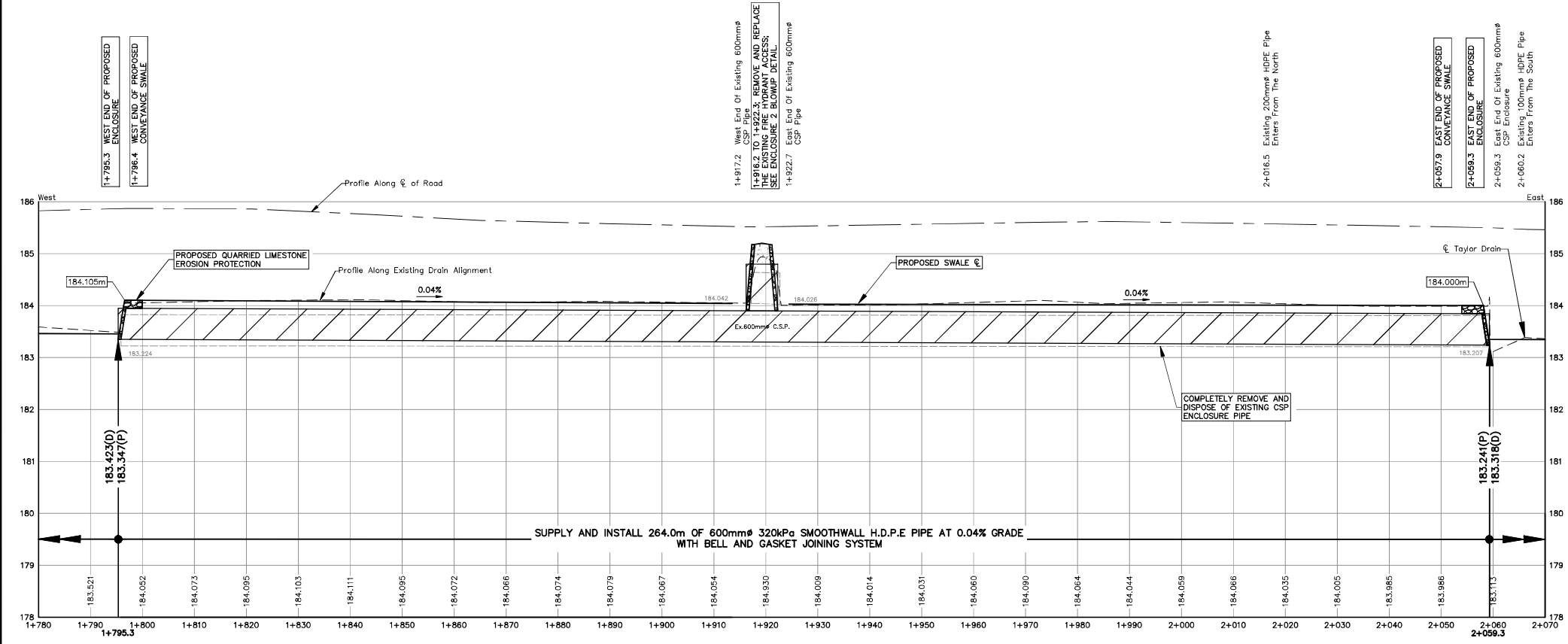
45 Division Street North, Kingsville, ON N9Y 1E1 Canada  
P: 519-733-6587, F: 519-733-6588, peraltaengineering.com

DESIGNED BY: A.B.P.	DRAWN BY: A.S.B.	CHECKED BY: A.B.P.
PROJECT No.: D23-071	SHEET No.: 3 OF 5	

DATE: SEPTEMBER 29, 2025

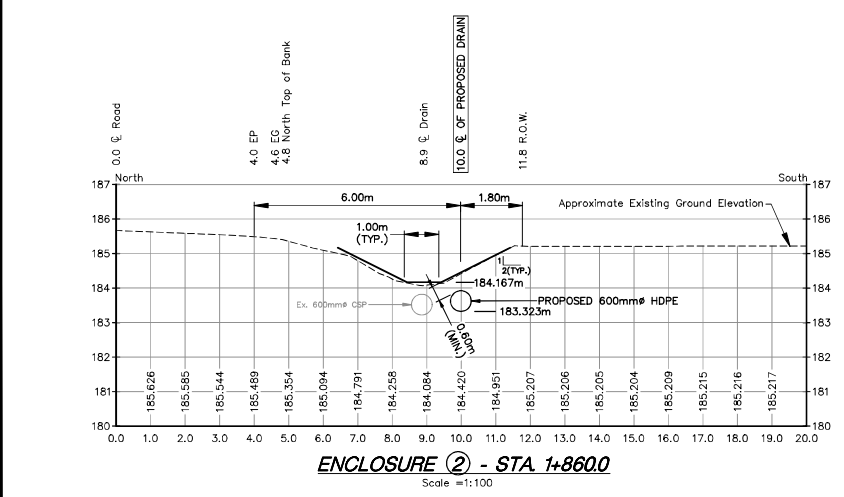


**ENCLOSURE 2 PLAN**  
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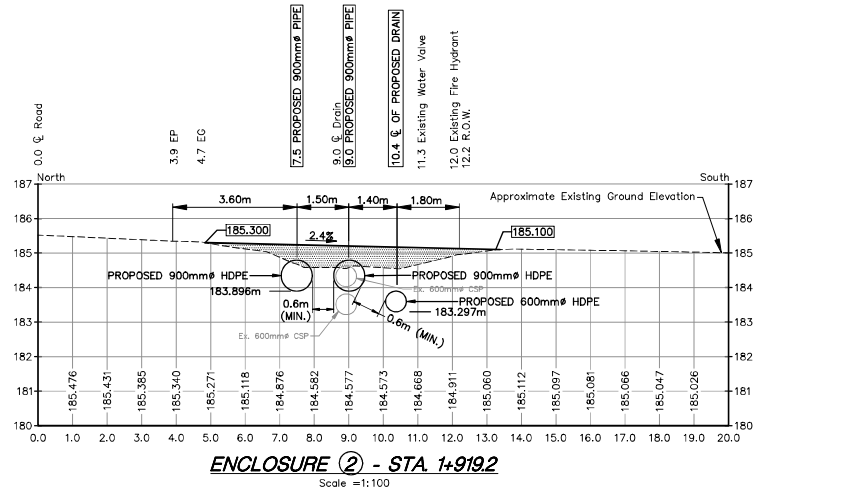


**ENCLOSURE 2 PROFILE**  
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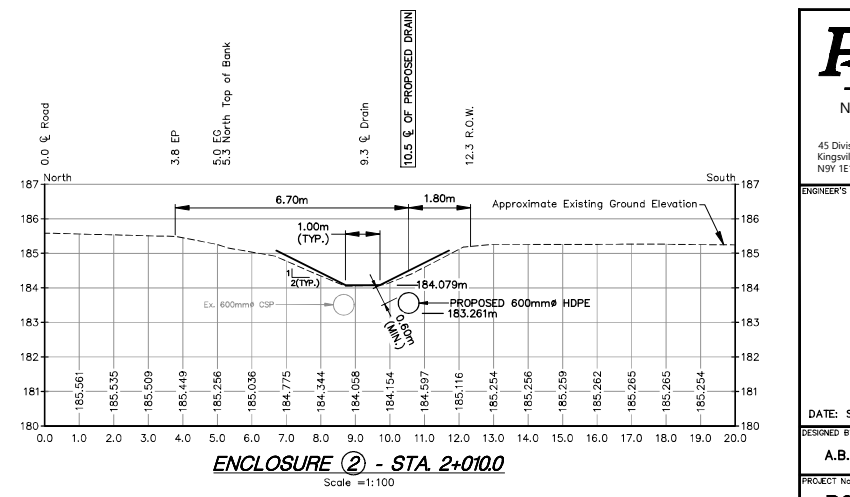
**NOTE:**  
THE NEW ENTRANCE HAS BEEN DESIGNED AND POSITIONED TO MAINTAIN A MINIMUM OF 600mm SEPARATION DISTANCE FROM THE FINISHED GRADE OF THE OVERLAND CONVEYANCE SWALE. IN THE EVENT THAT THIS SEPARATION DISTANCE IS NOT ACHIEVED, QUARRIED LIMESTONE EROSION PROTECTION SHALL BE INSTALLED TO MAKE UP FOR THE LOSS IN SEPARATION DISTANCE.



**ENCLOSURE 2 - STA. 1+860.0**  
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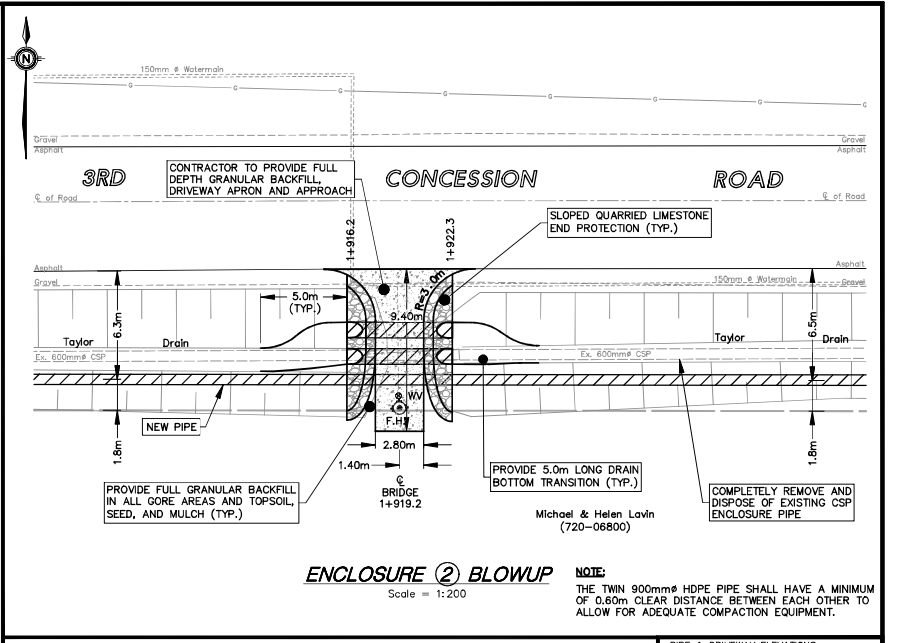


**ENCLOSURE 2 - STA. 1+919.2**  
Scale = 1:100



**ENCLOSURE 2 - STA. 2+010.0**  
Scale = 1:100

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.



**ENCLOSURE 2 BLOWUP**  
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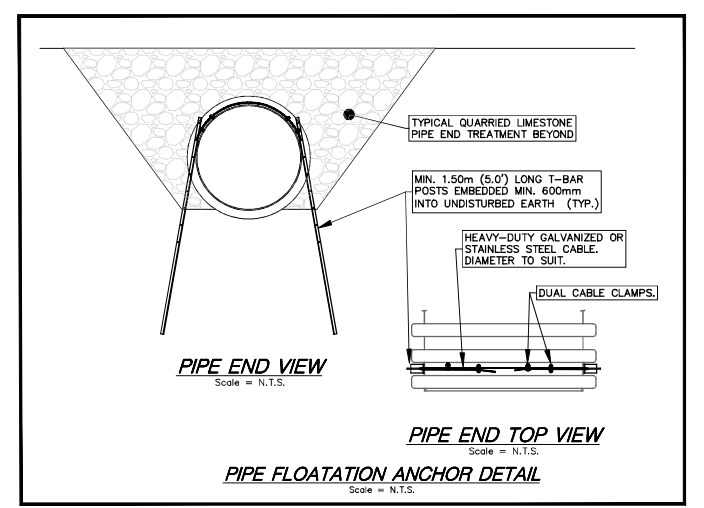
**NOTE:**  
THE TWIN 900mm HDPE PIPE SHALL HAVE A MINIMUM OF 0.60m CLEAR DISTANCE BETWEEN EACH OTHER TO ALLOW FOR ADEQUATE COMPACTION EQUIPMENT.

**BENCHMARK 3:**  
TOP OPERATING NUT OF EXISTING FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF 3RD CONCESSION ROAD, ADJACENT TO THE PROPOSED ENCLOSURE 2 ACCESS.

**ELEV. = 185.828m**

PIPE SIZE:	PIPE LENGTH:	PIPE GAUGE:	CORRUGATIONS:	TYPE OF PIPE:
2 x 900mm#	2 x 6.10m EACH (20.0 FT.)	320 kPa	SMOOTHWALL INTERIOR	H.D.P.E SMOOTHWALL

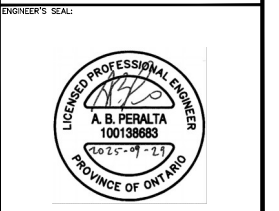
**PIPE & DRIVEWAY ELEVATIONS:**  
UPSTREAM INV. (W) = 183.899m  
DOWNSTREAM INV. (E) = 183.896m  
DESIGN GRADE = 0.04%  
C. OF DRIVEWAY AT GRAVEL SHOULDER EDGE = 185.300m  
C. OF DRIVEWAY AT PIPE CENTRELINE = 185.200m  
C. OF DRIVEWAY 1.0m SOUTH OF R.O.W. LIMIT = 185.100m  
DRIVEWAY CROSSFALL FROM CENTRELINE TO TOP OUT END OF END WALL = 1.50%



**LEGEND:**

- (D) - DENOTES DRAIN DESIGN BOTTOM
- (P) - DENOTES PIPE INVERT

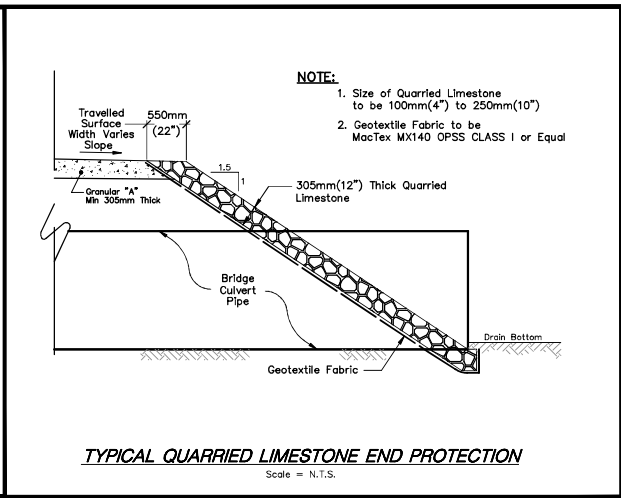
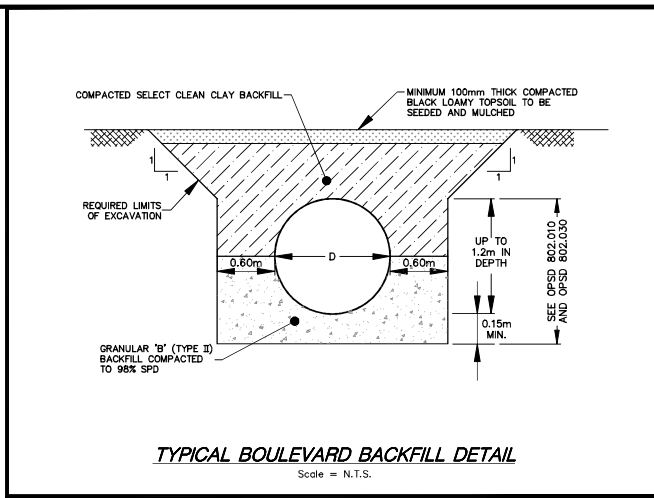
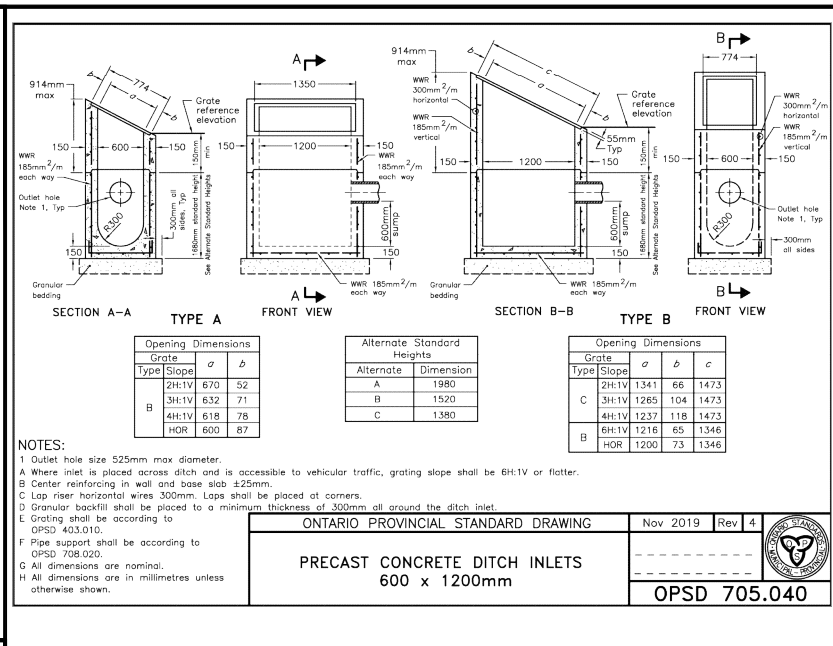
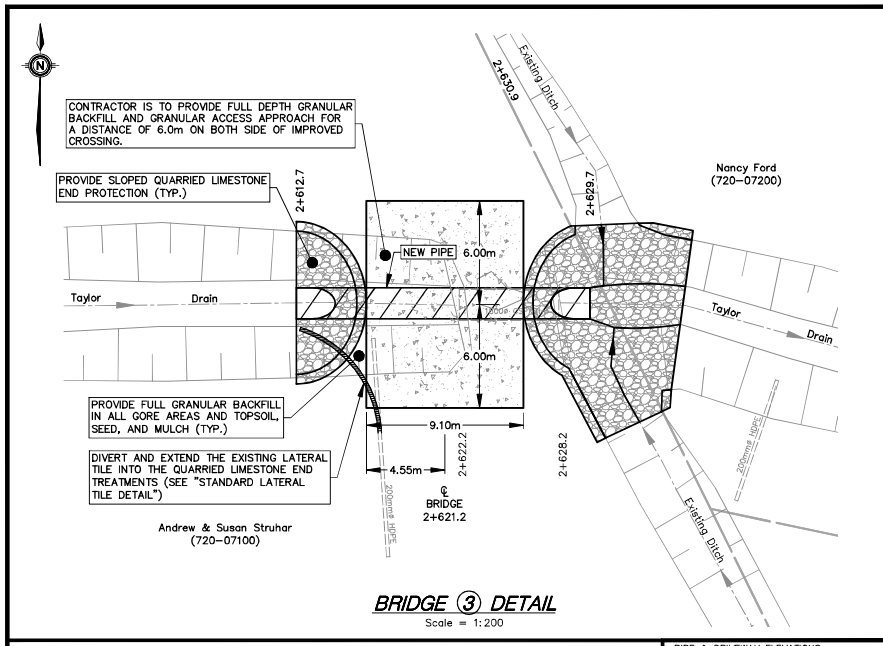
**Peralta Engineering**  
N.J. Peralta Engineering Ltd.  
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45 Division Street North  
Kingsville, ON  
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P: 519-733-6587  
F: 519-733-6588  
peraltaengineering.com



DATE: SEPTEMBER 29, 2025

DESIGNED BY: A.B.P.	DRAWN BY: A.S.B.	CHECKED BY: A.B.P.
------------------------	---------------------	-----------------------

PROJECT No.: D23-071  
SHEET No.: 4 OF 5



**BENCHMARK 4:**  
TOP OF NAIL SET IN WEST FACE OF HYDRO POLE LOCATED ON THE SOUTH SIDE OF 8RD CONCESSION ROAD ON NORTHEAST CORNER OF MN. 3715 APPROXIMATELY 227m FROM THE PROPOSED BRIDGE 3

ELEV. = 187.374m

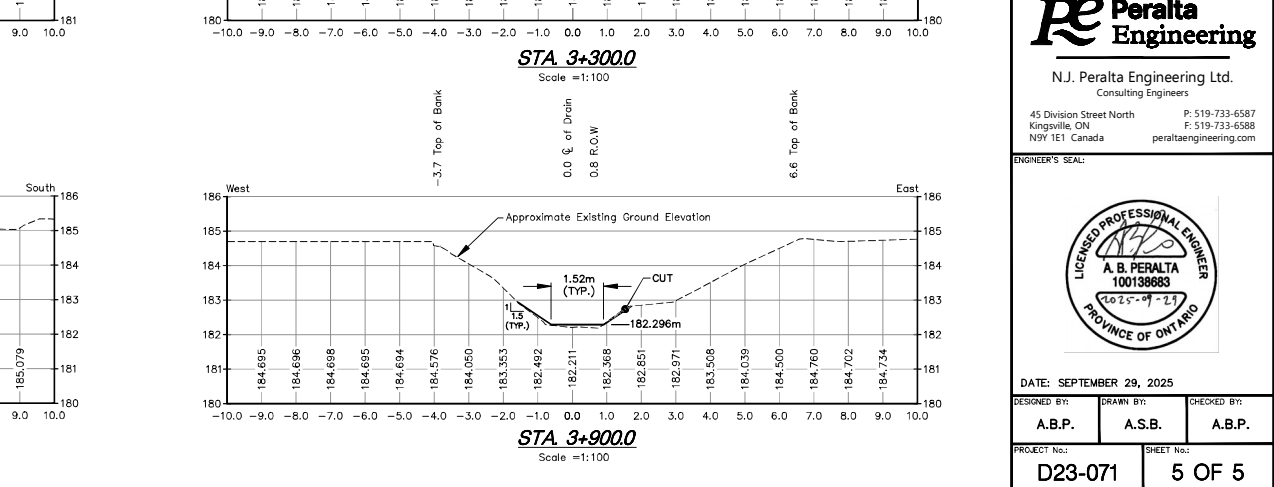
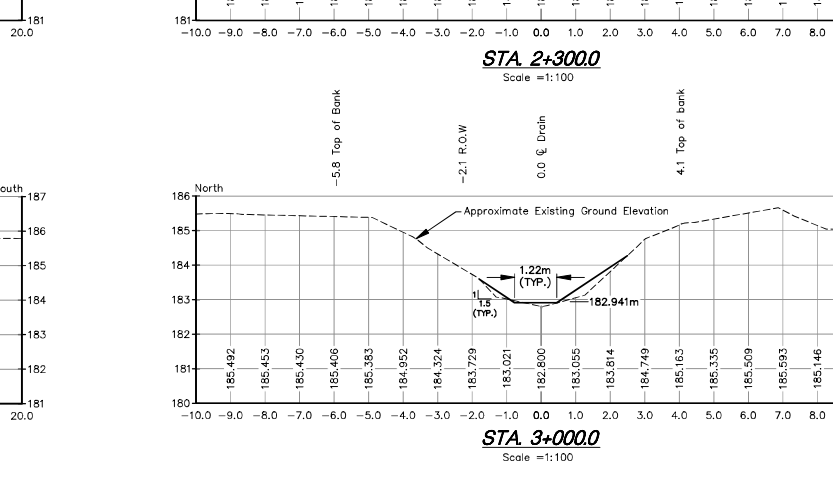
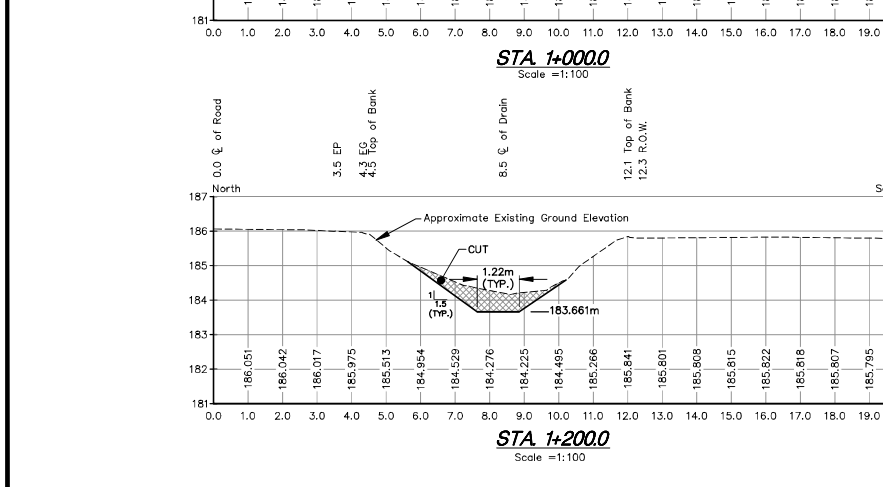
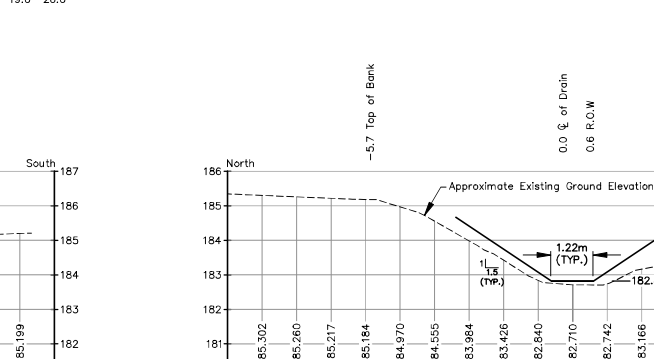
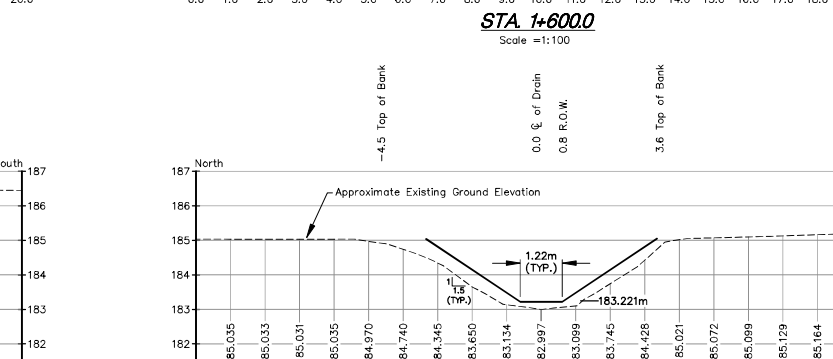
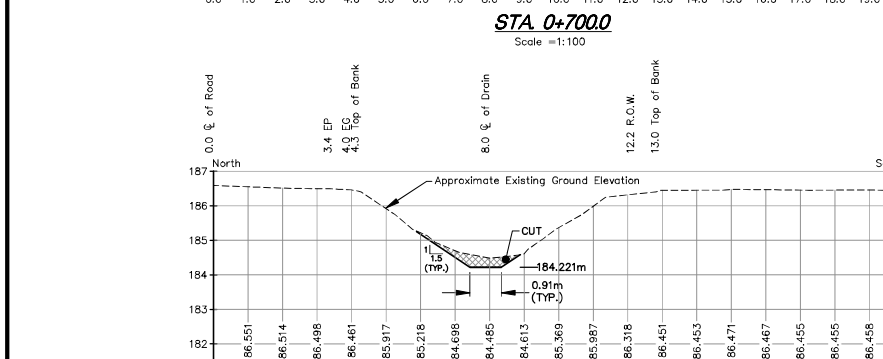
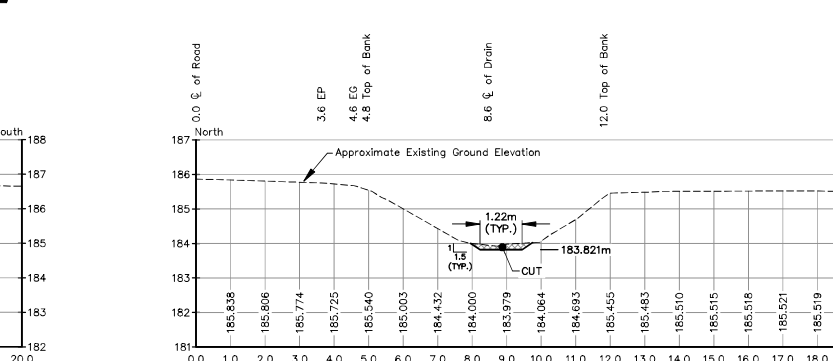
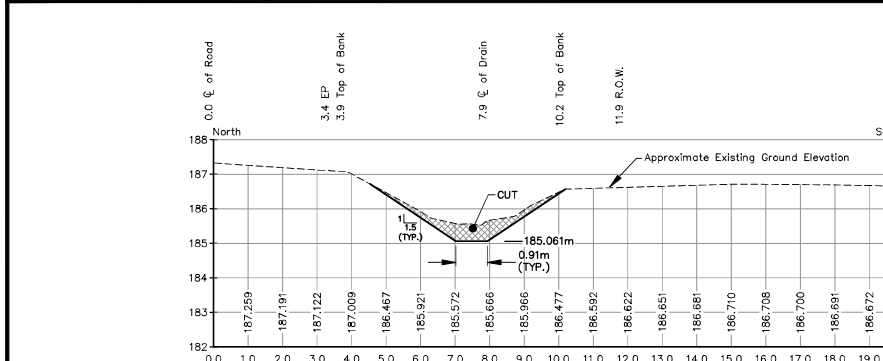
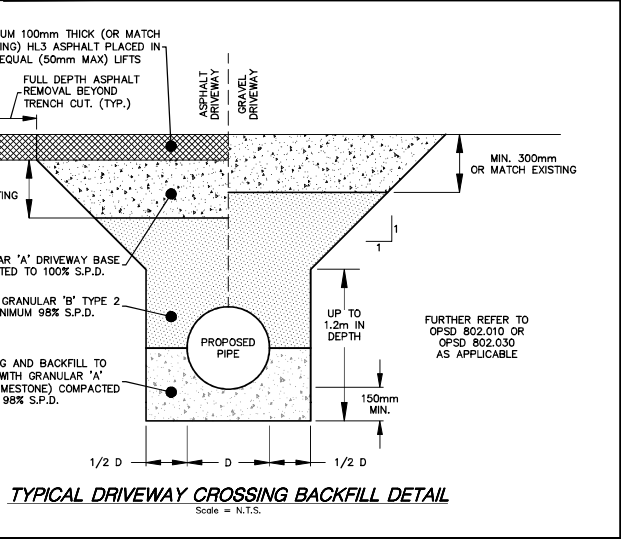
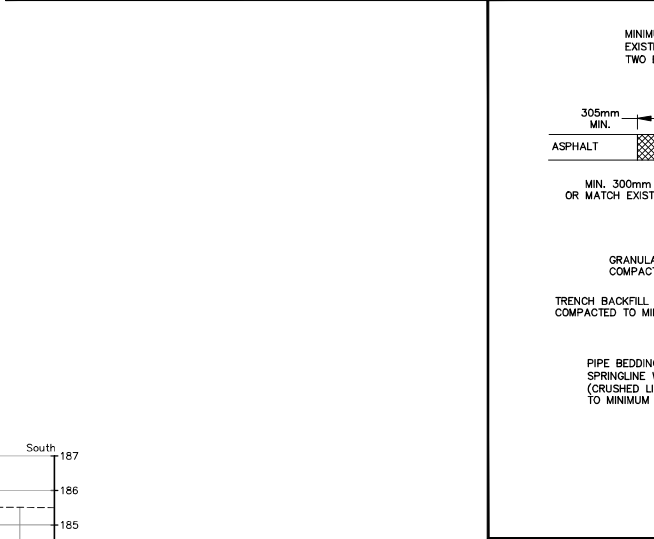
PIPE SIZE:	PIPE LENGTH:	PIPE GAUGE:	CORRUGATIONS:	TYPE OF PIPE:
180mm#	17.0m (55.77 FT.)	3.8m (12 GA.)	193mm x 19mm (7.5" x 0.75")	ALUMINIZED STEEL TYPE II ULTRA FLO PIPE

PIPE & DRIVEWAY ELEVATIONS:  
 UPSTREAM INV. (W) = 183.796m  
 DOWNSTREAM INV. (E) = 183.789m  
 DESIGN GRADE = 0.04%  
 C. OF ACCESS 6.0m NORTH OF BRIDGE CENTERLINE = 185.100m  
 C. OF ACCESS AT PIPE CENTERLINE = 185.090m  
 C. OF ACCESS 6.0m SOUTH OF BRIDGE CENTERLINE = 185.095m  
 DRIVEWAY CROSSFALL FROM CENTERLINE TO TOP OUT END OF END WALL = 1.00%

ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2019 Rev 4

OPSD 705.040



THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

**Peralta Engineering**  
 N.J. Peralta Engineering Ltd.  
 Consulting Engineers

45 Division Street North  
 Kingsville, ON  
 N9Y 1E1 Canada  
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 peraltaengineering.com

ENGINEER'S SEAL:  
 LICENSED PROFESSIONAL ENGINEER  
 A. B. PERALTA  
 100138683  
 (to 25-09-21)  
 PROVINCE OF ONTARIO

DATE: SEPTEMBER 29, 2025  
 DESIGNED BY: A.B.P. DRAWN BY: A.S.B. CHECKED BY: A.B.P.  
 PROJECT No.: D23-071 SHEET No.: 5 OF 5



# APPENDIX "C"

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## **APPENDIX C-1**

### Future Maintenance Schedule Upper Portion of the Taylor Drain (Station 0+000.0 to 4+219.8)

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MAINTENANCE SCHEDULE OF ASSESSMENT  
Upper Portion of the Taylor Drain (Station 0+000.0 to Station 4+219.8)

**1. CANADA LANDS:**

Parcel ID Number	Tax Roll Number	Conc. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
112	730-00100	2	Pt. Lot 12	32.03	10.00	4.05	Agriculture Canada	\$ -	\$ 117.00	\$ 117.00
118	730-06300	2	Pt. Lot 12	18.73	18.73	7.579	Agriculture Canada	\$ -	\$ 363.00	\$ 363.00
<b>Total on Canada Lands.....</b>								<b>\$ -</b>	<b>\$ 480.00</b>	<b>\$ 480.00</b>

**3. MUNICIPAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
			3rd Concession Road		18.14	7.341	Town of Essex	\$ 1,524.00	\$ 1,936.00	\$ 3,460.00
			Ferriss Road		5.97	2.416	Town of Essex	\$ 59.00	\$ 651.00	\$ 710.00
			McCormick Road		6.62	2.679	Town of Essex	\$ 276.00	\$ 533.00	\$ 809.00
			Ridge Road		4.82	1.951	Town of Essex	\$ -	\$ 344.00	\$ 344.00
			McLean Road		0.40	0.162	Town of Essex	\$ 24.00	\$ 50.00	\$ 74.00
			County Road 20		14.54	5.884		\$ 199.00	\$ 1,039.00	\$ 1,238.00
<b>Total on Municipal Lands.....</b>								<b>\$ 2,082.00</b>	<b>\$ 4,553.00</b>	<b>\$ 6,635.00</b>

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
3	680-02301	Gore	Pt. Lot 17	0.40	0.40	0.163	Earl & Elaine Richardson	\$ -	\$ 17.00	\$ 17.00
4	680-02400	Gore	Pt. Lot 17	0.42	0.42	0.170	Tonya Vinson	\$ -	\$ 14.00	\$ 14.00
5	680-02500	Gore	Pt. Lot 18	0.44	0.44	0.179	Brian & Mary-Anne Deslippe	\$ -	\$ 19.00	\$ 19.00
6	680-02550	Gore	Pt. Lot 18	1.73	1.73	0.699	Kevin McCandless	\$ -	\$ 78.00	\$ 78.00
8	680-02700	Gore	Pt. Lot 18	0.38	0.38	0.155	Andrea & Vedran Abidinovic	\$ -	\$ 15.00	\$ 15.00
9	680-02800	Gore	Pt. Lot 18	0.55	0.55	0.224	Mark & Julie Affleck	\$ -	\$ 23.00	\$ 23.00
11	680-02901	Gore	Pt. Lot 19	0.53	0.53	0.213	Leonard & Romy Mayea	\$ -	\$ 27.00	\$ 27.00
12	680-02920	Gore	Pt. Lot 19	0.79	0.79	0.319	Matthew Needham	\$ -	\$ 29.00	\$ 29.00
14	680-03001	Gore	Pt. Lot 19	0.72	0.72	0.290	Marc & Patricia Prail	\$ 18.00	\$ 27.00	\$ 45.00
17	690-00950	Gore	Pt. Lot 16	1.84	1.84	0.744	Shawn & Darrelle Mulder	\$ -	\$ 60.00	\$ 60.00
18	690-01000	Gore	Pt. Lot 16	0.54	0.54	0.218	Jayson & Tanya Dupuis	\$ -	\$ 21.00	\$ 21.00
20	690-01150	Gore	Pt. Lot 16	1.40	1.40	0.568	Patricia Laing	\$ -	\$ 58.00	\$ 58.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
21	690-01200	Gore	Pt. Lot 16	0.45	0.45	0.181	Robert McCloskey & Susan Hutchins	\$ -	\$ 17.00	\$ 17.00
22	690-01300	Gore	Pt. Lot 16	0.54	0.54	0.218	Ryan Irving & Brooke White	\$ -	\$ 20.00	\$ 20.00
23	690-01400	Gore	Pt. Lot 16	0.72	0.72	0.290	Allan & Anne Hamill	\$ -	\$ 31.00	\$ 31.00
24	690-01500	Gore	Pt. Lot 16	0.75	0.75	0.303	Paul & Christine Lepain	\$ -	\$ 35.00	\$ 35.00
25	690-01600	Gore	Pt. Lot 16	0.78	0.78	0.316	Barry & Lucy Pretty	\$ -	\$ 35.00	\$ 35.00
26	690-01700	Gore	Pt. Lot 16	0.72	0.72	0.292	Sherry Kane	\$ -	\$ 25.00	\$ 25.00
27	690-01800	Gore	Pt. Lot 17	1.23	1.23	0.499	Beverley Murray	\$ -	\$ 39.00	\$ 39.00
28	690-01900	Gore	Pt. Lot 17	0.33	0.33	0.133	Lukas Riediger & Melissa Green	\$ -	\$ 18.00	\$ 18.00
29	690-02000	Gore	Pt. Lot 17	0.44	0.44	0.177	Monte Pidskalny & Tricia Schmeltz	\$ -	\$ 19.00	\$ 19.00
30	690-02100	Gore	Pt. Lot 17	0.55	0.55	0.221	Carolyn Campbell	\$ -	\$ 22.00	\$ 22.00
31	690-02200	Gore	Pt. Lot 17	0.33	0.33	0.133	Jennifer Chadsey	\$ -	\$ 17.00	\$ 17.00
32	690-02300	Gore	Pt. Lot 17	1.81	1.81	0.731	Isaac & Anna Martens	\$ -	\$ 78.00	\$ 78.00
35	690-02510	Gore	Pt. Lot 17	3.33	3.33	1.349	Shane & Krystle Martin	\$ -	\$ 90.00	\$ 90.00
36	690-02550	Gore	Pt. Lot 17	0.90	0.90	0.366	Alma Lepp	\$ -	\$ 22.00	\$ 22.00
37	690-02600	Gore	Pt. Lot 17	0.57	0.57	0.232	David & Elizabeth Salter	\$ -	\$ 22.00	\$ 22.00
38	690-02650	Gore	Pt. Lot 17	0.69	0.69	0.279	Nancy Oakley	\$ -	\$ 34.00	\$ 34.00
39	720-00010	2	Pt. Lots 12 to 14	9.24	9.24	3.739	Essex Region Conservation Authority	\$ 111.00	\$ 373.00	\$ 484.00
40	720-00020	2	Pt. Lots 15 to 19	18.95	1.88	0.761	Essex Region Conservation Authority	\$ 158.00	\$ 75.00	\$ 233.00
42	720-02800	2	Pt. Lot 15	1.62	1.62	0.656	Kristine & Hannah Cojocar	\$ 149.00	\$ 59.00	\$ 208.00
43	720-02900	2	Pt. Lot 15	0.70	0.70	0.283	Joyce Hedges	\$ 35.00	\$ 25.00	\$ 60.00
45	720-03100	2	Pt. Lot 15	0.28	0.28	0.114	Hydro One Networks Inc.	\$ 7.00	\$ 13.00	\$ 20.00
46	720-03200	2	Pt. Lot 15	0.25	0.25	0.100	Leslie & Ashley McFarland	\$ 24.00	\$ 12.00	\$ 36.00
47	720-03280	2	Pt. Lot 15	9.18	9.18	3.714	David & Pamela Robertson	\$ 194.00	\$ 131.00	\$ 325.00
48	720-03290	2	Pt. Lot 15	9.18	9.18	3.716	Nanette Blais	\$ 167.00	\$ 191.00	\$ 358.00
49	720-03300	2	Pt. Lot 15	9.18	9.18	3.715	Richard Kehl	\$ 49.00	\$ 170.00	\$ 219.00
54	720-03505	2	Pt. Lot 14	0.09	0.09	0.037	Enbridge Gas Inc.	\$ -	\$ 9.00	\$ 9.00
57	720-03650	2	Pt. Lot 14	0.52	0.52	0.209	Amilcar & Margaret Carreira	\$ 50.00	\$ 30.00	\$ 80.00
58	720-03700	2	Pt. Lot 14	1.50	1.50	0.605	Jerome & Gloria Mcleod	\$ 53.00	\$ 52.00	\$ 105.00
59	720-03800	2	Pt. Lot 14	1.01	1.01	0.409	Sharon Jackson	\$ -	\$ 33.00	\$ 33.00
60	720-03900	2	Pt. Lot 14	1.59	1.59	0.642	Lloyd & Karen Iler	\$ -	\$ 39.00	\$ 39.00
61	720-04000	2	Pt. Lot 14	0.64	0.64	0.259	Justin Irvine	\$ -	\$ 33.00	\$ 33.00
62	720-04100	2	Pt. Lot 14	0.64	0.64	0.259	Lois Charette	\$ -	\$ 31.00	\$ 31.00
64	720-04250	2	Pt. Lot 14	0.54	0.54	0.219	Catherine & Karen Simon	\$ -	\$ 24.00	\$ 24.00
68	720-04700	2	Pt. Lot 13	0.44	0.44	0.179	Jordan Vlodarchyk	\$ -	\$ 21.00	\$ 21.00
69	720-04750	2	Pt. Lot 13	1.04	1.04	0.419	St. Francis Advocates	\$ -	\$ 46.00	\$ 46.00
70	720-04800	2	Pt. Lot 13	0.05	0.05	0.022	Enbridge Gas Inc.	\$ -	\$ 6.00	\$ 6.00
71	720-04900	2	Pt. Lot 13	0.73	0.73	0.295	Nancy French	\$ -	\$ 36.00	\$ 36.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
72	720-04901	2	Pt. Lot 13	0.60	0.60	0.244	Manuel & Victoria Mendes	\$ -	\$ 28.00	\$ 28.00
73	720-05000	2	Pt. Lot 13	0.60	0.60	0.244	Virginia Schaafsma Cooke & Sanda Cooke	\$ -	\$ 28.00	\$ 28.00
75	720-05200	2	Pt. Lot 13	0.61	0.61	0.249	Irene Cappelli	\$ -	\$ 28.00	\$ 28.00
76	720-05300	2	Pt. Lot 13	0.92	0.92	0.371	Barrie & Deborah Brimmer	\$ -	\$ 48.00	\$ 48.00
77	720-05400	2	Pt. Lot 13	0.46	0.46	0.186	Dolores Duncan	\$ -	\$ 26.00	\$ 26.00
78	720-05401	2	Pt. Lot 13	0.99	0.99	0.402	Ronald & Lisa Suzor	\$ -	\$ 53.00	\$ 53.00
80	720-05500	2	Lot 12	0.67	0.67	0.272	Jasmin, Jean-Paul & Tania St. Pierre, Colton Williams	\$ -	\$ 21.00	\$ 21.00
81	720-05502	2	Lot 12	0.48	0.48	0.194	Sherrylyn Blanchard-Childs & Robert Blanchard	\$ -	\$ 21.00	\$ 21.00
82	720-05509	2	Pt. Lot 12	0.69	0.69	0.278	Richard Melton & Linda Liberato	\$ -	\$ 33.00	\$ 33.00
83	720-05600	2	Pt. Lot 12	0.29	0.29	0.119	Barbara Cookson	\$ -	\$ 18.00	\$ 18.00
84	720-05700	2	Pt. Lot 12	0.46	0.46	0.186	Gary & Diana Wright	\$ -	\$ 31.00	\$ 31.00
85	720-05701	2	Pt. Lot 12	0.44	0.44	0.177	759765 Ontario Limited	\$ -	\$ 33.00	\$ 33.00
87	720-05900	2	Pt. Lot 12	0.26	0.26	0.107	Brett Allen & Kaylee Marontate	\$ -	\$ 11.00	\$ 11.00
88	720-06000	2	Pt. Lot 12	0.39	0.39	0.159	John Walsh	\$ -	\$ 29.00	\$ 29.00
89	720-06100	2	Pt. Lot 12	0.22	0.22	0.091	Garland Davis	\$ -	\$ 12.00	\$ 12.00
90	720-06200	2	Pt. Lot 12	1.26	1.26	0.511	Classy Caps MFG. Inc.	\$ -	\$ 95.00	\$ 95.00
91	720-06300	2	Pt. Lot 12	0.24	0.24	0.097	Jeffrey & Sharon Mertz	\$ -	\$ 9.00	\$ 9.00
92	720-06400	2	Pt. Lot 12	0.52	0.52	0.209	Richard Gyorgy & Kelly Mertz	\$ -	\$ 22.00	\$ 22.00
93	720-06500	2	Pt. Lot 12	1.22	1.22	0.494	William & Margaret Ayres	\$ -	\$ 36.00	\$ 36.00
94	720-06501	2	Pt. Lot 12	0.72	0.72	0.292	Vincenzo & Antonina Esposito	\$ -	\$ 32.00	\$ 32.00
95	720-06600	2	Pt. Lot 12	2.12	2.12	0.857	1522148 Ontario Inc.	\$ -	\$ 134.00	\$ 134.00
96	720-06601	2	Pt. Lot 12	0.45	0.45	0.183	Zachary & Madeleine Klein	\$ -	\$ 16.00	\$ 16.00
97	720-06602	2	Pt. Lot 12	1.76	1.76	0.712	2801690 Ontario Inc.	\$ -	\$ 166.00	\$ 166.00
98	720-06700	2	Pt. Lot 12	3.13	3.13	1.266	Colchester South Township	\$ -	\$ 352.00	\$ 352.00
99	720-06709	2	Pt. Lot 12	1.76	1.76	0.712	Edward & Verginica Krizan	\$ -	\$ 85.00	\$ 85.00
101	720-06900	2	Pt. Lot 13	4.14	4.14	1.677	John & Denise Walsh	\$ 247.00	\$ 186.00	\$ 433.00
102	720-07000	2	Pt. Lot 13	2.47	2.47	1.001	Patricia & Paul Struhar	\$ 120.00	\$ 85.00	\$ 205.00
104	720-07105	2	Pt. Lot 14	1.65	1.65	0.669	Miroslav & Sara Mihek	\$ 70.00	\$ 86.00	\$ 156.00
110	720-07600	2	Pt. Lot 15	5.00	5.00	2.023	Paul & Yvonne Gratton	\$ -	\$ 84.00	\$ 84.00
114	730-00470	2	Pt. Gore Lot	2.00	2.00	0.809	Thomas & Edward Affleck	\$ 79.00	\$ 74.00	\$ 153.00
122	760-02600	3	Pt. Lot 14	24.69	16.70	6.758	Paul & Cassandra Giroux	\$ -	\$ 209.00	\$ 209.00
123	760-02601	3	Pt. Lot 14	0.51	0.51	0.205	Cody Roath & Rian Desbiens	\$ -	\$ 30.00	\$ 30.00
125	760-02702	3	Pt. Lot 14	1.04	1.04	0.422	Austin & Erika Ferriss	\$ -	\$ 53.00	\$ 53.00
127	760-02900	3	Pt. Lot 14	1.54	1.54	0.625	Thomas Brew	\$ -	\$ 61.00	\$ 61.00
128	760-03000	3	Pt. Lot 14	0.56	0.56	0.229	Wayne & Carol Bedal	\$ -	\$ 37.00	\$ 37.00
129	760-03050	3	Pt. Lot 13	0.72	0.72	0.290	Brian Scott	\$ 2.00	\$ 45.00	\$ 47.00
131	760-03150	3	Pt. Lot 13	0.55	0.55	0.223	Brenda Ross	\$ 8.00	\$ 31.00	\$ 39.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
134	760-03250	3	Pt. Lot 13	0.46	0.46	0.186	Shelley Parks Mueller & Bernard Parks	\$ 45.00	\$ 28.00	\$ 73.00
140	770-00250	3	Pt. Lot 11	1.69	1.69	0.684	Steven Johnson & Keegan O'Neil	\$ 141.00	\$ 101.00	\$ 242.00
142	730-00010	2	Pt. Lots 10, 11, Gore Lot, and 12	11.35	0.93	0.376	Essex Region Conservation Authority	\$ -	\$ 31.00	\$ 31.00
<b>Total on Privately Owned - Non-Agricultural Lands:</b>								<b>\$ 1,727.00</b>	<b>\$ 4,829.00</b>	<b>\$ 6,556.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
1	680-02200	Gore	Pt. Lot 17	21.85	10.20	4.128	Emily Stajfer, Helen Klomp, Veronica Boleratz & Ann Denzinger	\$ -	\$ 130.00	\$ 130.00
2	680-02300	Gore	Pt. Lot 17	29.06	29.06	11.759	George & Albert Gondosch	\$ -	\$ 377.00	\$ 377.00
7	680-02600	Gore	Pt. Lot 18	70.87	36.96	14.958	Cedar Branches Farms Inc.	\$ -	\$ 442.00	\$ 442.00
10	680-02900	Gore	Pt. Lot 19	48.45	15.00	6.070	2277151 Ontario Inc.	\$ -	\$ 296.00	\$ 296.00
13	680-03000	Gore	Pt. Lot 19	48.60	9.00	3.642	Mark Bacon	\$ 25.00	\$ 156.00	\$ 181.00
15	680-03100	Gore	Pt. Lot 19	18.92	3.00	1.214	Dennis & Lari Sabbe	\$ -	\$ 85.00	\$ 85.00
19	690-01100	Gore	Pt. Lot 16	27.04	27.04	10.945	Hilary Laing	\$ -	\$ 362.00	\$ 362.00
33	690-02400	Gore	Pt. Lot 16 & 17	112.59	112.59	45.565	Neal & Tracy Huber	\$ -	\$ 1,371.00	\$ 1,371.00
34	690-02500	Gore	Pt. Lot 17	35.29	13.55	5.484	1808236 Ontario Limited	\$ -	\$ 134.00	\$ 134.00
44	720-03000	2	Pt. Lot 15	7.97	7.97	3.226	Justin Drouillard, Deana Borri & Julianna Segatto	\$ 450.00	\$ 155.00	\$ 605.00
50	720-03400	2	Pt. Lot 15	16.81	16.81	6.802	Anna Momcilovic	\$ -	\$ 219.00	\$ 219.00
51	720-03401	2	Pt. Lot 15	10.00	10.00	4.046	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 132.00	\$ 132.00
52	720-03500	2	Pt. Lot 14	8.98	8.98	3.635	Douglas & Josie Holland	\$ 384.00	\$ 173.00	\$ 557.00
53	720-03504	2	Pt. Lot 14	48.28	48.28	19.538	Karl & Sandy Neudorf	\$ 1,134.00	\$ 685.00	\$ 1,819.00
55	720-03600	2	Pt. Lot 14	16.95	16.95	6.858	Antonio & Sylvina Marcelino	\$ 437.00	\$ 257.00	\$ 694.00
56	720-03601	2	Pt. Lot 14	9.59	9.59	3.883	Hudson Plante & Elizabeth McGregor	\$ 602.00	\$ 267.00	\$ 869.00
63	720-04200	2	Pt. Lot 14	33.19	33.19	13.430	Catherine & Karen Simon	\$ -	\$ 468.00	\$ 468.00
65	720-04300	2	Pt. Lot 14	32.02	32.02	12.957	Eugene Berecz	\$ 804.00	\$ 552.00	\$ 1,356.00
66	720-04400	2	Pt. Lot 13	14.99	14.99	6.067	Pereira's Construction Inc.	\$ -	\$ 245.00	\$ 245.00
67	720-04600	2	Pt. Lot 13	13.43	13.43	5.435	2206711 Ontario Ltd.	\$ -	\$ 257.00	\$ 257.00
74	720-05100	2	Pt. Lot 13	13.29	13.29	5.379	2466827 Ontario Ltd.	\$ -	\$ 290.00	\$ 290.00
79	720-05403	2	Pt. Lot 12 & 13	14.58	14.58	5.899	2466827 Ontario Ltd.	\$ -	\$ 207.00	\$ 207.00
86	720-05800	2	Pt. Lot 12	18.55	18.55	7.508	Irene Cappelli	\$ -	\$ 302.00	\$ 302.00
100	720-06800	2	Pt. Lots 12 13	171.71	171.71	69.491	Michael & Helen Lavin	\$ 2,064.00	\$ 3,163.00	\$ 5,227.00
103	720-07100	2	Pt. Lot 13	38.89	38.89	15.738	Andrew & Suzan Struhar	\$ 971.00	\$ 670.00	\$ 1,641.00
105	720-07200	2	Pt. Lot 14	33.02	33.02	13.362	Nancy Ford	\$ 1,158.00	\$ 605.00	\$ 1,763.00
106	720-07300	2	Pt. Lot 14	11.77	11.77	4.765	David & Sharon McCarthy	\$ -	\$ 201.00	\$ 201.00
111	720-07700	2	Pt. Lot 15	116.99	5.00	2.023	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 84.00	\$ 84.00

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable): *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
113	730-00400	2	Pt. Gore Lot	44.26	44.26	17.910	Judith & Thomas Affleck	\$ 358.00	\$ 589.00	\$ 947.00
115	730-00600	2	Pt. Lot 11	63.71	51.30	20.761	Mohit Nayar	\$ 286.00	\$ 1,007.00	\$ 1,293.00
116	730-06100	2	Pt. Lot 11	44.79	14.67	5.937	Kornelia Franz	\$ 691.00	\$ 312.00	\$ 1,003.00
117	730-06200	2	Pt. Lot 12	52.97	52.97	21.436	Roy & Cindy Fields	\$ 923.00	\$ 1,099.00	\$ 2,022.00
124	760-02700	3	Pt. Lot 14	49.12	10.00	4.047	Silva Homes Inc.	-	\$ 90.00	\$ 90.00
130	760-03108	3	Pt. Lot 13	47.04	9.00	3.642	Shelley Parks Mueller & Bernard Parks	-	\$ 84.00	\$ 84.00
132	760-03200	3	Pt. Lot 13	51.58	18.00	7.285	Shelley Parks Mueller & Bernard Parks	\$ 270.00	\$ 218.00	\$ 488.00
133	760-03225	3	Pt. Lot 13	0.99	0.99	0.402	Shelley Parks Mueller & Bernard Parks	\$ 48.00	\$ 56.00	\$ 104.00
135	760-03300	3	Pt. Lot 13	47.36	34.36	13.905	3670 Con 3 Harrow Inc.	\$ 694.00	\$ 747.00	\$ 1,441.00
136	760-03302	3	Pt. Lot 13	5.12	5.12	2.073	3670 Con 3 Harrow Inc.	\$ 267.00	\$ 204.00	\$ 471.00
137	760-03400	3	Pt. Lot 12	74.54	15.51	6.277	Iler Farms Incorporated	\$ 744.00	\$ 310.00	\$ 1,054.00
138	770-00100	3	Gore Lot	67.80	10.00	4.047	1924979 Ontario Ltd.	\$ 546.00	\$ 352.00	\$ 898.00
139	770-00200	3	Pt. Lot 11	50.24	50.23	20.328	Gorski Farms Inc.	\$ 1,520.00	\$ 980.00	\$ 2,500.00
141	770-03900	3	Pt. Lot 12	62.87	20.00	8.094	Wilfred O'Neil	\$ 834.00	\$ 419.00	\$ 1,253.00
<b>Total on Privately Owned - Agricultural Lands (grantable)</b>								<b>\$ 15,210.00</b>	<b>\$ 18,752.00</b>	<b>\$ 33,962.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (non-grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
16	690-00900	Gore	Pt. Lot 16	45.95	12.00	4.856	UCG Land Inc.	-	\$ 148.00	\$ 148.00
41	720-02701	2	Pt. Lot 15	16.21	16.21	6.559	Ali Abdulkader	\$ 981.00	\$ 253.00	\$ 1,234.00
107	720-07400	2	Pt. Lot 14	7.91	7.91	3.202	Peter & Bonnie Hayes	-	\$ 144.00	\$ 144.00
108	720-07405	2	Pt. Lot 15	9.32	9.32	3.772	RTZ Consulting Group Inc.	-	\$ 151.00	\$ 151.00
109	720-07500	2	Pt. Lot 15	9.32	9.32	3.772	Richard Kokovai & Jo-Dee Browni	-	\$ 138.00	\$ 138.00
119	760-02300	3	Pt. Lot 15	10.00	5.00	2.023	Judith Salisbury-Creed & William Salisbury	-	\$ 116.00	\$ 116.00
120	760-02400	3	Pt. Lot 15	15.02	5.00	2.023	Merlin & Lorna Warkentin	-	\$ 74.00	\$ 74.00
121	760-02500	3	Pt. Lot 14	25.11	17.00	6.880	Pollnar Holdings	-	\$ 282.00	\$ 282.00
126	760-02800	3	Pt. Lot 14	1.71	1.71	0.690	Matthew & Mandi Stapleton	-	\$ 79.00	\$ 79.00
143	720-04500	2	Pt. Lot 13	0.001	0.001	0.0004	Farmers Gas Co Ltd.	-	\$ 1.00	\$ 1.00
<b>Total on Privately Owned - Agricultural Lands (non-grantable)</b>								<b>\$ 981.00</b>	<b>\$ 1,386.00</b>	<b>\$ 2,367.00</b>
<b>TOTAL ASSESSMENT</b>				<b>1409.91</b>	<b>570.58</b>			<b>\$ 20,000.00</b>	<b>\$ 30,000.00</b>	<b>\$ 50,000.00</b>

1 Hectare = 2.471 Acres

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## **APPENDIX C-2**

### Schedule of Assessment for Future Drainage Structure Maintenance

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**MAINTENANCE SCHEDULE OF ASSESSMENT**  
**Future Drainage Structure Maintenance**

**1. CANADA LANDS:**

Parcel ID Number	Tax Roll Number	Conc. or Plan Number	Lot or Part of Lot	Acre Owned	Acre Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
112	730-00100	2	Pt. Lot 12	32.03	10.00	4.047	Agriculture Canada	- \$	50.00 \$	50.00
118	730-06300	2	Pt. Lot 12	18.73	18.73	7.579	Agriculture Canada	- \$	94.00 \$	94.00
<b>Total on Canada Lands.....</b>								<b>- \$</b>	<b>144.00 \$</b>	<b>144.00</b>

**3. MUNICIPAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acre Owned	Acre Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
			3rd Concession Road		18.14	7.341	Town of Essex	- \$	555.00 \$	555.00
			Ferriss Road		5.97	2.416	Town of Essex	- \$	214.00 \$	214.00
			McCormick Road		6.62	2.679	Town of Essex	- \$	201.00 \$	201.00
			Ridge Road		4.82	1.951	Town of Essex	- \$	146.00 \$	146.00
			McLean Road		0.40	0.162	Town of Essex	- \$	12.00 \$	12.00
			County Road 20		14.54	5.884	County of Essex	- \$	442.00 \$	442.00
<b>Total on Municipal Lands.....</b>								<b>- \$</b>	<b>1,570.00 \$</b>	<b>1,570.00</b>

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acre Owned	Acre Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
3	680-02301	Gore	Pt. Lot 17	0.40	0.40	0.163	Earl & Elaine Richardson	- \$	7.00 \$	7.00
4	680-02400	Gore	Pt. Lot 17	0.42	0.42	0.170	Tonya Vinson	- \$	6.00 \$	6.00
5	680-02500	Gore	Pt. Lot 18	0.44	0.44	0.179	Brian & Mary-Anne Deslippe	- \$	8.00 \$	8.00
6	680-02550	Gore	Pt. Lot 18	1.73	1.73	0.699	Kevin McCandless	- \$	33.00 \$	33.00
8	680-02700	Gore	Pt. Lot 18	0.38	0.38	0.155	Andrea & Vedran Abidinovic	- \$	6.00 \$	6.00
9	680-02800	Gore	Pt. Lot 18	0.55	0.55	0.224	Mark & Julie Affleck	- \$	10.00 \$	10.00
11	680-02901	Gore	Pt. Lot 19	0.53	0.53	0.213	Leonard & Romy Mayea	- \$	12.00 \$	12.00
12	680-02920	Gore	Pt. Lot 19	0.79	0.79	0.319	Matthew Needham	- \$	12.00 \$	12.00
14	680-03001	Gore	Pt. Lot 19	0.72	0.72	0.290	Marc & Patricia Prail	- \$	12.00 \$	12.00
17	690-00950	Gore	Pt. Lot 16	1.84	1.84	0.744	Shawn & Darrelle Mulder	- \$	26.00 \$	26.00
18	690-01000	Gore	Pt. Lot 16	0.54	0.54	0.218	Jayson & Tanya Dupuis	- \$	9.00 \$	9.00
20	690-01150	Gore	Pt. Lot 16	1.40	1.40	0.568	Patricia Laing	- \$	25.00 \$	25.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
21	690-01200	Gore	Pt. Lot 16	0.45	0.45	0.181	Robert McCloskey & Susan Hutchins	\$ -	\$ 7.00	\$ 7.00
22	690-01300	Gore	Pt. Lot 16	0.54	0.54	0.218	Ryan Irving & Brooke White	\$ -	\$ 9.00	\$ 9.00
23	690-01400	Gore	Pt. Lot 16	0.72	0.72	0.290	Allan & Anne Hamill	\$ -	\$ 13.00	\$ 13.00
24	690-01500	Gore	Pt. Lot 16	0.75	0.75	0.303	Paul & Christine Lepain	\$ -	\$ 15.00	\$ 15.00
25	690-01600	Gore	Pt. Lot 16	0.78	0.78	0.316	Barry & Lucy Pretty	\$ -	\$ 15.00	\$ 15.00
26	690-01700	Gore	Pt. Lot 16	0.72	0.72	0.292	Sherry Kane	\$ -	\$ 11.00	\$ 11.00
27	690-01800	Gore	Pt. Lot 17	1.23	1.23	0.499	Beverley Murray	\$ -	\$ 16.00	\$ 16.00
28	690-01900	Gore	Pt. Lot 17	0.33	0.33	0.133	Lukas Riediger & Melissa Green	\$ -	\$ 8.00	\$ 8.00
29	690-02000	Gore	Pt. Lot 17	0.44	0.44	0.177	Monte Pidskalny & Tricia Schmelz	\$ -	\$ 8.00	\$ 8.00
30	690-02100	Gore	Pt. Lot 17	0.55	0.55	0.221	Carolyn Campbell	\$ -	\$ 9.00	\$ 9.00
31	690-02200	Gore	Pt. Lot 17	0.33	0.33	0.133	Jennifer Chadsey	\$ -	\$ 7.00	\$ 7.00
32	690-02300	Gore	Pt. Lot 17	1.81	1.81	0.731	Isaac & Anna Martens	\$ -	\$ 33.00	\$ 33.00
35	690-02510	Gore	Pt. Lot 17	3.33	3.33	1.349	Shane & Krystle Martin	\$ -	\$ 38.00	\$ 38.00
36	690-02550	Gore	Pt. Lot 17	0.90	0.90	0.366	Alma Lepp	\$ -	\$ 9.00	\$ 9.00
37	690-02600	Gore	Pt. Lot 17	0.57	0.57	0.232	David & Elizabeth Salter	\$ -	\$ 9.00	\$ 9.00
38	690-02650	Gore	Pt. Lot 17	0.69	0.69	0.279	Nancy Oakley	\$ -	\$ 14.00	\$ 14.00
39	720-00010	2	Pt. Lots 12 to 14	9.24	9.24	3.739	Essex Region Conservation Authority	\$ -	\$ 127.00	\$ 127.00
40	720-00020	2	Pt. Lots 15 to 19	18.95	1.88	0.761	Essex Region Conservation Authority	\$ -	\$ 28.00	\$ 28.00
42	720-02800	2	Pt. Lot 15	1.62	1.62	0.656	Kristine & Hannah Cojocar	\$ -	\$ 24.00	\$ 24.00
43	720-02900	2	Pt. Lot 15	0.70	0.70	0.283	Joyce Hedges	\$ -	\$ 10.00	\$ 10.00
45	720-03100	2	Pt. Lot 15	0.28	0.28	0.114	Hydro One Networks Inc.	\$ -	\$ 5.00	\$ 5.00
46	720-03200	2	Pt. Lot 15	0.25	0.25	0.100	Leslie & Ashley McFarland	\$ -	\$ 5.00	\$ 5.00
47	720-03280	2	Pt. Lot 15	9.18	9.18	3.714	David & Pamela Robertson	\$ -	\$ 50.00	\$ 50.00
48	720-03290	2	Pt. Lot 15	9.18	9.18	3.716	Nanette Blais	\$ -	\$ 72.00	\$ 72.00
49	720-03300	2	Pt. Lot 15	9.18	9.18	3.715	Richard Kehli	\$ -	\$ 64.00	\$ 64.00
54	720-03505	2	Pt. Lot 14	0.09	0.09	0.037	Enbridge Gas Inc.	\$ -	\$ 3.00	\$ 3.00
57	720-03650	2	Pt. Lot 14	0.52	0.52	0.209	Amicar & Margaret Carreira	\$ -	\$ 11.00	\$ 11.00
58	720-03700	2	Pt. Lot 14	1.50	1.50	0.605	Jerome & Gloria Mcleod	\$ -	\$ 22.00	\$ 22.00
59	720-03800	2	Pt. Lot 14	1.01	1.01	0.409	Sharon Jackson	\$ -	\$ 13.00	\$ 13.00
60	720-03900	2	Pt. Lot 14	1.59	1.59	0.642	Lloyd & Karen Iler	\$ -	\$ 16.00	\$ 16.00
61	720-04000	2	Pt. Lot 14	0.64	0.64	0.259	Justin Irvine	\$ -	\$ 13.00	\$ 13.00
62	720-04100	2	Pt. Lot 14	0.64	0.64	0.259	Lois Charette	\$ -	\$ 12.00	\$ 12.00
64	720-04250	2	Pt. Lot 14	0.54	0.54	0.219	Catherine & Karen Simon	\$ -	\$ 9.00	\$ 9.00
68	720-04700	2	Pt. Lot 13	0.44	0.44	0.179	Jordan Vlodarchyk	\$ -	\$ 7.00	\$ 7.00
69	720-04750	2	Pt. Lot 13	1.04	1.04	0.419	St. Francis Advocates	\$ -	\$ 16.00	\$ 16.00
70	720-04800	2	Pt. Lot 13	0.05	0.05	0.022	Enbridge Gas Inc.	\$ -	\$ 2.00	\$ 2.00
71	720-04900	2	Pt. Lot 13	0.73	0.73	0.295	Nancy French	\$ -	\$ 12.00	\$ 12.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
72	720-04901	2	Pt. Lot 13	0.60	0.60	0.244	Manuel & Victoria Mendes	\$ -	\$ 10.00	\$ 10.00
73	720-05000	2	Pt. Lot 13	0.60	0.60	0.244	Virginia Schaafsma Cooke & Sanda Cooke	\$ -	\$ 10.00	\$ 10.00
75	720-05200	2	Pt. Lot 13	0.61	0.61	0.249	Irene Cappelli	\$ -	\$ 10.00	\$ 10.00
76	720-05300	2	Pt. Lot 13	0.92	0.92	0.371	Barrie & Deborah Brimmer	\$ -	\$ 16.00	\$ 16.00
77	720-05400	2	Pt. Lot 13	0.46	0.46	0.186	Dolores Duncan	\$ -	\$ 9.00	\$ 9.00
78	720-05401	2	Pt. Lot 13	0.99	0.99	0.402	Ronald & Lisa Suzor	\$ -	\$ 18.00	\$ 18.00
80	720-05500	2	Lot 12	0.67	0.67	0.272	Jasmin, Jean-Paul & Tania St. Pierre, Colton Williams	\$ -	\$ 7.00	\$ 7.00
81	720-05502	2	Lot 12	0.48	0.48	0.194	Sherrylyn Blanchard-Childs & Robert Blanchard	\$ -	\$ 7.00	\$ 7.00
82	720-05509	2	Pt. Lot 12	0.69	0.69	0.278	Richard Melton & Linda Liberato	\$ -	\$ 11.00	\$ 11.00
83	720-05600	2	Pt. Lot 12	0.29	0.29	0.119	Barbara Cookson	\$ -	\$ 6.00	\$ 6.00
84	720-05700	2	Pt. Lot 12	0.46	0.46	0.186	Gary & Diana Wright	\$ -	\$ 11.00	\$ 11.00
85	720-05701	2	Pt. Lot 12	0.44	0.44	0.177	759765 Ontario Limited	\$ -	\$ 13.00	\$ 13.00
87	720-05900	2	Pt. Lot 12	0.26	0.26	0.107	Brett Allen & Kaylee Marontate	\$ -	\$ 5.00	\$ 5.00
88	720-06000	2	Pt. Lot 12	0.39	0.39	0.159	John Walsh	\$ -	\$ 12.00	\$ 12.00
89	720-06100	2	Pt. Lot 12	0.22	0.22	0.091	Garland Davis	\$ -	\$ 5.00	\$ 5.00
90	720-06200	2	Pt. Lot 12	1.26	1.26	0.511	Classy Caps MFG. Inc.	\$ -	\$ 40.00	\$ 40.00
91	720-06300	2	Pt. Lot 12	0.24	0.24	0.097	Jeffrey & Sharon Mertz	\$ -	\$ 4.00	\$ 4.00
92	720-06400	2	Pt. Lot 12	0.52	0.52	0.209	Richard Gyorgy & Kelly Mertz	\$ -	\$ 9.00	\$ 9.00
93	720-06500	2	Pt. Lot 12	1.22	1.22	0.494	William & Margaret Ayres	\$ -	\$ 15.00	\$ 15.00
94	720-06501	2	Pt. Lot 12	0.72	0.72	0.292	Vincenzo & Antonina Esposito	\$ -	\$ 14.00	\$ 14.00
95	720-06600	2	Pt. Lot 12	2.12	2.12	0.857	1522148 Ontario Inc.	\$ -	\$ 52.00	\$ 52.00
96	720-06601	2	Pt. Lot 12	0.45	0.45	0.183	Zachary & Madeleine Klein	\$ -	\$ 7.00	\$ 7.00
97	720-06602	2	Pt. Lot 12	1.76	1.76	0.712	2801690 Ontario Inc.	\$ -	\$ 67.00	\$ 67.00
98	720-06700	2	Pt. Lot 12	3.13	3.13	1.266	Colchester South Township	\$ -	\$ 93.00	\$ 93.00
99	720-06709	2	Pt. Lot 12	1.76	1.76	0.712	Edward & Virginia Krizan	\$ -	\$ 22.00	\$ 22.00
101	720-06900	2	Pt. Lot 13	4.14	4.14	1.677	John & Denise Walsh	\$ -	\$ 56.00	\$ 56.00
102	720-07000	2	Pt. Lot 13	2.47	2.47	1.001	Patricia & Paul Struhaar	\$ -	\$ 26.00	\$ 26.00
104	720-07105	2	Pt. Lot 14	1.65	1.65	0.669	Miroslav & Sara Mihek	\$ -	\$ 27.00	\$ 27.00
110	720-07600	2	Pt. Lot 15	5.00	5.00	2.023	Paul & Yvonne Gratton	\$ -	\$ 32.00	\$ 32.00
114	730-00470	2	Pt. Gore Lot	2.00	2.00	0.809	Thomas & Edward Affleck	\$ -	\$ 18.00	\$ 18.00
122	760-02600	3	Pt. Lot 14	24.69	16.70	6.758	Paul & Cassandra Giroux	\$ -	\$ 75.00	\$ 75.00
123	760-02601	3	Pt. Lot 14	0.51	0.51	0.205	Cody Roath & Rian Desbiens	\$ -	\$ 11.00	\$ 11.00
125	760-02702	3	Pt. Lot 14	1.04	1.04	0.422	Austin & Erika Ferriss	\$ -	\$ 19.00	\$ 19.00
127	760-02900	3	Pt. Lot 14	1.54	1.54	0.625	Thomas Brew	\$ -	\$ 22.00	\$ 22.00
128	760-03000	3	Pt. Lot 14	0.56	0.56	0.229	Wayne & Carol Bedal	\$ -	\$ 13.00	\$ 13.00
129	760-03050	3	Pt. Lot 13	0.72	0.72	0.290	Brian Scott	\$ -	\$ 13.00	\$ 13.00
131	760-03150	3	Pt. Lot 13	0.55	0.55	0.223	Brenda Ross	\$ -	\$ 9.00	\$ 9.00

**4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
134	760-03250	3	Pt. Lot 13	0.46	0.46	0.186	Shelley Parks Mueller & Bernard Parks	\$ -	\$ 8.00	\$ 8.00
140	770-00250	3	Pt. Lot 11	1.69	1.69	0.684	Steven Johnson & Keegan O'Neil	\$ -	\$ 24.00	\$ 24.00
142	730-00010	2	Pt. Lots 10, 11, Gore Lot, and 12	11.35	0.93	0.376	Essex Region Conservation Authority	\$ -	\$ 13.00	\$ 13.00
<b>Total on Privately Owned - Non-Agricultural Lands.....</b>								<b>\$ -</b>	<b>\$ 1,747.00</b>	<b>\$ 1,747.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
1	680-02200	Gore	Pt. Lot 17	21.85	10.20	4.128	Emily Stajfer, Helen Klomp, Veronica Boleratz & Ann Denzinger	\$ -	\$ 55.00	\$ 55.00
2	680-02300	Gore	Pt. Lot 17	29.06	29.06	11.759	George & Albert Gondosch	\$ -	\$ 160.00	\$ 160.00
7	680-02600	Gore	Pt. Lot 18	70.87	36.96	14.958	Cedar Branches Farms Inc.	\$ -	\$ 188.00	\$ 188.00
10	680-02900	Gore	Pt. Lot 19	48.45	15.00	6.070	2277151 Ontario Inc.	\$ -	\$ 126.00	\$ 126.00
13	680-03000	Gore	Pt. Lot 19	48.60	9.00	3.642	Mark Bacon	\$ -	\$ 66.00	\$ 66.00
15	680-03100	Gore	Pt. Lot 19	18.92	3.00	1.214	Dennis & Lari Sabbe	\$ -	\$ 36.00	\$ 36.00
19	690-01100	Gore	Pt. Lot 16	27.04	27.04	10.945	Hilary Laing	\$ -	\$ 154.00	\$ 154.00
33	690-02400	Gore	Pt. Lot 16 & 17	112.59	112.59	45.565	Neal & Tracy Huber	\$ -	\$ 583.00	\$ 583.00
34	690-02500	Gore	Pt. Lot 17	35.29	13.55	5.484	1808236 Ontario Limited	\$ -	\$ 57.00	\$ 57.00
44	720-03000	2	Pt. Lot 15	7.97	7.97	3.226	Justin Drouillard, Deana Borri & Julianna Segatto	\$ -	\$ 61.00	\$ 61.00
50	720-03400	2	Pt. Lot 15	16.81	16.81	6.802	Anna Momcilovic	\$ -	\$ 83.00	\$ 83.00
51	720-03401	2	Pt. Lot 15	10.00	10.00	4.046	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 50.00	\$ 50.00
52	720-03500	2	Pt. Lot 14	8.98	8.98	3.635	Douglas & Josie Holland	\$ -	\$ 63.00	\$ 63.00
53	720-03504	2	Pt. Lot 14	48.28	48.28	19.538	Karl & Sandy Neudorf	\$ -	\$ 239.00	\$ 239.00
55	720-03600	2	Pt. Lot 14	16.95	16.95	6.858	Antonio & Sylvina Marcelino	\$ -	\$ 103.00	\$ 103.00
56	720-03601	2	Pt. Lot 14	9.59	9.59	3.883	Hudson Plante & Elizabeth McGregor	\$ -	\$ 97.00	\$ 97.00
63	720-04200	2	Pt. Lot 14	33.19	33.19	13.430	Catherine & Karen Simon	\$ -	\$ 179.00	\$ 179.00
65	720-04300	2	Pt. Lot 14	32.02	32.02	12.957	Eugene Berecz	\$ -	\$ 182.00	\$ 182.00
66	720-04400	2	Pt. Lot 13	14.99	14.99	6.067	Pereira's Construction Inc.	\$ -	\$ 88.00	\$ 88.00
67	720-04600	2	Pt. Lot 13	13.43	13.43	5.435	2206711 Ontario Ltd.	\$ -	\$ 94.00	\$ 94.00
74	720-05100	2	Pt. Lot 13	13.29	13.29	5.379	2466827 Ontario Ltd.	\$ -	\$ 99.00	\$ 99.00
79	720-05403	2	Pt. Lot 12 & 13	14.58	14.58	5.899	2466827 Ontario Ltd.	\$ -	\$ 71.00	\$ 71.00
86	720-05800	2	Pt. Lot 12	18.55	18.55	7.508	Irene Cappelli	\$ -	\$ 103.00	\$ 103.00
100	720-06800	2	Pt. Lots 12 13	171.71	171.71	69.491	Michael & Helen Lavin	\$ -	\$ 887.00	\$ 887.00
103	720-07100	2	Pt. Lot 13	38.89	38.89	15.738	Andrew & Suzan Struhar	\$ -	\$ 208.00	\$ 208.00
105	720-07200	2	Pt. Lot 14	33.02	33.02	13.362	Nancy Ford	\$ -	\$ 203.00	\$ 203.00
106	720-07300	2	Pt. Lot 14	11.77	11.77	4.765	David & Sharon McCarthy	\$ -	\$ 72.00	\$ 72.00
111	720-07700	2	Pt. Lot 15	116.99	5.00	2.023	Donald Rempel & Sherri Wallace-Rempel	\$ -	\$ 32.00	\$ 32.00

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable): Continued**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
113	730-00400	2	Pt. Gore Lot	44.26	44.26	17.910	Judith & Thomas Affleck	\$ -	\$ 146.00	\$ 146.00
115	730-00600	2	Pt. Lot 11	63.71	51.30	20.761	Mohit Nayyar	\$ -	\$ 243.00	\$ 243.00
116	730-06100	2	Pt. Lot 11	44.79	14.67	5.937	Kornelia Franz	\$ -	\$ 74.00	\$ 74.00
117	730-06200	2	Pt. Lot 12	52.97	52.97	21.436	Roy & Cindy Fields	\$ -	\$ 283.00	\$ 283.00
124	760-02700	3	Pt. Lot 14	49.12	10.00	4.047	Silva Homes Inc.	\$ -	\$ 32.00	\$ 32.00
130	760-03108	3	Pt. Lot 13	47.04	9.00	3.642	Shelley Parks Mueller & Bernard Parks	\$ -	\$ 25.00	\$ 25.00
132	760-03200	3	Pt. Lot 13	51.58	18.00	7.285	Shelley Parks Mueller & Bernard Parks	\$ -	\$ 65.00	\$ 65.00
133	760-03225	3	Pt. Lot 13	0.99	0.99	0.402	Shelley Parks Mueller & Bernard Parks	\$ -	\$ 16.00	\$ 16.00
135	760-03300	3	Pt. Lot 13	47.36	34.36	13.905	3670 Con 3 Harrow Inc.	\$ -	\$ 213.00	\$ 213.00
136	760-03302	3	Pt. Lot 13	5.12	5.12	2.073	3670 Con 3 Harrow Inc.	\$ -	\$ 58.00	\$ 58.00
137	760-03400	3	Pt. Lot 12	74.54	15.51	6.277	Iler Farms Incorporated	\$ -	\$ 84.00	\$ 84.00
138	770-00100	3	Gore Lot	67.80	10.00	4.047	1924979 Ontario Ltd.	\$ -	\$ 87.00	\$ 87.00
139	770-00200	3	Pt. Lot 11	50.24	50.23	20.328	Gorski Farms Inc.	\$ -	\$ 238.00	\$ 238.00
141	770-03900	3	Pt. Lot 12	62.87	20.00	8.094	Wilfred O'Neil	\$ -	\$ 110.00	\$ 110.00
<b>Total on Privately Owned - Agricultural Lands (grantable)</b>								<b>\$ -</b>	<b>\$ 6,013.00</b>	<b>\$ 6,013.00</b>

**5. PRIVATELY OWNED - AGRICULTURAL LANDS (non-grantable):**

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
16	690-00900	Gore	Pt. Lot 16	45.95	12.00	4.856	UCG Land Inc.	\$ -	\$ 63.00	\$ 63.00
41	720-02701	2	Pt. Lot 15	16.21	16.21	6.559	Ali Abdulkader	\$ -	\$ 103.00	\$ 103.00
107	720-07400	2	Pt. Lot 14	7.91	7.91	3.202	Peter & Bonnie Hayes	\$ -	\$ 52.00	\$ 52.00
108	720-07405	2	Pt. Lot 15	9.32	9.32	3.772	RTZ Consulting Group Inc.	\$ -	\$ 57.00	\$ 57.00
109	720-07500	2	Pt. Lot 15	9.32	9.32	3.772	Richard Kokovai & Jo-Dee Browni	\$ -	\$ 52.00	\$ 52.00
119	760-02300	3	Pt. Lot 15	10.00	5.00	2.023	Judith Salisbury-Creed & William Salisbury	\$ -	\$ 42.00	\$ 42.00
120	760-02400	3	Pt. Lot 15	15.02	5.00	2.023	Merlin & Lorna Warkentin	\$ -	\$ 27.00	\$ 27.00
121	760-02500	3	Pt. Lot 14	25.11	17.00	6.880	Pollmar Holdings	\$ -	\$ 101.00	\$ 101.00
126	760-02800	3	Pt. Lot 14	1.71	1.71	0.690	Matthew & Mandi Stapleton	\$ -	\$ 28.00	\$ 28.00
143	720-04500	2	Pt. Lot 13	0.001	0.001	0.0004	Farmers Gas Co Ltd.	\$ -	\$ 1.00	\$ 1.00
<b>Total on Privately Owned - Agricultural Lands (non-grantable)</b>								<b>\$ -</b>	<b>\$ 526.00</b>	<b>\$ 526.00</b>
<b>TOTAL ASSESSMENT</b>								<b>\$ -</b>	<b>\$ 10,000.00</b>	<b>\$ 10,000.00</b>

1 Hectare = 2.471 Acres

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