

**THE CORPORATION OF THE CITY OF WINDSOR
POLICY**

Service Area:	Economic Development & Innovation	Policy No.:	
Department:	Information Technology	Approval Date:	
Division:	Technology Infrastructure	Approved By:	
		Effective Date:	
Subject:	Cellular Devices Policy	Procedure Ref.:	
Review Date:		<i>Pages:</i>	Replaces: CR554/2017
Prepared By:	Andrew Drouillard		Date: September 18, 2017

1. POLICY

- 1.1. This policy outlines the authorization and administration of cellular devices.
- 1.2. This policy outlines the requirements regarding acceptable usage of mobile services.

2. PURPOSE

- 2.1. This policy provides a uniform approach to determining which positions are issued cellular devices and which type of cellular device is most appropriate for the role.
- 2.2. This policy defines the approval authority for the purchasing and issuing of cellular devices.
- 2.3. This policy outlines the responsibilities of cellular device stakeholders.
- 2.4. This policy implements controls governing the administration of cellular devices.

3. SCOPE

- 3.1. This policy applies to all cellular devices (as defined in section 5.1) associated with a rate plan under the City’s corporate mobile services provider account(s).
- 3.2. This policy applies to all to members of City Council and employees of the City of Windsor, and its agencies, boards, and commissions, which have been issued a cellular device.
- 3.3. This policy focuses on the unique aspects of administering and governing the use of cellular devices and associated mobile services.
- 3.4. This policy outlines rules and regulations governing the acceptable use of mobile services, while the acceptable use of cellular devices, as a type of corporate hardware, is outlined in the Acceptable Use Policy, Respectful Workplace Policy, and Code of Conduct for Members of Council and Local Boards.

4. RESPONSIBILITY

4.1. City Council

- 4.1.1. Approve the purchase and issuance of cellular devices to City Council members, as part of their standard equipment.

4.2. Mayor

- 4.2.1. Approve the purchase and issuance of cellular devices to the Chief Administrative Officer (CAO).

4.3. Chief Administrative Officer

- 4.3.1. Approve the purchase and issuance of cellular devices to the Corporate Leadership Team (CLT).

4.4. Corporate Leadership Team

- 4.4.1. Approve the purchase and issuance of cellular devices to Executive Directors (ED).

4.5. Executive Directors

- 4.5.1. Ensure this policy is adhered to within their department.
- 4.5.2. Set guidelines for acceptable models of cellular devices for purchase and issuance within their department.
- 4.5.3. Ensure the purchase and issuance of cellular devices conforms to the Purchasing By-law and that budget funds are available for associated ongoing expenses.
- 4.5.4. Appoint an employee to act as a cellular device coordinator (CDC) for their department.

4.6. Chief Information Officer

- 4.6.1. Ensure the Corporation's use and management of cellular devices remains up to date with advances in technology and usage needs.
- 4.6.2. Coordinate contracts for the provision of cellular devices and mobile services.

4.7. Managers

- 4.7.1. Identify the type of device to be purchased and issued for a position or business process, in accordance with the Needs Assessment attached as Appendix A.
- 4.7.2. Approve the purchase of cellular devices for their employees within the guidelines for acceptable devices, as set by the department's ED.
- 4.7.3. Ensure cellular device users reporting to them reimburse the City for any additional charges incurred due to personal use.

4.8. Manager, End User Support

- 4.8.1. Review and update this policy at least once every 5 years.
- 4.8.2. Coordinate the purchase and issuance of cellular modems, tablets, and unique devices for the Corporation.
- 4.8.3. Ensure a password/device lockout is set on all cellular devices that have data network access to protect any corporate data that may be present on the device.
- 4.8.4. Monitor corporate data pools for potential data leaks or abuse and to ensure rate plans are meeting current usage needs.
- 4.8.5. Ensure adequate set-up, training, and support services are provided.

4.9. Cellular Device Coordinators

- 4.9.1. Obtain Manager approval for the purchase and issuance of cellular devices for employees in their area.
- 4.9.2. Coordinate the purchasing, upgrading, reassigning, and replacing of pagers, cell phones, and smartphones for their departments, as per the Cellular Devices Procedure.
- 4.9.3. Ensure purchased devices are provided to the Help Desk for set-up.
- 4.9.4. Coordinate mobile services subscriptions for pagers, cell phones, and smartphones, as per the Cellular Devices Procedure.
- 4.9.5. Ensure mobile device users are aware of this policy and their responsibilities under it, upon issuance of a cellular device.
- 4.9.6. Manage billing issues.
- 4.9.7. Maintain an accurate inventory of cellular device users and cost centre account information for their departments.

4.10. Phone Editors

- 4.10.1. Maintain the listing of phone numbers in the Intranet Phone Directory, for their department.

4.11. Cellular Device Users

- 4.11.1. Adhere to this policy and all other corporate policies pertaining to the use of cellular devices.
- 4.11.2. Notify the Information Technology (IT) department immediately if a device is lost, damaged or stolen, by contacting the Help Desk.
- 4.11.3. Reimburse the City for any additional charges incurred due to personal use.
- 4.11.4. Monitor personal data usage to help prevent data leaks and overage charges.

5. GOVERNING RULES AND REGULATIONS

5.1. Definitions

- 5.1.1. **Cellular device** refers to a wireless telecommunications device with an associated rate plan charged by a telecommunications provider, including cellular modems, cell phones, pagers, smartphones, tablets, and other unique devices.
- 5.1.2. **Cellular Device Coordinator** refers to the employee appointed by an ED to administer the purchase and issuance of cellular devices within a department.
- 5.1.3. **Cellular modem** refers to a device that plugs into the USB port of a laptop or tablet, providing cellular data network access.
- 5.1.4. **Cell phone** refers to a mobile phone that has voice communication and texting capabilities but does not have data usage capabilities.
- 5.1.5. **Mobile services** refer to communication services included in rate plans, such as airtime minutes, mobile data, texting, etc.
- 5.1.6. **Pager** refers to a mobile device that can only receive text messages.
- 5.1.7. **Phone editor** refers to the employee responsible for maintaining phone numbers in the Intranet Phone Directory, in a department.

- 5.1.8. **Purchase and issuance** is inclusive of cases, chargers, rate plans and additional features associated with a cellular device.
- 5.1.9. **Smartphone** refers to a device with voice communication, texting, emailing and data network access.
- 5.1.10. **Tablet** refers to a tablet with built-in SIM card functionality to access the cellular data network without requiring a cellular modem.
- 5.1.11. **Unique device** refers to a device that falls outside of the usual complement of issued models due to specific needs related to its intended use, such as rugged design for use on construction sites.
- 5.2. Cellular Device Needs
 - 5.2.1. The issuance of cellular devices and associated mobile services must be based on the business needs of a position and the type of communication required, as outlined in the Needs Assessment, attached as Appendix A.
 - 5.2.2. The procurement of any unique device that has an associated cellular contract must be coordinated with the Manager, End User Support.
- 5.3. Acceptable Use of Mobile Services
 - 5.3.1. Cellular device users should be aware of how their usage affects billing and the corporation's shared data pools and should employ the following practices to mitigate additional charges:
 - 5.3.1.1. Connecting to the corporate Wi-Fi while at work and other trusted networks, whenever possible.
 - 5.3.1.2. Avoiding the downloading of large apps, updates, or files when not connected to Wi-Fi.
 - 5.3.1.3. Turning off data roaming when travelling, unless necessary.
 - 5.3.1.4. Setting up an alert that notifies the user when they have used 3GB of data within the billing period.
 - 5.3.1.5. Reviewing their data usage at the end of each billing cycle to monitor for any unusual usage patterns that might be an indicator of data leakage.
 - 5.3.2. Any abuse of cellular devices, or this policy, will result in privileges being revoked and may result in further discipline, determined by the nature of the abuse.

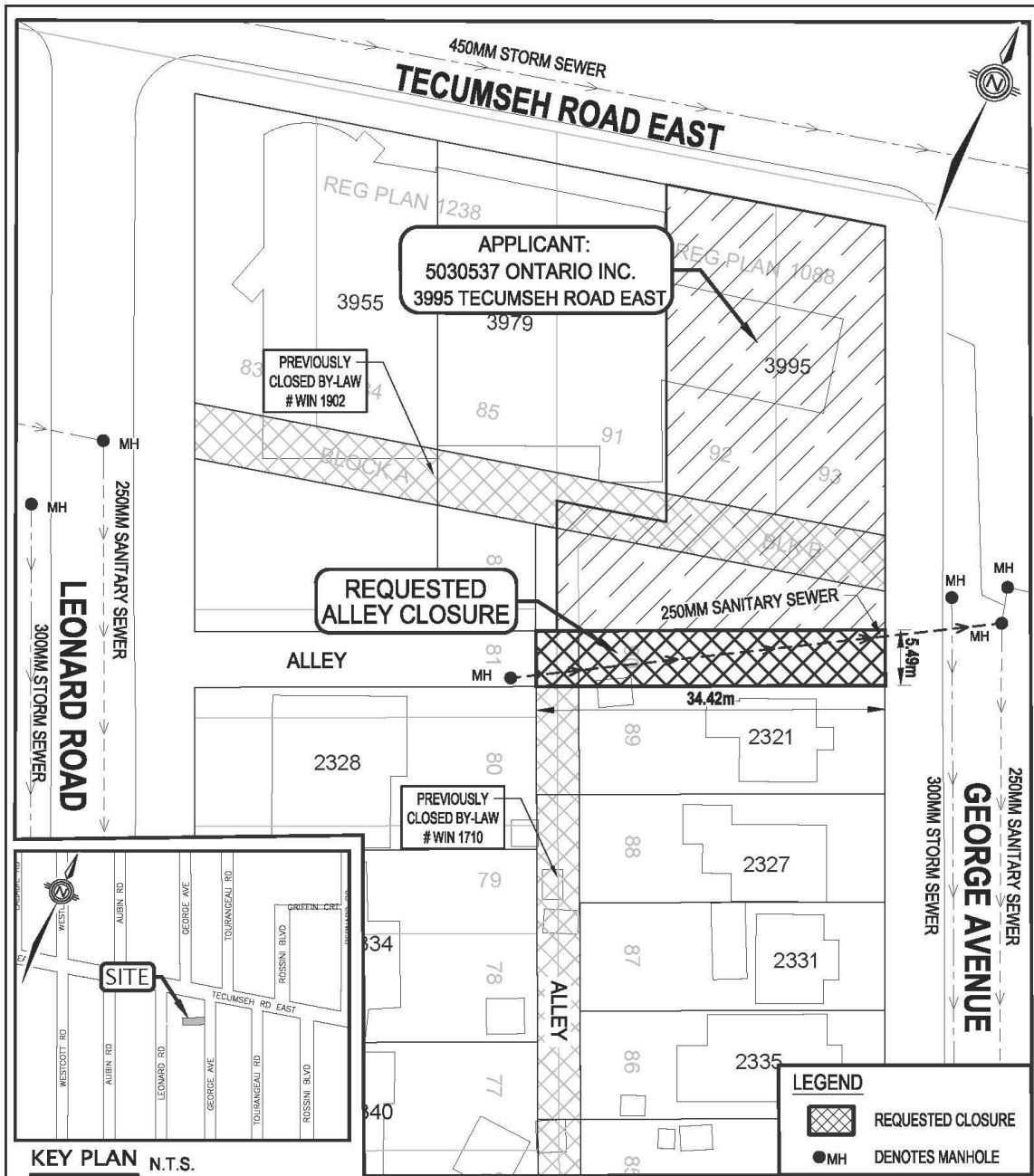
6. RECORDS, FORMS AND ATTACHMENTS

- 6.1. Records and forms pertaining to this policy will be managed in accordance with the City of Windsor records management practices.
- 6.2. Attachments:
 - 6.2.1. Appendix A – Needs Assessment.
- 6.3. Referenced documents:
 - 6.3.1. Acceptable Use Policy – CR554/2017
 - 6.3.2. Respectful Workplace Policy – CR192/2019
 - 6.3.3. Code of Conduct for Members of Council – CR180/2011
 - 6.3.4. Purchasing By-law 93-2012
 - 6.3.5. Cellular Devices Procedure.

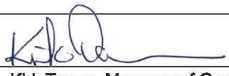
APPENDIX A – NEEDS ASSESSMENT

Business Conditions To be Considered	Pager	Cell Phone	Smartphone	Cellular Modem, Tablet, or Unique Device
1. Required to be on call or on other business and needs to be alerted	✓			
2. Working at multiple offices, required to be on call, on emergency response, or on other business that requires immediate access at all times		✓		
3. Working in situations in which isolation from other municipal staff and potentially personal safety may be threatened		✓		
4. Spending a considerable amount of time (20 – 40% as a broad guideline) away from work area and job function requiring immediate contact via telephone		✓		
5. Spending a considerable amount of time (20 – 40% as a broad guideline) away from work area and job function requiring immediate contact via electronic mail			✓	
6. Spending a considerable amount of time (20 – 40% as a broad guideline) away from work area and job function requiring immediate contact via both telephone and electronic mail			✓	
7. Mobile worker that requires specialized software, or an application that is not feasible to use with a Smartphone				✓

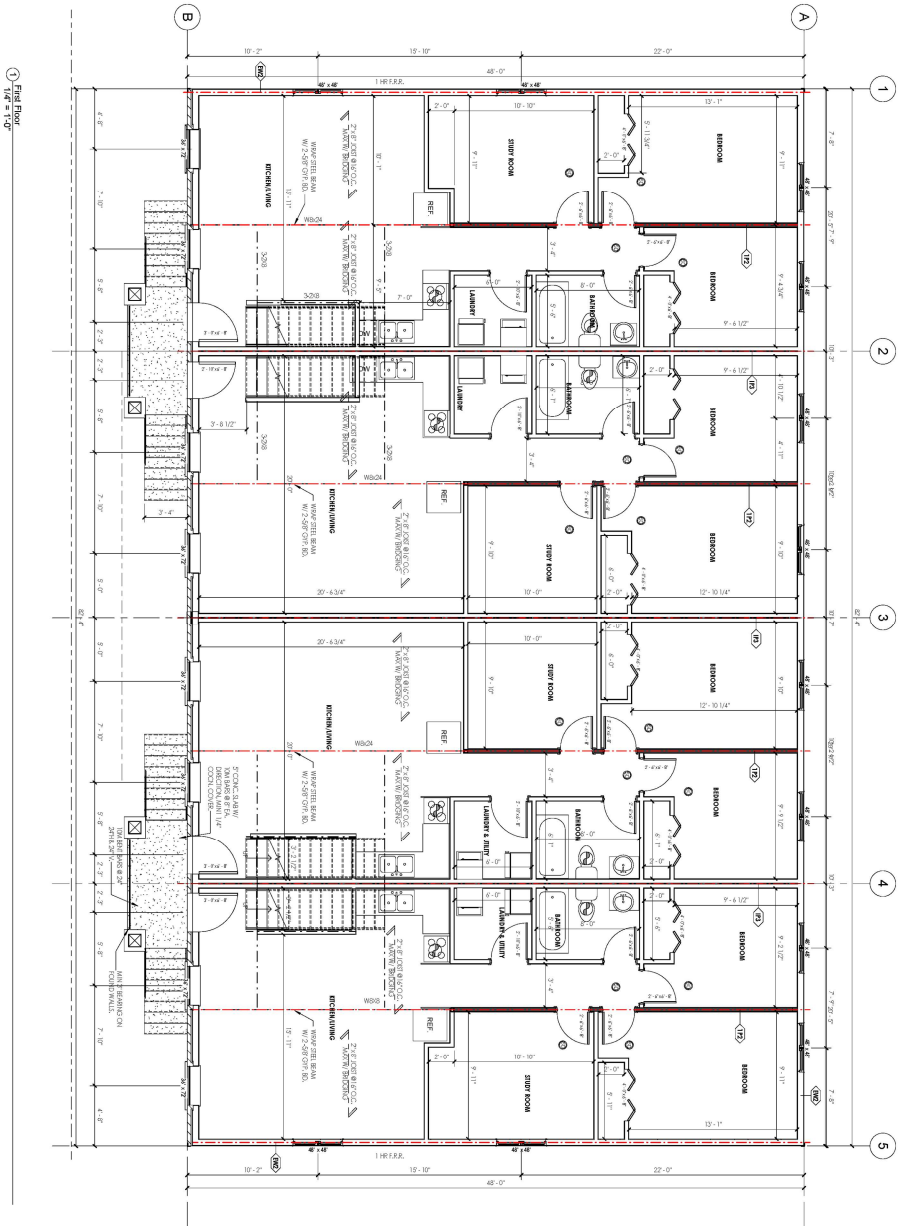
APPENDIX "A"
Drawing No. CC-1841




THE CORPORATION OF THE CITY OF WINDSOR - ENGINEERING DEPARTMENT
Proposed East/West Partial Alley Closure between George Avenue & Leonard Road;
South of Tecumseh Road East

 Kirk Tamm, Manager of Geomatics	SCALE: 1:500	DATE: NOV 2023	REVISED: —	DWG. NO. CC-1841
	DWN BY: UT	CHKD BY: PJU / MM	REVISION NO.: —	

Appendix 'B' - Proposed Development



1 First Floor Plan
1/8" = 1'-0"



www.oaa.ca
www.oaaarchitect.ca

Ontario Association of Architects
100 King Street West, Suite 1000
Toronto, Ontario M5X 1C4
Tel: 416-967-8888
Fax: 416-967-8889

No.	Description	Date
1	Revision	2024-08-28

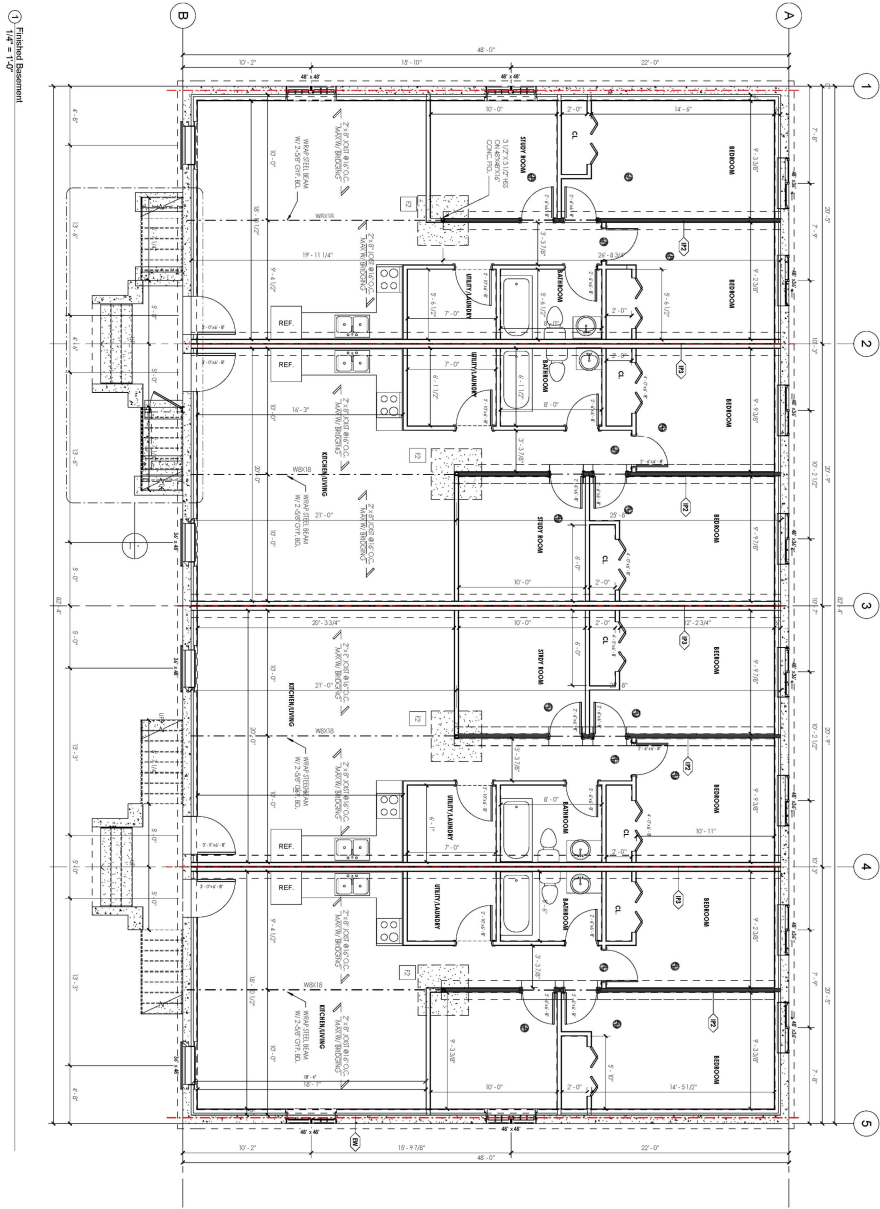
Project number: 2286
Date: August 2022
Drawn by: V.P.
Checked by: M.B.

A2

1/8" = 1'-0"

8 UNIT DEVELOPMENT
527 Marquette
Windsor ON
First Floor Plan

Appendix 'B' - Proposed Development



1 Finished Basement
1/4" = 1'-0"



Major Building Architects
www.majorbldg.ca

Major Building Architects
1000-1010-1010-1010
1010-1010-1010-1010
1010-1010-1010-1010
1010-1010-1010-1010



No.	Description	Date
1	Revised for 2025	2025.10.07
2		
3		
4		
5		
6		
7		
8		
9		
10		

8 UNIT DEVELOPMENT
527 Marquette
Windsor ON

Finished Basement

Project Number: 2205
Drawn by: August V.A.
Checked by: M.B.
Scale: 1/4" = 1'-0"

APPENDIX "A"

LANDS PROPOSED TO BE EXPROPRIATED

<p>Municipal Address & Interested Parties</p>	<p>Land to be Expropriated</p>	<p>Type of Acquisition</p>
<p>0 County Road 42</p> <ol style="list-style-type: none"> 1. Mabel Theresa St. Louis; 2. Patricia Rosemary St. Louis; 3. The Estate of Mary Agnes St. Louis; 4. The Estate of Peter Frederick St. Louis; 5. The Francis J. St. Louis Family Trust; 6. Karen St. Louis; 7. Mark St. Louis 8. Nancy St. Louis 9. Linda Harrison 10. Invenergy Renewables Canada Development ULC 	<p>A 14.361 acre parcel along the southern boundary of Part of Lot 124 (McNiff), Concession 3, Sandwich East, formerly Lot 123 (Iradell), Concession 3, designated as Part 1 on Plan 12R29558 on Plan 12R-, being Part of PIN 01408-1239 (R)</p>	<p>Partial Taking Fee Simple</p>

CR64/2024 - Item 11.4 - Drainage Report

SPRUCEWOOD AVENUE DRAIN

Truck Terminal & Replacement Bridges

Geographic Township of Sandwich South

CITY OF WINDSOR



The City of Windsor
350 City Hall Square West
Windsor, Ontario N9A 6S1
519-255-2489

Rood Engineering Inc.
Consulting Engineers
9 Nelson Street
Leamington, Ontario N8H 1G6
519-322-1621

Project REI2023D011
2023-12-12

December 12th, 2023

Mayor and Municipal Council
The City of Windsor
350 City Hall Square West
Windsor, Ontario
N9A 6S1

Mayor Dilkens and Members of Council:

**SPRUCEWOOD AVE. DRAIN
Truck Terminal Bridge Parcel 850-01624
And Replacement of Upstream Bridge Parcel 850-01627
Geographic Twp. of Sandwich West
Project REI2023D011
City of Windsor, County of Essex**

I. INTRODUCTION

In accordance with the instructions provided by your Chief Administrative Officer Joe Mancina on August 1st, 2023 and received from the City by email dated August 2nd, 2023, from Anna Ciacelli your Deputy City Clerk, we have prepared the following report that provides for a new bridge installation and a replacement bridge along the Maplewood Drive portion of the drain together with ancillary work. The Sprucewood Ave. Drain comprises of an open drain generally located along Sprucewood Avenue, Maplewood Drive and Ironwood Drive and flows northwest along the southerly side of Ironwood Drive, southwest along the easterly side of Maplewood Drive, and then northwesterly along the northerly side of Sprucewood Avenue, outletting into the Detroit River, in the geographic township of Sandwich West, City of Windsor. A plan showing the Sprucewood Ave. Drain, as well as the general location of the bridges along the drain, is included herein as part of the report.

Our appointment and the works relative to the new bridge and replacement bridge installation along the Sprucewood Ave. Drain, proposed under this report, is in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2021". We have performed all of the necessary survey, investigations, etcetera, for the proposed construction of the bridges and work to the drain, and we report thereon as follows.

II. BACKGROUND

From our review of the information provided from the City's drainage files we have established the following reports that we utilized as reference for carrying out this project:

- | | | | |
|----|-----------------|--|-----------------|
| 1) | June 21st, 1976 | By-Law Number 5463 for City
assessment arising out of
construction of the Sprucewood | City of Windsor |
|----|-----------------|--|-----------------|

	Avenue Drain outlet by Sandwich West	
2)	May 11th, 1976	By-Law Number 3594 for adoption of LaFontaine, Cowie, Buratto & Associates Limited, Consulting Engineers report and assessment schedule for Sprucewood Avenue Drain Township of Sandwich West
3)	September 14th, 2021	Sprucewood Avenue Drain - relocation of entranceway at 200 Sprucewood Avenue Meritech Engineering, Brian Enter, P.Eng.
4)	June 12th, 2023	Stormwater Runoff Management 5515 Maplewood Drive – includes analysis of Sprucewood Avenue Drain and Dillon Consulting Engineers 1990 As-built Drawing Maplewood Drive Meo & Associates Inc., Raffaele Meo, P.Eng.

The 1990 report by Dillon Consulting Engineers provided for general repairs and improvements to the Maplewood Drive portion of the drain and has the latest profile for the grading of the drain.

We arranged with the City to provide us with the updated assessment roll information for the affected parcels. We also reviewed reports for the drain and spoke to the on-site meeting attendees to help in establishing the current watershed limit for the Sprucewood Ave. Drain.

III. PRELIMINARY EXAMINATION AND ON-SITE MEETING

After reviewing all of the drainage information provided by the City, we arranged with the City Drainage Superintendent Tom Graziano, P.Eng., to schedule an on-site meeting for September 18th, 2023 at the Maplewood Drive site next to MN 5565. The following people were in attendance at said meeting: Nadim Mrad (Site Engineer), Jaswinder Gill, Rami Abusafeyeli, Tom Graziano (City Drainage Superintendent), Akila Chinthagumpala (Rood Engineering), and Gerard Rood (Rood Engineering).

Details of the drain work were discussed, and the primary focus is installation of a new access bridge to serve the proposed truck terminal at Parcel 080-850-01624 and a replacement of the bridge to the north for Parcel 080-850-01627. The new bridge location was confirmed and the north property line limit survey IB viewed. The City will require precast concrete block headwalls and daylighting is to be provided at the road entrance to the bridge. Mr. Graziano advised that the pipe will need to be concrete or P.V.C. pipe per the City standards. The cost of the installation of a new bridge is borne 100% by the owners of the parcels that require the access and future maintenance cost to any bridge is also borne by the served parcel in accordance with the 2015 Council Resolution regarding bridges and Special Benefit assessments for municipal drains. There are no grants available for the works. It was discussed that the bridges along the drain upstream and downstream would be surveyed to confirm the drain profile. Once the bridge design requirement is confirmed, a final report is then prepared and submitted to Council and goes

through the Drainage Act process of a Consideration meeting and Court of Revision meeting. Replacement of the bridge to the north of the proposed new bridge was discussed along with possible enclosure of the drain between the two bridges. Mr. Graziano advised that City Planning approval would be required for an enclosure. Subsequent to the meeting the replacement of this second bridge was confirmed by Mr. Mrad and it is to match the existing bridge for access to the parcel and no enclosure between the two bridges is to be provided. Works for both bridges will be included in the drainage report that will be prepared and submitted to the City.

The Drainage Act procedure was discussed including estimated timelines. Requirements of the Department of Fisheries and Oceans (D.F.O.), Ministry of Natural Resources and Forestry (M.N.R.F.), Ministry of Environment, Conservation and Parks (M.E.C.P.), and the Essex Region Conservation Authority (E.R.C.A.) were outlined. The March 15th to July 15th fish timing window was discussed with no work permitted in the drain during the period.

Mr. Rood asked the City and owners to provide information on any drainage changes that they might be aware of. The last report assessed most of the area immediately to the north and east of the drain.

Cost sharing of work to the bridges in municipal drains was discussed. The parcel served by the bridge will bear the cost and the cost of future maintenance to the bridge once the drainage report is adopted and the bridge becomes part of the drainage works in accordance with the 2015 Council Resolution and the City of Windsor Act 1968.

IV. FIELD SURVEY AND INVESTIGATIONS

Following the on-site meeting we arranged for our survey staff to attend at the site and perform a topographic survey, including taking the necessary levels and details to establish the design parameters for the installation of the new and replacement access bridge.

A benchmark was established for installation of the bridges and future maintenance. We also surveyed the drain both upstream and downstream of the proposed new and replacement access bridge and picked up the existing culvert elevations in order to establish a design grade profile for the installation of the new bridges. Cross sections were taken of the Sprucewood Ave. Drain at the general location of the proposed new bridge and the existing bridge to the north, as necessary for us to complete our design calculations, estimates and specifications.

We reviewed the E.R.C.A. and D.F.O. Species at Risk mapping for fish and mussels and the City made initial submissions to the Essex Region Conservation Authority (E.R.C.A.) regarding their requirements for work that would be proposed to be carried out on the Sprucewood Ave. Drain. A response from the Conservation Authority was received by email on August 11th, 2023 and indicated that the City must apply for a permit and follow the standard mitigation requirements and they requested that they be provided with the opportunity to review the drainage report and proposed design before the report is finalized so that any E.R.C.A. comments can be addressed.

The Ministry of Natural Resources & Forestry (M.N.R.F.) Species at Risk former City agreement with M.N.R.F. pursuant to Section 23 of the “Endangered Species Act, 2007” expired as of June

30th, 2015. The former agreements are replaced with new legislation provisions under Ontario Regulation 242/08 administered by the Ministry of Environment, Conservation and Parks (M.E.C.P.), and Section 23.9 allows repairs, maintenance and improvements to be conducted by the City within existing municipal drains. These works are exempt from Sections 9 and 10 of the Endangered Species Act provided that the rules in the regulations are followed. When eligible, the new regulations allow Municipalities to give notice to M.N.R.F. by registering their drainage activities through an online registry system.

For the purposes of establishing the watershed area upstream of the proposed bridge, and determining the pipe size required, we investigated and reviewed the reference information that the City has provided.

Owners are reminded that they have the opportunity to present their concerns to Council regarding the report details at the Consideration meeting and assessment questions at the Court of Revision meeting, along with appeal rights to the Ontario Ministry of Agriculture, Food and Rural Affairs (O.M.A.F.R.A.) Appeals Tribunal and to the Drainage Referee as provided for in the Drainage Act.

The Drainage Act definitions and applicable clarifications are as follows:

“Benefit” means the 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.

“Outlet liability” means the part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet. Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet liability. The assessment for outlet liability shall be based upon the volume and rate of flow of the water artificially caused to flow upon the injured land or road or into the drainage works from the lands and roads liable for such assessments. Every drainage works constructed under this Act shall be continued to a sufficient outlet.

Owners are advised that they have a legal responsibility to convey their drainage to a sufficient outlet. For this reason, they have a share in the cost for upkeep of the drain downstream of their lands and this obligation is reflected in the assessment for Outlet Liability. Owners are reminded that the responsibilities for carrying out maintenance on a Municipal drain rest with the City as set out in the Drainage Act. Any owner can notify the City that the drain requires maintenance and the City has to take action pursuant to the Act. This system is generally reactive and requires the property owners to raise their concerns and issues to the City. Owners are advised of the 1/3 grant available to agricultural lands that qualify for the Farm Property Tax Class and should be aware that the City administers the grant process and reflects any available grant on the final billing to each qualified owner.

Owners may appeal their assessment as set out in the drainage report. They are advised that they should submit their appeal to the Court of Revision 10 days before the scheduled date of

the meeting; however, the Court of Revision can agree to hear appeals presented at the meeting. If owners are still dissatisfied with the report after that meeting, they may submit an appeal to the O.M.A.F.R.A. Appeals Tribunal through the City Clerk within 21 days of the closing of the Court of Revision pursuant to Section 54 of the Drainage Act.

The cost sharing for bridges is based on the 2015 Council Resolution. Each owner has the right for one access across each Municipal drain. The owner generally pays 100% of the cost for the first bridge installation and it becomes part of the drain when included in an engineer's report and is then to be maintained by the drain with costs assessed as set out in the drainage report.

VII. FINDINGS AND RECOMMENDATIONS

We find that the profile included in the 1990 report plan by Dillon Consulting Engineers provides a good fit to the existing profile of the affected portion of the drain. Said report provided for improvements to the open drain that still appear to suit the current conditions of the watershed.

Based on our detailed survey, investigations, examinations, and discussions with the affected Owners and governing Authorities, we would recommend that drain improvement works be carried out as follows:

- a) We recommend that all drain improvements, be carried out in accordance with the requirements established by E.R.C.A. and D.F.O. as set out in the documents within **Appendix "REI-A"** attached to this report.
- b) As this is an existing Municipal drain, and conditions have not changed and there is no information to indicate any new species concerns, the proposed new and replacement access bridge work can be carried out based on the provisions included within the former Agreement that the Municipality had with M.N.R.F. and the mitigation measures included within same. A copy of said mitigation measures is included in **Appendix "REI-B"** within this report as well as a list of special concern species from the N.H.I.C. mapping which the Contractor will have to monitor for and provide mitigation for as needed. We recommend that any work being completed shall be carried out in accordance with the **Schedule "C" Mitigation Plan** of the former agreement as included in **Appendix "REI-B"** for reference by the landowners, the City of Windsor, and the Contractor who will be conducting the works.
- c) We find that portions of the open drain in the work area have significant accumulation of silt and debris and we recommend that these be cleaned out as set out further in this report.
- d) As provided for by Section 18 of the Drainage Act, we recommend that the new bridge and replacement bridge be constructed as outlined further in this report including the specifications and the plans that form part of the report and they will provide equivalent capacity to match adjacent bridges and cause no adverse impact to the drainage works or handling of flows.
- e) The existing drain has some buffer strips and grass areas along the Municipal drain that reduce the amount of erosion and the sediment entering the drain and enhance water quality. We recommend that the existing grass areas and buffer strips be protected as

part of this project and suggest that new buffer strips be constructed by the owners in all areas where no current grass buffer exists.

We recommend that the Sprucewood Ave. Drain be improved with construction of the proposed new and replacement access bridges, in accordance with this report, the attached specifications and the accompanying drawings, and that all works associated with same be carried out pursuant to Section 78 of the “Drainage Act, R.S.O. 1990, Chapter D.17 as amended 2021”.

VIII. ALLOWANCES

We have provided that all of the work will generally be completed from the easterly side of the drain. The Contractor will be required to restore any existing grassed buffer and driveway areas damaged by the work. We recommend that any materials removed from the open drain be spread on the adjacent lands to the east of the drain for disposal by the Contractor, beyond the limits of any existing grass buffer or driveway access. Based on all of the above we find that no allowances for damages are payable pursuant to Sections 29 and 30 of the Drainage Act.

IX. ESTIMATE OF COST

Our estimate of the Total Cost of this work, including all incidental expenses, is the sum of **ONE HUNDRED FIFTY ONE THOUSAND DOLLARS (\$151,000.00)**, made up as follows:

CONSTRUCTION

Item 1)	<u>Bridge 2 to Parcel 080-850-01624</u> ; Excavate drain, completely remove and dispose of the sediment, including any other deleterious material encountered; supply and install 14.64 metres of 2110 X 1345 mm horizontal elliptical class HE II reinforced concrete pipe including Granular ‘B’ backfill, Granular ‘A’ travel surface; excavation, placement, compaction, grading; precast concrete block headwalls with adjacent 1 metre wide 305mm thick quarried limestone on filter cloth slope protection; topsoil placement, seeding and mulching, and restoration and clean up, complete.	Lump Sum	\$	75,700.00
Item 2)	<u>Bridge 1 to Parcel 080-850-01627</u> ; Excavate drain, completely remove and dispose of the existing pipe and end treatments, sediment, including any other deleterious material encountered; supply and install 9.8 metres of 2110 X 1345 mm horizontal elliptical class HE II reinforced concrete pipe including Granular ‘B’ backfill, Granular ‘A’ travel surface; excavation, placement, compaction, grading; precast concrete block headwalls with 1 metre wide adjacent 305mm thick quarried limestone on filter cloth slope protection; topsoil placement, seeding and mulching, and restoration and clean up, complete.	Lump Sum	\$	55,900.00

Report – Sprucewood Ave. Drain
Bridge for Truck Terminal & Replacement Bridge
City of Windsor - REI2023D011

2023-12-12

Item 3)	Estimated net Harmonized Sales Tax (1.76% H.S.T.) on construction items above.	Lump Sum	\$	2,316.00
Item 4)	Contingency amount for construction.	Lump Sum	\$	1,084.00
TOTAL FOR CONSTRUCTION			\$	135,000.00

INCIDENTALS

1)	Report, Estimate, & Specifications		\$	3,500.00
2)	Survey, Assistants, Expenses, and Drawings		\$	6,050.00
3)	Duplication Cost of Report and Drawings		\$	500.00
4)	Estimated Cost of Letting Contract		\$	1,000.00
5)	Estimated Cost of Layout and Staking		\$	1,200.00
6)	Estimated Cost of Part-Time Supervision and Inspection During Construction (based on 4 day duration)		\$	2,000.00
7)	Estimated Net H.S.T. on Incidental Items Above (1.76%)		\$	251.00
8)	Estimated Cost of Interim Financing		\$	200.00
9)	Estimated Cost of E.R.C.A. Permit		\$	500.00
9)	Contingency Allowance		\$	799.00
TOTAL FOR INCIDENTALS			\$	16,000.00
TOTAL FOR CONSTRUCTION (brought forward)			\$	135,000.00
TOTAL ESTIMATE			\$	151,000.00

X. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached design drawings for the construction of the drain improvements. The design drawings show the subject improvement locations and the details of the work, as well as the approximate location within the watershed area. The drain design drawings are attached to the back of this report and are labelled **Appendix “REI-E”**.

Also attached, we have prepared Specifications which set out the required construction details for the drain repair and improvements, which also include Standard Specifications labelled therein as **Appendix “REI-C”**.

XI. SCHEDULE OF ASSESSMENT

We would recommend that the Total Cost for construction of this project, including incidental costs, be charged against the lands served by the new and replacement access bridge in accordance with the attached Schedule of Assessment.

Based on the current A.D.I.P., “lands used for agricultural purposes” may be eligible for a grant in the amount of 1/3 of their total assessment when future maintenance work is carried out on the access bridge. The new policies define “lands used for agricultural purposes” as those lands eligible for the “Farm Property Class Tax Rate”. The City provides this information to the owners. Properties that do not meet the criteria are not eligible for grants. In accordance with same we expect that this project will not be qualified for the grant normally available for agricultural lands for future maintenance. The Ministry, however, is continually reviewing their policy for grants, and we recommend that the City monitor the policies, and make application to the Ministry for any grant should same become available through the A.D.I.P. program or other available funds.

Where a bridge structure has increased top width beyond the standard 6.10 metre (20.0 ft.) top width, all of the increased costs resulting from same are assessed 100% to the Owner, as provided for in the cost sharing set out below.

XII. FUTURE MAINTENANCE

When maintenance work is carried out on the bridges in the future, we recommend that all of the cost be assessed as a Benefit to the abutting parcel served by the access bridge, and the assessments as set out in the current applicable drainage report and by-law Schedule of Assessment in accordance with the 2015 Council Resolution and the City of Windsor Act 1968. The share for Benefit and Outlet Liability shall be as set out in the Bridge Cost Sharing table below.

FUTURE BRIDGE COST SHARING

<u>Bridge</u>	<u>Owners</u>	<u>Benefit to Owner</u>	<u>Outlet Upstream</u>
1	1000274445 Ontario Inc., (080-850-01627),	100.0%	0.0%
2	1000251697 Ontario Inc., (080-850-01624),	100.0%	0.0%

Report – Sprucewood Ave. Drain
Bridge for Truck Terminal & Replacement Bridge
City of Windsor - REI2023D011

2023-12-12

We recommend that the bridge structures as identified herein, be maintained in the future as part of the drainage works. We would also recommend that the bridges, for which the maintenance costs are to be assessed to the parcel served by the bridge, be maintained by the Municipality and that said maintenance would include works to the bridge culvert, bedding, backfill and end treatment. Should concrete, asphalt, or other decorative driveway surfaces over the bridge culvert require removal as part of the maintenance works, these surfaces shall also be repaired or replaced as part of the works. Likewise, if any fencing, gate, decorative walls, guardrails, 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 materials 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(s) served by said access bridge.

We further recommend that the maintenance cost sharing as set out above shall remain as aforesaid until otherwise determined and re-established under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17 as amended 2021".

All of which is respectfully submitted.

Rood Engineering Inc.



Gerard Rood, P.Eng.



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att.

Rood Engineering Inc.
Consulting Engineers
9 Nelson Street
LEAMINGTON, Ontario N8H 1G6

SCHEDULE OF ASSESSMENT
SPRUCEWOOD AVENUE DRAIN
Truck Terminal Bridge & Replacement Bridge
City of Windsor

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Owned	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
080-850-01624	1	47	2.51	2.51	1.015	1000251697 Ontario Inc.	\$ -	\$ -	\$ 86,860.00	\$ 86,860.00
080-850-01627	1	47	2.34	2.34	0.947	1000274445 Ontario Inc.	\$ -	\$ -	\$ 64,140.00	\$ 64,140.00
Total on Privately Owned - Non-Agricultural Lands.....							\$ -	\$ -	\$ 151,000.00	\$ 151,000.00
TOTAL ASSESSMENT				4.85	1.96		\$ -	\$ -	\$ 151,000.00	\$ 151,000.00

1 Hectare = 2.471 Acres
Project No. REI2023D011
December 12th, 2023

SPECIFICATIONS

SPRUCEWOOD AVENUE DRAIN

Geographic Township of Sandwich West

Bridge for Truck Terminal - Parcel 080-850-01624

& Replacement Bridge - Parcel 080-850-01627

CITY OF WINDSOR

I. GENERAL SCOPE OF WORK

The Sprucewood Avenue Drain currently comprises of an open Municipal drain generally located along Sprucewood Avenue, Maplewood Drive and Ironwood Drive and flows northwest along the southerly side of Ironwood Drive, southwest along the easterly side of Maplewood Drive, and then northwesterly along the northerly side of Sprucewood Avenue, outletting into the Detroit River. The bridge sites are located near the midpoint of Maplewood Drive on the easterly side at MN 5565 Maplewood Drive and just to the south. The work under this project generally comprises of construction of a new access bridge serving the 1000251697 Ontario Inc. lands and a replacement bridge for the 1000274445 Ontario Inc. lands at MN 5565. The work on the bridges being constructed includes the removal of the existing structure, end treatments, sediment and vegetation in the drain; the installation of a new bridge to the southwest of the existing bridge that is being replaced; a new replacement bridge at MN 5565; new bridge end treatments comprising of precast concrete block headwalls with adjacent slopes to the walls protected with quarried limestone on filter cloth protection; granular approaches and backfill; and granular transition areas.

All work shall be carried out in accordance with these specifications, the plans forming part of this drainage project, as well as the Standard Details included in **Appendix "REI-C"**. The bridge new construction and replacement bridge shall be of the size, type, depth, etcetera, as is shown in the accompanying drawings, as determined from the Benchmarks, 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 full satisfaction of the City Drainage Superintendent and the Consulting Engineer.

II. E.R.C.A. AND D.F.O. CONSIDERATIONS

The Contractor will be required to implement stringent erosion and sedimentation controls during the course of the work to help minimize the amount of silt and sediment being carried downstream into the Detroit River. It is intended that work on this project be carried out during relatively dry weather to ensure proper site and drain conditions and to avoid conflicts with sediment being deposited into the outlet drainage system. 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 sites 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 Essex Region Conservation Authority (E.R.C.A.) or the Department of Fisheries and Oceans (D.F.O.), copies of which will be provided, if available, and the notes in **Appendix "REI-A"**. The Contractor is advised that no work may be carried out in the existing drain from March 15th to June 30th of any given year because the drain is directly connected to a downstream area that is classified as sensitive to impacts on aquatic life and habitat by E.R.C.A. and D.F.O.

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

- a) As per standard requirements, work will not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work will 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 to 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 their Contractors to ensure that sediment and erosion control measures are functioning properly and are maintained and 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 refuelling and maintenance should be conducted away from the water.

III. M.N.R.F. – M.E.C.P. CONSIDERATIONS

The Contractor is to note that this project has gone through the Ministry of Natural Resources and Forestry (M.N.R.F.) screening process by way of a Species at Risk (S.A.R.) review of the Mitigation Plan for Drainage Works (March 2018-17-4938) that the City has prepared to address the Endangered Species Act, 2007, that is now administered by the Ministry of Environment, Conservation and Parks (M.E.C.P.). Section 6.0 of the Mitigation Plan indicates that snake species are a concern for this work area and although turtles are not indicated, they are mobile and could be encountered. The Mitigation Plan includes measures to be followed as outlined in “Section 7.0 Mitigation Measures” of the document and a copy of same as it relates to turtles and snakes is included in **Appendix “REI-B”**. Providing mitigation requirements are implemented, it was concluded that present wildlife Species at Risk will be protected from negative impacts and the works will not contravene Section 9 (species protection) or Section 10 (habitat protection) of the Endangered Species Act, 2007. Based on this information we find that the City can proceed with the eligible repairs, maintenance, and improvements to the drain as they are exempt under Sections 9 and 10 of the Act, provided that they follow the rules within Ontario Regulation 242/08 and the Mitigation Measures in their S.A.R. Mitigation Plan and the Contractor will have to monitor for any of the species shown in the N.H.I.C. mapping list that is included in the Appendix and follow mitigation measures. To address these requirements the City has established comprehensive mitigation measures as well as species identification guides for reference. The results of the review will be provided to the Contractor and copies of the mitigation measures, habitat protection and identification sheets will be included within **Appendix “REI-B”**.

The Contractor is to review **Appendix “REI-B”** in detail and is required to comply, in all regards, with the contents of said M.N.R.F. information, or any future requirements, and follow the special requirements therein included, during construction as well as any N.H.I.C. mapping results of sensitive species that will need to be protected and the Contractor shall take the necessary mitigation steps that are required. The Drainage Superintendent will review the endangered species maps and any concerns will be provided in **Appendix “REI-B”**. Certain species such as

turtles and snakes are mobile and may be encountered during construction. Therefore, the Mitigation Measures in Section 7.0 of the City Plan has been included in **Appendix "REI-B"** in its entirety along with timing window charts for further information and use by the Contractor.

The Contractor shall contact the Drainage Superintendent if an endangered species is encountered during construction. The Contractor shall be responsible for providing the necessary equipment and materials outlined in the **"MITIGATION PLAN"** to address the handling of any endangered species encountered during the course of the construction work. The Contractor shall cooperate fully and assist the Drainage Superintendent or M.N.R.F. – M.E.C.P. staff in the proper handling of the endangered species as outlined in the **"MITIGATION PLAN"**, and as may be further directed by the Drainage Superintendent or the M.N.R.F. – M.E.C.P. staff and shall govern all its operations accordingly.

IV. ACCESS TO WORK

The Contractor is advised that the majority of the work to be carried out on this project extends along the easterly side of Maplewood Drive. The Contractor shall have access for the full width of the roadway abutting the proposed drainage works. The Contractor may utilize the right-of-way as necessary, to permit the completion of all of the work required to be carried out for this project. The Contractor shall also have access into the driveways and abutting lands as necessary to carry out the removal of the existing structure and unsuitable materials and to construct the new access bridge and replacement bridge, as set out on the plans and in these specifications, along with a sufficient area in the vicinity of the bridges to carry out the required construction of the removals and the new structure installations and ancillary work.

The Contractor shall ensure that the traveling public is protected at all times while utilizing the roadway for its access. The Contractor shall provide traffic control, including flag persons when required. Should the Contractor have to close Maplewood Drive for the proposed works, it shall obtain the permission of the City Drainage Superintendent or Consulting Engineer and arrange to provide the necessary notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etcetera 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 City Works Department.

Throughout the course of the work, it is imperative that the Contractor protect as much landscaping and vegetation as possible when accessing along the drain. This will be of particular concern along the lawn areas of properties. Due to the extent of the work and the area for carrying out the work, the Contractor will be required to carry out all of 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 traveling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor at its cost, including topsoil placement and lawn restoration as directed by the City Drainage Superintendent and the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding, mulching, and granular and asphalt placement required to make good any damage caused.

V. REMOVAL OF BRUSH, TREES AND RUBBISH

Where there is any brush, trees or rubbish along the course of the drainage works, including the full width of the work access, all such brush, trees or rubbish shall be close cut and grubbed out, and the whole shall be chipped up for recycling, burned or otherwise satisfactorily disposed of by the Contractor. The brush and trees removed along the course of the work are to be put into piles by the Contractor in locations where they can be safely chipped and disposed of, or burned by it, or hauled away and disposed of by the Contractor to a site to be obtained by it at its expense. Prior to and during the course of any 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 to obtain any permits 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 City 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. Where decorative trees or shrubs are located directly over drainage pipes, the Contractor shall carefully extract same and turn them over to the Owner when requested to do so and shall cooperate with the Owner in the reinstallation of same if required.

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, in consultation with the City Drainage Superintendent, the Consulting Engineer, and the Owners, to be removed as part of the works. The Contractor shall note that protecting and saving the trees may require the Contractor to carry out hand work 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 standing, 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 rubbish along the course of the open drain in the location of the work areas and any such materials located in the bridge structures and enclosures while carrying out its cleaning of same. All such deleterious materials and rubbish shall be loaded up and hauled away by the Contractor to a site to be obtained by it at its cost.

VI. FENCING

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

VII. DETAILS OF OPEN DRAIN WORK

The open drain shall be excavated to the lines, levels, grades, and cross-sections as shown on the accompanying drawings, or as may be further established by the City Drainage Superintendent or the Engineer at the time of the work. The drain shall be carefully excavated so as not to disturb the existing banks, rock protection and vegetation, except for those portions of the drain where widening or restoration of a stable drain bank configuration is required. The bottom width of the drain and the sideslopes of the excavation shall conform to the dimensions given on the drawings.

The drain shall be of the size, type, depth, etcetera as shown on the accompanying drawings. When completed, the drain shall have a uniform and even bottom and in no case shall such bottom project above the grade line, as shown on the accompanying drawings, and as determined from the Benchmarks. The finished side slopes of the drain shall be 1.5 metres

horizontal to 1.0 metre vertical or match existing flatter slopes, drain bottom width of 1.2m and profile grade of 0.08%.

The excavated material to be cast onto the adjoining lands shall be well and evenly spread over a sufficient area so that no portion of the excavated earth is more than 100mm in depth. The material shall be kept at least 1.2 metres clear from the finished edge of the drain, care being taken not to fill up any existing tiles, ditches, furrows or drains with the excavated material. The excavated material to be spread upon the lands shall be free from rocks, cobbles, boulders, stumps, rubble, rubbish or other similar material and these materials, if encountered, shall be hauled away by the Contractor and disposed of at a site to be obtained by it at its expense.

Where the drain crosses any lawn, garden, orchard, parking, roadway or driveway areas, the excavated material for the full width of the above-mentioned areas shall be hauled away by the Contractor and disposed of to a site to be obtained by the Contractor at its expense. All work at the disposal site shall be established between the Contractor and the site owner. The Contractor shall be responsible for any permits required and shall provide copies of same to the City and Consulting Engineer when requested and comply with excess soil management regulations.

Where there is any brush or rubbish in the course of the drain, including both side slopes of the drain, all such brush or rubbish shall be close cut and grubbed out. Where there is any brush or rubbish where the earth is to be spread, or on that strip of land between where the earth is to be spread and the edge of the drain, all such brush or rubbish shall be close cut and grubbed out. The whole is to be burned, chipped, or otherwise satisfactorily disposed of by the Contractor.

VIII. DETAILS OF BRIDGE WORK

The Contractor shall provide all material, labour, and equipment to construct the new access bridge and replacement access bridge in the Sprucewood Ave. Drain requiring work, along with removals, disposals, endwall works and other improvements as noted.

The proposed bridges shall be new concrete pipe. The new and replacement access bridge installations shall comprise of precast HE II reinforced concrete pipe. All piping sections shall be connected by the use of bell and gasket joints with proper gaskets in accordance with the manufacturer's recommendation. Each joint shall be wrapped in filter cloth material around the complete circumference to ensure that there will be no soil migration through the joints and into the pipe through said connections.

The bridge new and replacement pipe installations on this project shall be set to the grades as shown on the plans or as otherwise established herein and the City Drainage Superintendent or the Consulting Engineer may make minor changes to the bridge alignment as they deem necessary to suit the site conditions. All work shall be carried out in general accordance with all City of Windsor Standard Specifications and Drawings attached to this report and labelled **Appendix "REI-F"**, and items in the **"STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION"** attached to this report and labelled **Appendix "REI-C"** and the City Standard AS-209A detail.

IX. CONCRETE PIPE INSTALLATION

The new concrete pipe to be installed on this project is required to be provided in the longest lengths that are available and shall not be less than 2.44 metres. Where the overall access pipe length exceeds the standard pipe lengths, the Contractor shall connect the pipe sections together by use of the bell and gasket joint installed in accordance with the manufacturer's recommendations. All pipe joints shall be wrapped with a layer of filter cloth around the complete circumference so that it extends a minimum of 100mm beyond the joint on each side of the joint, to ensure a positive seal against soil migration through the joints.

The Contractor shall note that the placement of any new bridge pipe shall be performed totally in the dry and it shall be prepared to take whatever steps are necessary to ensure same, all to the full satisfaction of the City Drainage Superintendent or the Consulting Engineer. As part of the work, the Contractor will be required to clean out the drain along the full length of the pipe and for a distance of 3.05 metres (10 ft.) upstream and downstream of the pipe. The design parameters of the Sprucewood Avenue Drain at the location of the new and replacement access bridge installation consist of a 1.2m (4.0 ft.) bottom width, the 0.08% grade shown on the profile, and 1.5 horizontal to 1.0 vertical sideslopes. The Contractor shall note that the pipe inverts are set at least 10% of the pipe diameter (or the pipe rise) below the drain bottom to provide the embedment required by E.R.C.A. and D.F.O. and to meet the minimum cover requirements for the pipe.

The installation of the complete length of the new bridge pipe, including all appurtenances, shall be completely inspected by the City Drainage Superintendent 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 new bridge pipe without the site presence of the City Drainage Superintendent or the Consulting Engineer's Inspector to inspect and approve said installation. The Contractor shall provide a minimum of two (2) working days' notice to the City Drainage Superintendent or the Consulting Engineer prior to commencement of the work. The installation of the new bridge structure is to be performed during normal working hours of the City Drainage Superintendent and the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend said working hours. For the access bridge installation, once the new reinforced concrete pipe has been satisfactorily set in place, the Contractor shall completely backfill same with compacted 19.5mm granular material Type "A", for the full top width of the access, and the full top width of the drain or the excavated trench, and any approaches to the east and transitions to the west.

All of the driveway approach areas extending from the City roadway to the easterly face of the new bridge pipe shall be backfilled with compacted 19.5mm granular material Type "A", but only after all topsoil material has been completely removed and disposed of, and the minimum thickness of this granular material shall be 305mm (12"). All areas outside of the access driveway shall be backfilled with native material compacted to 96% of Standard Proctor Density and topped with a minimum of 50mm of topsoil and shall be seeded and mulched.

For any hard surface driveway crossings, the top 305mm (12") of the backfill over the pipe below the hard surface treatment shall comprise of 19.5mm granular material Type "A", compacted to a minimum of 100% Standard Proctor Density. The Contractor shall at all times be very careful when performing its backfilling and compaction operations so that no damage is caused to the pipe. To ensure that no damage is caused to the proposed pipe, alternative methods of achieving the required backfill compaction shall be submitted to the Consulting Engineer or the City Drainage Superintendent for their approval prior to the commencement of this work. The Contractor shall restore the asphalt surface by placing a minimum of the existing thickness or a 90mm minimum thickness of Type HL-4 or equivalent Superpave hot mix asphalt. The asphalt shall be supplied and placed in two (2) approximately equal lifts compacted to a value ranging from 92% to 96% of maximum relative density as per O.P.S.S. 310. For existing concrete driveways, the Contractor shall carefully remove the concrete to the nearest expansion joint. The concrete driveway shall be restored to the original length and width that was removed and include 250mm thick, 30MPa concrete, with 6% \pm 1% air entrainment and 6x6-6/6 welded wire fabric reinforcing installed at the midpoint of the slab. All slab surfaces shall be finished to provide an appearance approximating the finish on the existing concrete driveway abutting the replacement.

The Contractor will be responsible to restore any damage caused to the roadways at its cost. All damaged hard surface roadway areas shall be neatly saw cut and the damaged materials removed and disposed of by the Contractor prior to carrying out any restoration work. The extent of the repairs shall be established in consultation with the City Drainage Superintendent, the Road Authority, and the Consulting Engineer and the repairs shall be completed to their full satisfaction.

The Contractor is to note that any intercepted pipes or tiles along the length of the proposed bridge are to be extended and connected at its cost to the open drain at the end of the new bridge unless otherwise noted in the accompanying drawings.

The Contractor shall also note that the placing of the new access bridge pipe shall be completed so that it totally complies with the parameters established and noted in the Bridge Details and Tables for the new bridge and replacement bridge. The pipe shall be set on an even grade and the placement shall be performed totally in the dry, and the Contractor should be prepared to take whatever steps are necessary to ensure same, all to the full satisfaction of the City Drainage Superintendent or the Consulting Engineer. The Contractor shall also be required to fill the bottom of the trench with a bed of 19.5mm granular material Type "A" backfill, 300mm deep, and no point of the trench bottom shall be within 300mm of the grade line of the bottom of the pipe. The foundation beneath the headwalls shall be as per City of Windsor Standard Drawing AS-209 attached to this report and labelled **Appendix "REI-F"**. Where the bottom of the trench is in unstable soils, such as saturated clays and/or silts or quicksand, the trench shall be deepened to the depth required for granular backfill or whatever other means for securing good foundation, as required by the City Drainage Superintendent or Consulting Engineer. The Contractor is to note that when replacing an access bridge or enclosure pipe, 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 to allow for proper installation of granular backfill and compaction of same. The Contractor shall also note that all bridge pipe installations are to be carried out with a minimum of 10% of their diameter or rise embedded below the drain design bottom, as shown and noted on the plan for each of the access bridge installations.

X. REMOVALS

Where existing access bridges and enclosures are to be completely removed and replaced, the Contractor shall be required to excavate and completely extract the existing concrete structure or bridge pipe and the existing endwalls in their entirety, as well as any other deleterious materials that may be encountered in removing same, excluding poured concrete headwalls that are to be reused. The Contractor shall neatly saw cut any concrete or asphalt surfaces over the pipes for a sufficient width to allow for the safe removal of same or go to the nearest expansion joint panel of the concrete driveways. The Contractor shall also be required to completely dispose of all removed materials to a site to be obtained by it at its own expense. The Contractor shall note that when headwalls are shown to be left in place, the Contractor shall protect same and carry out its work for the pipe replacement as noted above and dispose of any debris resulting from the work.

All unsuitable and deleterious materials from the excavation and removal of the existing bridge and enclosure pipes and drain cleaning shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its expense. Likewise, any material excavated to allow for the granular approaches to the bridge, driveway transitions, or installation of new headwalls shall also be hauled away and disposed of by the Contractor.

XI. PRECAST CONCRETE BLOCK OR SLOPED END PROTECTION

Unless otherwise shown or noted, the Contractor is to provide precast concrete block, or sloped quarried limestone on non-woven filter cloth end protection for the access bridges and enclosures being replaced or constructed on this drain.

The Contractor shall install interlocking precast concrete blocks with filter cloth backing for walls on both ends of the bridges requiring same. The blocks shall be minimum 600x600x1200mm in size as available from Underground Specialties - Wolseley, Windsor, Ontario, or equal, and installed as set out in **Appendix "REI-C"** and include minimum 300mm thick by 900mm wide Gran "A" bedding and Gran "A" backfill in accordance with City Standards. Vertical joints shall be staggered by use of half blocks where needed and wingwall deflections when required shall

employ 45-degree angled blocks. Voids between the blocks and the pipe shall be grouted with 30MPa concrete having 6% \pm 1% air entrainment and extend for the full thickness of the wall and have a smooth uniform finish on the face that blends with the precast blocks. The installation of the endwalls, as well as the backfilling of the pipe where applicable, shall be provided in compliance with Items 1), 3), and 4) of the "**STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION**" attached within **Appendix "REI-C"** and the City of Windsor Standard Specifications S-11, dated May 2017, and in total compliance and in all respects with the General Conditions included in said Appendix and the City Standard detail AS-209A.

The Contractor shall submit shop drawings for approval of the wall installation that includes details for a minimum 300mm thick concrete footing that extends from the pipe invert downward. The footing shall extend into the drain banks each side for the required embedment of the blocks and be constructed to ensure that the completed wall will be completely vertical or tipped slightly back towards the driveway. Where the block walls extend more than 1.8 metres in height, the supplier shall provide the Contractor with uni-axial geogrid (SG350 or equivalent) reinforcement for installation to tie the wall back into the granular backfill. The Contractor, in all cases, shall comply with these specifications and upon completion of the stacked precast concrete end protection installation shall restore the adjacent areas to their original conditions. The Contractor shall supply quarried limestone on filter cloth rock protection adjacent to the headwalls at each corner of the bridge. All rock protection shall be 1.0 metres wide and 305mm (12") thick, installed on non-woven filter cloth, and shall be installed in accordance with Item 2) of the "**STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION**". The synthetic filter mat to be used shall be non-woven geotextile GMN160 conforming to O.P.S.S. 1860 Class I, as available from Armtec Construction Products through Underground Specialties - Wolseley in Windsor, Ontario or equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm to a maximum of 250mm, and is available from Walker Industries Amherst Quarries, in Amherstburg, Ontario, or equal.

Where sloped end protection is specified, the top 305mm (12") of backfill material over the ends of the access pipe, from the invert of said pipe to the top of the driveway elevation of the access bridge or enclosure, shall be quarried limestone. The quarried limestone shall be provided as shown and detailed on the plans or as indicated in the Standard Specifications in **Appendix "REI-C"** and shall be graded in size from a minimum of 100mm (4") to a maximum of 250mm (10"). The quarried limestone to be placed on the sloped ends of an access bridge or enclosure 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 bridge pipe. The roadside approach to the entrance shall be provided with a minimum 5.0m radius at each end of the driveway entrance. All work shall be completed to the full satisfaction of the City Drainage Superintendent or the Consulting Engineer.

The installation of the sloped quarried limestone end protection, unless otherwise specified herein, shall be provided in total compliance with Item 2), 3), and 4) of the "**STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION**". These are attached to the back of these specifications and labelled **Appendix "REI-C"**. The Contractor shall comply in all respects with the General Conditions included in Item 4 and the "**Typical Quarried Limestone End Protection Detail**" also in **Appendix "REI-C"**.

The quarried limestone erosion protection shall be embedded into the sideslopes of the drain a minimum thickness of 305mm and shall be underlain in all cases with non-woven 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 of the erosion protection shall be as established in the accompanying drawings or as otherwise directed by the City Drainage Superintendent 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 the excavator 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 sideslopes along either side of said

protection. The synthetic filter mat fabric to be used shall be non-woven geotextile GMN160 conforming to O.P.S.S. 1860 Class I, as available from Armtec Construction Products, or equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm to a maximum of 250mm, and is available from Walker Aggregates Amherst Quarries, in Amherstburg, Ontario, or equal.

XII. GENERAL QUARRIED LIMESTONE EROSION PROTECTION

At all of the swale and furrow locations entering the drain from either side, it is required that general quarried limestone erosion protection and rock chutes be provided on the drain slopes, at the locations indicated or established due to erosion, and to the widths generally shown within the details and notes included in the accompanying drawings. The rock chutes shall be V-shaped and constructed to direct all flows through the centre portion of the rock chute. Where the drain banks are showing erosion or slumping and distress, the Contractor shall provide quarried limestone on filter cloth general erosion protection as outlined below. Protection locations shall be as established in consultation with the City Drainage Superintendent and Consulting Engineer and shall include the areas noted on the profiles.

The quarried limestone erosion protection shall be embedded into the sideslopes of the drain a minimum thickness of 305mm and shall be underlain in all cases with non-woven 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 of the general erosion protection shall be as established in the accompanying drawings or as otherwise directed by the City Drainage Superintendent 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 the equipment 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 sideslopes along either side of said protection. The synthetic filter mat to be used shall be non-woven geotextile GMN160 conforming to O.P.S.S. 1860 Class I, as available from Armtec Construction Products, or equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm to a maximum of 250mm, and is available from Walker Aggregates Amherst Quarries, in Amherstburg, Ontario, or equal.

XIII. BENCHMARKS

Also, for use by the Contractor, we have established Benchmarks along the course of the work and especially at the locations where existing access bridges are being replaced or new bridges are being constructed.

For each of the bridge replacements and new bridges, the plans include details illustrating the work to be carried out. For each bridge detail a Benchmark has been indicated and the Elevation has been shown and may be utilized by the Contractor in carrying out its work. The Contractor shall note that in each case a specific design elevation grade has been provided for the invert at each end of the pipe in the table accompanying each detail. The table also sets out the pipe size, materials, and other requirements relative to the installation of the bridge 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 east to west and north to south to match the direction of flow within the drain. The Contractor's attention is drawn to the fact that the pipe invert grades established herein provide for the pipes to be set at least 10% of their diameter or pipe rise below the existing drain bottom or the design grade of the drain, whichever is lower.

XIV. ANCILLARY WORK

During the course of any work to the bridges and enclosures along the length of the project, the Contractor will be required to protect or extend any existing tile ends or swales and connect them to the drainage works to maintain the drainage from the adjacent lands. All existing tiles shall be extended utilizing solid Big 'O' "standard tile ends" or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the "**Standard Lateral Tile Detail**" included in the plans, unless otherwise noted. Connections shall be made using a manufacturer's coupling where possible. Wherever possible, tiles shall be extended to outlet beyond the end of any access bridges. When required, openings into new pipes shall be neatly bored, saw cut or burned with a torch to the satisfaction of the City Drainage Superintendent or the Consulting Engineer. All cuts to steel pipes shall be touched up with a thick coat of zinc rich paint (Galvicon or equal) in accordance with the manufacturer's recommendations. 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, and the mortar connection shall be performed to the full satisfaction of the City Drainage Superintendent or the Consulting Engineer. The mortar joint shall be of a 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 bridges and enclosures are to be extended and connected to the open drain unless otherwise noted in the accompanying drawings.

Where the bridge or enclosure 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.

All granular backfill for the bridge and enclosure installations shall be satisfactorily compacted in place to a minimum Standard Proctor Density of 100% by means of mechanical compaction equipment. All other good, clean, native fill material or topsoil to be utilized, where applicable, shall be compacted in place to a minimum Standard Proctor Density of 95%. All of the backfill material, equipment used, and method of compacting the backfill material shall be provided and performed to the full satisfaction of the City Drainage Superintendent or Consulting Engineer.

Where the Contractor removes concrete or asphalt hard surfaces over the pipes, the Contractor shall restore the hard surfaces as previously outlined. The Contractor will be responsible to restore any damage caused to these driveways at its cost. All damaged hard surface driveway areas shall be neatly saw cut and the damaged materials removed and disposed of by the Contractor prior to carrying out any restoration work.

The new reinforced concrete pipe for this installation is to be provided with a minimum depth of cover measured from the top of the pipe of 305mm (12"). If the bridge pipes are placed at their proper elevations, same should be achieved. If the Contractor finds that the minimum cover is not being met, they shall notify the City Drainage Superintendent and the Consulting Engineer immediately so that steps can be taken to rectify the condition prior to the placement of any backfill. The minimum cover requirement is **critical** and must be attained. In order for these new access bridge structures to properly fit the channel parameters, **all of the design grade elevations must be strictly adhered to.**

As a check, all of the above access bridge and enclosure pipe design grade elevations should be confirmed before commencing to the next stage of the access bridge or enclosure installation. The Contractor is also to check that the pipe invert grades are correct by referencing the Benchmark.

Although it is anticipated that the bridge installation at each site shall be undertaken in the dry, the Contractor shall supply and install a temporary straw bale or silt curtain check dam in the drain bottom immediately downstream of each bridge site during the time of construction. The straw bale or silt curtain check dam shall be to the satisfaction of the City Drainage Superintendent or Consulting Engineer and must be removed upon completion of the

construction. The check dam materials may be reused at each site subject to their condition. All costs associated with the supply and installation of this straw bale or silt curtain check dam shall be included in the cost bid for the bridge installation.

XV. TOPSOIL, SEED AND MULCH

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged by the structure installation, construction or cutting of the drain cross section, by placing topsoil, and then seed and mulch over said areas including any specific areas noted on the bridge details. The Contractor shall be required to provide all the material and to cover the above-mentioned surfaces 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 placing and grading of any topsoil shall be carefully and meticulously carried out in accordance with the City of Windsor Standard Specifications S-34, dated June 2022, or as subsequently amended, or as amended by these specifications and be readied for the seeding and mulching process. The seeding and mulching of all of the above-mentioned areas shall comply in all regards to the City of Windsor Standard Specifications S-14 and S-15, both dated February 2022, or as subsequently amended, or as amended by these specifications. All cleanup and restoration work shall be performed to the full satisfaction of the City Drainage Superintendent or Engineer. When all of the work for this installation has been completed, the Contractor shall ensure that positive drainage is provided to all areas; and shall ensure that the site is left in a neat and workmanlike manner, all to the full satisfaction of the City Drainage Superintendent or Engineer.

XVI. SPECIAL PROVISIONS FOR REPLACEMENT, REPAIR AND IMPROVEMENTS

The Contractor shall provide for the construction and improvements to the access bridges and enclosures along the Sprucewood Avenue Drain, for the structures noted, as follows:

Existing Bridge

When maintenance work is required, the Contractor shall completely remove the existing bridge, any wingwalls and any end protection that currently exists where needed to complete the works. The Contractor will then be required to restore the drain cross section at the former bridge location to match the upstream and downstream drain cross sections. All disturbed areas shall be restored with topsoil, seed and mulch as set out above.

New or Replacement Bridge

The Contractor shall completely remove the existing topsoil and vegetation in the area of the proposed new or replacement bridge and clean out the drain bottom. The Contractor will then be required to install the new reinforced concrete pipe as set out in the chart forming part of the details for the bridge on the plans. The Contractor shall install precast concrete block headwalls on filter cloth protection on each end. The Contractor shall protect any tile outlets on the banks at each end of the structure and divert and extend same as necessary to accommodate the new or replacement bridge. All work shall be carried out in accordance with these specifications and the requirements in **Appendix "REI-C"** and **Appendix "REI-F"**.

XVII. GENERAL CONDITIONS

- a) The City Drainage Superintendent or Consulting Engineer shall have authority to carry out minor changes to the work where such changes do not lessen the efficiency of the work.

- b) The Contractor shall satisfy itself as to the exact location, nature and extent of any existing structure, utility, or other object which it may encounter during the course of the work. The Contractor shall indemnify and save harmless the City of Windsor and the Consulting Engineer and their representatives for any damages which it may cause or sustain during the progress of the work. It shall not hold the City of Windsor or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.
- c) 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 to the design and project intent.
- d) The Contractor will be responsible for any damage caused by it to any portion of the City 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 City 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 City. The Contractor, upon completing the works, shall clean all debris and junk, etcetera, 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.
- e) The Contractor shall provide all necessary lights, signs, and barricades to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. If traffic control is required on this project, signing is to comply with the M.T.O. Manual of Uniform Traffic Control Devices (M.U.T.C.D.) for Roadway Work Operations and Ontario Traffic Manual Book 7.
- f) During the course of the work the Contractor shall be required to connect existing drainage pipes to the Municipal Drain. In the event that polluted flows are discovered, the Contractor shall delay the connection of the pipe and leave the end exposed and alert the City, the Drainage Superintendent, and the Consulting Engineer so that steps can be taken by the City to address the concern with the owner and the appropriate authorities. Where necessary the Contractor shall cooperate with the City in providing temporary measures to divert the drain or safely barricade same. Should the connection be found acceptable by the authorities, the Contractor shall complete the connection of the drain as provided for in the specifications, at no extra cost to the project.
- g) 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.
- h) 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.
- i) During the course of the project the Contractor shall deal with any excess soil management from the project in accordance with Ontario Reg 406/19 pursuant to the Environmental Protection Act, R.S.O. 1990, c. E.19 and any subsequent amendments to same.
- j) All driveways, laneways and access bridges, or any other means of access on to the job site shall be fully restored to their former condition at the Contractor's expense. Before authorizing Final Payment, the City Drainage Superintendent and 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 be deducted from any monies owing to the Contractor.

- k) The Contractor will be required to submit to the City, 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 City, a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before Final Payment is made to the Contractor.
- l) 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 City. 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 City 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.

- m) 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; and shall name the City of Windsor and its' officials and the Consulting Engineer and their staff as additional insured under the policy. The Contractor must submit a copy of this policy to both the City Clerk and the Consulting Engineer prior to the commencement of work.
- n) Monthly progress orders for payment shall be furnished the Contractor by the City 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

The Contractor shall satisfy the Consulting Engineer or City 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.

- o) 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 C.C.D.C.2 shall govern and be used to establish the requirements of the work.
- p) Should extra work be required by the City Drainage Superintendent or Consulting Engineer, and it is done on a time and material basis, the actual cost of the work will be paid to the Contractor with a 15% markup on the total actual cost of labour, equipment and materials needed to complete the extra work.

Specifications - Sprucewood Ave. Drain
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- q) The Contractor shall provide shop drawings of the proposed wall for precast concrete block headwalls for approval by the City Drainage Superintendent or Engineer prior to construction.

APPENDIX "REI-A"

STANDARD E.R.C.A. AND D.F.O.
MITIGATION REQUIREMENTS

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

1. As per standard requirements, work will not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work will be done in the dry.
2. 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 to 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.
3. 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 the related Ontario Provincial Standards. It is incumbent on the proponent and Contractors to ensure that sediment and erosion control measures are functioning properly and maintained/upgraded as required.
4. Silt or sand accumulated in the barrier traps must be removed and stabilized on land once the site is stabilized.
5. 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 refuelling and maintenance should be conducted away from the water.
6. Any drain banks trimmed outside of the July 1st to September 15th timing window will require bio-degradable erosion control blankets to be installed to promote re-vegetation and to protect the slope from erosion in the interim.

Measures to Avoid Causing Harm to Fish and Fish Habitat

If you are conducting a project near water, it is your responsibility to ensure you avoid causing [serious harm to fish](#) in compliance with the *Fisheries Act*. The following advice will help you avoid causing harm and comply with the *Act*.

PLEASE NOTE: This advice applies to all project types and replaces all “Operational Statements” previously produced by DFO for different project types in all regions.

Measures

- Time work in water to respect [timing windows](#) to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.
- Minimize duration of in-water work.
- Conduct instream work during periods of low flow, or at low tide, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.
- Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.

- Design and plan activities and works in waterbody such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.
- Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.
- Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.

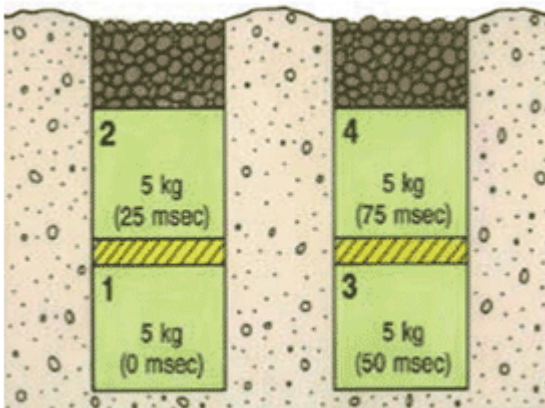
- Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals do not enter the watercourse.
- Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
- Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

- Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. 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 waterbody or settling basin and runoff water is clear. The plan should, where applicable, include:
 - Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
 - Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.
 - Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).
 - 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.
 - Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.
 - Repairs to erosion and sediment control measures and structures if damage occurs.
 - Removal of non-biodegradable erosion and sediment control materials once site is stabilized.
- Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction. When practicable, prune or top the vegetation instead of grubbing/uprooting.
- Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.
- Immediately 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.
- Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored.
- 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.
- Remove all construction materials from site upon project completion.

- Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
- Retain a qualified environmental professional to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.
- Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
 - In freshwater, follow these measures for design and installation of intake end of pipe fish screens to protect fish where water is extracted from fish-bearing waters:
 - Screens should be located in areas and depths of water with low concentrations of fish throughout the year.
 - Screens should be located away from natural or artificial structures that may attract fish that are migrating, spawning, or in rearing habitat.
 - The screen face should be oriented in the same direction as the flow.
 - Ensure openings in the guides and seals are less than the opening criteria to make “fish tight”.
 - Screens should be located a minimum of 300 mm (12 in.) above the bottom of the watercourse to prevent entrainment of sediment and aquatic organisms associated with the bottom area.
 - Structural support should be provided to the screen panels to prevent sagging and collapse of the screen.
 - Large cylindrical and box-type screens should have a manifold installed in them to ensure even water velocity distribution across the screen surface. The ends of the structure should be made out of solid materials and the end of the manifold capped.
 - Heavier cages or trash racks can be fabricated out of bar or grating to protect the finer fish screen, especially where there is debris loading (woody material, leaves, algae mats, etc.). A 150 mm (6 in.) spacing between bars is typical.
 - Provision should be made for the removal, inspection, and cleaning of screens.
 - Ensure regular maintenance and repair of cleaning apparatus, seals, and screens is carried out to prevent debris-fouling and impingement of fish.
 - Pumps should be shut down when fish screens are removed for inspection and cleaning.
- Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.
 - If explosives are required as part of a project (e.g., removal of structures such as piers, pilings, footings; removal of obstructions such as beaver dams; or preparation of a river or lake bottom for installation of a structure such as a dam or water intake), the potential for impacts to fish and fish habitat should be minimized by implementing the following measures:

- Time in-water work requiring the use of explosives to prevent disruption of vulnerable fish life stages, including eggs and larvae, by adhering to appropriate fisheries [timing windows](#).
- Isolate the work site to exclude fish from within the blast area by using bubble/air curtains (i.e., a column of bubbled water extending from the substrate to the water surface as generated by forcing large volumes of air through a perforated pipe/hose), cofferdams or aquadams.
- Remove any fish trapped within the isolated area and release unharmed beyond the blast area prior to initiating blasting
- Minimize blast charge weights used and subdivide each charge into a series of smaller charges in blast holes (i.e., decking) with a minimum 25 millisecond (1/1000 seconds) delay between charge detonations (see Figure 1).
- Back-fill blast holes (stemmed) with sand or gravel to grade or to streambed/water interface to confine the blast.
- Place blasting mats over top of holes to minimize scattering of blast debris around the area.
- Do not use ammonium nitrate based explosives in or near water due to the production of toxic by-products.
- Remove all blasting debris and other associated equipment/products from the blast area.

Figure 1: Sample Blasting Arrangement



Per Fig. 1: 20 kg total weight of charge; 25 msecs delay between charges and blast holes; and decking of charges within holes.

- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.

- Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
- Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure.
- Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
- 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.

Date modified:
2013-11-25

SECTION II

SPECIFICATIONS

FOR FISH SALVAGE

GENERAL
SECTION 201

The Work shall include the capture, salvage and release of fish that are trapped or stranded as the result of the Contractor's operations, at locations identified in the Fish Salvage Plan, and in co-operation with the Essex Region Conservation Authority (E.R.C.A.).

Fish capture shall be performed prior to dewatering, and in such manner that will minimize the injury to the fish.

MATERIALS
SECTION 202

All materials required for fish capture, salvage and release shall be supplied by the Contractor.

CONSTRUCTION
SECTION 203

The Contractor shall not commence any fish capture, salvage and release work until the Fish Salvage Plan has been accepted by the Consultant and the Conservation Authority. All work shall be performed in accordance with the Fish Salvage Plan unless otherwise determined by the Consultant or the Conservation Authority.

The Contractor shall ensure an ice-free pool is maintained throughout all fish capture and release operations.

All fish shall be captured within the area specified and released at an acceptable location in the downstream water body. Fish shall be captured by electro fishing, netting, seining, trapping, or other method acceptable to the Consultant and/or the Conservation Authority.

MEASUREMENT AND PAYMENT
SECTION 204

Payment for this Work will be included in the price bid for drainage work components or made at the lump sum price bid for "Fish Capture and Release". The lump sum price will be considered full compensation for all labour, materials, equipment, tools, and incidentals necessary to complete the Work to the satisfaction of the Consultant.

STANDARD D.F.O. REQUIRMENTS FOR BRIDGES

In order to comply with the *Fisheries Act*, it is recommended that you incorporate the following measures into your project proposal:

Culverts

- Ensure that fish migration through the culvert is maintained such that the structure will not create a velocity barrier to migrating fish or destabilize the channel downstream
- Embed water crossings as appropriate to ensure fish passage and channel crossing stability

Timing

- If you are conducting in stream work during periods of low flow to further reduce the risk to fish and their habitat no in-stream work or construction activity should occur from March 15th to June 30th
- If the drain is dry, work can proceed at any time of the year

Erosion and Sediment Control

- Install effective erosion and sediment control measures before starting work to prevent sediment from entering the water body
- Conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction
- Repair erosion and sediment control measures and structures if damage occurs
- Remove non-biodegradable erosion and sediment control materials once site is stabilized

Shoreline Re-vegetation and Stabilization

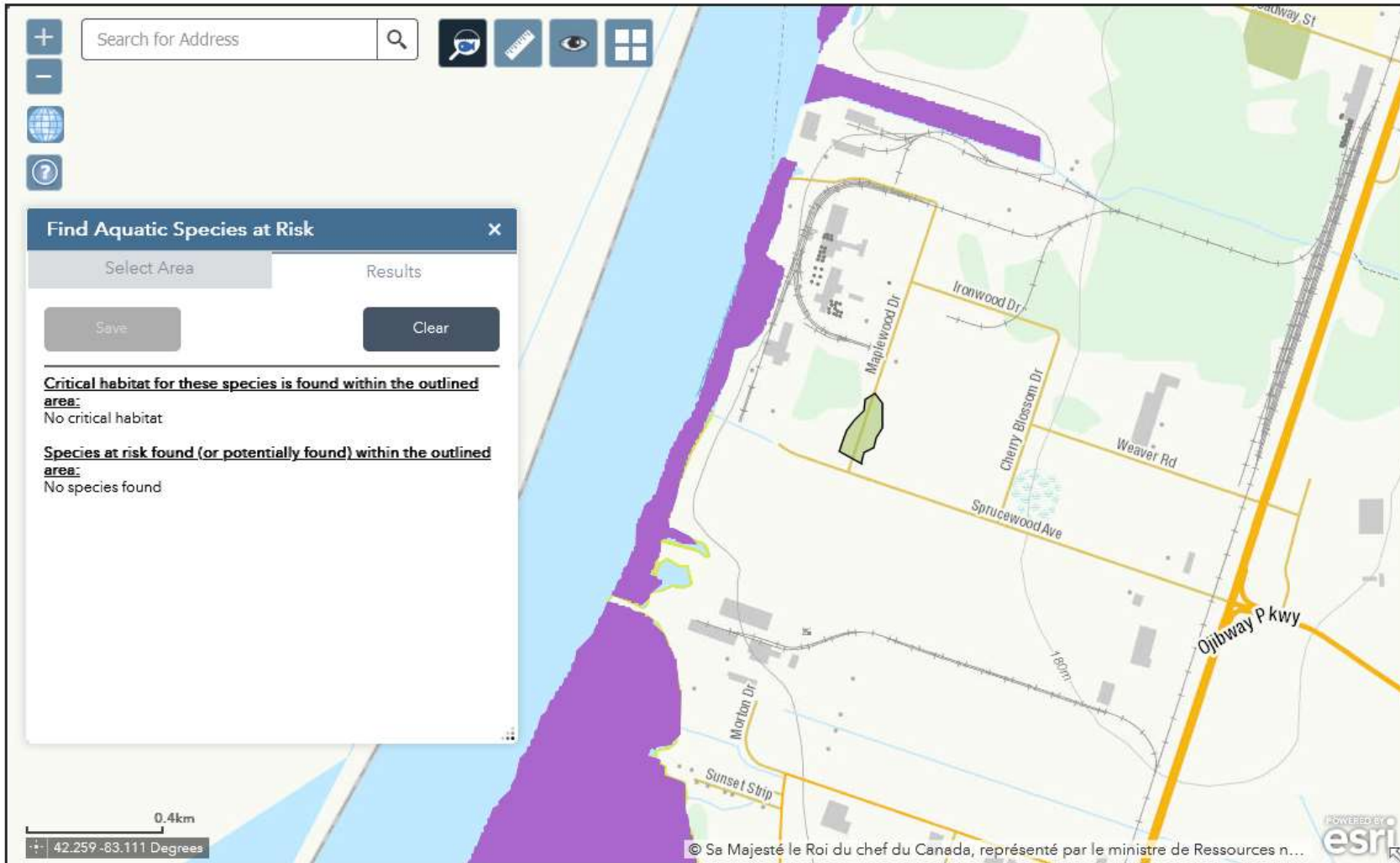
- Clearing of riparian vegetation should be kept to a minimum
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site
- If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, 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
- Remove all construction materials from site upon project completion

Operation of Machinery

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

Sprucewood Ave. Drain

Windsor – D.F.O. Mapping



APPENDIX "REI-B"

SCHEDULE C
MITIGATION PLAN

The Municipality shall undertake measures to minimize adverse effects on species at risk in accordance with the general conditions described in Part B and taxa-specific conditions described in Part C, and the monitoring and reporting requirements described in Part D of this Mitigation Plan.

PART A. DEFINITIONS

1. Definitions:

1.1. In this Schedule, the following words shall have the following meanings:

"DFO" means Fisheries and Oceans Canada;

"MNR" means the Aylmer District Office of the Ministry of Natural Resources;

"Contact" means to contact the MNR in accordance with the notification/contact schedule provided to the Municipality by the MNR Designated Representative from time to time;

"Holding Tub" means a large, light-coloured container fitted with a non-airtight latchable lid approved by the MNR for the temporary storage of captured snakes, turtles, amphibians, birds or eggs;

"Interagency Notification Form" means the form issued by DFO, available at www.dfo-mpo.gc.ca, which is required to be completed when a drain is being maintained or constructed;

"Monitoring and Reporting Form" means the document that must be completed by the Municipality in accordance with Part D to this Schedule and will be provided to the Municipality;

"Ontario Operational Statement" means one of the documents issued by DFO, available at www.dfo-mpo.gc.ca, that sets out the conditions and measures to be incorporated into a project in order to avoid negative impacts to fish and fish habitat in Ontario, as modified from time to time;

"Process Charts" means the charts attached as Part E to this Schedule which describe the steps set out in this Mitigation Plan;

"Seasonal Timing Windows Chart" means the chart attached as Part G to this schedule which describes the Sensitive Periods applicable to each Taxonomic Group;

"Sensitive Area" means a geographic area in the Municipality where additional mitigation measures are required to be undertaken for one or more Taxonomic Groups;

"Sensitive Areas Map" means any one of the maps attached as Part F to this schedule which sets out the applicable Sensitive Areas;

"Sensitive Period" means a time of year set out in the Seasonal Timing Windows Chart during which taxa-specific mitigation measures are required to be undertaken for a Taxonomic Group because of ambient air/water temperatures, water-levels or important life-history stages;

"Taxonomic Group" means the distinct group comprising one or more Species based on their taxonomic relationship and common approaches to mitigating adverse effects (i.e., fish, mussels, turtles, snakes, amphibians, birds or plants); and

"Work Zone" means the geographic area in the Municipality where an Activity in respect of one of the Drainage Works is being conducted.

- 1.2. For greater certainty, any defined terms that are not defined in section 1.1 have the same meanings as in the Agreement.

PART B. GENERAL MEASURES TO MINIMIZE ADVERSE EFFECTS

2. Process Charts

- 2.1. The general steps set out in this Part B are visually described in the Process Charts (Part E).

3. Review of Documentation

- 3.1. Prior to conducting any Activities in respect of the Drainage Works the Municipality shall determine if conditions apply to the place, time or manner in which the Municipality wishes to pursue them by reviewing:
 - (a) the Sensitive Areas Maps (Part F) to determine if the Work Zone for the proposed Activities will occur within a Sensitive Area;
 - (b) the DFO Reference Guide for Fish and Mussel Species at Risk Distribution Maps: A Referral Review Tool for Projects Affecting Aquatic Species at Risk;
 - (c) the Seasonal Timing Windows Chart (Part G) to determine if the proposed Activities will occur during a Sensitive Period for one or more of the Taxonomic Groups; and
 - (d) the Process Charts to determine if prior notification is required;
 - (e) the mitigation measures for each applicable Taxonomic Group in Part C to determine what additional site-specific mitigation measures, if any, are required.
- 3.2. The Municipality shall document the results of the review undertaken in accordance with section 3.1 using the Monitoring and Reporting Form.

4. Sensitive Areas Maps

- 4.1. The Sensitive Areas Maps contain sensitive information about the distribution of species at risk, are provided for the sole purpose of informing this Agreement and are not to be copied or distributed for any other purposes or to any other party without the prior written authorization of the MNR Designated Representative.

5. Prior Notification to Seek Direction

- 5.1. If, after completing the review of documents described in section 3.1, the Municipality determines that the proposed Activities will be undertaken:
 - (a) in a place;
 - (b) at a time; or
 - (c) in a manner,

that requires prior notification in accordance with the Process Charts, the Municipality shall provide prior notification to the MNR in order for the MNR to determine if the Municipality must undertake additional site-specific or Species-specific mitigation

measures to minimize adverse effects on the Species and, if applicable, to identify such measures.

- 5.2. The prior notification under section 5.1 shall include a completed Interagency Notification Form:
 - (a) in respect of maintenance/repair where the proposed Activities are being undertaken pursuant to subsection 3(18) or section 74 of the *Drainage Act*, or
 - (b) in respect of construction/improvement where the proposed Activities are being undertaken pursuant to section 77 or 78 of the *Drainage Act*.
- 5.3. Where an Activity is undertaken in accordance with section 124 of the *Drainage Act* and would otherwise have required prior notification under section 5.1, the Municipality shall Contact the MNR by email prior to the commencement of the Activity, and complete and submit the applicable Interagency Notification Form within one week of the Activity's completion, unless otherwise directed in writing by the MNR Designated Representative.

6. General Mitigation Measures

- 6.1. Notwithstanding that prior notification or additional mitigation measures may be required in accordance with this schedule, in undertaking any Activity at any time in respect of the Drainage Works the Municipality shall:
 - (a) undertake the mitigation measures for sediment control and for erosion control and bank stabilization set out in The Drain Primer (Cliff Evanitski 2008) published by DFO (ISBN 978-0-662-48027-3), unless otherwise authorized in writing by the MNR Designated Representative;
 - (b) use net free, 100% biodegradable erosion control blanket for all erosion control or bank stabilization done in conjunction with their Activities or, if authorized in writing by the MNR Designated Representative, alternative erosion control blankets that provide equal or greater protection to individual Species; and
 - (c) where applicable, follow the guidelines set out in the following Ontario Operational Statements:
 - (i) Beaver Dam Removal;
 - (ii) Bridge Maintenance;
 - (iii) Culvert Maintenance;
 - (iv) Isolated Pond Construction;
 - (v) Maintenance of Riparian Vegetation in Existing Right of Ways; and
 - (vi) Temporary Stream Crossing.

PART C. TAXA-SPECIFIC MEASURES TO MINIMIZE ADVERSE EFFECTS

ADDITIONAL MITIGATION MEASURES FOR FISH SPECIES

7. Activities undertaken in Sensitive Areas for Fish

- 7.1. Subject to section 7.2, where a proposed Activity will occur in a Sensitive Area for a fish Species, the Municipality shall Contact the MNR to seek further direction.
- 7.2. Section 7.1 does not apply where the applicable Drainage Works are:
 - (a) in a naturally dry condition;
 - (b) classified as a Class F drain under DFO's *Class Authorization System for the Maintenance of Agricultural Municipal Drains in Ontario* (ISBN 0-662-72748-7); or
 - (c) a closed drain.

ADDITIONAL MITIGATION MEASURES FOR MUSSEL SPECIES

8. Activities undertaken in Sensitive Areas for Mussels

- 8.1. Subject to section 8.2, where a proposed Activity will occur in a Sensitive Area for a mussel Species, the Municipality shall Contact the MNR to seek further direction.
- 8.2. Section 8.1 does not apply where the applicable Drainage Works are:
 - (a) in a naturally dry condition;
 - (b) classified as a Class F drain in DFO's *Class Authorization System for the Maintenance of Agricultural Municipal Drains in Ontario* (ISBN 0-662-72748-7); or
 - (c) a closed drain.

ADDITIONAL MITIGATION MEASURES FOR TURTLE SPECIES

9. Training and Required On Site Materials for Turtles

- 9.1. The Municipality will ensure any person:
 - (a) involved in the capture, temporary holding, transfer and release of any turtle Species has received training in proper turtle handling procedures; and
 - (b) who undertakes an Activity has a minimum of two Holding Tubs and cotton sacks on site at all times.

10. Activities undertaken in Sensitive Areas and Sensitive Periods for Turtles

- 10.1. Subject to section 10.2, where a proposed Activity will occur in a Sensitive Area for any turtle Species and during a Sensitive Period for that Species, the Municipality shall:
 - (a) not undertake any Activities that include the excavation of sediment or disturbance to banks during the applicable Sensitive Period unless otherwise authorized;
 - (b) undertake Activities in accordance with any additional site-specific measures provided in writing by the MNR Designated Representative;
 - (c) avoid draw-down and de-watering of the Sensitive Area during the applicable Sensitive Period; and

- (d) if authorized by the MNR Designated Representative under (a) above to undertake Activities that include excavation of sediment or disturbance of banks, in addition to any other measures required under (b) above, ensure any person undertaking an Activity has at least two Holding Tubs on site at all times.

10.2. Section 10.1 does not apply where the applicable Drainage Works are:

- (a) in a naturally dry condition;
- (b) classified as a Class F drain in DFO's *Class Authorization System for the Maintenance of Agricultural Municipal Drains in Ontario* (ISBN 0-662-72748-7); or
- (c) a closed drain.

11. Measures for Encounters with Turtles During a Sensitive Period

- 11.1. Where one or more individuals belonging to a turtle Species is encountered in the undertaking of an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) during a Sensitive Period for that Species, the Municipality shall:
- (a) capture and transfer all uninjured individuals of that Species into a Holding Tub;
 - (b) capture and transfer all individuals injured as a result of the Activities into a Holding Tub separate from any Holding Tub containing uninjured individuals;
 - (c) ensure that the Holding Tubs with the captured individuals are stored at a cool temperature to prevent freezing until the individuals can be transferred; and
 - (d) immediately Contact the MNR to seek direction and to arrange for the transfer of the individual turtles.

12. Measures for Encounters with Turtles Laying Eggs or Nest Sites

- 12.1. Where one or more individuals belonging to a turtle Species laying eggs, or an active nest site of any turtle Species, is encountered in undertaking an Activity in a Work Zone, the Municipality shall:
- (a) not disturb a turtle encountered laying eggs and not conduct any Activities within 20 metres of the turtle while it is laying eggs;
 - (b) collect any displaced or damaged eggs and capture any injured dispersing juveniles and transfer them to a Holding Tub;
 - (c) store all captured injured individuals and collected eggs out of direct sunlight;
 - (d) immediately Contact the MNR to seek direction and to arrange for the transfer of any injured individuals and eggs;
 - (e) immediately stop any disturbance to the nest site and recover exposed portions with soil or organic material to protect the integrity of the remaining individuals;
 - (f) not drive any equipment over the nest site or conduct any Activities within 5 metres of the nest site;
 - (g) not place any dredged materials removed from the Drainage Works on top of the nest site;
 - (h) mark out the physical location of the nest site for the duration of the project but not by any means that might increase the susceptibility of the nest to predation or poaching; and
 - (i) where there are no collected eggs or captured individuals, record relevant information and Contact the MNR within 72 hours to provide information on the location of the nest site.

13. Measures for Encounters with Turtles Outside of a Sensitive Period

- 13.1. Where one or more individuals belonging to a turtle Species is encountered while undertaking an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) but outside of any Sensitive Period for that Species, the Municipality shall:
- (a) briefly stop the Activity for a reasonable period of time to allow any uninjured individual turtles of that Species to leave the Work Zone;
 - (b) where individuals do not leave the Work Zone after the Activity is briefly stopped in accordance with (a) above, capture all uninjured individuals and release them in accordance with section 14.1;
 - (c) where circumstances do not allow for their immediate release, transfer captured uninjured individuals for a maximum of 24 hours into a Holding Tub which shall be stored out of direct sunlight and then release them in accordance with section 14.1;
 - (d) capture and transfer any individuals that have been injured into a Holding Tub separate from any Holding Tub containing uninjured individuals; and
 - (e) store all captured injured individuals out of direct sunlight and immediately Contact the MNR to seek direction and to arrange for their transfer.

14. Release of Captured Individuals Outside of a Sensitive Period

- 14.1. Where uninjured individuals are captured under section 13.1, they shall be released:
- (a) within 24 hours of capture;
 - (b) in an area immediately adjacent to the Drainage Works;
 - (c) in an area that will not be further impacted by the undertaking of any Activity; and
 - (d) not more than 250 metres from the capture site.
- 14.2. Following a release under section 14.1, the Municipality shall Contact the MNR within 72 hours of the release to provide information on the name of the Drainage Works, the location of the encounter and the location of the release site.

15. Measures for Dead Turtles

- 15.1. Where one or more individuals of a turtle Species is killed as a result of an Activity in a Work Zone, or if a person undertaking an Activity finds a deceased individual of a turtle Species within the Work Zone, the Municipality shall:
- (a) place any dead turtles in a Holding Tub outside of direct sunlight; and
 - (b) Contact the MNR within 72 hours to seek direction and to arrange for the transfer of the dead individuals.

ADDITIONAL MITIGATION MEASURES FOR SNAKE SPECIES

16. Training and Required On Site Materials for Snakes

- 16.1. The Municipality will ensure any person:
- (a) involved in the capture, temporary holding, transfer and release of any snake Species has received training in proper snake handling procedures; and
 - (b) who undertakes an Activity has a minimum of two Holding Tubs and cotton sacks on site at all times.

17. Activities undertaken in Sensitive Areas and Sensitive Periods for Snakes

- 17.1. Where a proposed Activity involves physical infrastructure (e.g., culverts, pump houses, etc.) and will occur in a Sensitive Area for any snake Species and during a *Sensitive Period – Hibernation* for that Species, the Municipality shall undertake the Activity outside of the Sensitive Period, unless otherwise authorized by and in accordance with any site-specific measures provided in writing by the MNR Designated Representative.
- 17.2. Where a proposed Activity will occur at or adjacent to a known hibernacula (as identified by the MNR) for any snake Species and during a *Sensitive Period – Staging* for that Species, the Municipality shall:
 - (a) erect effective temporary snake barriers approved by the MNR that will not pose a risk of entanglement for snakes and that shall be secured so that individual snakes may not pass over or under the barrier or between any openings to enter or re-enter the Work Zone;
 - (b) inspect the temporary snake barriers daily during periods when snakes are active, capture any individuals incidentally encountered within the area bounded by the snake barrier and release the captured individuals in accordance with section 21.1; and
 - (c) remove the temporary snake barriers immediately upon completion of the Activity.
- 17.3. Where a proposed Activity that does not involve physical infrastructure will occur in a Sensitive Area for any snake Species and during a *Sensitive Period – Staging* for that Species, the Municipality shall undertake the Activity outside of the Sensitive Period, unless otherwise authorized by and in accordance with any site-specific measures provided in writing by the MNR Designated Representative.

18. Measures for Encounters with Snakes During a Sensitive Period

- 18.1. Where one or more individuals belonging to a snake Species is encountered, or should an active hibernacula be uncovered, while conducting an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) during a Sensitive Period for that Species, the Municipality shall:
 - (a) capture and transfer all injured and uninjured individual snakes of that Species into individual light-coloured, drawstring cotton sacks;
 - (b) place all cotton sacks filled with the captured individuals into a Holding Tub;
 - (c) ensure that the Holding Tub with the captured individuals is stored at a cool temperature to protect the snakes from freezing until the individuals can be retrieved or transferred;
 - (d) if an active hibernacula is uncovered, cease all Activities at the hibernacula site; and
 - (e) immediately Contact the MNR to seek direction and to arrange for the transfer and/or retrieval.

19. Measures for Encounters with Snake Nests

- 19.1. Where an active nest of any of the snake Species is encountered and disturbed while undertaking an Activity in any part of a Work Zone, the Municipality shall:
 - (a) collect any displaced or damaged eggs and transfer them to a Holding Tub;
 - (b) capture and transfer all injured dispersing juveniles of that Species into a light-coloured drawstring cotton sack;
 - (c) place all cotton sacks with the captured injured individuals into a Holding Tub;

- (d) ensure that the Holding Tub with the captured injured individuals is stored out of direct sunlight;
- (e) immediately Contact the MNR to seek direction and to arrange for the transfer of the injured individuals;
- (f) immediately stop any disturbance to the nest site and loosely cover exposed portions with soil or organic material to protect the integrity of the remaining individuals;
- (g) not drive any equipment over the nest site or conduct any Activities within 5 metres of the nest site;
- (h) not place any dredged materials removed from the Drainage Works on top of the nest site;
- (i) mark out the physical location of the nest site but not by any means that might increase the susceptibility of the nest to predation or poaching; and
- (j) where there are no collected eggs or captured individuals, Contact the MNR within 72 hours to provide information on the location of the nest site.

20. Measures for Encounters with Snakes Outside of a Sensitive Period

- 20.1. Where one or more individuals belonging to a snake Species is encountered while undertaking an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) but outside of any Sensitive Period for that Species, the Municipality shall:
- (a) follow the requirements in section 16;
 - (b) briefly stop the Activity for a reasonable period of time to allow any uninjured individual snakes of that Species to leave the Work Zone;
 - (c) if the individuals do not leave the Work Zone after the Activity is briefly stopped in accordance with (b) above, capture all uninjured individuals and release them in accordance with section 21.1;
 - (d) where circumstances do not allow for the immediate release of captured uninjured individuals, they may be transferred into individual, light-coloured, drawstring cotton sacks before placing them in a Holding Tub which shall be stored out of direct sunlight for a maximum of 24 hours before releasing them in accordance with section 21.1;
 - (e) capture and transfer any individuals injured as a result of conducting the Activities into a Holding Tub separate from any Holding Tub containing uninjured individuals; and
 - (f) store all captured injured individuals out of direct sunlight and immediately Contact the MNR to seek direction and to arrange for their transfer.

21. Release of Captured Individuals Outside of a Sensitive Period

- 21.1. Where uninjured individuals are captured under section 20.1, they shall be released:
- (a) within 24 hours of capture;
 - (b) in an area immediately adjacent to the Drainage Works where there is natural vegetation cover;
 - (c) in an area that will not be further impacted by the undertaking of any Activity; and
 - (d) not more than 250 metres from the capture site.

- 21.2. Following a release under section 21.1, the Municipality shall Contact the MNR within 72 hours of the release to provide information on the name of the Drainage Works, the location of the encounter and the location of the release site.

22. Measures for Dead Snakes

- 22.1. Where one or more individuals belonging to a snake Species is killed as a result of an Activity in a Work Zone, or if a person undertaking an Activity finds a deceased individual of a snake Species within the Work Zone, the Municipality shall:
- (a) collect and transfer any dead individuals into a Holding Tub outside of direct sunlight; and
 - (b) Contact the MNR within 72 hours to seek direction and to arrange for the transfer of the carcasses of the dead individuals.

ADDITIONAL MITIGATION MEASURES FOR HERBACEOUS PLANTS

23. Activities Undertaken in Sensitive Areas for Herbaceous Plants

- 23.1. Where a proposed Activity will occur that involves physical disturbance to vegetated banks or the killing and/or removal of vegetation through chemical or mechanical means in a Sensitive Area for any herbaceous plant Species, the Municipality shall:
- (a) undertake the Activity outside of the Sensitive Period, unless otherwise authorized;
 - (b) limit equipment access and operations to the side of the Drainage Works that will minimize disturbances where any of the plant Species occur;
 - (c) locate temporary storage sites for excavated sediments or bank materials on areas of open soil away from where any of the plant Species are likely to occur;
 - (d) not use any broad spectrum herbicides in Sensitive Areas; and
 - (e) undertake Activities in accordance with any additional site-specific measures provided in writing by the MNR Designated Representative.

ADDITIONAL MITIGATION MEASURES FOR TREE SPECIES

24. Additional Measures for Butternut

- 24.1. Where Butternuts may exist in a Work Zone and may be affected by an Activity, the Municipality shall:
- (a) identify and mark as retainable trees all individual Butternut trees within the Work Zone during work planning site visits unless the individual Butternut has been assessed as a non-retainable tree due to infection by Butternut canker by a person designated by the Minister as a Butternut Health Assessor;
 - (b) retain and avoid disturbance to all individuals identified under (a) above that have been identified as retainable trees or that have not been assessed, unless otherwise authorized in writing by the MNR Designated Representative;
 - (c) conduct Activities by:
 - (i) limiting equipment access and operations to the side of the Drainage Works that will minimize disturbance to where any of the individual Butternut trees occur,
 - (ii) working around trees,

Seasonal Timing Windows Chart

Date Codes Dates	Monthly Intervals: E=Early(days 1-10); M=Middle(days 11-20); L=Late(days 21-31)																											
	Jan	Feb	Mar			Apr			May			Jun			Jul			Aug			Sept			Oct			Nov	Dec
Taxa/Common Name			E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L		
Aquatic Species																												
Fish	IF in a Sensitive Area Identified on Maps THEN Prior Notification to the MNR is required (regardless of time of year)																											
Mussels	IF in a Sensitive Area Identified on Maps THEN Prior Notification to the MNR is required (regardless of time of year)																											
Turtles																												
Fowler's Toad																												
Jefferson Salamander																												
Terrestrial Species																												
Snakes - Hibernation																												
Snakes - Staging																												
Butler's Gartersnake - Hibernation																												
Butler's Gartersnake - Staging																												
Herbaceous Plants																												
Birds																												
NOT a Sensitive Time	IF NO Sensitive Areas Identified on Maps THEN NO Prior Notification to the MNR is required																											
Sensitive Time	IF in a Sensitive Area Identified on Maps THEN Prior Notification to the MNR is required																											
On-site Consultation	IF in a Highly Sensitive Area (e.g., a known hibernacula) THEN On-site consultation with the MNR is required																											

Staging refers to the time just after emergence from hibernation in the spring and the aggregation of individuals in the fall just prior to entering into hibernation sites.

NHIC Data

Sprucewood Ave. Drain - Windsor
REI2023D011

2023-09-26

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
679494	SPECIES	Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	17LG2680	
679494	SPECIES	Eastern Wood-pewee	<i>Contopus virens</i>	S4B	SC	SC	17LG2680	
679494	SPECIES	Snapping Turtle	<i>Chelydra serpentina</i>	S4	SC	SC	17LG2680	
679494	SPECIES	Field Thistle	<i>Cirsium discolor</i>	S3			17LG2680	
679494	SPECIES	Proud Globelet	<i>Patera pennsylvanica</i>	S1	END	END	17LG2680	
679494	SPECIES	Northern Map Turtle	<i>Graptemys geographica</i>	S3	SC	SC	17LG2680	
679494	SPECIES	Swamp Darner	<i>Epiaschna heros</i>	S3S4			17LG2680	
679494	SPECIES	Cobra Clubtail	<i>Gomphurus vastus</i>	S2			17LG2680	
679494	SPECIES	Saltmarsh Sand-spurrey	<i>Spergularia marina</i>	S1			17LG2680	
679494	SPECIES	Pugnose Minnow	<i>Opsopoeodus emiliae</i>	S2	THR	THR	17LG2680	
679494	SPECIES	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	<i>Acipenser fulvescens</i> pop. 3	S2	THR	THR	17LG2680	
679494	SPECIES	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S3	END	END	17LG2680	
679494	SPECIES	Great Plains Ladies'-tresses	<i>Spiranthes magnicamporum</i>	S3?			17LG2680	
679494	SPECIES	Early-branching Panicgrass	<i>Dichanthelium praecocius</i>	S3			17LG2680	

679494	SPECIES	White Blue-eyed-grass	Sisyrinchium albidum	S1			17LG2680	
679494	SPECIES	Arrowfeather Threawn Grass	Aristida purpurascens	S1			17LG2680	
679494	SPECIES	Field Dodder	Cuscuta campestris	S2			17LG2680	
679494	SPECIES	Dense Blazing-star	Liatris spicata	S2	THR	THR	17LG2680	
679494	SPECIES	Purple Milkweed	Asclepias purpurascens	S1			17LG2680	
679494	SPECIES	Tall Tickseed	Coreopsis tripteris	S1S2			17LG2680	
679494	SPECIES	Tufted Titmouse	Baeolophus bicolor	S3			17LG2680	
679494	SPECIES	Pignut Hickory	Carya glabra	S3			17LG2680	
679494	SPECIES	Chestnut Lamprey - Great Lakes - Upper St. Lawrence populations	Ichthyomyzon castaneus pop. 1	SU	DD	DD	17LG2680	
679494	SPECIES	Butler's Gartersnake	Thamnophis butleri	S2	END	END	17LG2680	

APPENDIX "REI-C"

STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION

1. PRECAST CONCRETE BLOCK

After the Contractor has set the endwall foundations and the new culvert in place, it shall completely backfill same and install new precast concrete blocks at the locations and parameters indicated on the drawing. All concrete used for headwalls shall be a minimum of 30 mPa at 28 days and include 6% +/- 1% air entrainment.

1a. PRECAST CONCRETE BLOCK HEADWALLS

Precast concrete blocks shall be interlocking and have a minimum size of 600mmX600mmX1200mm. Half blocks shall be used to offset vertical joints. Cap blocks shall be a minimum of 300mm thick. A foundation comprising minimum 300mm thick poured concrete or precast blocks the depth of the wall and the full bottom width of the drain plus 450mm embedment into each drain bank shall be provided and placed on a firm foundation as noted below. The Contractor shall provide a levelling course comprising a minimum thickness of 150mm Granular "A" compacted to 100% Standard Proctor Density or 20mm clear stone, or a lean concrete as the base for the foundation. The base shall be constructed level and flat to improve the speed of installation. Equipment shall be provided as required and recommended by the block supplier for placing the blocks such as a swift lift device for the blocks and a 75mm eye bolt to place the concrete caps. The headwall shall extend a minimum of 150mm below the invert of the access bridge culvert with the top of the headwall set to match the finished driveway grade, unless a 150mm high curb is specified at the edge of the driveway. To achieve the required top elevation, the bottom course of blocks and footing may require additional embedment into the drain bottom. The Contractor shall provide shop drawings of the proposed wall for approval by the Drainage Superintendent or Engineer prior to construction.

Blocks shall be placed so that all vertical joints are staggered. Excavation voids on the ends of each block course shall be backfilled with 19.5mm granular material Type "A" to support the next course of blocks above. Walls that are more than 3 courses in height shall be battered a minimum of 1 unit horizontal for every 5 units of vertical height. The batter shall be achieved by careful grading of the footing and foundation base, or use of pre-battered base course blocks. Filter cloth as specified below shall be placed behind the blocks to prevent the migration of any fill material through the joints. Backfill material shall be granular as specified below. Where the wall height exceeds 1.8 metres in height, a uni-axial geogrid SG350 or equivalent shall be used to tie back the walls and be installed in accordance with the manufacturer's recommendations. The wall face shall not extend beyond the end of the access bridge culvert. Non-shrink grout shall be used to fill any gaps between the blocks and the access bridge culvert for the full depth of the wall. The grout face shall be finished to match the precast concrete block walls as closely as possible.

2. QUARRIED LIMESTONE ENDWALLS

The backfill over the ends of the culvert shall be set on a slope of 1-½ units horizontal to 1 unit vertical from the bottom of the culvert to the top of each end slope and between the drain banks. The top 305mm (12") in thickness of the backfill over the ends of the bridge culvert shall be quarried limestone. The quarried limestone shall also be placed on a slope of 1-½ units horizontal to 1 unit vertical from the bottom of the culvert to the top of each bank of the drain adjacent each end slope. The quarried limestone shall have a minimum dimension of 100mm (4") and a maximum dimension of 250mm (10"). The end slope protection shall be placed with the quarried limestone pieces carefully tamped into place with the use of a shovel bucket so that, when complete, the end protection shall be consistent, uniform, and tightly laid in place.

Prior to placing the quarried limestone end protection over the granular backfill and on the drain banks, the Contractor shall lay non-woven geotextile filter fabric "GMN160" conforming to O.P.S.S. 1860 Class I or approved equal. The geotextile filter fabric shall extend from the bottom of the culvert to the top of each end slope of the bridge and along both banks of the drain to a point opposite the ends of the culvert. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone on top of the filter fabric.

3. BRIDGE BACKFILL

After the bridge culvert has been set in place, the Contractor shall backfill the culvert with **Granular "B" material**, O.P.S.S. Form 1010 with the exception of the top 305mm (12") of the backfill. The top 305mm (12") of the backfill for the full width of the excavated area (between each bank of the drain) and for the top width of the driveway, shall be **Granular "A" material**, O.P.S.S. Form 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. All of the backfill material, equipment used, and method of compacting the backfill material shall be inspected and approved and meet with the full satisfaction of the Drainage Superintendent and Engineer.

4. GENERAL

Prior to the work commencing, the Drainage Superintendent and Engineer must be notified, and under no circumstances shall work begin without one of them being at the site. Furthermore, the grade setting of the culvert must be checked, confirmed, and approved by the Drainage Superintendent or Engineer prior to continuing on with the bridge installation.

The alignment of the new bridge culvert shall be in the centreline of the existing drain, and the placing of same must be performed totally in the dry.

Prior to the installation of the new access bridge culvert, the existing sediment build-up in the drain bottom must be excavated and completely removed. This must be done not only along the drain where the bridge culvert is to be installed, but also for a distance of 3.05 metres (10 ft.) both upstream and downstream of said new access bridge culvert. When setting the new bridge culvert in place it must be founded on a good undisturbed base. If unsound soil is encountered, it must be totally removed and replaced with 19.5mm granular material Type "A", satisfactorily compacted in place. When doing the excavation work or any other portion of the work relative to the bridge installation, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. Where damage is encountered, repairs to correct same must be performed immediately as part of the work.

The Contractor performing the bridge installation shall satisfy themselves as to the exact location, nature and extent of any existing structure, utility or other object that they may encounter during the course of the work. The Contractor shall indemnify and save harmless the Town, or the Municipality, the Engineer, and their staff from any damages which it may cause or sustain during the progress of the work. It shall not hold them liable for any legal action arising out of any claims brought about by such damage caused by it.

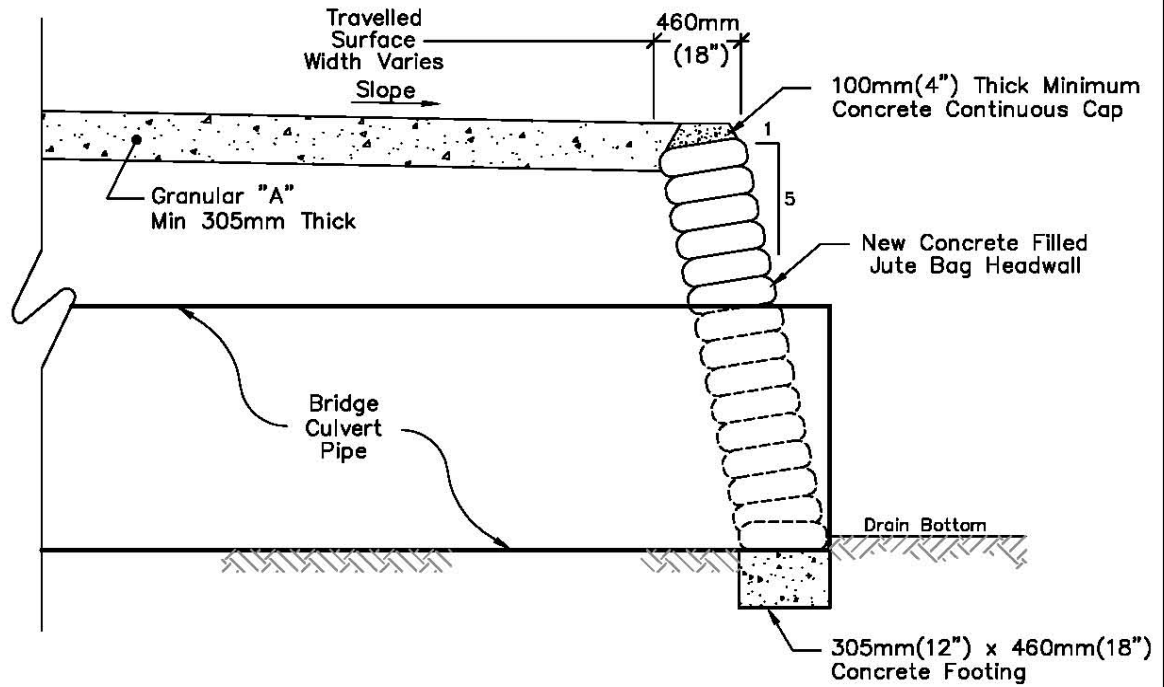
Where applicable, the Contractor constructing the new bridge shall be responsible for any damage caused by them to any portion of the Town/Municipal road right-of-way. They shall take whatever precautions are necessary to cause a minimum of damage to same and must restore the roadway to its original condition upon completion of the works.

When working along a Town/Municipal roadway, the Contractor shall provide all necessary lights, signs, barricades and flag persons as required to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. If traffic control is required on this project, it is to comply with the M.T.O. Traffic Control Manual for Roadway Work Operations and Ontario Traffic Manual Book 7.

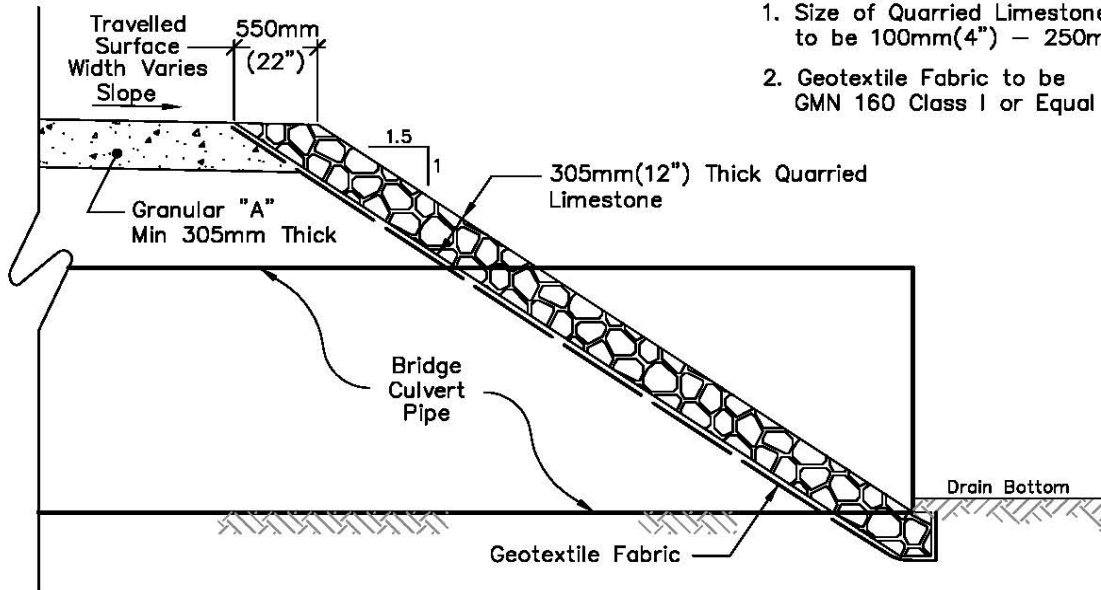
Once the bridge installation has been completed, the drain sideslopes directly adjacent the new headwalls and/or endwalls are to be completely restored including revegetation, where necessary.

All of the work required towards the installation of the bridge shall be performed in a neat and workmanlike manner. The general site shall be restored to its' original condition, and the general area shall be cleaned of all debris and junk, etc. caused by the work.

All of the excavation, installation procedures, and parameters as above mentioned are to be carried out and performed to the full satisfaction of the Drainage Superintendent and Engineer.



Typical Jute Bag Headwall



NOTE:

1. Size of Quarried Limestone to be 100mm(4") – 250mm(10")
2. Geotextile Fabric to be GMN 160 Class I or Equal

Typical Quarried Limestone End Protection

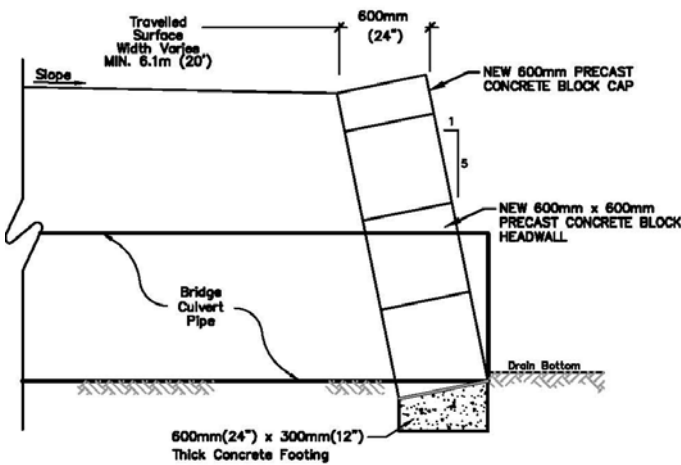
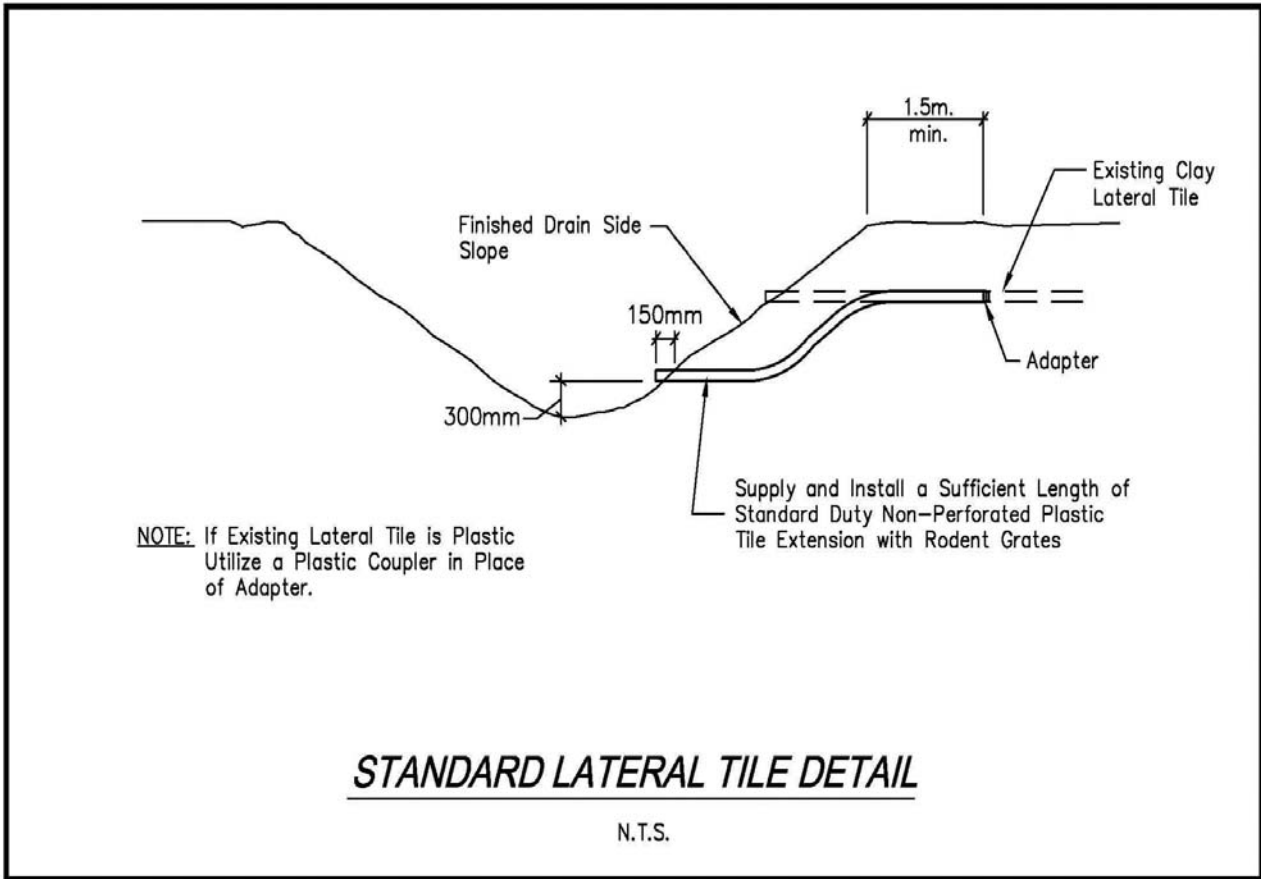
Rood Engineering Inc.

Consulting Engineers

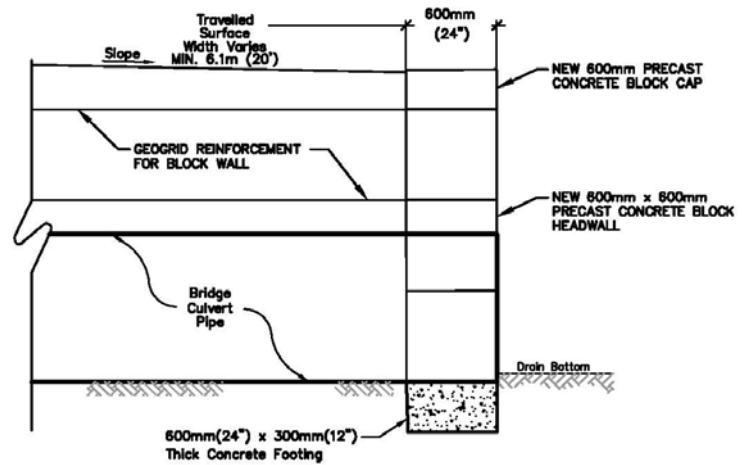
9 Nelson Street

Leamington, Ontario N8H 1G6

519-322-1621



TYPICAL PRECAST CONCRETE BLOCK END PROTECTION
Scale = N.T.S.



TYPICAL VERTICAL PRECAST CONCRETE BLOCK END PROTECTION
Scale = N.T.S.

APPENDIX "REI-D"

CITY OF WINDSOR GENERAL CONDITIONS

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GC 1 INTERPRETATION

GC 1.01 Captions

The captions appearing in these general conditions have been inserted as a matter of convenience and for ease of reference only and in no way define, limit or enlarge the scope or meaning of the general conditions or any provision hereof.

GC 1.02 Gender and Singular References

References to the masculine or singular throughout the Contract Documents shall be considered to include the feminine and the plural and vice versa as the context requires.

GC 1.03 Definitions

In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context requires otherwise:

<i>"ENGINEER"</i>	the City Engineer or his/her representative placed in responsible charge of the work by the City of Windsor.
<i>"SITE REPRESENTATIVE"</i>	Authorized assistants of the Engineer such as construction inspector, quality control inspectors, maintenance supervisors, who are assigned to inspect the materials and workmanship in whole or in part, entering in the work.
<i>"PLANS"</i>	the official plan, profiles, cross-section and other drawings, or reproductions of the same which show the location, dimensions and details of the work to be done.
<i>"SPECIFICATIONS"</i>	the directions, requirements, etc., pertaining to the method or manner of performing the work and to the qualities of the materials to be furnished for the work.
<i>"PROPOSAL"</i>	the offer of the bidder, filed with the Purchasing Manager.

<i>"CONTRACT"</i>	the agreement entered into between the Contractor and the Corporation of the City of Windsor for the work described therein in accordance with these specifications.
<i>"CONTRACT DOCUMENTS"</i>	consists of the Agreement, Form of Tender, Form of Bond, General Conditions, the Drawings and the Specifications, together with the Schedule of Unit Prices, Instructions to Tenderers, and any modifications thereof, incorporated in the documents before their execution.
<i>"CITY" OR "CORPORATION"</i>	the Corporation of the City of Windsor.
<i>"TENDERER"</i>	a person, firm, or company who submits a tender for these works, which tender is subsequently accepted.
<i>"CONSTRUCTOR"</i>	means, for the purpose of, and within the meaning of the Occupational Health & Safety Act, R.S.O. 1980, C.321 and amendments thereto, the contractor who executes the contract.
<i>"CONTRACTOR"</i>	a person, firm, or company who submits a tender for these works, which tender is subsequently accepted.
<i>"WORKS"</i>	the works described in these tender documents for either or both supply, and installation or construction.
<i>"BASE"</i>	means a layer of material of specified type and thickness placed immediately below the pavement, driving surface, finished grade, curb and gutter or sidewalk.
<i>"CONTRACT TIME"</i>	means the time stipulated in the Contract Documents for Substantial Performance of the Work, including any extension of Contract Time made pursuant to the Contract Documents.
<i>"DAILY WORK RECORDS"</i>	mean daily records kept detailing the number and categories of workers and hours worked or on standby; types and quantities of equipment and number of hours in use or on standby; and description and quantities of material utilized.

<i>"EARTH GRADE"</i>	means the earth surface, whether in cut or fill, as prepared for the Base or Sub-base.
<i>"EQUIPMENT"</i>	means all machinery and equipment used for preparing, fabricating, conveying or erecting the work and normally referred to as construction machinery and equipment.
<i>"EXTRA WORK"</i>	means work not provided for in the Contract as awarded but considered by the Engineer essential to the satisfactory completion of the Contract within its intended scope.
<i>"ADDITIONAL WORK"</i>	means work not provided for in the Contract and not considered by the Engineer to be essential to the satisfactory completion of the Contract within its intended scope.
<i>"HAND TOOLS"</i>	means tools that are commonly called tools or implements of the trade and include small power tools. Individually, a tool will be considered as a Hand Tool where the maximum cost is \$250.00.
<i>"HAUL ROAD"</i>	means any public road excluding the road under contract, which forms part of a materials haul route.
<i>"MAJOR ITEM"</i>	means any tender item that has a value, calculated on the basis of its actual or estimated tender quantity whichever is the larger, multiplied by its tender unit price, which is equal to or greater than the lesser of: a) \$100,000. Or b) 5% of the total tender value calculated on the basis of the total of all the estimated tender quantities and the tender unit prices.
<i>"OWNER"</i>	means the party to the Contract for whom the Work is being performed, as identified in the Agreement.
<i>"PAVEMENT"</i>	means a wearing course or courses placed on the Roadway and consisting of asphaltic concrete, portland cement concrete, or plant or road mixed mulch.
<i>"PROFILE GRADE"</i>	means the required elevation of the surface of

	the Base.
<i>"ROAD ALLOWANCE"</i>	means the lands acquired at any time for use as a Highway.
<i>"ROADBED"</i>	means that part of the Work which is designed to support the wearing surface and shoulders of the Roadway.
<i>"ROADWAY"</i>	means that part of the Highway designed or intended for use by vehicular traffic and includes the shoulders.
<i>"SHOULDER"</i>	means that portion of the Roadway between the edge of the wearing surface and the top inside edge of the ditch or fill slope.
<i>"SPECIAL PROVISIONS"</i>	means special directions containing requirements peculiar to the Work.
<i>"STANDARD SPECIFICATION"</i>	means a standard practice required and stipulated by the Owner for performance of the work.
<i>"SUBBASE"</i>	means a layer of material of specified type and thickness between the Subgrade and the Base.
<i>"SUBCONTRACTOR"</i>	means a person, partnership or corporation undertaking the execution of a part of the Work by virtue of an agreement with the Contractor.
<i>"SUPERINTENDENT"</i>	means the Contractor's authorized representative in responsible charge of the Work.
<i>"WORK"</i>	means the total construction and related services required by the Contract Documents.
<i>"WORKING AREA"</i>	means all the lands and easements owned or acquired by the Owner for the construction of the Work.

GC 2 CONTRACT DOCUMENTS

GC 2.01 GENERAL

The works shall be constructed as called for in the specifications and as shown on the Contract Drawings.

GC 2.02 ACCURACY OF DRAWINGS AS TO LOCATIONS OF STRUCTURES AND UTILITIES

- i. The Corporation does not assume any responsibility for the correctness, accuracy or completeness of the Drawings, with respect to the location of existing structures, utilities, services, pipes, catchbasins, manholes, chambers or other objects (man made or natural) above the ground, on the surface and/or accessible from the surface and should the Drawings be found to be incorrect or incomplete, the Contractor shall not have any claim on this account.
- ii. The Corporation does not warrant the exact location of any utility or other subsurface condition that is identified in the Drawings. The Contractor will be responsible for all locates to identify exact locations of any utility or other subsurface condition that is identified within the limits of construction. The Contractor shall not be responsible for any utility or other man-made obstruction that is not identified in the Drawings or described in the specifications, if the presence and/or location of the obstruction could not be identified by site inspection made by the Contractor in accordance with these General Conditions.

GC 2.03 SOUNDINGS, BORINGS & INSPECTION OF SITE

- i. The Tenderer shall be required to carry out all the necessary site investigation to arrive at his Total Tender Price for this Contract and under no circumstances will he, as the Contractor, be entitled to receive any extra payment because he may have neglected to investigate the site or because he may encounter ground conditions which he might have thought were not present. He shall satisfy himself; as to the nature of the soil, the bearing capacity and other physical characteristics as well as the location of various earth and rock strata, ground water level, etc. He shall be entirely responsible for determining all of the necessary information relevant to the construction of the Works and he shall not hold the Corporation liable for any item in this regard. He shall verify all matters concerning access to the work, power supplies, location of existing services, utilities, etc., prior to submission of his Tender. Should the Corporation, prior to asking for tenders, have made a soil investigation, soil engineering report, and environmental audits, copies of the same shall be kept on file at the office of the Engineer, and the Tenderer may at

any time between the hours of 8:30 a.m. and 4:30 p.m. local time, visit the said office of the Engineer on any working day and examine the said soil report. The Tenderer shall note that the said soil report will have been prepared for the purpose of designing the Works, and he shall in no way hold the Corporation liable for any of the contents of the said report. The report shall be intended to be a guide for the Contractor in ascertaining the best possible construction methods to be used by him in carrying out the Contract.

- ii. If any time during the execution of the works, the Engineer shall require the Contractor to make bore holes or to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an addition ordered under the provisions of Clause 7.03 hereof, unless provisional sum in respect of such anticipated work shall have been included in the Schedule of Unit Prices.

GC 2.04 DOCUMENTS MUTUALLY EXPLANATORY

The several documents forming the Contract are to be taken as mutually explanatory of the one another, and in case of ambiguities or discrepancies, the same shall be explained and adjusted by the Engineer, who shall thereupon issue to the Contractor instructions directing in what manner the work is to be carried out.

GC 2.05 CUSTODY OF DRAWINGS

- i. The Drawings shall remain in the sole custody of the Engineer but up to six (6) copies thereof shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him. At the completion of the Contract, the Contractor shall return to the Engineer all drawings provided under the Contract.
- ii. The Contractor shall give adequate notice in writing to the Engineer of any further drawing or specification that may be required for the execution of the Works, or otherwise, under the Contract.
- iii. One copy of the Drawings furnished to the Contractor as aforesaid, shall be kept by the Contractor on Site, and the same shall at all reasonable times, be available for inspection and use by the Engineer, the Engineer's Representative, and by any other person authorized by the Engineer in writing.
- iv. The Engineer shall have full power and authority to supply to the Contractor, from time to time, during the progress of the Works, such further drawings and instructions as shall be necessary for the purpose of

the proper and adequate execution and maintenance of the Works, and the Contractor shall carry out and be bound by the same.

GC 2.06 ORDER OF PRECEDENCE

- i. In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following order:
 - a. Agreement
 - b. Addenda
 - c. Special Provisions
 - d. Contract Drawings
 - e. Supplementary Specifications and Mandatory Procedures and Practices
 - f. Standard Specifications
 - g. Form of Tender
 - h. Supplemental General Conditions
 - i. General Conditions
 - j. Working Drawings

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

- ii. In the event of any conflict among or inconsistency in the information shown on Drawings, the following rules shall apply:
 - a. Dimensions shown in figures on a Drawing shall govern where they differ from dimensions scaled from the same Drawing;
 - b. Drawings of larger scale shall govern over those of smaller scales;
 - c. Detailed Drawings shall govern over general Drawings; and
 - d. Drawings of a later date shall govern over those of an earlier date in the same series.
- iii. In the event of any conflict in the contents of Standard Specifications the following order of precedence shall govern:
 - a. Specifications approved or modified by the Engineer
 - b. City of Windsor Standard Specifications

GC 3 ADMINISTRATION OF CONTRACT

GC 3.01 ENGINEERS AUTHORITY

- i. The Engineer will be the Corporation's representative during the construction and until the issuance of the Completion Certificate or the issuance of the final acceptance certificate whichever is later. All instructions to the Contractor will be issued by the Engineer. The Engineer will have the authority to act on behalf of the Corporation only to the extent provided in the Contract Documents.
- ii. All claims, disputes and other matters in question relating to the performance and the quality of the Work or the interpretation of the Contract Documents shall be initially referred to the Engineer in writing by the Contractor. The Engineer will give a decision in writing within a reasonable time.
- iii. The Engineer will inspect the Work for its conformity with the plans and specifications, and will record the necessary data to establish payment quantities under the schedule of tender quantities and unit prices or to make an assessment of the value of the Work completed in the case of a lump sum price contract.
- iv. The Engineer will determine the amounts owing to the Contractor under the Contract and will issue certificates for payment in such amounts as provided for in Section 7. Measurement and Payment.
- v. The Engineer will, with reasonable promptness, review and take appropriate action upon the Contractor's submissions such as shop drawings, product data, and samples in accordance with the Contract Documents.
- vi. The Engineer will investigate all allegations of a change in the character of the Work made by the Contractor and issue appropriate instructions.
- vii. The Engineer will prepare Change Orders for the Contractor's signature and the Commissioner's approval.
- viii. Upon written application by the Contractor, the Engineer and the Contractor will jointly conduct an inspection of the Work to establish the date of Substantial Performance of the Work and/or the date of Completion of the Work.
- ix. The Engineer will be, in the first instance, the interpreter of the Contract Documents and the judge of the performance thereunder by both parties

to the Contract. Interpretations and decisions of the Engineer shall be consistent with the intent of the Contract Documents.

- x. The Engineer will have the authority to reject work or material which does not conform to the Contract Documents.
- xi. Defective work, whether the result of poor workmanship, use of defective material or damage through carelessness or other act or omission of the Contractor and whether incorporated in the Work or not, which has been rejected by the Engineer as failing to conform to the Contract Documents shall be removed promptly from the Work by the Contractor and replaced or re-executed promptly in accordance with the Contract Documents at no additional cost to the Corporation.
- xii. Any part of the Works destroyed or damaged by such removals, replacements or re-executions shall be made good, promptly, at no additional cost to the Corporation.
- xiii. If, in the opinion of the Engineer, it is not expedient to correct defective work or work not performed in accordance with the Contract Documents, the Corporation may deduct from monies otherwise due to the Contractor the difference in value between the work as performed and that called for by the Contract Documents, the amount of which will be determined in the first instance by the Engineer.
- xiv. In case of default on the part of the Contractor in carrying out the corrections of defective work, the Corporation shall be entitled to employ and pay other persons to carry out the same, and all expenses consequent thereon, or incidental thereto, shall be borne by the Contractor, and shall be recoverable from him by the Corporation, or may be deducted by the Corporation from any monies due, or which may become due, to the Contractor.
- xv. Notwithstanding any inspections made by the Engineer or the issuance of any certificates or the making of any payment by the Corporation, the failure of the Engineer to reject any defective work or Material shall not constitute acceptance of defective work or Material.
- xvi. The Engineer will have the authority to temporarily suspend the Work for such reasonable time as may be necessary to facilitate the checking of any portion of the Contractor's construction layout or the inspection of any portion of the Work. There shall not be any extra compensation for this suspension of work.

GC 3.02 DUTIES AND POWERS OF ENGINEER'S REPRESENTATIVES

- i. The duties of the Site Representative are to monitor and inspect the Works and to test and examine any materials (GC 3.12 & GC 3.13) to be used, or workmanship employed, in connection with the works. The Site Representative shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract.
- ii. The Site Representative will inspect the work for conformity with plans and specifications, and will measure, tabulate and record quantities under the schedule of tender quantities and unit prices.
- iii. In the case of extra work, the Site Representatives will keep records of quantities, materials, labour and equipment as per section GC 7.09.
- iv. The Site Representative will investigate all allegations of a change in character of the Work, made by the Contractor, and will report the details to the Engineer.
- v. The Site Representative will have the authority to reject work or material which does not conform to Contract Specifications.
- vi. The Site Representative will have the authority to temporarily suspend the work for such reasonable time as it may be necessary to facilitate the checking of any portion of Contractor's construction layout or the inspection on any portion of the work. There will be no compensation for the suspension of work.

GC 3.03 WORKING DRAWINGS

- i. The Contractor shall arrange for the preparation of clearly identified and dated Working Drawings as called for by the Contract Documents.
- ii. The Contractor shall submit Working Drawings to the Engineer with reasonable promptness and in orderly sequence so as to not cause delay in the Work. If either the Contractor or the Engineer so requests they shall jointly prepare a schedule fixing the dates for submission and return of Working Drawings. Working Drawings shall be submitted in the form of prints. At the time of submission the Contractor shall notify the Engineer in writing of any deviations from the Contract requirements that exist in the Working Drawings.
- iii. The Engineer will review and return Working Drawings in accordance with an agreed upon schedule, or otherwise, with reasonable promptness so as not to cause delay.

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- iv. The Engineer's review will be to check for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the Working Drawings or of responsibility for meeting all requirements of the Contract Documents unless a deviation on the Working Drawings has been approved in writing by the Engineer.
 - v. The Contractor shall make any changes in Working Drawings which the Engineer may require consistent with the Contract Documents and resubmit unless otherwise directed by the Engineer. When resubmitting, the Contractor shall notify the Engineer in writing of any revisions other than those requested by the Engineer.
 - vi. Work related to the Working Drawings shall not proceed until the Working Drawings have been reviewed by the Engineer.
 - vii. The Contractor shall keep one set of the reviewed Working Drawings, marked as above, at the site at all times.

GC 3.04 RIGHT OF THE ENGINEER TO MODIFY METHODS AND EQUIPMENT

- i. The Contractor shall, when requested in writing, make alterations in the method, equipment or work force at any time the Engineer considers the Contractor's actions to be unsafe, or damaging to either the Work or existing facilities or the environment.
- ii. The Contractor shall alter the sequence of operations on the Contract, when requested in writing, so as to avoid interference with other work.
- iii. Notwithstanding the foregoing, the Contractor shall ensure that all necessary safety precautions and protection are maintained throughout the Work.

GC 3.05 ASSIGNMENT AND SUB-LETTING

- i. The Contractor shall not assign the Contract, or any part thereof, or any benefit or interest therein, or thereunder, without the written consent of the Corporation.
- ii. The Contractor shall, at the request of the Engineer, notify the Engineer in writing of the names of the Sub-Contractors proposed for the principal parts of the Work and for such others as the Engineer may direct and shall not employ any to whom the Engineer may object.
- iii. If the Engineer should object or refuse to accept any Sub-Contractor or manufacturer's product for inclusion in the Work, he shall not be required

to give any reason whatsoever for such objection or refusal. Further, neither the Contractor nor the Sub-Contractor nor any other person shall pursue the matter in any way or at any time subsequently after the Engineer's decision in such matter has been given.

- iv. The Contractor shall preserve and protect the rights of the parties under the Contract with respect to the work to be performed under subcontract and shall:
 - a. enter into agreements with the intended Subcontractors to require them to perform their work in accordance with the Contract Documents; and
 - b. be as fully responsible to the Corporation for acts and omissions of the Contractor's Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the Contractor.
- v. Neither a subcontracting, nor the Corporation's consent to a subcontracting by the Contractor, shall be construed to relieve the Contractor from any obligation under the Contract or to impose any liability upon the Corporation. Nothing contained in the Contract Documents shall create a contractual relationship between a Subcontractor and the Corporation.

GC 3.06 WORKING AREA

- i. The Corporation will acquire all property rights which are deemed necessary by the Corporation for the construction of the work including temporary working easements and will indicate the full extent of the working area on the Contract Drawings.
- ii. Should the Contractor require additional temporary right of ways or easements, not shown on the contract drawings, the Contractor shall bear all expenses and charges. The Contractor shall also provide at his own cost, any additional accommodation outside the site required by him for the purpose of the Works.
- iii. The Contractor's sheds, site offices, toilets, other temporary structures and storage areas for material and equipment shall be grouped in a compact manner and maintained in a neat and orderly condition at all times.
- iv. The Contractor shall not enter upon or occupy any private property for any purpose, unless the Contractor has received prior written permission from the property owner.

GC 3.07 REMOVAL OF WORKERS

The Contractor shall employ in and about the execution of the works, only such persons as are careful, skilled and experienced in their several trades and callings, and the Engineer shall be at liberty to object to, and require the Contractor to remove from the works, who in the opinion of the Engineer misconducts himself, or is incompetent or negligent in the proper performance of his duties; and such persons shall not be again employed upon the works without the permission of the Engineer. This clause does not apply to the provisions of the Occupational Health & Safety Act.

GC 3.08 SERVICE OF NOTICE ON CONTRACTOR

- i. Any notice to be given to the Contractor under the terms of the Contract, shall be served by sending the same by post, or leaving the same at the Contractor's principal place of business, (or in the event of the Contractor being a Company, to or at its registered office).
- ii. Any notice, given to the Corporation under the terms of the Contract, shall be served by sending the same by registered mail to the Engineer of the Corporation of the City of Windsor, P. O. Box 1607, City Hall, Windsor, Ontario, N9A 6S1.

GC 3.09 LAYOUT

- i. The Engineer will provide base lines, monuments and bench marks only, as shown on the drawings and as required by the Contractor for establishing line and grade. The Corporation will be responsible only for the correctness of the information provided by the Engineer.
- ii. The Contractor shall give the Engineer at least forty-eight (48) hours notice before requiring any setting out of any base lines or bench marks on any portion of the Works and shall state clearly in such notice the exact locality or localities where setting out is required.
- iii. The Contractor shall supply, at his own expense, incidental labour and material required by the Engineer for setting base lines and bench marks and shall facilitate such work in every way.
- iv. The Contractor will be held responsible for the preservation in their proper position of all bench marks, reference points, iron bars and stakes, and if any of them are disturbed, lost or destroyed after once being given, he shall at once notify the Engineer and the cost incurred in replacing them be borne by the Contractor.

GC 3.10 ACCESS TO SITE

The Engineer, and any person authorized by him, shall at all times have access to the Works and to the Site, and to all workshops and places where work is being prepared, or when materials, manufactured articles and machinery are being obtained for the works; and the Contractor shall afford every facility for, and every assistance in, or in obtaining, the right to such access.

GC 3.11 EXAMINATION OF WORK BEFORE COVERING UP

- i. No work shall be covered up or put out of view without the approval of the Engineer, and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up, or put out of view, and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer whenever any such work or foundations is, or are ready, or about to be ready for examination, and the Engineer shall without reasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work, or of examining such foundations.
- ii. The Contractor shall uncover any part or parts of the Works, or make openings in or through the same as the Engineer may from time to time direct, and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been covered up, or put out of view, after compliance with the above requirements, and are found to be executed in accordance with the Contract, the expense of uncovering, making openings in, or through, reinstating and make good the same, shall be borne by the Corporation; but in any other case, all such expenses shall be borne by the Contractor and shall be recoverable from him by the Corporation, or may be deducted by the Corporation from any monies due, or which may become due to the Contractor.

GC 3.12 QUALITY OF MATERIALS, WORKMANSHIP AND TESTS

- i. All materials and workmanship shall be of the respective kinds described in the Contract, and in accordance with the Engineer's instructions, and shall be subjected from time to time to such tests as the Engineer may direct, at the place of manufacture or fabrication, or on the Site, or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work, and the quality, weight or quantity of any material used; and shall supply samples of materials before incorporation in the Works, for testing, as may be selected and

required by the Engineer. All samples shall be supplied by the Contractor at his own cost.

- ii. The Contractor shall supply at his own expense, certified copies of all tests upon all materials entering into the Contract. Such tests shall be made, as and when directed by the Engineer, and by an approved testing laboratory.

GC 3.13 PAYMENT FOR TESTING

- i. The following tests, called for as required by the Engineer, will be paid for by the Corporation:
 - 1. Air entrainment tests during concrete work.
 - 2. Slump tests during concrete work.
 - 3. Casting and compression testing of concrete cylinders.
 - 4. Compaction tests. Limit of one test per location. If the result of any compaction test is below that specified, the Engineer may call for retesting, and all costs associated with such retesting shall be paid by the Contractor.
 - 5. Analysis of granular materials and approval of sources. Limit of one analysis per type of materials.
 - 6. Asphalt extraction tests.
- ii. The above tests are for compliance purposes only. The test results shall not be the basis for any mix designs and shall not bind the Corporation to accept any material for use in the Contract.
- iii. The Contractor and suppliers are responsible for maintaining an adequate quality control program and for conducting tests on all materials incorporated into the Contract at their own expense. The results of the quality control program and material tests shall be made available to the Engineer promptly, upon request.

GC 3.14 URGENT REPAIRS

If by reason of any accident or failure or other event occurring to, in, or in connection with, the Works or any part thereof, either during the execution of the Works or during the Period of Maintenance, any remedial or other work or repair shall in the opinion of the Engineer be urgently necessary for security, and the Contractor is unable or unwilling at once to do such work or repair, the Corporation may have its own or other workers to do such work as the Engineer may consider necessary. If the work or repair, so done by the Corporation is work, which in the opinion of the Engineer, the Contractor was liable to do at his own expense under the Contract all costs and charges properly incurred by the Corporation in so doing, shall

on demand, be paid by the Contractor to the Corporation from any monies due, or which may become due to the Contractor. Provided always that the Engineer shall as soon after the occurrence of any such emergency as may be reasonably practicable, notify the Contractor thereof in writing.

GC 3.15 SUSPENSION OF WORK

The Contractor shall, on the written order of the Engineer, suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer.

GC 3.16 EXTENSION OF TIME FOR COMPLETION

- i. Should the amount of extra or additional work of any kind, or other special circumstances of any kind whatsoever which may occur, be such as fairly to entitle to the Contractor to an extension of time for the completion of the work, the Engineer shall determine the amount of such extension. Provided that the Engineer is not bound to take into account any extra or additional work or other special circumstances unless the Contractor has, within fourteen (14) calendar days after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, delivered to the Engineer full and detailed particulars of any claim to extension of time to which he may consider himself entitled, in order that such claim may be investigated at the time.
- ii. Circumstances suitable for consideration include the following:
 - a. Delays GC 3.17
 - b. Variations GC 3.18
 - c. Extra Work GC 3.19
 - d. Additional Work GC 3.20
- iii. The terms and conditions of the contract shall continue for such extension of Contract time.

GC 3.17 DELAYS

If the Contractor is delayed in the performance of the Work by:

- a. War, blockades, and civil commotions, errors in the Contract Documents; an act of omission of the Corporation Engineer, other contractors, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the Contract Documents; or
- b. A stop work order issued by a court or public authority, provided that such order was not issued as the result of an act or omission of the

- Contractor or anyone employed or engaged by the Contractor directly or indirectly; or
- c. The Engineer giving notice under subsection 3.15 Suspension of Work; or
 - d. Abnormal inclement weather;

then consideration may be given to reimburse the Contractor by the Corporation for reasonable costs incurred by the Contractor as the result of such delay. Extension of Contract Time will be granted in accordance with subsection GC 3.16 Extension of Contract Time.

The Contractor shall not be entitled to payment for the cost of delays incurred as a result of a dispute between the Contractor and Owner. The Contractor shall execute the Work and may pursue resolution of the dispute in accordance with subsection GC 3.21, Claims, Negotiations, Mediation, Arbitration.

GC 3.18 VARIATIONS

- i. The Engineer will make any variations of the form, quality or quantity of the Works, or any part thereof, that may in his opinion be necessary, and for that purpose, or if for any other reason it shall in his opinion be desirable, will have the power to order the Contractor to do, and the Contractor shall do, any of the following:
 - a. increase or decrease the quantity of any work included in the Contract,
 - b. omit any such work,
 - c. change the character or quality or kind of such work,
 - d. change the levels, lines, position and dimensions of any part of the Works, and
 - e. execute additional work of any kind necessary for the completion of the Works

and no such variations shall in any way vitiate, or invalidate, the Contract, but the value (if any), of all such variations shall be taken into account in ascertaining the amount of the Contract Price.

- ii. No such variation shall be made by the Contractor without an order in writing of the Engineer. Provided that no order in writing shall be required for increase or decrease in the quantity of any work, where such increase or decrease is not the result of an order given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Schedule of Prices. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally, the Contractor

shall comply with such order, and any confirmation in writing of such verbal order given by the Engineer, whether before or after the carrying out of the order, shall be deemed to be an order in writing within the meaning of this Clause. Provided further that if the Contractor shall confirm in writing to the Engineer any verbal order of the Engineer, and such confirmation shall not be contradicted in writing by the Engineer, it shall be deemed to be an order in writing by the Engineer.

- iii. The Contract may apply for an extension of Contract Time.
- iv. If the Changes in the Work relate solely to quantities as in the pay items, payment will be made according to the contract. If the Changes in the Work do not solely relate to pay items, payment may be negotiated.

GC 3.19 EXTRA WORK

- i. The Corporation, or Engineer where so authorized, may instruct the Contractor to perform Extra Work without invalidating the Contract. The Contractor shall not be required to proceed with the Extra Work until receipt of a Written Order. Upon receipt of the Written Order the Contract shall proceed with the Work.
- ii. The Contractor may apply for an extension of Contract Time.

GC 3.20 ADDITIONAL WORK

- i. The Corporation, or Engineer where so authorized, may request the Contractor to perform Additional Work without invalidating the Contract, if the Contractor agrees to perform Additional Work, the Contractor shall proceed with such work upon receipt of a Written Order.
- ii. The Contractor may apply for an extension of Contract Time.

GC 3.21 CLAIMS, NEGOTIATIONS, MEDIATION, ARBITRATION

GC 3.21.01 Continuance of the Work

- i. Unless the Contract has been terminated or completed, the Contractor shall in every case, after serving or receiving any notification of a claim or dispute, verbal or written, continue to proceed with the Work with due diligence and expedition. It is understood by the parties that such action shall not jeopardize any claim it may have.

GC 3.21.02 Record Keeping

- i Immediately upon commencing work that may result in a claim, the Contractor shall keep Daily Work Records during the course of the Work, sufficient to substantiate the Contractor's claim, and the Engineer shall keep Daily Work Records to be used in assessing the Contractor's claim. The Contractor shall preserve all such original Records until 12 months after the Final Acceptance Certificate is issued or until all claims have been settled, whichever is longer. The Contractor shall require that Subcontractors employed by the Contractor preserve all original Records pertaining to the Work, Changes in the Work, Extra Work, and claims arising therefrom for a similar period of time.
- ii The Contractor and the Engineer shall attempt to reconcile their respective Daily Work Records on a daily basis, to simplify review of the claim, when submitted. If the Contractor and the Engineer fail to reconcile their respective Daily Work Records, then the Contractor shall submit its Daily Work Records as part of its claim, whereby the resolution of the dispute about the Daily Work Records shall not be resolved until there is a resolution of the claim.
- iii The keeping of Daily Work Records by the Engineer or the reconciling of such Daily Work Records with those of the Contractor shall not be construed to be acceptance of the claim.

GC 3.21.03 Claims Procedure

- i The Contractor shall give verbal notice of any situation that may lead to a claim for additional payment immediately upon becoming aware of the situation.
- ii The Contractor shall provide written notice within 7 calendar Days of the commencement of any part of the Work that may be affected by the situation.
- iii The Contractor shall submit detailed claims as soon as reasonably possible and in any event no later than 30 Days after completion of the work affected by the situation. The detailed claim shall:
 - a identify the item or items in respect of which the claim arises;
 - b state the grounds, contractual or otherwise, upon which the claim is made; and
 - c include the Records maintained by the Contractor supporting such claim. In exceptional cases, the 30 Days may be increased to a maximum of 90 Days with approval in writing from the Engineer.
- iv Within 30 Days of the receipt of the Contractor's detailed claim, the Engineer may request the Contractor to submit any further and other particulars as the Engineer considers necessary to assess the claim. The

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- Contractor shall submit the requested information within 30 Days of receipt of such request.
- v Within 90 Days of receipt of the detailed claim, the Engineer shall advise the Contractor, in writing, of the Engineer's opinion with regard to the validity of the claim.

GC 3.21.04 Negotiations

- i The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, open and timely disclosure of relevant facts, information, and documents to facilitate these negotiations.
- ii Should the Contractor disagree with the opinion given in paragraph GC 3.21.03 (v), with respect to any part of the claim, the Engineer shall enter into negotiations with the Contractor to resolve the matters in dispute. Where a negotiated settlement cannot be reached and it is agreed that payment cannot be made on a Time and Material basis in accordance with clause GC 7.10, Payment for Extra work, the parties shall proceed in accordance with clause GC 3.21.05, Mediation, or subsection GC 3.21.08, Arbitration.

GC 3.21.05 Mediation

- i If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.21.04, Negotiations, within a period of 30 Days following the opinion given in paragraph GC 3.21.03 (v), and the Contractor wishes to pursue the issue further, the parties may, upon mutual agreement, utilize the services of an independent third party mediator.
- ii The mediator shall be mutually agreed upon by the Owner and Contractor.
- iii The mediator shall be knowledgeable regarding the area of the disputed issue. The mediator shall meet with the parties together or separately, as necessary, to review all aspects of the issue. In a final attempt to assist the parties in resolving the issue themselves prior to proceeding to arbitration the mediator shall provide, without prejudice, a non-binding recommendation for settlement.
- iv The review by the mediator shall be completed within 90 Days following the opinion given in paragraph GC 3.21.03 (v).
- v Each party is responsible for its own costs related to the use of the third party mediator process. The cost of the third party mediator shall be equally shared by the Owner and Contractor.

GC 3.21.06 Payment

- i Payment of the claim shall be made no later than 30 Days after the date of resolution of the claim or dispute.

GC 3.21.07 Rights of Both Parties

- i It is agreed that no action taken under subsection GC 3.21, Claims, Negotiations, Mediation, by either party shall be construed as a renunciation or waiver of any of the rights or recourse available to the parties, provided that the requirements set out in this subsection are fulfilled.

GC 3.21.08 Arbitration

GC 3.21.08.01 Conditions of Arbitration

- i If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.21.04, Negotiations, or the mediation stage noted in clause GC 3.21.05, Mediation, either party may invoke the provisions of subsection GC 3.21.08, Arbitration, by giving written notice to the other party.
- ii Notification that arbitration shall be implemented to resolve the issue shall be communicated in writing as soon as possible and no later than 60 Days following the opinion given in paragraph GC 3.21.03 (v). Where the use of a third party mediator was implemented, notification shall be within 120 Days of the opinion given in paragraph GC 3.21.03 (v).
- iii The parties shall be bound by the decision of the arbitrator.
- iv The rules and procedures of the *Arbitration Act*, 1991, S.O. 1991, c.17, as amended, shall apply to any arbitration conducted hereunder except to the extent that they are modified by the express provisions of subsection GC 3.21.08, Arbitration.

GC 3.21.08.02 Arbitration Procedure

- i The following provisions are to be included in the agreement to arbitrate and are subject only to such right of appeal as exist where the arbitrator has exceeded his or her jurisdiction or have otherwise disqualified him or herself:
 - a All existing actions in respect of the matters under arbitration shall be stayed pending arbitration;
 - b All outstanding claims and matters to be settled are to be set out in a schedule to the agreement. Only such claims and matters as are in the schedule shall be arbitrated; and
 - c Before proceeding with the arbitration, the Contractor shall confirm that all matters in dispute are set out in the schedule.

GC 3.21.08.03 Appointment of Arbitrator

- i The arbitrator shall be mutually agreed upon by the Owner and Contractor to adjudicate the dispute.
- ii Where the Owner and Contractor cannot agree on a sole arbitrator within 30 Days of the notification of arbitration noted in paragraph GC 3.21.08.01 (ii), the Owner and the Contractor shall each choose an appointee within 37 Days of the notice of arbitration.
- iii The appointees shall mutually agree upon an arbitrator to adjudicate the dispute within 15 Days after the last appointee was chosen or they shall refer the matter to the Arbitration and Mediation Institute of Ontario Inc., which may select an arbitrator to adjudicate the dispute within 7 Days of being requested to do so.
- iv The arbitrator shall not be interested financially in the Contract nor in either party's business and shall not be employed by either party.
- v The arbitrator may appoint independent experts and any other persons to assist him or her.
- vi The arbitrator is not bound by the rules of evidence that govern the trial of cases in court but may hear and consider any evidence that the arbitrator considers relevant.
- vii The hearing shall commence within 90 Days of the appointment of the arbitrator.

GC 3.21.08.04 Costs

- i The arbitrator's fee shall be equally shared by the Owner and the Contractor.
- ii The fees of any independent experts and any other persons appointed to assist the arbitrator shall be shared equally by the Owner and the Contractor.
- iii The arbitration hearing shall be held in a place mutually agreed upon by both parties or in the event the parties do not agree, a site shall be chosen by the arbitrator. The cost of obtaining appropriate facilities shall be shared equally by the Owner and the Contractor.
- iv The arbitrator may, in his or her discretion, award reasonable costs, related to the arbitration.

GC 3.21.08.05 The Decision

- i The reasoned decision shall be made in writing within 90 Days of the conclusion of the hearing. An extension of time to make a decision may be granted with consent of both parties. Payment of any award shall be made in accordance with clause GC 3.21.06, Payment.

GC 3.22 NOTICES

- i. Any notice permitted or required to be given to the Engineer or the Superintendent in respect of the Work shall be deemed to have been given to and received by the addressee on the date of delivery if delivered by hand or by facsimile transmission and on the fifth day after the date of mailing if sent by mail.
- ii. The Contractor shall provide the mailing addresses, telephone numbers, e-mail addresses, after working hours telephone numbers, and facsimile terminal numbers for the Superintendent at the commencement of the Work.
- iii. In the event of an emergency situation or other urgent matter the Engineer or the Superintendent may give a verbal notice, provided that such notice is confirmed in writing.
- iv. Any notice permitted or required to be given to the Corporation or the Contractor shall be given in accordance with the notice provision of the Agreement.

GC 3.23 NOTICE OF COMPLETION OF WORKS

- i. As soon as in the opinion of the Engineer the Works shall have been "Substantially Performed" or "Deemed Completed" as defined under the Construction Lien Act, have passed any test that may be prescribed by the Contract, and have been accepted in writing by the Engineer as completed and to his satisfaction; the Engineer shall, on receiving an undertaking by the Contractor to finish any outstanding work during the Period of Maintenance, issue the appropriate certificate as provided for under the Construction Lien Act in respect of the Works, and the Period of Maintenance of the Works shall commence from the date of such certificate. Provided that the Engineer may give such a certificate with respect to any part of the Works before the completion of the whole of the Works; subject to such part of the Works having been accepted in writing by the Engineer as completed and to his satisfaction. When any such certificate is given in respect of a part of the Works, such part shall be considered as completed; and the Period of Maintenance of such part shall commence from the date of such Notice.
- ii. Following the issuance of the appropriate certificate as provided for under the Construction Lien Act, the Engineer will provide the Contractor with a Letter of Acceptance for Maintenance for the Works confirming the Period of Maintenance and any special conditions related thereto.

GC 3.24 END OF MAINTENANCE PERIOD

- i. Only written notice shall be deemed to constitute approval of any work, or other matter in respect of which it is issued, or shall be taken as an admission of the due performance of the Contract, or any part thereof, or of the accuracy of any claim or demand made by the Contractor, or of additional or varied work having been ordered by the Engineer, and no other certificate conclude or prejudice any of the powers of the Engineer.
- ii. The Contract shall not be considered as completed, until a Letter Assuming the works shall have been signed by the Engineer stating that the Works have been completed and maintained to the satisfaction of the Engineer. The Letter Assuming the Works shall be given by the Engineer upon the expiration of the Period of Maintenance, or as soon thereafter as any works ordered during such period, pursuant to Clauses 4.21 and 4.01.xvii hereof, shall have been completed to the satisfaction of the Engineer and full effect shall be given to the Clause, notwithstanding any previous entry on the Works, or the taking possession working or using thereof, or any part thereof, by the Corporation.

GC 3.25 ASSUMPTION OF WORKS

- i. The Corporation shall not be liable to the Contractor for any matter or thing arising out of, or in connection with the Contract or the execution of the Works, unless the Contractor shall have made a claim in writing in respect thereof, before the giving of the Letter Assuming the Works under this Clause.
- ii. Notwithstanding the issue of the Letter Assuming the Works, the Contractor shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issue of the Letter Assuming the Works, which remains unperformed at the time such letter is issued; and for the purposes of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force between the parties hereto.

GC 3.26 SITE MEETINGS

Site meetings shall be held at regular intervals as directed by the Engineer. The Contractor shall provide a responsible representative for such meetings.

GC 3.27 DEFAULT BY CONTRACTOR

- i. If the Contractor becomes bankrupt or has a receiving order made against him, or presents his petition in bankruptcy, or makes an arrangement with,

or assignment in favour of his creditors, or agrees to carry out the contract under a committee of inspection of his creditors, or (being a corporation), goes into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or if the Contractor assigns the contract without the consent in writing of the Corporation first obtained, or has an execution levied on his goods, then the Corporation may, without prejudice to any other right or remedy it may have, by giving the Contractor or Receiver or Trustee in bankruptcy five (5) day written notice terminate this contract.

- ii. If the Contractor:
- a. has abandoned the contract, or
 - b. has without reasonable excuse has failed to commence the works, or has suspended the progress of the works for 14 days after receiving from the Engineer written notice to proceed, or
 - c. has failed to proceed with due diligence, or
 - d. has failed to remove materials from the site, or to pull down and replace work for 14 days after receiving from the Engineer written notice that the said materials or work have been condemned, and rejected by the Engineer under these conditions, or
 - e. is not executing the works in accordance with the contract, or is persistently or flagrantly neglecting to carry out his obligations under the contract, or
 - f. has to the detriment of good workmanship, or in defiance of the Engineer's instructions to the contrary, sub-let any part of the contract.

then the Corporation may notify the Contractor in writing that he is in default of his contractual obligations and instruct him to correct the default within five (5) working days of receiving the notice.

- iii. 1. The Contractor shall have the right within the given five (5) full working days following the receipt of a notice of default to correct the default and provide the owner with satisfactory proof that appropriate corrective measures have been taken.
2. If the correction of the default cannot be completed within the five (5) full working days following receipt of the notice, the Contractor shall not be in default if the Contractor:
- a. commences the correction of the default within the five (5) full working days following receipt of the notice;
 - b. provides the Corporation with an acceptable schedule for the progress of such correction; and
 - c. completes the correction in accordance with such schedule.

- iv. If the Contractor is in default of the contract and the contractor has provided a Performance Bond, the provisions of this section shall be exercised in accordance with the conditions of the Performance Bond.
- v. If the contractor fails to comply with the provisions of 3(1) or 3(2) the Corporation may without prejudice to any other right or remedy it may have:
 - a. correct such default and deduct the cost thereof from the payment then or thereafter due the contractor; or
 - b. terminate the Contractor's rights to continue with the work in whole or in part or terminate the contact.
- vi. If the Corporation terminates the Contractor's right to continue with the work in whole or in part, the Corporation will be entitled to:
 - a. take possession of the working area or that portion of the working area devoted to that part of the work terminated;
 - b. utilize the Contractor's equipment and any material within the working area which is intended to be incorporated into the work, the whole subject to the right of third parties;
 - c. withhold further payments to the Contractor with respect to the work or the portion of the work withdrawn from the contractor until the work or portion thereof withdrawn is completed;
 - d. charge the Contractor the additional cost over the contract price of completing the work or portion thereof withdrawn from the Contractor, as certified by the Engineer and any additional compensation paid to the Corporation for such additional service arising from the correction of the default;
 - e. charge the Contractor a reasonable allowance, as determined by the Engineer, to cover correction to the work performed by the Contractor that may be required;
 - f. charge the Contractor for any damages the Corporation may have sustained as a result of the default; and
 - g. charge the Contractor the amount by which the cost of corrections to the work exceeds the allowance provided for such corrections.
- vii. If the Corporation's cost to correct and complete the work in whole or in part is less than the amount withheld from the Contractor the Corporation will pay the balance to the Contractor as soon as the final accounting for the contract is complete.
- viii. The Contractor's obligation under the contract as to quality, correction and warranty of the work performed prior to the time of termination of the

contract or termination of the Contractor's right to continue with the work in whole or in part shall continue to be in force after such termination.

GC 4 CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK

GC 4.01 GENERAL

- i. The Contractor shall have complete control of the work and shall effectively direct and supervise the work, to the satisfaction of the Engineer, so as to ensure conformity with the contract documents. The Contractor shall be responsible for construction means, methods, techniques, sequences and procedures and for coordinating various parts of the work.
- ii. The Contractor shall comply with and adhere strictly to, the Engineer's instructions and directions on any matter (whether mentioned in the contract or not). The Contractor shall take instructions and directions from the Engineer.
- iii. The Contractor shall have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use.
- iv. Notwithstanding paragraph iii of subsection 4.01, where the Contract Documents include designs for temporary structures and other temporary facilities or specify a method of construction in whole or part, such facilities and methods shall be considered to be part of the design or the specified method of construction. The Contractor shall, however, be responsible for the execution of such design or specified method of construction in the same manner that the Contractor is responsible for the execution of the Work.
- v. The Contractor shall be responsible for construction health and safety within the working areas and for compliance with the current Occupational Health and Safety Act and Regulations and the current Workers Compensation Act. So as to avoid any misunderstanding as to the extent of the Contractor's responsibility, the Contractor, by executing the Contract unequivocally acknowledges that the Contractor is the Constructor within the meaning of the Act.
- vi. The Contractor shall be required to submit a progress schedule to the Engineer for approval prior to commencement of the work. Such

schedule shall be in a form acceptable to the Engineer, and shall indicate clearly the allowance for the various phases of the work, in sufficient detail to show weekly progress.

- vii. The Contractor shall submit to the Engineer an updated construction schedule each month immediately following the cut-off date and before preparation of the Monthly Payment Certificate. Failure to comply with this Clause may delay the issuing of the Monthly Payment Certificate.
- viii. The approval of the progress schedule by the Engineer shall not cast any responsibility upon the Engineer or the Corporation in seeing to it that the progress schedule is adhered to since timely execution of the work is the entire responsibility of the Contractor. The Engineer may, in his discretion, vary the progress schedule in whole or in part without relieving the Contractor from any of his responsibility to execute the contract in a timely way, nor shall such variation cast any responsibility whatsoever, upon either the Engineer or the Corporation.
- ix. The Contractor shall note that upon the commencement of any construction item within any designated local area which is construed to be a portion of the general area, it shall be agreed to by the parties to the contract, that any period of more than six (6) consecutive "working days" shall not be allowed to pass without further progress toward the completion of any and all other tender items such as grading of the boulevards, placement of topsoil, sodding, driveway and leadwalk reconstruction.
- x. The Contractor shall cooperate at all times with all utility companies and other contractors either working for a utility or the Corporation, while the said utilities or contractors are maintaining, altering or installing new plant. The Contractor shall coordinate the reconstruction work to allow a reasonable length of time for the utility to carry out its work and shall allow free access at all times. The Contractor shall not be entitled to any extra remuneration nor any extension in the time of completion for such cooperation. The Engineer will be the sole judge in the case of all disputes in this regard. In addition, the Contractor shall notify Utility companies for the purpose of adjusting all shut offs and other parts of their plant.
- xi. The Contractor shall keep on the work site during its progress a competent supervisor satisfactory to the Engineer for the duration of the contract. The Contractor shall inform the Engineer in writing of the name of such supervisor prior to the commencement of the Contract and if at any time the Engineer shall require such supervisor to be replaced, then the Contractor is to arrange for him to vacate his position and be removed from the site within forty-eight (48) hours after receiving formal notice in

writing to replace him with another supervisor. The Engineer shall not be required to give any reason for such removal of supervisor or other worker he may from time to time require.

- xii. The supervisor shall not be changed except with the consent of the Engineer unless the supervisor proves to be unsatisfactory to the Contractor and ceases to be in his employ. The supervisor shall represent the Contractor in his absence and directions on matters given to him shall be held to be given to the Contractor. The Contractor shall give efficient supervision to the work using his best skill and attention at all times.
- xiii. During the construction of work which the Engineer considers it necessary, the Contractor shall employ on the work a responsible experienced Professional Engineer to generally supervise any supervisor or worker.
- xiv. The Contractor shall, at no additional cost to the Corporation, furnish all reasonable aid, facilities and assistance required by the Engineer for the proper inspection and examination of the Work or the taking of measurements for the purpose of payment.
- xv. Where the Contractor finds any errors, inconsistency or omission relating to the Contract, the Contractor shall promptly report it to the Engineer and shall not proceed with the activity affected until receiving direction from the Engineer.
- xvi. The Contractor shall promptly notify the Engineer in writing, if the subsurface conditions observed in the Working Area differ materially from those indicated in the Contract Documents.
- xvii. The Contractor shall, if required by the Engineer in writing, search for the cause of any defect, imperfection, or fault under the directions of the Engineer, and the cost of the work carried out in searching as aforesaid shall be borne by the Contractor, and he shall repair, rectify, and make good such defects, imperfections, or defaults at his own expense.
- xviii. The Contractor shall arrange with the appropriate utility authorities for the stake out of all underground utilities and service connections which may be affected by the Work. The Contractor shall be responsible for any damage done to the underground utilities by the Contractor's forces during construction. The Contractor shall be responsible for any damage done to the private service connections.

GC 4.02 LAYOUT

- i. Prior to commencement of construction, the Engineer and the Contractor will locate on site those property bars, baselines and benchmarks which are necessary to delineate the Working Area and to lay out the Work, all as shown on the Contract Drawings.
- ii. The Contractor shall be responsible for the preservation of all property bars while the Work is in progress, except those property bars which must be removed to facilitate the Work. Any property bars disturbed, damaged or removed by the Contractor's operations shall be replaced under the supervision of an Ontario Land Surveyor, at no extra cost to the Corporation.
- iii. The Contractor shall provide qualified personnel to lay out and establish all lines and grades necessary for construction. The Contractor shall notify the Engineer of any layout work carried out, so that the same may be checked by the Engineer.
- iv. The Contractor shall install and maintain substantial alignment markers and secondary benchmarks as may be required for the proper execution of the Work. The Contractor shall supply one copy of alignment and grade sheets to the Engineer.
- v. The Contractor shall assume full responsibility for alignment, elevations and dimensions of each of all parts of the Work, regardless of whether the Contractor's layout work has been checked by the Engineer.
- vi. All stakes, marks and reference points provided by the Engineer shall be carefully preserved by the Contractor. In the case of their destruction or removal, such stakes, marks and reference points will be replaced by the Contractor at no extra cost to the Corporation.

GC 4.03 TRAFFIC CONTROL REQUIREMENTS

- i. The Contractor shall provide a minimum of two lanes of traffic at all times and shall not close the highway unless permitted by the Engineer. With approval of the Engineer, the Contractor will be permitted to reduce the two lanes to a single 14 foot lane in isolated areas or will be allowed total closure of the highway. When single lane traffic is allowed, the Contractor shall provide competent flagmen at each limit of the restriction. When total closure and detouring is permitted the Contractor shall advise the Traffic Engineering, Fire and Police Departments of the City of Windsor as to the character, duration, etc. of the said detour and comply with their requirements.

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- ii. The Contractor shall at his own expense, provide, erect, maintain adequate traffic protection signs, barricades, lights, delineators, trench plating, flag persons, etc. in accordance with the requirements of the City of Windsor, to ensure safety to the public and the smooth flow of traffic. He shall designate an employee to be responsible for the traffic, the maintenance of traffic protection devices at night, Sundays and holidays. All barricades on obstructions shall be illuminated at night and all lights shall be kept illuminated from sunset to sunrise. The Contractor shall be responsible for all accidents or expense arising by reason of neglect or failure to comply with this clause.
 - iii. Traffic Control shall be in conformity with the procedure outlined in the current "Occupational Health and Safety Act, and Regulations for Construction Projects" and the current "Traffic Control Manual for Roadway Work Operations", Ministry of Transportation and Communications, and as amended. Twenty-four (24) hours prior to commencing work, the proposed traffic control will be discussed and reviewed by the Engineer's representative.
 - iv. Should the Contractor fail to provide the above mentioned precautions, the Engineer may direct that the work be suspended forthwith and such suspension shall remain in effect until the Contractor has taken proper remedies. Suspension of the work on this account shall not entitle the Contractor to any extension of time of completion, nor any additional remuneration.

GC 4.04 MAINTAINING ROADWAYS AND DETOURS

- i. The Contractor shall not be required to maintain a road through the working area until such time as the Contractor has commenced operations or on any part of the Contract that has been accepted by the Corporation.
- ii. Where the Contract Document provides for or the Engineer requires detours at specific locations, payment for the construction of the detours, and if required, for the subsequent removal of the detours, will be made at the Contract prices appropriate to such work.
- iii. Where the Contractor constructs a detour which is not specifically provided for in the Contract Document, or required by the Engineer, the construction of the detour and, if required, the subsequent removal shall be performed at the Contractor's expense. The detour shall be constructed and maintained to structural and geometric standard approved by the Engineer. Removal shall be performed as directed by the Engineer.

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- iv. Compliance with the foregoing provisions shall in no way relieve the Contractor of obligations under subsection 6.01, Protection of Work, Persons and Property, dealing with the Contractor's responsibility for damage claims, except for claims arising on sections of Highway within the Working Area that are being maintained by others.

GC 4.05 ACCESS TO PROPERTIES ADJOINING THE WORK AND INTERRUPTION OF UTILITY SERVICES

- i. The Contractor shall provide at all times and at no extra cost to the Corporation:
 - a. adequate pedestrian and vehicular access including such items as temporary board walks, gravelled or asphalted steps or ramps, temporary bus stops;
 - b. continuity of utility services to properties adjoining the working area; and
 - c. access to fire hydrants, and water and gas valves located in the working area.
- ii. Where any interruptions in the supply of utility services are required and are authorized by the Engineer, the Contractor shall give notice to the affected property owners.

GC 4.06 APPROVALS AND PERMITS

- i. The Contractor shall give all notices and pay all fees, required to be given, or paid, by any and all competent and constitutional legislation or any regulation or by-law of any local or other authority in relation to the execution of the Works, or any Temporary Works; and by the rules and regulations of all public bodies and companies whose property or, rights, are, or may be affected in any way by the Works or Temporary Works. The Contractor shall conform in all respects with the provisions of any and all competent and constitutional legislation, and the regulations or by-laws of any local or other authority, which may be applicable to the Works, or any Temporary Works and with such rules and regulations of public bodies and companies as aforesaid, and shall keep the Corporation indemnified against all penalties and liabilities of every kind for breach of any such legislation, regulation, By-law or the Common law as applicable to the Contractor's Works and duties under this contract.
- ii. The Contractor shall pay and arrange for all necessary plumbing and building permits and subsequent inspections.

GC 4.07 EXCESS MATERIALS AND DISPOSAL

- i. The Contractor shall remove from the worksite all excess materials including earth and rock excavation, broken concrete, rubble, broken asphalt, tree stumps, etc.
- ii. All materials such as metal, wood, asphalt, etc. which are not considered to be "inert fill" as defined in section 18 of regulation 309 under the Environmental Protection Act must be disposed of at waste disposal sites certified by the Ministry of Environment to accept and dispose of these wastes or to sites certified to recycle the waste in question.

GC 4.08 TRAFFIC AND PARKING SIGNS

Prior to commencing work on any street the Contractor shall, with the Engineer and a representative of the Traffic Engineering Department, inspect all signs and ascertain which are to be removed or relocated so as not to interfere with his operations. The Contractor shall then remove or otherwise relocate these signs as directed by the Traffic Engineering Department. Twenty-four (24) hours prior to the completion of any operation to a point that additional or permanent signs are required for the general safety of pedestrians and/or the motoring public, the Contractor shall notify the Traffic Engineering Department. Also, at any time during or subsequent to construction, the Contractor shall immediately notify the Corporation's Site Representative of any signs removed or damaged due to his operations, so that these signs may be repaired, replaced and erected immediately. The cost of repair or replacement of any signs, etc. damaged or removed by the Contractor shall be at the expense of the Contractor. Any and all stop signs removed must be reinstalled by the Contractor at the end of each working day should the road be opened for evening traffic.

GC 4.09 SIDE CASTING

The Contractor shall not side cast excavated material unless specifically authorized by the Engineer prior to construction. Excavated material shall be removed from the site immediately or stockpiled at a site/location approved by the Engineer.

GC 4.10 NOTICE TO OWNERS

The Contractor may be required to contact, in writing, the owners of property abutting the area where the work is to be constructed. Notices shall be delivered one week prior to the construction starting date in that area. This notice shall include notification of any necessary removal of rocks, trees, shrubs, etc. and the expected starting and completion date.

GC 4.11 ARTIFACTS

All fossils, artifacts and articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site, shall as between the Corporation and the Contractor, be deemed to be the absolute property of the Corporation; and the Contractor shall take reasonable precautions to prevent his workers, or any other persons, from removing or damaging any such article or thing, and shall immediately upon discovery thereof, and before removal, acquaint the Engineer of such discovery, and carry out at the expense of the Corporation, the Engineer's orders as to the disposal of the same.

GC 4.12 PATENT RIGHTS AND ROYALTIES

The Contractor shall save harmless and indemnify the Corporation from and against all claims and proceedings for, or on account of, infringements of any patent right, design, trade-mark or name or material used for, or in connection with, the Works or Temporary proceedings, damages, costs, charges and expenses whatsoever in respect thereof, or in relation thereto.

GC 4.13 FACILITIES FOR OTHER CONTRACTORS

The Contractor shall in accordance with the requirements of the Engineer, afford all reasonable facilities for any other contractors employed by the Corporation and their workers; and the workers of the Corporation and of any other properly authorized authorities or statutory bodies who may be employed in the execution, on or near the Site, of any work not included in the Contract; or of any Contract which the Corporation may enter into connection with, or ancillary to, the Works.

GC 4.14 PRESERVATION OF TREES

The Contractor shall exercise the utmost caution to ensure that living trees, not to be removed, are not damaged by his operations on this Contract.

GC 4.15 SHRUBBERY

The property owners will be given the opportunity to remove shrubbery in the contract area prior to commencement of the contract, but remaining shrubbery will be removed by the Contractor. Payment for this work shall be included in the price bid per cubic yard of excavation. No additional payment shall be made for the removal of tree stumps unless an item is provided in the Tender.

GC 4.16 LABOUR CLASSIFICATION AND RATES

The Contractor shall, if required by the Engineer, deliver to the Engineer, or at his office; a schedule showing in detail the classification and rates of labour employed by the Contractor on the site.

GC 4.17 DUST CONTROL

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both within the right-of-way and elsewhere.

GC 4.18 EMPLOYMENT

The Contractor and any sub-contractor of the Contractor will,

- a. employ only persons legally entitled to work in Canada.
- b. in employing persons, refrain from discriminating against any person by reason of their race, religious views, political affiliations, or sex.

GC 4.19 LIMITATIONS OF OPERATIONS

Except for such work as may be required by the Engineer to maintain the Work in a safe and satisfactory condition, the Contractor shall not carry on operations under the Contract on Sundays or holidays without permission in writing from the Engineer.

GC 4.20 CLEARANCE OF SITE ON COMPLETION

- i. The Contractor shall remove surplus materials, tools, debris, construction machinery and equipment not required for the performance of the remaining Work.
- ii. The Work shall not be deemed to have reached Completion until the Contractor has removed surplus materials, tools, construction machinery, equipment and debris.

GC 4.21 PERIOD OF MAINTENANCE

- i. In these conditions, the expression "Period of Maintenance", shall mean the period of maintenance named in the Tender, calculated from the date of the Notice of Completion of the Works issued by the Engineer in accordance with Clause 3.24 hereof, or in the event of more than one Notice having been issued by the Engineer under the said Clause, from the respective dates so notified; and in relation to the Period of Maintenance the expression "the Works" shall be construed accordingly. Unless otherwise specified, the Period of Maintenance shall be one year.

- ii. To the intent that the Works shall, at or as soon as practicable after the expiration of the Period of Maintenance, be delivered up to the Corporation in as good and perfect condition, (fair wear and tear excepted) to the satisfaction of the Engineer, as that in which they were at the commencement of the Period of Maintenance, the Contractor shall execute all such work of repair, amendment, reconstruction, rectification and making good of defects, imperfections, shrinkages or other faults, as may be required of the Contractor in writing by the Engineer during the Period of Maintenance, or within fourteen (14) days after its expiration, as a result of an inspection made by, or on behalf of, the Engineer, prior to its expiration.
- iii. All such work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer, be due to the use of materials or workmanship not in accordance with the Contract, or to neglect or failure on the part of the Contractor to comply with any obligations, expressed or implied on the Contractor's part under the Contract.
- iv. If the Contractor shall fail to commence and proceed diligently to execute any such work as aforesaid required by the Engineer within three (3) days of receipt of notice to do so from the Engineer or the Corporation, the Corporation shall be entitled to carry out such work by its own workers, or by other Contractors, and if such work is work which the Contractor should have carried out at the Contractor's own cost, shall be entitled to recover from the Contractor the cost thereof, or may deduct the same from any monies due, or that may become due to the Contractor.

GC 5 MATERIAL

GC 5.01 SUPPLY OF MATERIAL

All material necessary for the proper completion of the Work, except that listed as being supplied by the Corporation, shall be supplied by the Contractor. The contract prices for the appropriate tender items shall be deemed to include full compensation for the supply of such Material.

GC 5.02 QUALITY OF MATERIAL

- i. All Material provided by the Contractor shall be new.
- ii. Material supplied by the Contractor shall conform to the requirements of the Contract.

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- iii. As specified or as requested by the Engineer, the Contractor shall make available for inspection or testing a sample of any Material to be provided by the Contractor.
 - iv. The Contractor shall obtain for the Engineer the right to enter upon the premises of the Material manufacturer or supplier to carry out such inspection, sampling and testing as specified or as requested by the Engineer.
 - v. The Contractor shall notify the Engineer of the sources of supply sufficiently in advance of the Material shipping dates to enable the Engineer to perform the required inspection, sampling and testing.
 - vi. The Corporation will not be responsible for any delays to the Contractor's operations where the Contractor fails to give sufficient advance notice to the Engineer to enable the Engineer to carry out the required inspection, sampling and testing before the scheduled shipping dates.
 - vii. The Contractor shall not change the sources of supply of any Material without the written authorization of the Engineer.
 - viii. Material which is not specified shall be of a quality best suited to the purpose required and the use of such Material shall be subject to the approval of the Engineer.

GC 5.03 REJECTED MATERIAL

Rejected Material shall be removed from the work site expeditiously after the notification to that effect from the Engineer. Where the Contractor fails to comply with such notice the Engineer may cause the rejected Material to be removed from the site and disposed of in what the Engineer considers to be the most appropriate manner and the Contractor shall pay the costs of disposal and the appropriate overhead charges.

GC 6 INSURANCE, PROTECTION AND DAMAGE

GC 6.01 PROTECTION OF WORK, PERSONS AND PROPERTY

- i. The Contractor, the Contractor's agents and all workers employed by or under the control of the Contractor, including sub-contractors shall protect the work, structures, utilities, persons and property from damage or injury. The Contractor shall indemnify, and keep indemnified, the Corporation

against all claims for injuries or damages to any such person, property, structure, utilities, etc.; which may arise out of, or in consequence of, the construction and maintenance of the Works, and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever, in respect of, or in relation thereto.

- ii. From the commencement to the completion of the Works, the Contractor shall take full responsibility for the care thereof, and in case any damage, loss or injury shall happen to the Works, or to any part thereof, from any cause whatsoever, shall at his own cost, repair and make good the same, so that at completion, the Works shall be in good order and condition, and in conformity in every respect with the requirements of the Contract and the Engineer's instructions. The Contractor shall also be liable for any damage to the work occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 4.21 hereof.
- iii. The Contractor shall assume full responsibility for crossing or making use of private property. Before the Contractor or any of his sub-contractors shall make use of any private property for any purpose, he shall first submit to the Engineer a copy of a written agreement granting permission by the owner.
- iv. The Contractor shall immediately inform the Engineer of all damage and injuries which occur during the term of the Contract.
- v. The Contractor shall not be responsible for loss and damage that occurs as a result of:
 - a. war
 - b. blockades and civil commotions
 - c. errors in the Contract Documents
 - d. acts or omissions of the Corporation, the Engineer, their agents and employees, or others not under the control of the Contractor, but within the Working area with the Engineer's permission.
- vi. The Contractor and his Surety or Sureties will not be released from any term or provision of any responsibility, obligation or liability under the Contract or waive or impair any of the rights of the Corporation except by a release duly executed by the Corporation.

GC 6.02 LIABILITY INSURANCE

- i. As stated in the General Information to Tenders and prior to any work being commenced in accordance with the Contract, the Contractor shall deliver to the Corporation proof that an insurance policy has been issued

by an insurance company satisfactory to the Corporation to insure the Contract against any claims arising out of the construction or installation of the Works or any operations of the Contractor in connection therewith until the termination of the Contractor's obligation respecting guarantee and maintenance.

- ii. Such insurance shall carry limits of Liability in the amount not less than as shown in the Form of Tender, for public liability and property damage. The policy shall have no exclusion for blasting and must contain a "Completed Operations" clause. The Contractor shall prove to the satisfaction of the Corporation from time to time as the Engineer may require, that all premiums on such policy or policies, of insurance have been paid, and that the insurance is in full provisions of the Worker's Compensation Act.

GC 7 MEASUREMENT AND PAYMENT

GC 7.01 QUANTITIES

- i. The quantities set out in the Schedule of Unit Prices are the estimated quantities of the Works, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract.
- ii. The Engineer shall, except as otherwise stated or agreed, determine by measurement the value of the Work done all in accordance with the Contract. He shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor who shall forthwith attend, or send a qualified agent, to assist the Engineer in making such measurements; and shall furnish all particulars. Should the Contractor not attend, or neglect or omit to send such agent, then the measurement made by the Engineer, or approved by him, shall be taken to be the correct measurement of the work.

GC 7.02 WEIGHING GRANULAR MATERIALS

The scale location shall be as approved by the Engineer and the material shall be hauled directly from the scale to the point of application. The scale may be located at the source. Except that where there is a waste or loss of material, the hauling operation shall terminate until the Contractor shall provide, at his expense, scales licensed in accordance with the Weights and Measurements Act.

GC 7.03 VALUATION OF VARIATIONS

- i. The Engineer shall determine the amount (if any), to be added to, or deducted from, the sum named in the Tender in respect of any extra or additional work done, or work omitted by his order. All such work shall be valued at the rates set out in the Contract, if in the opinion of the Engineer, the same shall be applicable. If the Contract shall not contain any rates applicable to the extra or additional work, then reasonable prices shall be fixed by the Engineer.
 - a. Provided that if the nature or amount of any omission, or addition relative to the nature or amount of the whole of the contract work or to any part thereof, shall be such, that in the opinion of the Engineer, the rate or price contained in the Contract for any item of the Works is, by reason of such omission or addition, rendered unreasonable, or inapplicable, the Engineer shall fix such other rate or price as under the circumstances, he shall think reasonable and proper.
- ii. Provided also that no increase of the Contract Price or variation of rate or price, shall be made, unless as soon after the date of the order as is practicable, and in the case of extra or additional work, before the commencement of the work, or as soon thereafter as is practicable, notice shall have been given in writing:
 - a. by the Contractor to the Engineer of his intention to claim extra payment, or a varied rate or,
 - b. by the Engineer to the Contractor of his intention to vary a rate or price,as the case may be,
- iii. The Engineer may, if in his opinion it is necessary or desirable, order in writing that any additional substituted work shall be paid for by one or more of the following ways:
 - a. By estimate and acceptance in a lump sum
 - b. By unit prices agreed upon
 - c. By cost and percentage or by cost and a fixed fee
- iv. Where extra or additional work is to be paid for by method ©, the value shall be determined by the actual cost of:
 - a. Labour, including Workers' Compensation and insurance. The labour rates shall not exceed those paid by the Contractor on the contracted part of the work.

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- b. Materials, which shall not exceed the costs paid by the Corporation for similar materials.

To which labour and/or materials cost, shall be added fifteen per centum (15%) to cover general expenses, superintendence, use of tools and profit.

- v. In the event that the Engineer directs that additional work is to be done, in a location other than that which is shown in the contract drawings, the Contractor shall be requested to submit a quotation for this work. Payment shall then be made in the form of a Change Order.

GC 7.04 VARIATIONS IN TENDER QUANTITIES

- i. Where it appears that the quantity of work to be done and/or material to be supplied by the Contractor under a unit price tender item will exceed or be less than the tender quantity, the Contractor shall proceed to do the work and/or supply the material required to complete the tender item and payment will be made for the actual amount of work done and/or materials supplied at the unit prices stated in the tender except as provided below:
 - a. in the case of a major item where the amount of work performed and/or material supplied by the Contractor exceeds the tender quantity by more than 15%, either party to the Contract may make a written request to the other party to negotiate a revised unit price for that portion of the Work performed and/or material supplied which exceeds 115% of the tender quantity. The negotiation shall be carried out as soon as reasonably possible. Any revision of the unit price shall be based on the actual cost of doing the work and/or supplying the material under the tender item plus a reasonable allowance for profit and applicable overhead.
 - b. In the case of a major item where the quantity of work performed and/or materials supplied by the Contractor is less than 85% of the tender quantity, either party to the Contract may make a written request to the other party to negotiate a revised unit price for that portion of the work performed and/or material supplied. The negotiation shall be carried out as soon as reasonably possible. Any revision of the unit price shall be based on the actual cost of performing the work and/or supplying the material under the tender item plus a reasonable allowance for profit and applicable overhead. Alternatively, where both parties agree, an allowance equal to 10% of the unit price on the amount of the underrun which is less than 85% of the tender quantity will be paid.

GC 7.05 USE OF CONTINGENCY ITEMS

All sums set out in the Schedule of Prices which shall be stated to be used for contingencies, shall be used only at the direction and discretion of the Engineer; and if not used, either wholly or in part, shall as to the amount not used, be deducted from the Contract Price.

GC 7.06 CLAIMS

- i. The Contractor's attention is brought to the following provisions in the General Conditions:
 - a. Clause 2.01, Accuracy of Drawings as to Locations of Structures and Utilities.
 - b. Clause 2.02, Soundings, Boring and Inspection of Site.
 - c. Clause 3.18, Variations.
 - d. Clause 7.03, Valuations of Variations.
- ii. When the Contractor considers that he has a claim for compensation for costs which he has incurred or for loss he has suffered during the performance of the contract, he should immediately advise the Engineer of Intent to Claim on any specific portion of the Contract.
- iii. The Engineer shall record the circumstances of the claim in his "Daily Work Records" and this shall not be construed as acceptance of the claim.
- iv. The Contractor shall further notify the Engineer in writing as soon as possible of his intent to Claim but no later than seven (7) calendar days of the commencement of work for which the claim is being made. Upon receipt of such a written notice of claim, the Engineer shall immediately arrange a meeting with the Contractor or arbitrate the claim in accordance with subsection GC 3.21, Claims, Negotiations, Mediation, Arbitration.

GC 7.07 SUPPLY OF PLANT AND MATERIAL

Except where otherwise specified, the Contractor shall at his own expense, supply and provide all the Plant, Temporary Works, materials both for the temporary and for the permanent Works, equipment, labour, (including the supervision thereof) transport to or from the site, and in and about the Works; and other things of every kind required for the construction, completion and maintenance of the Works.

The term "labour" and "equipment" shall include hand tools, supplies and other incidentals.

GC 7.08 CERTIFICATES AND PAYMENTS

- i. A certificate will be given by the Engineer once a month certifying as to the amount of work done and material furnished and of the value thereof according to the terms of the Contract.
- ii. The first certificate shall be of the amount, quantity and value of the work done since the Contractor commenced the performance of this Contract, and every subsequent certificate, except the final one, shall be the amount quantity and value of the work done since the last preceding certificate was given. The Corporation will hold back 10% of the amount shown on the payment certificate in accordance with the Construction Lien Act provided always that the Contractor complies with the requirements of the Construction Lien Act.
- iii. The Engineer may, by any certificate, make any correction or modification in any previous certificate which shall have been issued by him and shall have power to withhold any certificate if the Works or any part thereof are not being carried out to his satisfaction.

GC 7.09 EXTRA WORK

“Extra Work” means work not provided for in the Contract as awarded but considered by the Engineer essential to the satisfactory completion of the Contract within its intended scope.

“Additional Work” means work not provided for in the Contract and not considered by the Engineer to be essential to the satisfactory completion of the Contract within its intended scope.

- i. No work shall be regarded as extra work unless it is approved in writing by the Engineer, and with the agreed price and method of payment for it specified in the said approval, provided the said price is not otherwise determined by this contract.
- ii. All notifications of claims for extra work shall be submitted to the Engineer before the extra work is started.

GC 7.10 PAYMENT FOR EXTRA WORK

- i. Notwithstanding anything contained in the General Conditions when it is necessary to perform work which is additional to the Tender items, unit prices to cover the cost of the work shall be negotiated whenever possible.

- ii. Where it is impracticable, due to the nature of the work, to negotiate unit prices for extra work not included in the Tender, the cost of this work may be paid for by a force account, and authorized by an order issued prior to carrying out the work, and for which payment is based on hourly rates for labour and equipment and on material invoices.

a. Supervision and Control

1. Force account work will be generally overseen by the Engineer who will keep a daily record of all work on the City's standard "Daily Work Record" Form. These records must be reconciled with the Contractor's representative EACH day. The Contractor, while working on force account work, will remain the "Constructor" within the meaning of the O.H.S.A.

b. Method of Billing by Contractor

1. In the case of extra work which has received prior approval with unit prices, all information must be clearly described on the "Change Order Form" complete with final monetary value.
2. In the case of extra work which is to be paid by actual labour, material and equipment, the "Daily Work Record" must be summarized per work item and this information reported in total on a "Change Order Form". This information from the daily force accounts summarized on the Change Order Form will become the basis for payment on the progress draw.
3. Contractors will not submit invoices for extra or additional work on projects. This will be paid for by progress draw as states in Item (7.08) and the submission of invoices will only service to delay the progress payment.
4. All change orders will be numerically numbered per contract.
5. No payment for extra work will be made until the change order has been mutually approved by the Engineer and the contractor.

c. Labour

The charge for labour and supervision thereof shall be based on the hourly recorded time of the labourers, mechanics and operators actively and of necessity engaged on the extra work. The contractor's designated representative shall be included and he must be actively involved on a continuous basis in the operation unless otherwise agreed to by the Engineer. In no case shall the time of any employee of the contractor or other person be charged for on a lump sum, percentage or estimated basis, and in no case shall any charge be made for administration or management whether the time

therefore had or had not been recorded as having been spent on the extra work. To the amount of labour and supervision agreed on may be added to the proper percentages of the amount paid for Workmen's Compensation, Vacation Pay, Unemployment Insurance and the Firm's Contribution to Pension Plan. Payment will be made on such itemized bills of cost to the contractor plus 15% of that bill.

d. Materials

The charge for materials will be based on itemized invoices of costs of materials purchased by the Contractor for the extra work, plus 15%, or for the cost of material from the Contractor's stock based on the current price of the materials, plus 15% to cover administration, overhead and profit. Material so charged becomes the property of the Corporation.

e. Equipment

- i. The charges for equipment used by the Contractor shall be based on the O.P.S.S. 127 Rates. Rental rates include depreciation, interest, taxes, insurance, repairs, maintenance, supplies, fuel, lubricants, supervision, overhead and profit. No charge is to be made for office expense, office supplies or stationery, bookkeeping, financing, or any other overhead accounts. Rental rates other than O.P.S.S. rates must be approved by the Engineer.
- ii. The charges for equipment used by the Contractor will be made on the actual number of hours on which the equipment is actively engaged in the extra work. If a unit of equipment is not performing its normal function for a period of time exceeding one hour, it will be on standby time from the time it ceased performing its normal function, provided that the unit of equipment is fully operable and cannot practically be used on other work but must remain on the site in order to continue with its assigned task. This time, together with actual working time will only be paid up to the period of time which constitutes one working day. Payment, if any, for additional gaps must be negotiated and approved by the Engineer. The City will pay the operator or operating crew on an hourly rate for the length of standby, plus 25% of the scheduled equipment rental rate for the machine while standing by.
- iii. Equipment rented by the Contractor will be paid at the invoice rate plus 15% unless the invoice rate exceeds the O.P.S.S. rate or when the invoice rate includes an operator exceeds the O.P.S.S. rate when the established rate of the operator is deducted. Equipment exceeding the

O.P.S.S. rate will be paid at the invoice rate only, provided approval from the engineer was given prior to commencement of work.

- iv. Floating charges will only be paid when the equipment is being transported within the limits of the contract on and off the site of the force account work and is not moving under its own power. When equipment is moved under its own power, the full rental rate will be paid. Payment for transporting equipment from sources outside the limits of the contract must be negotiated through the Engineer.
- v. When the Contractor wishes to use oversize equipment, he may do so upon written notice of the Engineer who will determine the rate to be paid.
- vi. When force account work is carried out by a sub-contractor, the allowance to the prime contractor will be 5% of the invoice submitted by the sub-contractor exclusive of the sub-contractor's 15% allowance.
- vii. No payment will be made for or in respect to any tools, hand or otherwise which are considered part of the trade.
- viii. No payment shall be made for any vehicle (pick up truck, etc.) unless it is actively necessary for the work being carried out. (i.e. the force account work is being carried out at more than one location, or the force account work is for one day or less and workers and small tools, supplies, etc. must be transported to or from another site).
- ix. At the start of the force account work the Contractor shall provide the applicable labour and equipment rates not already submitted to the Engineer. Any subsequent invoices for rental equipment and material will be submitted for the "daily work record". (NOTE: The conditions for rental equipment invoices.)

CITY OF WINDSOR

SUPPLEMENTARY SPECIFICATIONS

AND

MANDATORY PROCEDURES AND PRACTICES

JANUARY 2023

BOOK OF SUPPLEMENTARY SPECIFICATIONS AND MANDATORY PROCEDURES AND PRACTICES

The specifications, procedures, and practices contained in this document shall be used on all City contracts and take precedent over City of Windsor General Specifications and Ontario Provincial Standard Specifications.

These specifications, procedures, and practices shall not be revised or altered without the expressed consent of the City Engineer.

Where these specifications, procedures, and practices do not meet a site-specific condition, in whole or in part, that portion or portions of the specification, procedure, or practice shall be altered and placed in the Special Provisions for that contract only.

To avoid future ambiguity, these supplementary specifications shall be referred to as Supplementary Specifications I, (SS 1, SS 2, SS 3, etc.) These specifications shall be reviewed periodically.

**BOOK OF SUPPLEMENTARY SPECIFICATIONS
AND MANDATORY PROCEDURES
AND PRACTICES**

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BOOK OF SUPPLEMENTARY SPECIFICATIONS AND MANDATORY PROCEDURES AND PRACTICES

1. **REVISED STANDARD SPECIFICATIONS AND GENERAL CONDITIONS (January 2022)**

As of January 2022, the City of Windsor Standard Specifications and AS-drawings are all released through the following website, with the revision dates.

<http://www.citywindsor.ca/business/buildersanddevelopers/Pages/Standard-Specifications.aspx>

<http://www.citywindsor.ca/business/buildersanddevelopers/Pages/Standard-Engineering-Drawings.aspx>

The latest revisions shall apply to all City of Windsor Contracts that are signed after the Specification and AS-drawing revision dates.

2. **MANAGEMENT OF EXCAVATED SOIL AND ROCK ON-SITE AND OFF-SITE (January 2023)**

General

All materials that are not Excess Soil, but are no longer required at the Project Area by the City Engineer, shall be removed from the Project Area and lawfully disposed of by the Contractor at its own expense.

The Contractor shall make its own arrangement as to transportation and disposal, but in doing so must comply with all federal, provincial, or municipal statutes, regulations, codes, or by-laws, and any orders, permits, approvals, or other regulatory instruments issued under such statutes, regulations, codes or by-laws (together, “Applicable Laws”).

The Contractor shall as necessary, excavate, manage, reuse, process, segregate, store, transport, track and dispose of offsite, and complete any other handling required for proper management, reuse and/or disposal of Soil, Crushed Rock and Excess Soil each as defined in Ontario Regulation 406/19 and in accordance with the requirements of all Applicable Laws including, but not limited to:

- The *Environmental Protection Act*, R.S.O. 1990, c.E.19 (“EPA”);
- Ontario Regulation 406/19: On-Site and Excess Soil Management (the “Regulation”);
- Regulation 347 (General – Waste Management);
- Ontario Regulation 351/12 (Registrations under Part II.2 of the Act – Waste Management Systems);

- Ontario Regulation 153/04 (Records of Site Condition – Part XV.1 of the Act);
- Any additional regulations under the EPA as may be applicable to the above work, including but not limited to additional regulations pertaining to waste and/or source separation of waste (including Ontario Regulation 103/94);
- The Rules for Soil Management, dated December 23, 2022 (the “Rules”) and Excess Soil Quality Standards, dated December 8, 2020 (the “Standards”); and,
- The Beneficial Reuse Assessment Tool (“BRAT”), where applicable; and,
- All as amended (collectively, “Ontario’s Excess Soil and Waste Laws”).

Capitalized terms used in this section shall have the meanings assigned to them in the Regulation and the Rules and the Standards, unless expressly amended herein.

For clarity, capitalized terms: Owner, Contractor, Work and Working Day shall have the meanings assigned in the General Conditions and the Mandatory Contract Terms of this RFT.

References to Soil in this section shall include Soil, Crushed Rock and/or Soil mixed with Crushed Rock, each as defined by the Regulation.

The Contractor represents and warrants that it is familiar with and knowledgeable of Ontario’s Excess Soil and Waste Laws.

To the extent the Contractor is required by the terms herein to send a notice to or seek approval or consent from the Owner and the Contractor shall include or copy the Owner’s Qualified Person (QP) on any such correspondence. Approval or consent from the Owner shall mean approval or consent that is provided in writing.

Material Management

The Contractor shall prepare an excavation contingency plan in accordance with section 23 of the Regulation and submit the plan to the Owner for review and approval prior to the Contractor starting excavation in the Project Area.

On-site storage of excavated Soil at the Project Area will not be permitted unless the Owner has provided its prior approval in writing. If Owner approval has been obtained, the Contractor shall conduct on-site storage of excavated Soil at the Project Area in compliance with Ontario’s Excess Soil and Waste Laws.

If the Contractor intends to process excavated Soil at the Project Area, the Contractor shall notify the Owner and shall obtain approval prior to conducting any processing activities. If Owner approval has been obtained, the Contractor shall conduct all excavated Soil processing at the Project Area in accordance with section 6 of the Regulation and the Rules and shall ensure processing activities are conducted in a manner that would not result in the Soil at the Project Area being designated as waste due to processing.

If special excavated Soil processing activities occur on-site involving mixing with a natural or synthetic polymer for the purpose of dewatering and solidifying the excavated Soil, the Contractor shall retain a QP to meet the requirements of subsection 6(4) of the Regulation. The Contractor shall provide the Owner with a copy of any documentation or the Contractor's QP prepares as required by section 6 of the Regulation. The Contractor shall provide the Owner of any Reuse Sites that have agreed to receive the Soil a copy of the document prepared by the Contractor's QP as required by paragraph 6(4).3 of the Regulation prior to transporting the Soil from the Project Area.

The costs associated with this special work done by the QP will be subject to the approval of the City Engineer.

The Contractor shall employ appropriate Soil segregation practices during handling, temporary storage and transportation to ensure mixing of Soils of different qualities does not occur.

Import of Excess Soil

All Excess Soil being brought to the Project Area shall meet the requirements set out in Ontario's Excess Soil and Waste Laws and shall be approved by the Owner prior to Excess Soil being imported for reuse to the Project Area.

The Contractor shall provide the Owner with the following information, for review and approval no later than ten (10) Working Days prior to the start of importation of Excess Soil to the Project Area:

- Information identifying the location, owner, operator of the proposed source site, and the associated contact information;
- Quantity of Excess Soil required for the Work;
- Soil quality standard applicable under the Standards (or, if applicable and approved by the Owner, site-specific standard generated by a QP through the BRAT) for Excess Soil with sampling and analysis results satisfactory to the Owner's QP;
- A copy of any permits, approvals, and/or licences applicable to the source site Excess Soil;
- Procedures the Contractor will employ for load management and inspection of incoming loads in accordance with section 19 of the Regulation, including those pertaining to segregation and record management; and,
- Any other information about the proposed Excess Soil the Owner may reasonably require.

The Contractor shall ensure the Excess Soil and its management and handling meets the requirements of Ontario's Excess Soil and Waste Laws and shall in no circumstances deposit a material designated as waste, other than Excess Soil at the Owner's property or Project Area. In identifying source sites to meet clean fill needs, the Contractor shall give

priority consideration to other projects the Owner is carrying out, that based on the foregoing meet the applicable Standard for quality.

Salt-impacted Excess Soil may be used at the Project Area as fill material in accordance with the recommendations provided in the Excess Soil Reuse Planning reports and geotechnical investigation reports prepared for this project and as approved by the Owner. The Contractor shall comply with the documentation and management requirements of the Regulation and Rules for salt-impacted Soil.

The Contractor acknowledges the Owner must provide written consent to the source site owner via the Contractor in a form acceptable to the Owner and no other commitments or agreements shall be made with the owner or operator of the source site of the Excess Soil without the Owner's prior written approval. Any Excess Soil brought onsite without the Owner approval in writing shall be rejected; any costs associated with removal and remediation of the Project Area, where such Excess Soil exceeds the soil quality standard or quantity as approved by the Owner under this section, shall be borne by the Contractor.

The Contractor shall make best efforts to seek that reliance is extended to the Owner by the QP for the source site on any reports, data and recommendations they have prepared, used to identify suitability of Excess Soil from a source site to be reused at the Project Area. Reliance under this section means reliance on terms acceptable to the Owner.

Chemical Analysis and Results of Excess Soil

The Excess Soil Reuse Planning reports and geotechnical investigation reports prepared for this project have been provided for information purposes to assist identification of appropriate Reuse Sites and Soil management activities on this project. It is the Contractor's responsibility to review and ensure its understanding of the Excess Soil Reuse Planning reports and geotechnical investigation reports prepared for the project. The Contractor shall not claim any misunderstanding with regard to subsurface physical or chemical conditions provided in the reports for this Contract.

Excess Soil/Excess Material

Soil excavated in carrying out the Work of this Contract, that is not being reused at the Project Area, shall be removed from the Project Area and deposited at a Reuse Site or other suitable waste disposal site operating under an approval from Ontario's Ministry of the Environment, Conservation and Parks (MECP), as approved by the Owner, at the Contractor's expense in accordance with Ontario's Excess Soil and Waste Laws and Ontario Provincial Standard Specifications 180 ("OPSS 180"). To the extent that there is

any conflict or inconsistency between Ontario's Excess Soil and Waste Laws and OPSS 180, Ontario's Excess Soil and Waste Laws shall govern.

The Contractor shall not commence construction until the Owner's prior written approval of the Contractor's choice of all proposed receiving facilities (whether for storage, processing, reuse, and/or disposal) has been provided. The Contractor shall be responsible for identifying and making deposit arrangements acceptable to the Owner at appropriate off-project Reuse Sites based on the quality, geotechnical suitability and quantity of Excess Soil from the Project Area and in accordance with Ontario's Excess Soil and Waste Laws.

No claims related to delays while sourcing a lawful Reuse Site (or other MECP-approved receiving site) or delays related to acceptance of Excess Soil/excess material by the Reuse Site (or other MECP-approved receiving site) will be paid to the Contractor.

Within ten (10) days after the purchase order for raw materials or Award of Tender notice is issued, whichever occurs first, and in any event prior to construction and/or excavation, the Contractor shall provide the Owner with the following information for review, approval and where applicable, incorporation into an Excess Soil Destination Assessment Report:

- Identification of the location of the Contractor's proposed Reuse Site(s) (or other MECP-approved receiving sites) and the name and contact information for their owner, operator and QP, as applicable. The Contractor shall also provide a copy of Ontario Provincial Standard Form 180-2 (OPSS 180-2), "SITE SELECTION NOTIFICATION FOR MATERIAL MANAGED AS DISPOSABLE FILL" signed by the reuse site registered property owner and the Contractor. The Contractor is not permitted to start any excavation work until this signed consent has been approved by the Owner;
- Where Reuse Sites are governed by an instrument listed in section 3(2)4 of the Regulation ("Reuse Site Instrument"):
 - A copy of the Reuse Site Instrument; and,
 - The Soil quality standard under the Standards (or, if applicable and approved by the Owner, site-specific standard generated by a QP through the BRAT) applicable to the Reuse Site under the Rules and Standards or as established by the Reuse Site's Qualified Person.
- Where Reuse Sites are not governed by a Reuse Site Instrument:
 - A description of the beneficial purpose for which the Excess Soil from the Project Area will be used at the Reuse Site, as contemplated in section 5(1)3 of the Regulation; and,

- Written confirmation that the Excess Soil, including its quantity and quality, will meet the timing and all other requirements for Excess Soil placement at the Reuse Site in accordance with section 5 of the Regulation.
- Transportation contingency measures the Contractor will implement, including but not limited to, location of an alternate site in the event Excess Soil cannot be deposited at the locations listed;
- Excavation contingency plan outlining what must occur if any person working in the project area makes an observation during soil excavation within the project area, including visual or olfactory observation, that suggests that the soil being excavated may be affected by the discharge of a contaminant;
- Identification and location of any interim sites permitted by Ontario's Excess Soil and Waste Laws, including Class 1 Soil Management Sites, Class 2 Soil Management Sites, Local Waste Transfer Facilities, Retail Landscaping Soil Depots, and/or Residential Development Soil Depots (collectively, "Temporary Sites") proposed to be used to temporarily store and/or process Excess Soil, as well as the name and contact information for the owner and operator for each site, or waste disposal sites approved by MECP to accept Excess Soil for final disposal, as well as the name and contact information for the owner and operator for each site; and,
- A description of the proposed Reuse Site's (or other MECP-approved receiving site) capacity and requirements for the deposit of Excess Soil and confirmation that those requirements can and will be complied with by the Contractor;
- A copy of the Environmental Compliance Approval issued by the MECP for each Class 1 Soil Management Site the Contractor will be using to temporarily store and/or process the Excess Soil and/or waste disposal site the Contractor will be using to dispose of the Excess Soil, if applicable; and,
- Any other information about the proposed Reuse Site (or other MECP-approved receiving site) the Owner may reasonably require.

Failure to provide documentation in a timely manner may result in construction delays at the Contractor's expense. The Contractor acknowledges and agrees that Working Days shall commence as scheduled even though the Contractor is not permitted to complete any construction or excavation related work until such time that all documentation referred to above has been delivered and accepted by the Owner.

To the extent that excess material is neither excavated Soil nor Excess Soil but otherwise constitutes "waste" pursuant to the EPA and Reg. 347 ("Non-Soil Waste"), the Contractor shall manage, transport, and dispose of the Non-Soil Waste and ensure that the Non-Soil Waste is managed, transported, and disposed of in accordance with the EPA, Regulation 347, Ontario Regulation 351/12 and other regulations under the EPA, as may be

applicable, including but not limited to ensuring that the Non-Soil Waste is transported by a hauler approved by the MECP to transport the Non-Soil Waste and is disposed of at a waste disposal site approved by the MECP to receive the Non-Soil Waste for final disposal. All Non-Soil Waste must be finally disposed of promptly at the time of excavation, except where analytical testing is required to determine the appropriate MECP-approved waste disposal site, in which case required sampling must be carried out immediately and Non-Soil Waste must be finally disposed of within seven (7) calendar days following receipt of analytical results.

Any additional chemical or geotechnical testing required by a Reuse Site shall be at the Contractor's expense without an entitlement to an extension of the Contract time. Where additional testing is required by a Reuse Site, the Contractor shall retain a QP to oversee and carry out the testing, where applicable. All resulting recommendations and analysis results shall be provided to the Owner. The Contractor shall ensure its QP extends reliance on all reports and recommendations prepared for the management of Excess Soil in the Project Area to the Owner and on request of the Owner or operator extends reliance to the owner or operator of a Reuse Site. Reliance under this section means reliance on commercially reasonable terms acceptable to the Owner.

Where the use of Temporary Sites is approved by the Owner for storage of Excess Soil, all Excess Soil must be placed at the final Reuse Site (or other MECP-approved receiving site) within sixty (60) days after the substantial completion date.

The Contractor shall submit to the Owner a notice of final placement of all Excess Soils and excavated Soils including date the last load of Soil was removed from the Project Area, and final disposal of all Non-Soil Waste, related to or arising from the project. The Contractor shall submit to the Owner a signed copy of Ontario Provincial Standard Form 180-3 (OPSF 180-3) "PROPERTY OWNER'S RELEASE within sixty (60) days after the substantial completion date.

The OPSF 180-2 and OPSF 180-3 are included in the appendix of this RFT and apply to any item that includes excavation, removal and reuse of Excess Soil.

All costs associated with the requirements of this section are to be included within the unit prices for those items.

Hauling and Transportation

The Contractor is responsible for retaining haulers for transportation of Excess Soil and for ensuring that any vehicle hauling Excess Soil from the Project Area meets all criteria outlined in Section 17 of the Regulation.

Prior to commencement of excavation, the Owner will provide the Contractor with an excel file to be used to track the information required by section 18 of the Regulation and a Hauling Record template to be used for each load of Excess Soil - Please refer to the Appendices of this RFT for the excel tracking file and the template of Hauling Record. The Contractor shall ensure the Hauling Record is used to record the required information for every load of Excess Soil leaving the Project Area. The Contractor shall submit the excel

tracking form and copies of all completed Hauling Records on a weekly basis to the Owner and keep the Hauling Record available upon request for two (2) years from the date the form is filled, including all backup documentation.

The Contractor shall cause any person who is operating a vehicle for the purpose of transporting Excess Soil to have available at all times during the transportation a completed Hauling Record for every load either in hard copy or electronic version.

The Contractor shall cause any person who is operating a vehicle for the purpose of transporting Excess Soil to, upon arriving at a Temporary Site, or Reuse Site (or other MECP-approved receiving site) complete the receiver information on the Hauling Record and ensure the receiving site representative signs the declaration on the Hauling Record.

Tracking

The Contractor shall develop and apply a tracking system, where required by and in accordance with section 16 of the Regulation and Section B of the Rules, to be used to track information about each load of Excess Soil during its excavation, on-site stockpiling (where permitted), transportation and deposit at a Reuse Site (or other MECP-approved receiving site) and any transportation to and from a Temporary Site and all other information required by the Regulation and the Rules.

The Contractor shall:

- Ensure the Owner and the Owner's QP have unrestricted access to the tracking system and information collected; and,
- Ensure all Subcontractors that are involved or engaged in any way in the excavation, management, testing, sampling, analysis, transportation or disposal of Excess Soil from the Project Area use and are integrated into, familiar with and trained on the Excess Soil tracking system.

Failure to provide tracking documentation throughout the duration of the project may result in a stop work order at the discretion of the City Engineer and at the Contractor's expense. The Contractor acknowledges and agrees that Working Days will continue to be counted during such time.

Municipal By-laws and Instruments

The Contractor shall comply with all requirements of Municipal by-laws, instruments, ordinances, regulations, directions, orders, rules and guidelines that are applicable to excavated Soil generated at the Project Area, Excess Soil leaving the Project Area and the work, services and obligations described herein (regardless of whether such requirements exceed or are more stringent or onerous than the requirements of Ontario's Excess Soil and Waste Laws).

Records

The Contractor shall retain a copy of the Contract (including all Contract Documents) for seven (7) years from the date the Contract was entered into. The Contractor shall retain copies of all subcontracts and supply agreements it enters into with Subcontractors or suppliers relating to the management of Excess Soil, including the transportation or importation (if permitted) of Excess Soil, for seven (7) years after the date such subcontracts or supply agreements were entered into.

The Contractor hereby grants to, and agrees to obtain for the Owner a perpetual, irrevocable, fully paid-up, royalty-free, worldwide, right and licence to access, use, copy, support, maintain, modify, sublicense, assign and distribute all notices, analyses, data, results, reports, inspection certificates and other documentation related to Excess Soil that the Contractor (or its Subcontractors, suppliers or consultants) created or acquired during the course of the Contract, including all documentation and records created or acquired under the Regulation, all information and data tracked and stored on the Soil tracking system, any documentation received by the Contractor (or its Subcontractors, suppliers or consultants) from any sites from which Soil was imported to the Project Area (if permitted), and any documentation provided to the Contractor (or its Subcontractors, suppliers or consultants) from Reuse Sites or other MECP-approved receiving sites where Soil was temporary or permanently deposited (collectively “**Excess Soil Records**”).

Excess Soil Records shall be provided to the Owner upon request or made available to the Owner and its representatives for audit upon request. The foregoing shall not be construed to limit, revoke or abridge any other rights, powers, or obligations relating to audit which the Owner may have at law or by contract.

This section shall survive termination or expiration of the Contract.

Filing Notice in the Registry

The Contractor acknowledges where filing a notice in the Registry is required by the Regulation:

1. The Owner will complete requirements for filing notices in the Registry for the Project;
2. No Excess Soil shall be removed from the Project Area until the Contractor obtains written confirmation the notice has been filed in the Registry, in accordance with and containing all information required by the Regulation or where the Owner has provided approval to remove Excess Soil from the Project Area in circumstances permitted by section 8(3) of the Regulation;

3. The Owner will ensure that the documentation requirements set out in sections 11 to 15 of the Regulation are fulfilled; and,
4. Where the requirements of section 19 of the Regulation apply to the Project Area, no Excess Soil from another Project shall be deposited at the Project Area until the notice has been filed in the Registry in accordance with and containing all information required by the Regulation.

Where removal is approved by the Owner in accordance with section 8(3) of the Regulation, the Contractor shall ensure that the required sampling is conducted promptly upon delivery of the Excess Soil to the Temporary Site. Before the Excess Soil is transported from the Temporary Site to a Reuse Site (or other MECP-approved receiving site) under this section, the Contractor shall obtain written confirmation the notice has been filed in the Registry.

The Contractor shall provide additional information as requested by the Owner or the Owner's QP on reasonable notice to facilitate filing of the notices and updates to the Registry.

The Contractor shall be familiar with the contents of all notices filed and shall notify and provide updated information to the Owner forthwith of any errors, changes required or missing information in the notices (and updates to the notice).

The Contractor shall provide written notice to the Owner within five (5) Working Days of removal of the last load of Soil that will become Excess Soil for the Project from a Project Area or Temporary Site, with the final quantity of all Soil removed from the Project Area.

Where a notice is filed in the Registry for Excess Soil being imported to the Project Area, the Contractor shall provide written notice to the Owner within five (5) Working Days after the final load of Excess Soil has been deposited at the Project Area.

Subcontractors

The Contractor shall ensure it enters into written agreements with its subcontractors to require them to perform their work in accordance with, and subject to, the terms and conditions of this Contract, including but not limited to requirements outlined in Ontario's Excess Soil and Waste Laws. The Contractor acknowledges and agrees that it shall be as responsible to the Owner for acts and omissions of its Subcontractors, and persons employed by them, as for acts and omissions of persons directly employed by it.

Payment

There is no payment associated with these requirements. **The costs are to be included within the unit prices for the items that require excavated Soil, Excess Soil, excess material and Non-Soil Waste management, including but not limited to, excavation, transporting and disposal of Soil, excess material and/or Non-Soil Waste as part of**

sewer, watermain, and road construction.

No payments will be made until all tracking documentation has been submitted and approved for the pay period in the progress certificate.

3. HARD SURFACE REMOVAL (Basis of Payment) (January 2022)

The removal of all hard surface features encountered in construction, such as pavements, alleys, driveways and sidewalks shall be measured by the square metre. When any curb and gutter are removed in conjunction with a hard surface, it shall be included in the square metre measurement and shall not be measured and paid separately. Saw cutting costs in conjunction with a hard surface removal shall be included in the hard surface removal unit price, with the exception of sewer & watermain trench work, unless otherwise identified in the tender.

For sewer construction, the trench must be sawcut and will be paid for under its own item or as per the description of the contract documents. Breaking the asphalt shall not be permitted.

All other curb and gutter removal that are not removed in conjunction with hard surface pavement removal shall be measured separately and paid by the linear metre.

4. THE USE OF BULK WATER FILL STATIONS (BWFS) (January 2022)

The Contractor is reminded that the use of fire hydrants WILL NOT be permitted for any construction related activities. In lieu of fire hydrants, the Contractor is to use Bulk Water Fill Stations (BWFS) at EnWin's Rhodes Drive Operating Centre and other available locations.

Separate Payment will NOT be made for water required during sewer and road construction, including compaction of all backfill & base material, pavement, curbs & gutters, driveways, sidewalks or any other structures. The water usage for these items shall be included in the unit price for each individual item.

The water application for dust control will be paid by unit price. Please refer to City of Windsor Standard Specification S-14 & S-15 for the water application and payment in boulevard restoration.

5. BACKFILL PRACTICES (February 2015)

The Contractor shall follow the City of Windsor Standard Drawings AS-536, AS-310A, B & C and specific requirements shown in the tender documentation for the material use and backfilling method unless specified otherwise in the next paragraphs.

Sewer Trench Backfill

If full granular backfill is required at any section between two manholes of one sewer run, that entire run shall be backfilled with the same granular material, with the exception of the following case.

Full granular material backfill is required for any sewer trench crossing a road intersection even if the sewer trench is deep enough for native backfill as per AS-536. In this case, the granular backfill shall continue to the end of curving section of the intersection as shown on the tender drawings and then change back to required native backfill as per AS-536.

Maintenance Stone over Trench Area

All underground work shall be completed prior to the start of road cutting. This shall be applicable to all underground work including but not limited to sewer main, catchbasin leads, private drain connections, and watermain and water services.

The Contractor will be required to backfill all sewer trench excavations within the roadway and the sidewalk to an elevation of 100mm (4") below the existing surface elevation with granular trench backfill material as per AS-536. The Contractor shall complete the top 100mm (4") backfilling by placing, compacting, and maintaining Granular "A" material or other approved materials to match existing surface grade before the road cut.

The cost for these materials shall be included in the unit bid price for the sewer main, watermain, catchbasin leads, conduits, and/or connections installed and shall be compensated in full for all labour, equipment and materials required to execute the work as specified herewith. There will be no payment for the maintenance of the materials above the sub-grade.

6. ASPHALT ESCALATION (December 2012)

The payment for liquid asphalt will be adjusted based on the Ministry of Transportation's (MTO) performance graded asphalt cement price index. The price index will be published monthly on MTO Contract Bulletin and displayed on the Ontario Hot Mix Producers Association (OHMPA) website (www.ohmpa.org). The price index will be used to calculate the amount of the payment adjustment per tonne of new asphalt cement accepted into the Work.

The price index will be based on the price, excluding taxes, Freight on Board (FOB) the depots in the Toronto area, of asphalt cement grade PG 58-28 or equivalent. One index will be used to establish and calculate the payment adjustment for all grades.

A payment price adjustment per tonne of new asphalt cement (AC) will be established for each month in which paving occurs when the price index for the month differs by more than \$15 from the price index for the month prior to Tender Opening. When the price index differential is less than \$15, there will be no payment adjustment for that month.

Payment adjustments due to changes in the price index are independent of any other payment adjustments made to the hot mix tender items.

The payment adjustment per tonne will apply to the quantity of new asphalt cement in the hot mix accepted into the Work during the month for which it is established.

The payment adjustment for the month will be calculated by the following formulae:

ASPHALT CEMENT PRICE ADJUSTMENT, PA	
I_P	Paving within Approved Contract Time
$I_P > I_{TO} + 15$	$PA = (I_P - I_{TO} - 15) \times T_{AC}$
$I_P < I_{TO} - 15$	$PA = (I_{TO} - I_P - 15) \times T_{AC}$

Where:

- PA** = Payment adjustment for new asphalt cement, in dollars
- I_{TO}** = Performance graded asphalt cement price index for the month prior to Tender Opening
- I_P** = Performance graded asphalt cement price index for the month in which paving occurs
- T_{AC}** = Quantity of new asphalt cement in tonnes

The quantity of asphalt cement includes all grades of **new** asphalt cement supplied by the Contractor with and without polymer modifiers. For each month in which a payment adjustment has been established, the quantity of the escalation/de-escalation will be calculated using the hot mix quantity accepted in the Work and its corresponding asphalt cement content as required by the job mix formula. The Recycled Asphalt Product (RAP) component of the job mix formula shall not be included.

Two calculation examples are listed below including the deduction of AC content in the RAP and the payment adjustment for either the Contractor or the Owner.

	Example One ($I_P > I_{TO} + 15$)	Example Two ($I_P < I_{TO} - 15$)
Mix Type	HL4	HL4
Total Tonnes	100	100
% AC Total	5%	5%
%RAP used	15%	15%
%AC in RAP	4.0%	4.0%
Total Tonnes AC in Mix	$100 \times 5\% = 5$	$100 \times 5\% = 5$
Tonnes AC in RAP	$100 \times 15\% \times 4\% = 0.6$	$100 \times 15\% \times 4\% = 0.6$
Tonnes New AC (T_{AC})	Total AC – AC in RAP = $5 - 0.6 = 4.4$	Total AC – AC in RAP = $5 - 0.6 = 4.4$
Price Index I_{TO}	\$624.25 (Feb. 2011 Index)	\$679.25 (Jul. 2011 Index)
Price Index I_P	\$688.75 (Jun. 2011 Index)	\$641.50 (Sep. 2011 Index)
Payment Adjustment	$PA = (I_P - I_{TO} - 15) \times T_{AC} =$ $(688.75 - 624.25 - 15) \times 4.4 =$ \$217.80	$PA = (I_{TO} - I_P - 15) \times T_{AC} =$ $(679.25 - 641.50 - 15) \times 4.4 =$ \$100.10
Money to	Contractor ($I_P > I_{TO} - 15$)	Owner ($I_P < I_{TO} - 15$)

For mixes containing a liquid anti-stripping additive, the quantity of anti-stripping additive will be deducted from the quantity of new asphalt cement. No other deductions will be made for any other additives.

For progress payment purpose, payment adjustments will be made on the monthly progress payment certificate for the months in which hot mix paving occurs.

7. CONCRETE PIPE STRUCTURAL REPAIRS (December 2012)

Concrete pipe longitudinal crack widths in the range of 0.25 – 2.5 mm (0.01 – 0.1 inch) shall be repaired by a method approved by the City Engineer prior to the acceptance of the work.

Concrete pipe longitudinal cracks larger than 2.5mm (0.10 inch) in width shall require structural repairs. Concrete pipe longitudinal cracks larger than 5 mm (whether stable or not) OR larger than 2.5 mm and that are unstable shall be removed and replaced. Circumferential cracks that allow inflow but are not offset vertically shall be repaired to provide a water-tight seal. Circumferential cracks that are offset vertically shall be repaired structurally.

Before structural repairs are undertaken on an installed RCP/CP, the pipe shall be structurally evaluated to determine if the installed pipe system has reached equilibrium and the pipe has proven to have capability to support the load.

Acceptable repair actions for a crack that needs structural repairs could include the following:

- Link-pipe; or,
- Cured in place pipe (CIPP); or,
- Grout the cracks with sodium silicate based or epoxy based resin materials.

All above listed criteria and repair methods are subject to the review & approval of the City Engineer in each specific project.

8. PRIVATE DRAIN AND CATCHBASIN CONNECTIONS (May 2017)

Location of the Private Drain/Catchbasin Connections

The locations of existing private drain/catchbasin connections, as shown on the Contract Drawings, are in accordance with the most current information available and are NOT certified to be accurate. The Contractor shall expose an existing private drain/catchbasin connection before commencing sewer construction in order to determine its exact location if necessary. The cost of this work shall be included in the unit price bid per metre of sanitary or storm private drain connections.

In addition, the Contractor shall ensure that all buildings and catch basins on a construction project have been reconnected to the proper sewers. This shall be achieved by either dye or smoke testing, or by use of a mini-camera or C.C.T.V. inspection if necessary.

Number of Private Drain Connections

The number of sanitary and storm private drain connections listed in the Schedule of Unit Prices are estimated. The intent of this specification is to aid the Contractor in preparing the bid. No claim for an extra will be made by the Contractor on the basis of a variation in the number of connections unless under the approval of the City Engineer.

9. SALVAGE OF METAL MATERIALS (February 2013)

Where City of Windsor manhole and catchbasin frames and covers require replacement, the Contractor shall remove the old frames and covers and transport them to the City of Windsor Operations yard at 1531 Crawford Avenue.

Any miscellaneous metals encountered or removed during construction on this contract, shall remain the property of the City of Windsor and shall also be transported to the City of Windsor Operations Yard at 1531 Crawford Avenue. **Proof of delivery (signature of City of Windsor employee at Crawford Yard) shall be provided by the Contractor.**

The cost for the above salvage and transportation shall be included as part of the unit prices bid in the Schedule of Unit Prices, as no additional cost for this work will be paid.

10. MAINTENANCE OF FLOW IN SEWERS (February 2015)

The Contractor shall maintain the flow from all sewers, private drain connections and catch basin leads during the construction of the works. The Contractor shall be prepared to pump, divert, or find other means of maintaining flows during construction. The Contractor shall submit to the Engineer for review, the proposed construction method, which shall include the equipment to be used to maintain the flow in the sewers and connections.

The unit price bid in the Schedule of Unit Prices for construction of sewers, manholes, private drain connections and catch basin leads shall include all costs to maintain flows in sewers and connections as no additional remuneration will be paid.

11. LAYOUT (January 2022)

The Contractor is responsible for the sewer & watermain layout and the City is responsible for the rest of construction layout work, including but not limited to roads, curbs & gutters, sidewalks & multiuse trails. Electronic construction drawings in AutoCAD file format will be made available at the Contractor's request. The Contractor shall sign the form of Terms and Conditions for use of Digital Electronic Files prior to the usage of AutoCAD file provided by the City. The benchmark and points of reference for setting out can be provided as well for the purpose of manual layout. The Contractor is responsible for maintaining these points and using them for locating all structures and grade stakes required for the proper location and installation of the work.

12. EXCAVATIONS IN THE VICINITY OF GAS LINES (December 2008)

All excavations in the vicinity of gas lines shall be carried out in accordance with:

1. The Occupational Health and Safety Act and Regulations which apply under this Act, including regulations for construction projects; and,
2. The Technical Standards and Safety Act and Regulations that apply under this Act.

The Contractor is referred to the “Guidelines for Excavations in the Vicinity of Gas Lines”, prepared by the Technical Standards and Safety Authority. The procedures described herein are prepared in the interest of safety to the general public, the workers carrying out the excavation, and the prevention of damage to gas lines and property.

13. BACKFILL AROUND GAS MAINS (January 2022)

The Contractor shall be responsible to backfill around all gas mains exposed during the course of construction in accordance with City of Windsor Standard Specification S-39 Backfill Around Utilities, or any other superseding standard of Enbridge, unless otherwise directed by Enbridge in writing. The above specification shall govern work around gas lines.

14. STREETLIGHTING INFRASTRUCTURE (January 2022)

Any and all materials, labour, approvals, drawings, and equipment required for the purpose of removing and replacing existing street lighting poles are to be fully included in the lump sum tender price. The mast arms and luminaries on the existing poles are to be transferred to the new poles unless otherwise specified in the contract documents. The removed poles are to be disposed of or as directed by the City Engineer.

The Contractor is referred to the “Street Lighting Design and Installation Guidelines”, prepared by the City of Windsor – Traffic Operations for the installation and the approval of connections.

<https://www.citywindsor.ca/business/buildersanddevelopers/Pages/Municipal-Infrastructure-Requirements.aspx>

15. TREE PROTECTION AND FINES (January 2022)

In accordance with City of Windsor policy, the Contractor shall exercise the utmost caution to ensure the protection of trees (above and below ground) during construction activities. If trees are damaged or mistakenly removed due to the construction activities, the Contractor shall be assessed the appraised value of the trees, as determined by the City Forester. The appraised value of the trees shall be determined using the Guide for Plant Appraisal 10th Edition.

All City trees must be protected during the construction of the project. Tree protection fencing shall be installed around the perimeter of the tree's drip line to protect the critical root zone of the tree and the main stem (trunk) from mechanical damage. The installation and positioning of the tree protection fencing by the contractor shall be assessed and approved by the City Forester or his designate prior to the commencement of the project. It is prohibited to move or reposition the tree protection fencing during the construction of the project unless authorization by the City Forester or his designate is obtained.

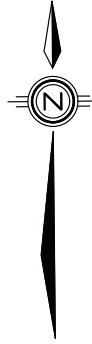
All City owned trees along the public Right of Way or within City parks that present interference issues for construction machinery, shall be trimmed by the Contractor in advance of the construction project in an effort to reduce damages to City owned trees during construction. The Parks Department (Forestry Division) shall provide the Contractor, a list of approved professional Tree Care companies to retain for the project. The Contractor is responsible for coordinating an onsite meeting with the Manager of Forestry and Natural Areas or his designate along with the Contractor's chosen tree trimming sub-contractor (attained from the City's approved list of tree companies) to review the scope of the tree trimming requirements for the protection of trees during the project. The Contractor will be responsible for scheduling and monitoring the required tree trimming by an approved tree trimming sub contractor. The Contractor's attention is brought to Standard Drawing AS-507, Guidelines for Tunnelling Lengths Near or at Trees, and to the fact that should it be necessary to excavate closer to an existing tree than is acceptable to the City Forester, then the City Forester shall be notified and approval shall be granted by the City Forester prior to the work being performed.

APPENDIX "REI-E"

WATERSHED & KEY PLAN, PROFILE, SECTIONS, BRIDGE PLANS & DETAILS
OF THE
SPRUCEWOOD AVENUE DRAIN

(Geographic Township of Sandwich West)

IN THE
CITY OF WINDSOR
IN THE
COUNTY OF ESSEX • ONTARIO



Gerard Road
GERARD ROAD, P.ENG.
**ROOD
ENGINEERING
INC.**
CONSULTING ENGINEERS
Leamington, Ontario
519-322-1621



DATE: December 12th, 2023

CITY OF WINDSOR
MAYOR: DREW DILKENS
CLERK: STEVE VLACHODIMOS
DRAINAGE
SUPERINTENDENT: TOM GRAZIANO, P.ENG.

BENCHMARKS:

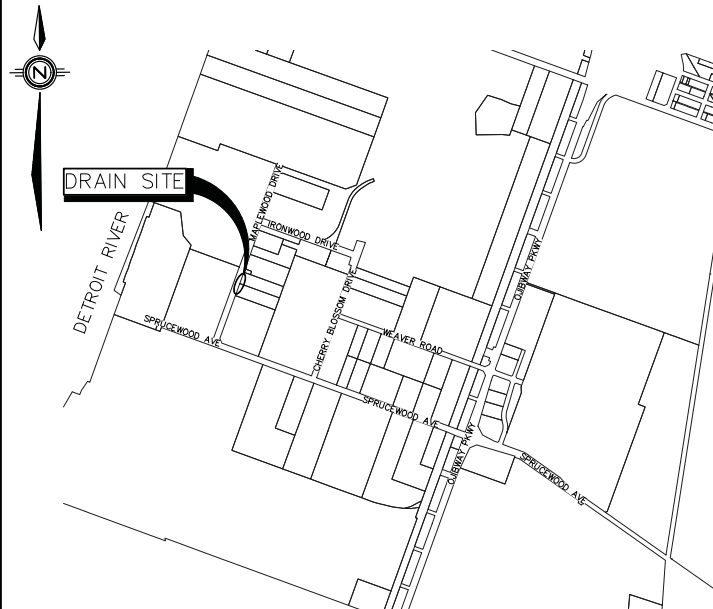
1. NAIL IN THE WEST FACE OF HYDRO POLE LOCATED IMMEDIATELY NORTH OF PROPOSED BRIDGE 1

ELEV: 178.033m



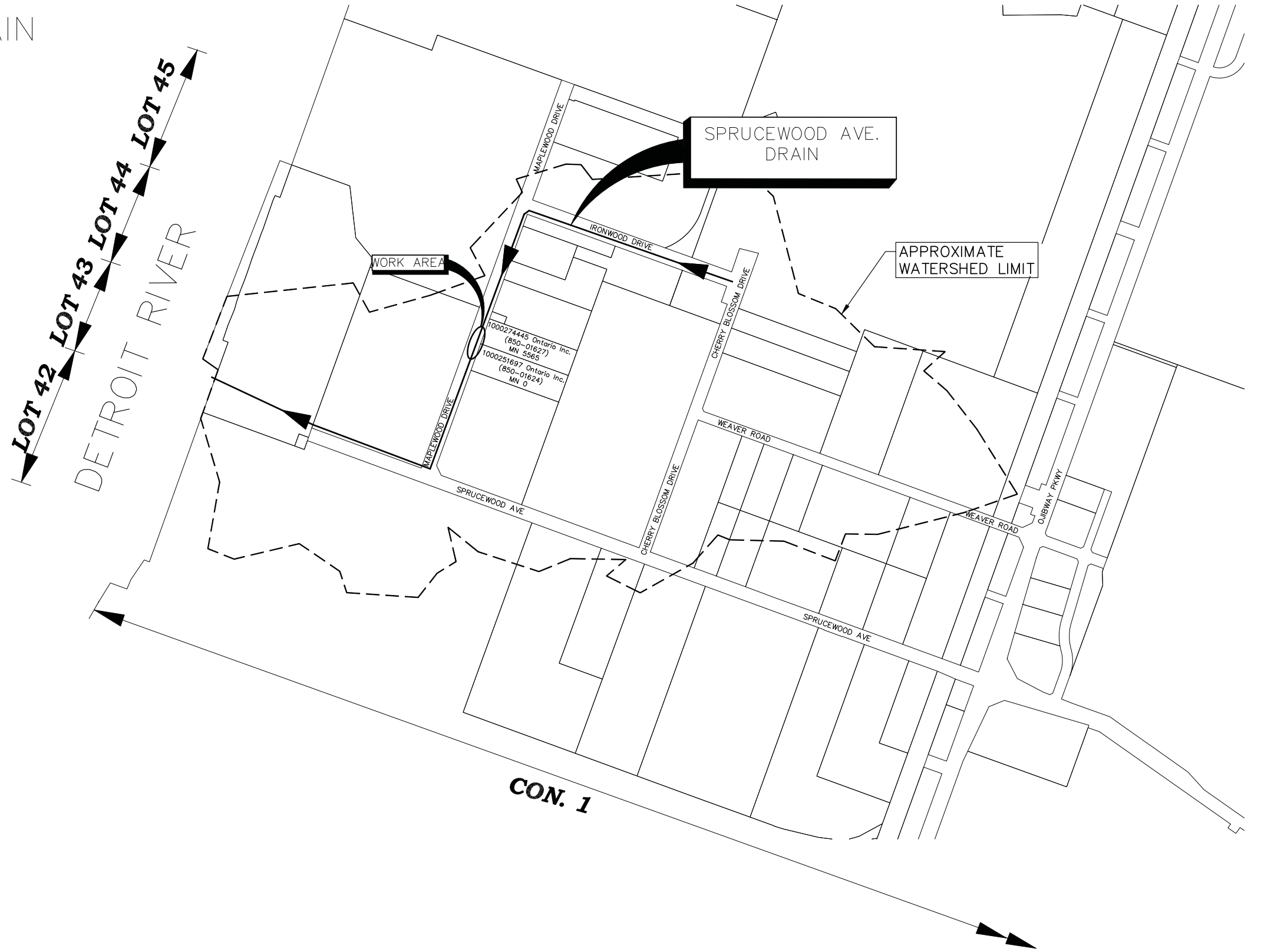
THE CITY OF WINDSOR

350 City Hall Square West
Windsor, Ontario
N9A 6S1
519-255-2489



KEY PLAN

SCALE = 1:15,000

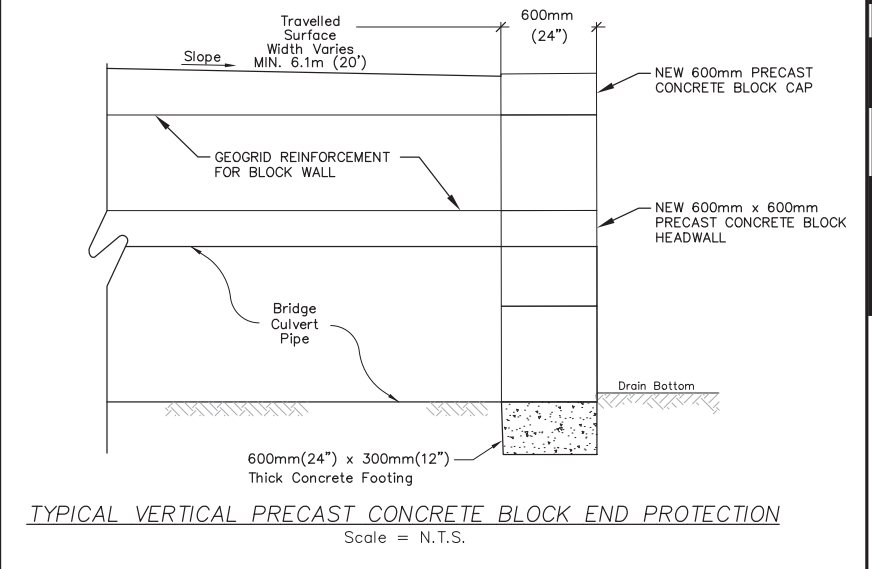
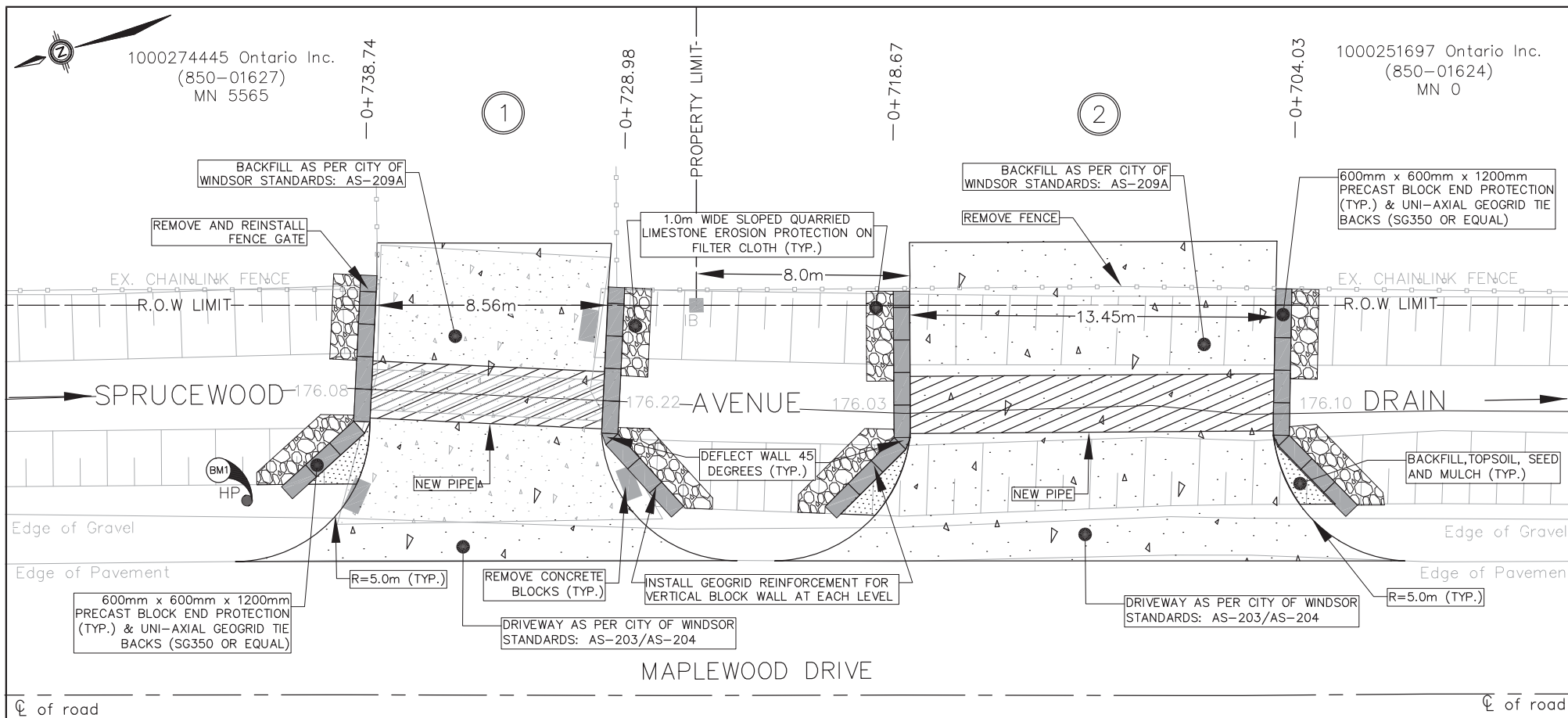


WATERSHED PLAN

SCALE = 1:4000

THESE PLANS HAVE BEEN REDUCED
AND THE SCALE THEREFORE VARIES.
FULL SCALE PLANS MAY BE VIEWED
AT THE MUNICIPAL OFFICE.

DRAWN BY: A.C.	PLOT CODE: 1:1
COMPUTER FILE: REI2023D011.DWG	
FILE No.: REI2023D011	SHEET No.: 1 OF 3



BENCHMARK:
1. NAIL IN THE WEST FACE OF HYDRO POLE LOCATED IMMEDIATELY NORTH OF PROPOSED BRIDGE 1
ELEV: 178.033m

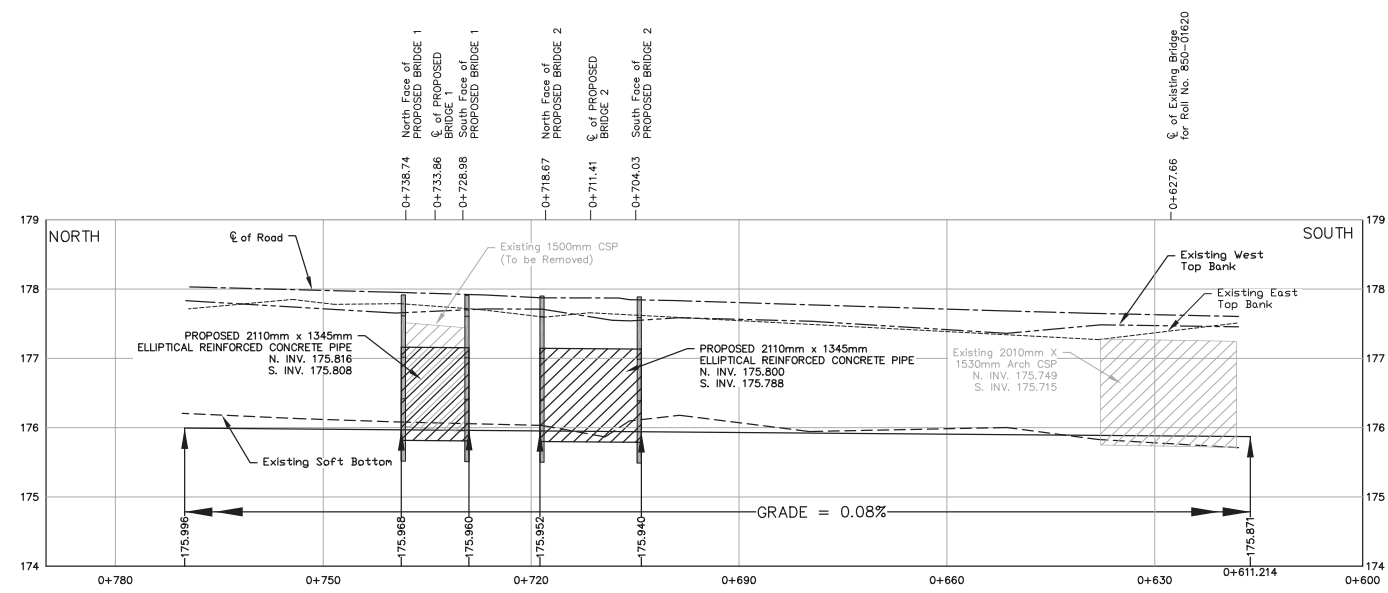
PIPE SIZE	PIPE LENGTH	PIPE THICKNESS	CLASS	TYPE OF PIPE	DESIGN ELEVATIONS
2110x1345mm (SPANXRISE)	9.76m (32.02 ft.)	176mm	HE II	ELLIPTICAL REINFORCED CONCRETE PIPE	UPSTREAM INV. (N)=175.816m DOWNSTREAM INV. (S)=175.808m E. OF DRIVEWAY=177.700m DRAIN GRADE=0.080%

BRIDGE 1 PLAN
SCALE=1:100

BENCHMARK:
1. NAIL IN THE WEST FACE OF HYDRO POLE LOCATED IMMEDIATELY NORTH OF PROPOSED BRIDGE 2
ELEV: 178.033m

PIPE SIZE	PIPE LENGTH	PIPE THICKNESS	CLASS	TYPE OF PIPE	DESIGN ELEVATIONS
2110x1345mm (SPANXRISE)	14.64m (48.03 ft.)	176mm	HE II	ELLIPTICAL REINFORCED CONCRETE PIPE	UPSTREAM INV. (N)=175.800m DOWNSTREAM INV. (S)=175.788m E. OF DRIVEWAY=177.700m DRAIN GRADE=0.080%

BRIDGE 2 PLAN
SCALE=1:100

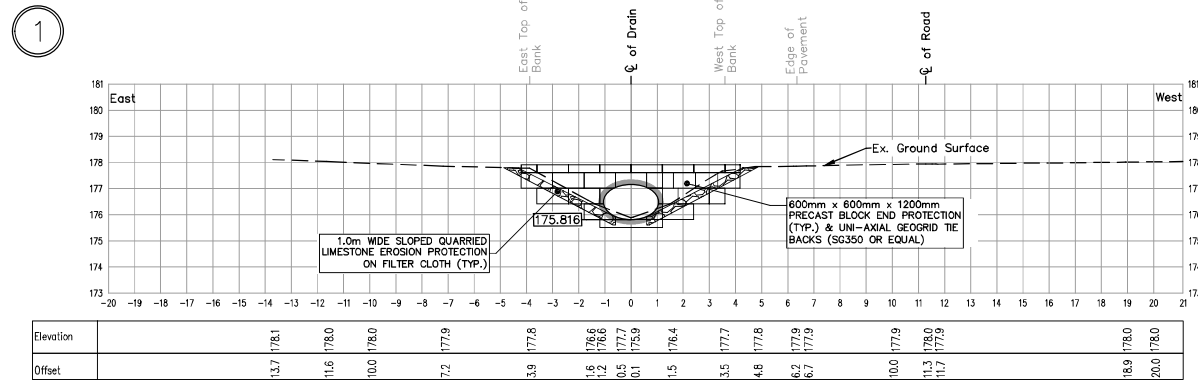


SPRUCEWOOD AVE. DRAIN PROFILE
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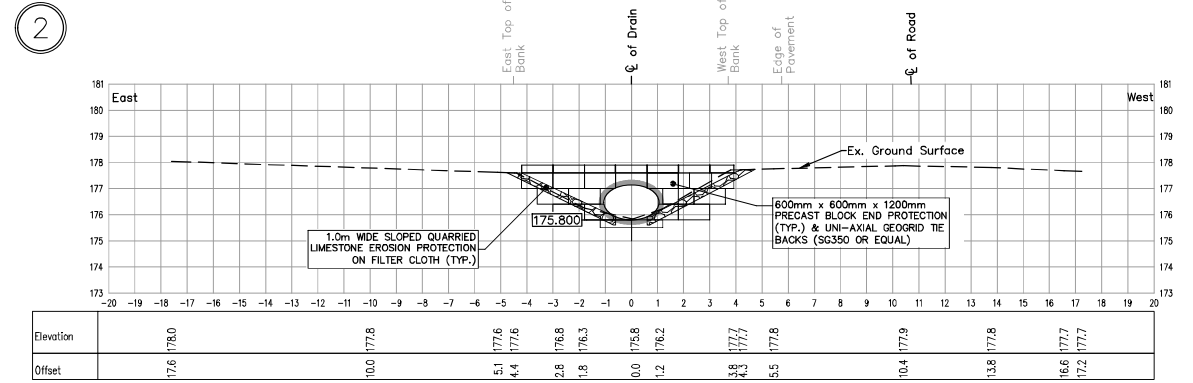
ALL WORKS TO BE CONDUCTED AS PER WINDSOR CITY STANDARDS: AS-203, AS-204 & AS-209A

THESE PLANS HAVE BEEN REDUCED AND THE SCALE THEREFORE VARIES. FULL SCALE PLANS MAY BE VIEWED AT THE MUNICIPAL OFFICE.

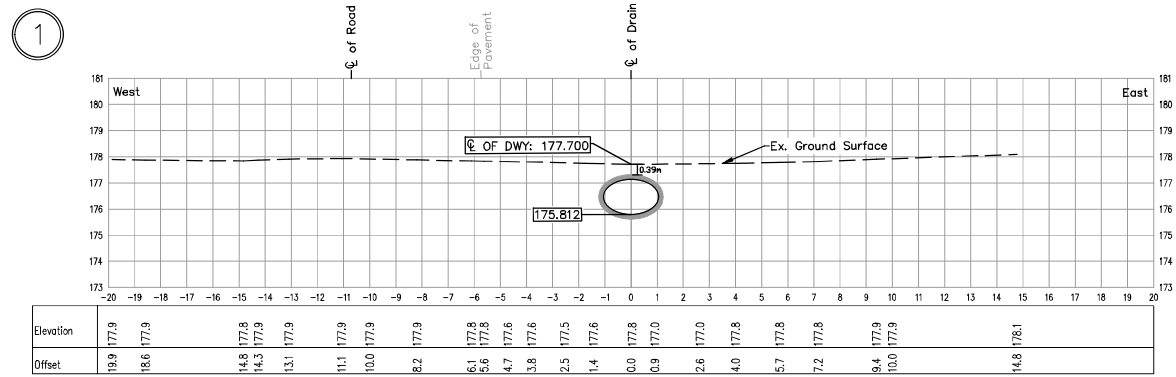
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PLOT CODE: 1:1
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FILE No.: REI2023D011
SHEET No.: 2 OF 4



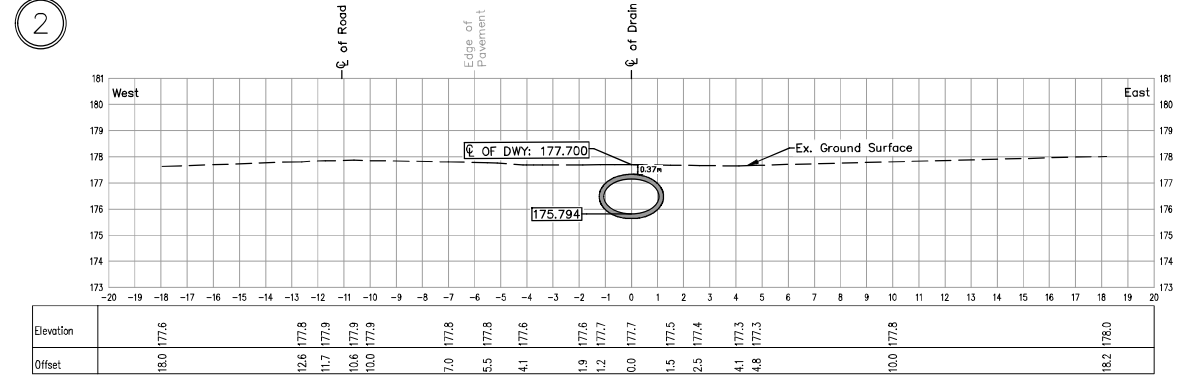
North End of Proposed Bridge: STA. 0+742.58
Scale: 1:125



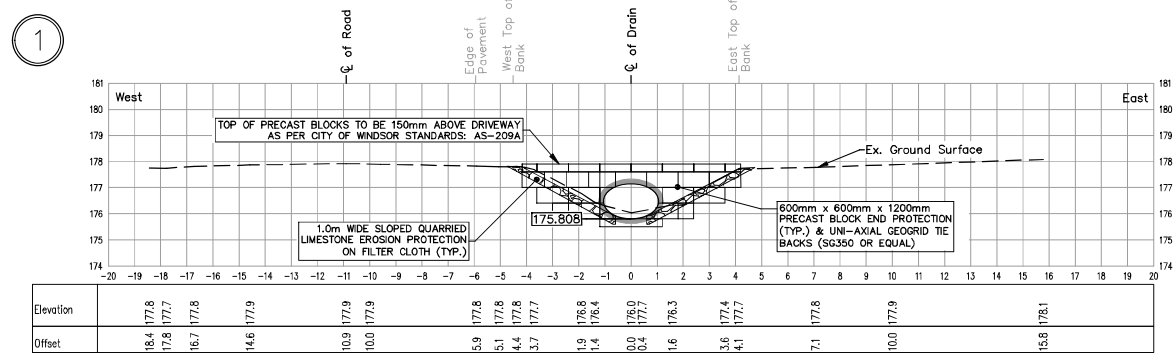
North End of Proposed Bridge - STA. 0+721.31
Scale: 1:125



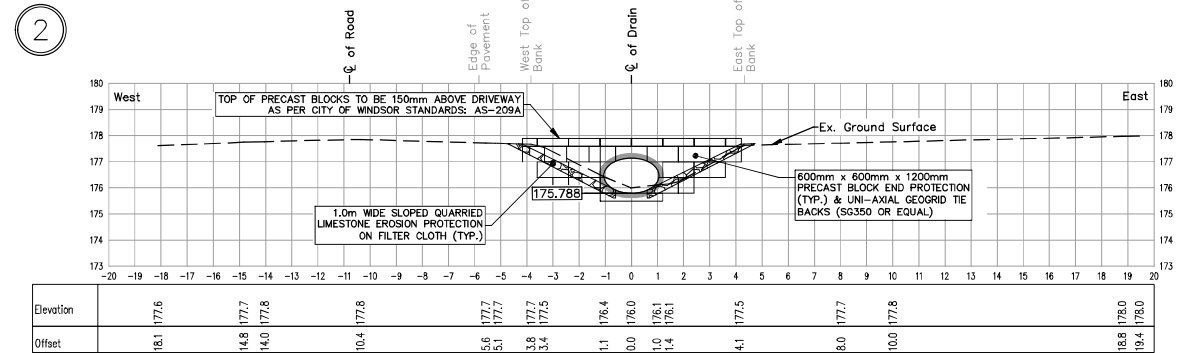
Centerline of Proposed Bridge - STA. 0+733.86
Scale: 1:125



Centerline of Proposed Bridge - STA. 0+711.41
Scale: 1:125



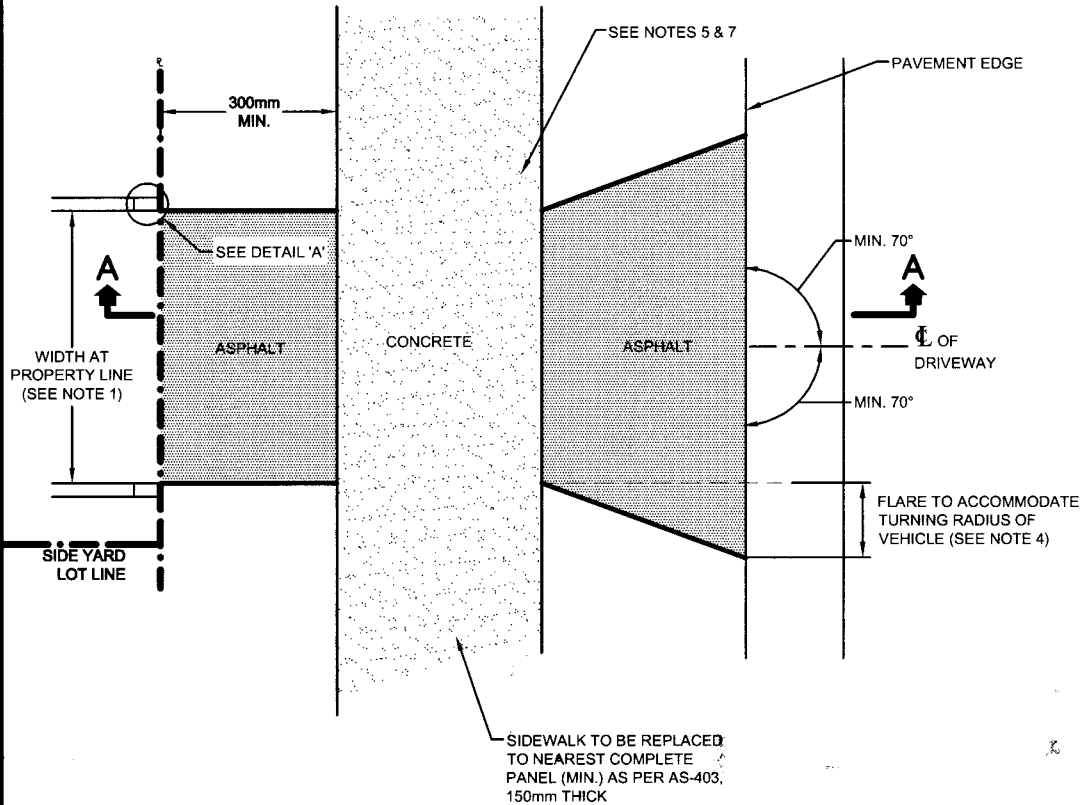
South End of Proposed Bridge 1 - STA. 0+726.70
Scale: 1:125



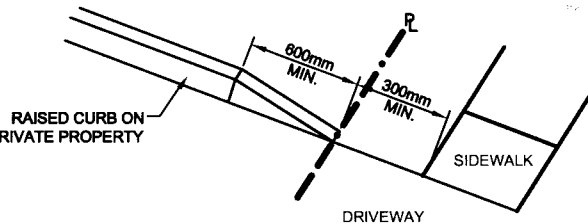
South End of Proposed Bridge - STA. 0+701.65
Scale: 1:125

THESE PLANS HAVE BEEN REDUCED AND THE SCALE THEREFORE VARIES. FULL SCALE PLANS MAY BE VIEWED AT THE MUNICIPAL OFFICE.

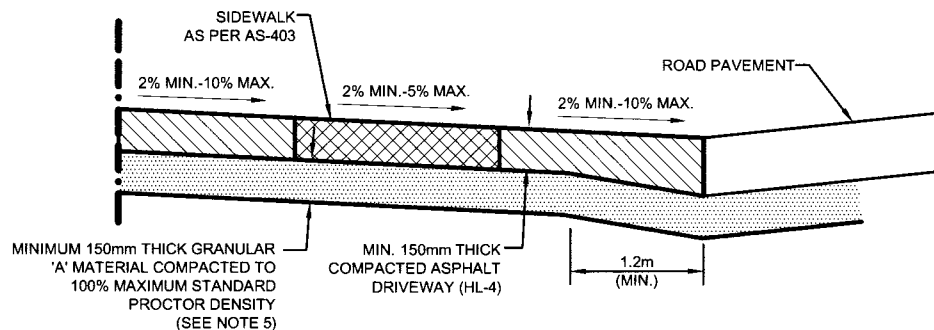
APPENDIX "REI-F"



SIDEWALK TO BE REPLACED TO NEAREST COMPLETE PANEL (MIN.) AS PER AS-403, 150mm THICK



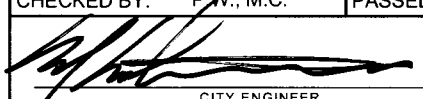
DETAIL 'A'
(SEE NOTE 2)

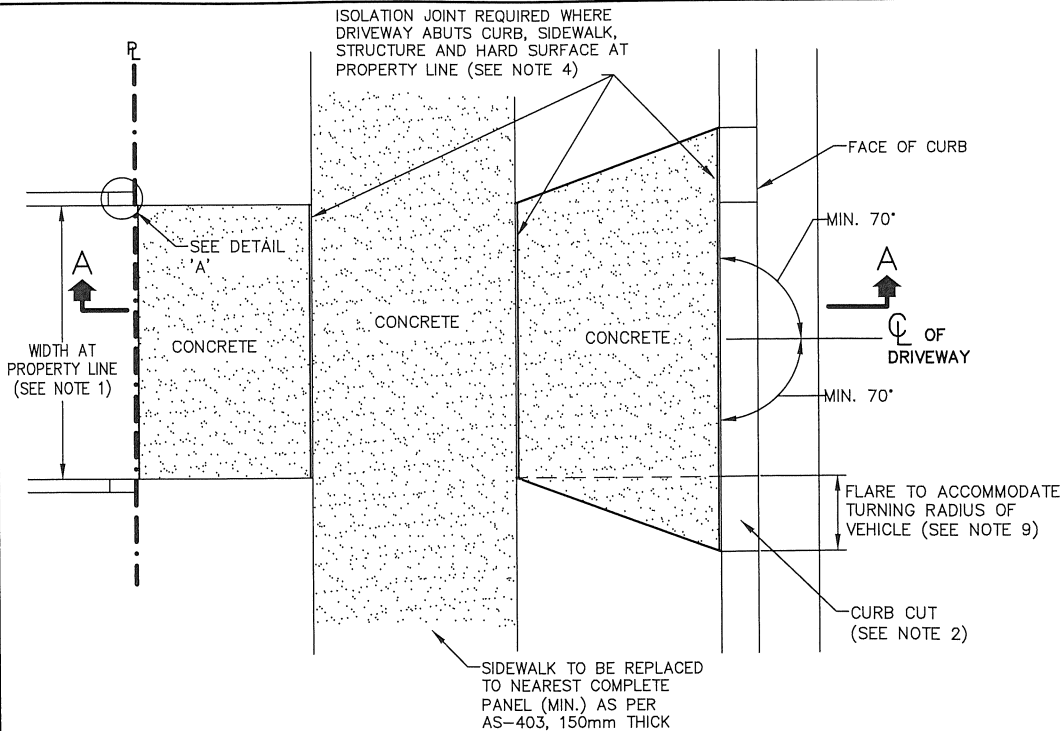


SECTION A-A

NOTES:

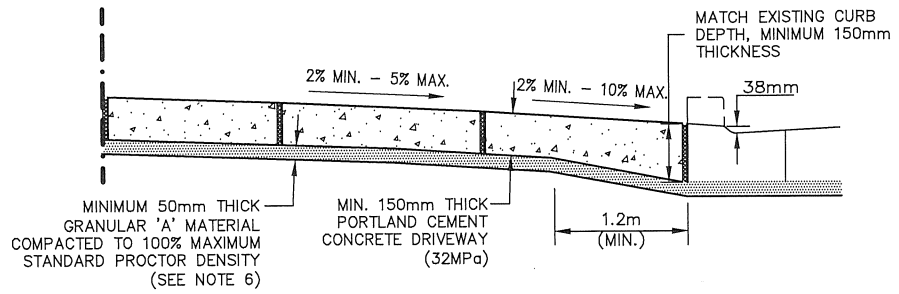
1. UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, THE WIDTH OF COMMERCIAL DRIVEWAYS SHALL BE A MINIMUM OF 3.5 METRES PER LANE AND A MAXIMUM OF 4.5 METRES PER LANE, MEASURED AT THE PROPERTY LINE, AS PER APPLICABLE ZONING BY-LAW REQUIREMENTS.
2. UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, RAISED CURBS BORDERING DRIVEWAY APPROACHES ON THE PUBLIC RIGHT-OF-WAY ARE PROHIBITED. ACCORDINGLY, ALL SUCH RAISED CURBS SHALL TERMINATE IN A MANNER SATISFACTORY TO THE CITY ENGINEER AS PER DETAIL A, BELOW, SO THAT THE RAISED PORTION OF THE CURB (OR THE ENTIRE CURB) SHALL TERMINATE AT THE PROPERTY LINE. IN ADDITION, THE MINIMUM CLEARANCE BETWEEN THE END OF THE RAISED PORTION OF THE CURB (OR THE ENTIRE CURB) AND THE NEAR EDGE OF THE SIDEWALK SHALL BE 300mm.
3. GRANULAR 'A' BASE COURSE SHALL BE PLACED TO A MINIMUM THICKNESS OF 150mm ON AN APPROVED SUBGRADE, COMPACTED TO 100% MAX. STANDARD PROCTOR DENSITY. WHERE UNSUITABLE SUBGRADE MATERIALS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH COMPACTED GRANULAR 'A' MATERIAL TO THE SATISFACTION OF THE CITY ENGINEER.
4. DRIVEWAY MAY FLARE AT THE CURB TO ACCOMMODATE THE TURNING RADIUS OF COMMERCIAL VEHICLES, AS APPROVED BY THE CITY ENGINEER. THE FLARE SHALL OCCUR WITHIN THE APPROVED CURB CUT WIDTH IDENTIFIED ON THE PERMIT FROM ENGINEERING DEPARTMENT. FLARE NOT TO EXTEND BEYOND EXTENSION OF SIDE YARD LOT LINE.
5. WHERE AN ASPHALT DRIVEWAY ABUTS A CONCRETE SIDEWALK, IT SHALL DO SO IN A STRAIGHT (HORIZONTALLY AND VERTICALLY) MANNER, TO THE SATISFACTION OF THE CITY ENGINEER.
6. WHERE A CONCRETE SIDEWALK INTERSECTS A COMMERCIAL ASPHALT DRIVEWAY, THE SIDEWALK WILL BE EXTENDED THROUGH THE DRIVEWAY. WHERE THIS OCCURS, THE SIDEWALK SHALL BE 150mm THICK, IN ACCORDANCE WITH AS-403.
7. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY TO BE COMPLETED TO CITY OF WINDSOR STANDARDS, TO THE SATISFACTION OF THE CITY ENGINEER.

CITY OF WINDSOR	
ENGINEERING DEPARTMENT	
COMMERCIAL APPROACH - NO CURB	
DRAWN BY: S.S., M.M.	DATE: APRIL 2005
REVISION: OCTOBER 2005	CHECKED BY: W.B., S.S., P.U.
FEBRUARY 2012; OCTOBER 2015	CHECKED BY: P.W., M.C.
	PASSED BY: M.W.
 CITY ENGINEER	
AS-203	

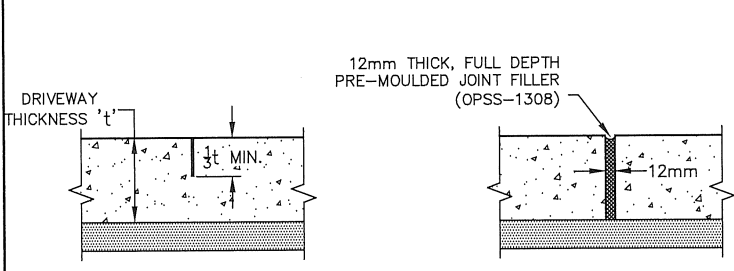


NOTES:

- UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, THE WIDTH OF COMMERCIAL DRIVEWAYS SHALL BE A MINIMUM OF 3.5 METRES PER LANE AND A MAXIMUM OF 4.5 METRES PER LANE, MEASURED AT THE PROPERTY LINE, AS PER APPLICABLE ZONING BY-LAW REQUIREMENTS.
 - CURB CUTS SHALL BE COMPLETED IN A MANNER SATISFACTORY TO THE CITY ENGINEER AND IN ACCORDANCE WITH CITY OF WINDSOR STANDARD DRAWING AS-216.
 - UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, RAISED CURBS BORDERING DRIVEWAY APPROACHES ON THE PUBLIC RIGHT-OF-WAY ARE PROHIBITED. ACCORDINGLY, ALL SUCH RAISED CURBS SHALL TERMINATE IN A MANNER SATISFACTORY TO THE CITY ENGINEER AS PER DETAIL A, BELOW, SO THAT THE RAISED PORTION OF THE CURB (OR THE ENTIRE CURB) SHALL TERMINATE AT THE PROPERTY LINE. IN ADDITION, THE MINIMUM CLEARANCE BETWEEN THE END OF THE RAISED PORTION OF THE CURB (OR THE ENTIRE CURB) AND THE NEAR EDGE OF THE SIDEWALK SHALL BE 300mm.
 - CONTRACTION JOINTS IN DRIVEWAYS SHALL BE EVENLY SPACED TO ENSURE THAT PANELS DO NOT EXCEED 12 SQUARE METRES IN SURFACE AREA. IN ADDITION, LONGITUDINAL CONTRACTION JOINTS WILL BE REQUIRED WHERE THE DRIVEWAY WIDTH EXCEEDS 2.5 METRES. ALL LONGITUDINAL AND TRANSVERSE CONTRACTION JOINTS LONGER THAN 1.8 METRES SHALL BE SAW CUT. DEEP TROWEL JOINTS MUST BE COMPLETED IN A WORKMAN LIKE MANNER, TO THE SATISFACTION OF THE CITY ENGINEER. CONCRETE WORK WILL BE REJECTED ON THE BASIS OF POOR WORKMANSHIP.
- FULL DEPTH ISOLATION JOINTS ARE REQUIRED WHERE THE DRIVEWAY ABUTS A CURB, STRUCTURE OR HARD SURFACE AT OR NEAR THE PROPERTY LINE.
- UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, DRIVEWAY CROSSFALL SHALL BE 2% MINIMUM AND SHALL NOT EXCEED 10%.
 - GRANULAR 'A' BASE COURSE SHALL BE PLACED TO A MINIMUM THICKNESS OF 50mm ON AN APPROVED SUBGRADE, COMPACTED TO 100% MAX. STANDARD PROCTOR DENSITY. WHERE UNSUITABLE SUBGRADE MATERIALS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH COMPACTED GRANULAR 'A' MATERIAL TO THE SATISFACTION OF THE CITY ENGINEER.
 - UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CITY ENGINEER, DRIVEWAYS SHALL HAVE A BROOMED FINISH. WHERE STAMPED OR PATTERNED CONCRETE IS APPROVED AS A FINISH, PONDING OF WATER DUE TO THE DEPTH OF THE PATTERN, IMPROPER APPLICATION OR FINISHING PROCEDURES WILL NOT BE ACCEPTABLE.
 - IN WARM WEATHER, WHITE PIGMENTED, MEMBRANE FORMING CURING COMPOUND SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS TO EVENLY COVER THE SURFACE IMMEDIATELY FOLLOWING FINISHING OPERATIONS. A CLEAR CURING COMPOUND SHALL BE USED FOR COLOURED CONCRETE. IN COOLER WEATHER, THE SURFACE OF THE CONCRETE SHALL BE COVERED WITH POLYETHYLENE SHEETING (6MIL. THICKNESS MIN.) IMMEDIATELY FOLLOWING FINISHING OPERATIONS AND INSULATED TO ENSURE THE TEMPERATURE OF THE CONCRETE IS CONTINUOUSLY MAINTAINED ABOVE 10°C FOR A MINIMUM OF SEVEN DAYS.
 - DRIVEWAY MAY FLARE AT THE CURB TO ACCOMMODATE THE TURNING RADIUS OF COMMERCIAL VEHICLES, AS APPROVED BY THE CITY ENGINEER. (1.0 METRE TYPICAL)
 - WHERE THE DISTANCE BETWEEN THE BACK OF THE CURB AND THE NEAR EDGE OF THE SIDEWALK OR THE BACK OF THE SIDEWALK AND THE PROPERTY LINE IS 1.2 METRES OR LESS, THAT PORTION OF THE DRIVEWAY APPROACH MUST BE PLACED INTEGRAL WITH THE SIDEWALK. WHERE THE RESPECTIVE DISTANCE IS GREATER THAN 1.2 METRES, THAT PORTION OF THE DRIVEWAY APPROACH MAY BE PLACED SEPARATELY WITH AN ISOLATION JOINT SEPARATING THE TWO.
 - ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY TO BE COMPLETED TO CITY OF WINDSOR STANDARDS, TO THE SATISFACTION OF THE CITY ENGINEER.

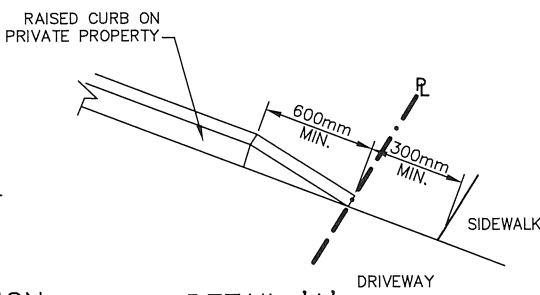


SECTION A-A



CONTRACTION JOINT

ISOLATION/EXPANSION JOINT



DETAIL 'A'
(SEE NOTE 2)

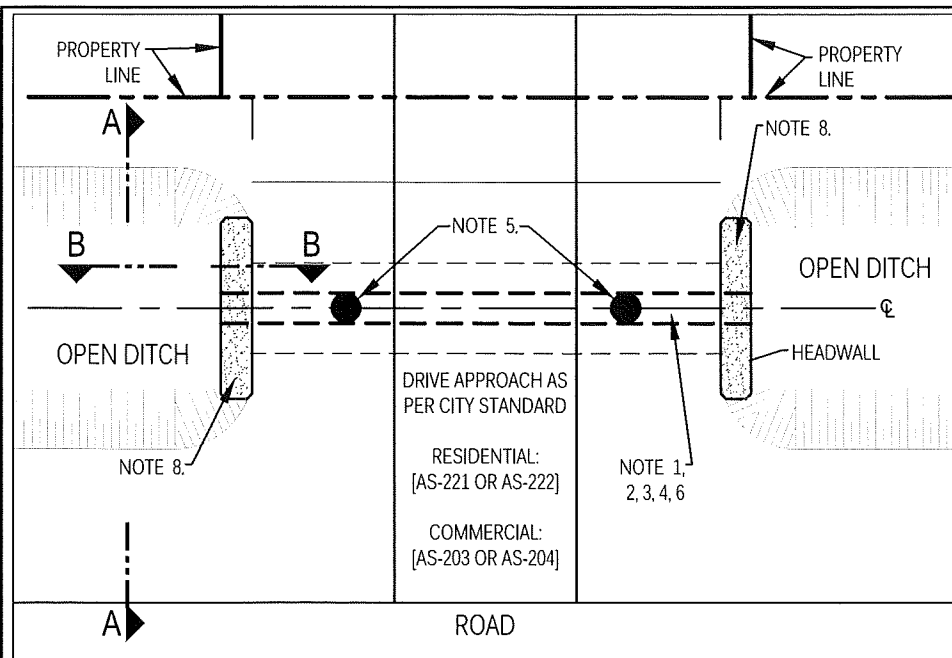
**CITY OF WINDSOR
ENGINEERING DEPARTMENT**

COMMERCIAL DRIVE - CONCRETE

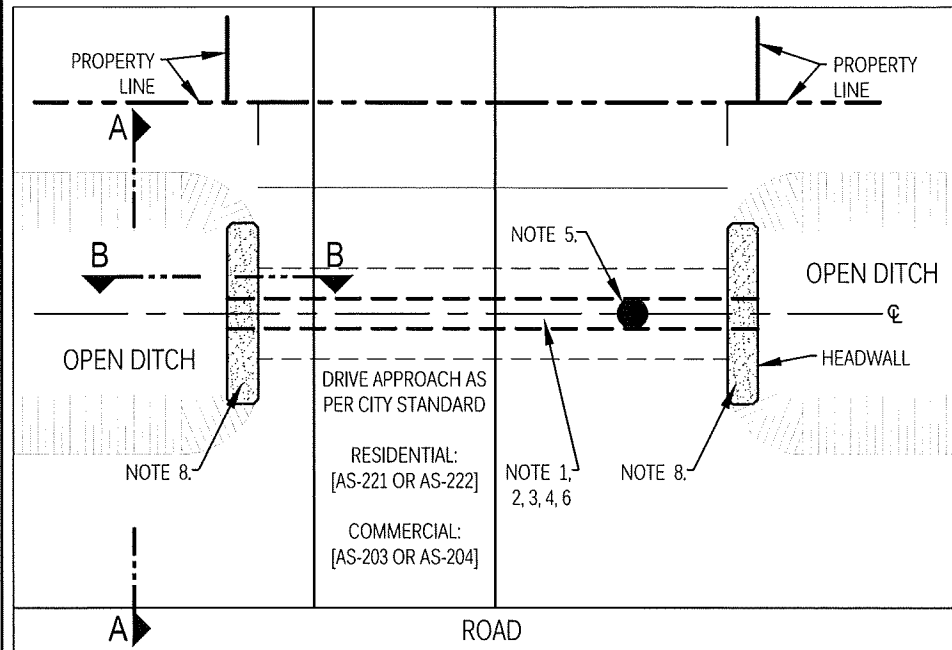
DRAWN BY: S.S., N.B, A.C	DATE: APRIL 2005
REVISION: DEC 2019/DEC 2021	CHECKED BY: W.B., P.U., J.H
CHECKED BY: P.W., M.C.	PASSED BY: T.M., M.W.

C. Nepean
CITY ENGINEER

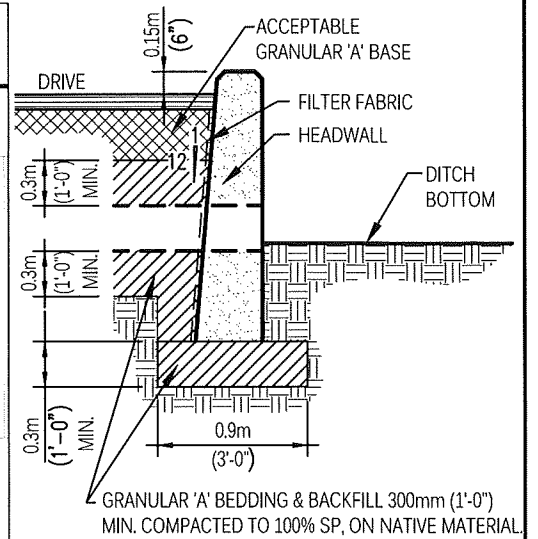
AS-204



PLAN



PLAN

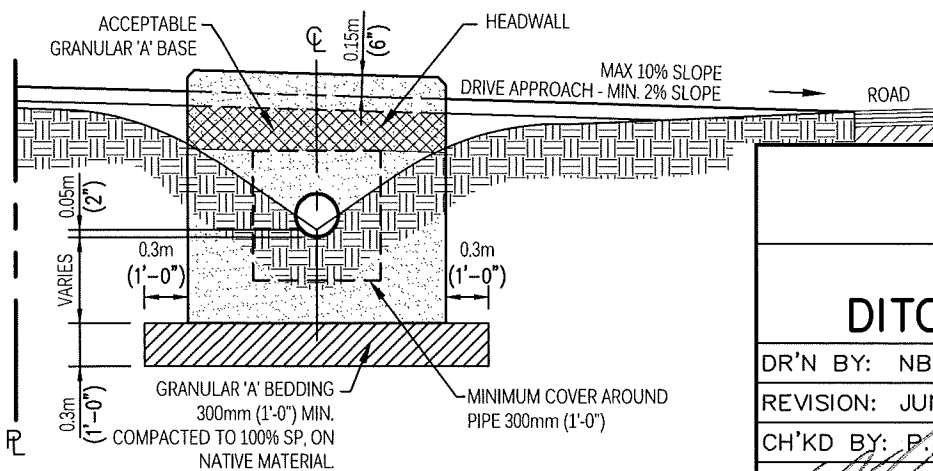


SECTION B-B

GENERAL NOTES:

(IN ACCORDANCE WITH CITY OF WINDSOR STANDARD SPECIFICATION S-11)

- 1.) PIPE MATERIAL - PVC (POLYVINYL CHLORIDE) OR HDPE (HIGH DENSITY POLYETHYLENE) OR CONCRETE PIPE.
- 2.) MATCH THE EXISTING UPSTREAM AND DOWNSTREAM CULVERT SIZE, WHICHEVER IS GREATER. MINIMUM 375mm (15") PIPE.
- 3.) PIPE TO BE EMBEDDED A MINIMUM OF 50mm (2"), OR 10% OF PIPE DIAMETER, WHICHEVER IS GREATER.
- 4.) MINIMUM PIPE COVER TO BE 300mm (1'-0") OF GRANULAR 'A' AROUND PIPE.
- 5.) MINIMUM 600mm (24") DIAMETER CONCRETE OR HDPE INLINE CATCHBASIN WITH FRAME AND COVER AS PER AS-301 IS REQUIRED AT CENTRELINE OF LOT WITH ADDITIONAL CATCHBASINS REQUIRED EVERY 12.2m (40') DITCH/SWALE. ROADWAY WITH CURB AND GUTTER AND/OR DEFINED SHOULDER STANDARD COVER PERMITTED.
- 6.) MATCH UPSTREAM/DOWNSTREAM FLOW OF DITCH.
- 7.) CULVERT TO NOT EXTEND BEYOND PROPERTY LINE.
- 8.) JUTE BAG HEADWALLS WITH CONCRETE CAP FOR PIPE DIAMETER LESS THAN 450mm (18"), AND PRE-CAST OR ENGINEERED DESIGNED CONCRETE HEADWALLS APPROVED BY THE CITY ENGINEER FOR PIPE DIAMETER GREATER THAN 450mm (18") IN ACCORDANCE WITH AS-209.



SECTION A-A

CITY OF WINDSOR

ENGINEERING DEPARTMENT

**BACKFILL OF
DITCH/SWALE/TRENCH**

DR'N BY: NB	DATE: SEPTEMBER, 2015
REVISION: JUNE 2018	CH'KD BY: A.B.
CH'KD BY: P.J.U.	PASSED BY:

[Signature]
CITY ENGINEER

AS-209A

BY – L A W N U M B E R XX-2024

A PROVISIONAL BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE CITY OF WINDSOR IN THE COUNTY OF ESSEX FOR THE IMPROVEMENT OF THE SPRUCEWOOD AVENUE DRAIN

Passed the ___ day of _____, 2024.

WHEREAS the Council of The Corporation of the City of Windsor has procured a Drainage Report under section 78 of the *Drainage Act* for the improvement of the Sprucewood Avenue Drain;

AND WHEREAS the report dated December 12, 2023 has been authored by Rood Engineering Inc. and the attached report forms part of this by-law

AND WHEREAS the estimated total cost of the drainage work is \$151,000.00 which will be borne by the property owners within the City of Windsor in accordance with the Schedule of Assessment in the Drainage Report;

AND WHEREAS the Council of The Corporation of the City of Windsor is of the opinion that the improvement of the Sprucewood Avenue Drain is desirable;

THEREFORE the Council of The Corporation of the City of Windsor, pursuant to the provisions of Section 45 of the Drainage Act, R.S.O. 1990, hereby enacts as follows:

1. **THAT** the Engineer's Report for the Improvement of the Sprucewood Avenue Drain as prepared by Rood Engineering Inc., dated December 12, 2023, which is attached hereto as Schedule "A", is hereby adopted, and the drainage works as therein indicated and set forth are hereby authorized and shall be completed in accordance therewith.
2. **THAT** this by-law shall come into force and take effect on the day of the final passing thereof.

DREW DILKENS, MAYOR

CITY CLERK

First Reading - January 29, 2024
Second Reading- January 29, 2024
Third Reading - , 2024