

**DRAINAGE REPORT  
FOR THE**

**HOWARD AVENUE DRAIN**

**TOWN OF LASALLE  
COUNTY OF ESSEX**



**N. J. PERALTA ENGINEERING LTD.**  
Consulting Engineers

**6 JUNE 2018**  
FILE No. 12-6578-1200

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## **PREAMBLE**

### **Instructions**

On February 17, 2012 the Ministry of Transportation Ontario (MTO) filed a petition with the Town of LaSalle, in accordance with Section 4 of the Drainage Act. The purpose of the petition was for an engineer to be appointed by Council to examine and report on the municipal drains that provide a drainage outlet for the Rt. Hon. Herb Gray Parkway (formerly known as the Windsor Essex Parkway).

A subsequent letter from the MTO was submitted on January 11, 2013 requesting the original appointment be in accordance with Section 78 of the Drainage Act and further defined eight (8) downstream Municipal Drains that are to be reported on as follows:

3<sup>rd</sup> Concession Drain

Howard Avenue Drain

Burke Drain

Cahill Drain

Lennon Drain

Grand Marais Drain

Basin Drain

West Branch of the Cahill Drain (only if required based on analysis of Cahill Drain)

The West Branch of the Cahill Drain is interconnected to the Cahill Drain and provides an outlet for spillover flows from the Cahill Drain. A report on the West Branch of the Cahill Drain is provisional only and is dependent on our findings from the hydraulic analysis performed on the Cahill Drain. If we determine the spillover is such as to potentially cause an impact on the West Branch of the Cahill Drain, a report on the said drain will be prepared. If there is determined to be no impact, then a report on the West Branch of the Cahill Drain will not be required.

### **Howard Avenue Drain (Municipal Drain Status)**

No previous bylaw or engineer's report for the Howard Avenue Drain was found on file with the Town of LaSalle. Following an extensive search we were unsuccessful to find any evidence that would substantiate the legal status of the Howard Avenue Drain. Upon further discussion with the MTO and the Town of LaSalle, it was decided that the existing Section 78 appointment for the Howard Avenue Drain be replaced with a petition for a new municipal drainage works in accordance with Section 4(1)(c) of the Drainage Act, as part of the process in establishing a legal outlet for MTO lands. The original petition from February 2012 had been previously withdrawn in January 2013 and subsequently, the MTO filed a new petition on May 3, 2016.

### **Joint Appointment of Engineer**

On January 22, 2013, Council for the Town of LaSalle reconfirmed a joint appointment of Dillon Consulting Limited (Dillon) and Stantec Consulting Ltd. (Stantec), each having distinct roles, as outlined below, for the preparation of all necessary drainage reports in accordance with Section 78 of the Drainage Act, for all drains serving as an outlet for the Rt. Hon. Herb Gray Parkway. Subsequently, there was a change made by Council for the Town of LaSalle to appoint N.J. Peralta Engineering Ltd (Peralta) to assume the responsibilities of Stantec Consulting Ltd.

To address the new petition specific to the Howard Avenue Drain, the Town of LaSalle reappointed Dillon and Peralta on May 10, 2016 to prepare a Section 4 report.

**Engineer's Role (Dillon Consulting Limited)**

Dillon's responsibilities are limited to on-site meetings, survey work, hydraulic analysis and design, detailed watershed determination, and to report thereon the recommended improvements necessary to each of the above mentioned municipal drains outlined herein. These reports shall contain all plans, profiles and details accompanying the recommended drainage works, together with an estimate of costs, determination of any land allowances and the provision of specifications associated with the work.

The content, as noted above, is contained within this report under **PART A – TECHNICAL CONSIDERATIONS.**

**Engineer's Role (N.J. Peralta Engineering Ltd.)**

Peralta's responsibilities are limited to determination of assessments and provision of rationale for the distribution of costs against all lands, roads and public utilities affected by the improvements to the drainage works as outlined by Dillon within each of the above mentioned municipal drain reports. These assessments shall be prepared for both the construction and future maintenance of each drain and presented in the form of assessment schedules.

The content, as noted above, is contained within this report under **PART B – ASSESSMENT CONSIDERATIONS.**

File No. 12-6578-1200

Mayor and Council  
Corporation of the Town of LaSalle  
5950 Malden Road  
LaSalle, Ontario  
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**Drainage Report for the  
HOWARD AVENUE DRAIN  
Town of LaSalle  
County of Essex**

Mayor and Council:

**PART A – TECHNICAL CONSIDERATIONS**

**Watershed Description**

The petitioned drain to be known as the Howard Avenue Drain comprises 249 metres of open drain and 272 metres of covered drain situated on the west side of Howard Avenue within the Town of LaSalle. The extents of the Howard Avenue Drain represent the portion of the west side ditch on Howard Avenue that serves as an outlet for MTO lands. Beginning at the downstream end of existing driveway access culvert to property Roll No. 290-06000 (referenced as Station 0+521) the Howard Avenue Drain continues southerly as an open drain through a covered drain portion across Laurier Parkway before continuing southerly as an open drain to its outlet into the 3<sup>rd</sup> Concession Drain. The overall watershed area is approximately 114.53 Ha (283.01 acres). The lands within the watershed are predominately urban with a mix of low density residential, commercial, institutional and agricultural use. There is little topographic relief and the soils comprising the watershed are generally poorly drained, classified as a Brookston Clay Loam soil that requires sub-surface tile drainage for agricultural lands to be productive.

**Drain History**


The drainage ditch on the west side of Howard Avenue has historically been maintained under the jurisdiction of the County of Essex Roads department since 1991. Prior to that, the roadway and associated drainage works were addressed by the Windsor Suburban Roads Commission. More recently in 2010, the Town of LaSalle constructed Laurier Parkway, a connecting link from Malden Road east to Howard Avenue, including a new intersection at Howard Avenue, also known as Essex County Road 9.

**Sufficiency of Petition and Area Requiring Drainage**

We have reviewed the petition for the new drainage works in accordance with Section 9 of the Drainage Act. The petition was received from the MTO as the acting road authority having jurisdiction over a portion of Howard Avenue they previously acquired from the County of Essex prior to the construction of the Rt. Hon. Herb Gray Parkway. Modifications were made to Howard Avenue and its existing drainage at the intersection with Laurier Parkway and South Talbot Road and extending both north and south beyond



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this intersection. The northerly segment of Howard Avenue was cutoff with the construction of the Howard Avenue Diversion from the north intersecting with Laurier Parkway to the west, South Talbot Road to the east and Howard Avenue to the south. A new cul-de-sac on Howard Avenue was constructed and the east side ditch was converged with the west side ditch of the new Howard Avenue Diversion and directed to the enclosed portion of the west side ditch on Howard Avenue. The Howard Avenue Connector was constructed to connect the northerly segment of Howard Avenue with the new Howard Avenue Diversion. These modifications form an integral part of the connecting link to King's Highway No. 3 and the Rt. Hon. Herb Gray Parkway. The petition filed by the MTO was determined to be sufficient under Section 4(1) (c) of the Drainage Act.

In terms of the area requiring drainage, the lands affected are to the east and west side of Howard Avenue confined between King's Highway No. 401 to the north and South Talbot Road to the south; and also include lands that are west of the original Burke Drain watershed which depend on the west and east side ditches along the said portion of Howard Avenue for drainage outlet. Included within the area requiring drainage are also former residential lands located just south of King's Highway No. 401 (denoted as Block 'A' & Block 'B') that were acquired by the MTO for construction of the Rt. Hon. Herb Gray Parkway. These new highway lands were originally part of the Sixth Concession Drain watershed and the drainage is now redirected to the Burke Drain and the Howard Avenue Drain. The overall area affected, as described above, measures approximately 145 acres of which more than 60% of this area (approximately 88 acres) is owned by the MTO. The petition filed by the MTO would also be sufficient under Section 4(1) (b) of the Drainage Act.

### **On-Site Meeting**

We conducted an on-site meeting on July 3, 2013 at the Macedonian Community Centre, in the Town of LaSalle. All landowners within the 3<sup>rd</sup> Concession Drain watershed were invited which included upstream drains like the Howard Avenue Drain and Burke Drain. An overview of The Parkway project was introduced to those landowners who attended this meeting. It was explained that the Town of LaSalle appointed an engineer to examine the Howard Avenue Drain and assess its condition and adequacy to provide a sufficient outlet for the lands and roads being serviced including the Rt. Hon. Herb Gray Parkway.

Furthermore, where the engineer determines that improvements are required to obtain a sufficient outlet, the recommendations will be contained within the engineer's report that will be presented to Town of LaSalle Council for their consideration and adoption thereof prior to undertaking any necessary drainage works. The MTO has agreed in principle that costs associated with the preparation of this report for the Howard Avenue Drain will be covered by the Parkway project. In accordance with the Drainage Act legislation, these costs form part of the costs of the drainage works.

All landowners were invited to submit their questions, provide comment or concerns as to their present drainage condition. The feedback was recorded and compiled for the Howard Avenue Drain. Where more information or clarification was required by the engineer, there was subsequent follow up with the landowner to better understand the issues

### **Survey and Findings**

Our survey and examination of the Howard Avenue Drain was completed in October 2012.

The survey comprised the recording of topographic data and examining the drain for available depth and capacity necessary to provide a sufficient drainage outlet for all the lands and roads within the watershed. The Howard Avenue Drain will also provide an outlet for the Burke Drain.

In 2010, Laurier Parkway was constructed within the Town of LaSalle starting east of Malden Road and continuing westerly to Howard Avenue. Drainage modifications were made to facilitate the new intersection between Laurier Parkway and Howard Avenue. These works included the replacement of the existing 900 mm diameter CSP road culvert across Howard Avenue for which the inlet side (east side) of the said culvert has been the point of outlet for the Burke Drain leading to the west side ditch on Howard Avenue. The said culvert was replaced with a 900 mm diameter concrete pipe.

Furthermore, the Howard Avenue Drain at the confluence with the Burke Drain was enclosed with a 96 m long, 600 mm diameter concrete pipe extending upstream and north of Laurier Parkway; and further enclosed extending downstream with a 106 m long, 900 mm diameter concrete pipe south of Laurier Parkway. With this enclosure the drain was also deepened by approximately 0.50 metres. We discovered there is a significant accumulation of sediment within the upstream 600 mm diameter pipe section of the enclosure that requires cleaning.

Downstream of the enclosure, as described above, the Howard Avenue Drain is an open drain. During the Laurier Parkway construction the bottom of the drain was lined with gabion stone and a 300 mm diameter HDPE sub drain pipe was installed below the open drain to the depth of the enclosure and continued to the Howard Avenue Drain outlet into the 3<sup>rd</sup> Concession Drain. We understand that the sub drain pipe placement was opted for instead of deepening and widening the downstream portion of the Howard Avenue Drain in order to avoid relocation of existing utilities (Hydro poles and underground Bell telephone lines) that were encountered within close proximity to the drain.

Subsequent to the Laurier Parkway construction, there were four (4) drain crossings installed on the Howard Avenue Drain downstream of the enclosed drain portion, each consisting of a 1000 mm diameter CSP culvert for the purpose of providing access to three existing hydro poles and one existing telephone service pedestal located on the west side of the drain. We understand the work was undertaken by the respective operating utilities. The timelines of this work are not exactly known, however we believe the work to have occurred after the original enclosure of the Howard Avenue Drain in 2010 and before the continuation of the enclosure in 2012 as noted below.

In July 2012 during the construction of the Rt. Hon. Herb Gray Parkway several modifications were made to the existing Howard Avenue Drain enclosure. The downstream end of the enclosure consisting of a 900 mm diameter concrete pipe was further extended with a 70 m long, 1200 mm diameter concrete pipe to facilitate the road widening of Howard Avenue south of Laurier Parkway. The upstream end of the Howard Avenue Drain enclosure consisting of a 600 mm diameter concrete pipe was opened up (Station 0+425) to permit some of the drainage area east of Howard Avenue and north of South Talbot Road to enter further upstream from its original outlet that was the Howard Avenue road culvert conveying the Burke Drain flows into the Howard Avenue Drain. Drainage flows from the east side ditch on Howard Avenue north of South Talbot Road, the west side ditch of the new Howard Avenue Diversion and the north and south ditches

of the new Howard Avenue Connector no longer use the Howard Avenue road culvert as an outlet into the Howard Avenue Drain.

From the results of our hydraulic analysis we find the capacity of the Howard Avenue Drain is limited by the existing enclosure and results in a surcharged condition when conveying the flows from a 2 year return period design storm. The surcharging results in a minor backwater condition extending upstream within the Howard Avenue Drain, Burke Drain and the interconnected road side ditches along Howard Avenue, Howard Avenue Diversion and Howard Avenue Connector. Hydrologic modelling results indicate the drainage flows and resulting backwaters will remain within the respective drains and roadside ditches without overtopping provided they are kept in good repair.

### **Design Considerations**

The Design and Construction Guidelines for Work under the Drainage Act, 1985 as published by OMAFRA, is the current reference document used by engineers carrying out work on municipal drains under the Act. The 2 year return period design storm is the recommended design standard applied to municipal drains within rural Ontario specific to open drain channels and low hazard agricultural field access crossings. For residential, industrial and commercial properties where flooding could wash out an access culvert, a higher 5 to 10 year return period design storm is the recommended design criteria.

The 10 year return period design storm is the recommended design criteria applied to culverts on municipal drains that are crossing municipal roads such as South Talbot Road and Laurier Parkway. For county road culverts like Howard Avenue, the recommended design criteria can vary from a 10 year to 25 year return period design storm. From consultations with the County of Essex road authority we confirmed that their current criteria for culvert design across Howard Avenue is the 10 year return period design storm, which we have selected.

Private access culverts and road crossings have been sized using the Rational Method. The peak flows determined should freely pass through the culverts without experiencing any backwater effects. Hydrologic and hydraulic analyses using computer aided modeling were applied to check the downstream impacts the Burke Drain improvements may have on the receiving drains that being the Howard Avenue Drain and further downstream, the 3<sup>rd</sup> Concession Drain.

With respect to the above design considerations, the enclosed portion of the Howard Avenue Drain involves the crossing of Laurier Parkway, where a minimum 10 year return period design storm criteria would apply. From the results of our hydraulic analysis we find the capacity of the Howard Avenue Drain is limited by the existing enclosure and results in a surcharged condition when conveying the flows from a 10 year return period design storm. The surcharging results in a backwater condition extending upstream within the Howard Avenue Drain and Burke Drain where minor overtopping of the drain banks and localized flooding is possible within low lying areas.

Given that the present Howard Avenue Drain enclosure has been identified as an insufficient outlet to convey the peak flows of a 2 year return period design storm and that the existing road crossing being Laurier Parkway lacks the capacity to convey the 10 year return period design storm, improvements to the Howard Avenue Drain and Burke Drain are being recommended as such to convey the 10 year return period design storm without

overtopping the drain channel. This criteria was also applied in design of and improved capacity provided for the four (4) drain crossings on the downstream open drain portion of the Howard Avenue Drain such as to convey flows from both the Howard Avenue Drain and Burke Drain with minimal backwater condition experienced.

### **Recommendations**

Based on our review of the history, the information obtained during the site meeting, our examination of the survey data, hydrologic and hydraulic analysis, we have recommended the following improvements to the Howard Avenue Drain:

- In lieu of replacing or twinning the Howard Avenue Drain enclosure to acquire the required additional capacity, we have recommended a relief drain be provided through a new Burke Drain outlet re-directed to the Howard Avenue Drain beyond the enclosure. The new Burke Drain outlet has been designed to provide the standard municipal drain design capacity for the Burke Drain watershed plus the additional capacity necessary to alleviate the restriction within the Howard Avenue Drain enclosure, as noted above. The details are outlined within the new drainage report for the Burke Drain.
- Re-grade the existing gabion stone lined drain channel bottom to establish an improved gradient from Station 0+010 to Station 0+186.
- For the existing 259 m long, 300 mm diameter high density polyethylene (HDPE) pipe underdrain on the lower open drain portion, we understand it was installed during the construction of Laurier Parkway so we further recommend that it be incorporated as part of the Howard Avenue Drain.
- Replace the existing four (4) 1000 mm diameter utility access culverts with larger 1350 mm diameter size culverts to convey the increased flows from the new Burke Drain outlet. The work requires the relocation of a portion of the existing 300 mm diameter HDPE underdrain.
- Cleanout of the open drain portion from the upstream end of the drain enclosure to the first access culvert, a distance of approximately 63 metres (Station 0+458 to Station 0+521). We further recommend that this open portion of drain be incorporated as part of the Howard Avenue Drain.
- Establishment of a 1 m wide grass buffer strip along the west side of the open portion of drain from Station 0+000 to Station 0+186 and from Station 0+458 to Station 0+521.
- Repair outlet end of existing road culvert (Station 0+116) that drains the Howard Avenue east side road swale and collects surface water from abutting properties.
- Flush and cleanout the 900 mm diameter concrete pipe portion of the Howard Avenue Drain enclosure (106 m long segment). We further recommend that this enclosure be incorporated as part of the Howard Avenue Drain.
- Flush and cleanout the 600 mm diameter concrete pipe portion of the Howard Avenue Drain enclosure (60 m long and 30 m long segments). We further recommend that this enclosure be incorporated as part of the Howard Avenue Drain.

The Howard Avenue Drain has been defined to be 521 metres long starting at its outlet into the 3<sup>rd</sup> Concession Drain (Station 0+000) and continuing upstream to the southerly limit of property Roll No. 290-06000 (Station 0+521). For the remaining portion of the

county road ditch along the west side of Howard Avenue that is upstream and beyond Station 0+521 extending northerly approximately 676 metres to the Sixth Concession Road, there was no drainage entering from lands petitioned by the MTO so therefore it has not been included as part of the municipal drainage works.

### **Allowances**


In accordance with Sections 29 and 30 of the Drainage Act, we have made a determination of the amount to be paid for damages to the lands and for land taken in the improvements to the Howard Avenue Drain and the establishment of a permanent 1.0 m wide grass buffer strip on the west side of the drain from Station 0+000 to Station 0+186 and from Station 0+458 to Station 0+521, as specified herein.

In accordance with Section 31 of the Drainage Act, where an existing drain that was not constructed on requisition or petition under this Act or any predecessor of this Act is incorporated in whole or in part, the engineer shall provide an allowance for the value of the drainage works of such drain or part and include within the estimate of costs. Given the costs estimated to put the drain back into good repair with a sufficient outlet is expected to exceed the costs of the original ditch that was constructed prior to its enclosure in 2010, there was no existing drains allowance provided under Section 31. Schedule 'A' shows the distribution of these allowances for damages and for land taken in the amount totalling \$2,000.00.


### **Cost Estimate**

We estimate the costs of the Howard Avenue Drain repairs and improvements as described below:


| <b>Item</b> | <b>Description</b>  | <b>Amount</b> |
|-------------|---|---------------|
|             | <b><u>OPEN DRAIN WORK</u></b>   |               |
| 1.          | Excavate and re-grade existing gabion stone lined drain channel bottom from Station 0+010 to Station 0+186 as per design grades shown on drawings. Salvaged gabion stone to be placed on drain banks where required.  | \$3,500.00    |
| 2.          | Excavate and widen drain from Station 0+458 to Station 0+521, approximately 63 lineal metres and approximately 30 m <sup>3</sup> including trucking and disposal of excavated materials off site and hydraulic seeding of west drain bank (approx. 100 m <sup>2</sup> ) | \$2,000.00    |
| 3.          | Seeding of 1 metre wide grass buffer along west side of drain from Station 0+010 to Station 0+186.  | \$800.00      |
| 4.          | Seeding of 1 metre wide grass buffer along west side of drain from Station 0+458 to Station 0+521.  | \$300.00      |
| 5.          | Utility Access Bridge works, as follows:  |               |



| Item | Description   | Amount      |
|------|---|-------------|
|      | <p>a) <u>Bridge No. 1 - Station 0+005 (Bell Pedestal Access)</u> – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 15 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). <u>Note:</u> The Contractor shall arrange for telephone utility company to pick up salvaged culvert pipe.</p>   | \$18,000.00 |
|      | <p>b) <u>Bridge No. 2 - Station 0+043 (Hydro Pole Access)</u> – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4-45 degree elbows for the tile relocation along the west side of the new culvert. <u>Note:</u> The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.</p> | \$19,300.00 |



| Item | Description   | Amount      |
|------|---|-------------|
|      | <p>c) <u>Bridge No. 3 - Station 0+093 (Hydro Pole Access)</u> – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4-45 degree elbows for the tile relocation along the west side of the new culvert. <u>Note:</u> The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.</p> | \$19,300.00 |
|      | <p>d) <u>Bridge No. 4 - Station 0+143 (Hydro Pole Access)</u> – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4-45 degree elbows for the tile relocation along the west side of the new culvert. <u>Note:</u> The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.</p> | \$19,300.00 |



| Item | Description   | Amount              |
|------|---|---------------------|
| 6.   | Repair existing 750 mm diameter CSP road culvert outlet end on east drain bank at Station 0+116 including removal and replacement of 3 m length of existing pipe with new 3 m long, 750 mm diameter aluminized CSP (2.0 mm thickness and 68 x 13 mm corrugations) complete with coupler and stone erosion protection on east drain bank (approximately 20 m <sup>2</sup> ). | \$3,000.00          |
| 7.   | Flush and clean existing 106 m long, 900 mm diameter concrete pipe Station 0+256 to Station 0+362 including hydrovac work and disposal of flushed sediment off-site.  | \$5,000.00          |
| 8.   | Flush and clean existing 60 m long, 600 mm diameter concrete pipe Station 0+362 to Station 0+422 including hydrovac work and disposal of flushed sediment off-site.   | \$3,000.00          |
| 9.   | Flush and clean existing 30 m long, 600 mm diameter concrete pipe Station 0+428 to Station 0+458 including hydrovac work and disposal of flushed sediment off-site.   | <u>\$1,500.00</u>   |
|      | <b>Total Construction Estimate<br/>Howard Avenue Drain</b>  | <b>\$95,000.00</b>  |
| 10.  | Allowances under Sections 29 and 30   | \$2,000.00          |
| 11.  | Drain Survey, Design, Report, attend Council meetings (2) including expenses and incidentals.   | \$125,000.00        |
| 12.  | Drain Assessment Rationale & Assessment Schedules including expenses and incidentals as per N.J. Peralta Engineering.   | \$24,000.00         |
| 13.  | Contract administration and inspection of Howard Avenue Drain.  | \$8,000.00          |
|      | <b>Total Estimate<br/>Howard Avenue Drain</b>   | <b>\$254,000.00</b> |

The estimate provided in this report was prepared according to current materials and installation prices as of the date of this report. In the event of delays from the time of filing of the report by the Engineer to the time of tendering the work, it is understood that the estimate of cost is subject to inflation. The rate of inflation shall be calculated using the Consumer Price Index applied to the cost of construction from the date of the report to the date of tendering.

#### Assessments

The foregoing capital costs as well as future costs of maintenance have been assessed to the affected landowners, roads and other parties as shown in the appended schedules of assessment to this report (see **Part 'B' – Assessment Considerations**) as prepared by N.J. Peralta Engineering Ltd. A rationale for the assessments is also provided.

### Drawings and Specifications

Attached to this report is "Schedule B", which are Specifications setting out the details of the recommended works, and "Schedule C," which represents the following drawings that are also attached to this report:

|                     |   |
|---------------------|---|
| <b>Page 1 of 9:</b> | <b>Watershed Plan</b>                   |
| <b>Page 2 of 9:</b> | <b>Property Information</b>             |
| <b>Page 3 of 9:</b> | <b>Plan 1 Sta. 0+000 to Sta. 0+186</b>  |
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| <b>Page 7 of 9:</b> | <b>Cross Sections</b>                   |
| <b>Page 8 of 9:</b> | <b>Utility Access Bridge Details</b>    |
| <b>Page 9 of 9:</b> | <b>OPSD Details</b>                     |

### Fisheries Issues

The Howard Avenue Drain has been classified as a "Type F" drain by the Department of Fisheries and Oceans. Type F drains have intermittent water flow and may only provide habitat for fish periodically. Standard practices to be followed to minimize disruption to fish habitat include embedment of the culvert a minimum 10% below grade, constructing the work during low water levels in the drain, maintaining a 1.0 metre wide grass buffer strip along the drain banks, providing silt fencing until permanent erosion protection is in place on drain banks and cutting only trees necessary to do the work (no clear-cutting).

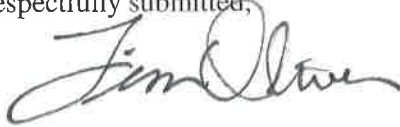
In addition, to alleviate potentially harmful impacts and avoid disruption to fish habitat, the following is recommended:

- In order to protect local fish populations during their spawning and nursery periods no '**in-water**' work should be conducted from March 15 – June 30 (DFO/MNRF) timing window without prior authorization from DFO (Department of Fisheries and Oceans) for emergency situations. Prior to undertaking any of these works, a DFO review and authorization in accordance with Fisheries Act may be required.
- All in-stream work should be completed in '**the dry**'.
- Sediment and erosion control measures should be implemented prior to work and regularly inspected and maintained during the work phase, to prevent entry of sediment into the water.
- All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, etc.) from entering the water.
- All disturbed areas should be stabilized immediately, and upon completion of work returned to a pre-disturbed state or better as soon as conditions allow.

## Grants

In accordance with the provisions of Sections 85, 86 and 87 of the Drainage Act, a grant in the amount of 33-1/3 percent of the assessment eligible for a grant may be made in respect to the assessment made under this report upon privately owned lands used for agricultural purposes. The assessments levied against privately owned agricultural land must also satisfy all other eligibility criteria set out in the Agricultural Drainage Infrastructure Program policies. Most of the privately owned lands are used for agricultural purposes and are eligible under the A.D.I.P. policies. We are not aware of any lateral drains involved in this work that would not be eligible for a grant. We recommend that application be made to the Ministry of Agriculture, Food and Rural Affairs in accordance with Section 88 of the Drainage Act, for this grant, as well as for all other grants for which this work may be eligible.

Respectfully submitted,



### **DILLON CONSULTING LIMITED**

Tim R. Oliver, P.Eng.  
TRO:wlb:ges

**SCHEDULE 'A'**  
**SCHEDULE OF ALLOWANCES**

**HOWARD AVENUE DRAIN**  
**TOWN OF LASALLE (COUNTY OF ESSEX)**

| Roll No.                      | Con. | Description  | Owner  | Section 30<br>Damages | Section 29<br>Land | Total<br>Allowances |
|-------------------------------|------|--|--|-----------------------|--------------------|---------------------|
| 290-16300                     | 6    | Pt. Lots 1-3 RP12R6478<br>Pts. 1-6,8,9 & Pt. Pt. 7 | Howard Business Centre Inc.                            | \$600.00              | \$700.00           | \$1,300.00          |
| 290-06100                     | 6    | Pt. Lot 3 RP12R2517 Pts.<br>1,2&3                  | Trustees of the Apostolic Christian<br>Church Nazarean | \$200.00              | \$500.00           | \$700.00            |
| <b>TOTAL ALLOWANCES</b> ..... |      |  |  | <b>\$800.00</b>       | <b>\$1,200.00</b>  | <b>\$2,000.00</b>   |

"SCHEDULE B"  
DRAINAGE REPORT FOR THE  
**HOWARD AVENUE DRAIN**  
TOWN OF LASALLE  
COUNTY OF ESSEX

**SPECIAL PROVISIONS - GENERAL**

**1.0 GENERAL SPECIFICATIONS**

The General Specifications attached hereto is part of "Schedule F." It also forms part of this specification and is to be read with it, but where there is a difference between the requirements of the General Specifications and those of the Special Provisions which follow, the Special Provisions will take precedence.

**2.0 DESCRIPTION OF WORK**

The work to be carried out under this Contract includes, but is not limited to, the supply of all **labour, equipment and materials** to complete the following items:

- Excavate and re-grade existing gabion stone lined drain channel bottom from Station 0+010 to Station 0+186 as per design grades shown on drawings. Salvaged gabion stone to be placed on drain banks where required.
- Excavate and widen drain from Station 0+458 to Station 0+521, approximately 63 lineal metres and approximately 30 m<sup>3</sup> including trucking and disposal of excavated materials off site and hydraulic seeding of west drain bank (approx.. 100 m<sup>2</sup>).
- Seeding of 1 metre wide grass buffer along west side of drain from Station 0+010 to Station 0+186.
- Seeding of 1 metre wide grass buffer along west side of drain from Station 0+458 to Station 0+521.
- Utility Access Bridge works, as follows:
  - Bridge No. 1 - Station 0+005 (Bell Pedestal Access) – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 15 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Note: The Contractor shall arrange for telephone utility company to pick up salvaged culvert pipe.
  - Bridge No. 2 - Station 0+043 (Hydro Pole Access) – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported

clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4-45 degree elbows for the tile relocation along the west side of the new culvert. Note: The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.

- Bridge No. 3 - Station 0+093 (Hydro Pole Access) – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4-45 degree elbows for the tile relocation along the west side of the new culvert. Note: The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.
  - Bridge No. 4 - Station 0+143 (Hydro Pole Access) – Carefully remove and salvage existing 9 m long 1000 mm diameter CSP and sloping stone end walls. Remove and dispose of excavation materials off-site that are not suitable for native backfill. Supply and install a new 10 m long, 1350 mm diameter precast concrete pipe (CSA A-257.2, Class 100-D) with one flared end inlet section. Supply and install clear stone bedding material beneath pipe, minimum 150 mm thickness (approximately 25 tonnes), Granular 'A' backfill (approximately 70 tonnes), clean native or imported clean native backfill material beyond the granular backfilled area to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>) and sloping stone end walls (approximately 25 m<sup>2</sup>). Supply and installation of 18 m long, 300 mm diameter HDPE pipe complete with 4 -45 degree elbows for the tile relocation along the west side of the new culvert. Note: The Contractor shall arrange for hydro utility company to pick up salvaged culvert pipe.
- Repair existing 750 mm diameter CSP road culvert outlet end on east drain bank at Station 0+116 including removal and replacement of 3 m length of existing pipe with new 3 m long, 750 mm diameter aluminized CSP (2.0 mm thickness and 68 x 13 mm corrugations) complete with coupler and stone erosion protection on east drain bank (approximately 20 m<sup>2</sup>).
  - Flush and clean existing 106 m long, 900 mm diameter concrete pipe Station 0+256 to Station 0+362 including hydrovac work and disposal of flushed sediment off-site.
  - Flush and clean existing 60 m long, 600 mm diameter concrete pipe Station 0+362 to Station 0+422 including hydrovac work and disposal of flushed sediment off-site.
  - Flush and clean existing 30 m long, 600 mm diameter concrete pipe Station 0+428 to Station 0+458 including hydrovac work and disposal of flushed sediment off-site.

### 3.0 ACCESS TO THE WORK

Access to the drain shall be from Howard Avenue (Essex County Road 9) and the working corridors. The Contractor shall make his/her own arrangements for any additional access for his/her convenience. All road areas and grass lawn areas disturbed shall be restored to original conditions at the Contractor's expense.

#### 4.0 WORKING CORRIDOR

The Contractor shall restrict his equipment to the working corridors as specified in this Section. Any damage resulting from non-compliance with this Section shall be borne by the Contractor. The working corridor shall be measured from the top of the drain bank and shall be as follows:

| FROM<br>STA. | TO<br>STA. | PRIMARY<br>(See Note 1)          | SECONDARY<br>(See Note 2)    |
|--------------|------------|----------------------------------|------------------------------|
| 0+000        | 0+186      | 9.0 m wide on west side of drain | Howard Avenue road allowance |
| 0+186        | 0+458      | Howard Avenue road allowance     | N/A                          |
| 0+458        | 0+521      | 9.0 m wide on west side of drain | Howard Avenue road allowance |

Note 1: *Primary working corridor* indicates the access corridor along the side of the drain where excavation and levelling is recommended (unless noted otherwise below and/or in the Specifications, as well as all purposes listed for Secondary Working Corridors).

Note 2: *Secondary working corridor* indicates the access corridor along the side of the drain where construction equipment may travel for the purpose of trucking, drain bank repairs, tile inlet repairs, surface water inlet repairs, grass buffer strips and other miscellaneous works. **No disposal of fill or levelling of materials shall be permitted within a secondary working corridor. As further specified, use of this secondary working corridor may be further restricted due to site condition. Read all Specifications, Drawings and/or notes before completing works.**

#### 5.0 BRUSHING

Brushing shall be carried out on the entire drain within the above identified sections of the drain where required and as specified herein. **All** brush and trees located within the drain side slopes shall be cut parallel to the side slopes, as close to the ground as practicable. Tree branches that overhang the drain shall be trimmed. Small branches and limbs are to be disposed of by the Contractor along with the other brush. Tree stumps, where removed to facilitate the drain excavation and reshaping of the drain banks, may be burned by the Contractor where permitted; otherwise, they shall be disposed of, off the site. The Contractor shall make every effort to preserve mature trees which are beyond the drain side slopes, and the working corridors. If requested to do so by the Drainage Superintendent, the Contractor shall preserve certain mature trees within the designated working corridors (see Section 4.0).

Except as specified herein, all brush and trees shall be stockpiled adjacent to the drain within the working corridors. Stockpiles shall not be less than 100 m apart and shall be a minimum of 2.0 m from the edge of the drain bank. All brush, timber, logs, stumps, large stones or other obstructions and deleterious materials that interfere with the construction of the drain, as encountered along the course of the drain are to be removed from the drain by the Contractor. Large stones and other similar material shall be disposed of by the Contractor off the site.

Following completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which remain standing, disposing of the branches cut off along with other brush and leaving the trees in a neat and tidy condition. Brush and trees removed from the working area are to be put into piles by the Contractor, in locations where they can be safely burned, and to be burned by the Contractor after

obtaining the necessary permits, as required. If, in the opinion of the Drainage Superintendent, any of the piles are too wet or green to be burned, he shall so advise the Contractor to haul away the unburned materials to an approved dump site. Prior to, and during the course of burning operations, the Contractor shall comply with the current guidelines prepared by the Air Quality Branch of the Ontario Ministry of Environment and shall ensure that the Environmental Protection Act is not violated. Since the trees and brush that are cut off flush with the earth surface may sprout new growth later, it is strongly recommended that the Municipality make arrangements for spraying this new growth at the appropriate time so as to kill the trees and brush.

As part of this work, the Contractor shall remove any loose timber, logs, stumps, large stones or other debris from the drain bottom and from the side slopes. **Timber, logs, stumps, large stones or other debris shall be disposed of off-site.**

## **6.0 EXCAVATION AND LEVELLING OF EXCAVATED MATERIALS**

### **6.1 Excavation of Existing Drain Channel**

In all cases, the Contractor shall use the benchmarks to establish the proposed grade. However, for convenience, the drawings provide the approximate depth from the surface of the ground and from the existing drain bottom to the proposed grades. **THE CONTRACTOR SHALL NOT EXCAVATE DEEPER THAN THE GRADELINES SHOWN ON THE DRAWINGS.** Should over-excavation of the drain bank occur, the Contractor will **not** be permitted to repair with native material packed into place by the excavator and reshaped. Should over-excavation occur, the Contractor will be required to have a bank repair detail engineered by a Professional Engineer (hired by the Contractor), to ensure long term stability of the bank is maintained. Such repairs shall be subject to approval by the Engineer and will be at no extra cost to the item.

All excavated material shall be handled as specified in Section 6.2. Materials deposited on the farmlands shall be within the working corridors, at least 1.0 m from the top of the drain bank, or as specified on the drawings. Upon allowing drying of excavated materials (if necessary) and as approved by the Drainage Superintendent, the Contractor shall level excavated materials in accordance with Section 6.2. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain. Seeding of the disturbed drain banks shall be completed immediately following drain construction and as specified in Section 9.0.

All excavation work shall be done in such a manner as to not harm any vegetation or trees, not identified in this report or by the Drainage Superintendent for clearing. Any damages to trees or vegetation caused by the Contractors work shall be rectified to the satisfaction of the Drainage Superintendent.

The Contractor shall exercise caution around existing tile inlets and shall confirm with the property owners that all tiles have been located and tile ends repaired as specified.

### **6.2 Levelling of Excavated Materials**

Excavation of the drain bottom shall be completed as specified in Section 6.1, above and also as specified below and as shown on the drawings.

Excavated drain materials shall be spread to a depth not to exceed 300 mm, unless specified otherwise on the drawings. The material shall be sufficiently levelled to allow further working by agricultural implements. All stones and other debris removed from the drain, which may interfere with agricultural implements, shall be disposed of off-site. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

### **6.3 Trucking of Excavated Materials**

Trucking of excavated materials to off-site disposal site to be arranged by Contractor.

**The Contractor shall be solely responsible for acquiring any and all permits and approvals required prior to hauling and disposal of materials off-site.** The Contractor shall restore any such areas which are damaged by his operations, to original or better condition. The Contractor will be held liable for damages to roads, sodded areas and gardens, resulting from his non-compliance with these Specifications.

## **7.0 STONE EROSION PROTECTION (SEP)**

The Contractor shall supply and install the required quantities of graded stone rip-rap erosion protection materials where specified. All stone to be used for erosion protection shall be 125 - 250 mm clear **quarried rock** or OPSS 1001 placed over a non-woven filter fabric Terrafix 270R or approved equivalent. **Concrete rip-rap will not be permitted.**

The minimum thickness requirement of the erosion stone layer is 300 mm with no portion of the filter fabric to be exposed.

## **8.0 SEEDING OF GRASS BUFFER**

All existing grassed areas disturbed by construction or as identified as new or existing grass buffers shall be seeded as specified herein. The existing ground surface to be seeded shall be loosened to a depth of 25 mm and shall be rendered uniformly loose for that 25 mm depth. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of. If mulching is required, it shall be carried out by the contractor as part of the item's tendered price.

Grass seed shall be Canada No. 1 grass seed mixture meeting the requirements of a Waterway Slough Mixture as supplied by Growmark or approved equal, as follows:

|                            |     |
|----------------------------|-----|
| <i>Creeping Red Fescue</i> | 20% |
| <i>Meadow Fescue</i>       | 30% |
| <i>Tall Fescue</i>         | 30% |
| <i>Timothy</i>             | 10% |
| <i>White Clover</i>        | 10% |

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 200 kg per 10,000 m<sup>2</sup>. Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m<sup>2</sup>. It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

**The seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.**

## **9.0 HYDRAULIC SEEDING OF DRAIN BANKS**

All existing grassed areas disturbed by construction shall be hydraulic mulch seeded as specified herein. The existing ground surface to be seeded shall be loosened to a depth of 25 mm and shall be rendered uniformly loose for that 25 mm depth. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

Hydraulic mulch shall consist of finely ground cellulose pulp derived from recycled newsprint and shall be dyed green. Its fiber consistency shall be approximately 60% fine fiber with the balance being paper particles, 40% of which shall be a diameter of 3 mm minimum and 6 mm maximum. Hydraulic mulch shall be applied at 2,000 kg per 10,000 m<sup>2</sup>. Clean water shall be applied at 42,700 liters per 10,000 m<sup>2</sup>.

Seeding and mulching shall be a one step process in which the seed, fertilizer and hydraulic mulch are

applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniformly over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent. The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly.

Grass seed shall be Canada No. 1 grass seed mixture meeting the requirements of a Waterway Slough Mixture as supplied by Growmark or approved equal, as follows:

|                            |     |
|----------------------------|-----|
| <i>Creeping Red Fescue</i> | 20% |
| <i>Meadow Fescue</i>       | 30% |
| <i>Tall Fescue</i>         | 30% |
| <i>Timothy</i>             | 10% |
| <i>White Clover</i>        | 10% |

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 200 kg per 10,000 m<sup>2</sup>.

Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m<sup>2</sup>. It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

**The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.**

## **10.0 ACCESS BRIDGE WORK**

### **10.1 Location of New Culverts**

The new culverts shall be installed as shown on the drawings attached hereto. The centerline of the new culvert shall be located to align itself with the existing laneway.

### **10.2 Removal of Existing Culverts**

The Contractor shall exercise caution when removing these materials as to minimize damage to the drain banks. Any damage to the drain shall be restored to original conditions at the expense of the Contractor. The removed materials (existing culvert debris and end wall materials) shall be hauled away off-site.

### **10.3 Materials for New Bridge**

Materials should be as follows:

#### *Culvert Pipe*

**Bridge No. 1 - Station 0+005:** New 10 m long, 1350 diameter CSA A-257.2 Class 100-D reinforced circular concrete pipe including a flared end inlet pipe.

**Bridge No. 2 - Station 0+043:** New 10 m long, 1350 diameter CSA A-257.2 Class 100-D reinforced circular concrete pipe including a flared end inlet pipe.

**Bridge No. 3 - Station 0+093:** New 10 m long, 1350 diameter CSA A-257.2 Class 100-D reinforced circular concrete pipe including a flared end inlet pipe.

**Bridge No. 4 - Station 0+143:** New 10 m long, 1350 diameter CSA A-257.2 Class 100-D reinforced circular concrete pipe including a flared end inlet pipe.

**Howard Avenue road culvert Station 0+116:** New 3 m long, 750 mm diameter aluminized Type II corrugated steel pipe (CSP) wall thickness of 2.0 mm and 68 mm x 13 mm corrugations. New culvert shall be joined with annular aluminized corrugated wide bolt and angle couplers (minimum of 8 corrugation overlap and 2.0 mm wall thickness) and no single pipe less than 6.0 m in length. All pipes connected with couplers shall abut to each other with no more than a 25 mm gap between pipes prior to installation of the coupler. Pre-fabricated 30 degree bend to be in accordance with the manufacturer's specification.

|   |  |
|---|--|
| <i>Tile &amp; Prefabricated 45° Bends</i> | 300 mm (12") diameter smooth wall, high density polyethylene (HDPE), conforming to ASTM D3350, CSA B182.8-02 and OPSD 1840. The pipe is to provide a minimum stiffness of 320kPa.<br><br>Joined using (soil tight) "split" coupler joining system (Split couplers manufactured by Armttec Limited or approved equal), supplied by the pipe manufacturer and conforming to ASTM D3350, CSA B182.8-02 and OPSD 1840. |
| <i>Pipe Bedding Below Pipe</i>            | 20-25 mm clear stone conforming to OPSS Division 10.   |
| <i>Backfill</i>                           | Granular 'A' conforming to OPSS Division 10.   |
| <i>Erosion Stone</i>                      | All stone to be used for erosion protection shall be 125 - 250 mm clear quarried rock or OPSS 1004, minimum 300 mm thickness.  |
| <i>Buffer Strips</i>                      | Dry native material free of topsoil, organic matter, broken concrete, steel, wood and deleterious substances.  |
| <i>Filter Fabric</i>                      | "Non-Woven" geotextile filter fabric with a minimum strength equal to or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC or approved equivalent.  |

#### **10.4 Culvert Installation**

Suitable dykes shall be constructed in the drain so that the installation of the pipe can be accomplished in the dry. The drain bottom shall be cleaned, prepared, shaped and compacted to suit the new culvert configuration, as shown on the drawings. Granular materials shall be compacted to 100% of their maximum dry density; imported clean native materials shall be supplied, placed and compacted to 95% of their maximum dry density.

#### **10.5 Sloping Stone End Walls**

End walls shall be constructed of quarry stone rip-rap, as specified herein. Each end wall shall extend from the invert of the new culvert to the top of the proposed lane. The end walls shall be sloped 1 vertical to 1.5 horizontal with a filter fabric underlay surrounding the pipe and spanning across the entire width of the drain and wrapping around the drain banks to align with the ends of the new pipe culvert. The minimum thickness requirement of the erosion stone layer is 300 mm with no portion of the filter fabric to be exposed to sunlight.

### 10.6 Granular 'A' Driveway

The Contractor shall construct the driveway with a maximum 3% longitudinal grade approach over the new culvert providing a minimum 300 mm cover. The minimum top width of the driveway shall be as shown on the drawings.

### 10.7 Native Materials

Native materials suitable for use as backfill, as defined under Section 10.2, shall be salvaged from the existing bridge site, as required to complete the work as shown on the drawings, (**Native Backfill Zone only**). Where there is an insufficient amount of native fill materials for backfilling the culvert, the Contractor may elect to import additional dry native materials or alternatively use Granular 'B' at his/her own expense.

### 10.8 Lateral Tile Drains

Should the Contractor encounter any lateral tiles within the proposed culvert limits not shown on attached drawings, the Contractor shall re-route the outlet tile drain(s) in consultation with the Drainage Superintendent, as required, to accommodate the new culvert. **Tile drain outlets through the wall of the new culvert pipe will not be permitted.** All costs associated with re-routing lateral tile drains (if any) shall be at the Contractor's expense. Care must be taken in handling plastic drain pipe in cold weather to avoid causing damage. Plastic drain pipe shall be held in position on planned grade immediately after installation by careful placement of backfill material.

## 11.0 REINFORCED CONCRETE PIPE CULVERT

OPSS Form 410 shall apply and govern except as extended or amended herein. The size, type and class of sewer pipe shall meet CSA A257.2 standards. For reinforced concrete pipe culverts, the bedding shall be Class 'B' as per OPSD 802.03 using approved Granular 'A' materials. The bedding shall be recessed to receive the hubs of the bell and spigot ends in order to allow the barrel of the pipe to be uniformly supported on compacted Granular 'A' bedding material for its entire length.

If the culvert pipe is situated within a traveled driveway or roadway the entire width and depth of the trench shall be backfilled with Granular 'A' material and compacted to 100% standard proctor density. Where the culvert is situated beyond the limits of the driveway, the remaining excavation above the bedding shall be backfilled with select native material and mechanically compacted to 95% standard proctor density.

The Contractor shall install the pipe using rubber gasket joints and shall be joined in accordance with the manufacturer's instructions using approved gaskets and lubricating materials.

## **GENERAL SPECIFICATIONS**

### **1.0 AGREEMENT AND GENERAL CONDITIONS**

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

Where the word "Drainage Superintendent" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction to superintend the work.

Tenders will be received and contracts awarded only in the form of a lump sum contract for the completion of the whole work or of specified sections thereof. The Tenderer agrees to enter into a formal contract with the Municipality upon acceptance of the tender. The General Conditions of the contract and Form of Agreement shall be those of the Stipulated Price Contract CCDC2-Engineers, 1994 or the most recent revision of this document.

### **2.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS**

Each tenderer must visit the site and review the plans and specifications before submitting his/her tender and must satisfy himself/herself as to the extent of the work and local conditions to be met during the construction. Claims made at any time after submission of his/her tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions, will not be allowed. The Contractor will be at liberty, before bidding to examine any data in the possession of the Municipality or of the Engineer.

The quantities shown or indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking the quantities for accuracy prior to submitting his/her tender.

### **3.0 MAINTENANCE PERIOD**

The successful Tenderer shall guarantee the work for a period of one (1) year from the date of acceptance thereof from deficiencies that, in the opinion of the Engineer, were caused by faulty workmanship or materials. The successful Tenderer shall, at his/her own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Engineer. Should the successful Tenderer for any cause, fail to do so, then the Municipality may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges and expense so incurred may be deducted from any amount due to the Tenderer or may be collected otherwise by the Municipality from the Tenderer.

### **4.0 GENERAL CO-ORDINATION**

The Contractor shall be responsible for the coordination between the working forces of other organizations and utility companies in connection with this work. The Contractor shall have no cause of action against the Municipality or the Engineer for delays based on the allegation that the site of the work was not made available to him by the Municipality or the Engineer by reason of the acts, omissions, misfeasance or non-feasance of other organizations or utility companies engaged in other work.

### **5.0 RESPONSIBILITY FOR DAMAGES TO UTILITIES**

The Contractor shall note that overhead and underground utilities such as hydro, gas, telephone and water are not necessarily shown on the drawings. It is the Contractor's responsibility to contact utility companies for information regarding utilities, to exercise the necessary care in construction operations and to take other precautions to safeguard the utilities from damage. All work on or adjacent to any utility, pipeline, railway, etc., is to be carried out in accordance with the requirements of the utility, pipeline, railway, or other, as the case may be, and its specifications for such work are to be followed as if they were part of this specification. The Contractor will be liable for any damage to utilities.

## **6.0 CONTRACTOR'S LIABILITY**

The Contractor, his/her agents and all workmen or persons under his/her control including sub-contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work. The Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect to any injury to persons or property of whatever description and in respect of any infringement of any right, privilege or easement whatever, occasioned in the carrying on of the work, or by any neglect on the Contractor's part.

The Contractor, shall indemnify and hold harmless the Municipality and the Engineer, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the contract.

## **7.0 PROPERTY BARS AND SURVEY MONUMENTS**

The Contractor shall be responsible for marking and protecting all property bars and survey monuments during construction. All missing, disturbed or damaged property bars and survey monuments shall be replaced at the Contractor's expense, by an Ontario Land Surveyor.

## **8.0 MAINTENANCE OF FLOW**

The Contractor shall, at his/her own cost and expense, permanently provide for and maintain the flow of all drains, ditches and water courses that may be encountered during the progress of the work.

## **9.0 ONTARIO PROVINCIAL STANDARDS**

Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) shall apply and govern at all times unless otherwise amended or extended in these Specifications or on the Drawing. Access to the electronic version of the Ontario Provincial Standards is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to <http://www.mto.gov.on.ca/english/transrd/>. Under the title Technical Manuals is a link to the Ontario Provincial Standards. Users require Adobe Acrobat to view all pdf files.

## **10.0 APPROVALS, PERMITS AND NOTICES**

The construction of the works and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced in this Contract. The Contractor shall obtain all approvals and permits and notify the affected authorities when carrying out work in the vicinity of any public utility, power, underground cables, railways, etc.

## **11.0 SUBLETTING**

The Contractor shall keep the work under his/her personal control, and shall not assign, transfer, or sublet any portion without first obtaining the written consent of the Municipality.

## **12.0 TIME OF COMPLETION**

The Contractor shall complete all work on or before the date fixed at the time of tendering. The Contractor will be held liable for any damages or expenses occasioned by his/her failure to complete the work on time and for any expenses of inspection, superintending, re-tendering or re-surveying, due to their neglect or failure to carry out the work in a timely manner.

## **13.0 TRAFFIC CONTROL**

The Contractor will be required to control vehicular and pedestrian traffic along roads at all times and shall, at his/her own expense, provide for placing and maintaining such barricades, signs, flags, lights and flag persons as may be required to ensure public safety. The Contractor will be solely responsible for controlling traffic and shall appoint a representative to maintain the signs and warning lights at night, on weekends and holidays and at all other times that work is not in progress. All traffic control

during construction shall be strictly in accordance with the **Occupational Health and Safety Act** and the current version of the **Ontario Traffic Manuals**. Access to the electronic version of the **Ontario Traffic Manual** is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to <http://www.mto.gov.on.ca/english/transrd/>, click on "Library Catalogue," under the "Title," enter "Ontario Traffic Manual" as the search. Open the applicable "Manual(s)" by choosing the "Access Key," once open look for the "Attachment," click the pdf file. Users require Adobe Acrobat to view all pdf files.

**Contractors are reminded of the requirements of the Occupational Health and Safety Act pertaining to Traffic Protection Plans for workers and Traffic Control Plan for Public Safety.**

#### **14.0 SITE CLEANUP AND RESTORATION**

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

#### **15.0 UTILITY RELOCATION WORKS**

In accordance with Section 26 of the Drainage Act, if utilities are encountered during the installation of the drainage works that conflict with the placement of the new culvert, the operating utility company shall relocate the utility at their own costs. The Contractor however will be responsible to co-ordinate these required relocations (if any) and their co-ordination work shall be considered incidental to the drainage works.

#### **16.0 FINAL INSPECTION**

All work shall be carried out to the satisfaction of the Drainage Superintendent for the Municipality, in compliance with the specifications, drawings and the Drainage Act. Upon completion of the project, the work will be inspected by the Engineer and the Drainage Superintendent. Any deficiencies noted during the final inspection shall be immediately rectified by the Contractor.

Final inspection will be made by the Engineer within 20 days after the Drainage Superintendent has received notice in writing from the Contractor that the work is completed, or as soon thereafter as weather conditions permit.

#### **17.0 FISHERIES CONCERNS**

Standard practices to be followed to minimize disruption to fish habitat include embedment of the culvert a minimum 10% below grade, constructing the work 'in the dry' and cutting only trees necessary to do the work (no clear-cutting). No in-water work is to occur during the timing window unless otherwise approved by the appropriate authorities.



**HOWARD AVENUE DRAIN**  
**PART B – ASSESSMENT CONSIDERATIONS**

**TOWN OF LASALLE**

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

**Consulting Engineers**

45 Division St. N., Kingsville, Ontario N9Y 1E1

Tel. (519) 733-6587

*Project No. D-14-034*

June 6th, 2018

Mayor and Council  
Corporation of the Town of LaSalle  
5950 Malden Road  
LaSalle, Ontario  
N9H 1S4

**SUBJECT: HOWARD AVENUE DRAIN**  
**Town of LaSalle, County of Essex**  
**Project No. D-14-034 (Dillon File No. 12-6578-1200)**

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## **PART B - ASSESSMENT CONSIDERATIONS**

### **I. INSTRUCTIONS**

As referred to in the preamble portion of this report, it has been established that no previous By-Law or Engineer's Report for the Howard Avenue Drain was found on file with the Town of LaSalle. Following Dillon's extensive research, no evidence was found that would substantiate the legal status of the drain along the west side of County Road 9 (Howard Avenue) as the Howard Avenue Drain. Upon their further discussions with the Ministry of Transportation Ontario (M.T.O.) and the Town of LaSalle, it was decided that the construction of the Howard Avenue Drain shall be initiated by way of a petition for a new drainage works in accordance with Section 4(1)(c) of the Drainage Act. The petition shall form part of the process necessary to establish a legal outlet for M.T.O. lands including the north half of the Howard Avenue Diversion road and other M.T.O. lands to the north of same. Subsequently, the M.T.O. filed a new petition on May 3rd, 2016.

N.J. Peralta Engineering Ltd.'s role with respect to this drainage project shall be limited to the determination of assessments and provisions of rationale for the distribution of costs against all lands, roads, and public utilities affected by the improvements to the drainage works as outlined in **PART A - TECHNICAL CONSIDERATIONS** portion of this Drainage Report prepared by Dillon Consulting Limited. Our assessments are intended to be prepared for both the construction and for the future maintenance of this new Municipal Drain which shall be hereinafter known as the Howard Avenue Drain, all in the form of Assessment Schedules. Our initial confirmation of appointment for the preparation of the assessment portion of an Engineer's Report for the Howard Avenue Drain was provided to us by letter from Peter Marra, P.Eng. (LaSalle Director of Public Works), dated January 23rd, 2015, with subsequent instructions advising that the Howard Avenue Drain would be pursued by way of a petition for a new municipal drainage works in accordance with Section 4(1)(c) of the Drainage Act.

Our appointment as above described and all of the work related to the Howard Avenue Drain for our portion of this report are in accordance with Section 4(1)(c) of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended in 2010". We carried out all of the necessary examinations, investigations, and review of the Dillon Consulting Limited PART A - TECHNICAL CONSIDERATIONS portion of this report as well as their related design drawings. We also

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discussed all details with Mr. Tim Oliver, P.Eng., where necessary, in order to gain a clearer understanding of the technical findings and determinations, to assist us with establishing both the Construction Assessment Rationale and the Future Maintenance Assessment Rationale relative to this drainage works.

## **II. INTRODUCTION**

Our responsibilities with respect to this drainage project are to be limited to the determinations of assessments and the provision of the assessment rationale for the distribution of costs against all lands, roads, and public utilities affected by the proposed construction of the Howard Avenue Drain, as described within the design drawings included with the PART A - TECHNICAL CONSIDERATIONS by Dillon Consulting Limited. The assessment considerations to be provided by us shall be prepared for not only the construction works being recommended by Dillon within this report, but also for the future maintenance provision for this drainage system.

In order for us to establish our construction assessments and future maintenance assessments, we worked closely with Mr. Oliver, P.Eng., to obtain all relevant and necessary detailed technical information related to their design of this drainage works.

## **III. DRAINAGE HISTORY AND WATERSHED DETERMINATIONS**

From a review of the Town of LaSalle infrastructure records, as well as our review of past roadway design plans and records on County Road 9 (Howard Avenue) which were obtained from the County of Essex, we offer the following historical information and detail regarding the existing drain along the west side of County Road 9 (Howard Avenue), part of which shall be turned into the Municipal Drain hereinafter to be known as the Howard Avenue Drain.

From the detailed drawings provided by the County of Essex for the "Reconstruction of Howard Avenue from 8th Concession of Sandwich West to the King's Highway No.3", dated July 25th, 1963, it was determined that the existing drain on the west side of County Road 9 (Howard Avenue) extending from the 3rd Concession Drain northerly to a point approximately 80 metres south of the 6th Concession Road was generally an open roadway ditch that drained in a southerly direction, with its outlet into the 3rd Concession Drain.

We have also determined that historically the existing County Road 9 (Howard Avenue) roadway crossing pipe and the open roadway ditch on the west side of County Road 9 (Howard Avenue) southerly of said road crossing and extending to the 3rd Concession Drain served as the outlet for not only the Burke Drain watershed but also for the majority of the lands in the area to the north and west of the Burke Drain watershed in Lot 306 S.T.R. Concession,

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bounded by County Road 9 (Howard Avenue) to the west and King's Highway No.3 to the north.

Prior to the Parkway Development, the overall watershed area mentioned above consisted primarily of agricultural lands with the exception of some low density residential and commercially developed areas along King's Highway No.3 and along the east side of County Road 9 (Howard Avenue). This area had little topographic relief and the soils in the watershed are generally poorly draining and classified as Brookston Clay Loam soil that requires sub-surface drainage for the agricultural lands to be productive.

From the review of Town of LaSalle infrastructure records, it was found that in 2010, Laurier Parkway was constructed within the Town of LaSalle starting east of Malden Road and continuing easterly to County Road 9 (Howard Avenue). Drainage modifications were made at the time to facilitate the construction of a new intersection at Laurier Parkway and County Road 9 (Howard Avenue). The drainage improvements under this project included the replacement and improvement of the existing County Road 9 (Howard Avenue) road crossing and the closing-in of part of the previously mentioned open roadway ditch on the west side of County Road 9 (Howard Avenue). Said open roadway ditch was covered in as a road crossing under Laurier Parkway for a distance of approximately 106 metres to the south of the County Road 9 (Howard Avenue) roadway crossing culvert and for a distance of 96 metres north of said roadway crossing pipe. The covered drain to the north was installed to provide a transitional clear zone for the Laurier Parkway / County Road 9 (Howard Avenue) intersection. It is our understanding that all of the costs associated with these drainage improvements were paid for entirely by the Town of LaSalle.

It was also determined by Dillon Consulting that a 300mm diameter H.D.P.E. pipe was installed below the bottom of the open drain from Station 0+000.0 to Station 0+256.0 to the depth of the roadway crossing pipe under Laurier Parkway as part of the intersection improvements, which was opted for, by the Town of LaSalle, instead of deepening and widening the open drain, in order to avoid the relocation of the existing utilities (Hydro poles and underground Bell telephone lines) that were encountered within close proximity to the open drain.

Subsequent to the Laurier Parkway / County Road 9 (Howard Avenue) intersection construction, four (4) drain crossing culverts were constructed in the existing open roadway ditch downstream of the Laurier Parkway for the purposes of providing access and/or the protection of three (3) existing hydro poles and one (1) existing Bell Canada Service Pedestal, all located along the west bank of the roadway ditch. It is our understanding that the construction of these drain crossing culverts were undertaken by their respective operating utilities.

In July 2012, at approximately the same time that construction works commenced on the Rt. Hon. Herb Gray Parkway, the M.T.O.

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extended the Laurier Parkway roadway crossing culvert further south for an additional distance of 70 metres in order to provide a transitional clear zone where the new Howard Avenue Diversion Road transitions into the existing County Road 9 (Howard Avenue) roadway. It is our understanding that all of the costs associated with this road crossing extension were paid for entirely by the M.T.O.

None of the above improvements to the existing open roadway ditch on the west side of County Road 9 (Howard Avenue) were conducted by way of a Drainage Report under the auspices of the Drainage Act, which generally supports the argument that the establishment and improvements of the Howard Avenue Drain, under this report must be conducted as a petition drain pursuant to Section 4(1)(c) of the Drainage Act.

**IV. RT. HON. HERB GRAY PARKWAY (WINDSOR-ESSEX PARKWAY)**  
**IMPROVEMENTS**

From our review and detailed discussions with Mr. Tim Oliver, P.Eng., of Dillon Consulting Limited, the M.T.O., as part of the Parkway Development, carried out significant change to the drainage patterns and the outlet location of the watershed area to the north of the Howard Avenue Diversion and east of County Road 9 (Howard Avenue). These above changes which included the construction of the Howard Avenue Diversion road, the construction of the Howard Avenue Connector Road and the disconnect of County Road 9 (Howard Avenue) to the north of the Howard Avenue Diversion road has resulted in the improvements and re-purpose of the existing covered drain on the west side of County Road 9 (Howard Avenue) located between Station 0+362.0 and Station 0+458.0.

Also, with the construction of the Howard Avenue Diversion road, the lands within the overall affected watershed area on the east side of County Road 9 (Howard Avenue), that historically drained southerly and previously outletted through the existing County Road 9 (Howard Avenue) roadway crossing, has been cut off by the new Diversion roadway west ditch and made to connect and outlet further upstream into the existing enclosure on the west side of the former County Road 9 (Howard Avenue). In order to provide the new outlet, as above mentioned, a six (6) metre portion of the existing enclosure pipe was removed to accommodate the connection at Station 0+425.0 of the proposed new Howard Avenue Drain.

By carrying out the above improvements, the diverted watershed east of County Road 9 (Howard Avenue) and north of the Howard Avenue Diversion road now utilizes the existing enclosure pipe from Station 0+362.0 to Station 0+422.0 as an outlet and said length of enclosure pipe now becomes part of the drainage infrastructure in the Howard Avenue Drain that supports the improvements carried out by the M.T.O. as part of the Parkway Development.

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The M.T.O. has also, as part of the Parkway improvements, constructed a new Howard Avenue Connector Road and a cul-de-sac at the south end of the disconnected portion of County Road 9 (Howard Avenue) located just north of the Howard Avenue Diversion road. As a result of these improvements, the M.T.O. also re-aligned and re-laid the existing 30 metres of 600mm diameter enclosure pipe extending from approximately Station 0+428.0 to Station 0+458.0 in order to provide an improved and sufficient outlet for the disconnected portion of County Road 9 (Howard Avenue).

As previously mentioned herein, the M.T.O. also constructed a southerly extension to the Laurier Parkway road crossing culvert consisting of 70 metres of 1200mm diameter reinforced concrete pipe from approximately Station 0+186.0 to Station 0+256.0 for the purposes of providing a clear zone for the safe transition from the new Howard Avenue Diversion road onto the existing County Road 9 (Howard Avenue) roadway, all as part of the improvements necessary to accommodate the new Parkway Development.

**V. DESIGN CONSIDERATIONS AND FINDINGS**

Dillon Consulting in their PART A - TECHNICAL CONSIDERATION portion of this report has referenced the Design and Construction Guidelines for work under the Drainage Act, 1985 as published by O.M.A.F.R.A. as the current reference documentation used by engineer's carrying out work on municipal drains under the Drainage Act. They have confirmed that the design criteria to be utilized for this project are as follows:

- The two (2) year return period design storm is the recommended design standard applied to municipal drains within rural Ontario specific to open drain channels and low hazard agricultural access crossings. The exception being for residential, industrial and commercial properties where flooding could wash out an access culvert, where a higher five (5) to ten (10) year return period design storm could be the design criteria.
- The ten (10) year return period design storm is the recommended design criteria applied to culverts on municipal drains crossing municipal roads such as South Talbot Road and Laurier Parkway.
- For County and/or Provincial Highway roadway culverts like the existing County Road 9 (Howard Avenue) roadway crossing, the recommended design criteria can vary from a ten (10) year to twenty five (25) year return period design storm. From their consultation with the County of Essex and the Ministry of Transportation Road Authorities, it was confirmed that their current criteria for culvert design across Howard Avenue Diversion and County Road 9 (Howard Avenue) is a ten (10) year return design storm.

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It was also established that private access culverts and road crossings, under this project, have been sized using the rational method. The peak flows determined by the rational method should freely pass through these culverts without experiencing any backwater affects. Furthermore, hydrologic and hydraulic analysis using computer aided modelling were also applied by Dillon Consulting to check the downstream impacts caused by the Howard Avenue Drain improvements and the land use changes within the overall affected upstream watershed, along with the affect they may have on the 3rd Concession Drain, which is the downstream receiving drainage outlet.

Based on Dillon's analysis of all of the existing enclosures and access bridge structures within the portion of the roadway ditch on the west side of County Road 9 (Howard Avenue) which is intended to become the Howard Avenue Drain under this report, the following determinations within said reach have been established as follows:

- a) The existing Bridge No.1 at Station 0+005.0, serving as protection and as an access for the existing Bell Pedestal located on the west bank of the drain, has been found to have a sufficient capacity to handle the required pre-Parkway Development design flows for the two (2) year storm event. However, this existing bridge does not have the capacity to handle the post-Parkway Development increased design flows, and shall therefore need to be enlarged and replaced as part of the work being provided under this project.
- b) The existing Bridge No.2 at Station 0+043.0, serving as protection and as access for the existing hydro pole located on the west bank of the drain, has been found to be of insufficient capacity to provide the required pre-Parkway Development design flows for the two (2) year storm, meaning that it was already undersized, prior to any Parkway improvements being carried out. Obviously, this bridge would have been required to be enlarged just to satisfy the pre-Parkway Development two (2) year storm event. Based on this finding, the existing Bridge No.2 is to be enlarged and replaced as part of the work being provided under this project. Also, due to the two (2) year storm pre-Parkway Development deficiencies of the existing culvert, it is likely that the required improvement costs for this bridge, under this report would be shared between Hydro One and the M.T.O.
- c) The existing Bridge No.3 at Station 0+093.0, serving as protection and as access for the existing hydro pole located on the west bank of the drain, has been found to be of insufficient capacity to provide the required pre-Parkway Development design flows for the two (2) year storm, meaning that it was already undersized, prior to any Parkway improvements being carried out. Obviously, this bridge would have been required to be enlarged just to satisfy the pre-Parkway Development two (2) year storm event. Based on this

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finding, the existing Bridge No.3 is to be enlarged and replaced as part of the work being provided under this project. Also, due to the two (2) year storm pre-Parkway Development deficiencies of the existing culvert, it is likely that the required improvement costs for this bridge, under this report would be shared between Hydro One and the M.T.O.

- d) The existing Bridge No.4 at Station 0+143.0, serving as protection and as access for the existing hydro pole located on the west bank of the drain, has been found to be of insufficient capacity to provide the required pre-Parkway Development design flows for the two (2) year storm, meaning that it was already undersized, prior to any Parkway improvements being carried out. Obviously, this bridge would have been required to be enlarged just to satisfy the pre-Parkway Development two (2) year period storm event. Based on this finding, the existing Bridge No.4 is to be enlarged and replaced as part of the work being provided under this project. Also, due to the two (2) year storm pre-Parkway Development deficiencies of the existing culvert, it is likely that the required improvement costs for this bridge, under this report would be shared between Hydro One and the M.T.O.

- e) The existing enclosure extension from Station 0+186.0 to Station 0+256.0, was constructed by the M.T.O. in 2012 as part of the infrastructure needed for the Parkway Development, specifically to provide a clear zone for the transitioning of the new Howard Avenue Diversion roadway to the existing County Road 9 (Howard Avenue) roadway. This portion of enclosure consists of 70 metres of 1200mm diameter reinforced concrete pipe.

It has been determined that this enclosure has a sufficient capacity to handle the required pre-Parkway Development design flows for the ten (10) year storm event; however, it does not have the capacity to handle the increased flows for the post-Parkway Development ten (10) year storm event.

This enclosure however, does not require to be improved as part of the Howard Avenue Drain report, because of the improvements being carried out to the Burke Drain consisting of diverting all of the flows from the Burke Drain through a new Burke Drain Outlet which by-passes this enclosure and outlets into the Howard Avenue Drain just downstream of same at Station 0+184.0.

- f) The existing enclosure from Station 0+256.0 to Station 0+362.0, consisting of 106 metres of 900mm diameter reinforced concrete pipe, which had been constructed by the Town of LaSalle as part of the Laurier Parkway / Howard Avenue Intersection Improvement Project in 2010 was found to be considerably deficient in size to handle the required pre-Parkway Development design flows for the ten (10) year storm

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event, let alone the increased flows resulting from the ten (10) year post-Parkway Development storm event.

This enclosure however does not require to be improved as part of the Howard Avenue Drain report, because of the improvements being carried out to the Burke Drain consisting of diverting all of the flows from the Burke Drain through a new Burke Drain Outlet which by-passes this enclosure and outlets into the Howard Avenue Drain just downstream of same at Station 0+184.0.

- g) The existing enclosure from Station 0+362.0 to Station 0+422.0 was initially constructed as part of the Laurier Parkway / County Road 9 (Howard Avenue) Intersection Improvement Project in 2010 by the Town of LaSalle. The enclosure was generally constructed to provide a clear zone for the roadway transition of County Road 9 (Howard Avenue) into said intersection.

Due to the construction of the Howard Avenue Diversion road by the M.T.O., as part of the Parkway Improvements, approximately twenty-two (22) hectares located to the north of said Diversion road and east of County Road 9 (Howard Avenue) have been cut-off and re-routed westerly into the above mentioned existing enclosure by way of the new west ditch of the Diversion road.

Instead of enlarging the above mentioned existing Howard Avenue Drain enclosure, the M.T.O. chose to re-purpose this enclosure. This existing enclosure pipe in conjunction with the new Diversion roadway ditch, serve to attenuate peak flows and control backwater effects along the Howard Avenue Diversion road. We also suspect that for this outlet to function as intended, the existing enclosure between Station 0+362.0 and Station 0+422.0 would have been completely flushed of all sediment at the time; therefore, any flushing and cleaning to this enclosure required under this report would have resulted from subsequent sedimentation resulting from the improvement works carried out by the M.T.O.

Based on all of the above, no structural or sizing improvements are required nor proposed to be carried out to this portion of enclosure, under this report.

- h) The existing enclosure from Station 0+428.0 to Station 0+458.0 was also initially constructed as part of the Laurier Parkway / County Road 9 (Howard Avenue) Intersection Improvement Project in 2010 by the Town of LaSalle. This enclosure was also generally constructed to provide a clear zone for the roadway transition of County Road 9 (Howard Avenue) into said intersection.

It was determined that in order to deal with the disconnect of County Road 9 (Howard Avenue) to the north of the new Howard Avenue Diversion road, which also included the

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construction of the Howard Avenue Connector Road and the new cul-de-sac at the south end of the disconnected portion of County Road 9 (Howard Avenue), the existing thirty (30) metres of 600mm diameter reinforced concrete enclosure pipe from Station 0+428.0 to Station 0+458.0 was re-aligned and re-laid in order to provide a sufficient outlet to accommodate these changes in the watershed. All of this work including the re-aligning and re-laying of this existing enclosure pipe was carried out entirely by the M.T.O. It is also assumed that when the re-laying of this enclosure pipe was carried out that all of the pipe was thoroughly cleaned of any existing sediment; therefore, any flushing and cleaning of this enclosure required under this report would have resulted from subsequent sedimentation resulting from the improvement works carried out by the M.T.O.

Based on all of the above, no structural or sizing improvements are required nor proposed to this portion of enclosure, under this report.

**VI. CONSTRUCTION ASSESSMENT RATIONALE AND CONSTRUCTION SCHEDULE OF ASSESSMENT**

We would recommend that all of the costs associated with the construction of the Howard Avenue Drain, including all related incidental expenses, be charged against the lands, roads and public utilities affected in accordance with the attached **Construction Schedule of Assessment**. Lands which are used for agricultural purposes, if any, have been listed in the Construction Schedule of Assessment under Subheading "**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable)**".

**Grant Eligibility**

On September 22nd, 2005, the Ontario Ministry of Agriculture, Food, and Rural Affairs (O.M.A.F.R.A.) issued Administrative Policies for the Agricultural Drainage Infrastructure Program (A.D.I.P.). This program has re-instated financial assistance for eligible costs and assessed lands pursuant to the Drainage Act. Sections 85 to 90 of the Drainage Act allow the Minister to provide grants for various activities under said Act. Sections 85 and 87 make it very clear that grants are provided at the discretion of the Minister. Based on the current 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. The new policies define "lands used for agricultural purposes" as those lands eligible for either the "Farm Property Class Tax Rate", the "Managed Forest Tax Incentive Program", or the "Conservation Land Tax Incentive Program". The Municipality has provided this information to the Engineer from the current property tax roll and the Engineer has further confirmed this information with the AG Maps Geographic Information Portal Services through O.M.A.F.R.A. Properties that meet the criteria for "lands used for agricultural purposes", if any, are shown in

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the attached Construction Schedule of Assessment under the subheading "**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable)**" and are expected to be eligible for the 1/3 grant from O.M.A.F.R.A. In accordance with same, we expect that this project will qualify for the grant normally available for agricultural lands. We would therefore, recommend that the Town of LaSalle make an application, on their behalf, for a Grant from the Ontario Ministry of Agriculture, Food, and Rural Affairs (O.M.A.F.R.A.) in the amount of 1/3 of their total grantable assessment for this project, in accordance with the provisions of Sections 85 and 88 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010". Even though it is our opinion that certain lands shall likely be eligible for grants, there is no guarantee that these lands will qualify or that grants may be available in the future.

**Assessment Components**

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

- i) **Benefit** defined as advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures, as it relates to Section 22 of the Drainage Act.
- ii) **Outlet Liability** defined as part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet, as it relates to Section 23 of the Drainage Act.
- iii) **Special Benefit** defined as any additional work or feature included in the construction, repair or improvement of a drainage works that has no effect on the functioning of the drainage works, as it relates to Section 24 of the Drainage Act.
- iv) **Section 26 Special Assessment** in addition to all other sums lawfully assessed against the property of a public utility or road authority under this Act, and despite the fact that the public utility or road authority is not otherwise assessable under the Act, the public utility or road authority shall be assessed for and shall pay all the increase of cost of such drainage works caused by the existence of the works of the public utility or road authority.

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**General Rationale**

From a comprehensive review of the contents of the **PART A - TECHNICAL CONSIDERATIONS** portion of this report and the design drawings related thereto prepared by Tim R. Oliver, P.Eng., of Dillon Consulting Limited, our considerable discussions with the author, and our review of all past Engineer's Reports on the Burke Drain and all other municipal drains located in the general area, we have established our construction assessment rationale and determinations relative to the improvements being carried out on the Howard Avenue Drain, and they are as follows:

- a) The estimated construction cost (*Construction Item 5a*) associated with the replacement of Bridge No.1 at Station 0+005.0, which serves as an access and for the protection of the existing Bell Pedestal located on the west bank of the open drain is an amount of \$18,000.00. The existing bridge was found to be sufficiently sized for the required two (2) year pre-Parkway Development storm event, and the enlargement and replacement of this existing bridge is being carried out under this report primarily to handle the increased flows in the drainage system required for the ten (10) year post-Parkway Development storm event. We would therefore recommend that the above construction amount plus all related incidental expenses be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)**, as a **Section 26 Special Assessment**.
- b) The estimated construction cost (*Construction Item 5b*) associated with the replacement of Bridge No.2 at Station 0+043.0, which will serve as an access and for the protection of the existing hydro pole on the west bank of the open drain, is in the amount of \$19,300.00. We have determined that the existing access bridge is currently insufficiently sized and therefore deficient to handle the required two (2) year pre-Parkway Development storm event flows. Based on this, Hydro One would be responsible for the costs associated with providing an access bridge sufficiently sized to handle the pre-Parkway Development two (2) year storm event flows and the M.T.O. would be responsible for the increased costs associated with upgrading the bridge culvert size to handle the increased flows in the drainage system to accommodate the ten (10) year post-Parkway Development storm event flows. We would therefore recommend that the above construction amount plus all related incidental expenses shall be shared by **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)**, as a **Section 26 Special Assessment**, on the share basis of **74%** and **26%**, respectively. The basis for this sharing rationale is further clarified in subsequent paragraphs on pages 15 and 16 of this report.
- c) The estimated construction cost (*Construction Item 5c*) associated with the replacement of Bridge No.3 at Station 0+093.0, which serves as an access and for the protection of the existing hydro pole on the west bank of the open drain,

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is in the amount of \$19,300.00. We have determined that the existing access bridge is currently insufficiently sized and therefore deficient to handle the required two (2) year pre-Parkway Development storm event flows. Based on this, Hydro One would be responsible for the costs associated with providing an access bridge sufficiently sized to handle the pre-Parkway Development two (2) year storm event flows and the M.T.O. would be responsible for the increased costs associated with upgrading the bridge culvert size to handle the increased flows in the drainage system to accommodate the ten (10) year post-Parkway Development storm event flows. We would therefore recommend that the above construction amount plus all related incidental expenses shall be shared by **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)**, as a **Section 26 Special Assessment**, on the share basis of **74%** and **26%**, respectively. The basis for this sharing rationale is further clarified in subsequent paragraphs on pages 15 and 16 of this report.

- d) The estimated construction cost (*Construction Item 5d*) associated with the replacement of Bridge No.4 at Station 0+143.0, which serves as an access and for the protection of the existing hydro pole on the west bank of the open drain, is in the amount of \$19,300.00. We have determined that the existing access bridge is currently insufficiently sized and therefore deficient to handle the required two (2) year pre-Parkway Development storm event flows. Based on this, Hydro One would be responsible for the costs associated with providing an access bridge sufficiently sized to handle the pre-Parkway Development two (2) year storm event and the M.T.O. would be responsible for the increased costs associated with upgrading the bridge culvert size to handle the increased flows in the drainage system to accommodate the ten (10) year post-Parkway Development storm event flows. We would therefore recommend that the above construction amount plus all related incidental expenses shall be shared by **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)**, as a **Section 26 Special Assessment**, on the share basis of **74%** and **26%**, respectively. The basis for this sharing rationale is further clarified in subsequent paragraphs on pages 15 and 16 of this report.
- e) The estimated construction cost (*Construction Item 6*) associated with the repair of the west end of the existing 750mm diameter corrugated steel pipe road culvert on the east bank of the Howard Avenue Drain at Station 0+116.0 complete with coupler and stone erosion protection comprises of an amount of \$3,000.00. These repairs are being conducted on an existing County Road 9 (Howard Avenue) crossing pipe, and we would recommend that the above construction amount plus all related incidental expenses be assessed entirely to the **County of Essex Roads Department** as a **Section 26 Special Assessment**.

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- f) The estimated construction cost (*Construction Item 7*) associated with the flushing and cleaning of the existing 106 metres of 900mm diameter concrete pipe enclosure from Station 0+256.0 to Station 0+362.0, comprising of hydrovac work and disposal of flushed sediment off-site is an amount of \$5,000.00. This portion of the existing enclosure is the Laurier Parkway roadway crossing pipe which is in need of flushing and cleaning. We have been made aware that this enclosure pipe was further impacted by the upstream construction works carried out by the M.T.O., where further sedimentation occurred due to ineffective sediment control implemented at the time. Based on this, we would recommend that the above construction amount plus all related incidental expenses be shared by the **Town of LaSalle Roads Department** and the **Ministry of Transportation Ontario (M.T.O.)** as an **Outlet Liability Assessment**, on the share basis of **50%** and **50%**, respectively.
- g) The estimated construction cost (*Construction Item 8*) associated with the flushing and cleaning of the existing 60 metres of 600mm diameter concrete pipe enclosure from Station 0+362.0 to Station 0+422.0 comprising of hydrovac work and disposal of flushed sediment off-site, is an amount \$3,000.00. Based on the fact that this enclosure is now an integral part of the drainage design to attenuate peak flows and control backwater affects in the Diversion road west ditch, in lieu of replacing the subject enclosure to a proper size, we are of the opinion that said existing enclosure should now be the sole responsibility of the M.T.O. We are also of the opinion that in order for this enclosure to function as intended to attenuate peak flows, the flushing of same would have been carried out by the M.T.O. at the same time as the construction of the Howard Avenue Diversion road. We were made aware that the current sedimentation of this enclosure occurred due to ineffective sediment control related to the M.T.O. improvements mentioned above. Based on this, we would recommend that the above construction amount plus all related incidental expenses be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)**, as an **Outlet Liability Assessment**.
- h) The estimated construction cost (*Construction Item 9*) associated with the flushing and cleaning of the existing 30 metres of 600mm diameter concrete pipe from Station 0+428.0 to Station 0+458.0, comprising of hydrovac work and disposal of flushed sediment off-site, is an amount of \$1,500.00. The M.T.O. re-laid and re-aligned this existing enclosure as part of their improvements necessary to provide a sufficient outlet to accommodate the increased run-off caused by the constructed of the Howard Avenue Connector Road and the cul-de-sac newly constructed for the County Road 9 (Howard Avenue) disconnect. This existing enclosure pipe would have been cleaned of all sediment at that time which means that any sediment currently within this enclosure would have resulted due to ineffective Sediment Control along the

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previously mentioned works conducted by the M.T.O. Based on this, we would therefore recommend that the above construction amount plus all related incidental expenses be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)** as an **Outlet Liability Assessment**.

- i) The balance of the costs (*Construction Items 1, 2, 3 and 4, and allowance per Incidental Item 10*) associated with the open drain works from Station 0+010.0 to Station 0+186.0 and from Station 0+458.0 to Station 0+521.0 comprises of an amount of \$8,600.00. This work being carried out along the open portions of the Howard Avenue Drain is being carried out primarily for the purpose of providing a sufficient outlet to satisfy the ten (10) year post-Parkway Development storm event flows and the general requirements of the M.T.O. Petition. We therefore recommend that the above amount including construction and allowances under Sections 29 and 30 of the Drainage Act, plus all related incidental expenses, be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)** as an **Outlet Liability Assessment**.
- j) The engineering costs on the Howard Avenue Drain consisting of Incidental Items 11, 12 and 13 within the project Cost Estimates total an amount of \$157,000.00.

Due to the fact that the Burke Branch and Burke Drain Outlet works diverts all of the Burke Drain watershed area (which also includes all of the lands to the east of the Howard Avenue Diversion road, and all of the outflows from the Parkway S.W.M. Pond) so that it enters the Howard Avenue Drain downstream of the existing enclosures between Station 0+186.0 and Station 0+362.0, said enclosures did not require any improvements under the Howard Avenue Drain project. Because of this Burke Drain Diversion, the construction costs associated with the proposed improvements to the Howard Avenue Drain have been greatly diminished, leaving all of the considerable engineering costs to be unfairly distributed onto the remaining construction items within the Howard Avenue Drain report.

It is our opinion that the engineering costs on the Howard Avenue Drain consisting of Incidental Items 11, 12 and 13 should be shared on the basis of the total estimated construction costs for the Howard Avenue Drain including the hypothetical estimated construction costs for the improvements that would have been necessary for the Station 0+186.0 to Station 0+256.0 enclosure and the Station 0+256.0 to Station 0+362.0 enclosures, if the Burke Branch and Burke Drain Outlet diversion was not provided. Dillon's estimated construction costs for the hypothetical enclosure improvements would have been \$121,000.00 and \$201,400.00, respectively.

With the hypothetical enclosure improvement estimated costs included in the total estimated construction cost for the

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Howard Avenue Drain, we determined that approximately **77.24%** of the estimated engineering costs in Incidental Items 11, 12 and 13 would be assessed against the enclosures and the remaining **22.76%** would be assessed against all of the other Construction Items in the report.

Based on this, **\$121,267.00** of the **\$157,000.00** of the engineering costs in Incidental Items 11, 12 and 13 should be assessed to the parties responsible for these two (2) enclosures which would be the **Ministry of Transportation Ontario (M.T.O.)** and the **Town of LaSalle Roads Department**, as a **Section 26 Special Assessment**, on a share basis of **67%** and **33%**, respectively. The sharing rationale used here is the same percentages used for the Burke Branch and the Burke Drain Outlet.

In order to provide some clarification with respect to the Section 26 Special Assessments established above for the improvements to Bridge No.1, Bridge No.2, Bridge No.3 and Bridge No.4, we offer the following:

- Based on Dillon Consulting's hydraulic modelling it was determined that the existing Bridge No.1 culvert was sufficiently sized to handle the two (2) year pre-Parkway Development storm event flows, and that the replacement of this access bridge is primarily required in order for it to handle the increased flows in the Howard Avenue Drain required for the ten (10) year post-Parkway Development design storm event flows. Based on this, the entire cost associated with the improvements to Bridge No.1 shall be the sole responsibility of the M.T.O. and all of the costs associated with this bridge improvement shall be assessed entirely to them as a Section 26 Special Assessment.
- Based on Dillon Consulting's hydraulic modelling it was determined that Bridge No.2, Bridge No.3 and Bridge No.4 are not sufficiently sized to handle the required two (2) year pre-Parkway Development storm event flows and are all therefore currently deficient. These three (3) bridges serve both as an access and for the protection of the existing hydro poles located on the west bank of the Howard Avenue Drain. Based on this, Hydro One will have the responsibility to improve each of these bridges so that they provide a sufficient outlet for the two (2) year pre-Parkway Development storm event flows, and any additional pipe upgrading required in order to satisfy the increased flows in the drainage system for the ten (10) year post-Parkway development storm event flows would be the responsibility of the M.T.O. Therefore, the costs for the improvements being carried out under this report, for each of Bridge No.2, Bridge No.3 and Bridge No.4 shall be shared between Hydro One and the M.T.O.
- Based on the above rationale and the detailed construction estimates provided by Dillon Consulting, we have determined

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that the estimated construction cost for the improvement to each of Bridge No.2, Bridge No.3 and Bridge No.4 is an amount of \$19,300.00. From our investigations, we have determined that the estimated construction costs to upgrade each of the existing bridges to handle the two (2) year pre-Parkway Development design flows would be an amount of \$14,300.00. We also determined that the estimated construction cost to further upgrade each of these bridges to handle the ten (10) year post-Parkway Development storm event flows would be an amount of \$5,000.00. Based on these estimated construction costs, we find that the sharing of costs for each of Bridge No.2, Bridge No.3 and Bridge No.4 is to be assessed to Hydro One and the M.T.O. on the basis of **74%** and **26%**, respectively. These sharing percentages would therefore apply to each of these bridges and would be assessed within the Construction Schedule of Assessment to both of the above, as a Section 26 Special Assessment.

**Section 26 Special Assessments**

The Section 26 Special Assessments outlined below summarize the assessments listed under Section 6 of the Construction Schedule of Assessment, based on the Assessment Rational determined in the preceding paragraphs:

- A. We determined that a Special Assessment is to be assessed to the **Ministry of Transportation Ontario (M.T.O.)** for the extra costs to the project related to the replacement and improvement of Bridge No.1 in accordance with Section 26 of the Drainage Act. This extra cost to the project consist of all works associated with Construction Item 5a within this report. The estimated net increase in cost to the project caused by the replacement of Bridge No.1, together with all related incidental expenses is **\$24,772.00.**

The above estimated Special Assessment to the Ministry of Transportation Ontario (M.T.O) for the removal and replacement of Bridge No.1 in the Howard Avenue Drain, pursuant to Section 26 of the Drainage Act, is listed under Section 6 of the Construction Schedule of Assessment and is to be non-proratable. The incidental costs portion associated with the above net cost consists of an amount of **\$6,772.00.**

Once the construction of this work is completed, the M.T.O. shall be assessed for the **actual construction costs** for Construction Item 5a, together with its share of the project incidental costs associated with same, in the amount of **\$6,772.00.** This amount represents the actual Section 26 Special Assessment amount to be assessed to the M.T.O. for this work and this actual amount shall replace the estimated amount for same in Section 6 of the Construction Schedule of Assessment when charging out the works to the affected landowners, roads, and utilities. This non-proratable assessment does not include for any potential costs for any

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unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or the Referee. Any costs to the project associated towards dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments, all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

- B. We determined that a Special Assessment is to be assessed to **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)** to be shared by them on the basis of **74%** and **26%** respectively, for the increase of cost to the project related to the replacement and improvement of Bridge No.2 in accordance with Section 26 of the Drainage Act. This extra cost to the project consists of all works associated with Construction Item 5b within this report. The estimated net increase in cost to the project caused by the above special improvements, together with all related incidental expenses is \$26,560.00, with the Special Assessment to Hydro One being \$19,654.00 and the Special Assessment to the M.T.O. being an amount of \$6,906.00.

The above estimated Special Assessment to Hydro One and the M.T.O. pursuant to Section 26 of the Drainage Act are listed separately under Section 6 of the Construction Schedule of Assessment and is to be non-proratable. The incidental costs portion associated with the above is \$7,260.00 with the assessment to Hydro One consisting of an amount of \$5,372.00 and the incidental costs portion associated with the above assessment to the M.T.O. consists of an amount of \$1,888.00.

Once the construction of this work is completed, Hydro One and the M.T.O. shall be assessed for the **actual construction costs** for Construction Item 5b on the basis of 74% and 26% respectively together with their share of the project incidental costs associated with same, in the amount of \$5,372.00 to Hydro One and \$1,888.00 to the M.T.O. These amounts represent the actual Section 26 Special Assessment amounts to be assessed to said parties for this work and these actual assessment amounts shall replace the estimated assessment amounts for same in Section 6 of the Construction Schedule of Assessment when charging out the works to each party. This non-proratable assessment does not include for any potential costs for any unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or the Referee. Any costs to the project associated to dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

- C. We determined that a Special Assessment is to be assessed to **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)**

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to be shared by them on the basis of **74%** and **26%** respectively, for the increase of cost to the project related to the replacement and improvement of Bridge No.3 in accordance with Section 26 of the Drainage Act. This extra cost to the project consists of all works associated with Construction Item 5c within this report. The estimated net increase in cost to the project caused by the above special improvements, together with all related incidental expenses is **\$26,560.00**, with the Special Assessment to the Hydro One being **\$19,654.00** and the Special Assessment to the M.T.O. being an amount of **\$6,906.00**.

The above estimated Special Assessment to Hydro One and the Ministry of Transportation Ontario (M.T.O.), pursuant to Section 26 of the Drainage Act are listed separately under Section 6 of the Construction Schedule of Assessment and is to be non-proratable. The incidental costs portion associated with the above is **\$7,260.00** with the assessment to Hydro One consisting of an amount of **\$5,372.00** and the incidental costs portion associated with the above assessment to the M.T.O. consists of an amount of **\$1,888.00**.

Once the construction of this work is completed, Hydro One and the M.T.O. shall be assessed for the **actual construction costs** for Construction Item 5c on the basis of 74% and 26% respectively together with their share of the project incidental costs associated with same, in the amount of **\$5,372.00** to Hydro One and **\$1,888.00** to the M.T.O. These amounts represent the actual Section 26 Special Assessment amounts to be assessed to said parties for this work and these actual assessment amounts shall replace the estimated assessment amounts for same in Section 6 of the Construction Schedule of Assessment when charging out the works to each party. This non-proratable assessment does not include for any potential costs for any unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or the Referee. Any costs to the project associated to dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

- D. We determined that a Special Assessment is to be assessed to **Hydro One** and the **Ministry of Transportation Ontario (M.T.O.)** to be shared by them on the basis of **74%** and **26%** respectively, for the increase of cost to the project related to the replacement and improvement of Bridge No.4 in accordance with Section 26 of the Drainage Act. This extra cost to the project consists of all works associated with Construction Item 5d within this report. The estimated net increase in cost to the project caused by the above special improvements, together with all related incidental expenses is **\$26,560.00**, with the Special Assessment to Hydro One being

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\$19,654.00 and the Special Assessment to the M.T.O. being an amount of \$6,906.00.

The above estimated Special Assessment to Hydro One and the Ministry of Transportation Ontario (M.T.O), pursuant to Section 26 of the Drainage Act are listed separately under Section 6 of the Construction Schedule of Assessment and is to be non-proratable. The incidental costs portion associated with the above is \$7,260.00 with the assessment to the Hydro One consisting of an amount of \$5,372.00 and the incidental costs portion associated with the above assessment to the M.T.O. consists of an amount of \$1,888.00.

Once the construction of this work is completed, Hydro One and the M.T.O. shall be assessed for the **actual construction costs** for Construction Item 5d on the basis of 74% and 26% respectively together with their share of the project incidental costs associated with same, in the amount of \$5,372.00 to Hydro One and \$1,888.00 to the M.T.O. These amounts represent the actual Section 26 Special Assessment amounts to be assessed to said parties for this work and these actual assessment amounts shall replace the estimated assessment amounts for same in Section 6 of the Construction Schedule of Assessment when charging out the works to each party. This non-proratable assessment does not include for any potential costs for any unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or the Referee. Any costs to the project associated to dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

- E. We determined that a Special Assessment is to be assessed to the **County of Essex Roads Department** for the extra costs to the project related to the repair and improvements provided to the west end of the existing 750mm diameter corrugated steel road crossing pipe under County Road 9 (Howard Avenue), entering the Howard Avenue Drain at Station 0+116.0 in accordance with Section 26 of the Drainage Act. The extra cost to the project consists of all works associated with Construction Item 6 within this report. The estimated net increase in cost to the project caused by these improvements, together with all related incidental expenses is \$4,127.00.

The above estimated Special Assessment to the County of Essex Roads Department for the improvements to their existing roadway crossing culvert under County Road 9 (Howard Avenue), pursuant to Section 26 of the Drainage Act is listed under Section 6 of the Construction Schedule of Assessment and is to be non-proratable. The incidental costs portion associated with the above net cost consists of an amount of \$1,127.00.

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Once the construction of this work is completed, the County of Essex Roads Department shall be assessed for the **actual construction costs** for Construction Item 6, together with its share of the project incidental costs associated with same, in the amount of **\$1,127.00**. This amount represents the actual Section 26 Special Assessment amount to be assessed to the County of Essex for this work and this actual amount shall replace the estimated amount for same in Section 6 of the Construction Schedule of Assessment when charging out the works to the affected landowners, roads, and utilities. This non-proratable assessment does not include for any potential costs for any unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or the Referee. Any costs to the project associated towards dealing with any of these Appeals shall be shared by all assessments in the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

- F. We have determined that a Special Assessment is to be assessed to the **Ministry of Transportation Ontario (M.T.O.)** and the **Town of LaSalle Roads Department** to be shared by them on the basis of **67%** and **33%** respectively, for the increase in cost to the project related to the engineering fees associated with the potential improvements to the Station 0+186.0 to Station 0+256.0 enclosure and the Station 0+256.0 to Station 0+362.0 enclosure that would have been necessary to carry out in lieu of the Burke Branch and Burke Drain Outlet diversion, all in accordance with Section 26 of the Drainage Act. This extra cost to the project consists of 77.24% of the engineering fees associated with Incidental Items 11, 12 and 13 within the Cost Estimated provided in the report. The estimated net increase in cost to the project caused by the above Special Assessment is **\$121,267.00**, with the Special Assessment to the M.T.O. being **\$81,249.00** and the Special Assessment to the Town of LaSalle Roads Department being an amount of **\$40,018.00**.

The above Special Assessments have been established based on the estimated engineering costs noted in Incidental Items 11, 12 and 13 of the Cost Estimates for the Howard Avenue Drain. Once the Howard Avenue Drain has been completed 77.24% of the **actual engineering costs** for Incidental Items 11, 12 and 13 shall be assessed to the above parties. This amount shall represent the actual Section 26 Special Assessment amount to be assessed to said parties on a 67% and 33% basis. These actual assessment amounts shall replace the estimated assessment amounts for same in Section 6 of the Construction Schedule of Assessment when charging out the works to each party. This non-proratable assessment does not include for any potential costs for any unexpected Appeals to the Court of Revision and for any Appeals to the Tribunal and/or Referee. Any costs to the project associated to dealing with any of these Appeals shall be shared by all assessments in

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the Construction Schedule of Assessment including all Section 6 Non-Proratable assessments, as well as any Outlet assessments all on a pro-rata basis, or as otherwise established in any Decisions from these forums.

**Outlet Liability Assessments**

1. We determined that an Outlet Liability Assessment is to be assessed to both the **Town of LaSalle Roads Department** and the **Ministry of Transportation Ontario (M.T.O.)**, for Construction Item 7, consisting of the flushing and cleaning of the existing 106 metres of 900mm diameter concrete pipe located between Station 0+256.0 and Station 0+362.0, including hydrovac work and disposal of flushed sediment off-site.

The cost to the project for Construction Item 7, together with its share of all incidental expenses is **\$6,880.00**. This cost is to be shared on an equal basis to both the Town of LaSalle Roads Department and the M.T.O.

2. We determined that an Outlet Liability Assessment is to be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)**, for Construction Item 8 consisting of the flushing and cleaning of the existing 60 metres of 600mm diameter concrete pipe located between Station 0+362.0 and Station 0+422.0, including hydrovac work and disposal of flushed sediment off-site.

The cost to the project for Construction Item 8, together with its share of all incidental expenses is **\$4,127.00**.

3. We determined that an Outlet Liability Assessment is to be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)** for the cost to the project related to Construction Item 9 consisting of the flushing and cleaning of the existing 30 metres of 600mm diameter concrete pipe located between Station 0+428.0 and Station 0+456.0, including hydrovac work and disposal of flushed sediment off-site.

The net cost to the project for Construction Item 9, together with its share of all incidental expenses is **\$2,064.00**.

4. We determined that an Outlet Liability Assessment is to be assessed entirely to the **Ministry of Transportation Ontario (M.T.O.)** for the cost to the project related to Construction Items 1, 2, 3 and 4 for work being carried out to the Howard Avenue Drain which consists primarily of open drain works from Station 0+010.0 to Station 0+186.0 and from Station 0+458.0 to Station 0+521.0, to provide a sufficient outlet for the Parkway improvements carried out by the M.T.O.

The cost to the project for Construction Items 1, 2, 3 and 4, together with its share of all incidental expenses and for all allowances provided in accordance with Sections 29 and 30 of the Drainage Act, is **\$11,083.00**.

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It should be noted that all of the Outlet Liability Assessments referred to above have been assessed within the Construction Schedule of Assessment attached herein.

**VII. FUTURE MAINTENANCE**

After the completion of all of the works associated with this engineer's report, the Howard Avenue Drain as established herein, shall be maintained in the future by the Town of LaSalle, and the future maintenance of this Municipal Drain shall be carried out on the following basis.

We would recommend that the **Howard Avenue Drain**, as established within this report, be kept up and maintained in the future at the expense of the lands, roads and utilities included within the Maintenance Schedule of Assessment attached herein and labelled **Appendix 'A'**, and same shall remain in the proportions therein contained until otherwise varied and/or determined under the provisions of the "Drainage Act, R.S.O. 1990, Chapter, D.17, as amended 2017", or subsequent amendments made thereto.

The assessment proportions as outlined in the attached Maintenance Schedule of Assessment for the Howard Avenue Drain have been established on the basis of an estimated future maintenance cost of **\$15,000.00**; however, these assessment charges shall not be made until such time that maintenance works are conducted to said drain in the future. Therefore, when **\$15,000.00** worth of future maintenance work is conducted to this drain, the assessment to each of the individual affected property owners and roads shall be as listed in the attached Maintenance Schedule of Assessment.

The attached Maintenance Schedule of Assessment for the Howard Avenue Drain is to be utilized only for the maintenance of all open drains and for the flushing and cleaning of all sediment material within all existing access bridges, municipal roadway crossing culverts and enclosures within the drain, as well as the 259.0 metres of 300mm diameter H.D.P.E. tile from Station 0+003.0 to Station 0+256.0. This maintenance schedule is not to be utilized in any way for the maintenance, repair works and replacement works being conducted directly to any of the access bridges, municipal roadway crossing culverts, existing enclosure structures or the above mentioned tile within the Howard Avenue Drain.

It should be noted that for the Howard Avenue Drain, a mechanism should be established herein so that the Municipality, in which the drainage works are situated, can undertake future maintenance works to the existing access bridge structures, municipal roadway crossing culvert structures, existing enclosure structures and the H.D.P.E. tile within this drain, so that the future maintenance costs associated with each of same can be properly assessed to the affected landowners and/or roads. The works for these structures,

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where applicable, would include their bedding and backfill, end treatments, and any other ancillary work. Should concrete, asphalt or other special driveway surfaces over access bridge driveways and enclosure driveways require removal as part of the maintenance work these surfaces should be repaired or replaced as part of the work. Likewise, if any fencing, gate, decorative walls, guard rails or other special features exist that will be impacted by the maintenance work, they are also to be removed and restored or replaced as part of the access bridge / enclosure maintenance work. However, the cost of the supply and installation of any surface material other than Granular "A" material, and the cost of removal and restoration or replacement, if necessary, of any special features, shall be totally assessed to the benefiting adjoining owner served by said access bridge and/or enclosure. Likewise, for any access bridges with driveway top width wider than the standard 6.10 metres, the additional pipe length, granular bedding and backfill for the extended portion of the structure shall be assessed entirely to the adjacent benefitting owner.

Therefore, as a mechanism for sharing the cost for any works of future maintenance and/or replacement of the existing access bridge structures, municipal roadway crossing culvert structures, enclosure structures, and the 300mm diameter H.D.P.E. tiles within this drain, the following provisions with respect to cost sharing for each of same, shall be shared by the benefiting landowner and upstream affected lands and roads, where applicable, in accordance with the percentages shown in the following table:

**TABLE SHOWING COST SHARING FOR ACCESS BRIDGE STRUCTURES,  
ENCLOSURE STRUCTURES, AND MUNICIPAL ROAD CROSSING STRUCTURES  
IN THE HOWARD AVENUE DRAIN**

| <b><u>STRUCTURE</u></b> | <b><u>ROLL<br/>NUMBER</u></b>                  | <b><u>OWNERS</u></b> | <b><u>% TO<br/>BENEFITING<br/>OWNER</u></b> | <b><u>%<br/>UPSTREAM<br/>LANDS AND<br/>ROADS</u></b> |
|-------------------------|--|----------------------|---|--|
| 1                       | Bell Canada<br>access bridge<br>(Sta. 0+005.0) | Bell Canada          | 100.0                                       | 0.0  |
| 2                       | Hydro One<br>access bridge<br>(Sta. 0+043.0)   | Hydro One            | 100.0                                       | 0.0  |
| 3                       | Hydro One<br>access bridge<br>(Sta. 0+093.0)   | Hydro One            | 100.0                                       | 0.0  |
| 4                       | Hydro One<br>access bridge<br>(Sta. 0+143.0)   | Hydro One            | 100.0                                       | 0.0  |

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| <u>STRUCTURE</u> | <u>ROLL<br/>NUMBER</u>   | <u>OWNERS</u>                                   | <u>% TO<br/>BENEFITING<br/>OWNER</u> | <u>%<br/>UPSTREAM<br/>LANDS AND<br/>ROADS</u> |
|------------------|--|---|--------------------------------------|---|
| 5                | Enclosure<br>Structure<br>(0+186.0 to<br>0+256.0)                              | Ministry of<br>Transportation<br>Ontario        | 100.0                                | 0.0   |
| 6                | Enclosure<br>Structure<br>(0+256.0 to<br>0+362.0)                              | Town of LaSalle<br>Roads Department             | 100.0                                | 0.0   |
| 7                | Enclosure<br>Structure<br>(0+362.0 to<br>0+422.0)                              | Ministry of<br>Transportation<br>Ontario        | 100.0                                | 0.0   |
| 8                | Enclosure<br>Structure<br>(0+428.0 to<br>0+437.0 and<br>0+448.0 to<br>0+458.0) | Ministry of<br>Transportation<br>Ontario        | 63.4                                 |   |
|                  | Access Bridge<br>Portion of<br>Enclosure<br>(0+437.0 to<br>0+448.0)            | 290-06200 Faith<br>Community Church<br>-LaSalle | 28.0                                 | 8.6   |
| -                | 300mm diameter<br>Tile Main<br>(0+000.0 to<br>0+256.0)                         | Town of LaSalle<br>Roads Department             | 100.0                                | 0.0   |

The 259.0 metres of 300mm diameter H.D.P.E. tile main installed below the bottom of the open drain was constructed as part of the Laurier Parkway / County Road 9 (Howard Avenue) Intersection Improvement project carried out in 2010 by the Town of LaSalle. This tile main was installed primarily to provide a sufficient outlet depth for the Laurier Parkway roadway crossing pipe also installed under this project. Based on this, the future maintenance and/or replacement responsibility for this tile main structure remains entirely with the Town of LaSalle Roads Department.

Within the Howard Avenue Drain there is only one enclosure structure with an access bridge portion, where part of the cost of maintaining same in the future is assessed to upstream lands and roads within the Howard Avenue drain watershed. This is the Enclosure Structure 8 between Station 0+428.0 and Station 0+458.0,

**Report - Howard Avenue Drain**  
Town of LaSalle - D-14-034

where access is being provided to Parcel 290-06200 owned by Faith Community Church - LaSalle.

The access bridge portion of the above enclosure is located between Station 0+437.0 and Station 0+448.0 consisting of approximately an 11.0 metre portion of the 30.0 metre total length of the enclosure. The enclosure portion represents approximately 63.4%, and the access bridge portion represents approximately 36.6% of the overall enclosure. The future maintenance costs for the enclosure portion shall be assessed entirely to the M.T.O. and the future maintenance costs for the access bridge portion of this enclosure shall be shared by the adjoining landowner for 28.0% of the costs and the upstream lands and roads within the Howard Avenue Drain for 8.6% of the costs.

Based on the sharing percentages for the above access bridge portion of enclosure, we have prepared a **Maintenance Schedule of Assessment for the Access Bridge Portion of Enclosure Station 0+428.0 to Station 0+458.0**, which is attached and labelled herein as Appendix 'B'. This Maintenance Schedule of Assessment has been developed on the basis of an assumed cost of **\$5,000.00** and said assessment would be charged out to the affected lands and roads when **\$5,000.00** worth of maintenance works are carried out in the future.

We therefore recommend, that future work of repair and/or maintenance to the above access bridge portion of the subject enclosure structure be carried out by the governing Municipality. Part of the future maintenance cost for the bridge portion of the subject enclosure structure shall be assessed as a Benefit Assessment against the property being served by the access, and the balance of the maintenance cost shall be assessed as an Outlet Assessment to the lands and roads within the Howard Avenue Drain watershed located upstream of said access bridge portion of enclosure. Any future maintenance costs related to this access bridge portion of the enclosure shall be assessed on a pro-rata basis to the assessments shown in the Appendix 'B' Schedule.

**General**

It should be noted that Stormwater Management Systems, by definition, have been utilized within the Howard Avenue Drain watershed. These Stormwater Management Systems capture the post-development total volume and restrict the discharge of these properties to a pre-development flow rate. As a result, these restricted flows are extended for a longer period of time in order to empty the system after the rain event. With the higher total volume and prolonged release rate of runoff entering the receiving drain, the drain remains wetter for a longer period of time and extends the time that the drain flows. Thus causing increased soil saturation and creates a higher degree of destabilization of the drain banks and erosion. As a result, these higher total volumes and restricted release rate tend to increase sedimentation in the drain.

**Report - Howard Avenue Drain**  
Town of LaSalle - D-14-034

We consider the above to be an injuring liability to the receiving drains which will generally reduce their service life resulting in more periodic drain maintenance and therefore increased maintenance costs. Pursuant to Section 23 of the Drainage Act we have taken into account the increased volume of artificial runoff coming from the Parkway Detention Pond as well as the new Storm Water Management System existing on Parcels 290-06000 and 290-06100, owned by the Trustee of the Apostolic Christian Church Nazorean. We have factored same into the outlet assessment for the lands being served by this increased volume from the above S.W.M. Systems within our new Maintenance Schedules of Assessment for the "Howard Avenue Drain". The outlet assessment factor takes into account the additional volume that these sites now contribute to the drainage system, along with the reduction in runoff that the Stormwater Management System provides. Resulting in a blended factor that has been utilized.

All of the above provisions for the future maintenance of the Howard Avenue Drain, shall remain as aforesaid until otherwise determined under the provisions of the "Drainage Act, R.S.O. 1990, Chapter, D.17, as amended 2017", or subsequent amendments made thereto.

All of which is respectfully submitted.

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

  
Nick J. Peralta, P.Eng.



  
Antonio B. Peralta, P.Eng.



NJP/sa

Att.

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

Consulting Engineers  
45 Division Street North  
KINGSVILLE, Ontario  
N9Y 1E1

**CONSTRUCTION SCHEDULE OF ASSESSMENT**

**HOWARD AVENUE DRAIN**

**TOWN OF LASALLE & TOWN OF TECUMSEH**

**TOWN OF TECUMSEH**

**2. ONTARIO LANDS:**

| <u>Dillon<br/>Parcel<br/>No.</u>   | <u>Tax Roll<br/>No.</u>   | <u>Con. or<br/>Plan<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u>                | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Special<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|------------------------------------|---|---------------------------------|-------------------------------|------------------------|-------------------------|----------------------------|------------------------------------|-----------------------------|----------------------------|---|------------------------|
| 37                                 | Howard Aveune Diversion   |                                 |                               |                        | 4.97                    | 2.011                      |                                    |                             |                            |   |                        |
|                                    | 1. Flush and clean 0+256.0 to 0+362.0<br>Enclosure - Const. Item 7 (50% Share)                    |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ -                        | \$ 3,440.00                | \$ -                                    | \$ 3,440.00            |
|                                    | 2. Flush and clean 0+362.0 to 0+422.0<br>- Const. Item 8  |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ -                        | \$ 4,127.00                | \$ -                                    | \$ 4,127.00            |
|                                    | 3. Flush and clean 0+428.0 to 0+458.0 -<br>Const. Item 9  |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ -                        | \$ 2,064.00                | \$ -                                    | \$ 2,064.00            |
|                                    | 4. Improvements to Open Drain<br>Portions - Const. Items 1, 2, 3 and 4<br>plus Incidental Item 10 |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ -                        | \$ 11,083.00               | \$ -                                    | \$ 11,083.00           |
| <b>Total on Ontario Lands.....</b> |   |                                 |                               |                        |                         |                            |                                    | <b>\$ -</b>                 | <b>\$ 20,714.00</b>        | <b>\$ -</b>                             | <b>\$ 20,714.00</b>    |

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

|   | <u>Tax Roll<br/>No.</u>                                       | <u>Con. or<br/>Plan<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u>                | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Special<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|---|---|---------------------------------|-------------------------------|------------------------|-------------------------|----------------------------|------------------------------------|-----------------------------|----------------------------|---|------------------------|
| A.  | Bridge No.1 -Const. Item 5a                                   |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ 24,772.00                | \$ -                       | \$ -                                    | \$ 24,772.00           |
| B.  | Bridge No.2 -Const. Item 5b (Shared)                          |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ 6,906.00                 | \$ -                       | \$ -                                    | \$ 6,906.00            |
| C.  | Bridge No.3 -Const. Item 5c (Shared)                          |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ 6,906.00                 | \$ -                       | \$ -                                    | \$ 6,906.00            |
| D.  | Bridge No.4 -Const. Item 5d (Shared)                          |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ 6,906.00                 | \$ -                       | \$ -                                    | \$ 6,906.00            |
| F.  | Engineering Fees - Incidental Items 11,<br>12 and 13 (Shared) |                                 |                               |                        |                         |                            | Ministry of Transportation Ontario | \$ 81,249.00                | \$ -                       | \$ -                                    | \$ 81,249.00           |
| <b>Total on Special Non Pro-Rateable Assessments (non-agricultural (Sec.26)).....</b> |   |                                 |                               |                        |                         |                            |                                    | <b>\$ 126,739.00</b>        | <b>\$ -</b>                | <b>\$ -</b>                             | <b>\$ 126,739.00</b>   |

|   |  |  |  |      |       |  |  |                      |                     |             |                      |
|---|--|--|--|------|-------|--|--|----------------------|---------------------|-------------|----------------------|
| <b>TOTAL ASSESSMENT -TOWN OF TECUMSEH</b> |  |  |  | 4.97 | 2.011 |  |  | <b>\$ 126,739.00</b> | <b>\$ 20,714.00</b> | <b>\$ -</b> | <b>\$ 147,453.00</b> |
|---|--|--|--|------|-------|--|--|----------------------|---------------------|-------------|----------------------|

**TOWN OF LASALLE**

**3. MUNICIPAL LANDS:**

| Dillon Parcel No.             | 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 |
|-------------------------------|---|------------------|--------------------|-------------|--------------|-----------------|--------------------------------|------------------|-----------------|--------------------------|-------------|
| 37                            | Laurier Parkway   |                  |                    |             | 0.20         | 0.081           |                                |                  |                 |                          |             |
|                               | 1. Flush and clean 0+256.0 to 0+362.0 Enclosure - Const. Item 7 (50% Share) |                  |                    |             |              |                 | Town of LaSalle Road Authority | \$ -             | \$ 3,440.00     | \$ -                     | \$ 3,440.00 |
|                               |   |                  |                    |             |              |                 |                                |                  |                 |                          |             |
| Total on Municipal Lands..... |   |                  |                    |             |              |                 |                                | \$ -             | \$ 3,440.00     | \$ -                     | \$ 3,440.00 |

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

|  | Tax Roll<br>No.   | Con. or<br>Plan<br>No. | Lot or Part<br>of Lot | Acres<br>Owned | Acres<br>Afft'd | Hectares<br>Afft'd | Owner's Name                     | Value of<br>Benefit | Value of<br>Outlet | Value of<br>Special<br>Benefit | TOTAL<br>VALUE |
|--|---|------------------------|-----------------------|----------------|-----------------|--------------------|----------------------------------|---------------------|--------------------|--------------------------------|----------------|
| B.   | Bridge No.2 -Const. Item 5b (Shared)  |                        |                       |                |                 |                    | Hydro One                        | \$ 19,654.00        | \$ -               | \$ -                           | \$ 19,654.00   |
| C.   | Bridge No.3 -Const. Item 5c (Shared)  |                        |                       |                |                 |                    | Hydro One                        | \$ 19,654.00        | \$ -               | \$ -                           | \$ 19,654.00   |
| D.   | Bridge No.4 -Const. Item 5d (Shared)  |                        |                       |                |                 |                    | Hydro One                        | \$ 19,654.00        | \$ -               | \$ -                           | \$ 19,654.00   |
| E.   | Repair the County Road 9 (Howard Avenue) Road Crossing Culvert at Station 0+116.0 - Const. Item 6 |                        |                       |                |                 |                    | County of Essex Roads Department | \$ 4,127.00         | \$ -               | \$ -                           | \$ 4,127.00    |
| F.   | Engineering Fees - Incidental Items 11, 12 and 13 (Shared)  |                        |                       |                |                 |                    | Town of LaSalle Road Authority   | \$ 40,018.00        | \$ -               | \$ -                           | \$ 40,018.00   |
| Total on Special Non Pro-Rateable Assessments (non-agricultural (Sec.26))..... |   |                        |                       |                |                 |                    |                                  | \$ 103,107.00       | \$ -               | \$ -                           | \$ 103,107.00  |
| TOTAL ASSESSMENT -TOWN OF LASALLE  |   |                        |                       |                | 0.20            | 0.081              |                                  | \$ 103,107.00       | \$ 3,440.00        | \$ -                           | \$ 106,547.00  |
| TOTAL ASSESSMENT -TOWN OF TECUMSEH (brought forward)                           |   |                        |                       |                | 4.97            | 2.011              |                                  | \$ 126,739.00       | \$ 20,714.00       | \$ -                           | \$ 147,453.00  |
| TOTAL ASSESSMENT   |   |                        |                       |                | 5.17            | 2.092              |                                  | \$ 229,846.00       | \$ 24,154.00       | \$ -                           | \$ 254,000.00  |

=====

1 Hectare = 2.471 Acres  
D-14-034  
June 6th, 2018

## **APPENDIX “A”**

### **MAINTENANCE SCHEDULE OF ASSESSMENT FOR THE HOWARD AVENUE DRAIN**

**APPENDIX 'A'**  
**MAINTENANCE SCHEDULE OF ASSESSMENT**  
**FOR THE HOWARD AVENUE DRAIN**  
**TOWN OF LASALLE & TOWN OF TECUMSEH**

**TOWN OF TECUMSEH**

**2. ONTARIO LANDS:**

| Dillon<br>Parcel<br>No.            | Tax Roll<br>No.         | Con. or<br>Plan<br>No. | Lot or Part<br>of Lot | Acres<br>Owned | Acres<br>Afft'd | Hectares<br>Afft'd | Owner's Name                       | Value of<br>Benefit | Value of<br>Outlet | Value of<br>Special<br>Benefit | TOTAL<br>VALUE     |
|------------------------------------|-------------------------|------------------------|-----------------------|----------------|-----------------|--------------------|------------------------------------|---------------------|--------------------|--------------------------------|--------------------|
| 37                                 | Howard Aveune Diversion |                        |                       | 4.97           | 4.97            | 2.011              | Ministry of Transportation Ontario | \$ 345.00           | \$ 306.00          | \$ -                           | \$ 651.00          |
|                                    | Block 'B'               |                        |                       | 16.00          | 16.00           | 6.475              | Ministry of Transportation Ontario | \$ -                | \$ 687.00          | \$ -                           | \$ 687.00          |
|                                    | Block 'C'               |                        |                       |                | 5.21            | 2.108              | Ministry of Transportation Ontario | \$ -                | \$ 224.00          | \$ -                           | \$ 224.00          |
| 48                                 | Kings Highway No. 3     |                        |                       |                | 5.45            | 2.206              | Ministry of Transportation Ontario | \$ -                | \$ 285.00          | \$ -                           | \$ 285.00          |
| <b>Total on Ontario Lands.....</b> |                         |                        |                       |                |                 |                    |                                    | <b>\$ 345.00</b>    | <b>\$ 1,502.00</b> | <b>\$ -</b>                    | <b>\$ 1,847.00</b> |

**3. MUNICIPAL LANDS:**

| Dillon<br>Parcel<br>No.              | Tax Roll<br>No.      | Con. or<br>Plan<br>No. | Lot or Part<br>of Lot | Acres<br>Owned | Acres<br>Afft'd | Hectares<br>Afft'd | Owner's Name                       | Value of<br>Benefit | Value of<br>Outlet | Value of<br>Special<br>Benefit | TOTAL<br>VALUE   |
|--------------------------------------|----------------------|------------------------|-----------------------|----------------|-----------------|--------------------|------------------------------------|---------------------|--------------------|--------------------------------|------------------|
| 38                                   | Outer Drive          |                        |                       | 1.20           | 1.20            | 0.486              | Town of Tecumseh                   | \$ -                | \$ 69.00           | \$ -                           | \$ 69.00         |
| 39                                   | Outer Drive (Closed) |                        |                       | 5.40           | 5.40            | 2.185              | Ministry of Transportation Ontario | \$ 105.00           | \$ 226.00          | \$ -                           | \$ 331.00        |
| 40                                   | Howard Avenue        |                        |                       |                | 2.50            | 1.012              | County of Essex                    | \$ 105.00           | \$ 120.00          | \$ -                           | \$ 225.00        |
| 41                                   | South Talbot Road    |                        |                       |                | 2.00            | 0.809              | Town of Tecumseh                   | \$ 115.00           | \$ 115.00          | \$ -                           | \$ 230.00        |
|                                      | Howard Avenue (Pond) |                        |                       |                | 0.80            | 0.324              | County of Essex                    | \$ -                | \$ 34.00           | \$ -                           | \$ 34.00         |
| <b>Total on Municipal Lands.....</b> |                      |                        |                       |                |                 |                    |                                    | <b>\$ 325.00</b>    | <b>\$ 564.00</b>   | <b>\$ -</b>                    | <b>\$ 889.00</b> |

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

| Dillon<br>Parcel<br>No. | Tax Roll<br>No. | Con. or<br>Plan<br>No. | Lot or Part<br>of Lot | Acres<br>Owned | Acres<br>Afft'd | Hectares<br>Afft'd | Owner's Name                            | Value of<br>Benefit | Value of<br>Outlet | Value of<br>Special<br>Benefit | TOTAL<br>VALUE |
|-------------------------|-----------------|------------------------|-----------------------|----------------|-----------------|--------------------|---|---------------------|--------------------|--------------------------------|----------------|
| 45                      | 450-02300       | 5                      | 8                     | 0.96           | 0.48            | 0.194              | Synod Dioces of Huron Inc.              | \$ 28.00            | \$ 39.00           | \$ -                           | \$ 67.00       |
| 44                      | 450-02400       | 5                      | 8                     | 0.92           | 0.46            | 0.186              | Trustees of the Khemara Buddhist Temple | \$ 27.00            | \$ 28.00           | \$ -                           | \$ 55.00       |
| 20                      | 470-01400       | STR                    | 306                   | 0.54           | 0.54            | 0.219              | Ministry of Transportation Ontario      | \$ 29.00            | \$ 18.00           | \$ -                           | \$ 47.00       |

| Dillon<br>Parcel<br>No.                                       | Tax Roll<br>No. | Con. or<br>Plan<br>No. | Lot or Part<br>of Lot | Acres<br>Owned | Acres<br>Afft'd | Hectares<br>Afft'd | Owner's Name   | Value of<br>Benefit | Value of<br>Outlet | Value of<br>Special<br>Benefit | TOTAL<br>VALUE     |
|---|-----------------|------------------------|-----------------------|----------------|-----------------|--------------------|--|---------------------|--------------------|--------------------------------|--------------------|
| 21  | 470-01410       | STR                    | 306                   | 4.90           | 4.90            | 1.983              | Ministry of Transportation Ontario                       | \$ 206.00           | \$ 185.00          | \$ -                           | \$ 391.00          |
| 19  | 470-01450       | STR                    | 306                   | 5.40           | 5.40            | 2.185              | Al-Hijra Mosque  | \$ 194.00           | \$ 268.00          | \$ -                           | \$ 462.00          |
| 18  | 470-01500       | STR                    | 306                   | 3.47           | 3.47            | 1.404              | Windsor Community of Christ                              | \$ 89.00            | \$ 162.00          | \$ -                           | \$ 251.00          |
| 17  | 470-01510       | STR                    | 306                   | 2.99           | 2.99            | 1.210              | Royal Canadian Legion<br>Metropolitan Branch 594         | \$ 58.00            | \$ 237.00          | \$ -                           | \$ 295.00          |
| 22  | 470-01580       | STR                    | 306 & 307             | 42.43          | 41.18           | 16.665             | Ministry of Transportation Ontario                       | \$ 257.00           | \$ 2,138.00        | \$ -                           | \$ 2,395.00        |
| 16  | 470-01600       | 1381                   | BLK B                 | 0.50           | 0.50            | 0.202              | Robert H.C. Sherman                                      | \$ 9.00             | \$ 22.00           | \$ -                           | \$ 31.00           |
| 15  | 470-01700       | 1381                   | BLK B                 | 3.50           | 3.50            | 1.416              | Mohamed Kougan   | \$ 41.00            | \$ 109.00          | \$ -                           | \$ 150.00          |
| 14  | 470-01800       | 1381                   | BLK B                 | 2.60           | 2.60            | 1.052              | Greg P. Morrow   | \$ 18.00            | \$ 79.00           | \$ -                           | \$ 97.00           |
| 13  | 470-01801       | 1381                   | BLK B                 | 0.43           | 0.43            | 0.174              | Robert B. & Deborah A. Armitage                          | \$ 5.00             | \$ 19.00           | \$ -                           | \$ 24.00           |
| 12  | 470-01900       | 1381                   | BLK B                 | 1.77           | 1.77            | 0.716              | Mazhar A. Khan & Aaliya Mir                              | \$ 12.00            | \$ 55.00           | \$ -                           | \$ 67.00           |
| 11  | 470-02000       | 1381                   | BLK B                 | 1.34           | 1.34            | 0.542              | Sheila A. Donlon   | \$ 5.00             | \$ 52.00           | \$ -                           | \$ 57.00           |
| 23  | 470-05000       | STR                    | 306                   | 1.00           | 0.40            | 0.162              | Ministry of Transportation Ontario                       | \$ -                | \$ 17.00           | \$ -                           | \$ 17.00           |
| 24  | 470-05003       | STR                    | 306                   | 1.08           | 0.63            | 0.255              | Ministry of Transportation Ontario                       | \$ -                | \$ 27.00           | \$ -                           | \$ 27.00           |
| 28  | 470-05100       | STR                    | 306                   | 36.06          | 36.06           | 14.593             | Ministry of Transportation Ontario                       | \$ -                | \$ 1,585.00        | \$ -                           | \$ 1,585.00        |
| 25  | 470-05200       | STR                    | 306                   | 1.00           | 1.00            | 0.405              | Ministry of Transportation Ontario                       | \$ -                | \$ 43.00           | \$ -                           | \$ 43.00           |
| 26  | 470-05201       | STR                    | 306                   | 4.29           | 4.29            | 1.736              | Ministry of Transportation Ontario                       | \$ -                | \$ 166.00          | \$ -                           | \$ 166.00          |
| 27  | 470-05300       | STR                    | 306                   | 3.65           | 3.65            | 1.477              | Miksa Marton   | \$ -                | \$ 126.00          | \$ -                           | \$ 126.00          |
| 29  | 470-05400       | STR                    | 306                   | 0.10           | 0.10            | 0.040              | Ministry of Transportation Ontario                       | \$ -                | \$ 3.00            | \$ -                           | \$ 3.00            |
| 32  | 470-05401       | STR                    | 305                   | 0.70           | 0.70            | 0.283              | Ministry of Transportation Ontario                       | \$ -                | \$ 37.00           | \$ -                           | \$ 37.00           |
| 34  | 470-05402       | STR                    | 305                   | 32.54          | 32.54           | 13.169             | Congregation of the Order Antonin<br>Maronite in Ontario | \$ -                | \$ 1,533.00        | \$ -                           | \$ 1,533.00        |
| 31  | 470-05405       | STR                    | 305                   | 1.13           | 1.13            | 0.457              | Ministry of Transportation Ontario                       | \$ -                | \$ 46.00           | \$ -                           | \$ 46.00           |
| 30  | 470-05412       | STR                    | 305                   | 1.64           | 1.64            | 0.664              | 470698 Ontario Ltd.                                      | \$ -                | \$ 112.00          | \$ -                           | \$ 112.00          |
| 33  | 470-05500       | STR                    | 305                   | 11.23          | 10.85           | 4.391              | Ministry of Transportation Ontario                       | \$ -                | \$ 511.00          | \$ -                           | \$ 511.00          |
| 46  | 470-05600       | STR                    | 305                   | 66.82          | 1.60            | 0.648              | Victoria Memorial Gardens                                | \$ -                | \$ 42.00           | \$ -                           | \$ 42.00           |
| 47  | N/A             | STR                    | 305                   | 0.00           | 3.00            | 1.214              | Chrysler Greenway (Town of<br>Tecumseh)                  | \$ 33.00            | \$ 126.00          | \$ -                           | \$ 159.00          |
| <b>Total on Privately Owned - Non-Agricultural Lands.....</b> |                 |                        |                       |                |                 |                    |  | <b>\$ 1,011.00</b>  | <b>\$ 7,785.00</b> | <b>\$ -</b>                    | <b>\$ 8,796.00</b> |

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

| <u>Dillon<br/>Parcel<br/>No.</u>                                      | <u>Tax Roll<br/>No.</u> | <u>Con. or<br/>Plan<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u>   | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Special<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|---|-------------------------|---------------------------------|-------------------------------|------------------------|-------------------------|----------------------------|-----------------------|-----------------------------|----------------------------|---|------------------------|
| 36  | 450-02500               | 5                               | 8                             | 14.85                  | 4.00                    | 1.619                      | 2484234 Ontario Inc.  | \$ 137.00                   | \$ 63.00                   | \$ -                                    | \$ 200.00              |
| 35  | 470-01300               | STR                             | 305                           | 37.29                  | 37.29                   | 15.091                     | Amico Infrastructures | \$ 436.00                   | \$ 586.00                  | \$ -                                    | \$ 1,022.00            |
| <b>Total on Privately Owned - Agricultural Lands (grantable).....</b> |                         |                                 |                               |                        |                         |                            |                       | <b>\$ 573.00</b>            | <b>\$ 649.00</b>           | <b>\$ -</b>                             | <b>\$ 1,222.00</b>     |

|  |        |         |                    |                     |             |                     |
|--|--------|---------|--------------------|---------------------|-------------|---------------------|
| <b>TOTAL ASSESSMENT - TOWN OF TECUMSEH</b> | 251.97 | 101.971 | <b>\$ 2,254.00</b> | <b>\$ 10,500.00</b> | <b>\$ -</b> | <b>\$ 12,754.00</b> |
|--|--------|---------|--------------------|---------------------|-------------|---------------------|

**TOWN OF LASALLE**

**2. ONTARIO LANDS:**

| <u>Dillon<br/>No.</u>              | <u>Tax Roll<br/>No.</u> | <u>Con. or<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u>                | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|------------------------------------|-------------------------|------------------------|-------------------------------|------------------------|-------------------------|----------------------------|------------------------------------|-----------------------------|----------------------------|-----------------------------|------------------------|
|                                    | Block 'A'               |                        |                               | 10.60                  | 10.60                   | 4.290                      | Ministry of Transportation Ontario | \$ -                        | \$ 455.00                  | \$ -                        | \$ 455.00              |
| <b>Total on Ontario Lands.....</b> |                         |                        |                               |                        |                         |                            |                                    | <b>\$ -</b>                 | <b>\$ 455.00</b>           | <b>\$ -</b>                 | <b>\$ 455.00</b>       |

**3. MUNICIPAL LANDS:**

| <u>Dillon<br/>No.</u>                | <u>Tax Roll<br/>No.</u> | <u>Con. or<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u> | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|--------------------------------------|-------------------------|------------------------|-------------------------------|------------------------|-------------------------|----------------------------|---------------------|-----------------------------|----------------------------|-----------------------------|------------------------|
| 42                                   | Laurier Parkway         |                        |                               |                        | 0.20                    | 0.081                      | Town of LaSalle     | \$ 16.00                    | \$ 16.00                   | \$ -                        | \$ 32.00               |
| 43                                   | Howard Business Parkway |                        |                               |                        | 0.20                    | 0.081                      | Town of LaSalle     | \$ 16.00                    | \$ 14.00                   | \$ -                        | \$ 30.00               |
| 40                                   | Howard Avenue           |                        |                               |                        | 3.08                    | 1.246                      | County of Essex     | \$ 130.00                   | \$ 185.00                  | \$ -                        | \$ 315.00              |
|                                      | Howard Avenue (Pond)    |                        |                               |                        | 0.80                    | 0.324                      | County of Essex     | \$ -                        | \$ 34.00                   | \$ -                        | \$ 34.00               |
| <b>Total on Municipal Lands.....</b> |                         |                        |                               |                        |                         |                            |                     | <b>\$ 162.00</b>            | <b>\$ 249.00</b>           | <b>\$ -</b>                 | <b>\$ 411.00</b>       |

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

| <u>Dillon<br/>No.</u> | <u>Tax Roll<br/>No.</u> | <u>Con. or<br/>No.</u> | <u>Lot or Part<br/>of Lot</u> | <u>Acres<br/>Owned</u> | <u>Acres<br/>Afft'd</u> | <u>Hectares<br/>Afft'd</u> | <u>Owner's Name</u>                                 | <u>Value of<br/>Benefit</u> | <u>Value of<br/>Outlet</u> | <u>Value of<br/>Benefit</u> | <u>TOTAL<br/>VALUE</u> |
|-----------------------|-------------------------|------------------------|-------------------------------|------------------------|-------------------------|----------------------------|---|-----------------------------|----------------------------|-----------------------------|------------------------|
| 1                     | 290-05800               | 6                      | 2                             | 73.77                  | 3.50                    | 1.416                      | Roman Catholic Episcopal Corporation London Diocese | \$ 68.00                    | \$ 87.00                   | \$ -                        | \$ 155.00              |
| 2                     | 290-05900               | 6                      | 2                             | 14.25                  | 2.70                    | 1.093                      | St. Nicholas Macedonian Eastern Orthodox Church     | \$ 86.00                    | \$ 256.00                  | \$ -                        | \$ 342.00              |

| <u>Dillon No.</u>   | <u>Tax Roll No.</u> | <u>Con. or No.</u> | <u>Lot or Part of Lot</u> | <u>Acres Owned</u> | <u>Acres Afft'd</u> | <u>Hectares Afft'd</u> | <u>Owner's Name</u>                                 | <u>Value of Benefit</u> | <u>Value of Outlet</u> | <u>Value of Benefit</u> | <u>TOTAL VALUE</u>  |
|---|---------------------|--------------------|---------------------------|--------------------|---------------------|------------------------|---|-------------------------|------------------------|-------------------------|---------------------|
| 3   | 290-06000           | 6                  | 3                         | 6.08               | 3.30                | 1.335                  | Trustees of the Apostolic Christian Church Nazarean | \$ 129.00               | \$ 192.00              | \$ -                    | \$ 321.00           |
| 4   | 290-06100           | 6                  | 3                         | 4.21               | 2.36                | 0.955                  | Trustees of the Apostolic Christian Church Nazarean | \$ 114.00               | \$ 132.00              | \$ -                    | \$ 246.00           |
| 5   | 290-06200           | 6                  | 3                         | 1.93               | 1.93                | 0.781                  | Faith Community Church-LaSalle                      | \$ 93.00                | \$ 87.00               | \$ -                    | \$ 180.00           |
| 8   | 290-16350           | 6                  | 3                         | 0.09               | 0.10                | 0.040                  | Union Gas Limited                                   | \$ 6.00                 | \$ 8.00                | \$ -                    | \$ 14.00            |
| <b>Total on Privately Owned - Non-Agricultural Lands.....</b>         |                     |                    |                           |                    |                     |                        |   | <b>\$ 496.00</b>        | <b>\$ 762.00</b>       | <b>\$ -</b>             | <b>\$ 1,258.00</b>  |
| <b>5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):</b>           |                     |                    |                           |                    |                     |                        |   |                         |                        |                         |                     |
| <u>Dillon No.</u>   | <u>Tax Roll No.</u> | <u>Con. or No.</u> | <u>Lot or Part of Lot</u> | <u>Acres Owned</u> | <u>Acres Afft'd</u> | <u>Hectares Afft'd</u> | <u>Owner's Name</u>                                 | <u>Value of Benefit</u> | <u>Value of Outlet</u> | <u>Value of Benefit</u> | <u>TOTAL VALUE</u>  |
| 7   | 290-06250           | 6                  | 3                         | 3.95               | 0.57                | 0.231                  | 1486192 Ontario Limited                             | \$ 22.00                | \$ 9.00                | \$ -                    | \$ 31.00            |
| 10  | 290-16300           | 6                  | 1, 2 & 3                  | 76.65              | 0.80                | 0.324                  | Howard Business Centre Inc.                         | \$ 31.00                | \$ 11.00               | \$ -                    | \$ 42.00            |
| 9   | 290-16300           | 6                  | 1, 2 & 3                  | 30.50              | 0.77                | 0.312                  | Howard Business Centre Inc.                         | \$ 30.00                | \$ 12.00               | \$ -                    | \$ 42.00            |
| 6   | 290-16300           | 6                  | 4                         | 1.74               | 0.13                | 0.053                  | Howard Business Centre Inc.                         | \$ 5.00                 | \$ 2.00                | \$ -                    | \$ 7.00             |
| <b>Total on Privately Owned - Agricultural Lands (grantable).....</b> |                     |                    |                           |                    |                     |                        |   | <b>\$ 88.00</b>         | <b>\$ 34.00</b>        | <b>\$ -</b>             | <b>\$ 122.00</b>    |
| <b>TOTAL ASSESSMENT - TOWN OF LASALLE</b>                             |                     |                    |                           | 31.04              | 12.562              |                        |   | <b>\$ 746.00</b>        | <b>\$ 1,500.00</b>     | <b>\$ -</b>             | <b>\$ 2,246.00</b>  |
| <b>TOTAL ASSESSMENT - TOWN OF TECUMSEH (brought forward)</b>          |                     |                    |                           | 251.97             | 101.971             |                        |   | <b>\$ 2,254.00</b>      | <b>\$ 10,500.00</b>    | <b>\$ -</b>             | <b>\$ 12,754.00</b> |
| <b>TOTAL ASSESSMENT</b>   |                     |                    |                           | 283.01             | 114.53              |                        |   | <b>\$ 3,000.00</b>      | <b>\$ 12,000.00</b>    | <b>\$ -</b>             | <b>\$ 15,000.00</b> |

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1 Hectare = 2.471 Acres  
D-14-034  
June 6th, 2018

**APPENDIX "B"**

**MAINTENANCE SCHEDULE OF**  
**ASSESSMENT FOR THE**  
**ACCESS BRIDGE PORTION OF ENCLOSURE**  
**STA. 0+428.0 TO STA. 0+458.0**

**APPENDIX 'B'**  
**MAINTENANCE SCHEDULE OF ASSESSMENT**  
**FOR THE ACCESS BRIDGE PORTION OF ENCLOSURE STA. 0+428.0 TO STA. 0+458.0**  
**TOWN OF LASALLE**

**3. MUNICIPAL LANDS:**

| <u>Dillon No.</u>                    | <u>Tax Roll No.</u> | <u>Con. or No.</u> | <u>Lot or Part of Lot</u> | <u>Acres Owned</u> | <u>Acres Afft'd</u> | <u>Hectares Afft'd</u> | <u>Owner's Name</u> | <u>Value of Benefit</u> | <u>Value of Outlet</u> | <u>Value of Benefit</u> | <u>TOTAL VALUE</u> |
|--------------------------------------|---------------------|--------------------|---------------------------|--------------------|---------------------|------------------------|---------------------|-------------------------|------------------------|-------------------------|--------------------|
| 40                                   | Howard Avenue       |                    |                           |                    | 2.39                | 0.967                  | County of Essex     | \$ -                    | \$ 211.00              | \$ -                    | \$ 211.00          |
| <b>Total on Municipal Lands.....</b> |                     |                    |                           |                    |                     |                        |                     | <b>\$ -</b>             | <b>\$ 211.00</b>       | <b>\$ -</b>             | <b>\$ 211.00</b>   |

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

| <u>Dillon No.</u>   | <u>Tax Roll No.</u> | <u>Con. or No.</u> | <u>Lot or Part of Lot</u> | <u>Acres Owned</u> | <u>Acres Afft'd</u> | <u>Hectares Afft'd</u> | <u>Owner's Name</u>                                 | <u>Value of Benefit</u> | <u>Value of Outlet</u> | <u>Value of Benefit</u> | <u>TOTAL VALUE</u> |
|---|---------------------|--------------------|---------------------------|--------------------|---------------------|------------------------|---|-------------------------|------------------------|-------------------------|--------------------|
| 1   | 290-05800           | 6                  | 2                         | 73.77              | 3.50                | 1.416                  | Roman Catholic Episcopal Corporation London Diocese | \$ -                    | \$ 123.00              | \$ -                    | \$ 123.00          |
| 2   | 290-05900           | 6                  | 2                         | 14.25              | 2.70                | 1.093                  | St. Nicholas Macedonian Eastern Orthodox Church     | \$ -                    | \$ 363.00              | \$ -                    | \$ 363.00          |
| 3   | 290-06000           | 6                  | 3                         | 6.08               | 3.30                | 1.335                  | Trustees of the Apostolic Christian Church Nazarean | \$ -                    | \$ 273.00              | \$ -                    | \$ 273.00          |
| 4   | 290-06100           | 6                  | 3                         | 4.21               | 2.36                | 0.955                  | Trustees of the Apostolic Christian Church Nazarean | \$ -                    | \$ 195.00              | \$ -                    | \$ 195.00          |
| 5   | 290-06200           | 6                  | 3                         | 1.93               | 0.15                | 0.061                  | Faith Community Church-LaSalle                      | \$ 3,825.00             | \$ 10.00               | \$ -                    | \$ 3,835.00        |
| <b>Total on Privately Owned - Non-Agricultural Lands.....</b> |                     |                    |                           |                    |                     |                        |   | <b>\$ 3,825.00</b>      | <b>\$ 964.00</b>       | <b>\$ -</b>             | <b>\$ 4,789.00</b> |

|                         |  |  |  |  |       |       |  |                    |                    |             |                    |
|-------------------------|--|--|--|--|-------|-------|--|--------------------|--------------------|-------------|--------------------|
| <b>TOTAL ASSESSMENT</b> |  |  |  |  | 14.40 | 5.828 |  | <b>\$ 3,825.00</b> | <b>\$ 1,175.00</b> | <b>\$ -</b> | <b>\$ 5,000.00</b> |
|-------------------------|--|--|--|--|-------|-------|--|--------------------|--------------------|-------------|--------------------|

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