

**THE CORPORATION OF THE TOWN OF AMHERSTBURG**

**BY-LAW NO. 2019 - 003**

**By-law to provide for the New Farm Bridge on Pt. Lot 51, Concession 5, over the 5<sup>th</sup> Concession Road Drain South (Vandenbrink Bridge) based on the Drainage Report by Dillon Consulting Limited.**

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**WHEREAS** as request for repair and improvement of the 5th Concession Road Drain South was received under section 78 of the Drainage Act;

**WHEREAS** Council of the Corporation of the Town of Amherstburg felt it necessary to appoint an engineer for the purpose of preparation of an engineer's report for the repair and improvement under section 78 of the Drainage Act;

**WHEREAS** Council of the Corporation of the Town of Amherstburg has authorized Tim Oliver, P. Eng., Dillon Consulting Ltd., to prepare a report and said engineer's report dated December 10, 2018, can be referenced as Schedule A.

**WHEREAS** \$20,150.00 is the amount to be contributed by the Town of Amherstburg for the drainage works;

**AND WHEREAS** the report was considered by the Amherstburg Drainage Board at the meeting held on Monday, January 7<sup>th</sup>, 2019.

**NOW THEREFORE** the Council of the Corporation of the Town of Amherstburg hereby enacts as follows:

**1. AUTHORIZATION**

The attached report is adopted and the drainage works is authorized and shall be completed as specified in the report

**2. BORROWING**

The Corporation of the Town of Amherstburg may borrow on the credit of the Corporation the amount of \$20,150.00 being the amount necessary for the improvements of the drainage works.

This project being the Culvert Replacement on the 5th Concession Road Drain South.

**3. DEBENTURE(S)**

The Corporation may issue debenture(s) for the amount borrowed less the total amount of:

- (a) Grants received under section 85 of the Drainage Act;
- (b) Monies paid as allowances;
- (c) Commuted payments made in respect of lands and roads assessed with the municipality;
- (d) Money paid under subsection 61(3) of the Drainage Act; and
- (e) Money assessed in and payable by another municipality.

**4. PAYMENT**

Such debenture(s) shall be made payable within 5 years from the date of the debenture(s) shall bear interest at a rate not higher than 1% more than the municipal lending rates as posted by The Town of Amherstburg's Bank's Prime Lending Rate on the date of sale of such debenture(s).

- (1) A special equal annual rate sufficient to redeem the principal and interest on the debenture(s) shall be levied upon the lands and roads as shown in the schedule and shall be collected in the same manner and at the same as other taxes are collected in each year for 5 years after the passing of this by-law.
- (2) For paying the amount \$0.00 being the amount assessed upon the lands and roads belonging to or controlled by the municipality a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Town of Amherstburg in each year for 5 years after the passing of this by-law to be collected in the same manner and at the same time as other taxes collected.
- (3) All assessments of \$1000.00 or less are payable in the first year in which the assessments are imposed.

**5. SCHEDULE OF ASSESSMENTS OF LANDS AND ROADS**

Lot or Part Lot No.	Property Description			Estimated Assessment as per Report	Estimated Grants 33 1/3%	Equal Bi-Annual Rate to be Imposed
	Concession	Geographic Township	Parcel Roll No.			
Pt. Lot 51	5	Malden	580-00300	\$20,150.00	\$6,716.67	\$3,013.25
<b>Total</b>				<b>\$20,150.00</b>	<b>\$6,716.67</b>	<b>\$3,013.25</b>

Read a first and second time and provisionally adopted this 14<sup>th</sup> day of January, 2019.

  
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 MAYOR – ALDO DICARLO

  
 \_\_\_\_\_  
 CLERK – PAULA PARKER

Read a third time and finally passed this 11 day of MARCH, 2019.

  
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 MAYOR – ALDO DICARLO

  
 \_\_\_\_\_  
 CLERK – PAULA PARKER

**DRAINAGE REPORT  
FOR**

**NEW FARM BRIDGE ON  
PT. LOT 51, CONCESSION 5  
OVER THE  
5<sup>TH</sup> CONCESSION ROAD  
DRAIN SOUTH  
(VANDENBRINK BRIDGE)**

**TOWN OF AMHERSTBURG  
COUNTY OF ESSEX**



10 DECEMBER 2018  
TIM R. OLIVER, P.ENG  
FILE No. 18-8348

File No. 18-8348

Drainage Board  
The Corporation of the Town of Amherstburg  
271 Sandwich St. South  
Amherstburg, Ontario  
N9V 2A5

**Drainage Report for  
New Farm Bridge on  
Pt. Lot 51, Concession 5  
Over the  
5<sup>TH</sup> CONCESSION ROAD DRAIN SOUTH  
(VANDENBRINK BRIDGE)  
Town of Amherstburg  
County of Essex**

Drainage Board:

**Instructions**

The Municipality received a request for a new farm access bridge to serve Pt. Lot 51, Concession 5 (Roll No. 580-003-00) over the 5<sup>th</sup> Concession Road Drain South that was filed at the Municipal Office on the 17<sup>th</sup> day of July 2018. Council accepted the request under Section 78 of the Drainage Act and on the 5<sup>th</sup> day of September 2018 appointed Dillon Consulting Limited to prepare a report.

**Watershed Description**

The 5<sup>th</sup> Concession Road Drain South is an open drain commencing near the western edge of Lot 50 within the Concession 5 Road South boundary, within the Town of Amherstburg. The drain is divided into two sections separated by a dam; a northern section which drains to the Ong Drain, and a southern section which drains into the Woods Drain. The proposed bridge is to be located on the southern section and will therefore be the section under consideration. The southern section of the drain continues southerly along the east side of Concession 5 South, crossing County Road 20 and then outlets into the Woods Drain near the northwest corner of Lot 52, Concession 5.

**Drain History**

The recent history of Engineers' reports for the 5<sup>th</sup> Concession Road Drain South is as follows:

- **16 January 1984 by Nick J. Peralta, P.Eng.:** The recommended work included a revised watershed area and maintenance schedule.
- **18 October 1960 by C. G. R. Armstrong, P.Eng.:** The recommended work included the entire 5<sup>th</sup> Concession Road Drain South be brushed, excavated and cleaned. Additionally, a new access bridge was installed.

**On-Site Meeting**

We conducted an on-site meeting on September 25, 2018. A record of the meeting is provided in Schedule 'A', which is appended hereto.



10 Fifth Street South  
Chatham, Ontario  
Canada  
N7M 4V4  
Telephone  
**519.354.7802**  
Fax  
519.354.2050

## Survey

Our survey and examination of the 5<sup>th</sup> Concession Road Drain South was carried out on the 16<sup>th</sup> day of October 2018. We surveyed the drain both upstream and downstream of the proposed site for the new access culvert.

## Design Considerations

The new access culvert is designed for an upstream drainage area of approximately 51.06 hectares (126.17 acres). The hydraulic capacity of the structure must meet the current Design Standards recommended by the Ministry of Agriculture, Food, and Rural Affairs. The Design and Construction Guidelines suggest that a farm culvert must be designed to freely pass the runoff generated from a 2-year return period storm event. We have applied that criterion. The size of the new access culvert required is 750 mm diameter and the length designed to be 21 m to accommodate a minimum 12 m (40 feet) top width, as requested by the landowner, and sloping stone end treatment. The culvert depth is designed to provide a minimum 10% embedment of the pipe invert below the drain bottom.

## Allowances

In accordance with Sections 29 and 30 of the Drainage Act, we do not anticipate any agricultural lands being damaged or taken as a result of the proposed drainage works. There is an existing farm laneway present that leads to the bridge for access purposes. Any damage to the laneway or existing grassed areas shall be restored to original conditions as part of the work. Therefore, 'Schedule B' for Allowances has not been included in this report.

## Recommendations and Cost Estimate

Based on our review of the history, the information obtained during the site meeting and our examination and analysis of the survey data, we recommend that the 5<sup>th</sup> Concession Road Drain South be repaired and improved as described below:

<b>Item</b>	<b>Description</b>	<b>Amount</b>
1.	Supply and place a new 21.0 m long, 750 mm diameter corrugated high density polyethylene (HDPE) Boss 2000 culvert, 320 kPA including couplers (see Specifications).	\$3,800.00
2.	Supply and placement of clear stone bedding materials, minimum 150 mm thickness (approximately 15 tonnes).	\$700.00
3.	Supply and placement of Granular 'B' bedding and backfill materials from the pipe invert up to the Granular 'A' driveway material (approximately 240 tonnes).	\$4,200.00
4.	Supply and placement of imported clean native backfill material on the culvert ends to construct the 0.50 m wide native buffer strips (approximately 20 m <sup>3</sup> ).	\$300.00
5.	Supply and install Granular 'A' (crushed limestone) compacted driveway surface, minimum 200 mm thickness (approximately 60 tonnes).	\$2,000.00
6.	Supply and placement of stone rip-rap minimum 300 mm thickness c/w filter cloth underlay for sloping end walls (approximately 45 m <sup>2</sup> ).	\$2,750.00

Item	Description	Amount
7.	Temporary sediment and erosion control measures.	\$250.00
	SUB-TOTAL	\$14,000.00
8.	Survey, report, assessment, contract admin and part time construction observation.	\$5,500.00
9.	Expenses and incidentals.	\$500.00
10.	ERCA review fee and permit.	\$150.00
	<b>TOTAL ESTIMATE</b>	<b>\$20,150.00</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.

#### Assessment of Costs

The individual assessments are comprised of three (3) assessment components:

- i. Benefit (*advantages relating to the betterment of lands, roads, buildings, or other structures resulting from the improvement to the drain*).
- ii. Outlet Liability (*part of cost required to provide outlet for lands and roads*).
- iii. Special Benefit (*additional work or feature that may not affect function of the drain*).

We have assessed the estimated costs against the affected lands and roads as listed in Schedule 'C' under "Value of Special Benefit," "Value of Benefit" and "Value of Outlet." Since there is only one Special Benefit assessment, a separate schedule for details of Special Benefit (Schedule 'D') is not required or included herein.

#### Assessment Rationale

There is no access to the Vandenbrink farm across the 5<sup>th</sup> Concession Road Drain South. The present access for the Vandenbrink farm is across the roadside ditch on the north side of County Road 20. However, in the near future this access will be transferred to an existing residential property that is adjacent to this access and plans are to expand the size of the said lot by acquiring some of the Vandenbrink farm property.

Special Benefit assessment shown in Schedule 'C' was therefore derived as follows:

1. For first time access bridge across the 5<sup>th</sup> Concession Road Drain South, costs have been assessed 100% to adjoining property Roll No. 580-003-00 as listed under "Value of Special Benefit."

#### Utilities

It may become necessary to temporarily or permanently relocate utilities that may conflict with the construction recommended under this report. In accordance with Section 26 of the Drainage Act, we assess any relocation cost against the public utility having jurisdiction. Under Section 69 of the Drainage Act, the public utility is at liberty to do the work with its own forces, but if it should not exercise this option within a reasonable time, the Municipality will arrange to have this work completed and the costs will be charged to the appropriate public utility.

## **Future Maintenance**

We recommend that future work of repair and maintenance on the new access bridge be carried out by the Municipality and assessed in the same relative proportions as to the amounts listed in Schedule 'E' which represents an Assessment Schedule for Future Maintenance. The standard access width required for the farm by design would be a minimum 9 m (30'), however the landowner specifically requested a wider 12 m (40') top width. Given the wider access over the drain that is being provided for the Vandenberg farm, we recommend that 60% of the future costs of this primary access to the Vandenberg farm over the 5<sup>th</sup> Concession Road Drain South be assessed as a Special Benefit against property Roll No. 580-004-00 and the remaining 40% as an Outlet liability assessment against the upstream properties. The assessment is based on an arbitrary \$10,000 in future maintenance costs. These provisions for maintenance are subject, of course, to any variations that may be made under the authority of the Drainage Act.

## **Drawings and Specifications**

Attached to this report is "Schedule F" which contains specifications setting out the details of the recommended works, and "Schedule G", which represents the following drawings that are also attached to this report:

**Page 1 of 2:** Overall Plan

**Page 2 of 2:** Bridge Details

## **Approvals**

The construction and/or improvement to a drainage works, including repair and maintenance activities, 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 by the proposed works. Prior to any construction or maintenance works, the Municipality or proponent designated on the Municipality's behalf shall obtain all required approvals/permits and confirm any construction limitations including timing windows, mitigation/off-setting measures, standard practices or any other limitations related to in-stream works.

In terms of a review of the proposed works by the Department of Fisheries and Oceans (DFO), we have undertaken a self-assessment and have determined that an application requesting review is not required. The 5<sup>th</sup> Concession Road Drain South has been classified as a "Type F" drain by DFO and the impact zone representing 1 km downstream of the proposed works is also classified as a "Type F" drain. Type F drains experience intermittent water flow only and provide minimal habitat for fish. As part of the work, the following mitigation measures shall be implemented to avoid any adverse effects to the waterway.

- Work will not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods. Work will be done in the dry.
- All disturbed soils on both banks and within the channel, including spoil must be stabilized immediately upon completion of work. The restoration of the site must be completed to a like or better condition to what existed prior to the works.
- To prevent sediment entry into the drain, in the event of an unexpected rainfall, silt barriers and/or traps must be placed in the channel during the works and until the site has been stabilized. All sediment and erosion control measures

are to be in accordance with related Ontario Provincial Standards. It is incumbent on the proponent and his/her contractors to ensure that sediment and erosion control measures are functioning properly and are maintained/upgraded as required.

- All activities should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the water. Vehicular refueling and maintenance should be conducted away from the water.

In terms of endangered species, the critical habitat distribution mapping does not identify any critical habitat found for extirpated, endangered, threatened or special concern species within the area of the proposed drainage works. The Town of Amherstburg has developed a mitigation plan document recommending mitigation measures to minimize adverse effects on species at risk including monitoring and reporting requirements should an endangered, threatened or special concern species (fishes, reptiles, amphibians, molluscs, birds, plants, trees) be encountered. The document will be made available to contractors during the tendering process and construction period.

In terms of review by the Essex Region Conservation Authority (ERCA), the proposed works contained herein were previously reviewed and accepted by ERCA. An application for permit shall be submitted by the Municipality and accompanied by payment for the permit review fee of \$150.00 before construction of the new access bridge proceeds.

### 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 Ontario Ministry of Agriculture and Food 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:oem:ges



Oliver E. Moir, E.I.T.





**SCHEDULE 'A'**  
**SUMMARY OF ON-SITE MEETING**  
**5<sup>th</sup> Concession Road Drain South**  
**5651 Concession 5 South, Amherstburg, Ontario**  
**September 25, 2018 – 10:00 a.m.**

**Attendees**

Gary Laramie	Landowner
Edward Wright	Landowner
Shane McVitty	Town of Amherstburg
Tim Oliver	Dillon Consulting Limited
Oliver Moir	Dillon Consulting Limited

**Introduction**

An on-site meeting was held regarding improvements to the 5th Concession Road Drain South, as per the requirements under Section 78 under the Drainage Act. A summary of the meeting is outlined below:

- Tim: Explained Drainage Act, relevant drainage history.
- Tim: Since the new Vandenberg access bridge would be next to the road, there is a minimum top width of 30 feet required to accommodate the larger farm equipment.
- Gary: Asked if he would need an engineer's report for widening his bridge that is located upstream of the proposed new bridge for Vandenberg.
- Tim: Explained costs would be the owner's responsibility and may be at the discretion of the Municipality as to whether a new engineer's report is required. Should a larger size culvert be required, an engineer's report would need to be prepared for a new access.
- Gary: Mentioned the culvert he is referring to is in good condition.
- Tim: Explained the existing bridge should be part of the municipal drain.
- Gary: Understands and recognizes who benefits is required to pay.
- Tim: New bridges are generally assessed all to the landowner, and future maintenance costs are shared with upstream owners on the drain.
- Tim: Survey work estimated within 2 weeks and the bridge may be installed by late spring 2019 dependent on agency approvals.
- Shane: Location of tile will influence culvert size.
- Gary: Only concern was how the bridge would be assessed.
- Edward: Only concern was regarding the tile that outlets into the drain (that it is not damaged/blocked).
- Gary: Land is not assessed to the Woods Drain, but realistically should be split between the Woods Drain and the 5th Concession (some surface water goes to Woods Drain).
- Edward: Asked how much of his surface water was assessed to the 5th Concession Drain South.
- Tim: Referring to old report, answered 10 Acres.
- Landowner George Vandenberg for the new bridge did not attend the on-site meeting.  
Note: He was subsequently updated and had requested the access be made wider at 40 feet (12 m) instead of 30 feet.

This meeting summary was prepared by Oliver Moir who should be notified of any errors and/or omissions.

**"SCHEDULE C"**  
**SCHEDULE OF ASSESSMENT**  
**5TH CONCESSION ROAD DRAIN SOUTH**  
**VANDENBRINK BRIDGE CONSTRUCTION**  
**TOWN OF AMHERSTBURG**

**PRIVATELY-OWNED - AGRICULTURAL LANDS**

Roll No.	Con.	Description	Area Affected		Owner	Special Benefit	Benefit	Outlet	Total Assessment
			(Acres)	(Ha.)					
580-003-00	5	Pt. Lot 51	5.00	2.02	George & Ruth Vandenbrink	\$20,150.00	\$0.00	\$0.00	\$20,150.00
Total on Privately-Owned - Agricultural Lands.....						\$20,150.00	\$0.00	\$0.00	\$20,150.00
<b>TOTAL ASSESSMENT .....</b>						<b>\$20,150.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$20,150.00</b>
			(Acres)	(Ha.)					
<b>Total Area:</b>			<b>5.00</b>	<b>2.02</b>					

**"SCHEDULE E"**  
**SCHEDULE OF ASSESSMENT**  
**5TH CONCESSION ROAD DRAIN SOUTH**  
**VANDENBRINK BRIDGE FUTURE MAINTENANCE**  
**TOWN OF AMHERSTBURG**

**MUNICIPAL LANDS:**

Description	Area Affected		Owner	Special Benefit	Benefit	Outlet	Total Assessment
	(Acres)	(Ha.)					
Concession 5 South	4.16	1.68	Town of Amherstburg	\$0.00	\$0.00	\$677.00	\$677.00
Total on Municipal Lands.....				\$0.00	\$0.00	\$677.00	\$677.00

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

Roll No.	Con.	Description	Area Affected		Owner	Special Benefit	Benefit	Outlet	Total Assessment
			(Acres)	(Ha.)					
580-024-50	5	Pt. Lot 50	1.38	0.56	Jonathon K. Hills	\$0.00	\$0.00	\$73.00	\$73.00
Total on Privately-Owned - Non-Agricultural Lands.....						\$0.00	\$0.00	\$73.00	\$73.00

**PRIVATELY-OWNED - AGRICULTURAL LANDS**

Roll No.	Con.	Description	Area Affected		Owner	Special Benefit	Benefit	Outlet	Total Assessment
			(Acres)	(Ha.)					
580-003-00	5	Pt. Lot 51	5.00	2.02	George & Ruth Vandenbrink	\$6,000.00	\$0.00	\$82.00	\$6,082.00
580-004-00	4	Pt. Lot 36	8.00	3.24	George H. & Ruth A. Vandenbrink	\$0.00	\$0.00	\$131.00	\$131.00
580-020-00	4	Pt. Lot 37	7.00	2.83	Michael J. & Sandra M. Beneteau	\$0.00	\$0.00	\$229.00	\$229.00
580-021-00	4	Pt. Lot 37	7.00	2.83	Sandra M. Beneteau	\$0.00	\$0.00	\$229.00	\$229.00
580-022-00	4	Pt. Lot 36	10.00	4.05	Bradely J. & Dorothy A. Meloche	\$0.00	\$0.00	\$327.00	\$327.00
580-023-00	4	Pt. Lot 36	10.00	4.05	Edward L. Wright	\$0.00	\$0.00	\$327.00	\$327.00
580-024-00	5	Pt. Lot 50	73.63	29.80	Gary M. & Rose A. Laramie	\$0.00	\$0.00	\$1,925.00	\$1,925.00
Total on Privately-Owned - Agricultural Lands.....						\$6,000.00	\$0.00	\$3,250.00	\$9,250.00

<b>TOTAL ASSESSMENT .....</b>						<b>\$6,000.00</b>	<b>\$0.00</b>	<b>\$4,000.00</b>	<b>\$10,000.00</b>
			(Acres)	(Ha.)					
<b>Total Area:</b>			<b>126.17</b>	<b>51.06</b>					

## **“SCHEDULE F”**

### **NEW FARM BRIDGE ON PT. LOT 51, CONCESSION 5 5<sup>TH</sup> CONCESSION ROAD DRAIN SOUTH Town of Amherstburg County of Essex**

#### **SPECIAL PROVISIONS**

#### **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 and materials** to complete the following items:

- Supply and place a new 21.0 m long, 750 mm diameter corrugated high density polyethylene (HDPE) Boss 2000 culvert, 320 kPA including couplers (see Specifications).
- Supply and placement of clear stone bedding materials, minimum 150 mm thickness (approximately 15 tonnes).
- Supply and placement of Granular 'B' bedding and backfill materials from the pipe invert up to the Granular 'A' driveway material (approximately 240 tonnes).
- Supply and placement of imported clean native backfill material on the culvert ends to construct the 0.50 m wide native buffer strips (approximately 20 m<sup>3</sup>).
- Supply and install Granular 'A' (crushed limestone) compacted driveway surface, minimum 200 mm thickness (approximately 60 tonnes).
- Supply and placement of stone rip-rap minimum 300 mm thickness c/w filter cloth underlay for sloping end walls (approximately 45 m<sup>2</sup>).
- Temporary sediment and erosion control measures.

#### **3.0 ACCESS TO THE WORK**

Access to the drain shall be directly from County Road 20, at the intersection with Concession 5 South and continuing along the existing working corridor along the 5<sup>th</sup> Concession Road Drain South. Through traffic must be maintained at all times along municipal roads with the required traffic control as per Section 13.0 in the General Specifications. All construction materials for the bridge are to be placed on the field side of the road side drains. Any damage resulting from the Contractor's access to the bridge site shall be rectified to pre-existing conditions at his expense.

#### **4.0 WORKING AREA**

The working area at the bridge site shall be restricted to the 9 m (30 feet) wide working corridor along the east side of the drain and including the road allowance for the Concession 5 South provided through traffic is maintained as per Section 13.0 in the General Specifications.

Any damages to lands and/or roads from the Contractor's work within the working areas for the bridge sites shall be rectified to pre-existing conditions at his/her expense.

## 5.0 BRIDGE CONSTRUCTION

### 5.1 Location of New Access Bridge

The new bridge structure shall be installed as shown on the drawing attached hereto.

### 5.2 Materials for New Bridge

Materials shall be as follows:

<i>Culvert Pipe</i>	<i>New 750 mm (30") diameter solid (non-perforated) corrugated High Density Polyethylene (H.D.P.E.) smooth wall interior (Armtex Boss 2000 or approved equivalent) unless otherwise specified conforming to the following specifications: ASTM @3350, CSA B182.8-02 and OPSS 1840. The pipe is to provide a minimum pipe stiffness of 320 kPa. Joined using (soil tight) "split" coupler joining system (Split couplers manufactured by Armtex Limited or approved equal), supplied by the pipe manufacturer and conforming to ASTM D3350, CSA 182.8-02 and OPSS 1840. Joints wrapped in "Non-Woven" geotextile filter fabric with a minimum strength equal to or greater than Terrafix 270R, Amoco 446, Mirafi 140NC or approved equivalent.</i>
<i>Pipe Bedding Below Pipe</i>	<i>20-25 mm clear stone conforming to OPSS Division 10.</i>
<i>Backfill of Pipe Culvert from Invert up to Underside of Granular 'A' Driveway Surface</i>	<i>Granular 'B' conforming to OPSS Division 10. Alternatively, Granular 'A' conforming to OPSS Division 10</i>
<i>Driveway Surface</i>	<i>Granular 'A' made from crushed limestone conforming to OPSS Division 10. Minimum 200 mm thickness.</i>
<i>Erosion Stone</i>	<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>
<i>Buffer Strips</i>	<i>Dry native material free of topsoil, organic matter, broken concrete, steel, wood and deleterious substances.</i>
<i>Filter Fabric</i>	<i>"Non-Woven" geotextile filter fabric with a minimum strength equal to or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC or approved equivalent.</i>

### 5.3 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.

#### **5.4 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.

#### **5.5 Granular 'A' Driveway**

The Contractor shall construct the driveway with a maximum 3% cross-fall grade consisting of a minimum 200 mm thickness of compacted Granular 'A' (crushed limestone) surface. The minimum top width of the driveway shall be as shown on the drawings.

#### **5.6 Native Materials**

Native materials suitable for use as backfill, as defined under Section 5.2, shall be imported as required to complete the work as shown on the drawings, (**Native Backfill Zone only**). Alternatively, the Contractor may elect to use Granular 'A' or 'B' at his/her own expense.

#### **5.7 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.

## **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.

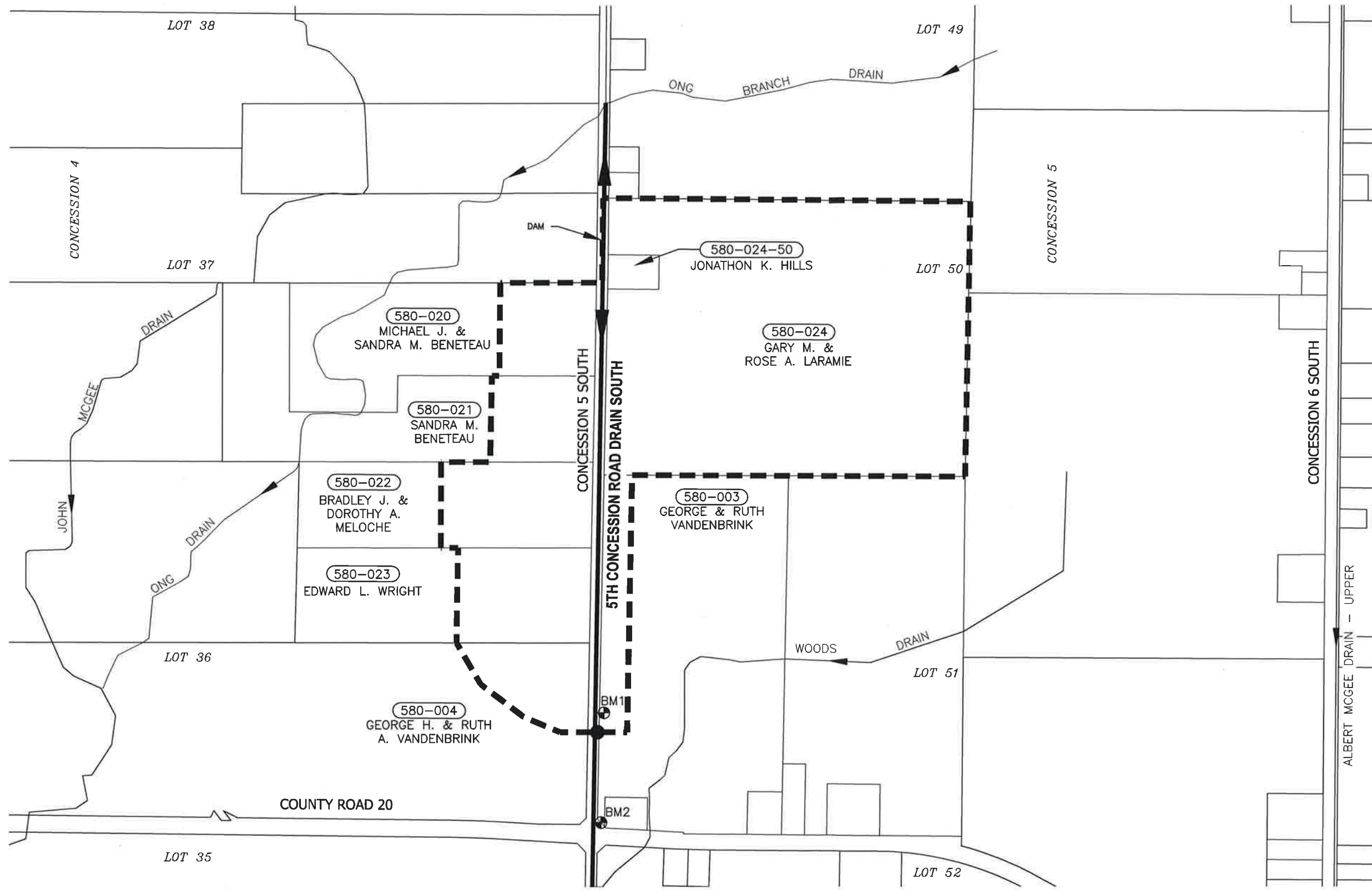
### 16.0 FINAL INSPECTION

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.



**LEGEND**

- 5TH CONCESSION ROAD DRAIN SOUTH DRAINAGE AREA
- 5TH CONCESSION ROAD DRAIN SOUTH
- OTHER DRAINS
- NEW BRIDGE
- LOCAL BENCHMARKS

**OVERALL PLAN**  
SCALE=1:7,500

**'SCHEDULE G'**



**Conditions of Use**  
Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.  
Do not scale dimensions from drawing.  
Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

No.	ISSUED FOR	DATE	BY
2	FINAL SUBMISSION	10 DEC 18	TRO
1	CLIENT REVIEW	20 NOV 18	TRO

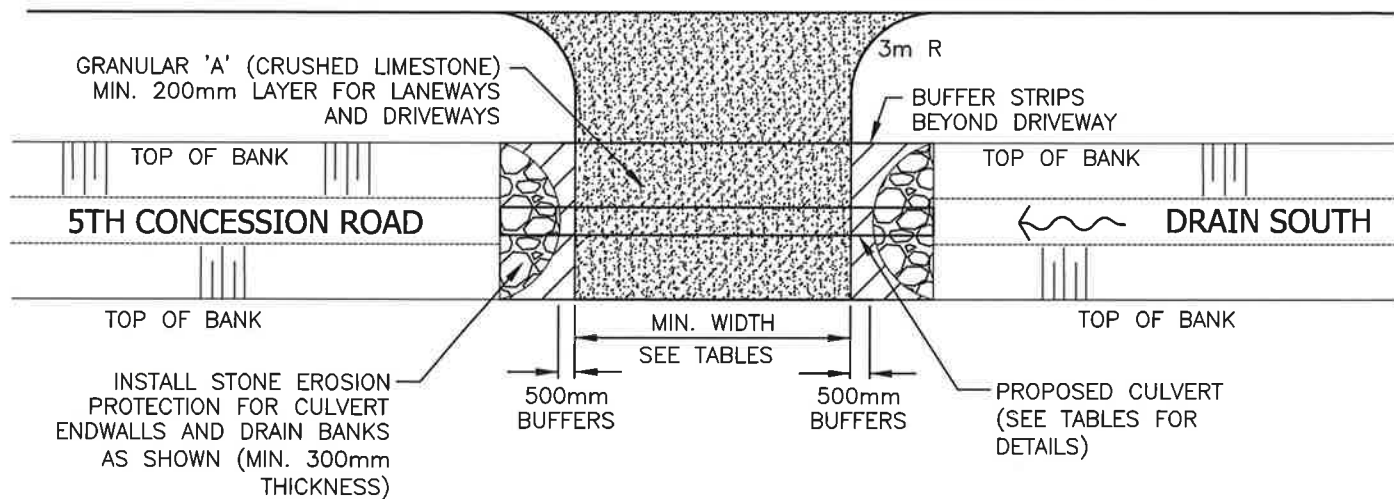
DESIGN	TRO	REVIEWED BY	JJT
DRAWN	OEM	CHECKED BY	EPS
DATE	December 10, 2018		
SCALE	AS SHOWN		

PROJECT NO. 18-8348  
DRAWING SCALES BASED ON A 11" X 17" SHEET

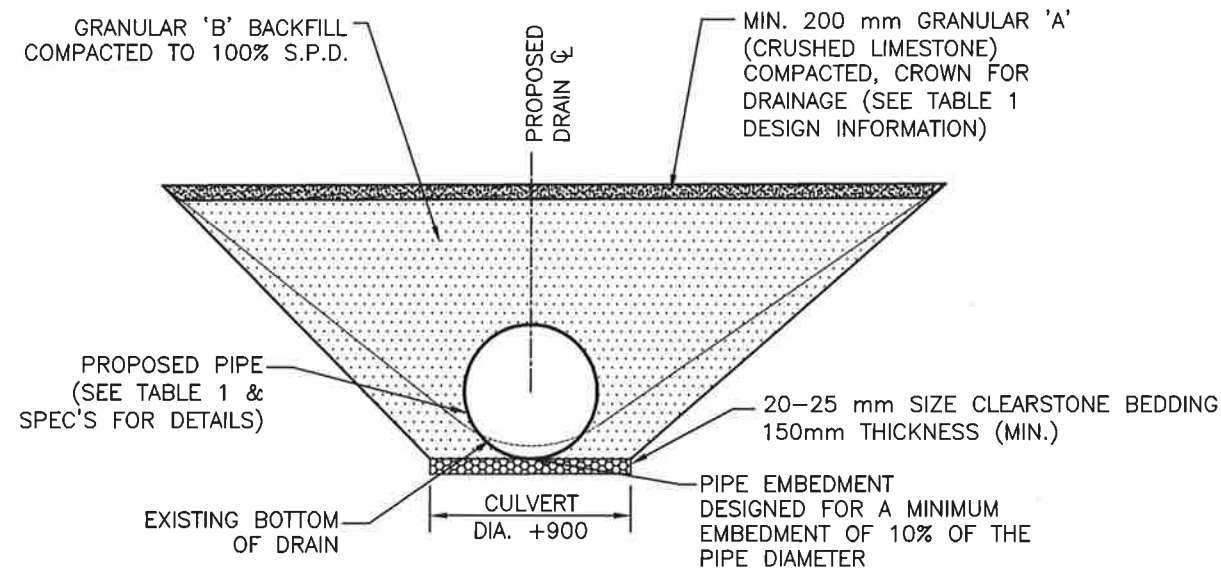
Drainage Report for the  
**5TH CONCESSION ROAD DRAIN SOUTH**  
(VANDENBRINK BRIDGE)  
Town of Amherstburg  
County of Essex

SHEET TITLE **OVERALL PLAN**  
PAGE NO. 1 of 2

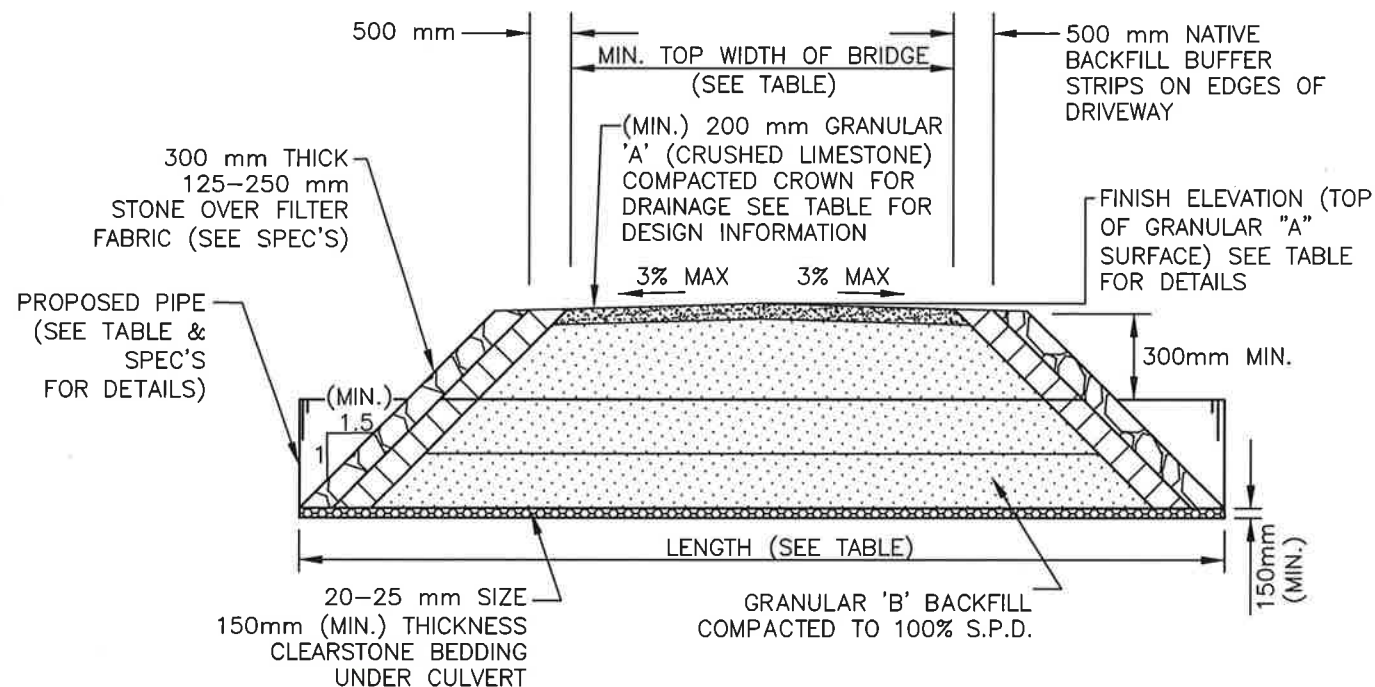
CONCESSION 5 SOUTH



**BRIDGE PLAN**  
N.T.S.



**CROSS SECTION**  
N.T.S.

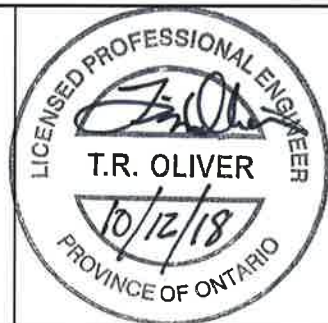


**LONGITUDINAL SECTION**  
N.T.S.

TABLE 1 - ACCESS BRIDGE DESIGN INFORMATION	
DESCRIPTION	BRIDGE DETAILS
PIPE INVERT ELEV. U/S SIDE(m)	176.91
PIPE INVERT ELEV. D/S SIDE(m)	176.81
TOP OF & DRIVEWAY SURFACE ELEV. (m)	179.11
DRAIN BOTTOM (m) (DESIGN) (AT CENTRELINE OF CULVERT)	176.94
MIN. TOP WIDTH OF DRIVEWAY (m)	12.0
MIN. CULVERT GRADE (%)	0.48
CULVERT TYPE	H.D.P.E.
CULVERT MATERIAL	BOSS 2000
CULVERT LENGTH (m)	21.0
PIPE SIZE (mm)	750
CULVERT ENDWALL TYPE	SLOPING STONE

SITE BENCHMARKS	
BM1- TOP OF NAIL ON THE WEST FACE OF HYDRO POLE LOCATED 8m NORTH OF & FOR PROPOSED BRIDGE.	ELEVATION=179.82m
BM2- NORTH WEST CORNER OF THE TOP SURFACE OF CONCRETE BOX CULVERT LOCATED 175m SOUTH OF & OF PROPOSED BRIDGE.	ELEVATION=177.63m

**NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.**



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Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

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SHEET TITLE **BRIDGE DETAILS**  
PAGE NO. **2 of 2**

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