COURT OF REVISION - AGENDA

Pursuant to the Drainage Act, R.S.O. 1990

Monday, February 27, 2017, 6:30 PM
Council Chambers
2021 Division Road N
Kingsville, Ontario N9Y 2Y9

Pages

A. CALL TO ORDER

B. DISCLOSURE OF PECUNIARY INTEREST

When a member of the Court has any pecuniary interest, direct or indirect, in any matter which is the subject of consideration at this Court of Revision (or that was the subject of consideration at the previous Court of Revision at which the member was not in attendance), the member shall disclose the pecuniary interest and its general nature, prior to any consideration of the matter.

C. ORDER OF APPEALS OF ASSESSMENTS 1

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

K. Vegh, Drainage Superintendent and A. Peralta, P. Eng.

i) Notice of Sitting of Court of Revision, dated January 27, 2017

ii) Excerpt of the Report Consideration Minutes, dated January 9, 2017

iii) By-law 2-2017, being a by-law to provide for the construction of a bridge over the Graham Sideroad Drain; Owner: Roger and Gloria Congdon (510-00800), in the Town of Kingsville, in the County of Essex, provisionally adopted on January 9, 2017 including Schedule of Assessment;

iv) Engineer's Report, dated November 7, 2016.

Recommended Action
Council approve the Schedule of Assessment for the Bridge over the Graham Sideroad Drain (for Roger and Gloria Congdon; 510-00800; in the Town of Kingsville), and read By-law 2-2017 a third and final time at a future meeting.

D. CLOSE COURT OF REVISION

2021 Division Road North
Kingsville, Ontario N9Y 2Y9
(519) 733-2305
www.kingsville.ca
kingsvilleworks@kingsville.ca

Notice of Sitting of Court of Revision
Drainage Act, R.S.O. 1990, c. D. 17, subs. 46(1) and (2)

Re: Graham Sideroad Drain

Take notice that your property is assessed for the construction and/or improvement of the above mentioned drainage works under section 78 of the *Drainage Act*. Attached is a provisional by-law exclusive of the engineer's report. Details of your assessment are contained in the engineer's report dated November 7, 2016, which has been previously sent to you or is available at the municipal office.

An owner of land assessed for the drainage works may appeal to the Court of Revision on any of the following grounds:

- Any land or road has been assessed an amount that is too high or too low;
- Any land or road that should have been assessed has not been assessed; and/or
- Due consideration has not been given to the use being made of the land.

Pursuant to section 52(1) of the *Drainage Act*, objections or appeals to the assessment must be forwarded in writing, to the **attention of the Clerk**, at least ten (10) days prior to the date of the Court of Revision.

The Court of Revision will take place:

Monday, February 27th, 2017 at 6:30 p.m.
Town of Kingsville Municipal Office
2021 Division Road North, Kingsville

DATED at the Town of Kingsville the 27th day of January, 2017.

Ken Vegh

Ken Vegh, CRS
Drainage Superintendent
Municipal Services Department
The Corporation of the Town of Kingsville

Right of Appeal – Any owner of land or public utility affected by the above mentioned drainage works may appeal to the Referee regarding legal issues or the Agriculture, Food and Rural Affairs Appeal Tribunal regarding technical issues within forty (40) days of the sending of this notice. *Drainage Act*, R.S.O. 1990, c. D. 17, subs. 47(1) and 48(1).

The Corporation of the Town of Kingsville

Excerpt from the Regular Meeting of Council Minutes, dated January 9, 2017

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

F. MATTERS SUBJECT TO NOTICE

1. Engineer's Report Consideration - N. J. Peralta Engineering Ltd.

Engineer Peralta presented the Engineer's Report. There were no questions or comments from anyone in attendance in the audience.

1-2017
Moved by Deputy Mayor Gord Queen
Seconded by Councillor Larry Patterson

Council adopt Engineer's Report prepared by N. J. Peralta Engineering Ltd. dated November 7, 2016 (Project No. D-15-015), read By-law 2-2017, being a by-law to provide for the construction of a bridge over the Graham Sideroad Drain; Owner: Roger and Gloria Congdon (510-00800) in the Town of Kingsville, in the County of Essex a first and second time; and schedule Court of Revision for a future date

CARRIED

THE CORPORATION OF THE TOWN OF KINGSVILLE

BY-LAW 2-2017

Being a by-law to provide for the construction of a bridge over the Graham Sideroad Drain Owner: Roger & Gloria Congdon [510-00800] in the Town of Kingsville, in the County of Essex

WHEREAS the Council of the Town of Kingsville, in the County of Essex, has procured a report under section 78 of the *Drainage Act* for the bridge construction over the Graham Sideroad Drain;

AND WHEREAS the report dated November 7th, 2016 has been authored by Antonio B. Peralta, P. Eng. and the attached report forms part of this by-law;

AND WHEREAS $27,998.00 is the amount to be contributed by the Town of Kingsville for the drainage works;

AND WHEREAS Council is of the opinion that the report of the area is desirable;

THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWN OF KINGSVILLE, PURSUANT TO THE DRAINAGE ACT 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 Kingsville may borrow on the credit of the Corporation the amount of $27,998.00 being the amount necessary for the completion of the drainage works.

3. **DEBENTURES**
   The Corporation may arrange for the issue of debenture(s) on its behalf 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 2 (two) or 5 (five) years (as determined by the Director of Financial Services or designate) from the date of the debenture(s) and shall bear interest at a rate not higher than 2% more than the municipal lending rates as posted by Infrastructure Ontario 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 2 (two) or 5 (five) years (as determined by the Director of Financial Services or designate) after the passing of this by-law.

   2) For paying the amount $27,998.00 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 Kingsville in each year for 2 (two) or 5 (five) years (as determined

by the Director of Financial Services or designate) 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 $100.00 or less are payable in the first year in which the assessments are imposed.

5. SCHEDULE OF ASSESSMENTS OF LAND AND ROADS

CONSTRUCTION SCHEDULE OF ASSESSMENT

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

~~**(For Roger and Gloria Congdon (510-00800), Part of Lot 19, Concession 8)**~~

TOWN OF KINGSVILLE

3. MUNICIPAL LANDS:

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Owned	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
Graham Sideroad				5.26	2.129	Town of Kingsville	$ -	$ 1,036.00	$ -	$ 1,036.00
Road 8 East				1.49	0.603	Town of Kingsville	$ -	$ 293.00	$ -	$ 293.00
Total on Municipal Lands.....							**$ -**	**$ 1,329.00**	**$ -**	**$ 1,329.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Owned	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
510-00800	8	19	0.91	0.30	0.121	Roger & Gloria Congdon	$ 20,159.00	$ 30.00	$ -	$ 20,189.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ 20,159.00**	**$ 30.00**	**$ -**	**$ 20,189.00**

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

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
510-01100	8	19	96.25	91.00	36.827	Andrew & Hildegarde Von Flotow	$ -	$ 3,258.00	$ -	$ 3,258.00
510-01200	8	19	101.09	90.00	36.423	Walter & Marlene Dick	$ -	$ 3,222.00	$ -	$ 3,222.00
Total on Privately Owned - Agricultural Lands (grantable).....							**$ -**	**$ 6,480.00**	**$ -**	**$ 6,480.00**
TOTAL ASSESSMENT				188.05	76.103		**$ 20,159.00**	**$ 7,839.00**	**$ -**	**$ 27,998.00**

==========

1 Hectare = 2.471 Acres
D15-015
November 7th, 2016

6. CITATION

This by-law comes into force on the passing thereof and may be cited as the "Bridge over the Graham Sideroad Drain – Roger & Gloria Congdon [510-00800]" by-law.

READ A FIRST AND SECOND TIME AND PROVISIONALLY ADOPTED THIS 9th DAY OF JANUARY, 2017.

MAYOR, Nelson Santos

CLERK, Jennifer Astrologo

READ A THIRD TIME AND FINALLY PASSED ON THIS DAY OF , 2017.

MAYOR, Nelson Santos

CLERK, Jennifer Astrologo

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

(for Roger and Gloria Congdon (510-00800),
Part of Lot 19, Concession 8)
(Former Geographic Township of Gosfield North)
TOWN OF KINGSVILLE

N. J. Peralta Engineering Ltd.
Consulting Engineers
45 Division St. N., Kingsville, Ontario N9Y 1E1
Tel. (519) 733-6587

Project No. D-15-015

November 7th, 2016

Mayor and Municipal Council
Corporation of the Town of Kingsville
2021 Division Road North
Kingsville, Ontario
N9Y 2Y9

Mayor Santos and Members of Council:

SUBJECT: BRIDGE OVER THE GRAHAM SIDEROAD DRAIN
(for Roger and Gloria Congdon (510-00800),
Part of Lot 19, Concession 8)
(Former Geographic Township of Gosfield North)
Town of Kingsville, County of Essex
Project No. D-15-015

I. INTRODUCTION

In accordance with the instructions received by letter of June 29th, 2015 from the Drainage Superintendent, Mr. Ken Vegh, we have prepared the following report to provide for the construction of a replacement access bridge in the Graham Sideroad Drain. These investigations were initiated by resolution passed by Council for our firm to undertake the preparation of an Engineer's Report for the replacement of an existing residential access bridge within this drain, in accordance with the Drainage Act. The plan showing the Graham Sideroad Drain alignment, the general location of the subject access bridge, and the lands affected within the general watershed area of the drain, are included herein as part of this report.

The request to provide an Engineer's Report for the replacement of the existing access bridge, serving their lands, was made by Roger and Gloria Congdon (510-00800).

Our appointment and the works related to the replacement of the above mentioned access bridge in the Graham Sideroad Drain, proposed under this report, is in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010". We have performed all of the necessary survey, investigations, etc., for the proposed bridge, as well as the Graham Sideroad Drain, and we report thereon as follows.

Report – Bridge Over the Graham Sideroad Drain (Congdon)
Town of Kingsville - D-15-015

II. BACKGROUND

A review of the Town of Kingsville's drainage records indicate that there are various Municipal Drains along the Graham Sideroad, identified as the Graham Sideroad Drain. The Graham Sideroad Drain, in which the subject access bridge resides within, is situated along the east side of the Graham Sideroad where its top end is located at the north limit of Road 8 East and continues northerly and downstream to a point near the midpoint of Concession 9, where this drain then turns east and outlets to the Ruscom River, all of which is within Lot 19. The subject Graham Sideroad Drain is an existing Municipal Drain that has been repaired and improved on a number of previous occasions under the provisions of the Drainage Act. The last major works of repair and improvements carried out on the subject Graham Sideroad Drain was completed under an Engineer's Report prepared by W.J. Setterington, P.Eng., dated March 16th, 1971. The works conducted within this report consisted of drain excavation and deepening, together with brushing and grubbing, adjacent to the portion along the Graham Sideroad. This report also provided for the lowering of the subject access bridge within this drain.

From our detailed research of the above mentioned Engineer's Report, we have determined that generally speaking, the residential access bridge proposed to be replaced under this report, within the Graham Sideroad Drain, has been referred to under the previous by-law. Therefore, this access bridge is considered a legal entity with respect to this Municipal Drain. As a result, it is eligible to have the cost for its replacement, be shared with the lands and roads within the drainage watershed contributing their runoff into the drain, upstream of said access bridge structure.

III. PRELIMINARY INVESTIGATIONS AND ON-SITE MEETING

After reviewing all of the available drainage information and documentation provided by the Drainage Superintendent, we arranged for an on-site meeting to be scheduled for September 11th, 2015. The following people were in attendance at said meeting: Howard Brackell, Roger Congdon, Gloria Congdon, Tom Congdon, Mark VanBelle, Ken Vegh (Drainage Superintendent) and Tony Peralta (N.J. Peralta Engineering Ltd.).

Mr. Vegh introduced himself, as well as others, and generally advised that a written notice has been submitted by Roger and Gloria Congdon (510-00800), for the replacement of the existing residential access bridge to the subject lands. The Congdon's confirmed the need to replace the existing access bridge, as the existing culvert is in poor condition.

The Owners were advised that the minimum standard top width of driveway is 6.10 metres (20 ft.). The Owners were further advised that if this access bridge is a legal entity within this

drain, the replacement of this access bridge would be subject to cost sharing with upstream lands and roads. Furthermore, if the Owners wish to provide a top width wider than the standard 6.10 metres (20 ft.), the additional cost for providing a wider top width, shall be assessed 100% to the abutting Owner. We further discussed the options of sloped quarried limestone end treatments versus concrete filled jute bag headwalls. We further established that the final design may be governed by the requirements of the Department of Fisheries and Oceans (D.F.O.), the Essex Region Conservation Authority (E.R.C.A.) and the Ministry of Natural Resources and Forestry (M.N.R.F.). With this information the Congdon's advised that a standard 6.10 metres (20 ft.) top width would be sufficient for their needs and that they would prefer to have a vertical headwall end treatment, if at all possible.

The Owners were advised that this replacement access bridge is subject to the approvals and mitigations measures of the D.F.O., E.R.C.A., and the M.N.R.F.

The overall Drainage Report and future maintenance processes, along with cost sharing and grant eligibility were generally reviewed with the landowners present. They were also advised that it would be likely that the works in this drain were not to be undertaken between March 15th and June 30th, unless otherwise permitted by D.F.O., E.R.C.A. and the M.N.R.F.

At the conclusion of our discussions, we advised the Congdon's that we would contact them, prior to the preparation of our Engineer's Report, to review the details of the replacement access bridge.

IV. FIELD SURVEY AND INVESTIGATIONS

Following the on-site meetings and discussions with the Owners, we arranged for our Survey Crew to attend the site and perform a topographic survey, including taking the necessary levels and details, to establish the design parameters for the installation of this replacement bridge. Benchmarks were looped from previous work carried out on the drain and were utilized in establishing a site benchmark near the location of the bridge replacement. The survey work included picking up all of the details in the vicinity of the existing access bridge. We also surveyed the drain for a considerable distance both upstream and downstream of the subject access bridge, in order to establish a design grade profile for the installation of same. We also took cross-sections of the Graham Sideroad Drain at the general location of the proposed bridge, as necessary, for us to complete our design calculations, estimates and specifications.

With respect to the Endangered Species Act 2007, the Ministry of Natural Recourses and Forestry (M.N.R.F.) Municipal Drain Agreements, under Section 23 of the this Act, with the Municipality have expired as of June 30th, 2015. New regulation

provisions have replaced these existing Drain Agreements under Ontario Regulation 242/08, Section 23.9 which allows the Municipality to conduct repairs, maintenance, and improvements, within existing Municipal Drains, under the Drainage Act to be exempt from Section 9 and 10 of the Endangered Species Act, so long as the rules in the regulation are followed. If eligible, the regulatory provision allows Municipalities to give notice to the Ministry by registering their drainage activities through an online registry system.

Following the on-site meeting, we engaged in email correspondence with the E.R.C.A., regarding their preliminary comments which pertain to this project.

For the purpose of establishing the watershed area upstream of the subject access bridge location, and determining the pipe size required for same, we investigated and reviewed the Engineer's Report on the Graham Sideroad Drain prepared by W.J. Setterington, P.Eng., dated March 16th, 1971. We also carried out a review of the watershed limits utilizing the most recent Engineer's Report for the Lovelace Drain and the Orton Drain, and further conducted a site visit to review the adjacent lands to verify the contributing watershed area into the Graham Sideroad Drain. All of the above investigations not only provided us with the correct watershed area affecting the size of the subject access bridge, but also provided us with the accurate information to assist us with the preparation of our Construction Schedule of Assessment for this project.

V. FINDINGS AND RECOMMENDATIONS

E.R.C.A, D.F.O. AND M.N.R.F. CONSIDERATIONS

During the course of our investigations, this drainage project was discussed and reviewed in detail with Ms. Cynthia Casagrande, of the E.R.C.A., to address any E.R.C.A. issues and comments related to this Municipal Drain. The Graham Sideroad Drain is located within the regulated area and is under the jurisdiction of the E.R.C.A., and therefore an E.R.C.A. Permit is required for the construction of the replacement access bridge structure. Further to the above, the E.R.C.A. provided us with their comments and concerns through email correspondence, and said email is included herein as part of **Appendix "A"**.

With respect to the Department of Fisheries and Oceans (D.F.O.) concerns and comments, due to the amendments to the Fisheries Act that came into effect, the partnership agreement between D.F.O. and E.R.C.A. has lapsed as of November 25th, 2013. As a result, the proposed works in the Graham Sideroad Drain was "Self Assessed" by the Engineer, through the D.F.O. website to determine whether this project shall be reviewed by D.F.O. Based on the D.F.O. Self Assessment website, we have determined that the project activities would not require a D.F.O. review

for the works proposed under this project, so long as standard measures for fish habitat and migration are implemented. Further to the above, D.F.O. has prepared a "Best Management Practices – Culvert Replacements in Municipal Drains" document, and said document is included herein as part of **Appendix "A"**.

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

In recognition of impact that these species may experience as a result of the subject works, the Town of Kingsville has provided comprehensive mitigation measures as well as species identification guides for reference. These references shall be provided to the successful Tenderer and shall be available for viewing at the Municipal Office for those interested.

Through correspondence with Cynthia Casagrande, of the E.R.C.A., the Self Assessment and the Best Management Practices document through D.F.O., along with the mitigation measures through the Endangered Species Act, we have provided for all of the E.R.C.A., D.F.O., and M.N.R.F. concerns and issues in our design and recommend that this drainage works be constructed in total compliance with all of the above.

NEW ACCESS BRIDGE STRUCTURE

Prior to the preparation of our report, we discussed and further reviewed the details of the bridge replacement with Mr. Roger Congdon. We confirmed that the replacement access bridge shall be centred over the existing driveway utilizing a vertical headwall end treatment. Based on our evaluation of the existing watershed, drain grades, and embedment requirements, we determined that the replacement access bridge culvert shall require a slight increase in culvert size. Mr. Congdon accepted our recommendations and confirmed that they wished to proceed with the installation of the new access bridge as per our discussions. This report and the works proposed herein have been prepared on that basis.

Based on our detailed survey, investigations, examinations, and discussions with the affected property owner, we recommend that the existing access bridge be replaced with a new structure, in the Graham Sideroad Drain, at the location and to the general parameters established in our design drawings attached herein. As a result, the existing access bridge will be replaced with approximately 8.0 metres of 1600mm diameter, aluminized steel corrugated pipe, with concrete filled jute bag headwalls. This application will result in travelled driveway width of 6.24 metres (20.47 ft.)

Report – Bridge Over the Graham Sideroad Drain (Congdon)
Town of Kingsville - D-15-015

As previously mentioned herein, we find that the existing subject access bridge, which was referred to within the Engineer's Report prepared by W.J. Setterington, P.Eng., dated March 16th, 1971, and serves as the primary access to the subject residential lands, within the Graham Sideroad Drain. We find that this existing access bridge is in poor state and generally unsafe, and recommend that this be replaced in its entirety. Based on the above, we find that the existing access bridge is a legal entity with respect to the Graham Sideroad Drain and therefore, the costs for the standard access bridge top width be shared by the adjoining bridge owners and the lands and road within the watershed, located upstream of same.

Based on all the above, we therefore recommend that the replacement access bridge to be constructed in the Graham Sideroad Drain is to serve as the primary access for the existing residential lands owned by Roger and Gloria Congdon (510-00800), in Part of Lot 19, Concession 8, in accordance with this report, the attached specifications and the accompanying drawings, and that all works associated with same be carried out in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010".

VI. ESTIMATE OF COST

Our estimate of the total cost of this work including all incidental expenses is the sum of **TWENTY SEVEN THOUSAND NINE HUNDRED NINETY EIGHT DOLLARS ($27,998.00),** made up as follows:

CONSTRUCTION

Item 1)	Excavate, completely remove and dispose of the existing access bridge culvert and endwalls; provide all labour, equipment and materials to construct a new access bridge consisting of 8.0 metres (26.25 ft.) of 1600mm diameter, 2.0mm thick, Aluminized Steel Type II Corrugated Hel-Cor pipe with annular ends and 125mm x 25mm corrugation profile, including concrete filled jute bag headwalls, granular bedding and backfill, granular driveway approach, excavation, compaction, cleanup and restoration, complete.	Lump Sum	$ 18,500.00
Item 2)	Net H.S.T. for above item. (1.76%)		$ 326.00
	TOTAL FOR CONSTRUCTION		**$ 18,826.00**

Report – Bridge Over the Graham Sideroad Drain (Congdon)
Town of Kingsville - D-15-015

INCIDENTALS

1)	Report, Estimate, and Specifications	$ 3,100.00
2)	Survey, Assistants, Expenses, and Drawings	$ 3,000.00
3)	Duplication Cost of Report and Drawings	$ 300.00
4)	Estimated Cost of Preparing Tender Documents, and Tender Process on an Invitation Basis, and Tender Review	$ 800.00
5)	Estimated Cost of Providing Supervision and Full-Time Inspection During Construction (Based on a 2 Day Duration)	$ 1,700.00
6)	Estimated Net H.S.T. on above items (1.76%)	$ 157.00
7)	Estimated Cost for E.R.C.A. Permit	$ 115.00
	TOTAL FOR INCIDENTALS	**$ 9,172.00**
	TOTAL FOR CONSTRUCTION (brought forward)	**$ 18,826.00**
	TOTAL ESTIMATE	**$ 27,998.00**

VII. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached a design drawing for the replacement of the existing access bridge in the Graham Sideroad Drain. The design drawing shows the alignment of the Graham Sideroad Drain, the approximate location of the replacement access bridge. The plans also illustrate the affected landowners and the approximate limits of the drain watershed, and the details related to the various improvements to the subject access bridge, where applicable. The design drawings are attached to the back of this report and are labelled **Appendix "C"**.

Also attached, we have prepared Specifications which set out the required construction details for the proposed bridge installation, which also include Standard Specifications labelled therein as **Appendix "B"**.

VIII. CONSTRUCTION SCHEDULE OF ASSESSMENT

We would assess the above estimated costs for the works proposed under this report against the affected lands and road as shown in the attached **Construction Schedule of Assessment.** In general terms, the lands and roads included in the Construction Schedule

of Assessment are those that exist upstream of the access bridge site and use the Graham Sideroad Drain for drainage purposes.

The estimated construction cost plus incidental costs for same shall be shared between the bridge user and all of the lands and roads that exist upstream of said access bridge site and use the Graham Sideroad Drain for drainage purposes. The sharing percentage between the bridge user and the upstream lands and roads affected by said bridge have been established on the basis of where it is located relative to the entire reach of the drain. The bridge user's share is assessed within the Construction Schedule of Assessment as a Benefit Assessment and the affected upstream Owners' share for a standard top width access bridge is assessed as an Outlet Assessment.

We would therefore recommend that all of the costs associated with the access bridge replacement included under this report be charged against the lands and roads affected in accordance with the attached Construction Schedule of Assessment included herein. Lands which are used for agricultural purposes have been listed in the Schedule of Assessment under Subheading "**5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable)**". In general the lands and roads included in this Schedule of Assessment are all those lying upstream and northwesterly of the subject bridge.

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 Municipal Clerk has provided this information to the Engineer from the current property tax roll. Properties that meet the criteria for "lands used for agricultural purposes" are shown in the attached Assessment Schedule 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 recommend that the Municipality make an Application for Grants to O.M.A.F.R.A. in accordance with Section 88 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010" for any grants that may be available for this project. The Ministry is continually reviewing their policy for grants, and 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.

It should be noted that the attached Construction Schedule of Assessment is to be utilized for the sharing of the costs related to the construction works being provided for under this report and this Construction Schedule of Assessment shall be utilized for the sharing of any future maintenance works conducted to the bridge replaced under this report.

IX. FUTURE MAINTENANCE

After the completion of the construction of this replacement bridge, all of same shall be maintained in the future by the Town of Kingsville.

Furthermore, if any maintenance work is required in the future to this access bridge, we wish to establish that 72.0% of the future maintenance costs be assessed as a Benefit against the abutting property being served by the access bridge, which is currently owned by Roger and Gloria Congdon (510-00800), in Part of Lot 19, Concession 8, and that the remaining 28.0% of the future maintenance cost shall be assessed against the lands and road lying upstream of the bridge site, within the drain watershed. The future maintenance costs are to be assessed to the lands and roads in the same proportions as the assessment charges shown in the Construction Schedule of Assessment contained within this report, or as per subsequent amendments made thereto under the Drainage Act.

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

The above provisions for the future maintenance of this replacement bridge, being constructed under this report, shall

Report - Bridge Over the Graham Sideroad Drain (Congdon)
Town of Kingsville - D-15-015

remain as aforesaid until otherwise determined under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010".

All of which is respectfully submitted.

N. J. PERALTA ENGINEERING LTD.

Antonio B. Peralta, P.Eng.

ABP/ab

Att.

N. J. PERALTA ENGINEERING LTD.
Consulting Engineers
45 Division Street North
KINGSVILLE, Ontario
N9Y 1E1

CONSTRUCTION SCHEDULE OF ASSESSMENT

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

(For Roger and Gloria Congdon (510-00800), Part of Lot 19, Concession 8)

TOWN OF KINGSVILLE

3. MUNICIPAL LANDS:

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Owned	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
Graham Sideroad				5.26	2.129	Town of Kingsville	$ -	$ 1,036.00	$ -	$ 1,036.00
Road 8 East				1.49	0.603	Town of Kingsville	$ -	$ 293.00	$ -	$ 293.00
Total on Municipal Lands.....							**$ -**	**$ 1,329.00**	**$ -**	**$ 1,329.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Owned	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
510-00800	8	19	0.91	0.30	0.121	Roger & Gloria Congdon	$ 20,159.00	$ 30.00	$ -	$ 20,189.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ 20,159.00**	**$ 30.00**	**$ -**	**$ 20,189.00**

19

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

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
510-01100	8	19	96.25	91.00	36.827	Andrew & Hildegarde Von Flotow	$ -	$ 3,258.00	$ -	$ 3,258.00
510-01200	8	19	101.09	90.00	36.423	Walter & Marlene Dick	$ -	$ 3,222.00	$ -	$ 3,222.00
Total on Privately Owned - Agricultural Lands (grantable).....							**$ -**	**$ 6,480.00**	**$ -**	**$ 6,480.00**
TOTAL ASSESSMENT				188.05	76.103		**$ 20,159.00**	**$ 7,839.00**	**$ -**	**$ 27,998.00**

==========

1 Hectare = 2.471 Acres

D15-015

November 7th, 2016

SPECIFICATIONS

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

(for Roger and Gloria Congdon (510-00800),

Part of Lot 19, Concession 8)

(Former Geographic Township of Gosfield North)

TOWN OF KINGSVILLE

I. GENERAL SCOPE OF WORK

The Contractor is advised that the work proposed under this project consists of the replacement of an existing access bridge within the Graham Sideroad Drain, serving the lands of Roger and Gloria Congdon (510-00800). The scope of work to be provided under this project shall include, but not necessarily be limited to the following: the removal and replacement of existing 1524mm diameter corrugated steel culvert with a new 1600mm diameter corrugated steel culvert, together with new concrete filled jute bag headwall endwall protection, granular approach and backfill, all ancillary work clean-up and restoration required. The proposed work, is intended to address the replacement of the existing access bridge and provide a 6.24 metres (20.47 ft.) traveled driveway top width and all of the work necessary for completion to the satisfaction of the Drainage Superintendent or Consulting Engineer.

All work shall be carried out in accordance with these specifications, comply in all regards with **Appendix "A"**, as well as the Standard Details included in **Appendix "B"**. The works shall also be carried out in accordance with the plan labelled herein as **Appendix "C"**. The bridge shall be of the size, type, depth, etc., as shown in the accompanying drawing, as determined from the **Bench Mark**, and as may be further laid out at the site at the time of construction. All work carried out under this project shall be completed to the full satisfaction of the Town Drainage Superintendent and the Consulting Engineer.

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

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

All of the work shall be carried out in accordance with any permits or authorizations issued by the Essex Region Conservation Authority (E.R.C.A.) or the Department of Fisheries and Oceans (D.F.O.), copies of which will be provided, if available. The Contractor is advised that work shall not be carried out in the existing drain from March 15th to June 30th of any given year.

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

a) As per standard requirements, work will not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work will be done in the dry.

b) All disturbed soils on the drain banks and within the channel, including spoil, must be stabilized immediately upon completion of work. The restoration of the site must be completed to a like or better condition to what existed prior to the works. The spoil material must be hauled away and disposed of at a suitable site, or spread an appropriate distance from the top of the drain bank to ensure that it is not washed back into the drain.

c) To prevent sediment entry into the drain, in the event of an unexpected rainfall, silt barriers and/or traps must be placed in the channel during the works and until the site has been stabilized. All sediment and erosion control measures are to be in accordance with related Ontario Provincial Standards. It is incumbent on the proponent and its Contractors to ensure that sediment and erosion control measures are functioning properly and are maintained/upgraded as required.

d) Silt or sand accumulated in the barrier traps must be removed and stabilized on land once the site is stabilized.

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

Not only shall the Contractor comply with all of the above, it shall also be required to further comply with any of the mitigation measures included within the emails from Cynthia Casagrande, of the E.R.C.A., included within these specifications under **Appendix "A"**. Furthermore, the Contractor shall also review and comply with the "Best Management Practices – Culvert Replacements in Municipal Drains" document prepared by the D.F.O. and included within **Appendix "A"**.

Specifications - Bridge Over the Graham Sideroad Drain (Congdon) Town of Kingsville - D-15-015

III. M.N.R.F. CONSIDERATIONS

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

Prior to commencing work, The Town of Kingsville will complete an "Endangered Species Act Review" for the Graham Sideroad Drain and will provide the Contractor with the results of said review, including Town documents for the purpose of identification of known species at risk within the project area and mitigation measures for species and habitat protection. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all species at risk and their habitats throughout the course of construction.

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

IV. ACCESS TO WORK AND TRAFFIC CONTROL

The Contractor is advised that all of the work to be carried out on this project extends along the Graham Sideroad. The Contractor may utilize the full road right-of-way as necessary to carry out its operations ensuring that the travelling public is protected at all times. Accordingly, the Contractor will be required to carry out all of the necessary steps to direct traffic and the public and provide temporary diversion of traffic around the work site including provisions of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public.

It is expected that the Contractor shall not require that the Graham Sideroad be closed when carrying out the necessary work; however, if the Contractor prefers to close the road, **it may not do so unless it receives approval from the Town of Kingsville and County of Essex Road Superintendents**. In any case, the Contractor shall provide all necessary lights, signs, and barricades to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. If a road closure is allowed, all road closures signs and traffic control signs shall be required on this project at the Contractor's expense, and shall ensure that all emergency services, school

bus companies, etc. are contacted about the disruption at least 48 hours of same. All signage is to comply with the Ontario Traffic Manual's Book 7 for Temporary Conditions. Regardless of the traffic control methods used, a suitable Traffic Control Plan must be submitted to the Town of Kingsville and the County of Essex for approval prior to commencing any work within the road right-of-way.

Once it has completed all of the works required under this project, the Contractor shall clean up and restore all lands affected by its works to the full satisfaction of the Owners, the Town Drainage Superintendent and the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused.

The Contractor shall note that any deviation from the above mentioned accesses for the construction of the access bridge without the explicit approval of the adjacent landowners, the Town Drainage Superintendent, and the County of Essex could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Town Drainage Superintendent and the Consulting Engineer, and be subsequently deducted from the Contract Price.

V. REMOVAL OF BRUSH, TREES AND RUBBISH

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

The Contractor shall protect all other trees, bushes, and shrubs located along the length of the drainage works. Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it

shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

VI. DETAILS OF BRIDGE WORK

The Contractor shall provide all material, labour and equipment to replace and improve the existing access bridge for Roger and Gloria Congdon (510-00800), within the Graham Sideroad Drain.

The existing corrugated steel pipe slated to be removed for the access bridge shall be replaced with a new Aluminized Steel Type II Corrugated Hel-Cor Pipe with rolled annular ends, as shown and detailed on the plan, with the pipe to have a minimum thickness and the corrugation profile shown.

When complete, the access bridge along the centreline of the new culvert shall have total top width, including the top width of the sloped quarried limestone endwalls, of approximately 7.16m (23.49 ft.) and a travelled driveway width of 6.24m (20.47 ft.). The concrete filled jute bag headwall end treatments shall be installed on a slope no steeper than 1.00 horizontal to 5.00 vertical, and shall extend from the end of the new Aluminized Steel Type II Corrugated Hel-Cor Pipe to the top elevation of the driveway.

The culvert replacement on this project shall be set to the grades as shown on the plans or as otherwise established herein and the Town Drainage Superintendent or the Consulting Engineer may make minor changes to the bridge alignment as they deem necessary to suit the site conditions. All work shall be carried out in general accordance with the **"STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES"** attached to this specification and labelled **Appendix "B"**.

VII. CORRUGATED STEEL PIPE INSTALLATION

The new corrugated steel pipe to be installed on this project, is required to be provided as one (1) continuous length wherever possible; however, where it is absolutely necessary, and only with the approval of the Town Drainage Superintendent or the Consulting Engineer, the Contractor may be allowed to utilize two (2) approximately equal lengths of pipe coupled together with an Aluminized Steel Type II 10C bolted coupler of equivalent thickness. The corrugated steel pipe for this installation must be approved by the Town Drainage Superintendent or the Consulting Engineer prior to its placement in the drain.

The Contractor shall also note that the placement of the new access bridge culvert is to be performed totally in the dry, and it shall be prepared to take whatever steps are necessary to

ensure same, all to the full satisfaction of the Town Drainage Superintendent or Consulting Engineer. As part of the work, the Contractor will be required to clean out the drain along the full length of the bridge pipe and for a distance of 3.05 metres (10.00 ft.) both upstream and downstream of said pipe. The design parameters of the Graham Sideroad Drain at the location of this replacement access bridge installation consists of a 0.91m (3.00 ft.) bottom width, 0.05% grade, and 1.50 horizontal to 1.00 vertical sideslopes. The Contractor shall be required to cut any brush and denude the existing drain sideslopes of any vegetation as part of the grubbing operation. The Contractor shall also be required to dispose of all excavated and deleterious materials, as well as any grubbed out materials, to a site to be obtained by it at its own expense. The Contractor shall note that our survey indicates that the existing drain bottom is approximately at the design grade. The Contractor shall be required to provide any and all labour, materials and equipment to set the pipe to the required design grades. The Contractor shall also be required to supply, if necessary, a minimum of 150mm (6”) of 20mm (3/4”) clear stone bedding underneath the culvert pipe, extending from the bottom of the drain to the culvert invert grade, all to the full satisfaction of the Town Drainage Superintendent or Consulting Engineer. Furthermore, if an unsound base is encountered, it must be removed and replaced with 20mm (3/4”) clear stone satisfactorily compacted in place to the full satisfaction of the Town Drainage Superintendent or the Consulting Engineer.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Town Drainage Superintendent or the Consulting Engineer’s Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the replacement culvert pipe without the site presence of the Town Drainage Superintendent or the Consulting Engineer’s Inspector to inspect and approve said installation. The Contractor shall provide a minimum of forty-eight (48) hours notice to the Town Drainage Superintendent or the Consulting Engineer prior to commencement of the work. The installation of the replacement culvert structure is to be performed during normal working hours of the Town Drainage Superintendent and the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend said working hours.

The Contractor shall also note that the placing of the replacement access bridge culvert shall be completed so that it totally complies with the parameters established and noted in the bridge plan. The placement of the culvert shall be on an even grade and performed totally in the dry, and the Contractor should be prepared to take whatever steps are necessary to ensure same, all to the full satisfaction of the Town Drainage Superintendent or Consulting Engineer.

Specifications - Bridge Over the Graham Sideroad Drain (Congdon) Town of Kingsville - D-15-015

VIII. BRIDGE CONSTRUCTION

Once the new corrugated steel pipe has been satisfactorily set in place, the Contractor shall completely backfill same with granular material M.T.O. Type "B" O.P.S.S. Form 1010 with the following exception. The top 305mm (12") of the backfill material for the full top width of the access, the full top width of the drain, and the approach to the west and transitions to the east shall be M.T.O. Type "A" O.P.S.S. Form 1010.

The backfilling of the corrugated steel pipe shall be provided in total compliance with the Standard Specifications included in **Appendix "B"**.

All granular backfill for the bridge installation shall be satisfactorily compacted in place to a minimum standard proctor density of 98% by means of mechanical compaction equipment. All of the backfill material, equipment used, and method of compacting the backfill material shall be provided and performed to the satisfaction of the Town Drainage Superintendent or Consulting Engineer.

The new corrugated steel pipe, for this installation, is to be provided with a minimum depth of cover measured from the top of the pipe of 305mm (12"). If the bridge culvert is placed at its proper elevations, same should be achieved. The above specified minimum requirement is **critical** and must be attained. Obviously, in order for the new farm access bridge culvert to properly fit the channel parameters, **all of the design grade elevations must be strictly adhered to**.

Also, for the use by the Contractor, we have established a Bench mark on-site. This Bench Mark is the top of nail set in east face of existing hydro pole located on the west side of the Graham Sideroad, directly across from the subject bridge at M.N. 4256, and this **Bench Mark** is set at Elevation **195.130 metres**. The new pipe culvert and backfilling is to be placed on the following basis:

i) The **south (upstream) invert** of the proposed bridge culvert is to be set at Elevation **192.885** metres.

ii) The **north (downstream) invert** of the proposed bridge culvert is to be set at Elevation **192.881** metres.

iii) The centreline of driveway for this bridge installation shall be set to Elevation **195.156** metres at the existing edge of asphalt roadway, Elevation **194.990** metres at the culvert pipe centreline, and Elevation **194.839** metres at 1.0 metres east of the right-of-way limit. The access bridge driveway, in all cases, shall be graded with a crossfall from the centreline of the driveway to the outer ends of the driveway at an approximate grade of 1.50%.

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

Although it is anticipated that the culvert installation shall be undertaken in the dry, the Contractor shall supply and install a temporary straw bale check dam in the drain bottom immediately downstream of the culvert site during the time of construction. The straw bale check dam shall be to the satisfaction of the Town Drainage Superintendent or Consulting Engineer and must be removed upon completion of the construction. All costs associated with the supply and installation of this straw bale check dam shall be included in the cost bid for the bridge replacement.

IX. REMOVALS

The Contractor shall be required to excavate and completely remove the existing culvert and the existing headwalls in their entirety, as well as any other deleterious materials that may be encountered in removing same. The Contractor shall also be required to completely dispose of all of same to a site to be obtained by it at its own expense.

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

X. CONCRETE FILLED JUTE BAG HEADWALL END PROTECTION

Once the new aluminized corrugated steel pipe has been set in place, the Contractor shall construct concrete filled jute bag headwalls at both ends of the access. The concrete filled jute bag headwalls are to be provided and laid out as is shown and detailed in the accompanying drawings and as is noted in the Standard Specifications in **Appendix "C"**. The concrete filled jute bag headwalls, at the westerly approach adjacent to the Graham Sideroad, are to be installed so that daylighting is provided off of the travelled roadway, and same are to be designed to deflect outwardly from approximately the extreme west face of the new aluminized steel culvert, to a point just beyond the west bank of the drain. The outwardly projection of the north ends of the new headwalls shall be deflected at approximately a 45° angle, and the maximum outward deflection shall not be greater than 2.80m measured parallel to the projection of the straight portion of the finished headwall.

The Contractor shall also be required to satisfactorily backfill the area in behind the daylighted new concrete filled jute bag headwalls with granular fill as already specified in the preceding paragraphs for the backfilling of the bridge culvert. The top elevation of the straight portions of the headwalls, perpendicular to the culvert, shall be set to Elevation **194.940** metres. The top elevation of the west ends of the daylighted headwalls, opposite the travelled roadway are to be set no less than 75mm (3") below the existing ground elevation. The alignment of these headwalls shall be performed to the full satisfaction of the Town Drainage Superintendent and the Consulting Engineer.

The concrete filled jute bag headwalls shall be laid on a footing of plain concrete being 460mm (18") wide, extending for the full length of the wall. This footing shall be approximately 305mm (12") below the bottom of the culvert and extend continuously for a minimum of approximately 305mm (12") above the invert of said pipe.

The installation of the concrete filled jute bag headwalls and the placement of the backfill shall be carried out at the same time and shall be provided in total compliance with Item 1, Item 3, and Item 4 of the **"STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES"**. These are attached to the back of these specifications and labelled **Appendix "C"**. The Contractor shall comply in all respects with the General Conditions included in Item 4 and the **"Typical Concrete Jute Bag Headwall End Protection Detail"** shown within the attached drawing.

XI. PRECAST INTERLOCKING CONCRETE BLOCK HEADWALLS

Alternatively, and only with the authorization of the Owner, the Town Drainage Superintendent and the Consulting Engineer, can interlocking concrete block headwalls be installed in lieu of concrete filled jute bag headwalls.

Once the new Aluminized Steel Corrugated Pipe has been set in place, the Contractor shall construct precast interlocking concrete block headwalls at both ends of the access. The precast interlocking concrete block headwalls are to be provided and laid out as is shown and detailed in the accompanying drawing, and as is noted in the Standard Specifications in **Appendix "B"**.

The standard precast interlocking concrete blocks shall be rectangular in shape with square corners and be a minimum size of 600mm x 600mm x 1200mm (2' x 2' x 4'), as available from Underground Specialties Inc., or equal. Blocks with modified lengths may be utilized to fill in staggered sections of the block wall. All blocks shall be cast in one pour with no cold joints and shall have minimum compression strength of 20MPa at

28 days. All precast concrete blocks shall be formed with interlocking pockets and tenons and each block shall be assembled in a staggered formation to prevent sliding at the interface between blocks. All precast concrete blocks shall be uniform in size with relatively smooth and consistent joints. All precast concrete blocks shall have a smooth and consistent exterior finish. Each block shall be fitted with a lifting ring that will not interfere with the assembly of the block wall once they are set in place. Cap blocks shall be utilized on the top course of the wall with the top of the cap blocks having a smooth, uniform finish.

Precast interlocking blocks that abut the culvert pipe shall be cut and shaped to fit closely around the perimeter of the pipe. The face of the wall shall not extend beyond the end of the pipe. All minor gaps between the blocks and the pipe shall be sealed with no shrink grout for the full depth of the blocks. At the base of the wall, a base block shall be used at the bottom of the interlocking block wall. The base block shall be founded on a firm solid base. When necessary, the Contractor shall provide a minimum of 150mm thickness of level compacted granular bedding, or a lean concrete footing, as a firm foundation for the blocks. The base block shall be set level and shall convey a vertical projection throughout its full height and shall include filter cloth behind the wall for the full height of the blocks to prevent soil migration though any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum GMN-160 meeting O.P.S.S. Class I. Both headwalls shall be assembled concurrently with a continuous uni-axial geogrid SG350, or equal, installed across the entire structure at every second course of blocks, to tie each headwall to each other. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtec Construction Products, or equal.

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

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

The precast interlocking concrete block headwalls shall be installed vertically, and shall extend from the end of the Aluminized Steel Corrugated Hel-Cor Pipe to the top elevation of the driveway. Under no circumstances shall the interlocking block wall be installed with an outward projection. When complete, the outside face of the headwall shall be installed flush with the end of the proposed culvert. At the westerly approach, adjacent to Graham Sideroad, the headwalls are to be installed so that daylighting is provided off the travelled roadway. The daylighting are to be designed to deflect outwardly from approximately the extreme west face of the new culvert, to a point just beyond the north bank of the drain. The outwardly projection of the new headwalls shall be deflected at approximately a 45 degree angle, and the maximum outward deflection shall not be greater than 2.80 metres parallel to the projection of the straight portion of the finished wall. The straight portion of the precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. The Contractor shall also be required to satisfactorily backfill the area in behind the new headwall with granular fill as already specified in the preceding paragraphs for backfilling of the bridge culvert. The top elevation of the straight portion of the headwall, perpendicular to the culvert, shall be set to elevation **194.940** metres. The top elevation of the headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation. The alignment of these headwalls shall be performed to the full satisfaction of the Drainage Superintendent or the Consulting Engineer.

The installation of the precast interlocking concrete block headwalls and the placement of the backfill shall be carried out at the same time and shall be provided in total compliance with Item 1, Item 3, and Item 4 of the **"STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES"**. These are attached to the back of these specifications and labelled **Appendix "C"**. The Contractor shall also comply in all respects with the **"Typical Precast Interlocking Concrete Block Headwall End Protection Detail"** shown within **Appendix "C"**. The installation of the precast interlocking concrete block headwalls shall also comply with the "Block Headwall Installation Instructions for Culverts" provided by Underground Specialties Inc., as outlined in **Appendix "B"**.

XII. SLOPED QUARRIED LIMESTONE EROSION PROTECTION

The Contractor shall also provide, as part of this project, sloped quarried limestone erosion protection adjacent and along all of the new concrete headwalls as noted in the accompanying drawing, at the general locations and to the widths shown within the details included therein.

The sloped quarried limestone erosion protection shall be embedded into the sideslopes of the drain a minimum thickness of 305mm and shall be underlain in all cases with a synthetic filter mat. The filter mat shall not only be laid along the flat portion of the erosion protection, but also contoured to the exterior limits of the quarried limestone and the unprotected slope. The width of the general erosion protection shall be as established in the accompanying drawing or as otherwise directed by the Town Drainage Superintendent and/or the Consulting Engineer during construction. In placing the erosion protection the Contractor shall carefully tamp the quarried limestone pieces into place with the use of a shovel bucket so that the erosion protection when completed will be consistent, uniform and tightly laid. In no instance shall the quarried limestone protrude beyond the exterior contour of the unprotected drain sideslopes along either side of said protection. The synthetic filter mat to be used shall be **non-woven** geotextile GMN160 conforming to O.P.S.S. 1860 Class I, as available from Armtec Construction Products, or equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm (4”) to a maximum of 250mm (10”), and is available from Amherst Quarries Ltd., in Amherstburg, Ontario, or equal.

XIII. BENCH MARKS

Also, for use by the Contractor, we have established a Bench Mark near the location of the new replacement access bridge structure.

For the bridge replacement, the plans include details illustrating the work to be completed. For the bridge detail, a Bench Mark has been indicated and the Elevation has been shown and may be utilized by the Contractor in carrying out its work. The Contractor shall note that a specific design elevation grade has been provided for the invert at each end of the pipe in the table accompanying the detail. The table also sets out the pipe size, materials, and other requirements relative to the installation of the bridge structure. In all cases, the Contractor is to utilize the specified drain slope to set any new pipe installation. The Contractor shall ensure that it takes note of the direction of flow and sets the pipe to assure that the grade flows from west to east to match the direction of flow within the drain. The Contractor’s attention is drawn to the fact that the pipe invert grades established herein provide for same to be set approximately 200mm below the design bottom and approximately 13% of its diameter below the existing drain bottom.

XIV. ANCILLARY WORK

During the course of any repair or improvements, the Contractor will be required to protect or extend any existing tile ends or swales to maintain the drainage from the adjacent lands. All existing tiles shall be extended utilizing Boss 2000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the "**Standard Lateral Tile Detail**" as shown in the details included **Appendix "B"**, unless otherwise noted. Connections shall be made using a manufacturer's coupling wherever possible. For other connections, the Contractor shall utilize a grouted connection. Grouted mortar joints shall be composed of three (3) parts of clean, sharp sand to one (1) part of Portland Cement with just sufficient water added to provide a stiff plastic mix, and the mortar connection shall be performed to the full satisfaction of the Town Drainage Superintendent or the Consulting Engineer. The mortar joint shall be of a sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal.

XV. TOPSOIL, SEED AND MULCH

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged by the structure replacement, and place topsoil and seed and mulch over said areas including any specific areas noted on the bridge detail. The Contractor shall be required to provide all the material and to cover the above mentioned surface areas with approximately 50mm of good, clean, dry topsoil on slopes and 100mm of good, clean, dry topsoil on horizontal surfaces, fine graded and spread in place ready for seeding and mulching. The placing and grading of all topsoil shall be carefully carried out according to Ontario Provincial Standard Specifications, Form 802, dated November, 2010, or as subsequently amended or as amended by these Specifications. Once the topsoil has been properly placed and fine graded, the Contractor shall seed and mulch the area. Seeding and mulching operations shall be carried out according to Ontario Provincial Standard Specifications, Form 804, dated November, 2014, or as subsequently amended or as amended by these Specifications. The seeding mixture shall be OSECO Seed Mixture Canada No. 1, as available from Morse Growers Supply in Leamington, or equal. As part of the seeding and mulching operation, the Contractor will be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with O.P.S.S. 1103.05.03 dated November, 2007, or as subsequently amended, to ensure that the grass seed will be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All work shall be completed to the full satisfaction of the Town Drainage Superintendent or the Consulting Engineer.

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

XVI. GENERAL CONDITIONS

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

b) The Contractor shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other object which it may encounter during the course of the work. The Contractor shall indemnify and save harmless the Town of Kingsville and the Consulting Engineer and its' representatives for any damages which it may cause or sustain during the progress of the work. It shall not hold the Town of Kingsville or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

c) The Contractor shall provide a sufficient number of layout stakes and grade points so that the Drainage Superintendent and Consulting Engineer can review same and check that the work will generally conform with the design and project intent.

d) The Contractor will be responsible for any damage caused by it to any portion of the Municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of the road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any part of the travelled portion of the road is damaged by the Contractor, the Town shall have the right to have the necessary repair work done by its' employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Town. The Contractor, upon completing the works, shall clean all debris and junk, etc., from the roadside of the drain, and leave the site in a neat and workmanlike manner. The Contractor shall be responsible for keeping all public roadways utilized for hauling materials free and clear of mud and debris.

e) The Contractor shall provide all necessary lights, signs, and barricades to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. A Traffic Control Plan is required on this project. The Traffic Control Plan is to comply with The Ontario Traffic

Manual's Book 7 for Temporary Conditions. A suitable Traffic Control Plan must be submitted to the Consulting Engineer, the Town and/or the County of Essex for approval, where applicable.

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

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

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

i) The Contractor will be required to submit to the Town, a Certificate of Good Standing from the Workplace Safety and Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Town, a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before Final Payment is made to the Contractor.

j) The Contractor shall furnish a Performance and Maintenance Bond along with a separate Labour and Material Payment Bond within ten (10) days after notification of the execution of the Agreement by the Owner unless otherwise established within the Tender Documents. One copy of said bonds shall be bound into each of the executed sets of the Contract. Each Performance and Maintenance Bond and Labour and Material Payment Bond shall be in the amount of 100% of the total Tender Price. All Bonds shall be executed under corporate seal by the Contractor and a surety company, authorized by law to carry out business in the Province of Ontario. The Bonds shall be acceptable to the Owner in every way and shall guarantee faithful performance of the Contract during the period of the Contract, including the period of guaranteed maintenance which will be in effect for twelve (12) months after substantial completion of the works.

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

k) The Contractor shall be required, as part of this Contract, to provide Comprehensive Liability Insurance coverage for not less than $2,000,000.00 on this project unless otherwise established in the Tender Documents, and shall name the Town of Kingsville and its' officials, and the Consulting Engineer and its staff as additional insured under the policy. The Contractor must submit a copy of this policy to both the Town Clerk and the Consulting Engineer prior to the commencement of work.

l) Monthly progress orders for payment shall be furnished the Contractor by the Town Drainage Superintendent. Said orders shall be for not more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 45 days after the final acceptance and completion of the work and payment shall not be authorized until the Contractor provides the following:

   i) a Certificate of Clearance for the project from the Workplace Safety and Insurance Board

   ii) proof of advertising

   iii) a Statutory Declaration, in a form satisfactory to the Consulting Engineer and the Town, that all liabilities incurred by the Contractor and its Sub-Contractors in carrying out the Contract have been discharged and that all liens in respect of the Contract and Sub-Contracts thereunder have expired or have been satisfied, discharged or provided for by payment into Court.

   The Contractor shall satisfy the Consulting Engineer or Town that there are no liens or claims against the work and that all of the requirements as per the Construction Lien Act, 1983 and its' subsequent amendments have been adhered to by the Contractor.

m) In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section or sections from the Canadian Construction Documents Committee (C.C.D.C.) shall govern and be used to establish the requirements of the work.

APPENDIX “A”

E.R.C.A.
CORRESPONDENCE

Subject: RE: Bridge Over the Graham Sideroad Drain (Congdon) - Town of Kingsville - D15-015
From: Cynthia Casagrande <CCasagrande@erca.org>
Date: 11/4/2016 11:07 AM
To: Tony Peralta <tony@peraltaengineering.com>
CC: Ken Vegh <kvegh@kingsville.ca>, Diane Broda <dbroda@kingsville.ca>, "Dan Jenner" <DJenner@erca.org>

Dear Tony:

Re: D15-015

Thank you for providing the preliminary project information in the email below. We look forward to receiving the final Drainage Report in the near future.

If further information or clarification is required, please do not hesitate to contact this office.

Yours truly,

Cynthia Casagrande
Regulations Coordinator
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311
Essex ON N8M 1Y6
(519) 776-5209, Ext. 349

From: Tony Peralta [mailto:tony@peraltaengineering.com]
Sent: Monday, October 31, 2016 2:32 PM
To: Cynthia Casagrande <CCasagrande@erca.org>
Cc: John Henderson <JHenderson@erca.org>; Ken Vegh <kvegh@kingsville.ca>; Diane Broda <dbroda@kingsville.ca>
Subject: Re: Bridge Over the Graham Sideroad Drain (Congdon) - Town of Kingsville - D15-015

Good afternoon Cynthia;

Further to the information below, and based on your request, we are providing you with the preliminary design proposals for the above noted project.

Under this project we will be installing one (1) replacement access bridge, within the above noted drain.

The existing access bridge for the subject residential lands currently consists of approximately 6.1m of 1524mm dia. CSP pipe together with stacked broken concrete pieces end treatments.

Please note that there are no access bridge upstream of the subject bridge. However, approximately 115m downstream of the subject access bridge is the recently installed 2400mm x 1200mm concrete box culvert under County Road 14.

Based on the above, we propose to install a 1600mm dia. CSP pipe having a length of 8.0m together with concrete filled jute bag end treatments. The proposed culvert shall be embedded approximately 200mm below the design grade of the drain (which is lower than the existing drain bottom).

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

We trust that this information is satisfactory. However, if you have any concerns or require additional information, please contact us at your earliest opportunity as we intend on finalizing this report as soon as possible.

Regards,

Tony Peralta, P.Eng.

N.J. Peralta Engineering Ltd.
45 Division Street North
Kingsville, ON
N9Y 1E1
(519)733-6587 office
(519)733-6588 fax

-------- Original Message --------
Subject: Re: Bridge Over ther Graham Sideroad Drain (Congdon) - Town of Kingsville - D15-015
From: Cynthia Casagrande <CCasagrande@erca.org>
To: Tony Peralta <tony@peraltaengineering.com>
Cc: "John Henderson" <JHenderson@erca.org>, "Ken Vegh" <kvegh@kingsville.ca>, "Diane Broda" <dbroda@kingsville.ca>
Date: Fri Oct 02 2015 09:32:52 GMT-0400 (Eastern Standard Time)

Dear Tony:

Thank you for providing preliminary information below with respect to this proposed project.

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

At this time, we do not expect that there will be any extraneous comments or concerns with respect to this project. However, we cannot be more specific in this regard without an actual proposal to review.

If further information or clarification is required, please do not hesitate to contact this office.

Yours truly,

Cynthia Casagrande
Regulations Coordinator
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311
Essex ON N8M 1Y6
(519) 776-5209, Ext. 349

From: Tony Peralta [mailto:tony@peraltaengineering.com]
Sent: September-11-15 5:15 PM
To: Cynthia Casagrande

Cc: John Henderson; Ken Vegh
Subject: Bridge Over ther Graham Sideroad Drain (Congdon) - Town of Kingsville - D15-015

Good afternoon Cynthia;

We have been appointed by the Town of Kingsville, under Section 78 of the Drainage Act, to provide an Engineer's Report for the replacement of an existing access bridge for Roger & Gloria Congdon (510-00800), 4256 Graham Sideroad, within the Graham Sideroad Drain.

As identified within the latest governing engineer's report, the existing access bridge consists of a 1500mm CSP pipe with vertical headwalls. Immediately downstream of the proposed access bridge consists of a new concrete span road crossing culvert at the intersection of the Graham Sideroad and County Road 14. There are no other access bridges within this drain.

At this time, we would kindly request any comments or concerns from the ERCA. Attached is a map showing the general drain and bridge location.

As part of our investigations, we will review the DFO website and self-assess the project to determine whether further authorization is necessary under the Fisheries Act.

We will also contact the Town of Kingsville regarding the MNR screening process under Section 23 of the Endangered Species Act, 2007. We intend on incorporating the MNR mitigation measures, as required, as part of our report.

Thank you for your time and attention to this matter. We look forward to your response.
--

Regards,

Tony Peralta, P.Eng.

N.J. Peralta Engineering Ltd.
45 Division Street North
Kingsville, ON
N9Y 1E1
(519)733-6587 office
(519)733-6588 fax

D.F.O.
BEST MANAGEMENT PRACTICES – CULVERT REPLACEMENTS IN MUNICIPAL DRAINS

Best Management Practices – Culvert Replacements in Municipal Drains

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

Potential Impacts to Fish Habitat

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

Requirements

The following requirements must be met:

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

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

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

Culvert Removal Methodology

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

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

Figure 2. Isolation of Site

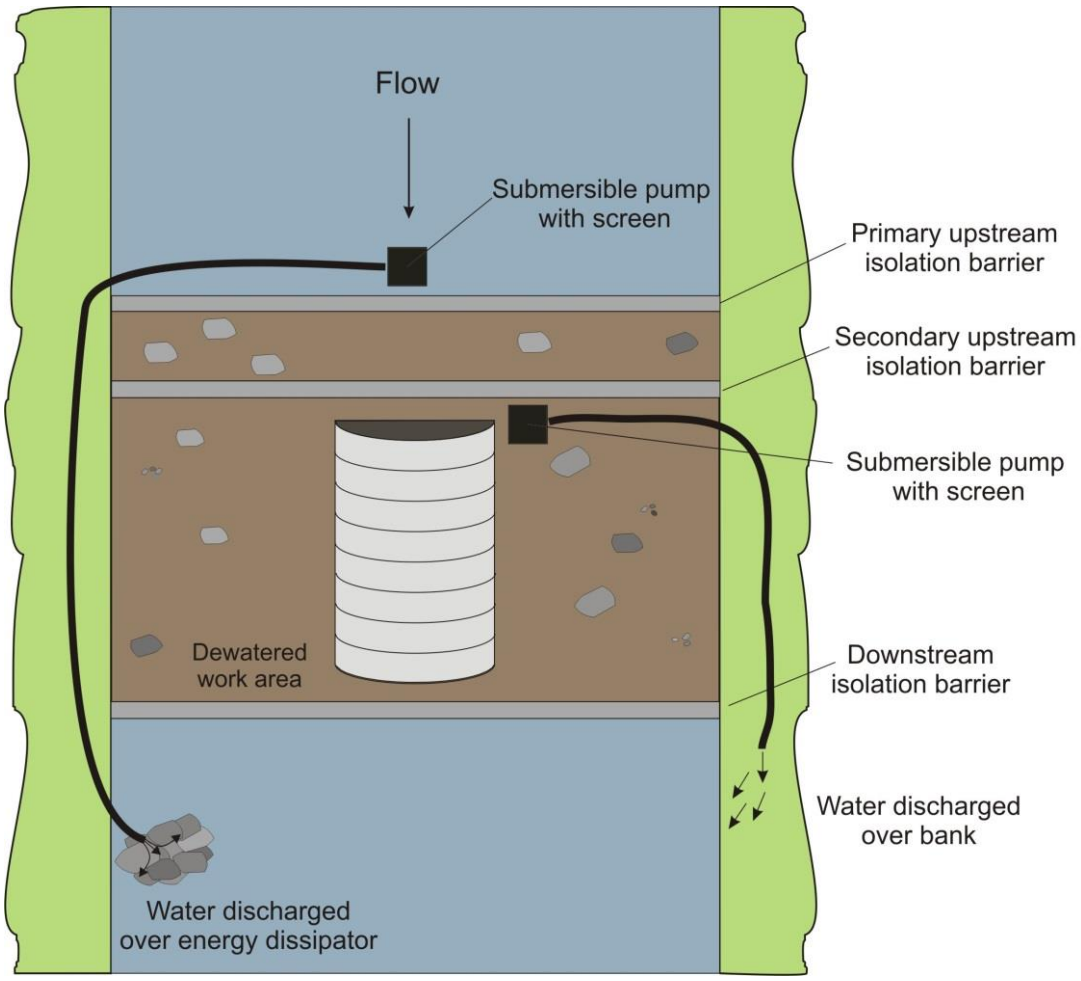


Figure 3. Isolation and Bypass Diversion when Working In-Water

Timing Windows

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

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

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

Drain Type	Restricted Activity Period
A	September 1 to July 15
B	September 1 to July 15
C	April 1 to July 15
D	September 1 to July 15
E	April 1 to July 15

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

Drain Type	Restricted Activity Period
A	September 15 to July 15
B	March 15 to July 15
C	March 15 to July 15
D	October 1 to July 15
E	March 15 to July 15

Standard Measures to Avoid Causing *Serious Harm to Fish*

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

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

APPENDIX “B”

STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES

1. CONCRETE FILLED JUTE BAG HEADWALLS

After the Contractor has set in place the new pipe, it shall completely backfill the same and install new concrete jute bag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jute bag headwalls, the Contractor shall place the bags so that the completed headwall will have a slope inward from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one unit horizontal to five units vertical. The Contractor shall completely backfill behind the new concrete jute bag headwalls with Granular "B" and Granular "A" material as per O.P.S.S. Form 1010 and the granular material shall be compacted in place to a Standard Proctor Density of 100%. The placing of the jute bag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

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

The concrete jute bag headwall to be provided at the end of the bridge pipe shall be of a single bag wall construction. The concrete filled bags shall be laid so that the 460mm (18") dimension is parallel with the length of the new pipe. The concrete filled jute bags shall be laid on a footing of plain concrete being 460mm (18") wide, extending for the full length of the wall, and from 305mm (12") below the bottom of the culvert pipe to the bottom of the culvert pipe.

All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21 Mpa in 28 days and include 6% ± 1% air entrainment.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete filled bags with a layer of plain concrete, minimum 100mm (4") thick, and hand trowelled to obtain a pleasing appearance. If the cap is made more than 100mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete filled jute bags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

The completed jute bag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the sideslopes of the drain.

As an alternate to constructing a concrete filled jute bag headwall, the Contractor may construct a grouted concrete rip rap headwall. The specifications for the installation of a concrete filled jute bag headwall shall be followed with the exception that broken sections of concrete may be substituted for the jute bags. The concrete rip rap shall be approximately 460mm (18") square and 100mm (4") thick and shall have two (2) flat parallel sides. The concrete rip rap shall be fully mortared in place using a mixture composed of three (3) parts of clean sharp sand and one (1) part of Portland Cement.

The complete placement and backfilling of the headwalls shall be performed to the full satisfaction of the Town Drainage Superintendent.

2. QUARRIED LIMESTONE ENDWALLS

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

Prior to placing the quarried limestone end protection over the granular backfill, the Contractor shall lay non-woven geotextile filter fabric "GMN160" conforming to O.P.S.S. 1860 Class I or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated steel pipe to the top of each sideslope of the drain and between both sideslopes of the drain.

The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone on top of the filter fabric.

3. BRIDGE BACKFILL

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

4. GENERAL

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

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

Prior to the installation of the new access bridge culvert, the existing sediment build-up in the drain bottom must be excavated and completely removed. This must be done not only along the drain where the bridge culvert pipe is to be installed, but also for a distance of 3.05 metres (10 ft.) both upstream and downstream of said new access bridge culvert. When setting the new bridge culvert pipe in place it must be founded on a good undisturbed base. If unsound soil is encountered, it must be totally removed and replaced with 20mm (3/4") clear stone, satisfactorily compacted in place.

When doing the excavation work or any other portion of the work relative to the bridge installation, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. Where damage is encountered, repairs to correct same must be performed immediately as part of the work.

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

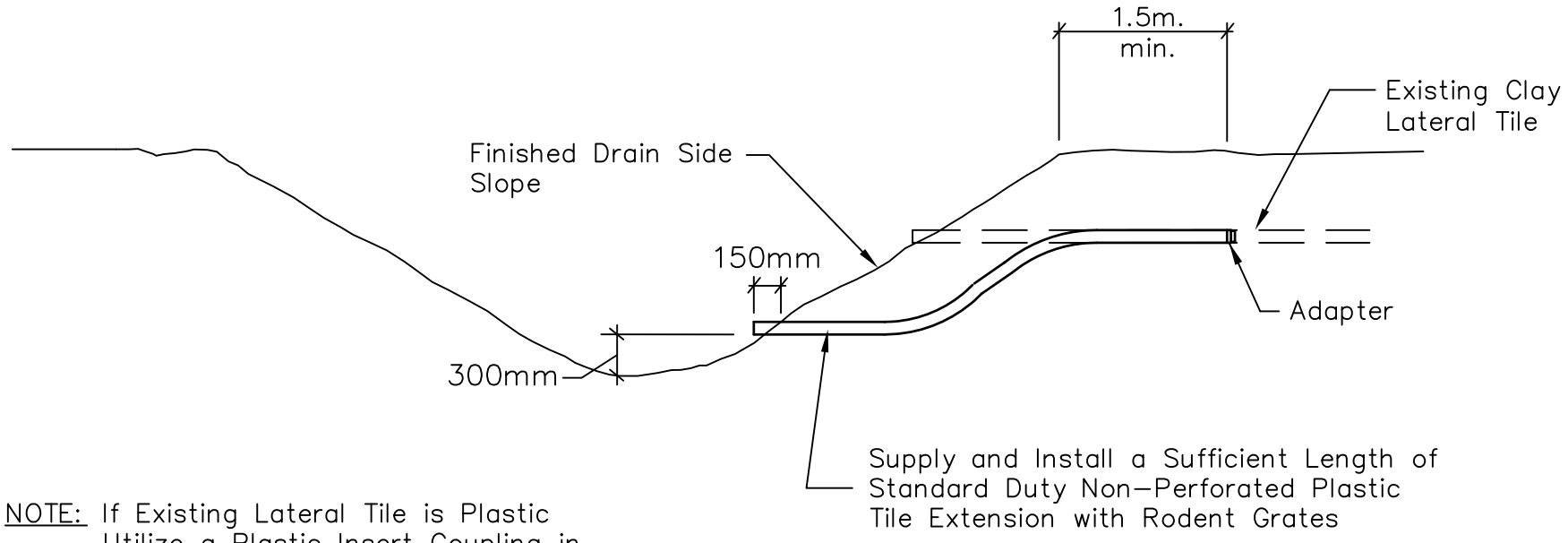
Where applicable, the Contractor and/or landowner constructing the new bridge shall be responsible for any damage caused by them to any portion of the Town road right-of-way. They shall take whatever precautions are necessary to cause a minimum of damage to same and must restore the roadway to its' original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

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

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

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

All of the excavation, installation procedures, and parameters as above mentioned under this sub-heading, are to be carried out and performed to the full satisfaction of the Town Drainage Superintendent.



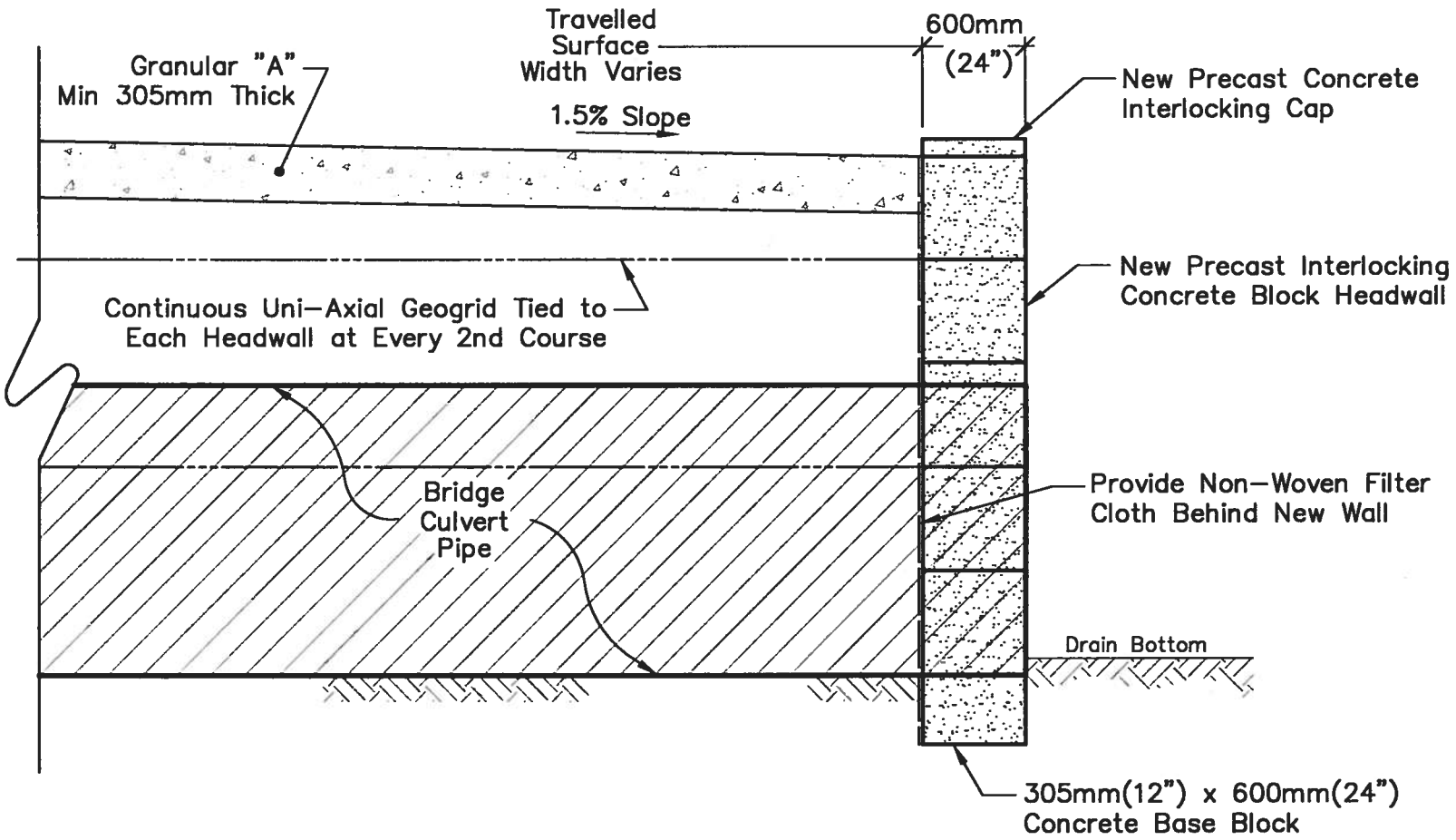
NOTE: If Existing Lateral Tile is Plastic Utilize a Plastic Insert Coupling in Place of Adapter.

STANDARD LATERAL TILE DETAIL

SCALE = N.T.S.

Block Headwall Installation Instructions for Culverts

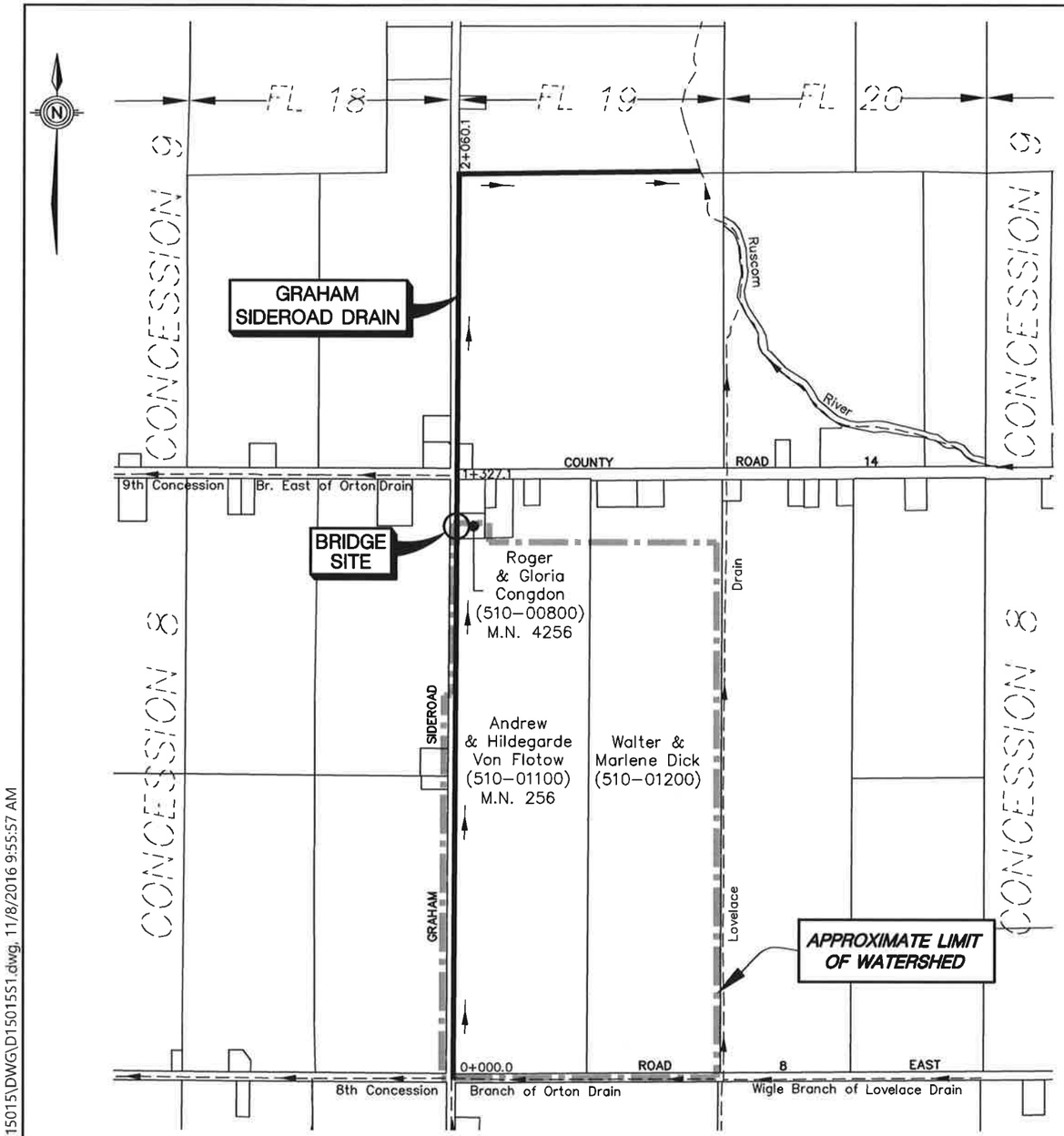
1. A swift lift device will be required to place the blocks. A 75mm eye bolt will be required to place the caps.
2. The bottom course of blocks shall be founded on a firm solid base. The contractor shall provide a minimum levelling course of 150mm of compacted 3/4" Clear Stone, or a 100% compacted granular A, or lean concrete as a foundation base.
3. Ensure that the base is level and flat as this will greatly improve speed of installation.
4. On new culverts a minimum of 150mm of block wall will extend below the culvert to prevent scouring under the culvert.
5. The bottom course of blocks shall be embedded into the drain bottom to achieve the desired top elevation of the wall.
6. Blocks shall extend from the pipe invert across the full height and width of the drain and be imbedded a minimum of 300mm into the drain banks. Where possible the top of the block wall will match the height of the completed driveway.
7. Blocks shall be placed such that all joints are staggered.
8. Any excavation voids on the ends of block walls below subsequent block layers shall be filled with ¾" Clear Stone.
9. Where block walls extend beyond three blocks in height, they should be battered a minimum of 1 unit horizontal for every 10 units vertical throughout the wall's full height and width. This can be achieved using pre-battered base blocks, or by careful preparation of the base.
10. Filter cloth (270R or equivalent) should be placed behind the wall to prevent the migration of fill material through the joints.
11. The walls should be backfilled with a free draining granular fill.
12. A uni-axial geogrid (SG350 or equivalent) should be used to tie back the headwalls where walls extend beyond 1.8m in height.
13. The face of the block wall shall not extend beyond the end of the pipe culvert.
14. Any gaps between the blocks and culvert shall be sealed with non-shrink grout for the full depth of the block.



Typical Precast Interlocking Concrete Block Vertical Headwall End Protection

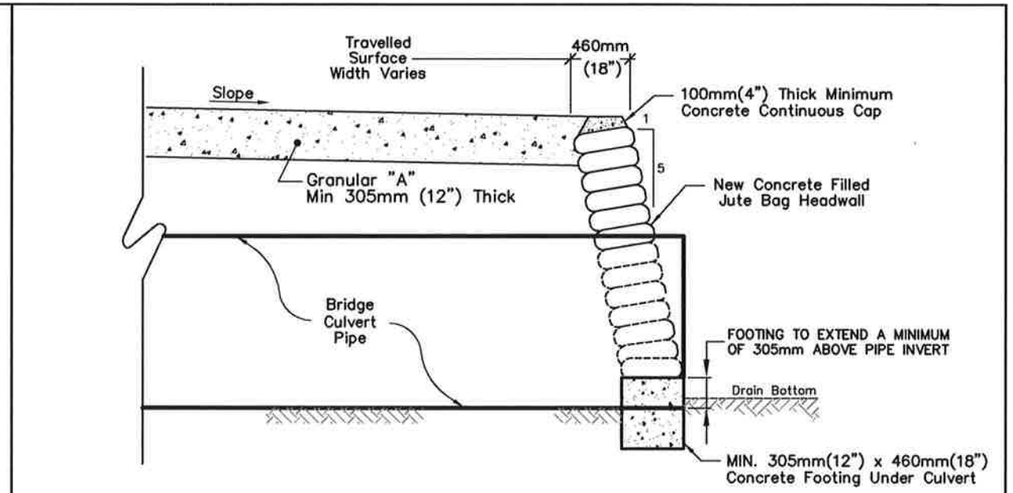
N.T.S.

APPENDIX “C”



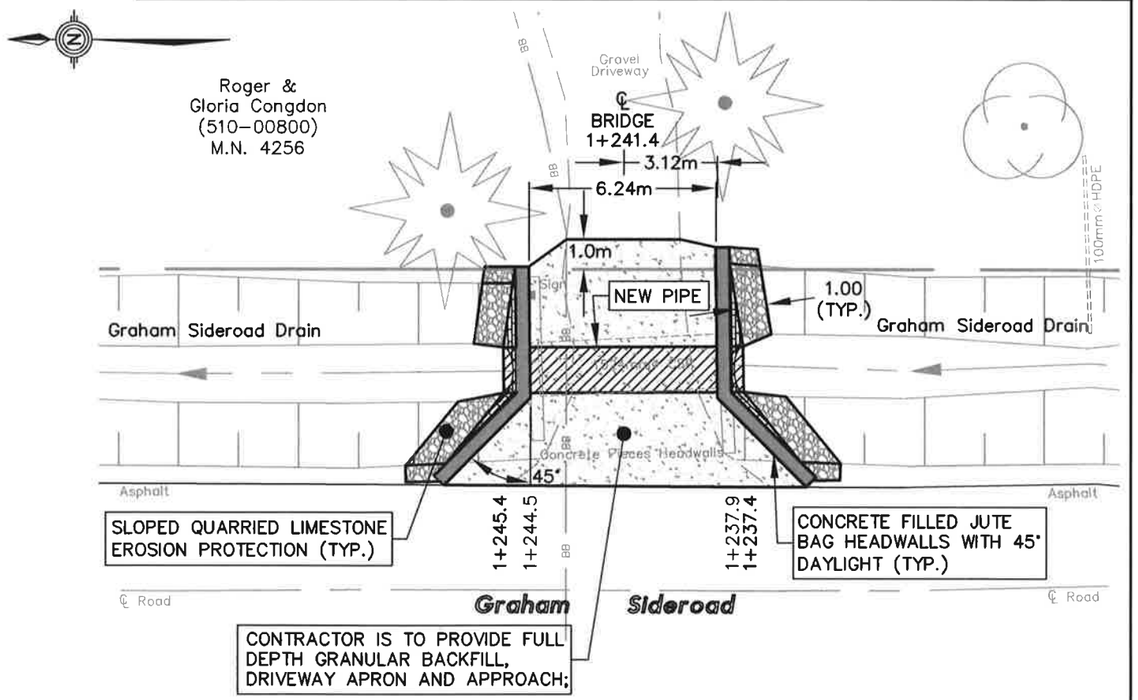
KEY PLAN

Scale = 1:7,500



TYPICAL CONCRETE FILLED JUTE BAG HEADWALL END PROTECTION

Scale = N.T.S.



BRIDGE PLAN

Scale = 1:200

BENCHMARK:
TOP OF NAIL SET IN EAST FACE OF EXISTING HYDRO POLE LOCATED ON THE WEST SIDE OF THE GRAHAM SIDEROAD, DIRECTLY ACROSS FROM THE SUBJECT PROPERTY AT M.N. 4256
ELEV. = 195.130m

PIPE SIZE:	PIPE LENGTH:	PIPE GAUGE:	CORRUGATIONS:	TYPE OF PIPE:
1600mmø	8.0m (26.25 FT.)	2.0mm (14 GA.)	125mm x 25mm (5.0" x 1.0")	ALUMINIZED STEEL TYPE II CORRUGATED HEL-COR PIPE

PIPE & DRIVEWAY ELEVATIONS:
UPSTREAM INV. (S) = 192.885m
DOWNSTREAM INV. (N) = 192.881m
℄ OF DRIVEWAY AT ROADWAY EDGE = 195.156m
℄ OF DRIVEWAY AT PIPE CENTRELINE = 194.990m
℄ OF DRIVEWAY AT 1.0m EAST OF R.O.W. LIMIT = 194.839m
DRIVEWAY CROSSFALL FROM CENTRELINE TO TOP OUT END OF END WALL = 1.50%

BRIDGE OVER THE GRAHAM SIDEROAD DRAIN

(for Roger & Gloria Congdon (510-00800), Pt. Lot 19, Concession 8)
IN THE
TOWN OF KINGSVILLE
(Former Geographic Township of Gosfield North)
IN THE
COUNTY OF ESSEX • ONTARIO

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2016-11-07
PROVINCE OF ONTARIO

N. J. PERALTA ENGINEERING LTD.
45 DIVISION STREET NORTH
KINGSVILLE, ONTARIO
N9Y 1E1

DATE: NOV. 7th, 2016

ANTONIO B. PERALTA, P.ENG.

FILE No.:	DRAWN BY: R.L. PLOT CODE: 1:1 FILE: D15015S1.dwg	APPENDIX 'C'
D15-015		

Z:\Working Files\CAD\Civil3D Projects\D15015\DWG\D15015S1.dwg, 11/8/2016 9:55:57 AM