3RD CONCESSION – CLIFFORD DRAIN IMPROVEMENTS

(Geographic Township of Gosfield South)

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-17-030

August 24th, 2018

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: 3RD CONCESSION - CLIFFORD DRAIN IMPROVEMENTS
(Geographic Township of Gosfield South)
Town of Kingsville, County of Essex
Project No. D-17-030

I. INTRODUCTION

In accordance with the instructions received by letter on April 18th, 2017 from the Drainage Superintendent, Mr. Ken Vegh, we have prepared the following report to provide for the construction of a replacement access bridge along with future maintenance provisions for the 3rd Concession - Clifford Drain. These investigations were initiated by resolution passed by Council for our firm to undertake the preparation of an Engineer's Report for the works within this drain, in accordance with the Drainage Act. The plan showing the 3rd Concession - Clifford Drain alignment, the general location of all access bridges, and the lands affected within the general watershed area of the drain, are included herein as part of this report.

The initial request to provide an Engineer's Report was submitted by Bernard Nelson for the lands of [redacted] (370-07300) for the replacement of the existing access bridge, serving their lands.

Our appointment and the works related to the works within the 3rd Concession - Clifford 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 replacement access bridge, as well as the 3rd Concession - Clifford Drain, and we report thereon as follows.

II. BACKGROUND AND WATERSHED CHARACTERISTICS

The 3rd Concession – Clifford Drain is an existing open Municipal Drain that encompasses a relatively small watershed. This drain provides drainage to the lands primarily located along Road 3 West, between Lots G through I and within Concession 2 W.D. and Concession 3 W.D. The upper end of the 3rd Concession – Clifford Drain commences near the midpoint of Lot I and along the north side of Road 3 West and continues westerly to its outlet into the Centre Branch of No. 47 Drain, at the McCain Sideroad.

The 3rd Concession – Clifford Drain is predominantly located within the Brookston Clay soil type. This soil is categorized as Hydrological Soil Group D and are described as very low infiltration rate when thoroughly wetted and consists chiefly of clay soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material. As a result, these soils require effective artificial drainage to be productive.

III. DRAINAGE HISTORY

A review of the Town of Kingsville's drainage records indicate that the 3rd Concession – Clifford Drain is an existing open Municipal Drain that has been repaired and improved through the auspicious of the Drainage Act.

From our review, we have found Engineer's Reports prepared through the provisions of the Drainage Act for the 3rd Concession – Clifford Drain and they are as follows:

a) **February 25th, 1983** Reconsidered Engineer's Report for the "3rd Concession – Clifford Drain", prepared by William J. Setterington, P.Eng., and was carried out under Gosfield South Drainage By-Law No. 472. This report serves as the initial by-law as petitioned for through the provisions of the Drainage Act. The works conducted under this report generally provided for the conversion of an existing road side drain into a Municipal Drain, including the excavation for deepening and widening, the removal and replacement of several access bridges, the installation of a steel retaining wall at the outlet end of the open drain, together with the seeding of the entire length of the open drain. This report also included the necessary allowance and compensation for the value of the existing drain and land taken for the widening of said drain.

   This report serves as the last major work of repair and improvement to the entire length of the 3rd Concession – Clifford Drain. It should be noted that **Bridge ①**, **Bridge ④** and **Bridge ⑤**, as identified within this report, were either constructed or referred to within this report and/or accompanying drawings.

b) **April 30th, 2004** Engineer's Report for the "3rd Concession – Clifford Drain", prepared by Bruce D. Crozier, P.Eng., and was carried out under Town of Kingsville Drainage By-Law No. 39-2004. The works conducted under this report generally provided for the installation of a new access bridge located within Lot H, Concession 3 W.D., serving the lands of [redacted] (370-07200).

The access bridge identified within the above mentioned report provides for the initial construction of **Bridge ③**, as identified within this report.

From our detailed research of the above listed Engineer's Reports we have determined that generally speaking, the 1983 Report serves as the current governing By-Law for the entire length of the open drain. This Engineer's Report governs the design provisions for any future maintenance works on this open channel. Currently, the costs for such maintenance works are to be assessed against the lands and roads outlined within this report. **Bridges ①, ③, ④** and **⑤** within the 3rd Concession – Clifford Drain have been constructed and/or have been referred to under the above mentioned By-Laws. Therefore, these access bridges are considered legal entities with respect to this Municipal Drain. As a result, the identified access bridge structures are currently eligible to have the costs for their replacement and/or improvements shared with the lands and roads within the drains watershed contributing their runoff into the drain, upstream of said structures.

IV. 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 July 27th, 2017. The following people were in attendance at said meeting:

Kim Stannard (landowner)
Irene Finaldi (landowner)
Bernard Nelson (Owner of L.R.F. Nelson Holdings Inc.)
Bruce Goosen (Site Contractor for L.R.F. Nelson Holdings Inc.)
Ken Vegh (Town of Kingsville's Drainage Superintendent)
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 Bernard Nelson for [redacted] (370-07300), for the replacement of the existing agricultural access bridge to the subject lands. It was further confirmed that the existing access bridge shall be replaced to accommodate the future development of the proposed dairy farm expansion on this property.

The Landowners were advised that the minimum standard top width of driveway is 6.10 metres (20.00 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 Owner wishes to provide a top width wider than the standard 6.10 metres (20.00 ft.), the additional cost for providing a wider top width, shall be assessed 100% to the abutting Owner. Mr. Nelson identified that the Dairy Farmers of Ontario has specific requirements for Farm Lane Entrances outlined within the "Quota and Milk Transportation Policies", and requested that the design of the replacement structure coincide with these minimum requirements. Based on these requirements, Mr. Nelson was of the opinion that the access top width shall maintain a minimum 50 feet. (15.24 metre), but would like to make sure that the access is large enough to accept larger milk trucks that utilize this access. Mr. Goosen suggested that we consider a top width of approximately 60.00 feet (18.00 metres). The Owner was advised that in addition to reviewing the "Quota and Milk Transportation Policies", we can analyse the truck turning radii of large tractor trailers and refer to the M.T.O. Commercial Site Access Policy and Standard Designs for an Entrance to Small Business, to ensure that the proposed access bridge will have sufficient top width to accept these types of vehicles. Mr. Nelson also identified that the access bridge shall be centred on the new access laneway, adjacent to the existing bridge location and located west of the existing hydro pole.

There were considerable discussions regarding the options of sloped quarried limestone end treatments versus a vertical headwall. It was further established that due to the overall length required to accommodate the larger access, the final design length of the culvert may be governed by the general recommendations of the Department of Fisheries and Oceans (D.F.O.). With the extended length required to accommodate an access for truck traffic, it would very be likely that a vertical headwall system would be required for this application. We further discussed the various options for vertical end treatments and established that once a preliminary design has been completed, we can determine the most appropriate end treatment options.

Upon review of the governing report, the subject access bridge was identified in the previous By-Law and would be considered a legal entity with respect to this Municipal Drain. The condition of the existing structure was reviewed and it was found to be in poor condition with the bottom half of the culvert completed rotted throughout. Therefore, we found that the existing access bridge culvert has exceeded its useful life span.

The Landowners were advised that this replacement access bridge installation would be subject to further approvals and mitigation measures of the Department of Fisheries and Oceans (D.F.O), Essex

Region Conservation Authority (E.R.C.A), and the Ministry of Natural Resources and Forestry (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.

Landowners present at this meeting questioned the affected area that contribute to the drainage system. As a result, the Landowners requested that, if it was cost effective, that we review the watershed and determine if amendments should be made to the Schedule of Assessment for this Municipal Drain. Furthermore, it was discussed that future maintenance provisions for all access bridges within the 3rd Concession – Clifford Drain were not provided as part of the governing report. Therefore, the Landowners requested that each of the access bridges within this Municipal Drain be reviewed and Future Cost Sharing provisions be considered as part of this report.

At the conclusion of our discussions, we advised the Landowners that, in addition to replacing the subject access bridge, we will also review the watershed and provide a mechanism for Future Cost Sharing and provisions for all structures within the 3rd Concession – Clifford Drain. We further advised that we would contact Mr. Nelson, prior to the preparation of our Engineer's Report, to review the details of the replacement access bridge.

V. FIELD SURVEY AND INVESTIGATIONS

Following the On-Site Meeting 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 the 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 3rd Concession - Clifford Drain at the general location of the proposed bridge, as necessary, for us to complete our design calculations, estimates and specifications.

The Ministry of Natural Resources and Forestry (M.N.R.F.) Endangered Species Act Municipal Drain agreements, under Section 23 of the Act, with the Municipality had 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 3rd Concession - Clifford Drain prepared by William J. Setterington, P.Eng., dated February 25th, 1983. We also carried out a review of the watershed limits utilizing the most recent Engineer's Reports for the Centre Branch of the No. 47 Drain, East Branch of the No. 47 Drain and the Dalton Drain, and further conducted a site visit to review the adjacent lands to verify the contributing watershed area into the 3rd Concession - Clifford Drain. As part of our review, we had also reviewed all access bridges within the 3rd Concession - Clifford 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 evaluation of each access bridge, together with the preparation of our Construction Schedule of Assessment and Future Maintenance Schedule of Assessment for this project.

VI. 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 3rd Concession - Clifford 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 improvements to this Municipal Drain. Upon their request, a design proposal was submitted to the E.R.C.A. for their review and consideration. 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 **Appendix "A"**.

As outlined in our discussions with the E.R.C.A., and 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 the D.F.O. and the

E.R.C.A. has lapsed as of November 25th, 2013. As a result, the proposed works in the 3rd Concession - Clifford 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. A copy of the D.F.O. "Best Management Practices – Culvert Replacements in Municipal Drains" document is included within **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 the 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.

3rd Concession – Clifford Drain Bridge Improvements

As part our discussions and instructions established at the On-Site Meeting, we have reviewed all of the structures within the 3rd Concession - Clifford Drain, and we report as follows:

Bridge ① ([redacted], 370-07300)

The existing access bridge extending from Station 1+082.0 to Station 1+096.0, serving as the primary access to the agricultural lands of [redacted] (370-07300), within Lot G, Concession 3 W.D., was identified under the February 25th, 1983 Engineer's Report prepared by William J. Setterington, P.Eng., and is therefore, considered a legal entity with respect to the 3rd Concession - Clifford Drain. This existing access bridge consists of approximately 14.00 metres of 1200mm diameter corrugated steel pipe with bevelled ends and sloped quarried limestone end

protection. The driveway top width is approximately 6.50 metres (21.33 ft.). We find the existing access structure to be in poor physical condition and has reached the end of its service life. Further to the request at the On-Site Meeting, we have made provisions for improvements to this structure to accommodate the proposed development on the dairy farm entrance. This structure has been labelled herein as **Bridge ①**.

Prior to the preparation of our report, we discussed and further reviewed the details of the bridge replacement with Mr. Bernard Nelson. As part of our preliminary design, we found that in order to keep the culvert to an acceptable length, the new access bridge shall be installed utilizing vertical headwalls. As part of our review, we had investigated various headwall options for the proposed structure. We found that the most cost effective vertical headwall option for this application would be concrete filled jute bag headwalls. However, we also provided Mr. Nelson with the option of Interlocking Concrete Block Headwall System. After reviewing details of these options together with their associated costs, Mr. Nelson decided to proceed with Interlocking Concrete Block Headwall System, based on its appearance and long-term advantages.

We confirmed that the replacement access bridge shall be centred on the new access laneway, adjacent to the existing bridge location and located west of the existing hydro pole. 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. Nelson 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.

As a legal entity with respect to the 3rd Concession - Clifford Drain, we further recommend that the cost for the equivalent standard access bridge be shared by the bridge user and all lands and roads within the drain watershed, upstream of this structure. It shall be noted that the requested additional length shall be assessed entirely to the benefitting Bridge Owner. All of same has been provided for within the Construction Schedule of Assessment included within this report.

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 3rd Concession - Clifford Drain, between Station 1+093.0 and Station 1+113.0 and to the general parameters established in our design drawings attached herein. As a result, the existing access bridge will be replaced with approximately 20.00 metres of 1400mm diameter, aluminized steel corrugated pipe, with Interlocking Concrete Block headwalls. This application will result in travelled driveway width of 18.80 metres (61.68 ft.).

Bridge ② ([redacted], 370-07300)

The existing access bridge extending from Station 0+787.8 to Station 0+797.8, serving as an access to an existing residence within the agricultural lands of [redacted] (370-07300). It shall be noted that this access bridge has not been identified within any of the governing By-Laws and is therefore, the existing access bridge is currently not considered a legal entity with respect to the 3rd Concession - Clifford Drain. This existing access bridge currently consists of approximately 10.00 metres of 900mm diameter corrugated steel pipe with bevelled ends and sloped quarried limestone end protection. The driveway top width is approximately 4.00 metres (13.12 ft.), with an asphalt surface topping. We find the existing access structure to be in fair to poor physical condition. However, it appears that this structure may have a few more years of life remaining. Based on our evaluation, we recommend that no improvements are required to this structure as part of this report. This structure has been labelled herein as **Bridge ②**.

Although the existing access bridge which serves these lands is currently considered to be a private entity within the 3rd Concession - Clifford Drain, we find that due to the general condition of this access bridge, we can now incorporate this access bridge as a legal entity with respect to the 3rd Concession - Clifford Drain. However, with this structure being a secondary access to the subject property, when future maintenance or replacement of this structure is required, the costs for same shall be assessed entirely to the subject property.

Bridge ③ ([redacted], 370-07200)

The existing access bridge extending from Station 0+627.2 to Station 0+641.2, serving as the primary access to the agricultural lands of [redacted] (370-07300), within Lot H, Concession 3 W.D., was identified under the April 30th, 2004 Engineer's Report prepared by Bruce D. Crozier, P.Eng., and is therefore, considered a legal entity with respect to the 3rd Concession - Clifford Drain. This existing access bridge consists of approximately 14.00 metres of 900mm diameter corrugated steel pipe with sloped quarried limestone end protection. The driveway top width is approximately 9.10 metres (30.00 ft.). We find the existing access structure to be in fair physical condition and has plenty of life remaining within this structure. Based on our evaluation, we recommend that no improvements are required to this structure as part of this report. This structure has been labelled herein as **Bridge ③**.

Bridge ④ [redacted], 370-07210)

The existing access bridge extending from Station 0+523.5 to Station 0+536.3, serving as the primary access to the residential lands of [redacted] (370-07210), within Lot H, Concession 3 W.D., was identified under the February 25th, 1983 Engineer's Report prepared by William J. Setterington, P.Eng., and is therefore, considered a legal entity with respect to the 3rd Concession - Clifford Drain. This existing access bridge consists of approximately 12.80 metres of 900mm diameter corrugated steel pipe with bevelled ends and sloped quarried limestone end protection. The driveway top width is approximately 5.60 metres (18.37 ft.). We find the existing access structure to be in fair to poor physical condition. However, it appears that this structure may have a few more years of life remaining. Based on our evaluation, we recommend that no improvements are required to this structure as part of this report. This structure has been labelled herein as **Bridge ④**.

Bridge ⑤ ([redacted] 370-07100)

The existing access bridge extending from Station 0+334.0 to Station 0+346.8, serving as the primary access to the agricultural lands of [redacted] (370-07100), within Lot H, Concession 3 W.D., was identified under the February 25th, 1983 Engineer's Report prepared by William J. Setterington, P.Eng., and is therefore, considered a legal entity with respect to the 3rd Concession - Clifford Drain. This existing access bridge consists of approximately 12.80 metres of 900mm diameter corrugated steel pipe with bevelled ends and sloped quarried limestone end protection. The driveway top width is approximately 6.00 metres (19.69 ft.). We find the existing access structure to be in fair to poor physical condition. However, it appears that this structure may have a few more years of life remaining. Based on our evaluation, we recommend that no improvements are required to this structure as part of this report. This structure has been labelled herein as **Bridge ⑤**.

In summary, we recommend that the replacement of **Bridge ①** to be constructed in the 3rd Concession - Clifford Drain is to serve as the primary access for the existing agricultural lands owned by [redacted] (370-07300), within Lot H, Concession 3 W.D., 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".

VII. ALLOWANCES AND COMPENSATION

All of the work under this project shall be carried out along the north limit of Road 3 West. All areas disturbed by this work are specified for full restoration; therefore, these works shall not result in any loss of production of agricultural property, or any indirect damages to the non-agricultural areas. Therefore, no allowances or compensation has been provided for under this report.

VIII. ESTIMATE OF COST

Our estimate of the total cost of this work including all incidental expenses is the sum of **SIXTY NINE THOUSAND EIGHT HUNDRED FIFTY FIVE DOLLARS ($69,855.00),** 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 20.0 metres (65.62 ft.) of 1400mm diameter, 2.8mm thick, Aluminized Steel Type II Corrugated Hel-Cor pipe with annular ends and 125mm x 25mm corrugation profile, including interlocking concrete block headwalls with daylighting and concrete footings, sloped quarried limestone erosion protection, granular bedding and backfill, granular driveway approach, excavation, compaction, cleanup and restoration, complete. Lump Sum		$ 49,000.00
Item 2)	Net H.S.T. for above item. (1.76%)		$ 862.00
	TOTAL FOR CONSTRUCTION		**$ 49,862.00**

INCIDENTALS

1)	Report, Estimate, and Specifications	$ 7,600.00
2)	Survey, Assistants, Expenses, and Drawings	$ 5,100.00
3)	Cost of Preparing new Maintenance Schedule of Assessment	$ 2,500.00

4)	Duplication Cost of Report and Drawings	$ 600.00
5)	Estimated Cost of Preparing Tender Documents, and Tender Process on an Invitation Basis, and Tender Review	$ 900.00
6)	Estimated Cost of Providing Supervision and Full-Time Inspection During Construction (Based on a 3 Day Duration)	$ 2,800.00
7)	Estimated Net H.S.T. on above items (1.76%)	$ 343.00
8)	Estimated Cost for E.R.C.A. Permit	$ 150.00
	TOTAL FOR INCIDENTALS	**$ 19,993.00**
	TOTAL FOR CONSTRUCTION (brought forward)	**$ 49,862.00**
	TOTAL ESTIMATE	**$ 69,855.00**

IX. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached a design drawing for the replacement of the existing access bridge in the 3rd Concession - Clifford Drain. The design drawing shows the alignment of the 3rd Concession - Clifford Drain, and the approximate location of the various access bridges within this drain. The drawings also illustrate the affected landowners, the approximate limit of the drain watershed, and the details relative to the replacement and improvements of 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"**.

X. 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 3rd Concession - Clifford Drain for drainage purposes.

Assessment Components

The total individual assessments within the Construction Schedule of Assessment, comprises of three (3) separate assessment components, including:

i) **Benefit** *defined as advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures, as it relates to Section 22 of the Drainage Act.*

ii) **Special Benefit** *defined as additional work or feature included in the construction, repair or improvement of a drainage works that has no effect on the functioning of the drainage works.*

iii) **Outlet Liability** *defined as part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet, as it relates to Section 23 of the Drainage Act.*

Access Bridge Assessment Rationale

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

Special Benefit Assessment – Any special feature requested or required for the sole betterment of a single property, that does not affect the functionality of the drainage system shall be assessed a Special Benefit Assessment. This Special Benefit Assessment would also include any special features to enhance an access bridge structure (such as decorative headwalls, surface pavement, etc.).

Outlet Assessment – According to the parameters set within Section 23 of the Drainage Act, all lands which utilize the Municipal Drain as a drainage outlet may be assessed for Outlet Liability. As further outlined within Section 23(3) of the Drainage Act, the Outlet Assessment is *"…based on the volume and rate of flow of the water artificially caused to flow…"*. Based on the characteristics of the lands that contribute flow to the drainage system, runoff factors have been applied based on the land use of each property

to reflect the actual amount of water that is artificially collected and discharged through the proposed structures. Therefore, developed lands (residential, commercial lots and roads) have an increased run-off factor applied to their assessment. Contrarily, lands which have surface (or subsurface) runoff that exit the watershed, or contain woodlots, would have a decrease run-off factor applied to their assessment.

As it relates to the replacement of **Bridge ①**, 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 3rd Concession - Clifford 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. The bridge user's Benefit Assessment also accounts for the increased bridge length beyond the length available to provide a standard 6.10 metre (20.00 ft.) driveway top width.

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 within 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 easterly of the subject bridge.

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 **not** be utilized for the sharing of any future maintenance works conducted to the bridge replaced under this report.

Maintenance Schedule & Cost Sharing Provisions for Access Bridges

As part of this project, we have provided for a separate Maintenance Schedule of Assessment and for the 3rd Concession - Clifford Drain, together with cost sharing provisions for future work performed on each access bridge within this drain. We would therefore recommend that all of the costs associated to the preparation of the new Maintenance Schedule of Assessment, along with establishing Future Maintenance Provisions for all access bridges within this Municipal Drain, be charged against the lands and roads affected within the attached Construction Schedule of Assessment included herein.

Agricultural Grants and Grant Eligibility

The Ontario Ministry of Agriculture, Food, and Rural Affairs (O.M.A.F.R.A.) have 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 and the Engineer has further confirmed this information with the Ag Maps Geographic Information Portal services through O.M.A.F.R.A. Properties that meet the criteria for "lands used for agricultural purposes" 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 preparation of a new Maintenance Schedule of Assessment under Section 76 of the Drainage Act is not normally eligible for grant; however, pursuant to Section 2.3(e) of the "Agricultural Drainage Infrastructure Program: Administrative policies", where the cost of developing a new Assessment Schedule is less than 25% of the engineering costs for the total project, the engineering cost expended towards the preparation of same shall be eligible for grant. Since the engineering costs for the preparation of Maintenance Schedules of Assessment included herein are **less** than 25% of the overall engineering costs, we would expect that all of the agricultural assessments associated with the preparation of the new maintenance schedule **shall** be eligible for grant.

XI. FUTURE MAINTENANCE

3rd Concession - Clifford Drain (Open Drain)

After completion of all of the works associated with this Engineer's Report, we recommend that the 3rd Concession - Clifford Drain be kept up and maintained in the future by the Town of Kingsville. As part of this project, we have provided a separate **Maintenance Schedule of Assessment** for distributing costs for future maintenance in the 3rd Concession - Clifford Drain. The Maintenance Schedule of Assessment is included herein as **Appendix "D"**.

For the Maintenance Schedule of Assessment, the assessment proportions as outlined therein have been established on the basis of an estimated future maintenance cost of **$10,000.00**. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and does not form part of the current cost for the work.

It must also be understood, that the Maintenance Schedule of Assessment for the 3rd Concession - Clifford Drain is for maintenance of the open drain portions only and are not to be utilized for any of the maintenance works being conducted to the existing access bridges within the drain. The existing access bridges are to be assessed in a different fashion.

Working Corridors for Open Drain Maintenance

When future maintenance is performed on the open drain portion of the 3rd Concession - Clifford Drain affected by the works within this report, all working corridors and provisions for excavated material removed from the open drain shall be addressed per the specifications within the Engineer's Reports prepared by William J. Setterington, P.Eng., dated February 25th, 1983.

3rd Concession - Clifford Drain Access Bridges

It should be noted that a mechanism should be provided herein so that the Municipality can undertake future maintenance works on the subject access bridges so that the future maintenance costs for same can be properly assessed to the affected landowners. We would therefore recommend that all of the structures identified within this report, and within the 3rd Concession - Clifford Drain, for which future maintenance costs are to be shared with upstream lands and roads within the watershed, be maintained by the Municipality.

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

TABLE SHOWING COST SHARING FOR ACCESS BRIDGES

BRIDGE NO.	ROLL NUMBER	OWNERS	STANDARD BRIDGE BENEFIT SHARE	BLENDED COST SHARING	
				% TO ABUTTING OWNER	% TO UPSTREAM LANDS AND ROADS
1.	370-07300	[redacted]	62.8%	81.8%	18.2%
2.	370-07300	[redacted]	100.0%	100.0%	0.0%
3.	370-07200	[redacted]	71.8%	77.0%	23.0%
4.	370-07210	[redacted]	73.9%	73.9%	26.1%
5.	370-07100	[redacted]	78.8%	78.8%	21.2%

The sharing percentages between the bridge user and the upstream lands and roads affected by said bridges have been established on the basis of where it is located relative to the entire reach of the drain. The blended cost sharing percentages above accounts for the bridge user share of the increased bridge length beyond the length available to provide the standard 6.10 metres (20.00 ft.) minimum driveway top width.

The percentage to the upstream lands and roads as established above is to be assessed as an Outlet Liability towards the lands and roads within the 3rd Concession - Clifford Drain watershed lying upstream of said access bridge structures and shall be shared in the same proportions established within the **Schedule of Assessment for Future Access Bridge Structure Maintenance** attached herein and labelled **Appendix "D"**. This Schedule of Assessment has been developed on the basis of an assumed cost of **$3,000.00** and the future maintenance costs for each affected access bridge within the drain shall be levied pro rata on only the affected lands and roads that are situated upstream of the particular access bridge for which future maintenance works has been carried out.

We would 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 these legal access bridges, 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 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.

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2018-08-24
PROVINCE OF ONTARIO

ABP/amm

Att.

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

CONSTRUCTION SCHEDULE OF ASSESSMENT

3RD CONCESSION - CLIFFORD DRAIN IMPROVEMENTS

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
Road 3 West				6.60	2.671	Town of Kingsville	$ 111.00	$ 1,778.00	$ -	$ 1,889.00
Total on Municipal Lands.....							**$ 111.00**	**$ 1,778.00**	**$ -**	**$ 1,889.00**

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
370-04510	2	H	0.57	0.57	0.231	[redacted]	$ 7.00	$ 128.00	$ -	$ 135.00
370-04810	2	I	0.51	0.25	0.101	[redacted]	$ 3.00	$ 93.00	$ -	$ 96.00
370-07005	3	I	0.85	0.85	0.344	[redacted]	$ 11.00	$ 180.00	$ -	$ 191.00
370-07210	3	H	3.67	3.67	1.485	[redacted]	$ 46.00	$ 554.00	$ -	$ 600.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ 67.00**	**$ 955.00**	**$ -**	**$ 1,022.00**

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
370-03700	2	G	96.20	5.00	2.023	[redacted]	$ 38.00	$ 149.00	$ -	$ 187.00
370-04500	2	H	39.90	16.00	6.475	[redacted]	$ 98.00	$ 953.00	$ -	$ 1,051.00
370-04600	2	H	57.34	5.00	2.023	[redacted]	$ 42.00	$ 303.00	$ -	$ 345.00
370-07000	3	I	98.58	49.15	19.891	[redacted]	$ 158.00	$ 3,075.00	$ -	$ 3,233.00

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
370-07100	3	H	50.00	50.00	20.235	[redacted]	$ 161.00	$ 3,069.00	$ -	$ 3,230.00
370-07200	3	H	71.04	46.33	18.749	[redacted]	$ 136.00	$ 2,788.00	$ -	$ 2,924.00
370-07300	3	G	100.00	36.00	14.569	[redacted]	$ 55,063.00	$ 911.00	$ -	$ 55,974.00
Total on Privately Owned - Agricultural Lands (grantable).....							**$ 55,696.00**	**$ 11,248.00**	**$ -**	**$ 66,944.00**
TOTAL ASSESSMENT				219.42	88.798		**$ 55,874.00**	**$ 13,981.00**	**$ -**	**$ 69,855.00**

1 Hectare = 2.471 Acres
D-17-030
August 24th, 2018

SPECIFICATIONS

BRIDGE OVER THE 3RD CONCESSION - CLIFFORD DRAIN

(for [redacted] (370-07300),

Part of Lot G, Concession 3 W.D.)

(Geographic Township of Gosfield South)

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 3rd Concession - Clifford Drain, serving the lands of [redacted] (370-07300). 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 1200mm diameter corrugated steel culvert with a new 1400mm diameter corrugated steel culvert, together with new interlocking concrete block headwalls with daylighting, sloped quarried limestone erosion protection adjacent to the new headwalls, 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 18.80 metres (61.68 ft.) traveled driveway top width and all of the work necessary for completion to the satisfaction of the Drainage Superintendent or Consulting Engineer.

The location of the new access bridge shall be the exact designated location, as identified within the plans, unless otherwise directed by the property Owner and the Town Drainage Superintendent, prior to the construction of same. Any changes to the location of the new access bridge, must be approved in writing by the Consulting Engineer.

All work shall be carried out in accordance with these specifications and serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. All work shall also comply in all regards with **Appendix "A"**, as well as the Standard Specifications included in **Appendix "B"**. The works shall also be carried out in accordance with the plans labelled herein as **Appendix "C"**. The bridge shall be of the size, type, depth, etc., as shown in the accompanying drawings, 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 Wigle Creek. 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. 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. Both of which are included within **Appendix "A"**.

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 3rd Concession - Clifford 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 Road 3 West. 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 Road 3 West 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. FENCING

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

VII. DETAILS OF BRIDGE WORK

The Contractor shall provide all material, labour and equipment to replace and improve the existing access bridge for [redacted] (370-07300), within the 3rd Concession - Clifford 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 interlocking precast concrete block headwall, of approximately 20.00m (65.62 ft.) and a travelled driveway width of 18.80m (61.68 ft.). The interlocking precast concrete block headwall shall be installed vertically, 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"**.

VIII. ALUMINZED STEEL PIPE INSTALLATION

The Aluminized Steel Type II Corrugated Hel-Cor pipe, having a thickness of 2.80mm, for this project shall be supplied with no more than two (2) lengths of pipe, which are to be coupled together with the use of similar thickness 10C Aluminized Steel Corrugated Bolted Couplers, secured in accordance with the manufacturers recommendations. Under no circumstances shall the bridge culvert be provided with more than two (2) lengths of pipe. The overall Corrugated Steel Pipe for this installation must be of the length, size, and thickness identified in the plans and approved by the Drainage Superintendent and 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 3rd Concession - Clifford Drain at the location of this replacement access bridge installation consists of a 0.91m (3.00 ft.) bottom width, 0.10% 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.

IX. 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 south and transitions to the north shall be M.T.O. Type "A" O.P.S.S. Form 1010.

The Contractor shall also perform the necessary excavation to extend the width of the driveway from the existing edge of the gravel shoulder to the top of the south bank, and from the top of the north bank to approximately 4.50 metres north of the north right-of-way limit of Road 3 West. This driveway approach for the entire length and width shall consist of a minimum of 305mm (12") of granular material M.T.O. Type "A" satisfactory compacted in place. The gravel apron shall extend from the full width of the access bridge culvert length, and include the daylighted portion of the headwall, from approximately the edge of the gravel roadway to the edge of the new gravel driveway, as shown on the plans. The gravel backfill shall extend across the pipe to approximately

4.50 metres north of the north right-of-way limit of Road 3 West, as shown on the plans.

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 south face of existing hydro pole located on the north side of Road 3 West, immediately east of the subject access bridge, and this **Bench Mark** is set at Elevation **191.936 metres**. The new pipe culvert and backfilling is to be placed on the following basis:

i) The **east (upstream) invert** of the proposed bridge culvert is to be set at Elevation **189.782** metres.

ii) The **west (downstream) invert** of the proposed bridge culvert is to be set at Elevation **189.762** metres.

iii) The centreline of driveway for this bridge installation shall be set to Elevation **192.131** metres at the existing edge of asphalt roadway, Elevation **191.928** metres at the culvert pipe centreline, and Elevation **191.718** metres at 4.5 metres north 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.

X. 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. As part of the extended portion of the proposed access bridge, the Contractor shall also be required to cut any brush and denude the existing drain sideslopes of any vegetation as part of the grubbing operation. However, the Contractor is asked to create minimal disturbance to existing vegetation beyond the limits of the proposed access bridge site. 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.

XI. PRECAST INTERLOCKING CONCRETE BLOCK 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 Road 3 West, 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 south

face of the new culvert, to a point just beyond the south 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 3.00 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 **191.800** 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: 3rd Concession Clifford Drain (Bridge for LFR Holdings Inc.) - Town of Kingsville- D17-030
From: Dan Jenner <DJenner@erca.org>
Date: 8/17/2018 12:08 PM
To: Tony Peralta <tony@peraltaengineering.com>, Ken Vegh <kvegh@kingsville.ca>
CC: Diane Broda <dbroda@kingsville.ca>, "josh@peraltaengineering.com" <josh@peraltaengineering.com>

Good Afternoon Tony,

Thank you for the preliminary design details.

We look forward to receiving the final report and application for permit form.

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

Yours truly,

DAN JENNER
Regulations Analyst
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311 Ÿ Essex, Ontario Ÿ N8M 1Y6
P. 519-776-5209 x 359 Ÿ F. 519-776-8688
djenner@erca.org essexregionconservation.ca

From: Tony Peralta <tony@peraltaengineering.com>
Sent: Saturday, August 4, 2018 2:42 PM
To: Cynthia Casagrande <CCasagrande@erca.org>; Ken Vegh <kvegh@kingsville.ca>; Dan Jenner <DJenner@erca.org>
Cc: Diane Broda <dbroda@kingsville.ca>; josh@peraltaengineering.com
Subject: Re: 3rd Concession Clifford Drain (Bridge for LFR Holdings Inc.) - Town of Kingsville- D17-030

Good afternoon Cynthia and Dan;

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

Under this project we will be replacing an existing access bridge to facilitate the expansion of the an existing dairy farm development for LFR Nelson Holdings Inc.

The existing access bridge culvert consists of approximately 14.0m of 1200mm diameter CSP culvert with sloped quarried limestone end treatments. It shall be noted that there are no existing access bridges downstream of this access within the 3rd Concession Clifford Drain. Approximately 300m upstream of the subject access bridge is an existing culvert having a length of approximately 10.0m of 900mm dia. CSP with sloped quarried limestone end protection.

Based on our preliminary design, we have determined that the replacement access bridge shall consist of approximately 20.0m of 1400mm diameter CSP with a vertical headwalls, to accommodate truck traffic and is designed as per the CSAS-31 MTO standard. Furthermore, the new access will be shifted slightly to the west to facilitate the new location of the proposed lane-way on the subject property.

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: 3rd Concession Clifford Drain - Bridge for LFR Holdings Inc - Notice of Site Meeting
From: Cynthia Casagrande <CCasagrande@erca.org>
To: Ken Vegh <kvegh@kingsville.ca>
Cc: Diane Broda <dbroda@kingsville.ca>, Tony Peralta
Date: Wed, 26 Jul 2017 13:17:23 +0000

> Dear Ken:
>
> We acknowledge receipt of the revised Notice of Site Meeting scheduled for July 27, 2017 regarding the new bridge for LFR Holdings Inc. over the 3rd Concession Clifford Drain. It is our understanding that the engineering firm of N. J. Peralta Engineering Ltd. will be preparing the report.
>
> Our comments contained in the email below regarding this project are still applicable.
>
> 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: Cynthia Casagrande
Sent: Friday, July 21, 2017 3:27 PM
To: 'Ken Vegh' <kvegh@kingsville.ca>
Cc: Diane Broda <dbroda@kingsville.ca>; Gerard Rood <gerard@roodengineering.ca>; Dan Jenner <DJenner@ERCA.org>
Subject: 3rd Concession Clifford Drain - Bridge for LFR Holdings Inc - Notice of Site Meeting

Dear Ken:

This office acknowledges receipt of the Notice of Site Meeting scheduled for July 27, 2017 regarding the proposed bridge for LFR Holdings Inc. over the 3rd Concession Clifford Drain. Unfortunately, we are unable to attend this meeting.

A review of our floodplain mapping for the 3rd Concession Clifford 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.

With respect to Department of Fisheries and Oceans (DFO) concerns and comments, the proposed works to the 3rd Concession Clifford Drain will need to be self-assessed by you, the proponent, through the DFO website at http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. Through the self-assessment process, you will be able to determine if these works require a formal authorization under the *Fisheries Act.*

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

Attachments:

Application for Permit - General_Fillable.pdf 197 KB

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

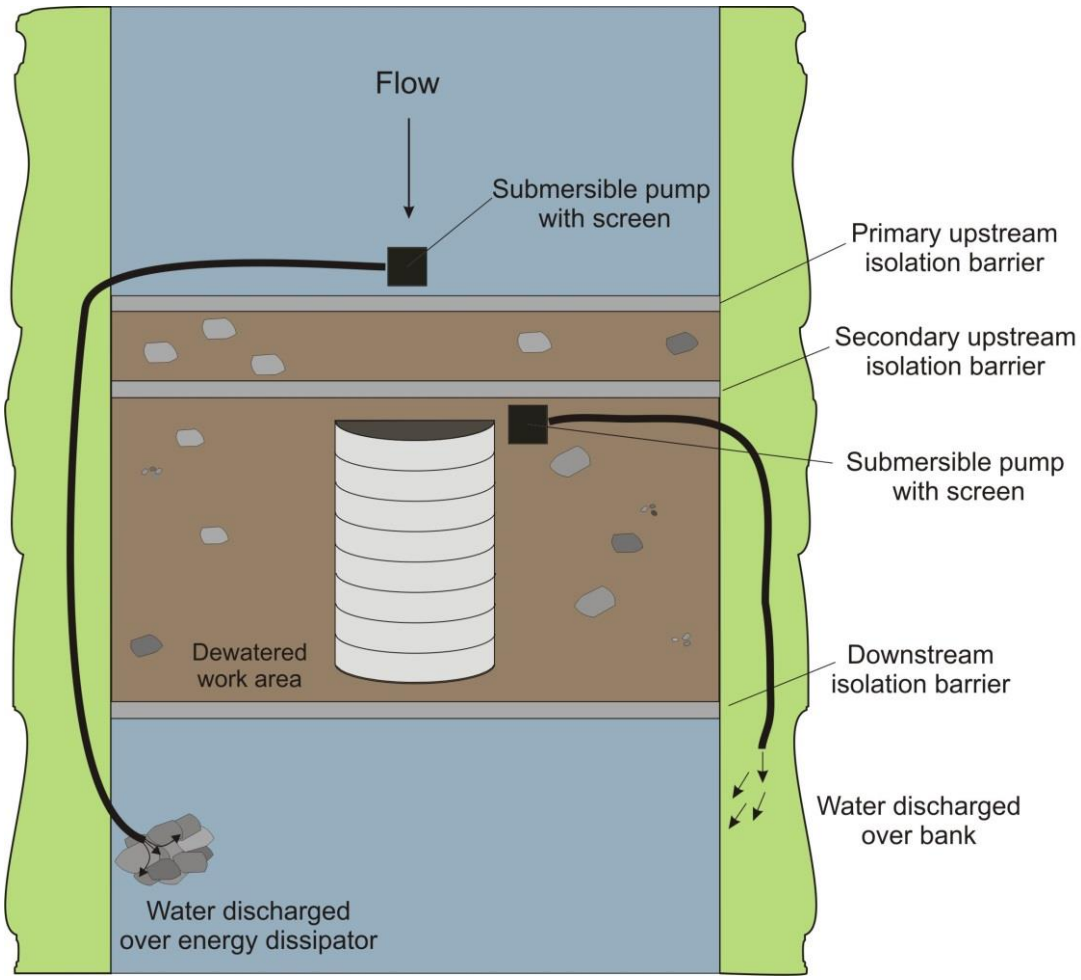


Figure 3. Isolation and Bypass Diversion when Working In-Water

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.

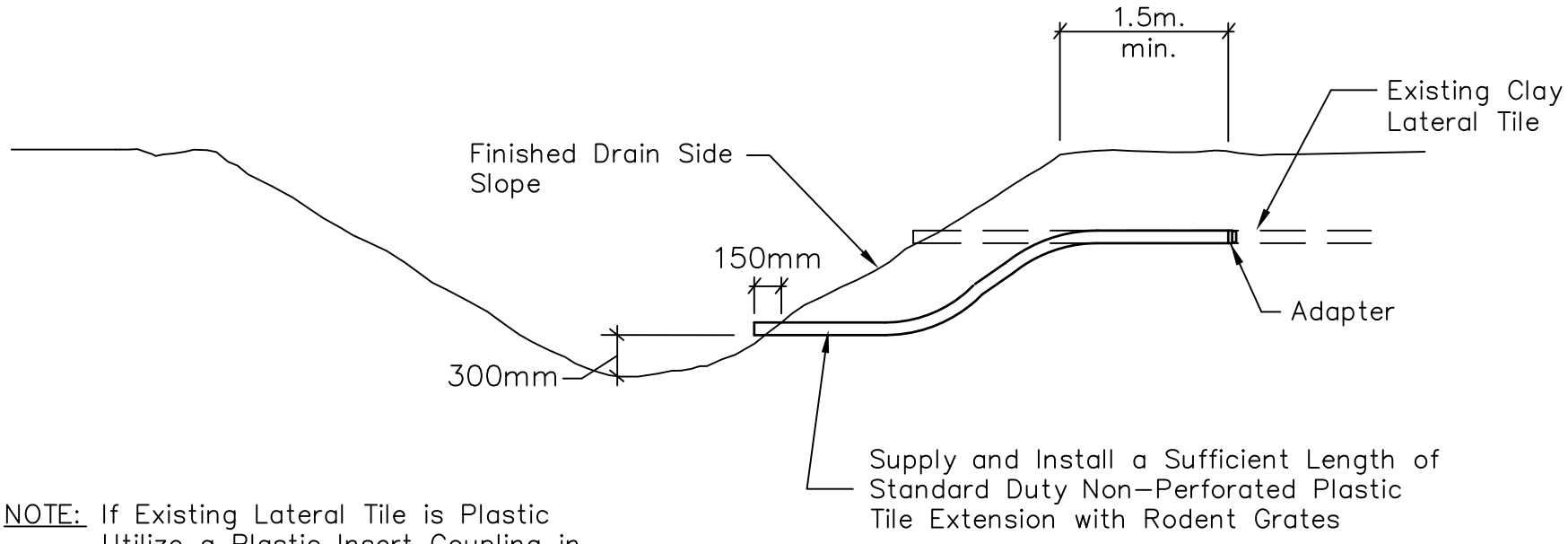
Where applicable, the Contractor and/or landowner constructing the new bridge shall be responsible for any damage caused by them to any portion of the Town road right-of-way. They shall take whatever precautions are necessary to cause a minimum of damage to same and must restore the roadway to its' original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



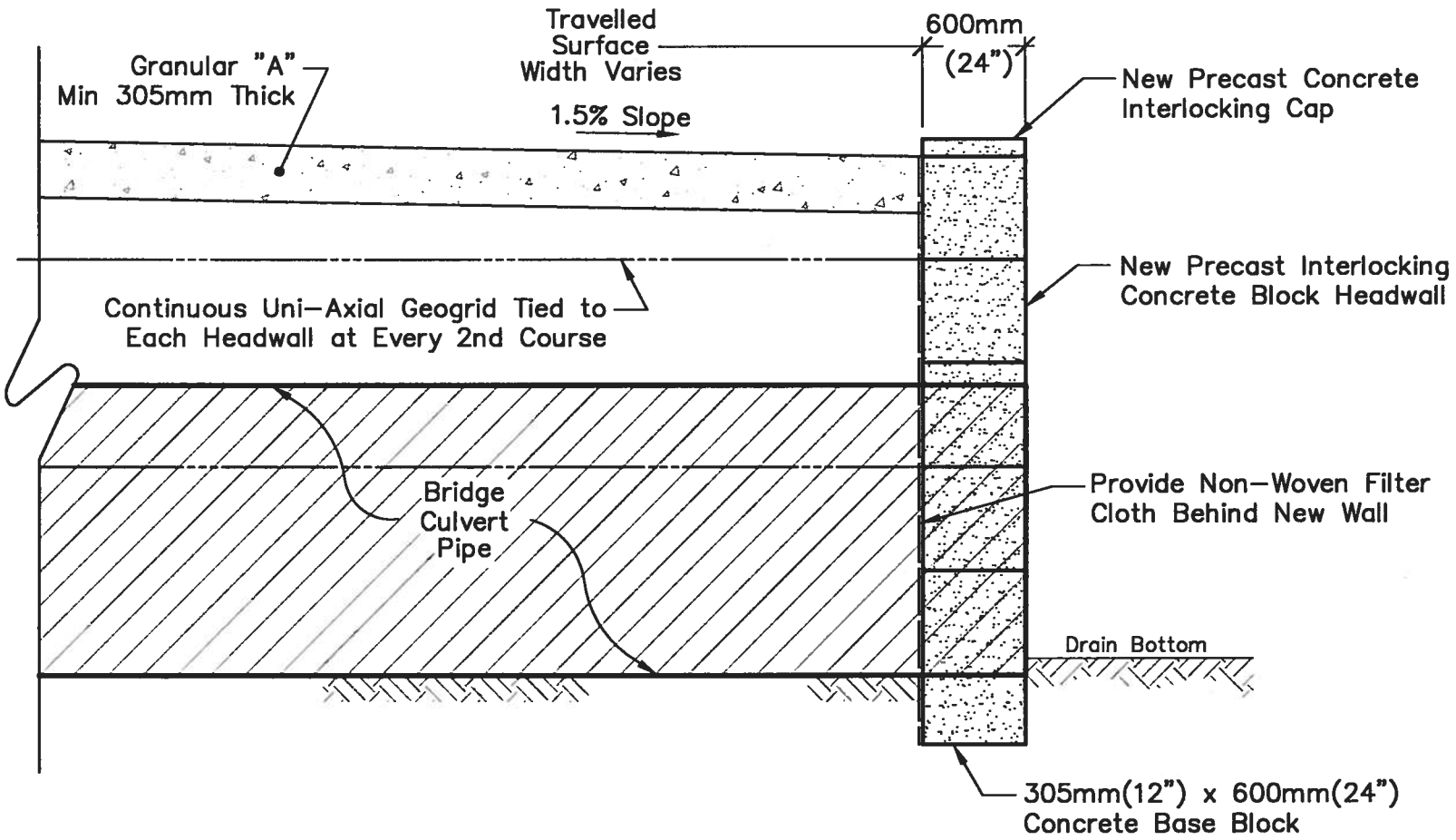
NOTE: If Existing Lateral Tile is Plastic Utilize a Plastic Insert Coupling in Place of Adapter.

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”

PLAN & DETAILS

OF THE

3RD CONCESSION - CLIFFORD DRAIN IMPROVEMENTS

IN THE

TOWN OF KINGSVILLE (Geographic Township of Gosfield South)

IN THE

COUNTY OF ESSEX • ONTARIO

ANTONIO B. PERALTA, P.ENG.

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2018-08-24
PROVINCE OF ONTARIO

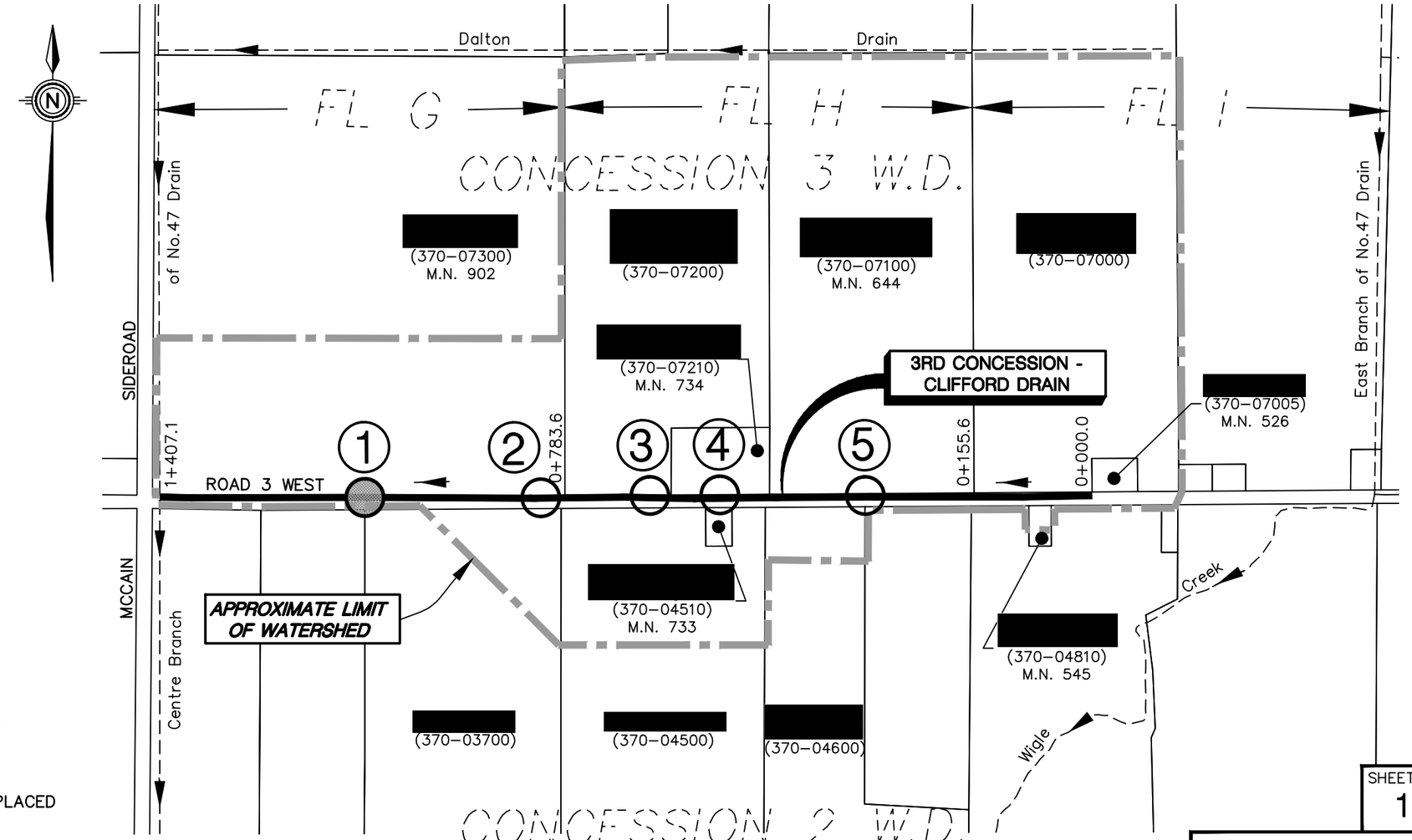
TOWN OF KINGSVILLE

MAYOR: NELSON SANTOS
CLERK: JENNIFER ASTROLOGO
DRAINAGE SUPERINTENDENT: KEN VEGH

BENCHMARK:

TOP OF NAIL SET IN SOUTH FACE OF EXISTING HYDRO POLE LOCATED ON THE NORTH SIDE OF ROAD 3 WEST, IMMEDIATELY EAST OF THE SUBJECT ACCESS BRIDGE.

ELEV. = 191.936m



DENOTES WATERSHED LIMITS

DENOTES BRIDGE TO BE REPLACED

DENOTES BRIDGE IDENTIFICATION NUMBER AND LOCATION

KEY PLAN
Scale = 1:7,500

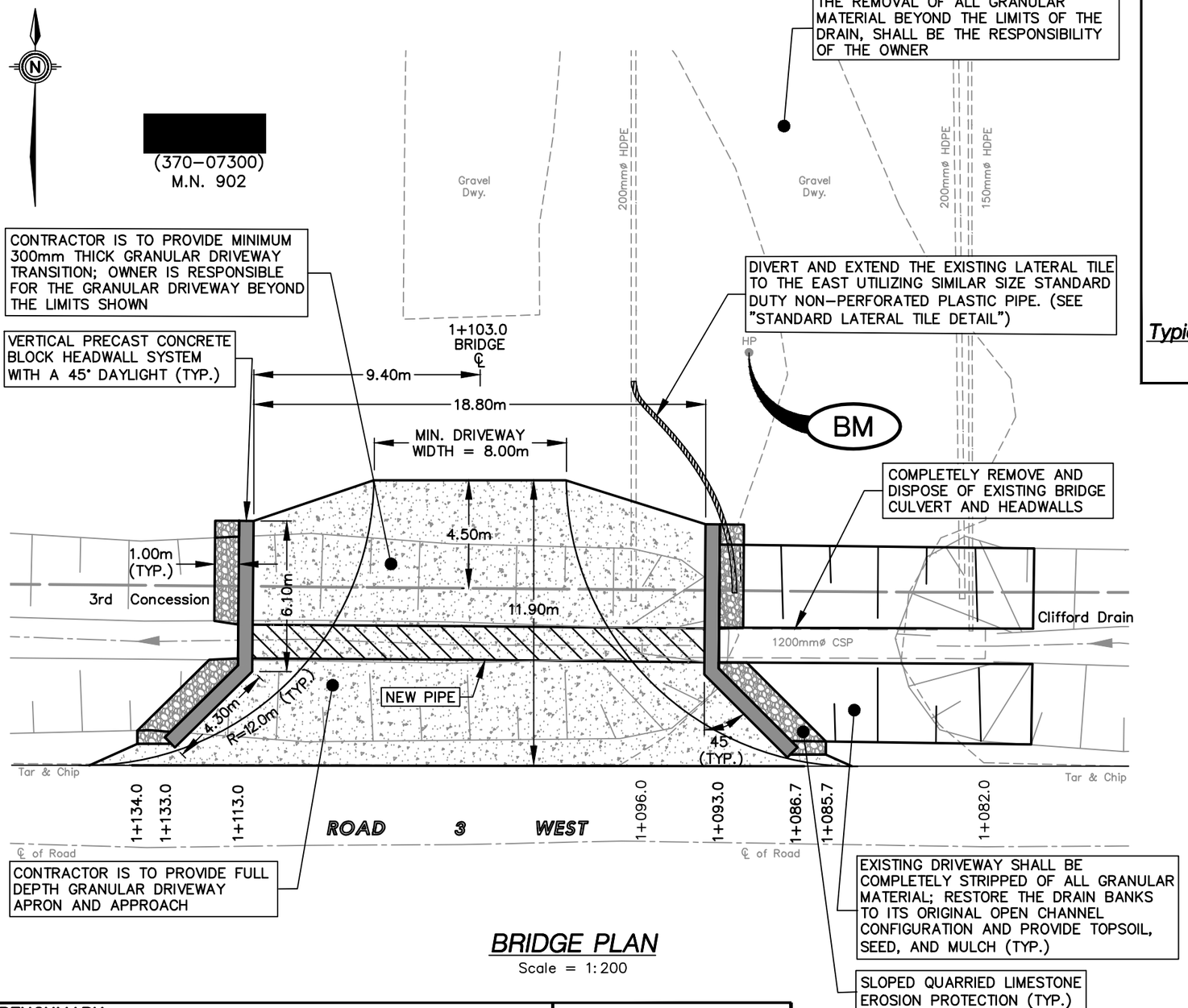
SHEET No.: 1 OF 2

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

DATE: AUG. 24th, 2018

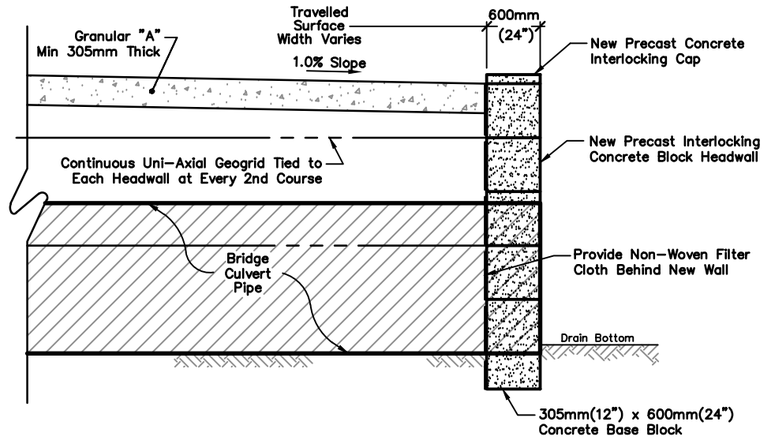
FILE No.: D17-030
DRAWN BY: J.J.K.
PLOT CODE: 1:1
FILE: D17030S1.DWG
APPENDIX 'C'

Z:\PROJECTS\DRAINAGE\2017\D17030\DWG\D17030S1.dwg, Last Saved: 2018/08/23



BRIDGE PLAN

Scale = 1:200



Typical Precast Interlocking Concrete Block Vertical Headwall End Protection

N.T.S.

GENERAL NOTES:

1. THE ACCURACY OF THE UTILITIES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED BY THE OWNER OR N. J. PERALTA ENGINEERING LTD. OTHER UTILITIES MAY BE PRESENT OR THE UTILITIES SHOWN MAY DIFFER IN SIZE OR LOCATION SHOWN.
2. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE. PROPERTY LINES ARE APPROXIMATE AND ARE BASED ON THE TOWN OF KINGSVILLE GIS AND FIELD INFORMATION.
3. THE ENTRANCE HAS BEEN DESIGNED TO SATISFY THE M.T.O. COMMERCIAL SITE ACCESS POLICY AND STANDARD DESIGNS FOR AN ENTRANCE TO SMALL BUSINESS AND THE QUOTA AND MILK TRANSPORTATION POLICIES FOR DAIRY FARMERS OF ONTARIO.

BENCHMARK:

TOP OF NAIL SET IN SOUTH FACE OF EXISTING HYDRO POLE LOCATED ON THE NORTH SIDE OF ROAD 3 WEST, IMMEDIATELY EAST OF THE SUBJECT ACCESS BRIDGE.

ELEV. = 191.936m

PIPE SIZE:	PIPE LENGTH:	PIPE GAUGE:	CORRUGATIONS:	TYPE OF PIPE:
1400mmø	20.0m (65.62 FT.)	2.8mm (12 GA.)	125mm x 25mm (5.0" x 1.0")	ALUMINIZED STEEL TYPE II CORRUGATED HEL-COR PIPE

PIPE & DRIVEWAY ELEVATIONS:
UPSTREAM INV. (E) = 189.781m
DOWNSTREAM INV. (W) = 189.761m
DESIGN GRADE = 0.10%
℄ OF DRIVEWAY AT ROADWAY EDGE = 192.131m
℄ OF DRIVEWAY AT PIPE CENTRELINE = 191.928m
℄ OF DRIVEWAY 4.50m NORTH OF R.O.W LIMIT = 191.718m
DRIVEWAY CROSSFALL FROM CENTRELINE TO TOP OUT END OF END WALL = 1.50%

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2018-08-24
PROVINCE OF ONTARIO

SHEET No.:
2 OF 2

Z:\PROJECTS\DRAINAGE\2017\D17030\DWG\D17030S1.dwg, Last Saved: 2018/08/23

APPENDIX “D”

MAINTENANCE SCHEDULE OF ASSESSMENT

MAINTENANCE SCHEDULE OF ASSESSMENT

3RD CONCESSION - CLIFFORD DRAIN

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
Road 3 West				6.60	2.671	[redacted]	$ 389.00	$ 751.00	$ -	$ 1,140.00
Total on Municipal Lands.....							**$ 389.00**	**$ 751.00**	**$ -**	**$ 1,140.00**

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
370-04510	2	H	0.57	0.57	0.231	[redacted]	$ 25.00	$ 54.00	$ -	$ 79.00
370-04810	2	I	0.51	0.25	0.101	[redacted]	$ 11.00	$ 46.00	$ -	$ 57.00
370-07005	3	I	0.85	0.85	0.344	[redacted]	$ 38.00	$ 93.00	$ -	$ 131.00
370-07210	3	H	3.67	3.67	1.485	[redacted]	$ 162.00	$ 225.00	$ -	$ 387.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ 236.00**	**$ 418.00**	**$ -**	**$ 654.00**

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
370-03700	2	G	96.20	5.00	2.023	[redacted]	$ 135.00	$ 54.00	$ -	$ 189.00
370-04500	2	H	39.90	16.00	6.475	[redacted]	$ 345.00	$ 344.00	$ -	$ 689.00
370-04600	2	H	57.34	5.00	2.023	[redacted]	$ 147.00	$ 127.00	$ -	$ 274.00
370-07000	3	I	98.58	49.15	19.891	[redacted]	$ 554.00	$ 1,580.00	$ -	$ 2,134.00

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
370-07100	3	H	50.00	50.00	20.235	[redacted]	$ 564.00	$ 1,397.00	$ -	$ 1,961.00
370-07200	3	H	71.04	46.33	18.749	[redacted]	$ 477.00	$ 1,100.00	$ -	$ 1,577.00
370-07300	3	G	100.00	36.00	14.569	[redacted]	$ 883.00	$ 499.00	$ -	$ 1,382.00
	Total on Privately Owned - Agricultural Lands (grantable).....						**$ 3,105.00**	**$ 5,101.00**	**$ -**	**$ 8,206.00**
TOTAL ASSESSMENT				219.42	88.798		**$ 3,730.00**	**$ 6,270.00**	**$ -**	**$ 10,000.00**

==========

1 Hectare = 2.471 Acres
D-17-030
August 24th, 2018

SCHEDULE OF ASSESSMENT
FOR FUTURE ACCESS BRIDGE STRUCTURE MAINTENANCE

SCHEDULE OF ASSESSMENT FOR FUTURE ACCESS BRIDGE STRUCTURE MAINTENANCE

3RD CONCESSION - CLIFFORD DRAIN

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
Road 3 West				5.85	2.367	[redacted]	$ -	$ 383.00	$ -	$ 383.00
Total on Municipal Lands.....							**$ -**	**$ 383.00**	**$ -**	**$ 383.00**

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
370-04510	2	H	0.57	0.57	0.231	[redacted]	$ -	$ 28.00	$ -	$ 28.00
370-04810	2	I	0.51	0.25	0.101	[redacted]	$ -	$ 20.00	$ -	$ 20.00
370-07005	3	I	0.85	0.85	0.344	[redacted]	$ -	$ 38.00	$ -	$ 38.00
370-07210	3	H	3.67	3.67	1.485	[redacted]	$ -	$ 121.00	$ -	$ 121.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ -**	**$ 207.00**	**$ -**	**$ 207.00**

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
370-03700	2	G	96.20	5.00	2.023	[redacted]	$ -	$ 33.00	$ -	$ 33.00
370-04500	2	H	39.90	16.00	6.475	[redacted]	$ -	$ 210.00	$ -	$ 210.00
370-04600	2	H	57.34	5.00	2.023	[redacted]	$ -	$ 66.00	$ -	$ 66.00
370-07000	3	I	98.58	49.15	19.891	[redacted]	$ -	$ 646.00	$ -	$ 646.00

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
370-07100	3	H	50.00	50.00	20.235	[redacted]	$ -	$ 657.00	$ -	$ 657.00
370-07200	3	H	71.04	46.33	18.749	[redacted]	$ -	$ 609.00	$ -	$ 609.00
370-07300	3	G	100.00	18.00	7.285	[redacted]	$ -	$ 189.00	$ -	$ 189.00
	Total on Privately Owned - Agricultural Lands (grantable).....						**$ -**	**$ 2,410.00**	**$ -**	**$ 2,410.00**
TOTAL ASSESSMENT				200.67	81.210		**$ -**	**$ 3,000.00**	**$ -**	**$ 3,000.00**

1 Hectare = 2.471 Acres
D-17-030
August 24th, 2018