Municipality of Lakeshore
Drainage Board Meeting Agenda

Monday, September 16, 2024, 5:00 PM
Council Chambers, 419 Notre Dame Street, Belle River

Pages

1. Call to Order

2. Land Acknowledgement

3. Disclosures of Pecuniary Interest

4. Completion of Unfinished Business

5. Approval of Previous Meeting Minutes

   Recommendation:
   Approve minutes of the previous meeting as listed on the agenda.

   a. August 12, 2024 Meeting Minutes 2

6. Consideration of Reports under the Drainage Act

   a. ST. PIERRE DRAIN 5

      The Engineer's considered report prepared by N.J. Peralta Engineering Ltd. dated August 23, 2024, in the Municipality of Lakeshore, in the County of Essex be adopted and By-Law 86-2024 be recommended for the first and second reading.

      Recommendation:
      The Engineer's considered report prepared by N.J. Peralta Engineering Ltd. dated August 23, 2024, in the Municipality of Lakeshore, in the County of Essex be adopted and By-Law 86-2024 be recommended for the first and second reading.

7. Court of Revision

8. Adjournment

   Recommendation:
   Adjourn the meeting at ___ PM.

Municipality of Lakeshore

Minutes of the Drainage Board Meeting

Monday, August 12, 2024, 5:00 PM
Council Chambers, 419 Notre Dame Street, Belle River

Members Present:	Member Ron Barrette, Member Maurice Janisse, Member Blaise Chevalier, Member Horst Schmidt, Member Norbert Poggio
Members Absent:	N/A
Staff Present:	Drainage Superintendent, Jill Fiorito, Administrative Assistant, Drainage, Deirdra Watson
Drainage Engineers Present:	N/A

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1. Call to Order

Chair Janisse called the meeting to order at 5:00 PM.

2. Singing of O Canada and Land Acknowledgement

3. Disclosures of Pecuniary Interest

4. Approval of Previous Meeting Minutes

5. Court of Revision

a. Opening the Court of Revision

12-08-2024
Moved By Member Schmidt
Seconded By Member Chevalier

Move into the Court of Revision to consider appeals respecting By-law 65-2024 and 66-2024, in the Municipality of Lakeshore, in the County of Essex.

Carried Unanimously

b. NEW BRIDGE OVER THE LEFFLER DRAIN - (HIGH TECH DRIVE)

This project has gone out to tender, owner is paying 100% of the cost.

The Municipality is in receipt of a letter from Dillon Consulting that they are happy with the work and tenders.

There were no landowners present for the Court of Revision. Additionally, no appeals were submitted to the Municipality ahead of the meeting.

Chair Janisse opened the floor to questions from the Board.

12-08-2024
Moved By Member Schmidt
Seconded By Member Chevalier

Recommend that Council adopt By-Law 65-2024.

Carried Unanimously

c. LITTLE BASELINE ROAD DRAIN EAST (LEFFLER OUTLET)

This project was tendered at the same time as the New Bridge over the Leffler Drain. Owner is paying 100% of the cost, and is happy with the tenders.

The Municipality is in receipt of a letter from Dillon Consulting that they are happy with the work and tenders.

There were no landowners present for the Court of Revision. Additionally, no appeals were submitted to the Municipality ahead of the meeting.

Chair Janisse opened the floor to questions from the Board.

12-08-2024
Moved By Member Schmidt
Seconded By Member Chevalier

Recommend that Council adopt By-Law 66-2024

Carried Unanimously

d. Closing the Court of Revision

12-08-2024
Moved By Member Barrett
Seconded By Member Chevalier

Closing the Court of Revision at 5:20 PM.

Carried Unanimously

7. Adjournment

12-08-2024
Moved By Member Schmidt
Seconded By Member Chevalier

Adjourn the meeting at 5:25 PM.

The next meeting for September 9th has been canceled and will be held in mid-September.

Special meeting will be held later in September regarding other land developments and drainage requirements.

Carried Unanimously

_____

Maurice Janisse

Chair

_____

Jill Fiorito

Municipal Liaison

Peralta Engineering

ENGINEER'S REPORT

(Drainage Act, RSO 1990, c. D.17)

PROJECT

St. Pierre Drain
Part of Lot 1, West Ruscom River Concession
And Updated Maintenance Schedules of Assessment for the
Bernard Tellier Drain
(Geographic Township of Rochester)
Municipality of Lakeshore, County of Essex
Project No. D23-057

August 23, 2024

N.J. Peralta Engineering Ltd.
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Kingsville, ON N9Y 1E1
519-733-6587
peraltaengineering.com

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MUNICIPAL DRAINS AND THE DRAINAGE ACT

The "Drainage Act" is one of the oldest pieces of legislation in Ontario, passed in 1859. It provides a democratic procedure for the construction, improvement and maintenance of drainage works. A procedure whereby the Municipality may assist in providing a legal drainage outlet for surface and subsurface waters not attainable under common law. Accordingly, provides much-needed assistance to facilitate the problems of obtaining a legal drainage outlet, engineering and cost distribution.

The Drainage Act provides a legal procedure by which an "area requiring drainage" may receive an outlet drain constructed to dispose of excess stormwater runoff to a sufficient outlet. This drainage infrastructure is otherwise known as a "Municipal Drain". Municipal Drains are identified by Municipal By-Law that adopts an Engineer's Report. The drainage engineer has the obligation to prepare an unbiased Engineer's Report based on information presented in written form, orally, and from visual inspection; in accordance with currently accepted design criteria. These reports form the legal basis for construction and management of the Municipal Drain. As such, an Engineer's Report shall contain specific details such as plans, profiles, and specifications that define the location, size and depth of the drainage infrastructure, together with establishing how costs are shared amongst all stakeholders.

Through the democratic procedure, the Engineer's Report is presented to all Stakeholders in front of Municipal Council (or a Drainage Board appointed by Council) for consideration. The Drainage Act provides an appeal process to address various aspects of Municipal Drains. These appeal bodies are the Court of Revision, the Ontario Drainage Tribunal and the Drainage Referee.

For additional information, Fact Sheets, and reference materials regarding the Drainage Act and Municipal Drains, please visit: **http://www.omafra.gov.on.ca/english/landuse/drainage.htm**

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Peralta Engineering

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Peralta Engineering

ENGINEER'S REPORT

PROJECT **St. Pierre Drain**
Part of Lot 1, West Ruscom River Concession
And Updated Maintenance Schedules of Assessment for the
Bernard Tellier Drain
(Geographic Township of Rochester)
Municipality of Lakeshore, County of Essex
Project No. D23-057

August 23, 2024

Mayor and Municipal Council
Corporation of the Municipality of Lakeshore
419 Notre Dame Street
Belle River, ON N0R 1A0

I. INTRODUCTION

In accordance with the instructions received by email on May 12, 2023, from the Municipality of Lakeshore's Drainage Department, we have completed the necessary survey, examinations, investigations, etc. and have prepared the following report to provide for drainage improvements along the north side of County Road 2. The proposed work generally provides for a new covered drainage system to facilitate the development of twelve (12) residential lot severances with a new outlet crossing under County Road 2 into the Bernard Tellier Drain. With the creation of the new drainage system, this report shall also include updated Maintenance Schedules of Assessment for the Bernard Tellier Drain. These investigations were initiated by a resolution passed by Council for our firm to prepare an Engineer's Report for the works within this Municipal Drain in accordance with provisions under the Drainage Act. Drawings showing the alignment of the St. Pierre Drain, the general details of the proposed works, and the lands affected within the general watershed area of both drains, are included herein as part of this report.

The request for a new Municipal Drain was submitted through a petition by the Owner of Parcel 610-29400 within Lot 1 of West Ruscom River Concession, for an Engineer's Report to provide a municipal drainage system to permit the development of their property.

Our appointment and the works relative to the construction of a new municipal drainage system along the north side of County Road 2, to accommodate the development of the residential severances from the lands currently owned by Rochester Place Resorts Ltd. (610-29400), are being provided for under this report, in accordance with Section 4(1)(a) and/or (b) of the "Drainage Act, RSO 1990, Chapter D.17, as amended in 2021". We have performed all of the necessary surveys, investigations, etc., for the St. Pierre Drain, and we report thereon as follows.

II. BACKGROUND

Upon receiving the appointment for this project, we also received the completed Petition Form for Drainage Works by the Owner and supporting documentation, including the notification to the local Conservation Authority. In discussion with the Drainage Superintendent, Jill Fiorito, it was her understanding that Rochester Place Resorts Inc. approached the Municipality of Lakeshore with a proposal to sever twelve (12) residential building lots from the existing property identified as Parcel 610-29400, along County Road 2.

The initial approved Consent Applications from 1995 and 1997 allowed for the creation of eight (8) residential building lots. Currently the Owner is in the process of modifying the lot structure to create twelve (12) residential building lots. These new severances have been further outlined within the Draft Plan of Survey prepared by SOS and dated July 17, 2023. The County of Essex Official Plan has identified the subject property as being within the Secondary Settlement Area of Belle River.

Based on the Consent Application B/16 to 27/2023 for the proposed severances, conditions of severance are included as Schedule 'A'. Through Condition 4 of the Consent Application, the Developer must satisfy the Municipality's requirements for drainage. Through their evaluation, they found that the proposed residential building lots do not have a direct and/or sufficient drainage outlet to a Municipal Drain or Natural Watercourse. As a result, the Owner petitioned for a new Municipal Drain. Further to the above condition, the Municipality has established that the new Municipal Drain shall be a covered drainage system.

The information gathered helped us understand the general history and the purpose of the request for drainage improvements by the Owner. It further demonstrated the reason for the submitted petition pursuant to Section 4(1)(a) and/or (b), in accordance with the "Drainage Act, RSO 1999, Chapter D. 17, as amended 2021".

III. DRAINAGE HISTORY AND WATERSHED CHARACTERISTICS

The subject property, prior to severance, is approximately 91.14 acres (36.88 hectares) and is located on the north side of County Road 2 and bounded by Golfview Drive to the west, Deerbrook Drive to the east, and the VIA Rail corridor to the north. The severances are located alongside the north limit of County Road 2 and along the subject property's frontage between 851 and 919 County Road 2.

The natural topography of the land affected by the Petition is generally flat, with isolated high and low areas that are typical of a golf course. The southernmost limit of the property drains to a shallow roadside ditch along the north side of County Road 2. The roadside ditch has a general gradient from west to east with no known drainage outlet. The remaining portions of the property are generally flat with a natural gradient from south to north, with very little relief. The entire property, including the new severances, has no formal connection to a Municipal Drain. All stormwater runoff from the property eventually drains to the Ruscom River and ultimately outlets to Lake St. Clair.

As part of our evaluation of alternative drainage outlets for the severed lots of the subject property, we evaluated the existing Municipal Drain on the south side of County Road 2, known as the "Bernard Tellier Drain". This Municipal Drain was created through an Engineer's report dated July 20, 1965, and was prepared by C.G.R. Armstrong, P.Eng. The current governing report is dated October 17, 2007, and was

prepared by E.P. Dries, P.Eng. This Municipal Drain contributes to two (2) separate drainage systems with the watershed having a high point approximately 856 meters west of County Road 31. The east side of the watershed, known as the East Branch, drains from west to east, and outlets into the Ruscom River by means of a pumped discharge and ultimately outlets into Lake St. Clair. The west side of the watershed, known as the West Branch, drains from east to west and into the East Branch of the William Strong Drain. The East Branch of the William Strong Drain also outlets to Lake St. Clair by means of a pumped discharge.

The project site resides within an area with a soil group of Wauseon Sandy Loam, which is categorized as Hydrological Soil Group C. This soil is described as poorly drained with a low infiltration rate when thoroughly wetted and consists chiefly of soils with a layer that impedes the downward movement of water and soil with moderately fine to fine structure. As a result, these soils require effective artificial drainage to be productive.

IV. PRELIMINARY INVESTIGATIONS AND ON-SITE MEETING

Upon reviewing the submitted Petition and supporting information, together with the discussions with the Municipality of Lakeshore staff, we arranged to schedule an On-Site Meeting. With the uncertainty of a potential drainage outlet and the possibility of utilizing the Bernard Tellier Drain as the drainage outlet, we felt it was prudent to invite all landowners surrounding the project site and within the Bernard Tellier Drain watershed. The On-Site Meeting was scheduled for July 18, 2023, and the following stakeholders were in attendance at said meeting:

Name	Affiliation
Clayton Armstrong	Landowner – 830 County Road 2
Bruce Bauer	Landowner – 919 County Road 2
Elizabeth Jinks	Landowner – 827 County Road 2
Pierre Masse	Landowner – 289 County Road 31
Marc Roy	Landowner – 851 County Road 2
Daniel & Pauline Tellier	Landowner – 273 County Road 31
Stefanie Goulding	Representative of Rochester Place Resorts Inc.
Jackie Lassaline	Lassaline Planning Consultants
Jill Fiorito	Municipality of Lakeshore Drainage Superintendent
Tony Peralta, P.Eng.	N.J. Peralta Engineering Ltd.
Kiara Kirkland	N.J. Peralta Engineering Ltd.

At the onset of this meeting, Jill Fiorito made introductions. She explained that the project was initiated by a Section 4 petition request under the Drainage Act by the owner of Rochester Place Resorts Inc. (610-29400). The petition request was initiated to formalize the construction of a Municipal Drain, in order to facilitate the development of their property.

We engaged in a discussion regarding "What is a Municipal Drain", the general responsibilities of the stakeholders through the Drainage Act, and the general requirements for the creation of a Municipal Drain to facilitate the proposed development. We also distributed pertinent Factsheets, issued by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), for landowners to take with them. We proceeded

to discuss the reason for the Drainage Petition and that the subject property Owner was in the process of severing twelve (12) residential building lots from the property. Stefanie Goulding, representative of the subject lands, confirmed the request to proceed with the creation of a Municipal Drain toward a viable drainage outlet for the development of the subject residential building lots.

Jackie Lassaline commented that eight (8) lots had originally been created by consent in 1995 and 1997 and explained that these lots were being reconfigured to accommodate a total of twelve (12) new lots.

Tony Peralta identified that this meeting was intended to discuss the submitted petition for addressing the necessary drainage improvements. As such, Tony Peralta reviewed the Petition brought forward and discussed the general area that requires drainage. With the uncertainty of the available drainage outlet, it was discussed that the existing Municipal Drain, known as the Bernard Tellier Drain, located on the south side of County Road 2, could be utilized as a possible drainage outlet for the proposed drainage system. Tony Peralta advised that, as a condition of severance, the Municipality has requested that the proposed drainage system be enclosed.

Some residents had questions regarding the type of homes that were going to be built and the general look of the site. Jackie explained that detached single-family homes were being proposed and provided general details.

Questions were raised regarding the subject property's drainage and whether the existing crossing under County Road 2 could be utilized. Tony advised that the subject lands currently do not have a drainage outlet to the Bernard Tellier Drain and are without a sufficient outlet. He also added that the existing crossing to the west serves the residential lots and was likely sized to accommodate only those lands, making it unlikely that it would be able to accept additional flows.

Some residents questioned the distribution of costs for the new Municipal Drain, modifications or improvements to the Bernard Tellier Drain and future maintenance costs for the new system. It was explained to the residents that the developer would bear the cost of the new covered Municipal Drain system and any associated improvements to the Bernard Tellier Drain (if required) for it to accept the additional flows. Any improvements required to address deficiencies in the existing drainage system could be distributed to all affected stakeholders (if applicable). With the creation of the new residential properties, Tony Peralta further explained that new Future Maintenance Schedules would be developed as part of this project to fairly distribute the cost of any future maintenance for the new drainage system, along with the existing Bernard Tellier Drain.

The landowner of 919 County Road 2 expressed concerns about flooding on his property relating to runoff from the subject lands. However, interim grading/berming of the vacant lands appears to have addressed the current flooding concerns. Tony Peralta identified that additional measures can be implemented as part of the new drainage system to prevent further flooding concerns (if necessary).

Those in attendance were also advised that this project is under the jurisdiction of the Department of Fisheries and Oceans (DFO), Ministry of Natural Resources and Forestry (MNRF), Ministry of the Environment, Conservation and Parks (MECP) and the Essex Region Conservation Authority (ERCA). Further requirements of these agencies may govern the final design of the improvements.

Based on the information gathered at this meeting, the Engineer will evaluate the area that requires drainage and confirm the validity of the Petition. If valid, the Rochester Place Resorts Representatives were advised that the Engineer would contact the them once they have completed their survey and establish appropriate drainage outlet options and review any potential implications.

On this note, the On-Site Meeting had concluded.

V. AREA REQUIRING DRAINAGE AND THE VALIDITY OF THE PETITION

In accordance with Section 4 of the Drainage Act, we performed a review of the "Area Requiring Drainage" for this Petition. Based on the information provided, the discussions at the On-Site Meeting, and our review of the additional information gathered, we were able to confirm the "Area Requiring Drainage". At the time when the Petition was submitted, the severances were not officially approved. However, the Consent Application was in process. Therefore, the Petition was submitted on behalf of the original Parcel 610-29400. The parcel consisted of a total area of approximately 91.14 acres (36.88 hectares). The majority of the subject property is primarily used as a golf course, with a network of drainage features that ultimately drains to the north and outlets into the Ruscom River. The southern portion of the property (along County Road 2) where the severances are being proposed is elevated and currently drains south towards the shallow roadside ditch along County Road 2, with no defined drainage outlet. Therefore, we find that the lands proposed for severance shall be defined as the "Area Requiring Drainage".

In accordance with Section 4 and Section 9 of the Drainage Act, the validity of the Petition shall be determined by the Engineer, as it relates to the "Area Requiring Drainage". Moreover, Section 9(2)(c) obligates the Engineer to establish the requirements for a Petition to comply with Section 4. Accordingly, we herewith provide the following comments as they relate to the validity of the submitted Petition and the requirements for its compliance:

- **Section 4(1)(a)** requires that *"**the majority in number** of the owners, as shown by the last revised assessment roll of lands in the area, including the owners of any roads in the area;"*

  Based on the "Area Requiring Drainage", as described above, we find that only one (1) property is within the area requiring drainage and the Owners of said property have signed the Petition. **Therefore, the Petition satisfies the requirements under Section 4(1)(a).**

- **Section 4(1)(b)** requires that *"the owner or owners, as shown by the last revised assessment roll, of lands in the area representing at least **60 percent** of the hectarage in the area;"*

  Based on the "Area Requiring Drainage", as described above, we find that **100** percent of the hectarage within this area has signed the Petition. **Therefore, the Petition satisfies the requirements under Section 4(1)(b).**

Therefore, in accordance with the provisions of the Drainage Act, we find that the current Petition is considered valid pursuant to Section 4(1)(a) and/or (b) of the Drainage Act, RSO 1990, Chapter D.17, as amended in 2021. Based on the sufficiency of the Drainage Petition, and our full understanding of the general scope of work for this project, we continued with our investigations and field survey for the project.

VI. FIELD SURVEY AND INVESTIGATIONS

Following the On-Site Meeting and establishment of a valid Petition, we arranged for our Survey Crew to attend the site and perform a topographic survey, including taking the necessary levels and details of the existing roadside ditch along the frontage of the proposed development, together with the Bernard Tellier Drain. We took numerous cross-sections of the roadside ditches on the north side of County Road 2 and the Bernard Tellier Drain at general locations and, where necessary, for us to complete our hydraulic analysis, design calculations, estimates and specifications.

For the purpose of establishing the watershed area, we investigated and reviewed all of the past Engineer's Reports in the vicinity of the proposed drainage system. We also carried out site visits to cross-check the watershed, drainage patterns, and existing outlet locations. In addition, we utilized the latest LiDAR information to cross-check the drainage patterns of the project site. All of the above investigations not only provided us with the correct watershed area affecting the size of the drainage system but also provided us with accurate information to assist us with the preparation of our Construction and Maintenance Schedules of Assessment for this project.

The Ministry of the Environment, Conservation and Parks (MECP) currently regulates the Endangered Species Act, 2007. New regulation provisions under Ontario Regulation 242/08, Section 23.9 allow the Municipality to conduct repairs, maintenance, and improvements, within existing Municipal Drains, under the Drainage Act and these works are exempt from Sections 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. Seeing that this project is proceeding through a petition request, this project would not qualify for the exemption under Section 23.9. Therefore, a formal submission to the MECP is required to obtain guidance for this project, relative to the Endangered Species Act.

Prior to our appointment to this project, the Municipality of Lakeshore provided the Essex Region Conservation Authority (ERCA) with a notice advising of the proposed drainage works. The ERCA had responded to the Municipality's notice acknowledging the project and further provided general comments for the Municipality and the Engineer to consider. Once we had established a general scope of work on this project, our office engaged in correspondence with the ERCA to provide general details of the project and to address any comments and/or concerns that they would have as it relates to the established scope of work.

VII. DESIGN CONSIDERATIONS

"A Guide for Engineers Working Under the Drainage Act in Ontario" - OMAFRA Publication 852 (2018), is the current reference documentation used by Engineers carrying out work on Municipal Drains through provisions of the Drainage Act. Based on this document, the 2-year return period storm design (50% chance of occurring each year) is the recommended design standard for the minor flow path applied to Municipal Drains within rural Ontario, specific to open drain channels and low-hazard agricultural access crossings. The exception is for residential, industrial, and commercial properties where flooding could create significant damage to the surrounding properties, a higher 5-year (20% chance of occurring each year) to 10-year (10% chance of occurring each year) return period storm design could be utilized. Therefore, a

higher 5 to 10-year return period storm design could be utilized for minor storm analysis. As identified within this guide, the Municipality and Conservation Authority may have specific design standards that should be considered. Based on our consultation and review of this project, it has been identified that the ERCA regulates the major flow path to a 1:100 return period event (1% chance of occurring each year). Therefore, this return period shall be considered as part of the analysis and design considerations.

Residential, major agricultural culverts or bridge structures within a Municipal Drain require a 5-year to 10-year return period (20% to 10% chance of occurring each year, respectively) as the recommended design criteria. Considering most of the agricultural crossings are of low-hazard variety, a 5-year return period was utilized in the analysis of the residential and agricultural crossings. For culverts in Municipal Drains crossing Municipal Roads, a 10-year return period (10% chance of occurring each year) storm is the recommended design criteria.

VIII. FURTHER INVESTIGATIONS, ANALYSIS, AND SUFFICIENCY OF OUTLET

Following the On-Site Meeting and gathering the applicable field information, our office performed a hydraulic review and analysis of surrounding drainage systems to evaluate a suitable outlet for the proposed drainage system. As part of our review, we evaluated all reasonably available drainage outlets for the subject site.

Immediately west of the proposed severances resides a small drainage system that outlets across County Road 2, into the Bernard Tellier Drain, and facilitates the existing residential properties. Upon review of this drainage system, we found that the capacity of the system was intended and designed to accommodate runoff from the associated properties, with minimum depths and small-diameter drainage pipes. Therefore, the existing drainage system would not support additional flows from the proposed development. North of the proposed severances resides the existing Rochester Place Golf Course. The golf course includes a private drainage system intended and designed to accommodate the runoff and operations of the golf course. Therefore, there is no means to add additional flows from the subject property to this drainage system without considerable alteration of the golf course drainage system.

On the south side of County Road 2, resides the Bernard Tellier Drain. This Municipal Drain conveys runoff to two (2) separate drainage outlets. The west half of the Municipal Drain contributes to the East Branch of the William Strong Drain and ultimately discharges to Lake St. Clair through the 4th Concession Pump Service. The east half of the Bernard Tellier Drain contributes to the Bernard Tellier Pump discharge to the Ruscom River and ultimately to Lake. St. Clair. Our evaluation of the west portion of the Bernard Tellier Drain demonstrated that the existing access bridge culverts within the west portion of the Bernard Tellier Drain would require enlargement to sufficiently convey the additional runoff to a sufficient outlet during a 5-year return period. Our evaluation of the east portion of the Bernard Tellier Drain outlined that there is sufficient capacity within the existing access bridge culverts to convey the additional runoff to the existing pump during a 5-year return period. Furthermore, our evaluation of the 100-year return period confirms that the additional runoff from the proposed development maintains a water surface elevation within the open channel of the Bernard Tellier Drain with sufficient freeboard.

Based on an analysis of the available drainage outlets, we find that the east portion of the Bernard Teilier Drain could accommodate the additional runoff from the proposed development and would be deemed a sufficient outlet for the proposed residential properties.

IX. FINDINGS AND RECOMMENDATIONS

Based on our topographic survey, detailed investigations, discussions, and review with affected landowners and the Municipality, we have proceeded to establish the required details to adequately address the specified improvements required to provide a sufficient outlet for the proposed development. Our findings and recommendations are outlined in the following paragraphs.

ERCA, DFO, and MECP Considerations

During the course of our investigations, this drainage project was discussed with Ashley Gyori and Summer Locknick of the ERCA to deal with any ERCA concerns and comments related to this Municipal Drain and the overall development. The proposed drainage works will be located within the regulated area and are under the jurisdiction of the ERCA. Further to our review, the entire portion of the subject development is within the 100-year floodplain of Lake St. Clair. Therefore, an ERCA Permit is required for the construction of the proposed drainage system. Based on the scope and scale of this project, it was determined by the ERCA that a Preliminary Design submission to the ERCA would be required. Further to the above, the ERCA provided us with their comments and concerns through email correspondence, and said correspondence is included in **Appendix "A"**.

With respect to the DFO, the proposed drainage works were "Self-Assessed" by the Engineer, through the DFO website and supporting documentation to determine whether this project shall be reviewed by the DFO. Through our research and with the proposed drainage system not having any status or drain classification with the DFO, a request for review was submitted to the DFO for their evaluation. As a result, DFO provided a Letter of Advice that confirms that the proposed works under this project will likely not result in impacts on fish and fish habitat, so long as standard measures for fish habitat and migration are implemented. A copy of the DFO Letter of Advice is included in **Appendix "A"**.

The Ministry of Natural Resources and Forestry (MNRF) has transitioned the responsibilities of the Species at Risk Provincial Legislation to the Ministry of the Environment, Conservation and Parks (MECP). With the proposed works proceeding under Section 4 of the Drainage Act, this project would not qualify for exemptions under Section 23.9 of the Endangered Species Act, 2007. Therefore, following the "Guidelines for Activities Under the Drainage Act" presentation to the Drainage Superintendents of Ontario (DSAO) Member Chapters, dated June 21st – 24th, 2021, our office provided the MECP with an Endangered Species and Critical Habitat Review submission for their evaluation and comments. This document outlines the potential impacts on affected species and their habitat, together with measures for avoidance and minimizing adverse effects. Based on the comments from the MECP, they have identified that the authorization is a proponent-led process to determine whether SAR and their habitat are present on or around the site. Based on our investigations, we found that there were no SAR species (and their habitat) present within the project site. Therefore, we find that the proposed works should not contravene the ESA. A copy of our submission is included in **Appendix "A"**.

Through correspondence with the ERCA, the DFO, and our submission through the Endangered Species Act, we have provided for all of the ERCA, DFO, and MECP concerns and comments in our design and recommend that these drainage works be constructed in total compliance with all of the above.

Proposed Drainage System

Prior to the completion of our Engineer's Report for this project, we had discussions with the Owner's representatives and the Municipality of Lakeshore, to review the particulars of the proposed drainage system in great length and detail.

From our investigations, examinations, calculations, discussions and determinations with the affected parties, the following findings were noted, and recommendations regarding the proposed drainage system are provided as follows:

1. Rochester Place Resorts Inc., the current owner of Parcel 610-29400, has been granted consent for the creation of twelve (12) residential building lots that shall be severed from the existing golf course, zoned Hamlet Commercial. In order to satisfy the requirements of development, the subject severances shall require a legal drainage outlet to facilitate the proposed severance. The approved residential severances have been identified as Parts 1 through 19 and Part 28 of the Draft Plan of Survey and are further identified as Severances 1 though 12 within this report and drawings. A copy of the draft Plan of Survey is included within this report and is identified as **Appendix "B"**.

2. As part of Condition 4 of the Consent Application, the newly severed residential lots shall be facilitated with a legal drainage outlet through provisions of the Drainage Act, to service the overall development.

3. Upon the evaluation of the availability of drainage outlets, we found that there are no direct means of a drainage outlet immediately adjacent to the subject property. Based on our hydraulic analysis of the Bernard Tellier Drain it was determined that the east portion of the Municipal Drain has sufficient capacity to accept the additional runoff that would be generated by the subject property's severed lots. Therefore, in order to best facilitate the development, we recommend that a new drainage system be constructed along the frontage of the proposed residential building lots, between Station 0+000.0 to Station 0+485.0, with a sufficient outlet across County Road 2 at Station 0+437.4, into the east portion of the Bernard Tellier Drain.

4. In order to minimize disturbance to the existing roadway surface and reduce the overall project costs, we recommend that the proposed drainage outlet be installed utilizing trenchless technology across County Road 2, from Station 0+020.0 to Station 0+045.0 into the Bernard Tellier Drain. We would also recommend that quarried limestone end protection be provided at the outlet end of the proposed road crossing culvert.

5. We recommend that the existing roadside ditch along the north side of County Road 2 and adjacent to the frontage of the proposed development be replaced with a new covered drainage system. This drainage system shall also include boulevard swales that have been established based on the existing road elevations and the minimum 1:100-year storm flood elevation from the adjacent lands. These swales shall collect surface runoff from the existing roadway and adjacent lands that shall be

directed into the inline catch basin maintenance holes detailed within the accompanying drawings. The proposed swale grading within the boulevard has been established based on the existing roadway and the proposed minimum building envelope elevations, established in conjunction with the ERCA.

6. Upon the completion of the works outlined within this project, it is understood that new driveways shall be installed to facilitate the new residential lots. At the time when the lots are developed, the new driveway locations and elevations for each lot shall replace the high points of each swale section. Therefore, upon the installation of the future driveways, the swales shall be regraded to provide positive drainage to the existing catch basin maintenance holes.

7. We recommend that the new drainage system, together with all ancillary work required to complete the proper functionality of the proposed drainage system as described above, be conducted and performed as part of this project. We further recommend that all related appurtenances be constructed as part of this drainage project and be completed to the full satisfaction of the Municipality's Drainage Superintendent, and the Consulting Engineer.

8. We recommend that all working corridors established as part of this new Municipal Drain shall be a free, unencumbered and uninterrupted easement in perpetuity on, in, over, under, across, alongside and through the lands described herein, for the purpose of installing, maintaining, replacing, altering, cleaning, repairing, providing, and operating the open channel and existing enclosure. We further recommend that this area shall remain free and clear of any new buildings, structures, fences, concrete or asphalt paving, or other structures or obstructions of any kind. In the event, that any such item is placed on any of the lands referred to herein, the Owner or Owners of the said lands at the time shall be liable for the cost incurred by the transferee, its servants, agents, and assigns, in the removal of such items.

9. Based on the above, we recommend that this new Municipal drainage system between Station 0+000.0 to Station 0+485.0 and across County Road 2 between Station 0+020.0 to Station 0+045.0, together with all associated drainage structures and proposed swales be hereinafter known as the **ST. PIERRE DRAIN.**

10. We find that the creation of the St. Pierre Drain will introduce additional lands to the Bernard Tellier Drain watershed. Therefore, we recommend that new Maintenance Schedules of Assessment be prepared and included as part of this report to fairly distribute future maintenance costs to all affected properties within the Bernard Tellier Drain.

In summary, we recommend that the proposed St. Pierre Drain be constructed at the locations and alignments detailed in the accompanying drawings and in accordance with this report and attached specifications. Furthermore, all works associated with this project shall be carried out in accordance with Section 4(1)(a) and/or (b), pursuant to the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

X. ALLOWANCES AND COMPENSATION

The new St. Pierre Drain shall be constructed within the private lands on the north side of the County Road 2 right-of-way. As such, lands directly affected by these works are subject to allowances and compensation related to this new drainage system.

ALLOWANCES FOR LAND TAKEN

We find that the following Owners are entitled to and should receive the following amount as compensation for the Value of Land Taken related to the permanent use of the affected lands, in order to construct the St. Pierre Drain, in Lot 1, West River Ruscom Concession (WRR Concession), namely:

1.	County of Essex	Owner,	County Road 2	$	1.00
2.	Rochester Place Resorts Inc. (610-29400)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
3.	Rochester Place Resorts Inc. (610-29400 – Severance 1)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
4.	Rochester Place Resorts Inc. (610-29400 – Severance 2)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
5.	Rochester Place Resorts Inc. (610-29400 – Severance 3)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
6.	Rochester Place Resorts Inc. (610-29400 – Severance 4)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
7.	Rochester Place Resorts Inc. (610-29400 – Severance 5)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
8.	Rochester Place Resorts Inc. (610-29400 – Severance 6)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
9.	Rochester Place Resorts Inc. (610-29400 – Severance 7)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
10.	Rochester Place Resorts Inc. (610-29400 – Severance 8)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
11.	Rochester Place Resorts Inc. (610-29400 – Severance 9)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
12.	Rochester Place Resorts Inc. (610-29400 – Severance 10)	Owner,	Pt. Lot 1, WRR Concession	$	1.00
13.	Rochester Place Resorts Inc. (610-29400 – Severance 11)	Owner,	Pt. Lot 1, WRR Concession	$	1.00

14.	Rochester Place Resorts Inc. (610-29400 – Severance 12)	Owner,	Pt. Lot 1, WRR Concession	$ 1.00
	TOTAL FOR LAND TAKEN			**$ 14.00**

The lands required to construct and maintain the St. Pierre Drain are situated within and alongside the County Road 2 right-of-way and the private lands currently owned by Rochester Place Resorts Inc. from which the new lots are being severed. Therefore, a nominal value of $1.00 shall be paid to establish the legal right for the Municipal Drain within these lands and establish the right to access the drain for future maintenance.

We have provided for the Land Taken compensation in our estimate, as is provided for under Section 29 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

ALLOWANCE FOR THE EXISTING DRAIN

We find that the following Owner is entitled to and should receive the following amount as compensation for the Value of the Existing Drain to facilitate the construction of the St. Pierre Drain, in Lot 1, West River Ruscom Concession, namely:

1.	County of Essex	Owner,	County Road 2	$ 1.00
	TOTAL FOR EXISTING DRAIN			**$ 1.00**

This compensation shall allow for the value of the existing roadside ditch that shall be replaced by the new Municipal Drain. With the vast improvements required to convert this roadside ditch to a Municipal Drain, a nominal value of $1.00 shall be paid for its use.

We have provided this compensation for the Value of the Existing Drain in our estimate, as is provided for under Section 31 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

COMPENSATION FOR DAMAGES

All areas disturbed by this work are specified for full restoration. Therefore, the works will not have any indirect damage to the adjacent lands. Accordingly, no allowances or compensation for damages will be provided for under Section 30 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

XI. ESTIMATE OF COST

Our estimate of the total cost of this work, including all incidental expenses, is the sum of **Four Hundred Sixteen Thousand Eight Hundred Ten Dollars ($416,810.00)** made up as follows:

CONSTRUCTION ITEMS					
Item	Description	Est Qty	Unit	Unit Price	Total
1.	**Exploratory Excavations;** Provide all labour and equipment to coordinate and perform exploratory vacuum excavation at key locations prior to commencing any construction works, to ensure that the proposed drainage system will not conflict with existing utilities.	1.0	Lump Sum	$ 5,000.00	$ 5,000.00
2.	**Traffic Control;** Supply, install, and maintain traffic control measures, including signs, flashers, flaggers, and other traffic control devices to Ontario Traffic Manuals and MTO Roadside Safety Manual requirements. Remove all components upon the completion of the project.	1.0	Lump Sum	$ 5,000.00	$ 5,000.00
3.	**Water, Sediment, and Erosion Control Plan;** Provide a Water Control, Sediment, and Erosion Control Plan required to obtain the necessary permits and approval; Provide all labour, equipment, and materials to implement the Water Control, Sediment, and Erosion Control Plans as outlined within the specifications, complete.	1.0	Lump Sum	$ 2,000.00	$ 2,000.00
4.	**Existing Driveway Access;** Provide all labour and equipment to remove and dispose of the existing driveway culvert at Sta. 0+385.0.	1.0	Lump Sum	$ 1,900.00	$ 1,900.00
5.	**CBMH-1 to CBMH-2;** Supply and install approximately 35.0 lineal metres of 375mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	35.0	Lineal Metre	$ 191.43	$ 6,700.00
6.	**CBMH-2 to CBMH-3;** Supply and install approximately 35.0 lineal metres of 375mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	35.0	Lineal Metre	$ 191.43	$ 6,700.00

Item	Description	Est Qty	Unit	Unit Price	Total
7.	**CBMH-3 to CBMH-4;** Supply and install approximately 35.0 lineal metres of 450mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	35.0	Lineal Metre	$ 231.43	$ 8,100.00
8.	**CBMH-4 to CBMH-5;** Supply and install approximately 38.0 lineal metres of 450mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	38.0	Lineal Metre	$ 231.58	$ 8,800.00
9.	**CBMH-5 to CBMH-6;** Supply and install approximately 40.9 lineal metres of 525mm diameter solid heavy duty, 320kPa, smoothwall pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	40.9	Lineal Metre	$ 261.61	$ 10,700.00
10.	**CBMH-6 to CBMH-7;** Supply and install approximately 45.8 lineal metres of 525mm diameter solid heavy duty, 320kPa, smoothwall pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	45.8	Lineal Metre	$ 270.15	$ 12,400.00
11.	**CBMH-7 to CBMH-8;** Supply and install approximately 37.5 lineal metres of 600mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	37.5	Lineal Metre	$ 312.00	$ 11,700.00
12.	**CBMH-8 to CBMH-9;** Supply and install approximately 37.5 lineal metres of 600mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	37.5	Lineal Metre	$ 312.00	$ 11,700.00
13.	**CBMH-9 to CBMH-10;** Supply and install approximately 37.6 lineal metres of 600mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	37.6	Lineal Metre	$ 311.17	$ 11,700.00

Item	Description	Est Qty	Unit	Unit Price	Total
14.	**CBMH-10 to CBMH-11;** Supply and install approximately 47.5 lineal metres of 750mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	47.5	Lineal Metre	$ 421.05	$ 20,000.00
15.	**CBMH-11 to CBMH-12;** Supply and install approximately 47.5 lineal metres of 750mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	47.5	Lineal Metre	$ 421.05	$ 20,000.00
16.	**CBMH-12 to CBMH-13;** Supply and install approximately 47.6 lineal metres of 300mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, compaction, and restoration, complete.	47.6	Lineal Metre	$ 161.76	$ 7,700.00
17.	**CBMH-12 to Outlet;** Supply and install the proposed road crossing culvert utilizing trenchless technology with approximately 25.0 lineal meters of 750mm interior diameter, DR17 HDPE smoothwall fused plastic pipe, per OPSS MUNI 450, including excavation, drilling, compaction, topsoil, seeding and mulching, cleanup and restoration, complete.	25.0	Lineal Metre	$ 1,500.00	$ 37,500.00
18.	**Structures CBMH-1 through CBMH-4 and CBMH-13;** Supply and install 600x600mm precast concrete catch basin maintenance hole approximately 2.0m deep with 600mm square cast iron frame and grate, including adjustment units, excavation, bedding, connections, 450mm sump, backfill, compaction and restoration, complete.	5	Each	$ 3,900.00	$ 19,500.00
19.	**Structures CBMH-5 through CBMH-11;** Supply and install 600x1450mm precast concrete catch basin maintenance hole approximately 2.0m deep with two (2) 600mm square cast iron frames and grates, including adjustment units, excavation, bedding, connections, 600mm sump, backfill, compaction and restoration, complete.	7	Each	$ 4,400.00	$ 30,800.00

Item	Description	Est Qty	Unit	Unit Price	Total
20.	**Structure CBMH-12;** Supply and install an 1800mm diameter precast concrete maintenance hole (per OPSD 701.010) 1.70 metres deep with a 600mm diameter cast iron frame and lid, including adjustment units, excavation, disposal, bedding, connection, 600mm sump, backfill, compaction and restoration, complete.	1	Each	$ 8,800.00	$ 8,800.00
21.	**Backfill and Boulevard Grading (Station 0+000.0 to 0+485.0);** Provide all labour, equipment, and material to strip the existing boulevard area of all vegetation, scavenging topsoil and windrowing along the limits of the project site, fill in the existing ditch and boulevard area (approximately 900.0 cubic metres) with imported clay material, including placement, compaction, swale grading, spreading of topsoil, seeding and mulching, and cleanup and restoration, complete.	485	Lineal Metre	$ 90.27	$ 43,800.00
22.	**Granular Road Shoulder Grading (Station 0+000.0 to 0+485.0);** Provide all labour, equipment, and material to raise the gravel shoulder per the cross-section to better suit the proposed boulevard grading (approximately 30.0 cubic metres) with compacted granular A material, including placement, compaction, cleanup and restoration, complete, approximately	485	Lineal Metre	$ 11.13	$ 5,400.00
23.	**Service Connections and Cleanouts;** Supply and install 150mm insert-a tee, PVC pipe, tee, riser pipe, metal cap, plastic end cap, marker posts, connections to main, excavation, backfill, compaction and restoration, complete.	12	Each	$ 1,100.00	$ 13,200.00
24.	**Outlet End Protection;** Supply and install 300mm thick quarried limestone end protection on non-woven geotextile at the south end of the proposed road crossing culvert, including excavation, placement, grading, complete.				
a)	100mm to 250mm graded quarried limestone.	14	Tonnes	$ 121.43	$ 1,700.00
b)	Non-woven filter cloth	25	Meters Square	$ 8.00	$ 200.00
25.	**Temporary Catch Basins;** Supply and install a temporary catch basin and connection as detailed in the plans, including 150mm diameter PVC pipe connected to the specified service connection, and provide positive drainage from adjacent lands.	3.0	Each	$ 1,100.00	$ 3,300.00

Item	Description	Est Qty	Unit	Unit Price	Total
26.	**Final Cleanup and Restoration;** Provide all labour, and materials to clean up the project site on completion of the work, complete.	1	Lump Sum	$ 1,000.00	$ 1,000.00
	TOTAL FOR CONSTRUCTION				**$315,300.00**
	Net HST (1.76%)				**$5,549.00**
				TOTAL FOR CONSTRUCTION =	**$320,849.00**

INCIDENTALS	
Report, Estimates and Specifications	$ 33,800.00
Survey, Assistance, Expenses and Drawings	$ 26,800.00
Conduct Hydraulic Analysis and Modelling	$ 10,000.00
Cost to Prepare Updated Maintenance Schedules	$ 3,000.00
Duplicating Report and Drawings	$ 1,000.00
Estimated Cost for Letting Contract incl. the preparation of Tender Documents and Tender Review	$ 1,700.00
Estimated Cost for Full-Time Inspection, Supervision and Project Management during Construction (approx. 3-week duration)	$ 17,200.00
Net HST on the above items (1.76%)	$ 1,646.00
Estimate Cost for ERCA Permit	$ 800.00
TOTAL FOR INCIDENTALS =	**$ 95,946.00**
ALLOWANCES (brought forward) =	**$ 15.00**
TOTAL FOR CONSTRUCTION (brought forward) =	**$320,849.00**
TOTAL ESTIMATE =	**$ 416,810.00**

XII. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached design drawings for the construction of the St. Pierre Drain, consisting of Sheets 1 through 8. The design drawings illustrate the proposed alignment of the drainage works, together with the affected landowners, the approximate drain watershed, and the details relative to the various improvements.

Furthermore, Benchmarks were established therein for the project site. The drawings attached within **Appendix "C"**, have been reduced in size and the scale therefore varies. However, full-scale drawings can be viewed at the Municipality of Lakeshore Municipal Office, if required.

We have also prepared Standard Specifications and Special Provisions, which set out the required construction details for the various aspects of the work to be conducted under this report.

XIII. CONSTRUCTION SCHEDULE OF ASSESSMENT RATIONALE

We would recommend that all of the costs associated with the construction of the St. Pierre Drain, be assessed in accordance with the attached **Construction Schedule of Assessment**. In general terms, the drainage system is intended to facilitate the creation of several severances from the lands currently owned by Rochester Place Resorts Inc. (610-29400). As such, all costs associated with the initial construction of this new Municipal Drain shall be assessed entirely to the retained property.

Distribution of Unforeseen Costs (Special Assessments Section 26)

During construction, it may become necessary to temporarily or permanently relocate existing utilities that may conflict with the works outlined within this report. Under these circumstances, the relocation of these utilities shall be assessed for any relocation costs against the public utility having jurisdiction in accordance with Section 26 of the Drainage Act. In accordance with Section 69 of the Drainage Act, the utility company is allowed the option to carry out this work utilizing their own forces and at their own cost. However, should they not exercise this option within a reasonable time, the Municipality may arrange to have this work completed, and the costs for such works shall be charged to the appropriate public utility. Furthermore, any unforeseen construction costs directly related to the Section 26 works shall be assessed entirely, as an extra, to the applicable Road Authority or Utility.

XIV. FUTURE MAINTENANCE - ST.PIERRE DRAIN

After completion of all of the works associated with this Engineer's Report, we recommend that the St. Pierre Drain be administered and maintained in the future by the Municipality of Lakeshore.

Road Crossing Portion Across County Road 2

When future maintenance is performed on the road crossing portion across County Road 2, between Station 0+020.0 (CBMH-12) and the outlet into the Bernard Tellier Drain (Station 0+045.0), as identified within the accompanying drawings and under this report, we recommend that it be kept up and maintained in the future at the expense of the County of Essex Roads Department for County Road 2. The maintenance work would include the specified culvert, granular backfill, and roadway surface pavement, together with 50% of both CBMH-12 and the quarried limestone end protection.

Enclosed Drainage System

As part of the creation of the residential lots, each of the twelve (12) new properties will require one (1) access over the new St. Pierre Drain. Each new access shall be considered the primary access to the associated residential building lot and would be considered a legal entity with respect to the St. Pierre Drain. The remaining portion of the covered drainage system shall be considered lawn piping. With a covered drainage system required as part of development, the entire enclosed portion provides access to each

residential building and further improves its appearance, together with increasing the market value of each residential building lot. The enclosed drainage system also serves to protect the travelling public along County Road 2. Therefore, when future maintenance is performed on the drainage system, between Station 0+000.0 (CBMH-1) to 0+485.0 (CBMH-13), we wish to establish that the new drainage system fronting on each of the residential properties forming part of the St. Pierre Drain shall be maintained in the future on the basis that **50.0%** of this enclosure shall be assessed to the County of Essex, for County Road 2, and the remaining **50.0%** of the maintenance costs shall be shared with each residential building lots adjacent to the enclosed portion of the drain being maintained.

The maintenance work would include the drain pipe, the boulevard swales, CBMH-1 through CBMH-11, CBMH-13, 50% of CBMH-12, and 50% of the quarried limestone outlet protection into the Bernard Tellier Drain, together with the select imported clay backfill, topsoil topping and granular driveways and swale construction. Should concrete, asphalt or other special surfaces over the new enclosed drain require removal as part of the maintenance work, these surfaces shall be repaired or replaced as part of the work. Likewise, if any fencing, gate, decorative walls 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 maintenance work. However, the cost of the supply and installation of any special surface material other than select imported clay, topsoil topping and granular driveways, along with any special feature, where applicable, shall be assessed entirely to the benefiting owner.

The proposed swale grading within the boulevard has been established based on the existing roadway and the proposed building envelope elevations, established in conjunction with the ERCA. As new accesses are required for each new residential building lot, minor changes to the proposed swales will likely be required. However, the Developer must maintain positive drainage between the roadway and the developed lot, together with maintaining a suitable grade to the new catch basins.

Temporary Drainage Features

We wish to further identify that temporary drainage features (i.e. temporary grading and catch basins, etc.) have been included as part of the St. Pierre Drain. These features shall remain as part of the overall drainage system until a time when each individual residential building lot has been developed. However, once these temporary features have been removed as part of the development of the individual residential building lots, they will no longer form part of the St. Pierre Drain. We wish to establish that the cost for the repair and/or replacement of all temporary measures shall be the responsibility of the Owner of the individual building lot in which the temporary feature resides.

Future Maintenance Working Corridors

Once all construction has been completed for this project, the Contractor shall be expected to keep all future equipment and forces within the following working corridors for any future maintenance performed on the new alignment of the St. Pierre Drain:

1. **From Station 0+000.0 to Station 0+485.0**: The Contractor may utilize the full road right-of-way of County Road 2, together with a strip of land that extends 3.00 metres north of the County Road 2 right-of-way limit and within the severed residential building lots in which the St. Pierre Drain resides.

XV. FUTURE MAINTENANCE - BERNARD TELLIER DRAIN

After the completion of all of the works associated with this Engineer's Report, we would recommend that the Bernard Tellier Drain continue to be kept up and maintained in the future through the Municipality of Lakeshore. The Bernard Tellier Drain conveys runoff to two (2) separate drainage outlets. The west half of the Municipal Drain (West Branch) contributes to the East Branch of the William Strong Drain and ultimately discharges to Lake St. Clair through the 4th Concession Pump Service. The east half of the Bernard Tellier Drain (East Branch) contributes to the Bernard Tellier Pump discharge to the Ruscom River and ultimately to Lake. St. Clair. With the addition of the proposed residential building lots contributing to the new St. Pierre Drain, the existing schedules of assessments, forming part of the existing by-law, will require amendments to account for the increase in watershed. Therefore, in order to properly assess any future maintenance works to the Bernard Tellier Drain, we recommend that the updated Maintenance Schedules of Assessment be provided as attached herein and labelled **Appendix "D**".

1. Bernard Tellier Drain – West Branch

When future maintenance works are performed over the entire length of the Berard Tellier Drain – West Branch, we recommend that the cost for these works of future maintenance shall be shared by the abutting landowners and upstream affected lands and roads, following the same proportions established within the **Future Maintenance Schedule of Assessment for the Beranrd Tellier Drain – West Branch** included within **Appendix "D"**. This Schedule of Assessment has been developed based on an assumed cost of **$10,000.00** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are adjacent to and situated upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$10,000.00** worth of future maintenance work is expended on the entire length of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work.

2. Bernard Tellier Drain – East Branch

When future maintenance works are performed over the entire length of the Berard Tellier Drain – East Branch, we recommend that the cost for these works of future maintenance shall be shared by the abutting landowners and upstream affected lands and roads, following the same proportions established within the **Future Maintenance Schedule of Assessment for the Beranrd Tellier Drain – East Branch** included within **Appendix "D"**. This Schedule of Assessment has been developed based on an assumed cost of **$10,000.00** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are adjacent to and situated upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$10,000.00** worth of future maintenance work is expended on the entire length of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work.

The attached Future Maintenance Schedules of Assessment for the Bernard Tellier Drain are to be utilized only for the maintenance of the open drain, and associated pump station, together with the flushing of

sediment material within any existing access structures in the drain. If spot maintenance is performed within the specified reach of the drain, it is recommended that only those lands adjacent and upstream of the maintenance site be assessed for any future costs. It shall be noted that these schedules shall not be utilized for any other maintenance and repair works being conducted to any of the existing access or roadway crossing structures. These existing structures are to be assessed in a different fashion, as outlined within the October 17, 2007, Engineer's Report prepared by E.P. Dries, P.Eng. through Municpal By-Law 146-2007.

XVI. FUTURE MAINTENANCE SUMMARY

All of the above provisions for the future maintenance of the St. Pierre Drain and the Bernard Tellier Drain shall remain as aforesaid until otherwise varied and/or determined under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021" or subsequent amendments made thereto.

All of which is respectfully submitted,

N.J. PERALTA ENGINEERING LTD.

Antonio B. Peralta, P.Eng.

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CONSTRUCTION SCHEDULE OF ASSESSMENT

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
17	610-29400	WRR	Pt. A, 1, & 2	91.14	91.14	36.884	Rochester Place Resort Inc.	$ 416,810.00	$ -	$ 416,810.00
			Total on Privately Owned - Non-Agricultural Lands					**$ 416,810.00**	**$ -**	**$ 416,810.00**
	TOTAL ASSESSMENT				**91.14**	**36.884**				

1 Hectare = 2.471 Acres

D23-057

August 23, 2024

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SPECIFICATIONS

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Peralta Engineering

STANDARD SPECIFICATIONS

General

(Revised January 2024)

TABLE OF CONTENTS

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I. GENERAL CONDITIONS FOR SPECIFICATIONS

The specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials, and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these standard specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. 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 (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works.

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

II. REVIEW OF SITE, PLANS, AND SPECIFICATIONS

As part of the Tender process, each tenderer shall visit the site(s) and review all documentation associated with the project prior to their tender submission and satisfy themselves with the full extent of the scope of work and conditions to complete the project. The Contractor may request, at any time prior to the closing of the tender, to examine any associated information available from the Drainage Superintendent and/or Consulting Engineer. Claims that there are any misunderstandings of the terms and conditions of the Contract related to site conditions will not be permitted.

The quantities identified within the Construction Items, Drawings and/or Specifications are estimates only and are intended for the sole purpose of identifying the general extent of the proposed work. The tenderer shall be responsible to verify the quantities for accuracy prior to submitting their tender.

III. MAINTENANCE PERIOD

The successful tenderer shall guarantee and warrant the work for a period of twelve (12) months from the time that substantial completion is issued. Upon the expiry of the maintenance period, with ordinary wear and tear, the work shall remain in such condition as will meet with the approval of the Consulting Engineer, and it will be responsible for rectification in a manner satisfactory to the Consulting Engineer. The cost thereof, of any imperfect work due to or arising from materials, equipment or plant incorporated into or used in the construction thereof, or due to or arising from workmanship or methods of construction, that is discovered by any means at any time prior to the issuance of the Final Certificate. The Consulting Engineer shall decide as to the nature, extent, cause of, and responsibility for imperfect work and the necessity for and the method of rectification thereof. In the event that the Contractor fails to comply with the above and address any deficiencies, the Municipality may complete these deficiencies, with the guidance of the Consulting Engineer, to make such repairs or complete such works, and the whole costs, charges and/or expenses so incurred may be deducted from any amount due or collected from the Contractor.

IV. LIABILITY OF THE CONTRACTOR

The Contractor, its agents, workforce and/or sub-contractors, shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other objects that it may encounter during the course of the work. The Contractor will be responsible for any damage caused by it to any person, property, public utilities, and/or municipal infrastructure. The Contractor shall indemnify and save harmless, the Municipality and the Consulting Engineer for any damages which it may cause or sustain during the progress of the work. The Contractor shall not hold the Municipality or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

V. GENERAL COORDINATION

The Contractor shall be responsible for the coordination with other organizations, agencies, and utility companies in connection with the works. The Contractor shall not take action against the Municipality or the Engineer for delays caused by the site being unavailable to them by the Municipality or Consulting Engineer because of the acts, omissions, conduct or misconduct of other organizations or utility companies engaged in other work.

VI. LEGAL SURVEY BARS AND MONUMENTS

The Contractor is to note that legal survey bars may exist within the work site, and it shall take whatever steps necessary to protect these features. If any iron bar or monument is damaged or removed by the Contractor, it shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to restore same, all at the Contractor's expense.

VII. MAINTAINING CONVEYANCE

The drainage works shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be completed during times when the drain is dry or frozen.

When performing excavation work, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. The Contractor shall be responsible to maintain permanent flow at all times. Temporary damming of flow is permitted to conduct the necessary works. However, the Contractor is responsible to monitor and ensure no damage occurs as a result of its actions. Under no circumstances shall temporary damming be permitted for an extended period (ie. overnight, etc.) without a suitable water control plan approved by the Drainage Superintendent, Consulting Engineer and/or the Conservation Authority.

VIII. APPROVALS, PERMITTING, AND INSPECTION

The works proposed under this project is subject to the approval, inspection, regulations, and by-laws of all Municipal, Provincial, and Federal entity, or any other agency having jurisdiction associated with the drainage works established herein. The Contractor shall ensure that all applicable permits and approvals are procured from all affected authorities prior to carrying out any of the prescribed works identified within the Contract, or in the vicinity of any public utility, railway and/or road authority.

The drainage works forming part of this project, including all appurtenances, shall be completely inspected by the Town Drainage Superintendent and/or the Consulting Engineer's Inspector prior to its completion. Under no circumstance shall the Contractor commence the construction or backfill of any underground feature without the site presence of the Drainage Superintendent and/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 Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. All works shall be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend these working hours.

Upon completion of the works and prior to the demobilization and removal of all equipment and materials from the site, the Contractor shall notify the Drainage Superintendent and/or Consulting Engineer to arrange a final inspection of the works. The final inspection is intended to ensure that all aspects of the drainage work are satisfactorily completed and/or identify any outstanding deficiencies. Any outstanding deficiencies shall be addressed expeditiously as weather permits.

IX. TRAFFIC CONTROL

The Contractor shall ensure that the travelling public is always protected while utilizing the roadway for its access. The Contractor shall be required to carry out all the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close any roads for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality, County, or Provincial Roads Departments (if applicable) and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access

at least 48 hours in advance of same. All detour routes shall be established in consultation with the Municipality and County Roads Department (if applicable).

Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or 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 specified access for the construction of the culvert without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price. Where applicable, the Contractor shall be responsible for any damage caused by them to any portion of the road right-of-way. They shall take whatever precautions are necessary to avoid damage to the roadway. Any damage to the roadway must be restored to its' original condition upon completion of the works.

X. FENCING AND/OR STRUCTURES

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

XI. BENCHMARKS

For use by the Contractor, Benchmarks have been established along the course of the work. The plans include details illustrating the available Benchmarks and the work to be carried out. Benchmarks have been indicated and the Elevations have been shown and shall be utilized by the Contractor in carrying out its work. The Contractor shall note that specific design elevations and grades have been provided for the proposed works. The plans also set out side slopes, bottom width, and other requirements relative to its installation. In all cases, the Contractor is to utilize the specified Benchmarks to establish the identified elevations and grades. The Contractor shall ensure that it takes note of the direction of flow and sets all grades to match the direction of flow within the drain.

XII. ENVIRONMENTAL CONSIDERATIONS

Prior to commencing work, the Contractor must familiarize themselves with all associated environmental approvals and mitigations. The Contractor shall review the results of any environmental reviews performed for the project, including 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 any mitigation plans and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

XIII. FINAL CLEANUP AND RESTORATION

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken. Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition. The 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.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or 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. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense. All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. 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 to be deducted from any monies owing to the Contractor.

XIV. GENERAL CONDITIONS

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

b) 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.

c) 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 Municipality 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 Municipality. 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.

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

e) 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.

f) The Contractor shall be required, as part of this Contract, to provide Comprehensive Liability Insurance coverage for not less than $5,000,000.00 on this project unless otherwise established in the Tender Documents, and shall name the Municipality 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 Municipal Clerk and the Consulting Engineer prior to the commencement of work.

g) Monthly progress orders for payment shall be furnished the Contractor by the Drainage Superintendent. Said orders shall be for not more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 60 days after the final acceptance and completion of the work and payment shall not be authorized until the Contractor provides the following:

i) a Certificate of Clearance for the project from the Workplace Safety and Insurance Board
ii) proof of advertising
iii) a Statutory Declaration, in a form satisfactory to the Consulting Engineer and the Municipality, 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 Municipality that there are no liens or claims against the work and that all of the requirements as per the Construction Act, 2018 and its' subsequent amendments have been adhered to by the Contractor.

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Peralta Engineering

STANDARD SPECIFICATIONS

FOR ENCLOSURE/COVERED DRAIN INSTALLATIONS

(Revised January 2024)

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I. GENERAL INFORMATION FOR SPECIFICATIONS

These specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these standard specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. 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 (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

II. TRAFFIC CONTROL

The Contractor shall ensure that the travelling public is always protected while utilizing the roadway for its access. The Contractor shall be required to carry out all the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close the road for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality and County Roads Departments (if applicable) and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access at least 48 hours in advance of same. All detour routes shall be established in consultation with the Municipality and County Roads Department.

Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or 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 specified access for the construction of the enclosure/covered drain without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price. Where applicable, the Contractor shall be responsible for any damage caused by them to any portion of the road right-of-way. They shall take whatever precautions are necessary to avoid damage to the roadway. Any damage to the roadway must be restored to its' original condition upon completion of the works.

III. REMOVAL OF BRUSH, TREES AND DEBRIS

Where there is any brush, trees or debris along the course of the drainage works, including the full width of the access, all such brush, trees or debris shall be close-cut and grubbed out, and the whole shall be chipped up for recycling, burned, hauled away or satisfactorily disposed of by the Contractor 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 cooperate with them in the carrying out of any work. The removal of brush and trees shall be carried out in close consultation with the 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 except for those trees that are established within the accompanying drawings or in consultation with the Drainage Superintendent, the Consulting Engineer, and the affected Owner(s). The Contractor shall note that protecting and saving the trees may require the Contractor to carry out handwork around the trees, bushes, and shrubs to complete the necessary final site grading and restoration.

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

The Contractor shall remove all deleterious materials and debris along the course of the open drain and any such materials located in the bridge culverts while carrying out its cleaning of same. All such deleterious

materials and debris shall be loaded up and hauled away by the Contractor to a site to be obtained by it at their expense.

If applicable, where identified on the drawings, and to ensure a safe separation distance is maintained, the Contractor shall install tree protection fencing at the projected limit of the excavation and beneath the drip line of the identified tree(s). The fencing shall be comprised of orange vinyl snow fencing secured at 3.00-metre intervals with iron T-posts driven 600mm into the ground and should be in place until construction work is completed. During construction, no equipment, materials or tools shall be stored beyond the tree protection fencing.

IV. FENCING AND/OR STRUCTURES

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

V. UTILITIES

The Contractor will be responsible at all times for complete investigation to determine the location of all such utilities or structures known or unknown, and it shall indemnify and save harmless the Engineer and the Municipality for any responsibility, injury, or liability arising from any damage to such utilities or structures by the Contractor.

The Contractor shall protect all other services located in the vicinity of the proposed drainage works including any sanitary sewers and connections, watermains and connections, telephone and gas services, along with any private systems and services. Any damaged components shall be replaced by the Contractor, totally at its own expense and it shall fully restore the functionality of same.

The Contractor shall further contact or notify such Utility Company or Commission of its intention to carry out work in the area and cooperate with such Utility Company or Commission in the location, maintenance and preservation of all such utilities. The location of the pipes and appurtenances as shown on the drawings is approximate and may be changed by the Engineer if deemed advantageous for the progress of the work.

VI. NOTICE OF PROJECT COMMENCEMENT AND HOURS OF OPERATION

The Contractor shall provide a minimum of forty-eight (48) hours' notice to the Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. The installation of the culvert structure is to be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend such working hours.

VII. EXCAVATIONS, REMOVALS AND DISPOSALS

All excavation shall be made in compliance with the drawings and in such a manner and at such depths and widths as will give ample room for installing the pipe, the bracing, sheeting, or otherwise supporting the sides of the excavation and for the pumping of groundwater if encountered. The Contractor is fully responsible for the safety of all its men and equipment and must conform completely with the provisions of the "Construction Safety Act" and "Regulations for Construction Projects".

Where an existing culvert is being replaced, the Contractor shall be required to excavate and completely remove the existing culvert and headwalls in their entirety, as well as any other deleterious materials that may be encountered in removing such materials, unless otherwise noted. All unsuitable or deleterious materials from the excavation and removal of existing culverts and the drain shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense. In all cases, the disposal of any trucked material with be the responsibility of the Contractor and it shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor will be responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

The Contractor is to note that when replacing the existing structures, it shall be required to excavate a trench having a width not less than the new pipe outside diameter plus a 600mm working width on both sides of the new pipe.

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out any topsoil placement along all specified or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works.

The bottom of the trenches must be carefully excavated and trimmed to the elevation and shape of the bottom of the pipe. The bottom of the trenches shall be recessed to receive the pipe in order to allow the pipe to be uniformly supported for its entire length. Corrections in the depth of excavation caused by the Contractor excavating to an extent greater than that required for the elevation of the pipe shall be made by bedding the pipe with 20mm (3/4") clear stone granular material is placed at the time that the pipes are being installed, at the Contractors expense.

No extras will be allowed for excavating any hardpan, boulders, rocks, ice or other obstacles found in the excavation or in the line of the trench or for any pumping or baling of water required in the excavation of the work. The trench must be drained or pumped in order to avoid the necessity of making joints under water. The trench must also be drained to avoid any possibility of groundwater entering the pipe in the trench until the installation has been successfully completed.

VIII. PIPE INSTALLATION

The new pipe shall be set in the alignment and to the grade elevations established in the accompanying drawings. The same shall not be altered unless otherwise directed by the Drainage Superintendent or Consulting Engineer prior to construction of same. Any changes relative to the enclosure/covered drain must be approved by the Consulting Engineer prior to proceeding with construction.

The Contractor shall lay the enclosure/covered drain pipe to the lines, levels, and grades as shown in the accompanying drawings or as may be laid out and established by the Engineer prior to the time of construction. The Contractor shall be held responsible for said lines, levels and grades of the drain pipe and should the Engineer determine that the Contractor has not satisfactorily adhered to such lines, levels and grades, it may direct the Contractor to take up and re-lay any portion of the drain which does not conform to such lines, levels and grades.

Laser control must be provided to maintain drain lines and grades, and the Contractor shall have a qualified Operator to set up and operate the equipment. In some instances, but only at the discretion of the Engineer, an approved system of batter boards may be utilized for this purpose; However, the cost of placing grade stakes and determining the cut information shall be provided by or paid for entirely by the Contractor.

The Contractor should note that, because the pipe is being installed with an excavator, it is expected that they will provide a minimum of 150mm (6") of either compacted MTO Granular "A", Granular "B" (Type II) or 20mm (3/4") clear stone bedding material, as outlined within OPSS Form 1010 The Contractor shall ensure that a good firm base is provided under the drain pipe, and they shall provide for this item as part of their tender price.

HDPE Pipe Installation

When HDPE plastic pipes are specified, they shall be joined together with the use of a water-tight bell and gasket joining system, secured in accordance with the Manufacturer's recommendations. The minimum length of a continuous pipe section shall be no less than 6.10 metres (20.00 ft.). The HDPE plastic pipe for this installation must be of the length, size, and strength identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and the Consulting Engineer prior to its placement in the drain.

For new smoothwall HDPE culvert pipes that are shown on the Drawings to have sloped quarried limestone erosion protection at their ends, both ends of the pipe shall be securely anchored against floatation utilizing two (2) steel T-bar fence posts having a minimum length of 1.80 metres (6.00 ft.) or approved equal, on each side of the pipe, together with heavy steel galvanized wire secured between them across the top of the pipe. The top of each post shall be set no higher than the top of the proposed culvert. Pipe anchors shall be installed in accordance with the "Floatation Anchor Details" outlined within the accompanying drawings.

Aluminized Steel Pipe Installation

When Aluminized Steel Corrugated Hel-Cor pipe and/or Aluminized Steel Type II UltraFlo pipe is specified, the culvert shall be installed with a minimum number of couplers and longer pipe sections are to be utilized whenever possible. Under no circumstances shall the culvert sections be less than 4.00 metres in length. All pipe lengths shall be of the size and gauge noted in the drawings and shall be coupled together with Aluminized Steel Type II 10C having a thickness consistent with the culvert pipe material. The overall pipe for this installation

must be of the length, size, and thickness as identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement in the drain.

General Pipe Installation

The Contractor shall be required to provide all labour, equipment and materials to set the pipe to the required design grades. Where couplers are required, the Contractor shall utilize the appropriate coupler provided by and per the specifications of the Manufacturer. The Contractor shall supply all material and labour to provide a non-woven filter cloth wrap around the full circumference of the coupler joint connection, as part of their tender price. The filter cloth wrap connection shall be a minimum of 250mm (10") wider than the width of the proposed coupler and shall overlap a minimum of 200mm (8"), as available from Underground Specialties Inc., of Windsor, Ontario, or equal. The specific type to be utilized shall be approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement. The installation of all joints must be inspected and approved by the Drainage Superintendent or Consulting Engineer prior to any backfilling of same.

The Contractor shall also note that the placement of the enclosure/covered drain 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 satisfaction of the Drainage Superintendent and/or Consulting Engineer. The installation of the complete length of pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/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 pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation.

All pipe materials shall be stored and handled by the Contractor at its own expense. It shall be responsible for the safe storage of all materials, for obtaining storage areas, for the safe transportation and distribution of all the materials at the job site, and for inspection in order to determine defects and breakage. No additional recompense will be allowed to the Contractor for any loss incurred by it in the storage and handling of the materials.

Pipe, fittings, and all accessory appurtenances must be loaded and unloaded by lifting with means of a hoist or a skid to avoid shock or damage. Under no circumstances shall any drain material or materials for drain appurtenances be dropped.

If the drain pipe is laid in freezing weather, the Contractor shall take all the necessary precautions to prevent damage to the pipe or to any of the materials used in the construction of the work. In addition, the Contractor shall take care that no frozen ground or backfill is placed in the trench backfilling adjacent to the drain pipe. All pipe and the various other materials used in the placing of said pipe shall be installed in strict compliance with the Manufacturer's recommendations.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/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 culvert pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve the said installation.

IX. DRAINAGE STRUCTURE INSTALLATION

Where required, all materials for the catchbasins shall comply with Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) with respect to materials, qualities, and installation details. The catchbasins and maintenance holes shall be founded on a good, dry, firm, undisturbed earth base for its entire bottom surface area, or 20mm (3/4") clear stone bedding, if necessary. Corrections in depth of excavation caused by the Contractor excavating to an extent greater than that required for the structures shall be backfilled to the proper grade elevation by embedding the catchbasin maintenance holes floor area with 20mm (3/4") clear stone granular bedding. A sump is to be provided in each structure which shall be a minimum of 450mm deep measured from the proposed invert of the covered drain or connection to the proposed concrete floor elevation of the structure. The structure shall be set to allow for connection of all of the inlet and outlet pipes and shall be installed as shown and detailed on the Drawings. The top elevation of the structure shall be installed to the elevations noted on the Drawings or as further directed by the Drainage Superintendent or the Consulting Engineer. All structure sections and adjustment units shall be joined together with standard gasket material, caulking, or grout as required by the Manufacturer, or as set out in the applicable OPSS and OPSD.

All structures, where applicable, shall include a minimum of three (3) adjustment units in accordance with OPSD 704.011. All work shall be completed as shown and detailed on the Drawings.

The Contractor shall connect all covered drains and connections in the catchbasin maintenance holes with the use of a mortar joint or standard rubber boot cast into the units by the Manufacturer. Said mortar joint shall be provided at the internal and exterior of the catchbasin maintenance holes wall for the full circumference of the covered drain and be of a sufficient mass to produce a sealed joint, all to be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. Where possible, the Contractor shall employ a standard factory fitting or adapter to connect between the various pipes, tiles, and catchbasin maintenance holes, otherwise a mortar joint connection can be utilized.

X. ENCLOSURE/COVERED DRAIN BACKFILL

Where the new enclosure/covered drain pipe is located under the driveway, the Contractor shall backfill the entire trench for the width of the driveway with Granular Type II "B" or Granular "A", or locally approved equivalent compacted in place to a minimum 98% of Standard Proctor Density with the exception of the top 300mm which should be backfilled with Granular "A" material also compacted in place to a Standard Proctor Density of 100%. Where the new enclosure/covered drain pipe is located along the lawn area, the Contractor shall be required to backfill the entire trench with good clean native backfill material with the exception of the top 100mm which shall be good clean black loamy topsoil readied for seeding and mulching. It should be noted that if there is a shortage of native backfill material available, the Contractor shall supply same all at its own expense. The Contractor should also note that prior to commencing its excavation that all existing topsoil should be scavenged for reuse on the project; if there is a shortage, the Contractor shall be required to supply the balance of the topsoil needed, all at its own expense. All of the native backfill material shall be compacted in place to a minimum Standard Proctor Density of 96%.

All backfill material shall be placed in compacted in maximum lifts of approximately 300mm thick. The Contractor is required to provide whatever mechanical equipment necessary, such as jumping jack and/or plate tamper, in order to achieve the necessary compaction levels, especially along the haunches of the new

pipe. All areas shall be graded in accordance with the profile and cross-sections shown in the accompanying drawings, including provision of cross-fall on boulevard areas as shown therein.

XI. CONSTRUCTING NEW SWALES

The Contractor shall provide all labour, equipment, and materials in order to construct the swales, to the lines, levels, and grades as is shown and detailed in the accompanying drawings. The centreline of the finished swale grade elevation and swale cross-section, at various locations along the length of the drain, are to be provided as shown and detailed in the design drawings. The Contractor shall be required to strictly adhere to this swale design unless otherwise directed and approved by the Consulting Engineer.

The swale shall generally be constructed with a V-section centered over the proposed lawn piping, or as the alignment shows in the drawings, to ensure positive flow of the surface drainage into the sloped quarried limestone end treatments which act as outlets for the swale sections or other surface inlet structures, if applicable. All materials excavated from the swale including all deleterious materials shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense.

The alignment of the swales throughout shall be to the satisfaction of the Drainage Superintendent and the Consulting Engineer. All of the work shall be done in a neat, thorough, and workmanlike manner also to their full satisfaction.

XII. SLOPED QUARRIED LIMESTONE EROSION PROTECTION

When specified, the Contractor shall install sloped quarried limestone end protection at both ends of the pipe, or where shown, on a slope no steeper than 1.50 horizontal to 1.00 vertical and shall extend from the end of the new pipe to the top elevation shown. The top 305mm (12") of backfill material over the ends of the pipe, from the invert of said pipe to the top of the driveway elevation of the enclosure/covered drain, shall be quarried limestone. The quarried limestone to be placed on the sloped ends of the enclosure/covered drain shall be underlain with a synthetic non-woven geotextile filter fabric. The sloped quarried limestone protection is to be rounded as shown on the plan details and shall also extend along the drain side slopes to a point directly in line with the ends of the culvert pipe. All work shall be completed to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer.

The quarried limestone shall be provided as shown and detailed and shall vary in size from a minimum of 100mm (4") to a maximum of 250mm (10"). The quarried limestone pieces shall be carefully tamped into place with the use of a shovel bucket so that, when complete, the quarried limestone erosion protection shall be consistent, uniform, and tightly laid in place. Prior to placing the quarried limestone, the Contractor shall place non-woven geotextile filter fabric "MacTex MX140" conforming to OPSS 1860 Class 1 or approved equal, as an underlay underneath all areas to be covered in quarried limestone erosion protection. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone. The placement of the geotextile filter fabric and the quarried limestone, and the completion of the quarried limestone erosion protection shall be conducted to the satisfaction of the Drainage Superintendent and/or Consulting Engineer.

XIII. PRECAST INTERLOCKING CONCRETE BLOCK HEADWALLS

When precast interlocking concrete block headwalls are specified, the 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./Wolseley Inc. (Canada) or approved 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 a 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 and shall have a stone 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 stone exterior finish. The precast interlocking concrete block headwalls are available from Underground Specialties Inc./Wolseley Inc. (Canada), or approved equal.

Precast interlocking blocks that abut the pipe shall be cast as one solid piece and 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 200mm 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 through any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum "MacTex MX 140" meeting OPSS 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 the other. In the event that the distance between headwalls exceeds 10.00 metres (32.81 ft.), the Contractor shall install the uni-axial geogrid for a distance of 3.00 metres (9.84 ft.) inward from each headwall and at every second course. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtec Construction Products or approved 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 at the appropriate depth to achieve the required top elevation of the wall.

The Contractor shall arrange for the Supplier to provide 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 pipe 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 new 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. The precast interlocking concrete block headwall shall be installed

perpendicular to the drain banks. Headwalls are to be installed so that daylighting is provided off the travelled roadway, if required. The daylighting is to be designed to deflect outwardly from approximately the extreme roadside face of the new culvert to a point just beyond the top bank of the drain. The outward projection of the new headwalls shall be deflected at approximately a 45-degree angle, and the maximum outward deflection shall not be greater than shown on the accompanying Drawings, 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 backfill the area behind the new headwall with granular fill.

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 headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation, unless shown on the drawings. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. 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./Wolseley Inc., or equal.

Upon completion of the headwall installation, the Contractor shall also provide sloped quarried limestone erosion protection adjacent and along all of the new concrete headwalls, at the general locations and to the widths shown within the details included therein. Furthermore, the installation of the quarried limestone shall adhere to the parameters outlined in Section XV. Sloped Quarried Limestone Erosion Protection – Concrete Block Headwalls.

XIV. CONCRETE-FILLED JUTEBAG HEADWALLS

When specified, the Contractor shall install new concrete jutebag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jutebag headwalls, the Contractor shall place the bags so that the completed headwall will have an inward batter from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one (1) unit horizontal to five (5) units vertical. The Contractor shall satisfactorily backfill behind the jutebag headwalls with granular material similar to the rest of the structure, and the same compaction levels specified herein for backfilling the adjacent culvert. The placing of the jutebag 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 jutebag headwalls shall be constructed by filling jutebags with concrete. All concrete used to fill the jutebags shall have a minimum compressive strength of 21MPa 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 jutebags be placed as a dry mix. The jutebags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jutebags 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 completed jutebag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the side slopes of the drain.

If indicated on the Drawings, daylighting may be installed off the travelled roadway, and the same are designed to deflect outwardly. The outward deflection shall be deflected at the specified angle to the straight portion of the finished headwall. The top elevations of the daylighted headwalls are to be set no less than 75mm (3")

below the existing ground elevation, unless otherwise designed. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or Consulting Engineer.

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 150mm (6") thick, and hand trowelled to obtain a brushed finish appearance. If the cap is made more than 150mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars (or equivalent mesh) set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete-filled jutebags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids. All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21MPa in 28 days and include 6% ± 1% air entrainment.

XV. SLOPED QUARRIED LIMESTONE EROSION PROTECTION – CONCRETE BLOCK HEADWALLS

The sloped quarried limestone erosion protection shall be embedded into the side slopes of the drain at 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 and slope of the general erosion protection shall be as established in the accompanying drawing or as otherwise directed by the 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 side slopes along either side of said protection. The synthetic filter mat to be used shall be **non-woven** geotextile MacTex MX 140 conforming to OPSS 1860 Class I, as available from Armtec Construction Products, or approved 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 Walker Aggregates, in Amherstburg, Ontario, or approved equal.

XVI. BENCHMARKS

For use by the Contractor, we have established a Benchmark at the location where the structures are being replaced. The Drawings include details illustrating the work to be carried out. Benchmarks have been indicated and the Elevations have been shown and shall 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 accompanying Drawings. The Drawings also sets out the pipe size, materials, and other requirements relative to the installation of the enclosure/covered drain structure. In all cases, the Contractor is to utilize the specified drain grade to set any new pipe installation. The Contractor shall ensure that it takes note of the direction of flow and sets all pipes to assure that all grades flow from upstream to downstream to match the direction of flow within the drain.

XVII. 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 1000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the **"Standard Lateral Tile Detail"** unless otherwise noted. Connections shall be made using a Manufacturer's coupling wherever possible. Openings into new pipes shall be neatly saw-cut to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer. 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. The mortar joint shall be of sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal. The Contractor is to note that any intercepted pipes along the length of the existing pipes are to be extended and diverted to the downstream end of the new pipe unless otherwise noted in the accompanying drawings.

Where the enclosure/covered drain installation interferes with the discharge of an existing swale, the Contractor shall re-grade the existing swales to allow for the surface flows to freely enter the drain. Any disturbed grass areas shall be fully restored with topsoil, seed and mulch. The Contractor shall also be required as part of the enclosure/covered drain replacement to excavate and widen the drain bottom where required to fit the new pipes in order to provide a smooth transition between the new culvert installation and the existing drain.

The Contractor, when doing their excavation or any other portion of the work, shall be very careful not to interfere with, plug up or damage, any existing surface drains, swales and lateral or main tile ends. If it is found that said existing drains are interfered with in any way, the Contractor will be required to unplug or repair said drains immediately, at no extra cost to the project. If it is found that any existing lateral tiles or main tile drains or tile ends have been cut off or damaged in any way during the course of the work, the Contractor will be required to either repair or replace same, to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

The Contractor shall take steps to protect all legal survey bars during the course of its work. If any bars are removed or damaged, the Contractor shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to replace same, all at its cost.

All of the work required towards the installation and improvements to all structures shall be performed in a neat and workmanlike manner and the general site shall be restored to its' original condition, and all of same is to be performed to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

XVIII. TOPSOIL, SEED AND MULCH

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out the topsoil placement along all specified newly excavated and filled or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works. The Contractor shall be required to use the scavenged topsoil stripped from the drain banks. The balance of the topsoil required shall be obtained by the Contractor at its own expense.

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged or disturbed by the structure installation and/or removal, and place topsoil and seed and mulch over said areas including any specific areas noted on the Drawings. 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 Contractor is to note that prior to fine grading the topsoil over the backfilled areas, positive drainage is to be provided off of these areas and into the swales, and the Contractor shall also be required to make minor changes where necessary to ensure same. The Contractor shall be required to restore all existing grassed areas and roadway boulevard areas damaged by the enclosure/covered drain work, and shall provide topsoil and seed and mulch over all of these areas. 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 572, dated November 2003, 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 OPSS 1103.05.03 dated November 2016, 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 satisfaction of the 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 satisfaction of the Drainage Superintendent or Consulting Engineer.

XIX. FINAL CLEANUP AND RESTORATION

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken.
All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. Before authorizing Final Payment, the Drainage Superintendent or 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 to be deducted from any monies owing to the Contractor.

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SPECIAL PROVISIONS

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I. GENERAL SCOPE OF WORK

These specifications, along with the Report, Appendices, Standard Specifications and the accompanying drawings, consider the furnishings of all labour, equipment and materials required for the performance of all operations related to the creation of a new Municipal Drain known as the "St. Pierre Drain" under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021". This new drainage system shall consist of a new smoothwall HDPE pipe with bell and gasket joining system connections, granular bedding, new precast concrete catch basin maintenance holes with all appurtenances. These works shall include the removal of all vegetation within the existing swale/boulevard and scavenge any available topsoil, supply and placement of fill material, together with directional drilling the outlet portion across County Road 2 utilizing DR17 HDPE fused plastic pipe, swale construction, topsoil, seeding and mulching, and all other ancillary work which provides a complete and satisfactory job.

All work shall be carried out in accordance with these Special Provisions and Standard Specifications that serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. The Contractor shall review the information outlined within **Appendix "A"** and **Appendix "B"**. The works shall be further carried out in accordance with the accompanying drawings labelled herein as **Appendix "C"**. Where there are differences between the Special Provisions and the Standard Specifications included herein, the Special Provisions shall govern. The enclosure shall be of the size, type, depth, etc., as is shown in the accompanying drawings, as determined from the **Benchmark**, 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 satisfaction of the Drainage Superintendent or the Consulting Engineer.

II. CONSERVATION AUTHORITY AND DFO CONSIDERATIONS

The Contractor shall 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. It is intended that work on this project be carried out during relatively dry weather to ensure the 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 Conservation Authority or the Department of Fisheries and Oceans (DFO), copies of which shall be provided, if available. The Contractor is advised that no work shall be carried out in the existing drain from March 15 to July 15, of any given year.

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

a. As per standard requirements, work shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall 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 than 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, but it shall also be required to further comply with notes included within the correspondence with the ERCA and the Letter of Advice provided by the DFO. Both of these documents are included in **Appendix "A"**.

III. MECP CONSIDERATIONS

The Ministry of Natural Resources and Forestry (MNRF) has transitioned the responsibilities of the Species at Risk Provincial Legislation to the Ministry of the Environment, Conservation and Parks (MECP). With the proposed works proceeding under Section 4 of the Drainage Act, this project would not qualify for exemptions under Section 23.9 of the Endangered Species Act, 2007. Therefore, following the "Guidelines for Activities Under the Drainage Act" presentation to the Drainage Superintendents of Ontario (DSAO) Member Chapters, dated June 21st – 24th, 2021, our office provided the MECP with an Endangered Species and Critical Habitat Review submission for their review and comments. This document outlines the potential impacts on affected species and their habitat, together with measures for avoidance and minimizing adverse effects. A copy of our submission is included in **Appendix "A".**

Prior to commencing work, 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 mitigations and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

IV. ACCESS TO WORK

The Contractor is advised that the majority of the work to be carried out on this project extends across and along County Road 2. The Contractor shall have access to the full length of the roadway abutting the proposed drainage works. The Contractor may use the entire width of the County Road 2 right-of-way as necessary to permit the completion of the work required to be carried out for this project. Furthermore, in order to perform the necessary work identified within this project, the Contractor shall have access to the private lands of Rochester Place Resorts Inc. (610-29400), adjacent to the proposed works.

Under no circumstances shall the Contractor utilize other private lands. The Contractor shall note that any deviation from the above-mentioned accesses without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price.

V. WORKING CORRIDORS

Initial Construction

Once access is obtained onto private lands, the Contractor shall be expected to keep the construction equipment and forces for the initial construction as follows:

1. **From Station 0+000.0 to Station 0+485.0**: The Contractor may utilize the full road right-of-way of County Road 2 as well as a strip of land 10.00 metres wide, located immediately north of the road right-of-way limit and within the lands of Rochester Place Resorts Ltd. (610-29400).

Future Maintenance

Once all construction has been completed for this project, the Contractor shall be expected to keep all future equipment and forces within the following working corridors for any future maintenance performed on the new alignment of the St. Pierre Drain:

1. **From Station 0+000.0 to Station 0+485.0**: The Contractor may utilize the full road right-of-way of County Road 2, together with a strip of land that extends 3.00 metres north of the County Road 2 right-of-way limit and within the severed residential building lots in which the St. Pierre Drain resides.

General

The Contractor shall refrain from using any other lands within the subject work site unless otherwise permitted by the Owner and Drainage Superintendent during construction. Confirmation of other permitted working areas must be obtained from the Owner and Drainage Superintendent in writing. The Contractor may also be provided access by the Owner in order to stockpile any excess excavated materials for future use by the Owner.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or 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. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense.

The Contractor is advised that all excavated material from the work along the residential and lawn area shall be hauled away and disposed of by the Contractor at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor and any work at the disposal site shall be established between the Contractor and the Site Owner. The Contractor shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor shall be responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

VI. BRUSHING, GRUBBING, AND PREPARATION FOR FILLING THE NEW DRAIN ALIGNMENT

Prior to the filling in of the boulevard area between Station 0+000.0 and Station 0+485.0, the Contractor shall prepare the area for this operation. The Contractor is to excavate and completely remove all existing brush, trees and tree stumps, which exist within the boulevard area. Brush, trees and tree stumps removed may either be put into piles by the Contractor at locations where they can be safely burned, or they shall be trucked away and disposed of off-site. If the materials are intended to be burned on-site, the Contractor shall, prior to and during the burning operations, comply with the guidelines prepared by the Air Quality Branch of the Ministry of Environment and shall ensure that the Environmental Protection Act is not violated. The Contractor shall be required to notify the Municipality and advise them of their burning operations. The Contractor shall also be required to contact the local Fire Chief and notify them of these operations to avoid any false alarms.

As part of the preparation for filling in the existing roadside ditch alignment for the new covered Municipal Drain, the Contractor shall also be required to remove all sediment, fill, organic, loosened, softened, and topsoil materials in the existing roadside ditch bottom and on the side slopes. The Contractor shall not use any of these materials for filling in the existing ditch. The Contractor shall stockpile topsoil material and dispose of any unsuitable materials to a site established by the Owner or to a site to be obtained by them, at their own expense.

Also, as part of their cleanup work, the Contractor shall be required to load up and haul away and dispose of all deleterious materials along the course of the drainage works. All overhanging branches and limbs

shall be neatly cut and pruned, taking care to protect trees where they can be preserved. All such removed material shall be disposed of as noted above.

VII. EXCAVATION, REMOVALS AND DISPOSAL

Between Stations 0+381.0 and 0+393.0, the Contractor shall remove the existing access and associated culvert in anticipation of its replacement with the new drainage system and inlet structure. The Contractor should take care to not over-excavate the trench or granular driveway as it is to be restored once the culvert has been removed. The removed material, if not suitable for reuse, shall be trucked away and disposed of by the Contractor and shall form part of the Tender price.

Upon the installation of the drainage system, and further to the details outlined above, the Contractor shall be responsible for the excavation and regarding of the Bernard Tellier Drain at the outlet of the St. Pierre Drain for a distance of 5.0 metres both upstream and downstream of the outlet pipe. The sediment material from this excavation shall under no circumstance be utilized for the backfilling of any of the culvert pipes, and the same must be totally trucked away and disposed of at a site to be obtained by it at its own expense.

VIII. DETAILS OF COVERED DRAIN WORK

The Contractor shall carry out the necessary excavation, together with all required labour and material, to construct a new drain enclosure at the location and alignment shown on the accompanying drawings. The enclosure shall consist of 320kPa, smoothwall HDPE plastic pipe and with the use of a bell and gasket joining system, connected to a series of pre-cast concrete inline catch basin maintenance holes with cast iron frame and grates.

IX. PRIVATE STORM CONNECTIONS

All private service connections (private drain connection/PDC) shall be 150mm in diameter and teed into the covered drain and shall be constructed where directed by the Engineer or as shown on the drawings. The Contractor shall supply and install at the street line, a piece of 5cm x 10cm lumber, painted green, which will be of sufficient length to go from the invert of the private service connection to 30cm above finished ground elevation.

The pipe materials for the private service connections shall be of HDPE smoothwall plastic pipe or equivalent. All connections shall be made utilizing factory tees, saddles, and fittings installed in accordance with the Manufacturer's recommendations.

Where shown on the plans, the Contractor shall supply and install a cleanout at the end of the new storm service connection located 1.50 metres east of the proposed drain alignment and in accordance with the **"Typical Service Connection and Cleanout Detail"** on Sheet 7 of the accompanying drawings. The cleanout cap shall be installed with a metal insert for future identification with the use of a metal detector.

Where the depth of the main sewer permits, all private service connections shall be laid on a grade of 1cm per metre, or as shown on the plans.

X. TEMPORARY DRAINAGE WORK

The Contractor shall note that temporary drainage provisions have been included as part of these works, until a time when the residential building lots are developed. If necessary, native fill shall be placed within the adjoining lands between Station 0+003.0 to Station 0+485.0 and shall be graded to provide positive drainage towards the temporary catch basins. The fill line shown on the accompanying drawing is being provided as a general guide as to where fill is required and the necessary grading to adequately drain the adjacent lands. The Contractor shall refer to the accompanying drawings for additional details. Once positive grading has been achieved, the Contractor shall provide topsoil, seed, and mulch.

The Contractor shall note that temporary catch basins are to be installed as illustrated within the accompanying drawings. The Contractor shall provide all labour and materials to assemble the temporary catch basins per the **"Typical Temporary Catch Basin Connection Detail"** as illustrated in the accompanying drawings, or approved equivalent. These temporary catch basins shall be connected to the proposed service connections as illustrated in the accompanying drawings.

XI. SLOPED QUARRIED LIMESTONE END TREATMENT

Sloped quarried limestone end treatment is required at the outlet end of the County Road 2 crossing . The installation of sloped quarried limestone end treatment shall be installed per the provisions established within the attached Standard Specifications.

XII. DETAILS OF ROAD CROSSING

At Station 0+437.4, the Contractor shall provide all material, labour and equipment to implement trenchless technologies for the proposed road crossing culvert under County Road 2. The Contractor shall utilize approximately 25.0 metres of 750mm interior diameter, DR17 HDPE smoothwall fused plastic pipe.

All directional drilling work shall be completed in strict compliance with the Ontario Provincial Standard Specification (OPSS). Specifically, the Contractor shall refer to OPSS MUNI 450 (Formerly OPSS 450) for Directional Drilling or as subsequently amended. The pipe materials required for this application shall be High Density Polythene (HDPE) DR-17 smoothwall plastic pipe having an inner pipe diameter of 375mm. All connections shall be fused with flexible and leak-free joints.

XIII. GENERAL CONSTRUCTION PROVISIONS

The Contractor is to note that several legal survey bars exist within the work area and it is to take whatever steps necessary to protect all of same. If any iron bars are damaged or removed by the Contractor, it shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to restore same, all at its cost.

The Contractor is to note that there is an existing gas main near the alignment of the existing roadside ditch. The contractor shall verify the location and depth of this utility as well as any other possibly conflicting

utilities as part of their exploratory excavations. Additionally, the Contractor shall take extreme care when performing its works around the gas main.
The alignment of the covered drain throughout shall be to the full satisfaction of the Drainage Superintendent. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Drainage Superintendent.

The Contractor shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other object that it may encounter during the course of the work. The Contractor shall indemnify and save harmless, the Municipality and the Engineer for any damages which it may cause or sustain during the progress of the work. The Contractor shall not hold the Municipality of Lakeshore, County of Essex or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

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APPENDIX "A"

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APPENDIX A-1

Essex Region Conservation Authority Correspondence

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Kiara Kirkland

From: Hannah Waldt
Sent: August 21, 2024 4:23 PM
To: Summer Locknick
Cc: Jill Fiorito; Tony Peralta
Subject: RE: Initial ERCA Comments - Bernard Tellier Drain
Attachments: 20240821 PRELIMINARY Plans - D23057 - St. Pierre Drain.pdf

Hi Summer,

Further to the previous correspondence outlined below, we have completed our preliminary design for the above-noted project. As a result, we have provided a copy of same for your review.

As previously established, we propose to convert the existing roadside ditch along the north side of County Road 2 (adjacent to the severed properties) into a Municipal Drain. The new drainage system shall be enclosed and shall include parameters to address surface flows via shallow swales, and direct same to proposed catch basins. This system will ultimately discharge through a new 750mm dia. HDPE Road Crossing Culvert and into the east side of the Benard Tellier Drain. This new drainage system shall hereinafter be known as the **St. Pierre Drain**.

It should be noted, that we have utilized the minimum building elevation provided in the email below as part of our design.

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 to the Endangered Species Act, we have contacted the Municipality of Lakeshore 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 to finalize this report shortly.

Peralta Engineering

Hannah Waldt, P. Eng.
h.waldt@peraltaengineering.com | 519-733-6587 x 145
N.J. Peralta Engineering Ltd. - Consulting Engineers
45 Division St. N., Kingsville ON N9Y 1E1
peraltaengineering.com

From: Anne-Marie Moniz <amoniz@lakeshore.ca>
Sent: Monday, June 26, 2023 10:04 AM
To: Tony Peralta <tony@peraltaengineering.com>
Cc: Matthew Shiha <matthew@peraltaengineering.com>; Jill Fiorito <jfiorito@lakeshore.ca>
Subject: Initial ERCA Comments - Bernard Tellier Drain

Good Morning,

Please see the below initial comments provided by ERCA regarding the above project.

Thank you.

Anne-Marie Moniz
Assistant Drainage Superintendent
Municipality of Lakeshore | Operations - Drainage
419 Notre Dame Street, Belle River, ON, N0R 1A0
T: tel:+15197281975;ext=627
Connect with us online at Lakeshore.ca/Connect

From: Ashley Gyori <AGyori@erca.org>
Sent: Monday, June 26, 2023 9:30 AM
To: Anne-Marie Moniz <amoniz@lakeshore.ca>
Cc: Jill Fiorito <jfiorito@lakeshore.ca>; Tony Peralta <tony@peraltaengineering.com>; Summer Locknick <SLocknick@erca.org>
Subject: RE: ERCA Notification - Creation of a New Municipal Drain

Good morning Anne-Marie,

Thank you for sending the Section 4 Petition Drain Notice for the creation of a new municipal drain along the northern portion of County Rd 2 (at 923 COUNTY RD 2), as depicted in the attached map that you provided.

A review of our floodplain mapping for the above noted property indicates that the location of the proposed works 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, the engineering report will need to confirm that the proposed works do not result in any adverse impacts to adjacent lands upstream or downstream. Unfortunately, we cannot be more specific in this regard without an actual proposal to review. Prior to the engineer moving forward with the final report, we kindly request that they provide this office with the opportunity to review the preliminary design so that any additional or outstanding ERCA comments can be addressed prior to the Meeting of Consideration.

With respect to any development (i.e. construction of a dwelling, detached structure, etc.) on the proposed severed parcels, the lowest opening elevations, which refers to any opening that could potentially allow floodwaters to enter the structure (i.e. garage floor, basement window, crawl space, vent, etc.), must meet the minimum required floodproofing elevation associated with Lake St. Clair at this location. The minimum required floodproofing elevation for development on these parcels is 176.600m CGVD28:78, which is the Lake St. Clair 1:100-year flood level of 176.300m CGVD28:78 + the required 0.3 metres of ERCA Board-approved freeboard.

To prevent floodwaters from damaging any structures, the required minimum finished grade, within 2.0 metres (6.5 feet) for any new building will need to be at or above 176.300m CGVD28:78 (the 1:100-year flood elevation associated with Lake St. Clair). As we are unaware of the exact location of all proposed severances, the existing grade may need to be raised to achieve the minimum required floodproofing elevation and grading requirement, which may have an impact on the engineer's design.

Additionally, any proposed development on these sites would have a typical minimum setback requirement from an open watercourse of 8 metres plus the depth of the drain, measured from the top of bank to the closest point of the development.

It should be noted that ERCA does not review proposals on behalf of other agencies (i.e. Department of Fisheries and Oceans, Ministry of the Environment, Conservation and Parks, Ministry of Natural Resources and Forestry, etc.). It is the proponent's responsibility to ensure that all applicable authorizations have been obtained and that all legislation is adhered to.

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

Kind regards,

Essex Region Conservation Authority
sustaining the place for life

ASHLEY GYORI
Regulations Analyst
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6
agyori@erca.org • essexregionconservation.ca

****NOTE: I WILL BE TAKING AN EXTENDED LEAVE FROM JULY 2023 – JULY 2024****

The ERCA Office is now open to the public **Tuesdays, Wednesdays and Thursdays** to provide "counter service"; however, services continue to be delivered online and through email. Please consult ERCA's website for more information and direction regarding online services (i.e. permitting, cottage bookings, seasonal passes etc.).

From: Anne-Marie Moniz <amoniz@lakeshore.ca>
Sent: Monday, June 19, 2023 2:06 PM
To: Ashley Gyori <AGyori@erca.org>
Cc: Jill Fiorito <jfiorito@lakeshore.ca>; Tony Peralta <tony@peraltaengineering.com>
Subject: ERCA Notification - Creation of a New Municipal Drain

Good afternoon Ashley,

Please be advised that we received a request for the creation of a new Municipal Drian in the Municipality of Lakeshore. This new drainage system has been requested along the north side of County Road 2, for Rochester Place Resorts Inc. As such, we would like to provide you with formal notification for the works, as required, under Section 5(1)b of the Drainage Act.

We ask that you please provide us with acknowledgment of this notification, together with any initial comments you may have regarding this request.

Should you require anything further, please do not hesitate to contact us.

Thank you.

Anne-Marie Moniz
Assistant Drainage Superintendent
Municipality of Lakeshore | Operations - Drainage
419 Notre Dame Street, Belle River, ON, N0R 1A0
T: tel:+15197281975;ext=627
Connect with us online at Lakeshore.ca/Connect

APPENDIX A-2

DFO Request for Review Submission

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Kiara Kirkland

From: Kiara Kirkland
Sent: August 6, 2024 2:58 PM
To: FPP. CA / PPP. CA (DFO/MPO) (fisheriesprotection@dfo-mpo.gc.ca)
Cc: Jill Fiorito; Tony Peralta; Hannah Waldt
Subject: DFO Request for Review - St. Pierre Petition Drain (D23-057)
Attachments: 1- DFO Request for Review Form (Signed).pdf; 2 - Appendix A - Supporting Documents.pdf; 3 - Appendix B - Photo Book.pdf

Hello,

Our office has been appointed by the Municipality of Lakeshore to provide an Engineer's Report, under Section 4 of the Drainage Act, for the installation of a new covered drain system. This covered drainage system has been requested to facilitate the development of 12 residential building lots.

The proposed outlet for the covered drainage system will be the Bernard Tellier Drain, an open drain with a pumped outlet into the Ruscom River, both of which have a current drain classification of “not rated.” Additionally, we have also reviewed the DFO Aquatic Species at Risk maps which display the potential for having Spotted Sucker (Special Concern), Silver Lamprey (Special Concern) and Lilliput (Endangered) species at risk, along with critical habitat for the Lilliput within the Ruscom River. It should be noted that no works are intended to be completed in the Ruscom River, where the species at risk and critical habitat are potentially located.

This new Municipal Drain will run along the north side of County Road 2. The drain will then travel southerly under County Road 2 and outlet into the Bernard Tellier Drain, and further into the Ruscom River.

We have been working in close consultation with the Municipality of Lakeshore, the Essex Region Conservation Authority (ERCA) and other consultants to continue with the development. At this time, we are seeking input from the DFO to address any comments and concerns as they relate to the Fisheries Act and/or SAR.

Based on the DFO Self-Assessment website, we would kindly request a review of this project.

Please find attached the following documents:

1. "Request for Review" form
2. “Appendix A” - Maps illustrating the project site and location
3. “Appendix B" - Photos of the site and open drain

I trust that this information is satisfactory in order to conduct your review. However, we understand that you may have questions and/or concerns. If so, please feel free to contact us.

We look forward to your response.

Regards,

Peralta Engineering

Kiara Kirkland, Drainage Technician
kiara@peraltaengineering.com | 519-733-6587 x 126
N.J. Peralta Engineering Ltd. - Consulting Engineers
45 Division St. N., Kingsville ON N9Y 1E1
peraltaengineering.com

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Request for Review

Please note that Guidance on Submitting a Request for Review is available at the end of this form. This guidance explains the requirements for a Request for Review by DFO under the fish and fish habitat protection provisions of the *Fisheries Act*. All information requested must be provided. If you attach documents to your application with additional information, you must still provide appropriate summaries in the spaces provided on the application document or your application will be considered incomplete.

A) Contact information

Name of Business/Company:

Municipality of Lakeshore

Name of Proponent:

Jill Fiorito, Drainage Superintendent

Mailing address:

419 Notre Dame Street

City/Town:

Belle River

Province/Territory:

Ontario

Postal Code:

N0R 1A0

Tel. No. :

519-728-1975

Fax No.:

Email:

jfiorito@lakeshore.ca

Select additional contact:
Contractor/Agency/Consultant *(if applicable):*

Hannah Waldt (N.J.Peralta Engineering)

Mailing address:

45 Division Street North

City/Town:

Kingsville

Province/Territory:

Ontario

Postal Code:

N9Y 1E1

Tel. No. :

519-733-6587

Fax No.:

Email:

h.waldt@peraltaengineering.com

Is the Proponent the main/primary contact? ○ Yes ◉ No

If no, please enter information for the primary contact or any additional contact.

Hannah Waldt (N. J. Peralta Engineering)

**All definitions are provided in Section G of the Guidance on Submitting a Request for Review*

Hannah Waldt (N.J. Peralta Engineering)

B) Description of Project

If your project has a title, please provide it.

St. Pierre Petition Drain

Is the project in response to an emergency circumstance*? ○ Yes ◉ No

Does your project involve work in water? ◉ Yes ○ No

If yes, is the work below the High Water Mark*? ◉ Yes ○ No

What are you planning to do? Briefly describe all project components you are proposing in or near water.

Installation of approximately 530.0 meters of a new covered drainage system along the north side of County Road 2. This new covered drain system will be constructed under the Drainage Act through a petition request to facilitate the development of 12 residential building lots. For the purpose of this application, the drain will be named the St. Pierre Petition Drain (Please see Appendix 'A' Figure 1 - Site Location & Figure 2 - Proposed Covered Drain Location).

How are you planning to do it? Briefly describe the construction materials, methods and equipment that you plan to use.

The St. Pierre Drain will be installed utilizing Smoothwall HDPE and sized to convey flows to current design standards. Work will be completed during dry weather when intermittent flows cease in the existing roadside ditch. Work areas will be isolated for dewatering and fish salvage prior to construction works. This site shall be restored to its previous condition.

Include a site plan (figure/drawing) showing all project components in and near water.

Are details attached? ◉ Yes ○ No

Identify which work categories apply to your project.

- ☐ Aquaculture Operations
- ☒ Aquatic Vegetation Removal
- ☐ Beaches
- ☐ Berms
- ☐ Blasting / Explosives
- ☐ Boat Houses
- ☐ Boat Launches / Ramps
- ☐ Breakwaters
- ☐ Bridges
- ☐ Cable Crossings
- ☐ Causeways
- ☒ Culverts
- ☐ Dams
- ☐ Dewatering / Pumping
- ☐ Docks
- ☐ Dredging / Excavation
- ☐ Dykes
- ☐ Fishways / Ladders
- ☐ Log Handling / Dumps
- ☐ Log Removal
- ☐ Moorings
- ☐ Open Water Disposal
- ☐ Piers
- ☒ Riparian Vegetation Removal
- ☐ Seismic Work
- ☐ Shoreline Protection
- ☐ Stormwater Management Facilities
- ☐ Surface Water Taking
- ☐ Tailings Impoundment Areas
- ☐ Temporary Structures
- ☐ Turbines
- ☐ Water Control Structures
- ☐ Water Intakes / Fish Screens
- ☐ Water Outfalls
- ☐ Watercourse Realignment
- ☐ Weirs

All definitions are provided in Section G of the Guidance on Submitting a Request for Review

- [ ] Flow Modification (hydro)
- [ ] Groundwater Extraction
- [ ] Groynes
- [ ] Habitat Restoration
- [ ] Ice Bridges
- [ ] Wharves
- [ ] Wind Power Structures
- [x] Other Please Specify: Municipal Drain - Covered Drain

Was your project submitted for review to another federal or provincial department or agency? (•) Yes ( ) No

If yes, indicate to whom and associated file number(s).

The project was initially submitted to the Essex Region Conservation Authority at the onset of the project, as a regulatory requirement through the Drainage Act, for initial comments.

C) Location of the Project

Coordinates of the proposed project Latitude: 42.29672 N Longitude: 82.63752 W

OR UTM zone: ; Easting:

Northing:

Include a map clearly indicating the location of the project as well as surrounding features.

Name of Nearest Community (City, Town, Village): Belle River

Municipality, District, Township, County, Province: Municiaplity of Lakeshore, County of Essex, Ontario

Name of watershed (if applicable): Ruscom River

Name of watercourse(s) or waterbody(ies) near the proposed project: Bernard Tellier Drain, Ruscom River

Provide detailed directions to access the project site:

From London
Merge onto ON-401 W toward Windsor
Take exit 56 for Essex Road 42 toward Tilbury
Turn right onto County Road 42/Essex 42
Turn right onto County Road 31
Turn left onto County Road 2 for approximately 1.0 km to the project site location on your right

D) Description of the Aquatic Environment

Identify the predominant type of aquatic habitat where the project will take place.

- ( ) Estuary (Estuarine)
- ( ) Lake (Lacustrine)
- ( ) On the bank/shore at the interface between land and water (Riparian)
- (•) River or stream (Riverine)
- ( ) Salt water (Marine)
- ( ) Wetlands (Palustrine)

All definitions are provided in Section G of the Guidance on Submitting a Request for Review

Provide a detailed description of biological and physical characteristics of the proposed project site. This description should include information on aquatic species at risk* (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html), their residence* and critical habitat* if found in the area. An overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters can be found here http://dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

At the project location, the proposed St.Pierre Drain is currently an existing roadside ditch with no DFO classification. The new drain is intended to be a covered drainage system, enclosing the existing roadside ditch with its outlet across County Road 2 into the Bernard Tellier Drain, and further into the Ruscom River. The Bernard Tellier Drain is an open drain with a pumped outlet into the Ruscom River. Both drains are currently listed as "not rated." Further to our site investigations, the roadside ditch appears to be an intermittent watercourse with minimal flows. There are no records of aquatic species at risk or critical habitat within the location of the roadside ditch. However, the DFO aquatic species at risk mapping confirms that there may be spotted sucker (special concern), silver lamprey (special concern) and lilliput (endangered) species at risk, as well as critical habitat for the liliput within the Ruscom River. Additionally, see photos in Appendix "B," which show photos of the affected area both upstream and downstream of the proposed enclosure site.

Include representative photos of affected area (including upstream and downstream area) and clearly identify the location of the project.

E) Potential Effects of the Proposed Project

Have you reviewed the Pathways of Effects (PoE) diagrams (http://www.dfo-mpo.gc.ca/pnw-ppe/pathways-sequences/index-eng.html) that describe the type of cause-effect relationships that apply to your project?

◉ Yes ○ No

If yes, select the PoEs that apply to your project.

- ☒ Addition or removal of aquatic vegetation
- ☒ Change in timing, duration and frequency of flow
- ☐ Cleaning or maintenance of bridges or other structures
- ☐ Dredging
- ☒ Excavation
- ☐ Fish passage issues
- ☒ Grading
- ☐ Marine seismic surveys
- ☐ Organic debris management
- ☐ Placement of marine finfish aquaculture site
- ☒ Placement of material or structures in water
- ☐ Riparian Planting
- ☐ Streamside livestock grazing
- ☐ Structure removal
- ☐ Use of explosives
- ☒ Use of industrial equipment
- ☐ Vegetation Clearing
- ☐ Wastewater management
- ☐ Water extraction

Will there be changes (i.e., alteration) in the fish habitat*? ○ Yes ◉ No ○ Unknown

If yes, provide a description.

Is there likely to be a harmful alteration, disruption or destruction of habitat used by fish? ○ Yes ◉ No ○ Unknown

Is there likely to be destruction or loss of habitat used by fish? ○ Yes ◉ No ○ Unknown

What is the footprint (area in square meters) of your project that will take place below the high water mark*?

0 sq. m

Is your project likely to change water flows or water levels? ○ Yes ◉ No ○ Unknown

If your project includes withdrawing water, provide source, volume, rate and duration.

N/A

If your project includes a water control structure, provide the % of flow reduction.

N/A

If your project includes discharge of water, provide source, volume and rate.

N/A

Will your project cause death of fish? ○ Yes ◉ No ○ Unknown

If yes, how many fish will be killed (for multi-year project, provide average)? What species and lifestages?

What is the time frame of your project?

The construction will start on 10/01/2024 and end by 12/31/2024

If applicable, the operation will start on MM/DD/YYYY and end by MM/DD/YYYY

If applicable, provide schedule for the maintenance

If applicable, provide schedule for decommissioning

Are there additional effects to fish and fish habitat that will occur outside of the time periods identified above? ○ Yes ◉ No

(If yes, provide details)

Can you follow appropriate Timing Windows (http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/index-eng.html) for all your project activities below the High Water Mark*? ◉ Yes ○ No

(If no, provide explanations.)

Have you considered and incorporated all options for redesigning and relocating your project to avoid negative effects to fish and fish habitat?

◉ Yes ○ No

If yes, describe.

Considered constructing an open drain reach with additional culvert crossings to provide access to the proposed severances. However, per the Municipality of Lakeshore's Consent Application process, they require a covered drainage system rather than access bridges.

Have you consulted DFO's Fish and Fish Habitat Protection Measures Habitat (https://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures-eng.html) to determine which measures apply to your project? ◉ Yes ○ No

Will you be incorporating applicable measures into your project? ◉ Yes ○ No

If yes, identify which ones. If No, identify which ones and provide reasons.

Timing (fisheries window, duration, seasonal flow), containment and spill management (procedures and materials on hand to contain and clean up spills), erosion and sediment control (isolation of work areas during enclosure) and operation of machinery (best practice regarding cleanliness, inspection, maintenance and operation)

*All definitions are provided in Section G of the Guidance on Submitting a Request for Review

Have you considered whether DFO standards and codes of practice apply to your project? ○ No ◉ Yes

If Yes, include a list.

Determined that the Code of Practice could not be used due to the potential for critical habitat and endangered species

Have you considered other avoidance and mitigation measures? ◉ No ○ Yes

If Yes, include a list.

Are there any relevant measures that you are unable to incorporate? ○ Yes ◉ No

(If yes, identify which ones.)

What harmful effects to fish and fish habitat do you foresee after taking into account the avoidance and mitigation measures described above?

No residual effects are anticipated. No work will be completed within the Ruscom River, where the species at risk are potentially located.

Do these include effects on aquatic species at risk*? ○ Yes ◉ No

If yes, please describe, including how many individuals will be harmed, harassed, or otherwise affected by the project, and how?

Do these include effects on areas identified as their residence or critical habitat? ○ Yes ◉ No

If yes, please describe

Are there any aquatic invasive species in the vicinity of your project area? ○ Yes ◉ No

(If yes, identify which ones.)

Does your project aim to, or will it be likely to, effect any of these aquatic invasive species? ○ Yes ◉ No

If yes, how?

All definitions are provided in Section G of the Guidance on Submitting a Request for Review

F) Signature

I, Hannah Waldt (print name) certify that the information given on this form is to the best of my knowledge, correct and completed.

Hannah Waldt

Signature

06/08/2024

Date

Information about the above-noted proposed work or undertaking is collected by DFO under the authority of the *Fisheries Act* for the purpose of administering the Fish and Fish Habitat protection provisions of the *Fisheries Act*. Personal information will be protected under the provisions of the *Privacy Act* and will be stored in the Personal Information Bank DFO-PPU-680. Under the *Privacy Act*, Individuals have a right to, and on request shall be given access to any personal information about them contained in a personal information bank. Instructions for obtaining personal information are contained in the Government of Canada's Info Source publications available at www.infosource.gc.ca or in Government of Canada offices. Information other than "personal" information may be accessible or protected as required by the provision of the *Access to Information Act*.

**All definitions are provided in Section G of the Guidance on Submitting a Request for Review*

Guidance on Submitting a Request for Review

This document explains the requirements for a Request for Review by DFO under the fish and fish habitat protection provisions of the *Fisheries Act*. To determine whether you should request a review, visit DFO's Projects Near Water webpage (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html).

Incomplete Requests for Review will be returned to the applicant without review by DFO. All information requested must be provided. If you attach documents to your application with additional information, you must still provide appropriate summaries in the spaces provided on the application document or your application will be considered incomplete.

Section A: Contact Information

Provide the full legal name of the proponent and primary mailing address for the proponent. When the proponent is a company, identify the full legal registered name of the company.

If applicable, also provide the contact information of the duly authorized representative of the proponent. Please note that a copy of correspondence to Contractor/Agency/Consultant will also be sent to the Proponent.

Section B: Description of Project

This information is meant to provide background about the proposed project. All components of the proposed project in or near water, must be described.

Proponents should provide information about all appropriate phases of the project, i.e., the construction, operation, maintenance and closure phases for the proposed project.

All details about the construction methods to be used, associated infrastructure, permanent and temporary structure, structure type (e.g. corrugated steel pipe vs box culvert), structures dimension, building materials to be used, machinery and equipment to be used must also be provided. For example, the construction of p**ermanent structures** may require the construction of temporary structures such as temporary dikes, in conjunction with other associated activities like the withdrawal of water, land clearing, excavation, grading, infilling, blasting, dredging, installing structures, draining or removing debris from water. Similarly, the equipment and materials to be used may include hand tools, backhoes, gravel, blocks or armor stone (provide the average diameter), concrete (indicate if pre-cast or poured in-water), steel beams or wood.

When physical structures in or near water are proposed, provide the plan and specifications of those works which would require a review.

Section C: Location of the Project

The purpose for this information is to describe and illustrate the location of the proposed project, and to provide geographical and spatial context. The information should also facilitate an understanding of how the project will be situated in relation to existing structures.

The details to be provided must include:

- Coordinates of the project (e.g., Latitude and Longitude or Universal Transverse Mercator Grid coordinates);
- A map(s), site plan, or diagrams indicating the high water mark and the location, size and nature of proposed and existing structures (e.g., floating or fixed), landmarks and proposed activities. In a marine setting, it may be helpful to depict the approximate location of the proposed development on a nautical chart or showing the relation of the site to sea marks or other navigational aids. These plans, maps or diagrams should be at an appropriate scale to help determine the relative size of the proposed structures and activities, the proximity to the watercourse or waterbody and the distance from existing structures;
- The community nearest to the location of the proposal as means to provide a general reference point. When possible, proponents should use geographical names recognized by the Geographical Names Board of Canada (http://www.nrcan.gc.ca/earth-sciences/geography-boundary/geographical-name/11680).
- If available, provide aerial photographs or satellite imagery of the water source(s) and waterbody(ies);
- Names of the watershed(s), water source(s) and/or waterbody(ies) likely to be affected by the proposal; and
- Brief directions to access the proposed project site.

Section D: Description of the Aquatic Environment

Proponents must describe the environmental context and aquatic resources present at the proposed site. The information must identify the current state of the fish and fish habitat prior to the carrying on of the project.

It is important to include information about the fish species present, the biological, chemical, physical features present (habitat characteristics), and the fish life-cycle functions (fish characteristics).

The spatial scope for assessing fish and fish habitat should encompass the direct physical footprint of the project, and the upstream and downstream areas affected.

As an example, the following is a non-exhaustive and non-prescriptive list of some common attributes which may characterize the aquatic environment:

- Type of water source or watercourse (groundwater, river, lake, marine, estuary, etc.);
- Characteristics of the water source or waterbody could include:
  - Substrate characterization - describe the types of substrate (e.g., bedrock, boulder, cobble, gravel etc.), identify the predominant substrate type (e.g., 80% cobble, 20% gravel etc.) and provide maps of the substrate;
  - Aquatic and riparian vegetation characterization - identify the prevalent types of vegetation (e.g. rooted, submerged, emergent, etc.), identify the relative abundance of the vegetation (e.g., 10% cattails, 80% grass, 10% sedge) , indicate the predominant vegetation (e.g., by species or types) and identify the vegetation densities (e.g., type of vegetation/ area);
  - Flow characterization - specify if the flow is controlled or if it is natural, identify if the flow is permanent or intermittent, identify the current and tide (marine environment) etc.;
  - Physical waterbody characterization - identify the average depth of water for water bodies, identify bathymetry of water bodies, provide bathymetric maps where available, channel width (determine the width of the channel from the high water mark), slope ;
  - Water quality characterization - (e.g., annual or average pH, salinity, alkalinity, total dissolved solids, turbidity, temperature etc.);
  - Biological water quality characterization - (e.g., benthic macro-invertebrates, zooplankton, phytoplankton, etc.)
- Fish species characterization - identify the fish species (including molluscs, crustaceans, etc.) known or suspected to be in the area, predator prey relationships etc. Identify what source of information was used to determine the presence of fish in that area; and
- Estimate the fish abundance - estimate the number of fish present, estimate the year class for each species etc.

There are many different methods and attributes available to characterize fish and fish habitat. Proponents must describe all sources of information used, all fish and environment sampling techniques used, all modelling techniques used and all other approaches used to define the fish and fish habitat. Proponents are encouraged to use recognized fisheries inventory methods such as those approved by DFO or provinces and territories, and/or scientifically defensible methodologies and techniques whenever possible.

Whenever possible, proponents should support descriptions of the aquatic environment with the use of detailed drawings, such as plans or maps and photographs of the habitat features. In an offshore marine setting, photos may not be useful to depict the proposed development site. Instead describe and/or sketch the specific features of the sea floor which may include the presence of submarine features such as canyons, cliffs, caverns, etc.

Section E: Potential Effects of the Proposed Project

The objective of this section is to identify all anticipated effects on fish and fish habitat likely to be caused by the project. Proponents should consider all mitigation or avoidance techniques.

The description must include qualitative and/or quantitative information about the predicted/potential effects to fish species and fish habitat. Some examples of likely effects may include mortality to fish, area of habitat loss, change to flow, changes to habitat function, reduction in prey availability etc.

The spatial scope of the aquatic effects assessment would include the direct physical "footprint" of the proposed project, and any areas

y affected, such as downstream or upstream areas. The footprint of each component of the project below the higher water mark should be provided individually. This may also include areas in or on the water, on the shoreline, coast or bank(s) (i.e., in the riparian zone).

The assessment must include the following attributes:

- Identification of all fish species affected by the proposed project as well as their life stages (e.g., juvenile, yearling, adult, etc.);
- Identification of the type of fish habitat affected (e.g., spawning habitat - gravel and cobble, feeding and rearing areas - side channel slough, small tributaries, etc.), estimate of the affected area (e.g., square meters or hectares);
- Description of the effect (e.g., mortality to fish from entrapment, delayed migration of spawning adults, reduction in prey availability, etc.)
- Probability of the effect - this is the likelihood of the effect occurring (e.g., probability of fish strike from turbines for specific fish sizes, probability of sediment plume within a distance from source, etc., or qualitative assessment: low, medium, high)
- Magnitude of the effect - this is the intensity or severity of the effect (e.g., total number of fish affected, or qualitatively assessment: low, medium, high).
- Geographic extent of the effect - this is the spatial range of the effect (e.g., localized to 100m from the work, channel reach or lake region, entire watershed etc.); and
- Duration of the effect - this is the temporal period for which the effect will persist (e.g., duration of delay to fish migration in hours, days, months or years).

The information to be provided must also describe the methods and techniques used to conduct the assessment. As much as possible, methods and techniques used should be scientifically defensible.

The schedule should, at minimum, identify the proposed start and end dates for carrying out each proposed activity, and where applicable, identify the respective phase of the proposal; i.e., the construction, operation, maintenance and closure phases. In some cases, in order to provide additional context, it may be relevant to identify other information such as the expected life span of permanent and temporary structures.

Proponents must provide comprehensive information about all available measures that are proposed to avoid or mitigate potential harmful alteration, disruption or destruction of fish habitat, or death of fish (e.g., in standards or codes of practice).

Residual harmful impacts that remain after the application of such measures.

It is important to clearly describe and quantify harmful impacts because DFO will use this information as part of its decision making on whether harmful alteration, disruption or destruction of fish habitat or death of fish is likely and an authorization is required under subsection 35(2)(*b*) or 34.4(2)(b) of the *Fisheries Act*.

Section F: Submission and Signature

The proponent must sign their application. A signed original of the Request for Review must be provided to the regional DFO office (http://www.dfo-mpo.gc.ca/pnw-ppe/contact-eng.html), even if an electronic copy was sent by email. Should the review of your project indicate that harmful alteration, disruption or destruction of fish habitat or death of fish is likely, the information provided in the Request for Review document can be referred to in the subsequent application for an authorization under Paragraphs 35(2)(*b*) or 34.4 of the *Fisheries Act*.

Section G: Definitions

Aquatic Species at Risk: an extirpated, endangered, threatened species, or a species of special concern. A non-exhaustive list of aquatic species at risk found in Canadian waters can be found here (http://www.dfo-mpo.gc.ca/species-especes/sara-lep/identify-eng.html).

Aquatic Species at Risk Critical Habitat
the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species critical habitat in the recovery strategy or in an action plan for the species.

Aquatic Species at Risk Residence: the specific dwelling place, such as a den, nest or other similar area or a place that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding, or hibernating.

Aquatic invasive species: are fish, invertebrate or plant species that have been introduced into a new aquatic environment, outside of their natural range. Once introduced, aquatic invasive species populations can grow quickly because they don't have natural predators in their new environment. As a result, they can outcompete and harm native species. They can even alter habitats to make them inhospitable for the native species. A non-exhaustive list of aquatic invasive species can be found here (http://www.dfo-mpo.gc.ca/species-especes/ais-eae/identify-eng.html).

Emergency circumstance: If your project must be conducted in response to an emergency, you may apply for an Emergency Authorization. The emergency situations are:

- The project is required as a matter of national security
- The project is being conducted in response to a national emergency where special temporary measures are being taken under the federal *Emergencies Act*
- The project is required to address an emergency that poses a risk to public health or safety or to the environment or property.

Fish habitat: means habitat that can directly or indirectly support life processes. This includes but is not limited to: spawning grounds, nursery, rearing, food supply and migration areas.

Harmful alteration, disruption or destruction means any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish.

High Water Mark: The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.

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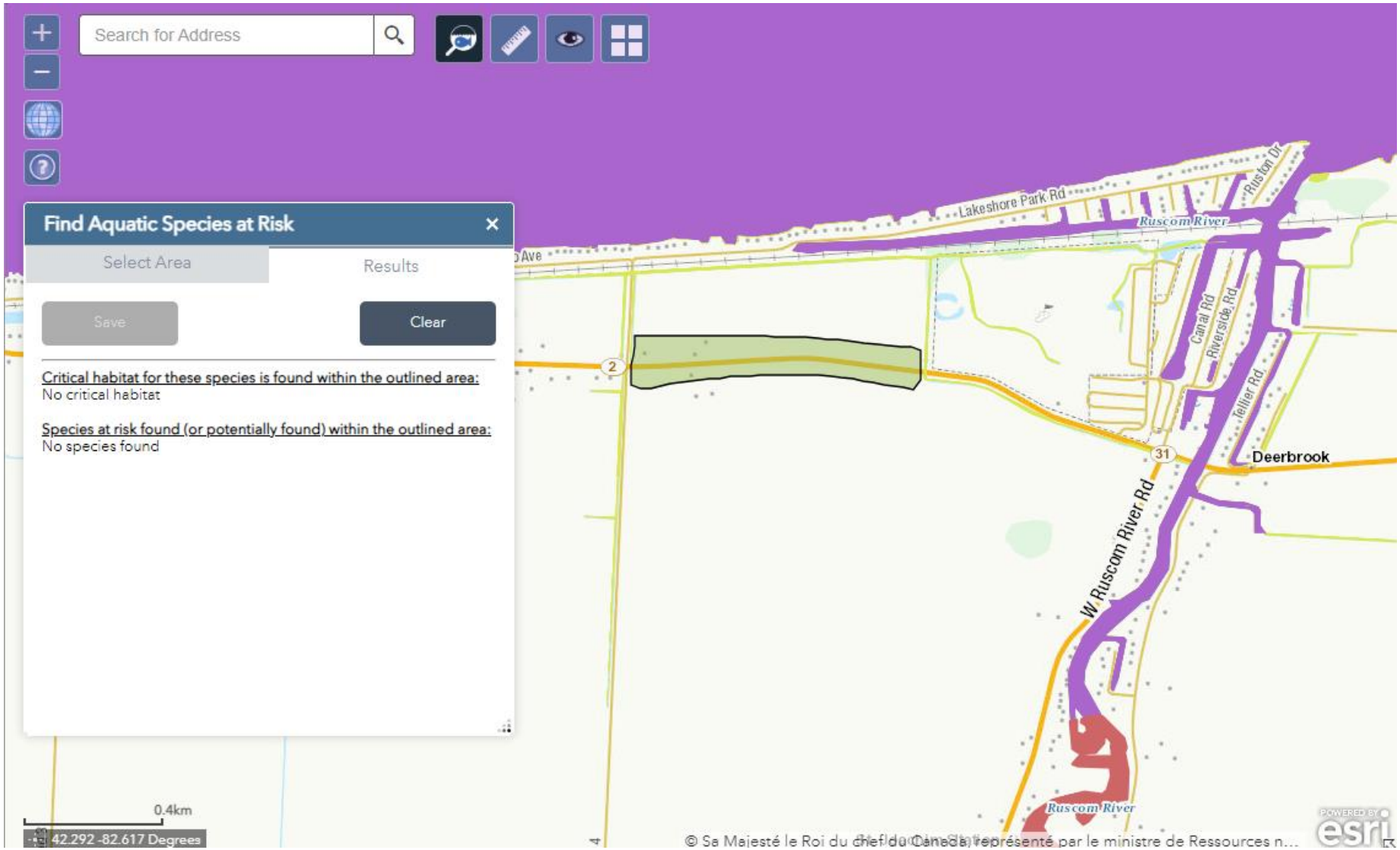
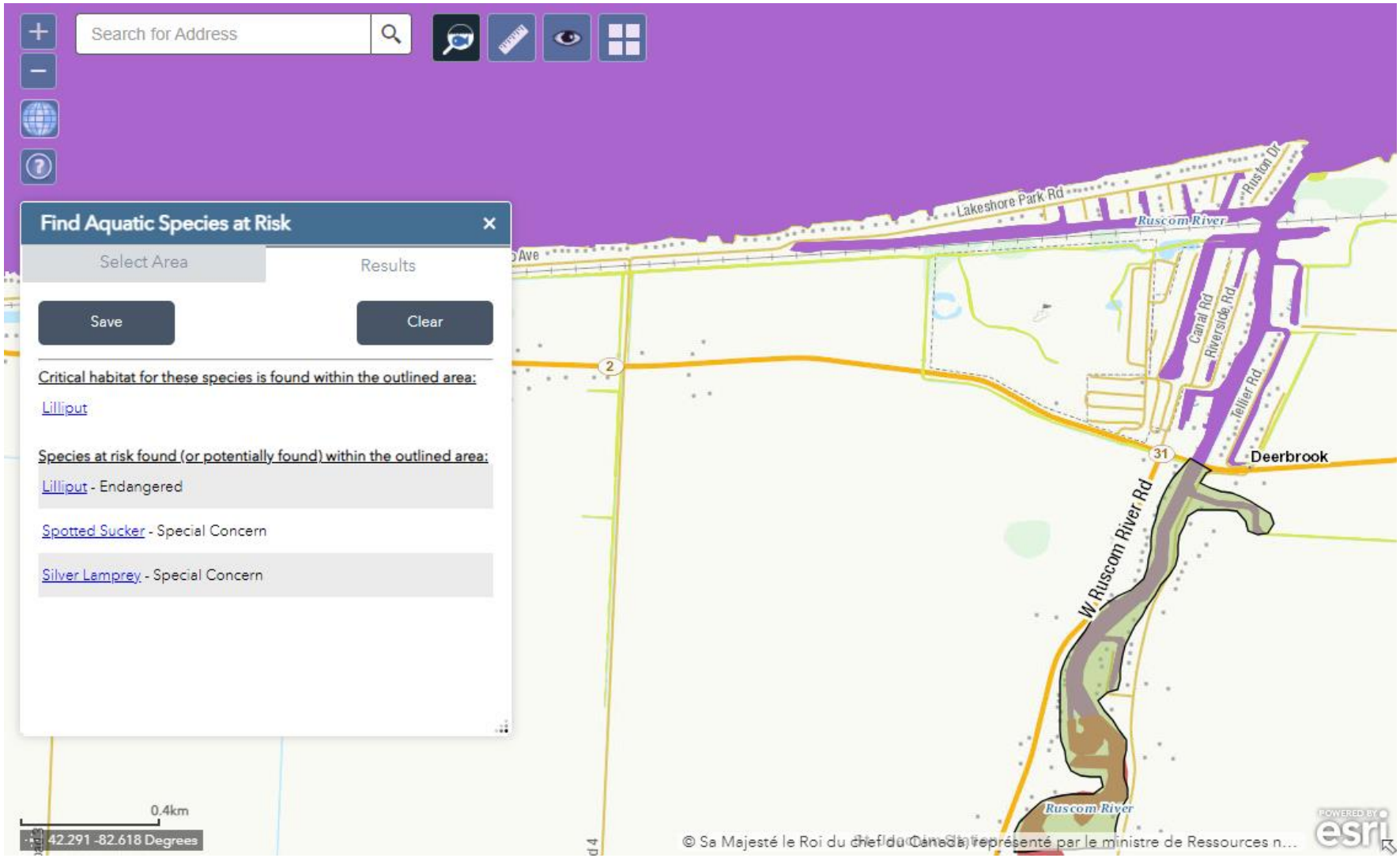
Appendix "A" - Figure 1 – Site Location

Appendix "A" - Figure 2 – Proposed New Drain Location

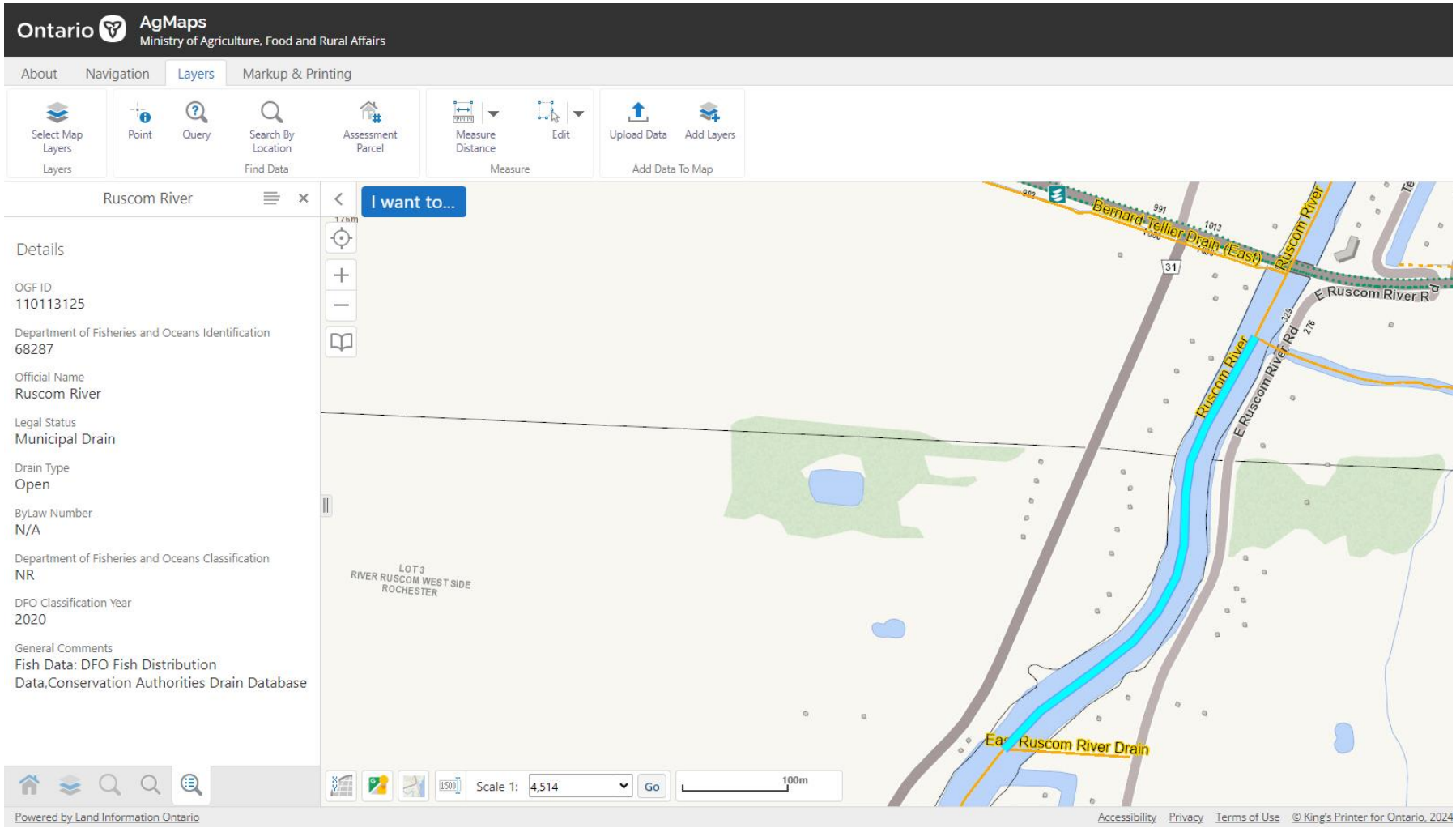
Appendix "A" - Figure 3 – DFO Aquatic Species at Risk Map and Critical Habitat Map



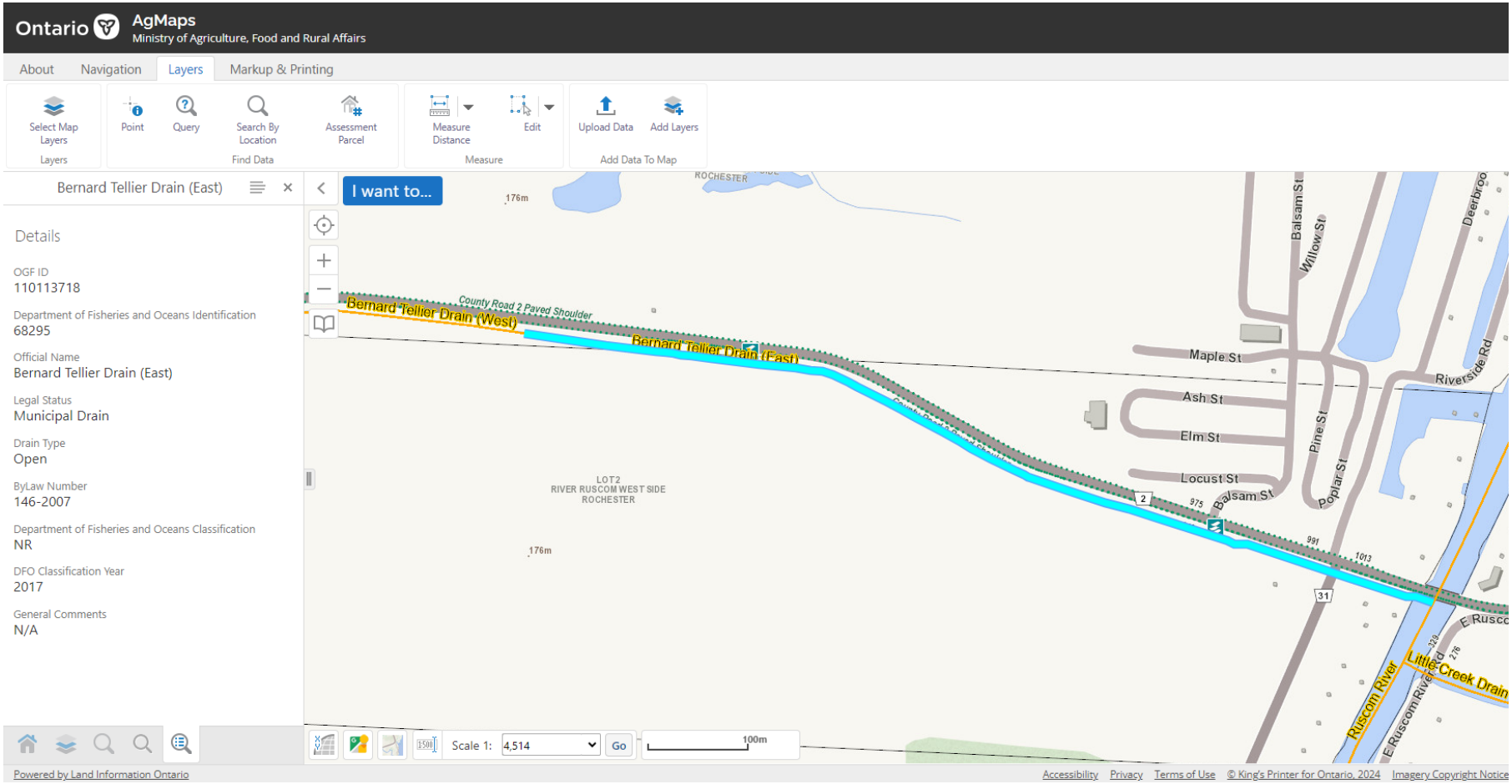
Appendix "A" - Figure 4 – DFO Aquatic Species at Risk Map and Critical Habitat Map



Appendix "A" - Figure 5 – DFO Drain Classification



Appendix "A" - Figure 6 – DFO Drain Classification



Picture #1

Approx. Photo Location Coordinates:	Lat: 42.2967◦ N Lon: 82.63834◦ W
Description:	Looking east, from the north side of County Road 2. Picture depicts the approximate location of the roadside ditch where the covered drainage system will be installed
Date of Photo:	June 18th, 2024

Looking east, from the north side of County Road 2.

PICTURE #1

Picture #2

Approx. Photo Location Coordinates:	Lat: 42.2967◦ N Lon: 82.63834◦ W
Description:	Looking west, from the north side of County Road 2. Picture depicts the approximate location of the roadside ditch where the covered drainage system will be installed
Date of Photo:	June 18th, 2024

Looking west, from the north side of County Road 2.

PICTURE #2

Picture #3

Approx. Photo Location Coordinates:	Lat: 42.29648◦ N Lon: 82.63946◦ W
Description:	Looking upstream in a westerly direction at the Bernard Tellier Drain, which will accept the added flows from the proposed St.Pierre Drain along the south side of the County Road 2.
Date of Photo:	August 4th, 2023

Looking upstream in a westerly direction at the Bernard Tellier Drain along the south side of County Road 2.

PICTURE #3

Picture #4

Approx. Photo Location Coordinates:	Lat: 42.29648◦ N Lon: 82.63946◦ W
Description:	Looking downstream in an easterly direction at the Bernard Tellier Drain, which will accept the added flows from the proposed St.Pierre Drain along the south side of the County Road 2.
Date of Photo:	August 4th, 2023

Looking downstream in an easterly direction at the Bernard Tellier Drain along the south side of County Road 2.

PICTURE #4

APPENDIX A-3

MECP Endangered Species and Critical Habitat Submission

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Kiara Kirkland

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: August 14, 2024 12:42 PM
To: Kiara Kirkland; Species at Risk (MECP)
Cc: Tony Peralta; Jill Fiorito
Subject: RE: MECP Request for Review - St. Pierre Petition Drain (D23-057)

Good afternoon,

Thank you for your inquiry regarding authorizations and exemptions under the Endangered Species Act, 2007 (ESA). Seeking an ESA authorization or exemption is a proponent-led process. This means that the person carrying out an activity is responsible for determining whether SAR and their habitat are present on or around the site of the activity, and ultimately ensuring their actions do not contravene the ESA.

Generally speaking, maintenance of roadside drainage ditches may qualify for a conditional exemption under O. Reg. 242/08, such as 23.9 of O. Reg.242/08 "Drainage Works", however there are some circumstances and species/habitat where this exemption may not apply. We encourage you to look at the exemptions, and if these apply to your proposed activities, this means that a permit would not be required. **Please note, that in order to rely on this exemption, an individual is required to register online and submit a Notice of Activity form.

Please let us know if you have any further questions.

Sincerely,
Species at Risk Branch

From: Kiara Kirkland <kiara@peraltaengineering.com>
Sent: Wednesday, August 14, 2024 10:22 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Tony Peralta <tony@peraltaengineering.com>; Jill Fiorito <Jfiorito@lakeshore.ca>
Subject: MECP Request for Review - St. Pierre Petition Drain (D23-057)

Hello,

Our office has been appointed by the Municipality of Lakeshore to provide an Engineer's Report, under Section 4 of the Drainage Act, for the installation of a new covered drain system. This covered drainage system has been requested to facilitate the development of 12 residential building lots.

This new Municipal Drain will run along the north side of County Road 2. The drain will then travel southerly under County Road 2 and outlet into the Bernard Tellier Drain, and further into the Ruscom River.

We have been working in close consultation with the Municipality of Lakeshore, the Essex Region Conservation Authority (ERCA) and other consultants to continue with the development. At this time, we are seeking input from the MECP to obtain guidance on whether the proposed Municipal Drain requires authorization under the Endangered Species Act.

Please find attached the following documents:

1. A letter outlining our MECP Endangered Species and Critical Habitat Review and Findings
2. Summary of Findings Table for the Habitat Assessment and Species at Risk Review

We trust that this information is satisfactory in order to conduct your review. However, we understand that you may have questions and/or concerns. If so, please feel free to contact us.

We look forward to your response.

Regards,

Kiara Kirkland, Drainage Technician
kiara@peraltaengineering.com | 519-733-6587 x 126
N.J. Peralta Engineering Ltd. - Consulting Engineers
45 Division St. N., Kingsville ON N9Y 1E1
peraltaengineering.com

Peralta Engineering

PROJECT **St. Pierre Petition Drain**
Part of Lot 1, West Ruscom River Concession
(Geographic Township of Rochester)
Municipality of Lakeshore, County of Essex
Project No. D23-057

August 14, 2024

Subject: MECP Endangered Species & Critical Habitat Review

I. INTRODUCTION

We have been appointed by the Municipality of Lakeshore to prepare a Drainage Report under Section 4 of the Drainage Act for the creation of a new Municipal Drain to facilitate residential development in accordance with the Municipality of Lakeshore's requirements. With the construction of a new Municipal Drain, this project does not qualify for the exemption under the Endangered Species Act (ESA) administered through the Ministry of the Environment, Conservation and Parks (MECP). This letter has been prepared to obtain guidance on whether the proposed Municipal Drain requires authorization under the ESA in order to remain in compliance with the Act.

II. LOCATION

The proposed St. Pierre Petition Drain as shown in **Appendix "A"**, Figures 1 and 2, is located within the Municipality of Lakeshore, on the north side of County Road 2. The subject property and proposed development site are also located on the north side of County Road 2 and extend along the road for approximately 530.0 meters.

III. BACKGROUND AND DESCRIPTION OF WORK

The proposed covered drainage system is intended to replace an existing open shallow roadside ditch to facilitate residential development on the north side of the roadway. The existing roadside ditch is currently positioned in close proximity to County Road 2. With the intention to develop the subject property, the owner has petitioned for the creation of a new Municipal Drain to facilitate their residential development, as required by the Municipality of Lakeshore.

The works will include the installation of approximately 530.0 meters of a new covered drainage system along the north side of County Road 2. It is intended that the proposed covered drainage system will utilize an existing Municipal Drainage system as its primary outlet, which is located on the south side of County Road 2 and known as the Bernard Tellier Drain, and will further outlet to the Ruscom River. **Appendix "B"** provides recent photos of the project site, and of existing site conditions of the roadside ditch.

IV. ERCA AND DFO CONSIDERATIONS

At the onset of this project, preliminary details of the project were provided to the Essex Region Conservation Authority (ERCA) for initial comments, as a regulatory requirement through the Drainage Act. Based on those comments, no concerns were brought forward regarding Endangered Species or their habitat. Additionally, our office submitted a Request for Review to the DFO. Furthermore, we will continue to be engaged in further correspondence with ERCA and DFO, regarding specific requirements for the approval of the covered drainage system.

V. HABITAT ASSESSMENT AND SPECIES AT RISK RECORDS

Based on MECP's information presented to the Drainage Superintendents of Ontario (DSAO) Member Chapters on June 21st-24th, 2021, we have utilized this information as referenced to conduct our review of Species at Risk data. From our research of the general area pertaining to the proposed St. Pierre Petition Drain, we have reviewed the available screening maps to determine if there is any presence of Species at Risk (SAR). Utilizing the sources provided by MECP, **Appendix "C"** includes a table outlining our findings related to the potential SAR within the project area. In addition to this table, we have also included associated maps that accompany our review. More specifically:

Figure 1: DFO Mapping

Figure 2: Natural Heritage Information Centre Mapping

Figure 3: iNaturalist Community Mapping and Observations

Figure 4: Ontario Breeding Birds Atlas

Figure 5: eBird Birding Community Sightings and Observations Map

Figure 6: Ontario Butterfly Atlas

Figure 7: Ontario Moth Atlas

It has been previously noted that the Municipality of Lakeshore is known to occupy the Eastern Foxsnake (Carolinian population), Bank Swallow (threatened), and Barn Swallow (threatened). Standard Mitigation and avoidance measures shall be provided to the Contractor, in the event that they come across any of these species.

VI. AVOIDANCE AND/OR MINIMIZATION OF ADVERSE EFFECTS

Under the Endangered Species Act legislation, we understand the importance to protect and/or avoid endangered species and their habitat. As such, we shall make every effort to implement the following minimum requirements related to this project:

- **Timing Windows** – With this project having aquatic implications, we intend to adhere to the no in-water works timing window set between March 15th and July 15th of any given year.

- **Avoidance of Key Habitat and Location of Present Work** – Due to the nature of this project, the works proposed under this project carefully considers the implications to endangered species and their habitat. As such, the drainage work is situated where there is the least impact to the affected species.

- **Sediment Control** - Prior to starting work, a sediment and erosion control plan shall be developed. This will include silt fences or similar, to provide isolation of the work area and prevent sediment materials including silts, clays and sand from entering the drain.

- **Construction Practices** - Best management practices and procedures will be implemented on-site to ensure a clean worksite with proper machine maintenance and operation for the minimization and containment of spills.

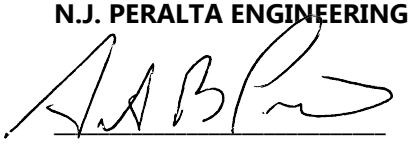
VII. CONCLUSION

Based on our review of the available resources outlined within our letter, we anticipate that there should not be any species or habitat at risk directly within the work area. Based on the information outlined throughout this letter, we are asking for guidance by the MECP on whether the proposed Municipal Drain requires authorization under the ESA.

We trust that you find all of the above and enclosed satisfactory; however, should you have any questions relating to same, please contact us immediately. Thank you for your cooperation and assistance with this project, we look forward to receiving your response on how we need to proceed with this project in order to satisfy your Ministry.

All of which is respectively submitted,

N.J. PERALTA ENGINEERING LTD.



Antonio B. Peralta, P.Eng

Encl.
cc. Jill Fiorito, Lakeshore Drainage Superintendent

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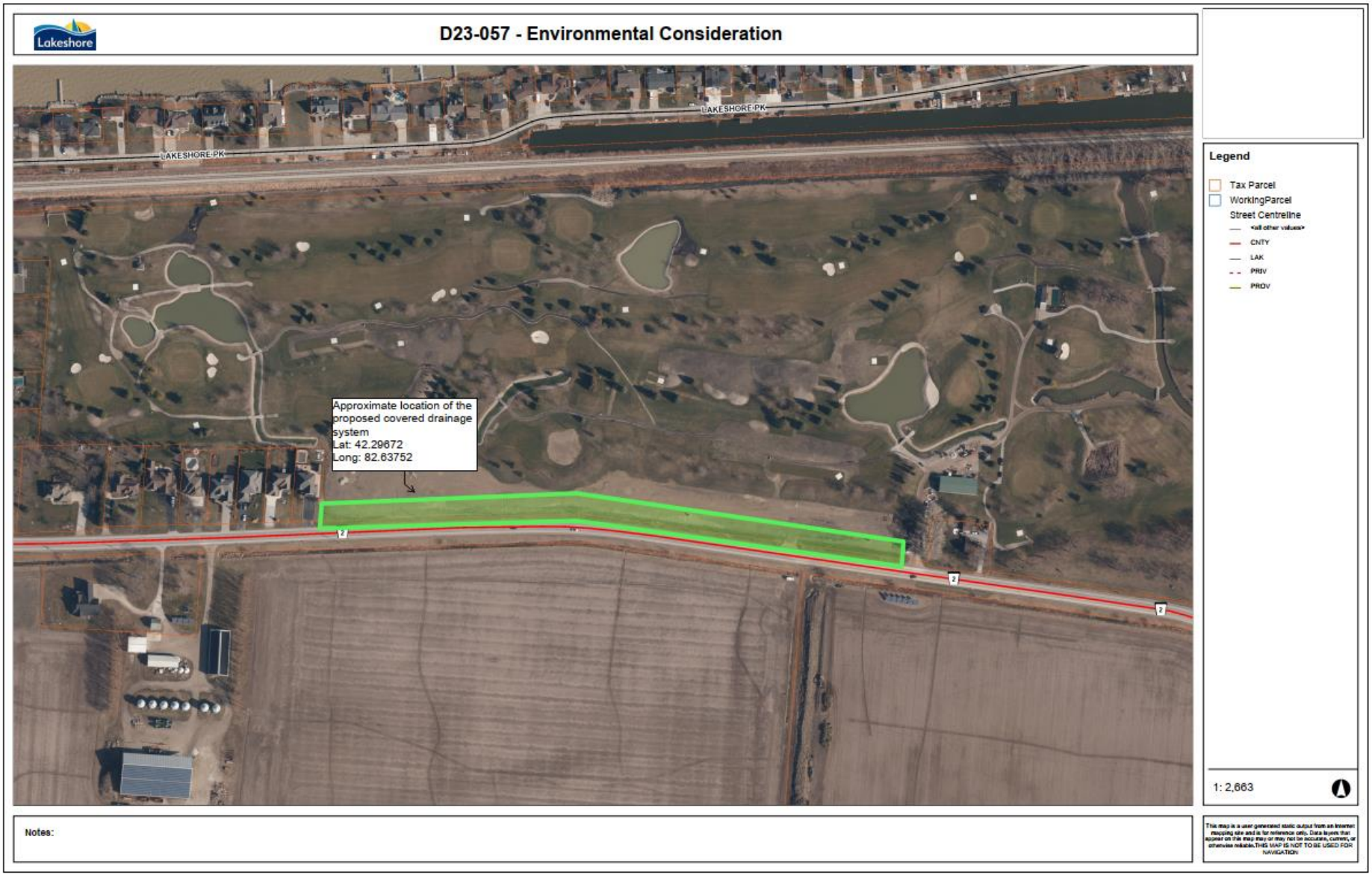
Appendix "A" Figure 1 - General Site Location

Appendix "A" Figure 2 – Proposed Drain Location



Picture #1

Approx. Photo Location Coordinates:	Lat: 42.2967◦ N Lon: 82.63834◦ W
Description:	Looking east, from the north side of County Road 2. Picture depicts the approximate location of the roadside ditch where the covered drainage system will be installed
Date of Photo:	June 18th, 2024

Looking east, from the north side of County Road 2.

PICTURE #1

Picture #2

Approx. Photo Location Coordinates:	Lat: 42.2967◦ N Lon: 82.63834◦ W
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Looking west, from the north side of County Road 2.

PICTURE #2

Picture #3

Approx. Photo Location Coordinates:	Lat: 42.29648◦ N Lon: 82.63946◦ W
Description:	Looking upstream in a westerly direction at the Bernard Tellier Drain, which will accept the added flows from the proposed St.Pierre Drain along the south side of the County Road 2.
Date of Photo:	August 4th, 2023

Looking upstream in a westerly direction at the Bernard Tellier Drain along the south side of County Road 2.

PICTURE #3

Picture #4

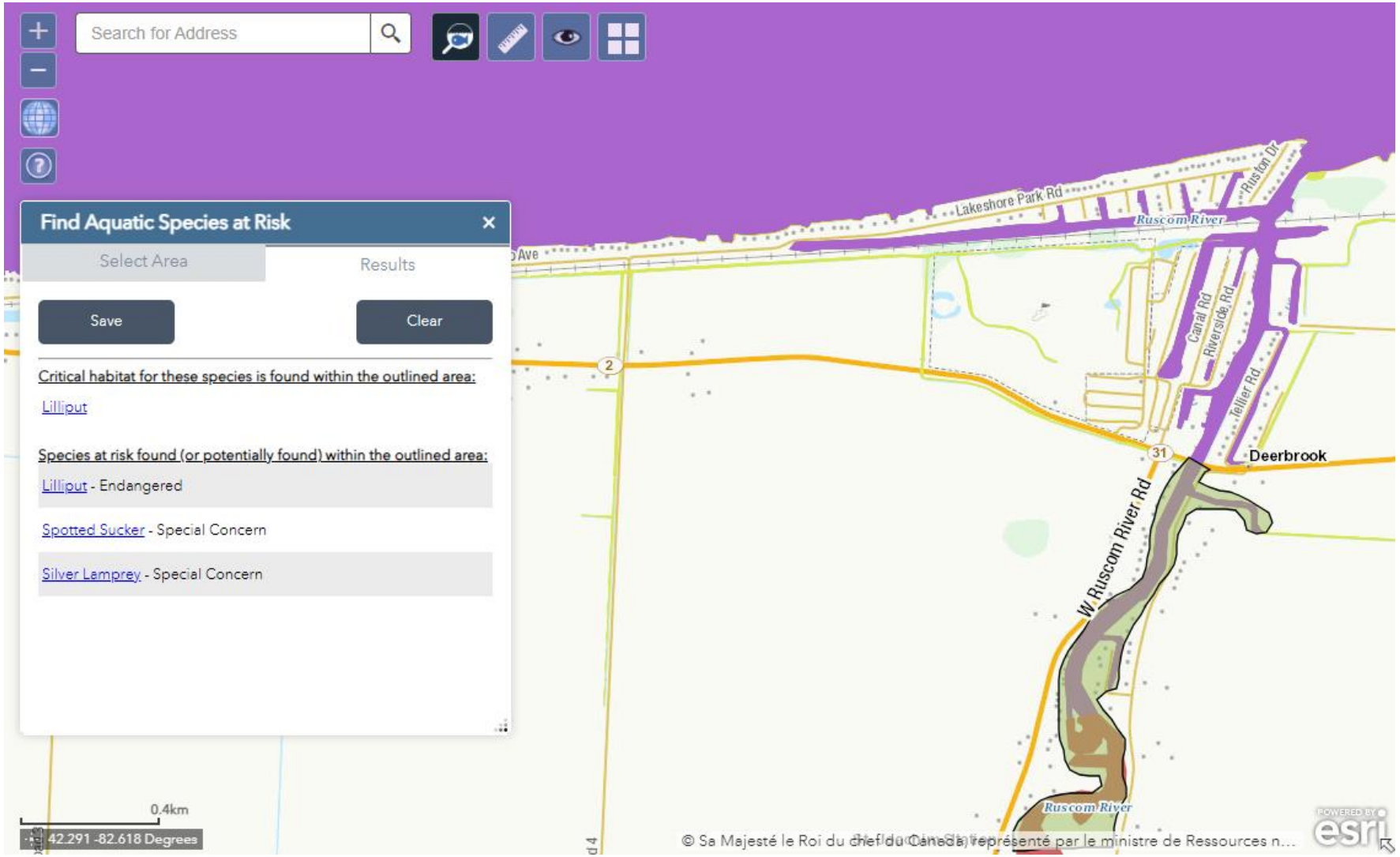
Approx. Photo Location Coordinates:	Lat: 42.29648◦ N Lon: 82.63946◦ W
Description:	Looking downstream in an easterly direction at the Bernard Tellier Drain, which will accept the added flows from the proposed St.Pierre Drain along the south side of the County Road 2.
Date of Photo:	August 4th, 2023

Looking downstream in an easterly direction at the Bernard Tellier Drain along the south side of County Road 2.

PICTURE #4

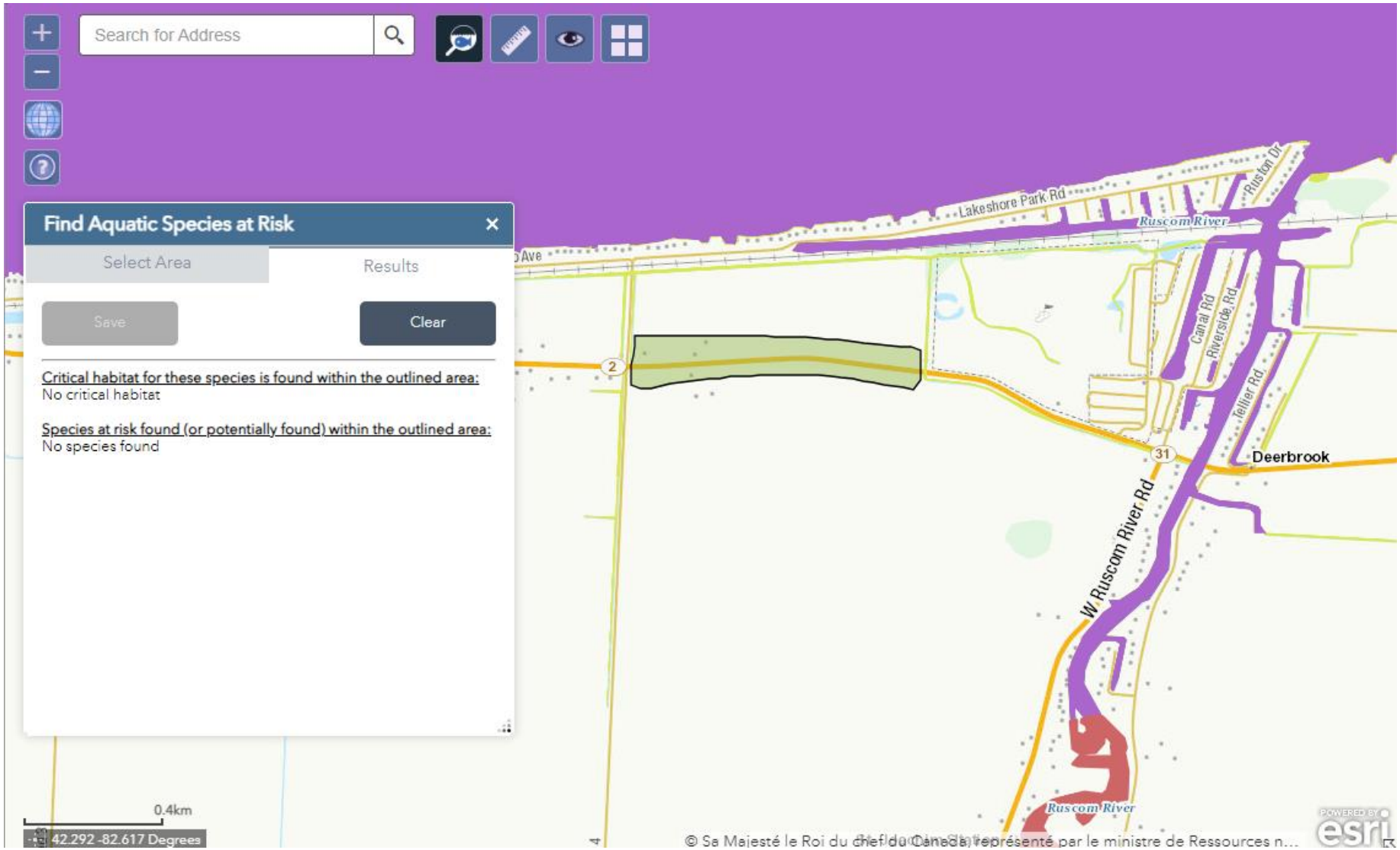
Appendix "C" - Figure 1

DFO Aquatic Species at Risk Map and Critical Habitat Map (Ruscom River Outlet)

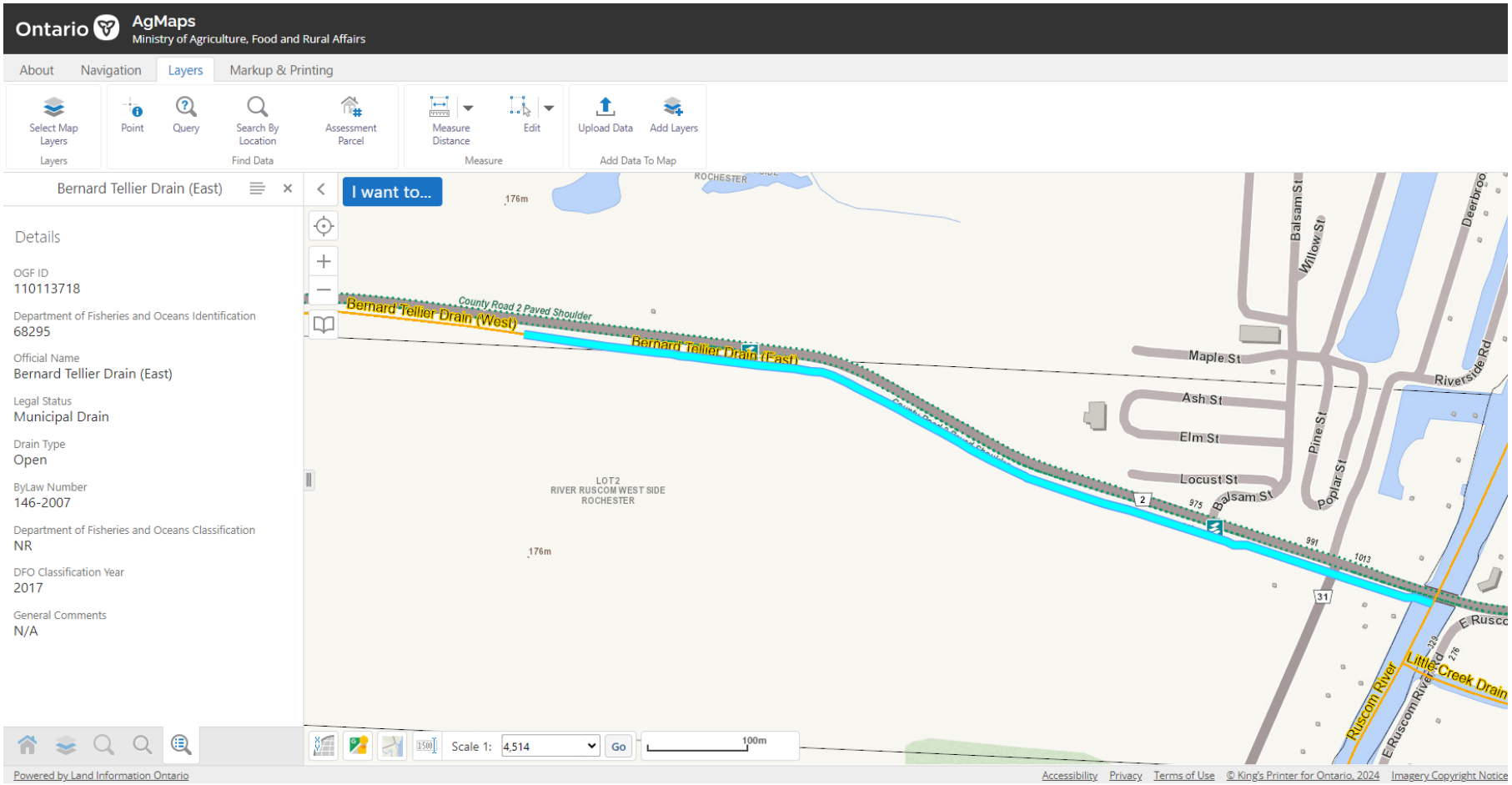


Appendix "C" - Figure 1.1

DFO Aquatic Species at Risk Map and Critical Habitat Map (St.Pierre Petition Drain Site)

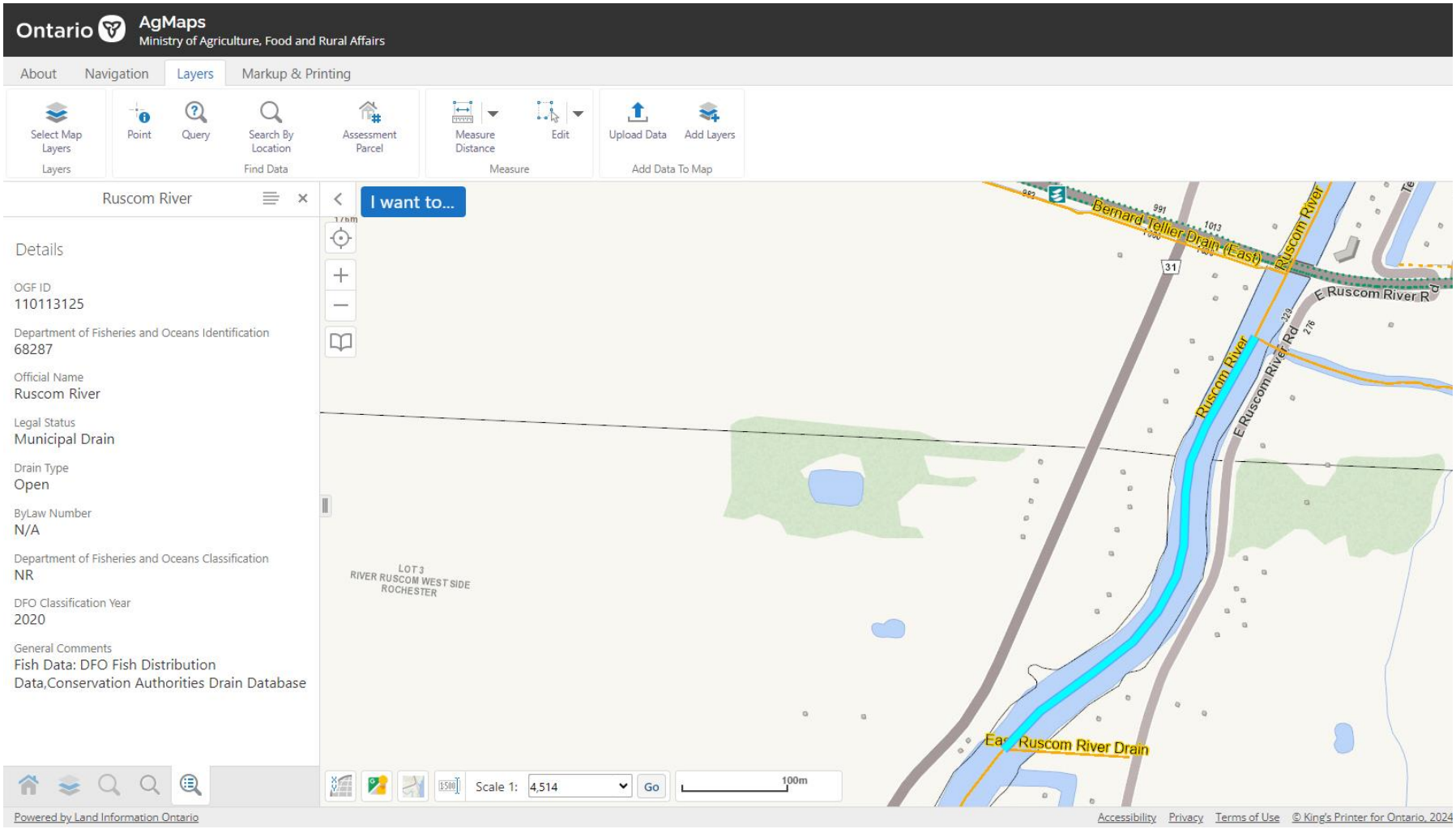


Appendix "C" - Figure 1.2
DFO Drain Classification (Bernard Tellier Drain)



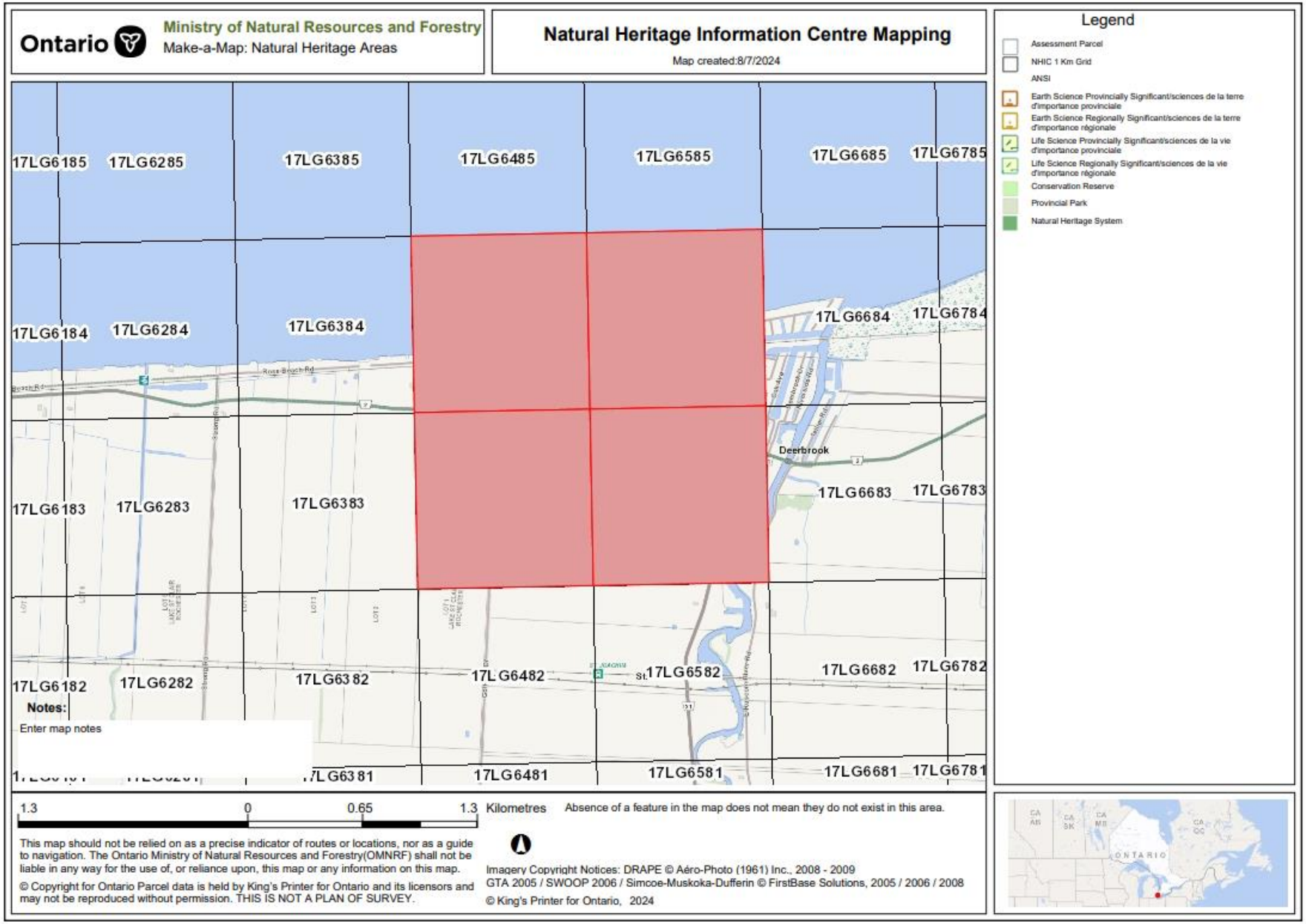
Peralta Engineering

Appendix "C" - Figure 1.3
DFO Drain Classification (Ruscom River)



Appendix "C" - Figure 2

Natural Heritage Information Centre Mapping (17GL6483, 17LG6484 17LG6584 and 17LG6583)



NHIC Data

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
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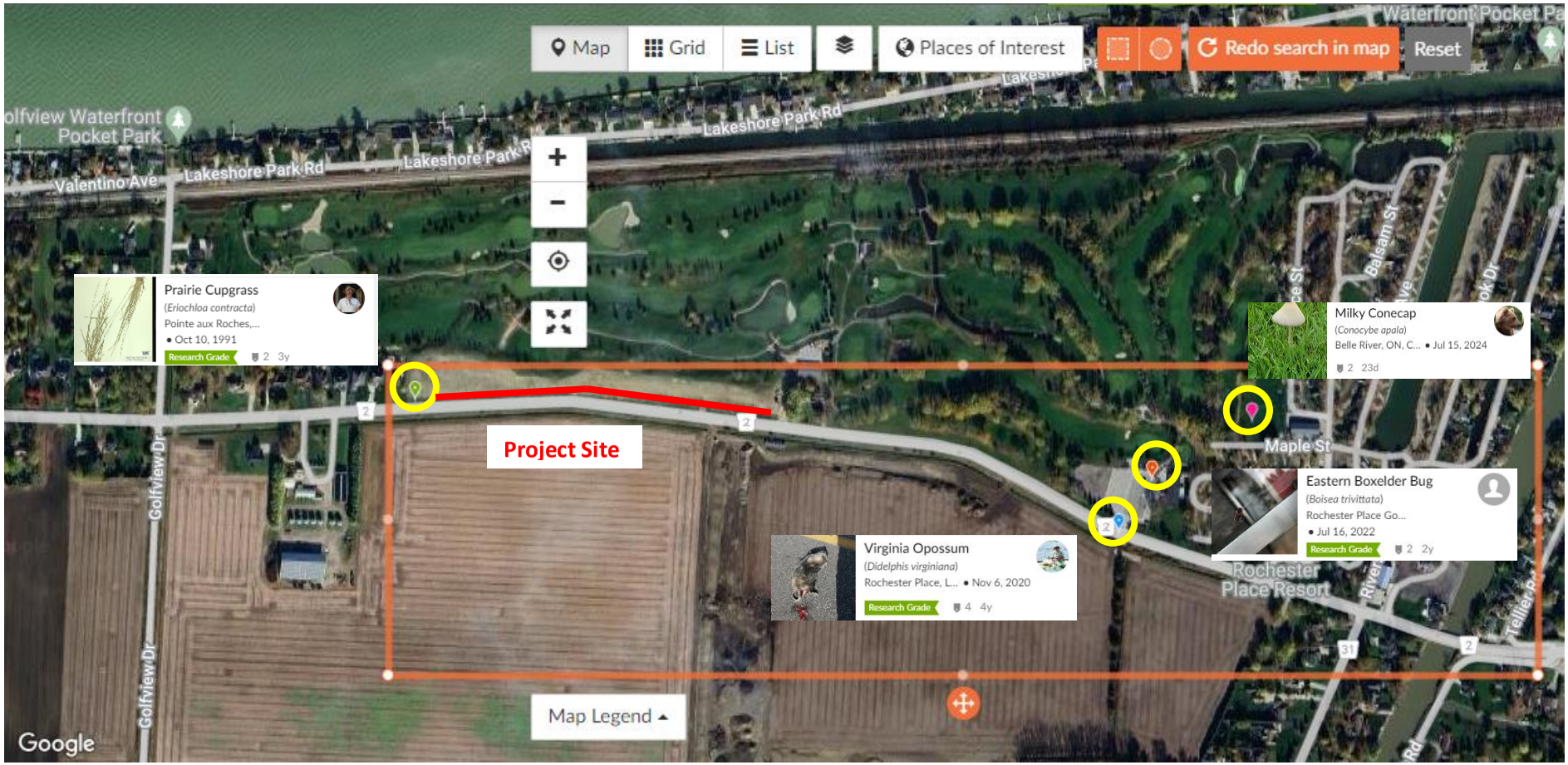
726478	SPECIES	Spiny Softshell	Apalone spinifera	S2	END	END	17LG6484	
726478	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	17LG6484	
726477	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17LG6483	
726477	SPECIES	Spiny Softshell	Apalone spinifera	S2	END	END	17LG6483	
726477	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	17LG6483	
726488	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17LG6584	
726488	SPECIES	Schweinitz's Flatsedge	Cyperus schweinitzii	S3			17LG6584	
726488	SPECIES	Winged Loosestrife	Lythrum alatum	S3			17LG6584	
726488	SPECIES	Snuffbox	Epioblasma triquetra	S1	END	END	17LG6584	
726488	SPECIES	Spiny Softshell	Apalone spinifera	S2	END	END	17LG6584	
726488	SPECIES	Trumpet Creeper	Campsis radicans	S2?			17LG6584	
726488	SPECIES	Least Bittern	Ixobrychus exilis	S4B	THR	THR	17LG6584	
726487	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17LG6583	
726487	SPECIES	Schweinitz's Flatsedge	Cyperus schweinitzii	S3			17LG6583	
726487	SPECIES	Winged Loosestrife	Lythrum alatum	S3			17LG6583	
726487	SPECIES	Spiny Softshell	Apalone spinifera	S2	END	END	17LG6583	
726487	SPECIES	Trumpet Creeper	Campsis radicans	S2?			17LG6583	
726487	SPECIES	Least Bittern	Ixobrychus exilis	S4B	THR	THR	17LG6583	

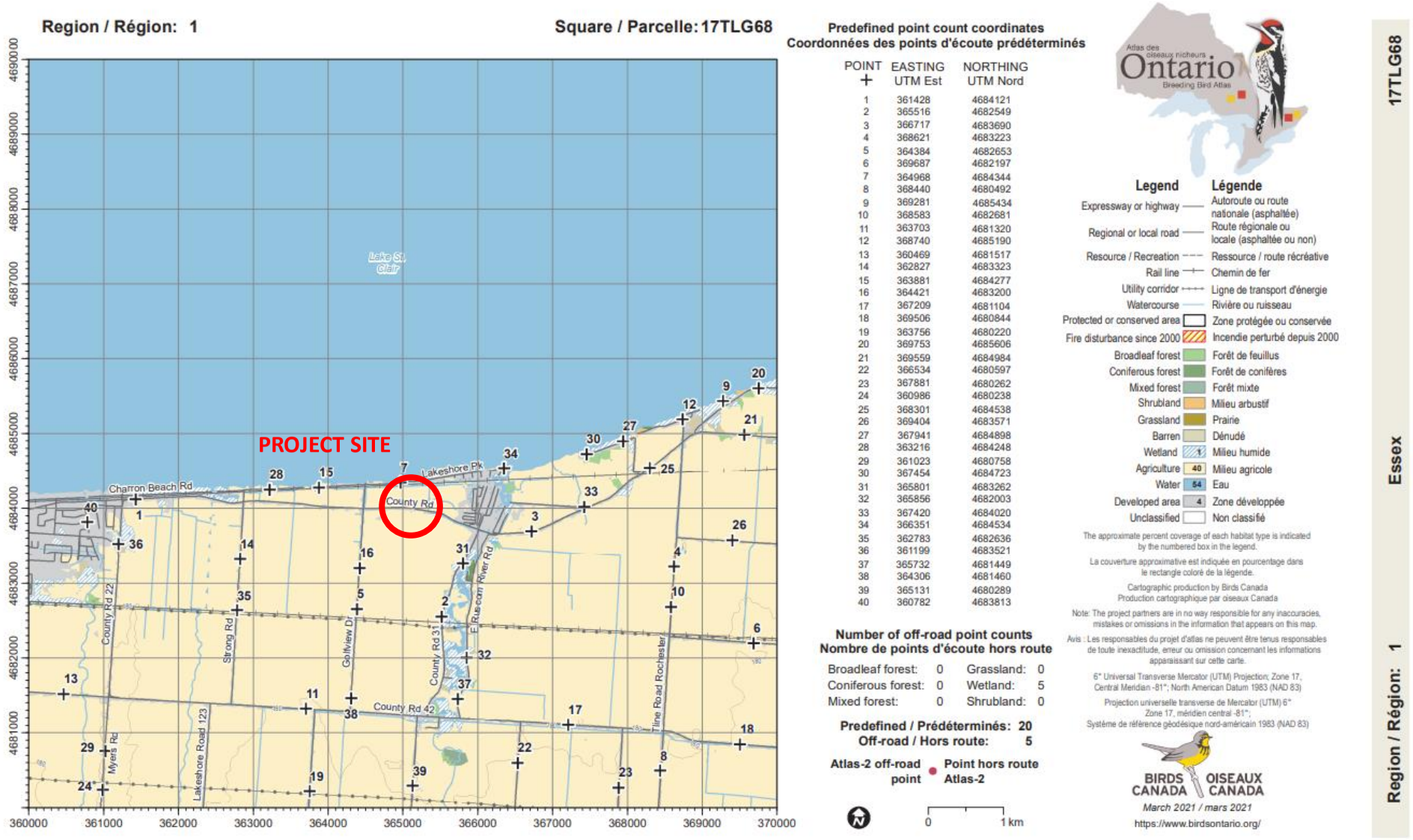
Appendix "C" – Figure 3

iNaturalist Community Mapping and Observations



Appendix "C" – Figure 4

Ontario Breeding Bird Atlas (Square 17TLG68 Map) - Square Summary Attached



Predefined point count coordinates
Coordonnées des points d'écoute prédéterminés

POINT +	EASTING UTM Est	NORTHING UTM Nord
1	361428	4684121
2	365516	4682549
3	366717	4683690
4	368621	4683223
5	364384	4682653
6	369687	4682197
7	364968	4684344
8	368440	4680492
9	369281	4685434
10	368583	4682681
11	363703	4681320
12	368740	4685190
13	360469	4681517
14	362827	4683323
15	363881	4684277
16	364421	4683200
17	367209	4681104
18	369506	4680844
19	363756	4680220
20	369753	4685606
21	369559	4684984
22	366534	4680597
23	367881	4680262
24	360986	4680238
25	368301	4684538
26	369404	4683571
27	367941	4684898
28	363216	4684248
29	361023	4680758
30	367454	4684723
31	365801	4683262
32	365856	4682003
33	367420	4684020
34	366351	4684534
35	362783	4682636
36	361199	4683521
37	365732	4681449
38	364306	4681460
39	365131	4680289
40	360782	4683813

Number of off-road point counts
Nombre de points d'écoute hors route

Broadleaf forest:	0	Grassland:	0
Coniferous forest:	0	Wetland:	5
Mixed forest:	0	Shrubland:	0

Predefined / Prédéterminés: 20
Off-road / Hors route: 5

Atlas-2 off-road point ● Point hors route Atlas-2

0 1 km

Atlas des oiseaux nicheurs de l'Ontario
Ontario Breeding Bird Atlas

Legend **Légende**

Expressway or highway	Autoroute ou route nationale (asphaltée)
Regional or local road	Route régionale ou locale (asphaltée ou non)
Resource / Recreation	Ressource / route récréative
Rail line	Chemin de fer
Utility corridor	Ligne de transport d'énergie
Watercourse	Rivière ou ruisseau
Protected or conserved area	Zone protégée ou conservée
Fire disturbance since 2000	Incendie perturbé depuis 2000
Broadleaf forest	Forêt de feuillus
Coniferous forest	Forêt de conifères
Mixed forest	Forêt mixte
Shrubland	Milieu arbustif
Grassland	Prairie
Barren	Dénudé
Wetland 1	Milieu humide
Agriculture 40	Milieu agricole
Water 54	Eau
Developed area 4	Zone développée
Unclassified	Non classifié

The approximate percent coverage of each habitat type is indicated by the numbered box in the legend.
La couverture approximative est indiquée en pourcentage dans le rectangle coloré de la légende.

Cartographic production by Birds Canada
Production cartographique par oiseaux Canada

Note: The project partners are in no way responsible for any inaccuracies, mistakes or omissions in the information that appears on this map.
Avis : Les responsables du projet d'atlas ne peuvent être tenus responsables de toute inexactitude, erreur ou omission concernant les informations apparaissant sur cette carte.

6° Universal Transverse Mercator (UTM) Projection; Zone 17, Central Meridian -81°; North American Datum 1983 (NAD 83)
Projection universelle transverse de Mercator (UTM) 6° Zone 17, méridien central -81°; Système de référence géodésique nord-américain 1983 (NAD 83)

BIRDS CANADA OISEAUX CANADA

March 2021 / mars 2021
https://www.birdsontario.org/

17TLG68
Essex
Region / Région: 1

BIRDS CANADA
OISEAUX CANADA

Square Summary (17TLG68) [change]

	#species				#hours		#pc done	
	poss	prob	conf	total	total	peak	road	offrd
Curr.	30	3	29	62	22.9	20.9	27	0
Prev.	14	14	33	61	57.8	—	0	

Region summary (#1: Essex, ON)

#squares	#sq with data	#species	#squares (pc)	
			target	compl.
38	33	150	38	20
38	38	151	0	23

Target number of point counts in this square: 25 in total: 20 road side, 5 off road (Wetland in 5)**.** Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat**.Predef. completed:** [01, 02, 03, 04, 05, 07, 08, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 23, 25, 28, 31, 32, 33, 35, 36, 37, 38]

SPECIES	Prev.	Code	%
Canada Goose	FY	FY	81
Mute Swan	FY		45
Trumpeter Swan ‡			18
Wood Duck		H	75
Blue-winged Teal §			27
Northern Shoveler ‡			0
Gadwall ‡			6
American Wigeon ‡			0
Mallard	FY	FY	90
American Black Duck ‡			6
Northern Pintail ‡			0
Green-winged Teal ‡			9
Redhead †			6

Hooded Merganser ‡			9
Ruddy Duck ‡			12
Wild Turkey			72
Ring-necked Pheasant ‡			21
Pied-billed Grebe			15
Rock Pigeon (Feral Pigeon)	D		60
Mourning Dove	FY	FY	90
Yellow-billed Cuckoo	S		57
Black-billed Cuckoo	H		33
Common Nighthawk §			15
Chuck-will's-widow †			0
Eastern Whip-poor-will ‡			0
Chimney Swift §	D		63
Ruby-throated Hummingbird	H	H	72
King Rail †			6
Virginia Rail			18
Sora			15
Common Gallinule §			12
American Coot ‡			6
Sandhill Crane			15

SPECIES	Prev.	Code	%
Killdeer §	FY	FY	90
American Woodcock	S		30
Wilson's Snipe ‡			0
Wilson's Phalarope †			3
Spotted Sandpiper	DD	S	75
Ring-billed Gull §	H		12
Herring Gull §			18
Caspian Tern ‡			0
Black Tern † §			12
Forster's Tern † §			3
Common Tern § ‡			0
Double-crested Cormorant §			30
American White Pelican † §			6
American Bittern ‡			9
Least Bittern †		S	24

Black-crowned Night Heron † §			12
Green Heron §	H	H	72
Great Egret † §			9
Great Blue Heron §			42
Turkey Vulture	H	H	81
Osprey		AE	60
Northern Harrier			21
Sharp-shinned Hawk ‡			0
Cooper's Hawk	CF	AE	63
Bald Eagle §		AE	60
Broad-winged Hawk ‡			0
Red-tailed Hawk		H	75
Eastern Screech-Owl	T	S	54
Great Horned Owl	FY		63
Long-eared Owl ‡			0
Short-eared Owl †			0
Belted Kingfisher	H		63
Red-headed Woodpecker †			42

SPECIES	Prev.	Code	%
Red-bellied Woodpecker			84
Downy Woodpecker	NY	P	87
Hairy Woodpecker			48
Pileated Woodpecker ‡			6
Northern Flicker	T	S	84
American Kestrel §	A		36
Merlin ‡			0
Peregrine Falcon ‡			6
Eastern Wood-Pewee §	T	NB	87
Acadian Flycatcher †			12
Alder Flycatcher ‡			6
Willow Flycatcher	NE	DD	81
Least Flycatcher ‡			21
Eastern Phoebe		H	57
Great Crested Flycatcher		H	81
Eastern Kingbird	P	H	90
White-eyed Vireo †			6

Yellow-throated Vireo			18
Warbling Vireo	P	DD	87
Red-eyed Vireo	S	S	84
Blue Jay	FY	H	87
American Crow	H	H	66
Black-capped Chickadee		S	84
Tufted Titmouse			39
Horned Lark §	CF	H	81
Bank Swallow §			54
Tree Swallow	FY	FY	96
Purple Martin §	AE	AE	84
Northern Rough-winged Swallow	AE		63
Barn Swallow §	AE	NY	93
Cliff Swallow §	H	H	69
White-breasted Nuthatch			75
Brown Creeper ‡			3

SPECIES	Prev.	Code	%
Blue-gray Gnatcatcher		H	60
House Wren	CF	CF	87
Sedge Wren ‡			3
Marsh Wren		S	30
Carolina Wren	S	FY	84
European Starling	FS	FY	90
Gray Catbird	CF	FY	81
Brown Thrasher	S	S	66
Northern Mockingbird			12
Eastern Bluebird			54
Veery ‡			0
Wood Thrush §			48
American Robin	NE	CF	93
Cedar Waxwing	CF	CF	84
House Sparrow	AE	CF	90
House Finch	FY	FY	84
American Goldfinch	FY	P	84
Grasshopper Sparrow ‡			3
Chipping Sparrow	A	CF	87
Field Sparrow §	P	H	63
Vesper Sparrow	T	H	66
Savannah Sparrow	CF	AE	75
Song Sparrow	FY	CF	84
Swamp Sparrow	CF	S	21
Eastern Towhee §			33
Yellow-breasted Chat †			12
Yellow-headed Blackbird † §			0
Bobolink §	P	S	48
Eastern Meadowlark §		H	48
Orchard Oriole	S	H	57
Baltimore Oriole	FY	AE	87
Red-winged Blackbird	NE	CF	96
Brown-headed Cowbird	P	P	93

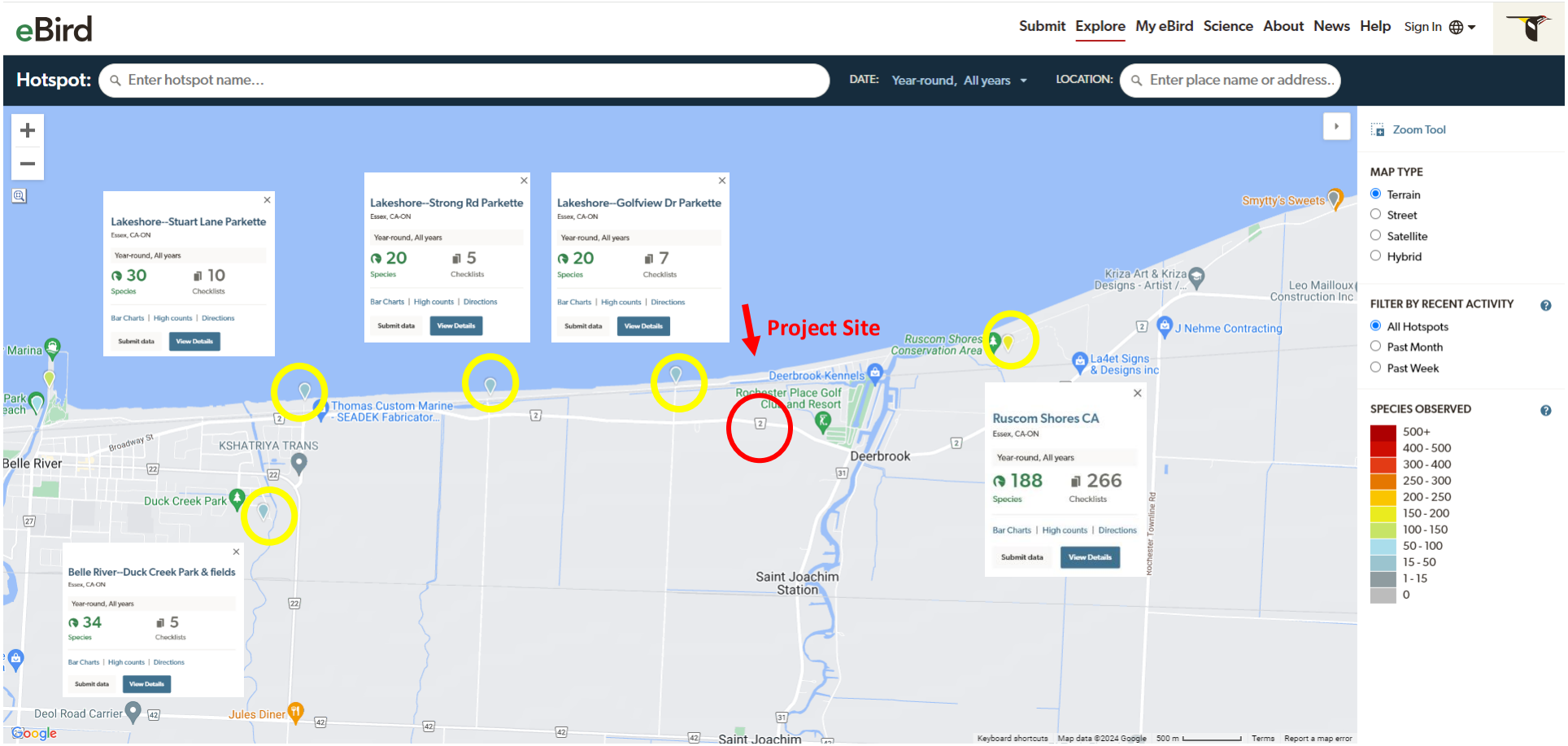
SPECIES	Prev.	Code	%

Brewer's Blackbird ‡			0
Common Grackle	CF	CF	93
Ovenbird ‡			3
Blue-winged Warbler			6
Prothonotary Warbler †			24
Mourning Warbler ‡			3
Common Yellowthroat	CF	S	81
Hooded Warbler ‡			6
American Redstart		H	42
Cerulean Warbler †			0
Yellow Warbler	CF	CF	87
Chestnut-sided Warbler ‡			0
Pine Warbler ‡			3
Scarlet Tanager			21
Northern Cardinal	FY	CF	90
Rose-breasted Grosbeak			63
Blue Grosbeak †			6
Indigo Bunting	A	S	84
Dickcissel †			45

This list includes all breeding species expected in the region #1 (Essex). Underlined species are those that you should try to add to this square (17TLG68). They have not yet been reported in this square, but have been reported in more than 50% of the squares in this region so far. "Prev." is the code for the highest breeding evidence for that species in square 17TLG68 in the previous atlas. "Code" is the code for the highest breeding evidence for that species in square 17TLG68 over the last 5 years. The % columns give the percentage of squares in that region where that species was reported (this gives an idea of the expected chance of finding that species in region #1). Rare/Colonial Species Report Forms should be completed for species marked: § (Species of interest), ‡ (regionally rare), † (provincially rare). An up-to-date version of this sheet is available from https://naturecounts.ca//nc//atlas/squaresummaryform.jsp?squareID=17TLG68&lang=EN Data current as of **6/08/2024 18:33**.

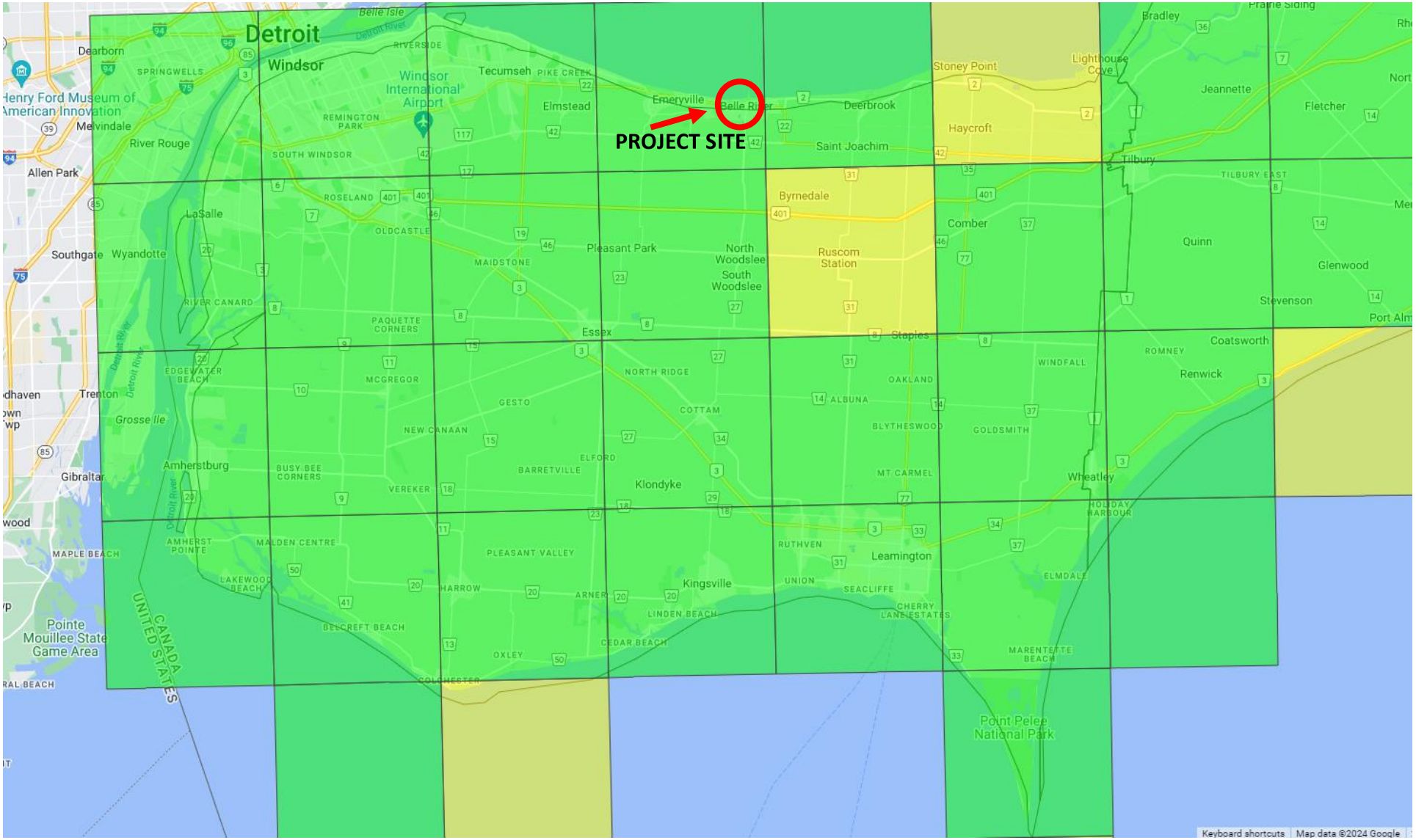
Appendix "C" – Figure 5

eBird Birding Community Sightings and Obeservations



Appendix "C" – Figure 6

Ontario Butterfly Atlas - Square 17LG58 (see attached Species List)



Dated Checked: 2022-09-08

Ontario Butterfly Atlas – Species Data

Toronto Entomologists' Association

Species list in taxonomic order for square 17LG58

All species

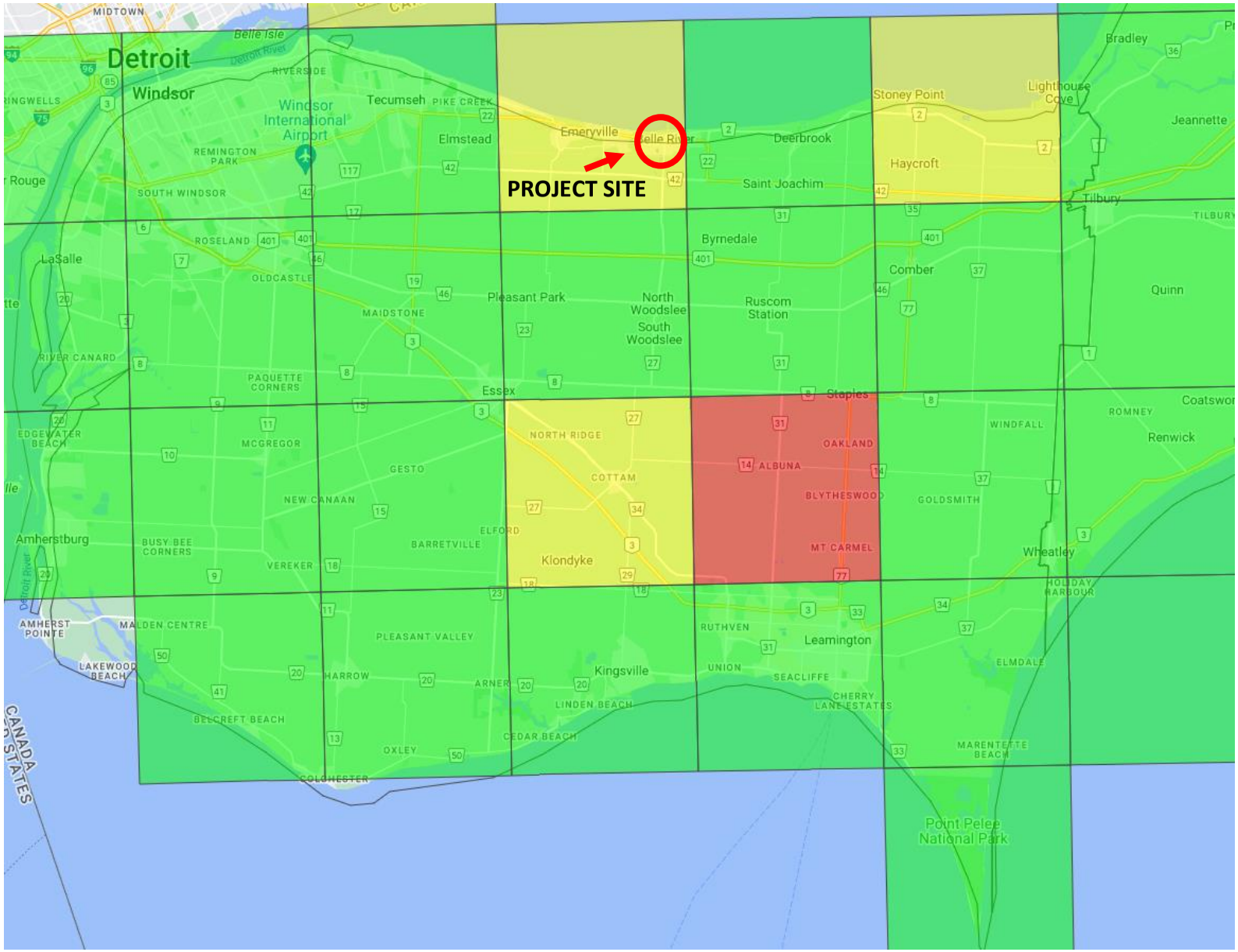
Number of rows of data displayed below: .

Species #	Common Name	Scientific Name	# of Records	Earliest in Yr (adults)	Latest in Yr (adults)	Earliest Yr	Latest Yr
6	Silver-spotted Skipper	Epargyreus clarus	3	June 22	Aug. 4	2015	2015
10	Common Checkered Skipper	Burnsius communis	2	July 20	Aug. 4	2015	2023
25	Dion Skipper	Euphyes dion	1	July 24	July 24	1982	1982
26	Dukes' Skipper	Euphyes dukesi	2	Aug. 3	Aug. 4	2015	2015
35	Peck's Skipper	Polites coras	1	June 20	June 20	2020	2020
50	European Skipper	Thymelicus lineola	2	June 15	June 22	2015	2015
54	Least Skipper	Ancyloxypha numitor	1	Aug. 4	Aug. 4	2015	2015
58	Black Swallowtail	Papilio polyxenes	8	July 30	Aug. 4	2015	2023
59	Eastern Giant Swallowtail	Heraclides cresphontes	1	Aug. 3	Aug. 3	2015	2015
61	Eastern Tiger Swallowtail	Pterourus glaucus	4	June 22	Aug. 11	2013	2023
70	Clouded Sulphur	Colias philodice	2	Aug. 3	Aug. 4	2015	2015
71	Orange Sulphur	Colias eurytheme	1	Aug. 4	Aug. 4	2015	2015
83	Cabbage White	Pieris rapae	6	June 22	Aug. 4	2015	2022
88	Bronze Copper	Tharsalea hyllus	1	Aug. 4	Aug. 4	2015	2015
106	Banded Hairstreak	Satyrium calanus	1	June 22	June 22	2015	2015
116	Azure sp.	Celastrina sp.	3	June 22	Aug. 4	2015	2015
125	Monarch	Danaus plexippus	14	June 22	Sep. 22	2015	2023
138	Viceroy	Limenitis archippus	2	Aug. 3	Aug. 4	2015	2015
141	Red-spotted Purple	Limenitis arthemis astyanax	3	June 22	Aug. 11	2013	2015
151	Mourning Cloak	Nymphalis antiopa	2	Sep. 15	Sep. 15	1966	2020
152	Question Mark	Polygonia interrogationis	1	Aug. 4	Aug. 4	2015	2015
153	Eastern Comma	Polygonia comma	1	Sep. 15	Sep. 15	2023	2023
159	Painted Lady	Vanessa cardui	3	Sep. 11	Oct. 1	2019	2019
160	Red Admiral	Vanessa atalanta	3	July 15	Sep. 16	2014	2023
167	Northern Crescent	Phyciodes cocyta	2	June 22	Aug. 4	2015	2015
171	Common Ringlet	Coenonympha california	1	Aug. 4	Aug. 4	2015	2015
174	Appalachian Brown	Lethe appalachia	1	Aug. 3	Aug. 3	2015	2015

TEA home page | Main atlas page

Appendix "C" – Figure 7

Ontario Moth Atlas – Square 17LG58 (see attached Species List)



Ontario Moth Atlas – Species Data

Species list in taxonomic order for square 17LG58

Data for all species

Number of rows of data displayed below: 1.

Species #	Common Name	Scientific Name	# of Records	Earliest in Yr (adults)	Latest in Yr (adults)	Earliest Yr	Latest Yr
930361.00	Sycamore Tussock Moth	Halysidota harrisii	1			2018	2018

HABITAT ASSESSMENT & SPECIES AT RISK REVIEW

SUMMARY OF FINDINGS

1. DFO Aquatic Species at Risk and Drain Classification
URL: dfo-mpo.gc.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

Results/Findings: Mapping a broader search area including the Ruscom River, the following was identified:

Aquatic Species at Risk
- Spotted Sucker (Special Concern)
- Silver Lamprey (Special Concern)
- Lilliput (Endangered)

Critical Habitat
- Lilliput (Endangered)

Drain Classification
- Bernard Tellier Drain - Not Rated
- Ruscom River – Not Rated

Mapping only the proposed project area identified no species at risk or critical habitat.

2. Natural Heritage Information Centre
URL: lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

Results/Findings: **NHIC Station: 17GL6483, 17LG6484 17LG6584 and 17LG6583 identified:**
- Snuffbox (Endangered)
- Spiny Softshell (Endangered)
- Bobolink (Threatened)
- Eastern Wood-pewee (Special Concern)
- Schweinitz's Flatsedge
- Winged Loosestrife
- Trumpet Creeper
- Least Bittern (Threatened)

3. iNaturalist Community Mapping & Observations
URL: inaturalist.org

Results/Findings:

Critical Habitat or Endangered Species Spotted:

- None

Other species spotted

- Prairie Cupgrass
- Virginia Opossum
- Eastern Boxelder Bug
- Milky Conecap

4. Ontario Bird Breeding Atlas
URL: www.birdsontario.org

Results/Findings:

Species at Risk birds breeding within square 17TLG68:

- Acadian Flycatcher (Endangered)
- American White Pelican (Threatened)
- Bank Swallow (Threatened)
- Barn Swallow (Threatened)
- Black Tern (Special Concern)
- Bobolink (Threatened)
- Cerulean Warbler (Threatened)
- Chimney Swift (Threatened)
- Common Nighthawk (Special Concern)
- Eastern Meadowlark (Threatened)
- Grasshopper Sparrow (Special Concern)
- Eastern Whip poor-will (Threatened)
- Eastern Wood-Pewee (Special Concern)
- King Rail (Endangered)
- Least Bittern (Threatened)
- Peregrine Falcon (Special Concern)
- Prothonotary Warbler (Endangered)
- Red-headed Woodpecker (Endangered)
- Short-eared Owl (Threatened)
- Wood Thrush (Special Concern)
- Yellow Breasted Chat (Endangered)

5. eBird
URL: www.ebird.org/about

Results/Findings:

Species at Risk birds sighted near proposed site area:

- Common Nighthawk (Special Concern)
- Chimney Swift (Threatened)
- Black Tern (Special Concern)
- Least Bittern (Threatened)
- Red-headed Woodpecker (Endangered)
- Peregrine Falcon (Special Concern)
- Olive-sided Flycatcher (Special Concern)
- Eastern Wood-Pewee (Special Concern)
- Acadian Flycatcher (Endangered)
- Bank Swallow (Threatened)
- Barn Swallow (Threatened)
- Wood Thrush (Special Concern)
- Evening Grosbeak (Special Concern)
- Yellow Breasted Chat (Endangered)
- Bobolink (Threatened)
- Eastern Meadowlark (Threatened)
- Rusty Blackbird (Special Concern)
- Louisiana Waterthrush (Threatened)
- Kirtland's Warbler (Endangered)
- Canada Warbler (Special Concern)

Closest bird sightings

- Ruscom Shores Conservation Area (2 km from project site)
- Golfview Drive (600m from project site)
- Strong Road (2 km from project site)
- Stuart Lane (3 km from project site)
- Duck Creek Park & Fields (4 km from project site)

6. Ontario Butterfly Atlas
URL: www.ontarioinsects.org/atlas

Results/Findings:

Species at Risk Butterflies recorded within square 17LG58:

- Monarch (Special Concern)

7. Ontario Moth Atlas
URL: www.ontarioinsects.org/moth/

Results/Findings: **Species at Risk Moths recorded within square 17LG58:**

- None

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APPENDIX "B"

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PARTS 1 TO 6 (INCLUSIVE) COMPRISES PART OF PIN 75050-0054 (LT).
PARTS 7 & 20 COMPRISE ALL OF PIN 7050-0057 (LT).
PARTS 8, 9, 21 & 28 COMPRISE ALL OF PIN 75050-0057 (LT).
PARTS 10 & 22 COMPRISE ALL OF PIN 7550-0059 (LT).
PARTS 11 & 23 COMPRISE ALL OF PIN 75050-0060 (LT).
PARTS 12, 13 & 24 COMPRISE ALL OF PIN 7550-0061 (LT).
PARTS 14, 15 & 25 COMPRISE ALL OF PIN 7050-0125 (LT).
PARTS 16, 26 COMPRISE ALL OF PIN 75050-0126 (LT).
PARTS 17, 18 & 27 COMPRISE ALL OF PIN 75050-0127 (LT).
PART 19 COMPRISES PART OF PIN 7050-0063 (LT).

SCHEDULE

PART	LOT	CONCESSION	PIN	AREA (Ha)
1	PART OF LOT 1	CONCESSION WEST OF RUSCOM RIVER	PART OF PIN 75050-0054 (LT)	0.2123
2			PART OF PIN 75050-0054 (LT)	0.2123
3			PART OF PIN 75050-0054 (LT)	0.2124
4			PART OF PIN 75050-0054 (LT)	0.2004
5			PART OF PIN 75050-0054 (LT)	0.2040
6			PART OF PIN 75050-0054 (LT)	0.1592
7			PART OF PIN 75050-0057 (LT)	0.0897

SCHEDULE

PART	LOT	CONCESSION	PIN	AREA (Ha)
8	PART OF LOT 1	CONCESSION WEST OF RUSCOM RIVER	PART OF PIN 75050-0058 (LT)	0.1350
9			PART OF PIN 75050-0058 (LT)	0.0446
10			PART OF PIN 75050-0059 (LT)	0.1795
11			PART OF PIN 75050-0060 (LT)	0.1795
12			PART OF PIN 75050-0061 (LT)	0.0454
13			PART OF PIN 75050-0061 (LT)	0.1117
14			PART OF PIN 75050-0125 (LT)	0.1252

SCHEDULE

PART	LOT	CONCESSION	PIN	AREA (Ha)
15	PART OF LOT 1	CONCESSION WEST OF RUSCOM RIVER	PART OF PIN 75050-0125 (LT)	0.0244
16			PART OF PIN 75050-0126 (LT)	0.1496
17			PART OF PIN 75050-0127 (LT)	0.0630
18			PART OF PIN 75050-0127 (LT)	0.0866
19			PART OF PIN 75050-0063 (LT)	0.1503
20			PART OF PIN 75050-0057 (LT)	0.2372
21			PART OF PIN 75050-0058 (LT)	0.2252

SCHEDULE

PART	LOT	CONCESSION	PIN	AREA (Ha)
22	PART OF LOT 1	CONCESSION WEST OF RUSCOM RIVER	PART OF PIN 75050-0059 (LT)	0.2252
23			PART OF PIN 75050-060 (LT)	0.2252
24			PART OF PIN 75050-0061 (LT)	0.2475
25			PART OF PIN 75050-0125 (LT)	0.2551
26			PART OF PIN 75050-0126 (LT)	0.2551
27			PART OF PIN 75050-0127 (LT)	0.2551
28			PART OF PIN 75050-0057 (LT)	0.0778

PLAN OF SURVEY OF
PART OF LOT 1
CONCESSION WEST OF RUSCOM RIVER
GEOGRAPHIC TOWNSHIP OF ROCHESTER
MUNICIPALITY OF LAKESHORE
COUNTY OF ESSEX

SCALE 1 : 1000 METRES
0 5 10 15 20 40 60 120

THE INTENDED PLOT SIZE OF THIS PLAN IS 1130mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT AT A SCALE OF 1:1000.

SURVEYORS ON SITE INC.

LEGEND

□	MONUMENT PLANTED
■	MONUMENT FOUND
SIB	STANDARD IRON BAR
IB	IRON BAR
RIB	ROUND IRON BAR
P1	PLAN 12R-2495
P2	PLAN 12R-3711
P2	PLAN 12R-17998
P4	PLAN 12R-25011
1194	JOHN B. SWEETON ONTARIO INC. O.L.S.
1201	CLARKE SURVEYORS INC. O.L.S.
OU	ORIGIN UNKOWN

NOTES

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DISTANCES ON THIS PLAN ARE HORIZONTAL GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE AVERAGE COMBINED SCALE FACTOR OF 0.999797399.

BEARINGS ARE UTM GRID DERIVED FROM NETWORK RTK GPS OBSERVATIONS (SMARTNET) ON MONUMENTS (A) AND (B) AS SHOWN HEREON, HAVING A GRID BEARING OF N88°26'50"E, NAD83 CSRS (2010.0) AND ARE REFERRED TO THE CENTRAL MERIDIAN OF UTM ZONE 17 (81° W LONGITUDE).

COORDINATES BELOW ARE DERIVED FROM NETWORK RTK GPS OBSERVATIONS (SMARTNET) AND ARE REFERRED TO UTM ZONE 17, NAD83 (CSRS) (2010.0).

COORDINATES COMPLY WITH THE URBAN ABSOLUTE ACCURACY PER SEC. 14(2) OF O.REG. 216/10.

POINT ID	NORTHING	EASTING
(A)	4684006.944	364539.066
(B)	4684013.834	364786.760
(C)	4684022.541	365001.871
(D)	4684035.168	365272.644

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT, THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE xxth DAY OF xxxxx, 2023.

JULY 17, 2023

CHRISTOPHER JOHN GYLER
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER XXXXXX.

SOS SURVEYORS ON SITE INC.
3560 WALKER ROAD
WINDSOR, ONTARIO
N8W 3S4
519-818-0767
www.surveyorsonsite.com

DRAWN BY: SJP | CHECKED BY: CJO | DATE: JULY 17, 2023 | FILE: 2021-328_V6-RPLAN

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES.
FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

APPENDIX "C"

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PLAN, PROFILE, SECTIONS, & DETAIL

OF THE

ST. PIERRE DRAIN

(Part of Lot 1, West Ruscom River Concession)

AND THE

UPDATED MAINTENANCE SCHEDULES OF ASSESSMENT FOR THE

BERNARD TELLIER DRAIN

IN THE

MUNICIPALITY OF LAKESHORE (Geographic Township of Rochester)

IN THE

COUNTY OF ESSEX • ONTARIO

MUNICIPALITY OF LAKESHORE

MAYOR: TRACEY BAILEY
CLERK: KRISTEN NEWMAN
DRAINAGE SUPERINTENDENT: JILL FIORITO

BENCHMARK:

1) TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF COUNTY ROAD 2, APPROXIMATELY 420m EAST OF THE CENTRELINE OF GOLFVIEW DRIVE AND COUNTY ROAD 2 INTERSECTION

ELEV. 176.981m

2) TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF COUNTY ROAD 2, APPROXIMATELY 570m EAST OF THE CENTRELINE OF GOLFVIEW DRIVE AND COUNTY ROAD 2 INTERSECTION

ELEV. 176.971m

3) TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF COUNTY ROAD 2, APPROXIMATELY 730m EAST OF THE CENTRELINE OF GOLFVIEW DRIVE AND COUNTY ROAD 2 INTERSECTION

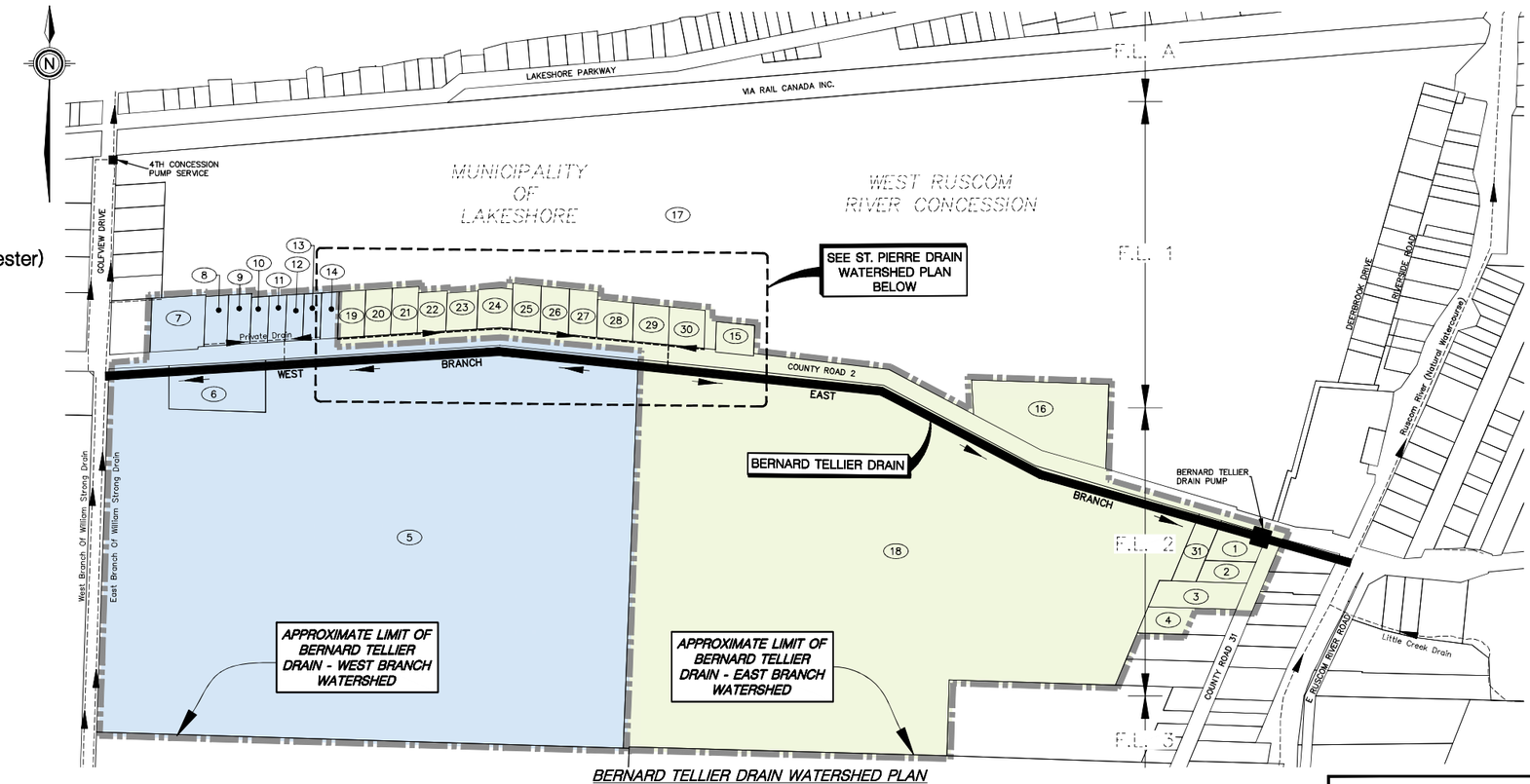
ELEV. 177.130m

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. THE CONTRACTOR SHALL LOCATE, AND VERIFY DEPTHS OF ALL UTILITIES PRIOR TO CONSTRUCTION AND ADVISE ENGINEER OF ANY UTILITY CONFLICTS THAT MAY BE ENCOUNTERED.
2. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE. PROPERTY LINES ARE BASED ON DRAFT PLAN OF SURVEY (SGS FILE #2021-328_16-RPLAN) DATED JULY 17, 2023 AND THE MUNICIPALITY OF LAKESHORE GIS INFORMATION.
3. ALL CBMH'S ARE TO BE 600mm SQUARE PRECAST CONCRETE WITH 600mm DEEP SUMP AND CAST IRON FRAME AND GRATE (OPSD – 400.020) UNLESS OTHERWISE NOTED.
4. ALL COVERED DRAINS TO HAVE MINIMUM 300mm OF COVER.
5. TOPSOIL SHALL BE PLACED ON ALL NEWLY EXCAVATED SWALES AND ANY DISTURBED BOULEVARDS AREAS THAT WILL BE SEEDED AND MULCHED.
6. CONTRACTOR IS RESPONSIBLE TO PROTECT ALL PRIVATE FEATURES (SUCH AS FENCES, SPRINKLERS, FLOWER BEDS, ETC.). IN THE EVENT THAT A PRIVATE FEATURE IS IN THE ALIGNMENT OF THE NEW COVERED DRAINAGE SYSTEM, THE CONTRACTOR SHALL CAREFULLY REMOVE AND RE-INSTALL THE PRIVATE FEATURE TO ITS ORIGINAL STATE, UNLESS OTHERWISE NOTED.
7. ALL CBMH'S SHALL HAVE A MINIMUM OF 3 ADJUSTMENT UNITS AS PER OPSD 704.011.
8. ALL HDPE DRAIN PIPE TO BE 320kPa OR APPROVED EQUAL.
9. ENSURE THAT THERE IS A MINIMUM 0.50m VERTICAL SEPARATION WITH THE PIPE LENGTHS CENTERED OVER ANY WATERMAIN.
10. STORM SERVICE CONNECTIONS SHALL BE LOCATED AS SHOWN ON THE PLANS AND TO STANDARD DETAILS. IT IS RECOMMENDED THAT ALL SERVICE CONNECTIONS TO THE HOME BE FITTED WITH CHECK VALVES (BY OTHERS).
11. UPON THE COMPLETION OF THE WORKS OUTLINED WITHIN THIS PROJECT AND PRIOR TO THE INSTALLATION OF ANY NEW DRIVEWAY ACCESSES, A MINIMUM OF 450mm OF BACKFILL MATERIAL SHALL BE STRIPPED AWAY AND REPLACED WITH GRANULAR 'A' BACKFILL COMPACTED TO A MINIMUM STANDARD PROCTOR DENSITY OF 98%.

SWALE AND GRADING NOTES:

1. THE PROPOSED SWALE DESIGN IS REQUIRED TO EFFECTIVELY DRAIN THE EXISTING ROADWAY AND ADJACENT LANDS; TEMPORARY MEASURES ARE PROVIDED UNTIL A TIME WHEN THE PROPOSED RESIDENTIAL BUILDING LOTS ARE DEVELOPED. UPON DEVELOPMENT OF THE RESIDENTIAL PROPERTIES, SWALE GRADING WILL LIKELY REQUIRE ADJUSTMENTS TO SUIT DRIVEWAYS. HOWEVER, POSITIVE DRAINAGE MUST BE MAINTAINED TO THE PROPOSED CATCH BASINS.
2. THE SWALE DESIGN GRADES AND ELEVATIONS HAVE BEEN ESTABLISHED BASED ON THE EXISTING ROAD ELEVATIONS ALONG WITH THE APPROXIMATE MINIMUM ELEVATIONS WITHIN THE FUTURE ZONING SETBACK. THE MINIMUM ELEVATIONS HAVE BEEN ESTABLISHED IN CONJUNCTION WITH THE ESSEX REGION CONSERVATION AUTHORITY AND INCORPORATED AS PART OF THE LOT GRADING FOR THE PROPOSED DEVELOPMENT.
3. THE SWALE SIDE SLOPES SHALL BE GRADED SO THAT THE MINIMUM ELEVATION AT THE LIMIT OF THE PROPOSED FILL IS SET NO LESS THAN THE ELEVATIONS SHOWN. AS A RESULT, BETWEEN APPROXIMATELY STATIONS –0+004.9 AND 0+485.0, THE LANDS WITHIN THE SUBJECT LOTS SHALL BE GRADED TO ENSURE POSITIVE DRAINAGE IS PROVIDED TO THE PROPOSED TEMPORARY CATCH BASINS AS DETAILED.
4. TOPSOIL SHALL BE PLACED ON ALL NEWLY EXCAVATED SWALE SIDE SLOPES AND DISTURBED AREAS AND SHALL BE SEEDED AND MULCHED.
5. PROPOSED SWALES SHALL BE CENTERED OVER THE PROPOSED ENCLOSURE ALIGNMENT.
6. ALL FILL MATERIAL REQUIRED BEYOND THE LIMITS SHOWN SHALL BE THE RESPONSIBILITY OF THE OWNER (TYP.)



BERNARD TELLIER DRAIN WATERSHED PLAN
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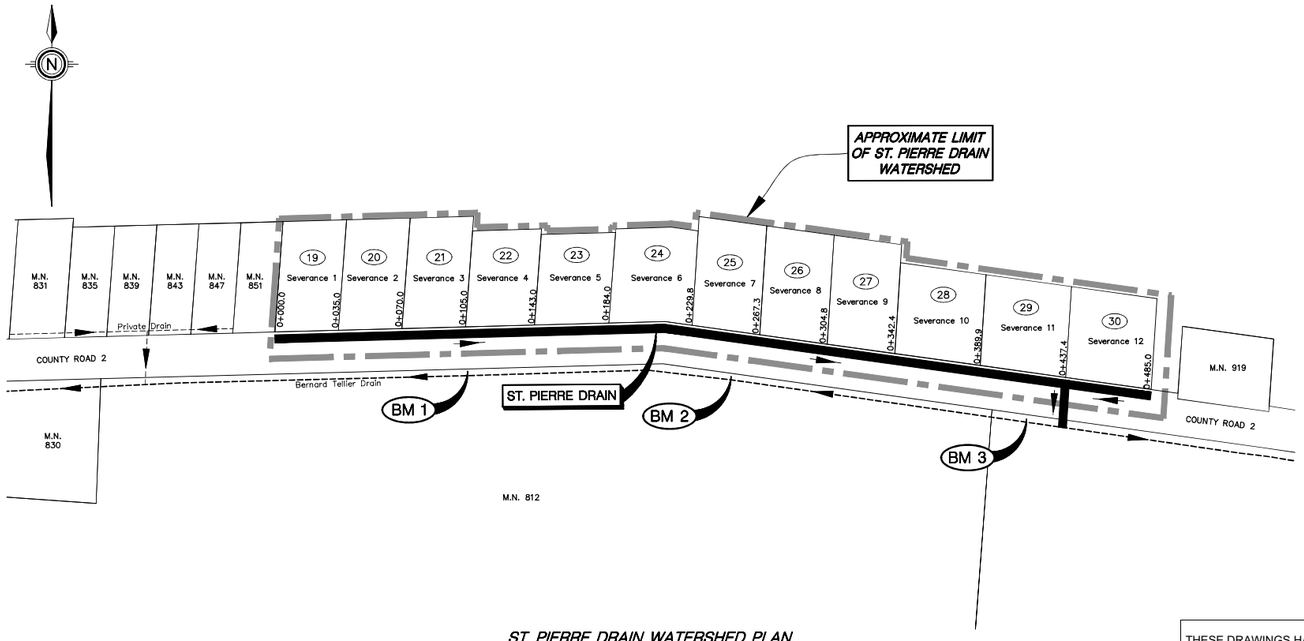

ST. PIERRE DRAIN WATERSHED PLAN
Scale = 1:1,500

Parcel ID	Roll #	Owner Name
1	610-08200	Daniel & Pauline Tellier
2	610-08201	Karmel Brockman
3	610-08220	Cameron & Christina Lewis
4	610-08240	Dino & Joan Santarossa
5	610-13330	Clayton Armstrong & Susan Iatonna
6	610-13332	Clayton Armstrong
7	610-29001	Jason Multhall
8	610-29020	Alan & Elizabeth Jinks
9	610-29030	Colleen Reaume
10	610-29040	Richard Law & Dorothy Tellier-Law
11	610-29050	Tai & Justyna Lam
12	610-29060	Wajid Farooq
13	610-29070	Derek Lachance & Jill Best
14	610-29080	Marc & Tina Roy
15	610-29201	Bruce & Anita Bauer
16	610-29300	Rochester Place Resort Inc.
17	610-29400	Rochester Place Resort Inc.
18	610-33500	Rochester Place Resort Inc.
19	Severance 1	Rochester Place Resort Inc.
20	Severance 2	Rochester Place Resort Inc.
21	Severance 3	Rochester Place Resort Inc.
22	Severance 4	Rochester Place Resort Inc.
23	Severance 5	Rochester Place Resort Inc.
24	Severance 6	Rochester Place Resort Inc.
25	Severance 7	Rochester Place Resort Inc.
26	Severance 8	Rochester Place Resort Inc.
27	Severance 9	Rochester Place Resort Inc.
28	Severance 10	Rochester Place Resort Inc.
29	Severance 11	Rochester Place Resort Inc.
30	Severance 12	Rochester Place Resort Inc.
31	610-33600	David Mineau

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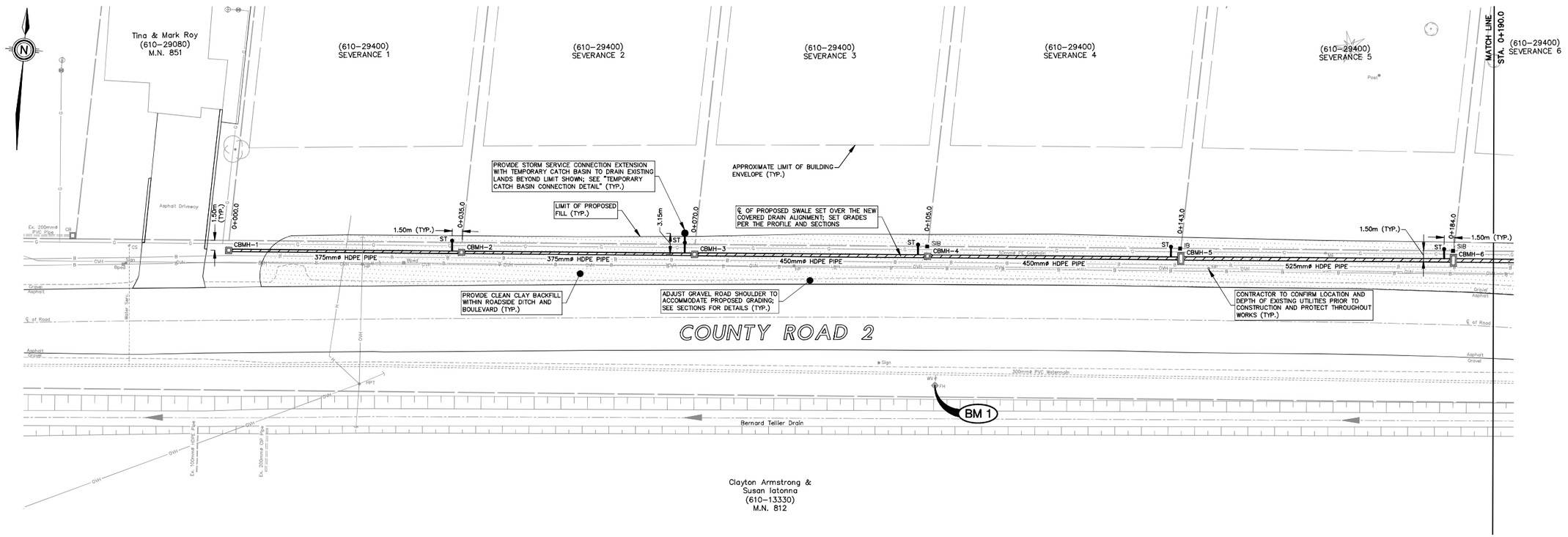
peraltaengineering.com

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
PROVINCE OF ONTARIO
2024-08-23

DATE: AUGUST 23, 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:
A.B.P.	N.D.H.	A.B.P.

PROJECT NO. D23-957 | SHEET NO. 1 OF 8



PLAN

Scale = 1:300

0+000.0 Property Line Between 610-29080 & Lot 1
0+000.0 CBMH-1 – PROVIDE AND INSTALL A 600mm SQ. PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.000m

0+017.9 HIGH POINT OF PROPOSED SWALE

0+033.5 PROVIDE AND INSTALL 150mmø STORM SERVICE CONNECTION
0+035.0 Property Line Between Lot 1 & Lot 2
0+035.0 CBMH-2 – PROVIDE AND INSTALL A 600mm SQ. PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.050m

0+052.5 HIGH POINT OF PROPOSED SWALE

0+068.5 PROVIDE AND INSTALL 150mmø STORM SERVICE CONNECTION
0+070.0 Property Line Between Lot 2 & Lot 3
0+070.0 CBMH-3 – PROVIDE AND INSTALL A 600mm SQ. PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.050m

0+088.0 HIGH POINT OF PROPOSED SWALE

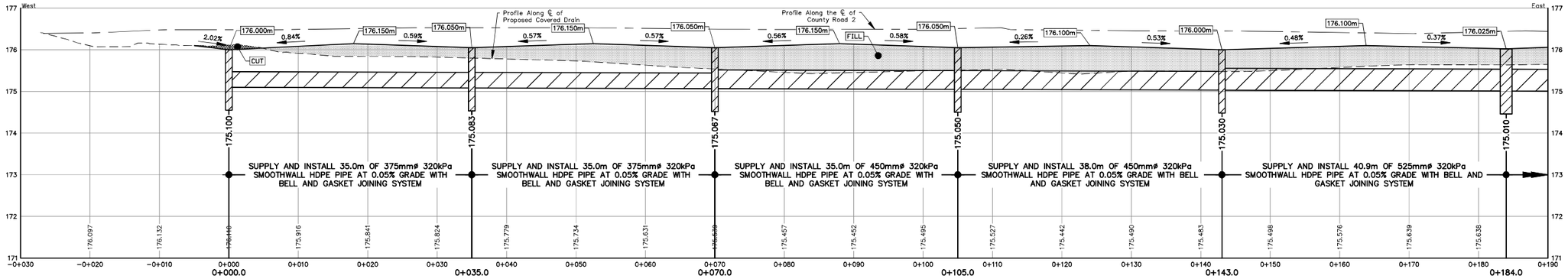
0+103.5 PROVIDE AND INSTALL 150mmø STORM SERVICE CONNECTION
0+105.0 Property Line Between Lot 3 & Lot 4
0+105.0 CBMH-4 – PROVIDE AND INSTALL A 600mm SQ. PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.050m

0+124.0 HIGH POINT OF PROPOSED SWALE

0+141.5 PROVIDE AND INSTALL 150mmø STORM SERVICE CONNECTION
0+141.5 Property Line Between Lot 4 & Lot 5
0+143.0 CBMH-5 – PROVIDE AND INSTALL A 600mm x 1450mm PRECAST CONC. CBMH WITH DOUBLE CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.000m

0+163.8 HIGH POINT OF PROPOSED SWALE

0+182.5 PROVIDE AND INSTALL 150mmø STORM SERVICE CONNECTION
0+184.0 Property Line Between Lot 5 & Lot 6
0+184.0 CBMH-6 – PROVIDE AND INSTALL A 600mm x 1450mm PRECAST CONC. CBMH WITH DOUBLE CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.025m



PROFILE

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100138683
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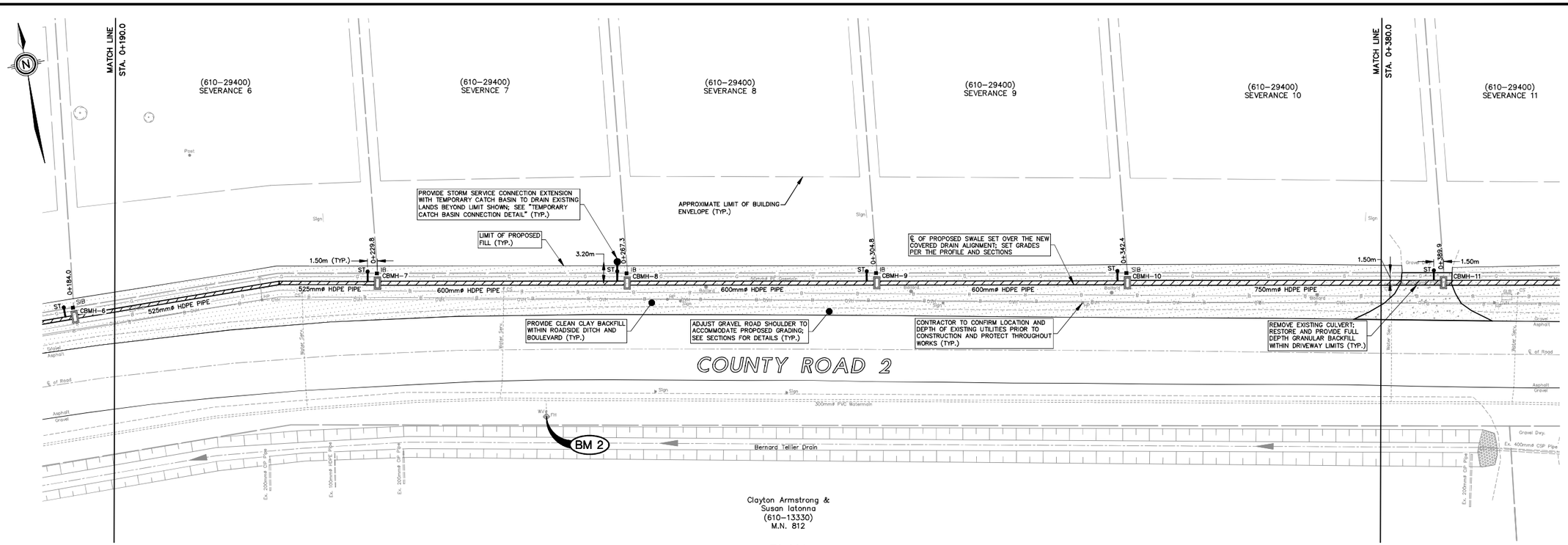
A.B.P.	N.D.H.	A.B.P.

PROJECT NO. D23-057 | SHEET NO. 2 OF 8



Clayton Armstrong &
Susan Iatonna
(610-13330)
M.N. 812

PLAN

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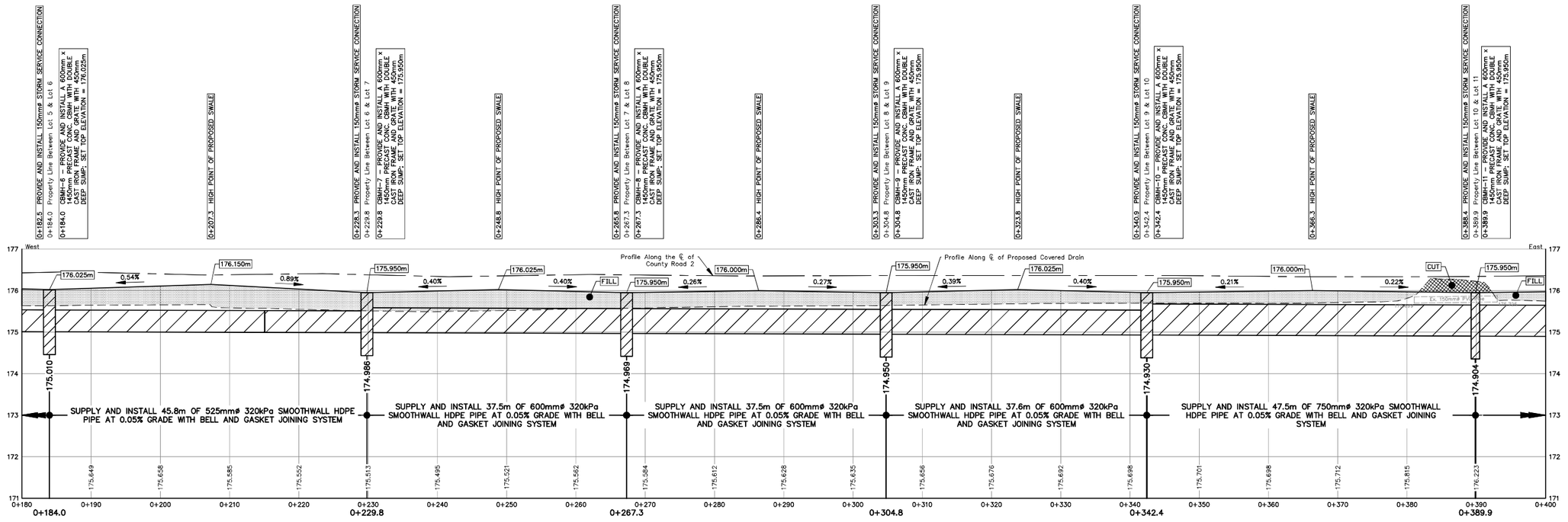

PROFILE

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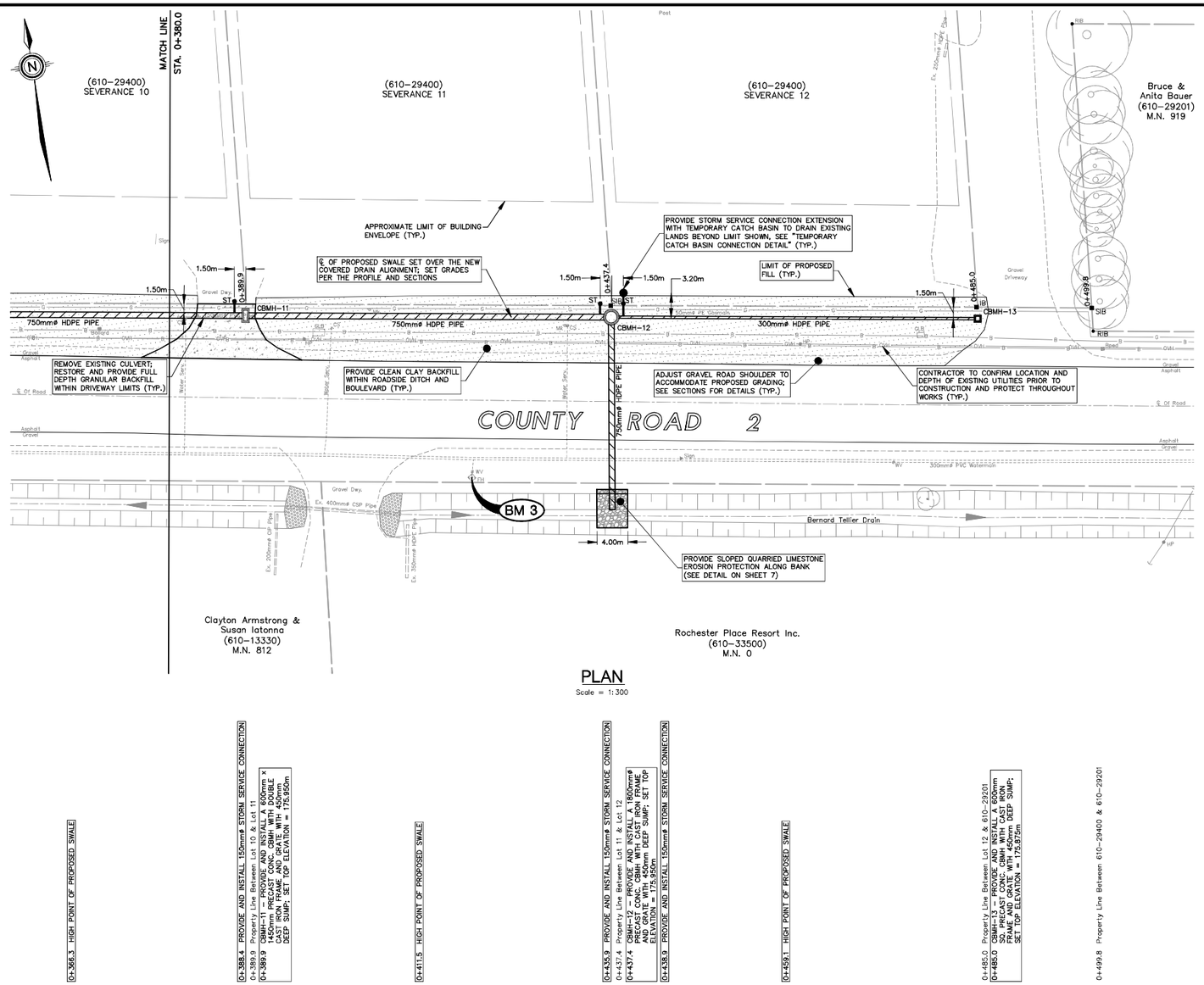
PROJECT NO. D23-057
SHEET NO. 3 OF 8



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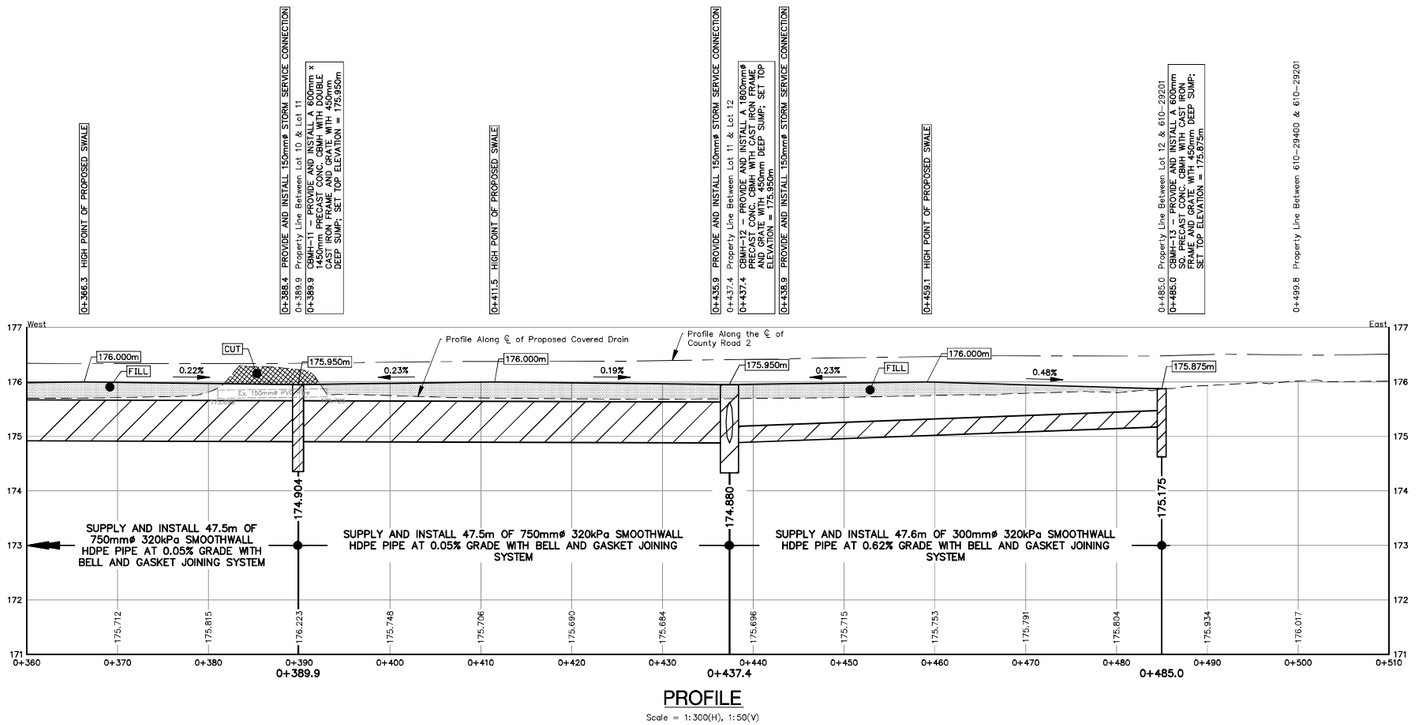

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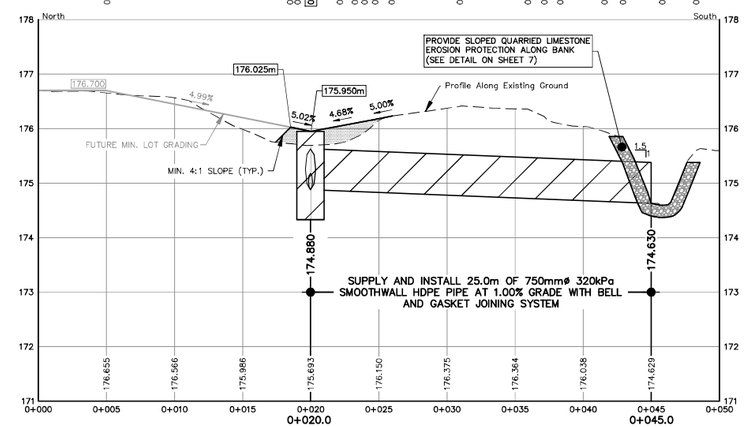

PROFILE ALONG PROPOSED ROAD CROSSING OUTLET

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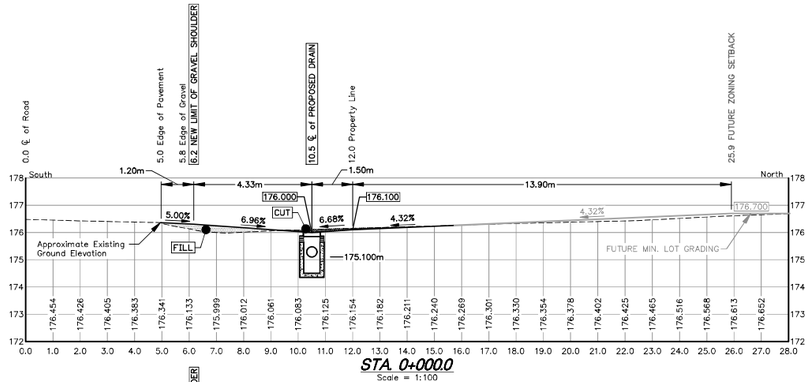
PROJECT No. D23-957 | SHEET No. 4 OF 8



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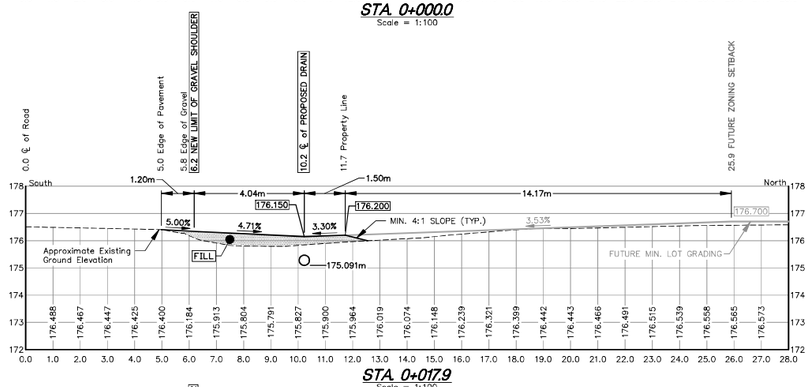

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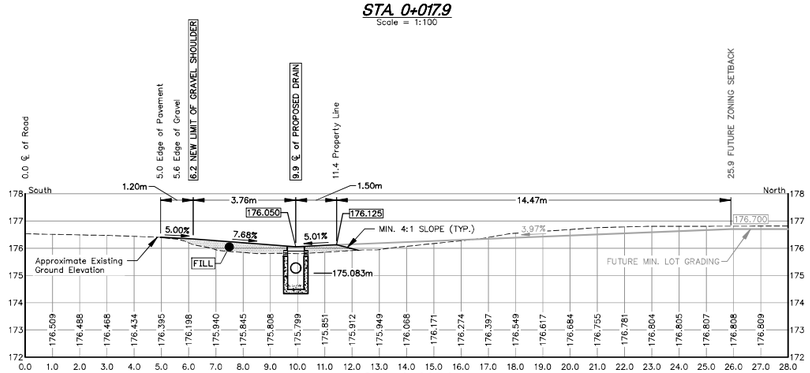

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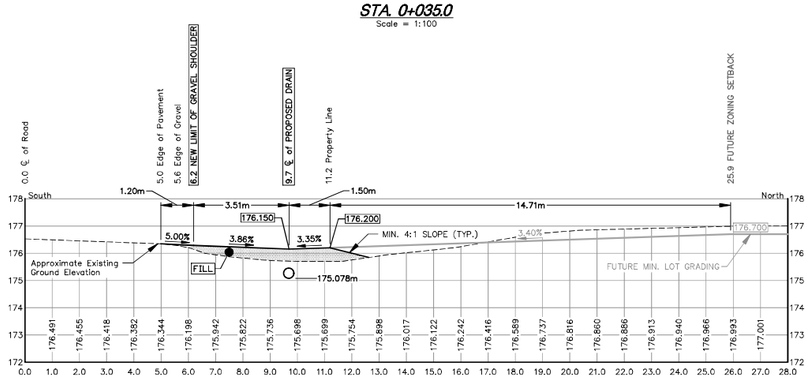

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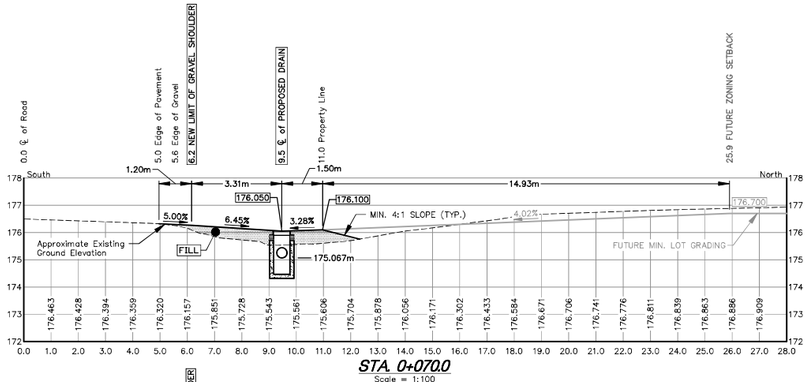

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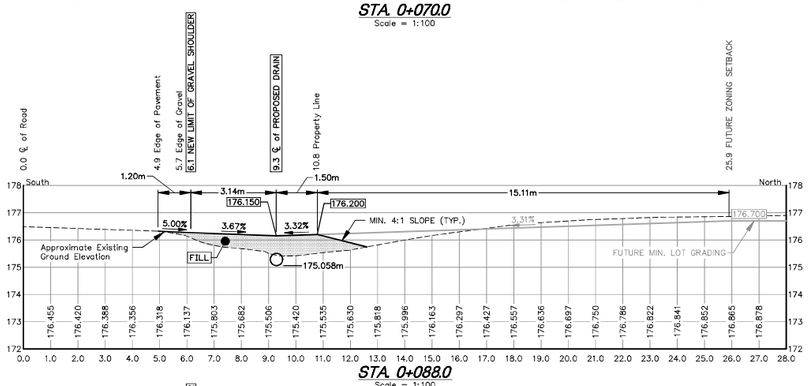

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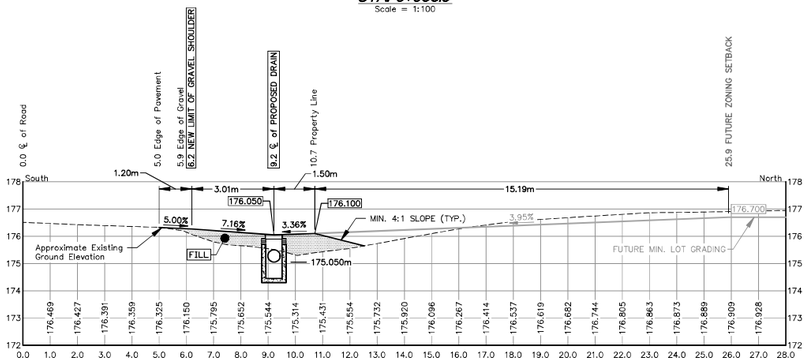

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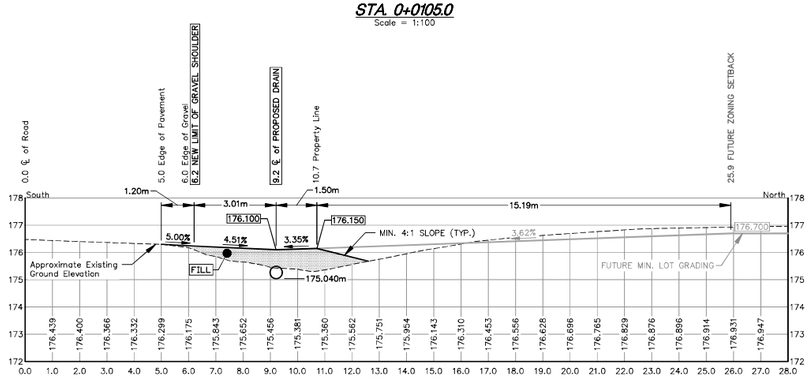

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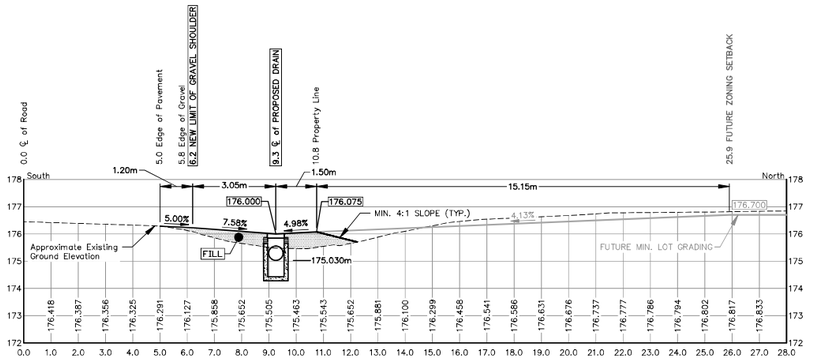
DESIGNED BY:	DRAWN BY:	CHECKED BY:
A.B.P.	N.D.H.	A.B.P.

PROJECT NO: D23-957
SHEET NO: 5 OF 8



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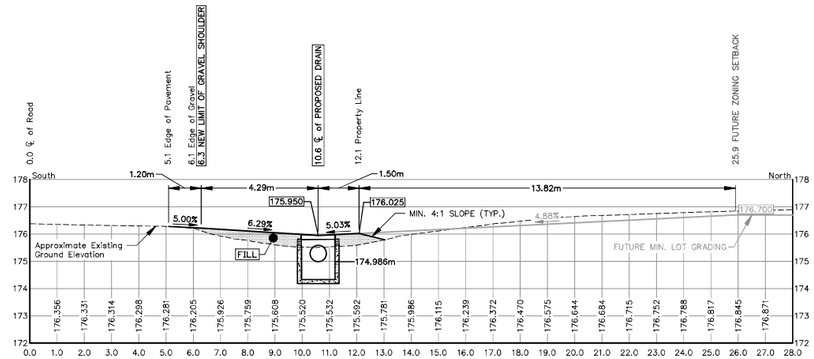

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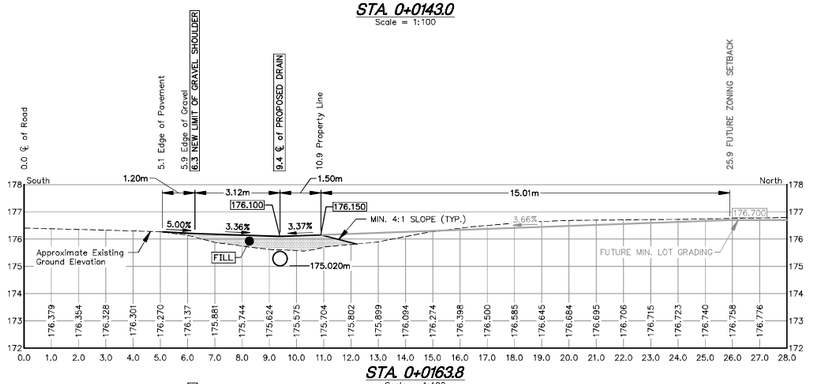

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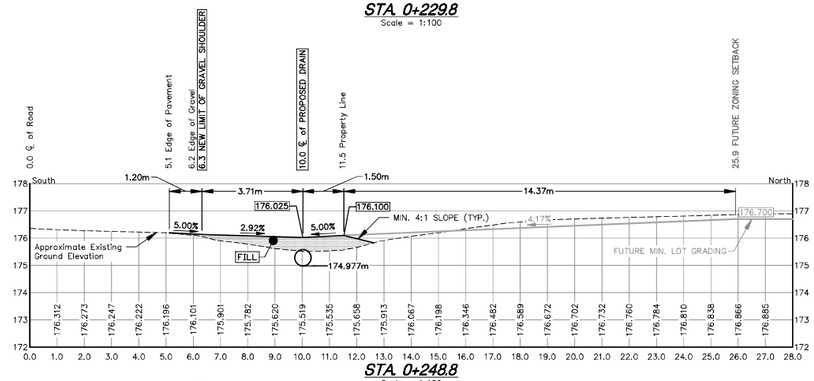

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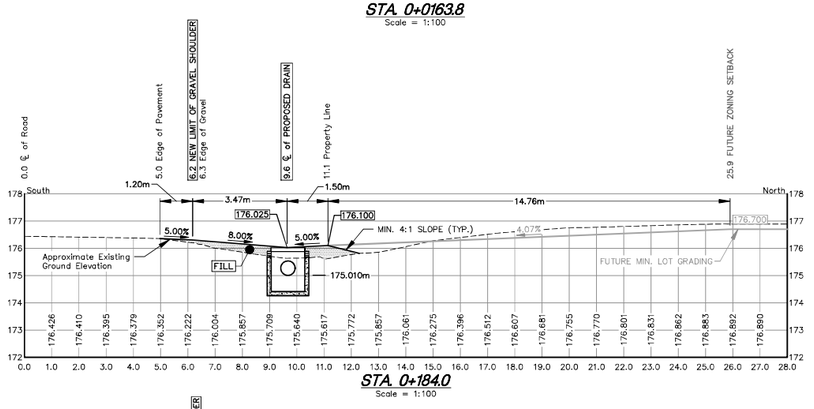

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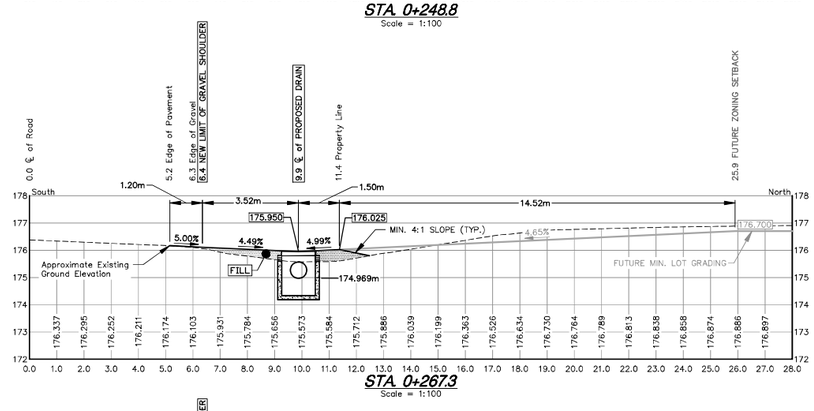

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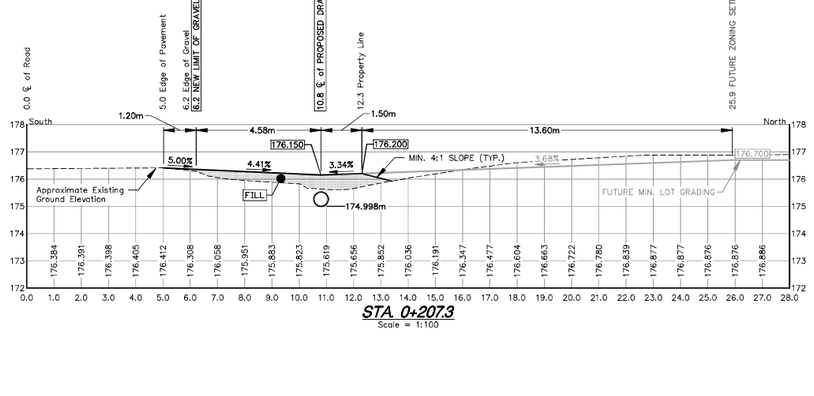

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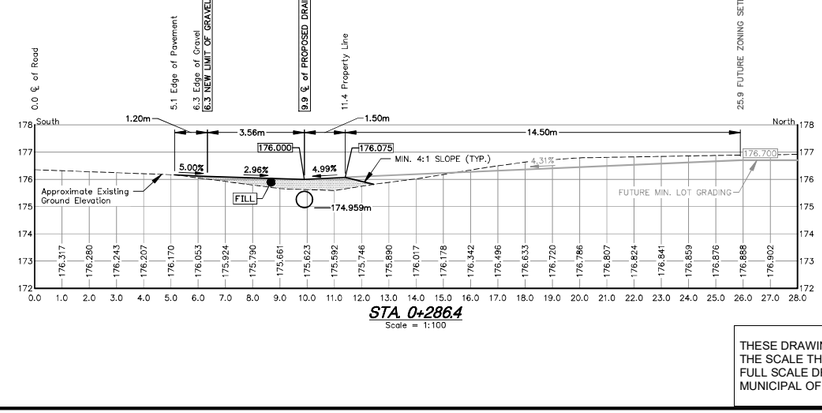

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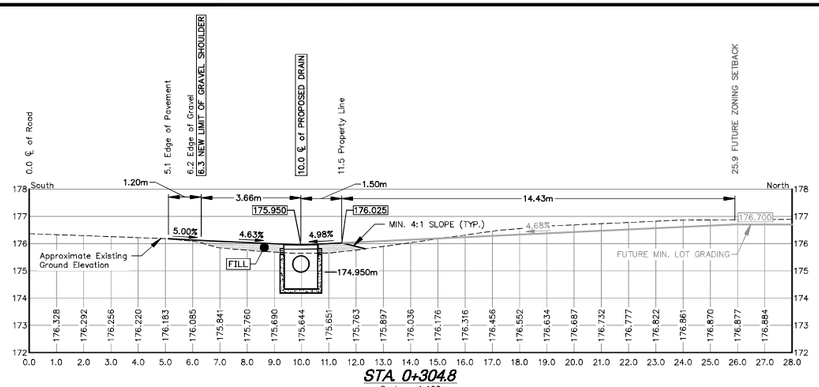
A.B.P.	N.D.H.	A.B.P.

PROJECT NO.	SHEET NO.
D23-957	6 OF 8



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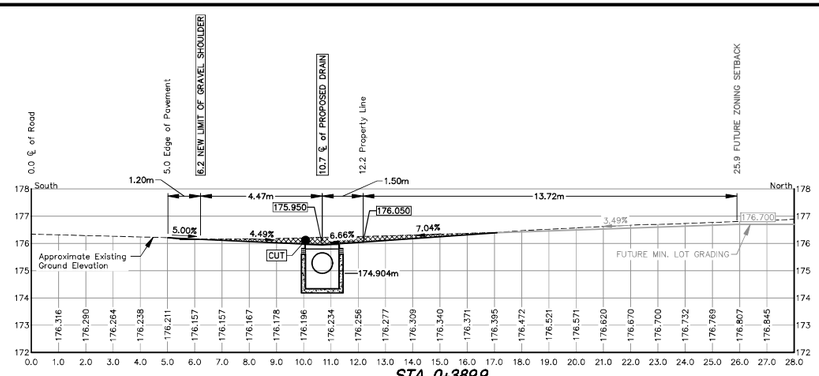

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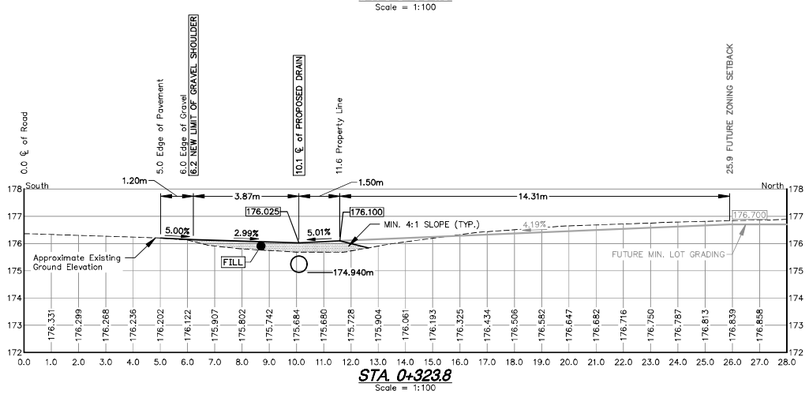

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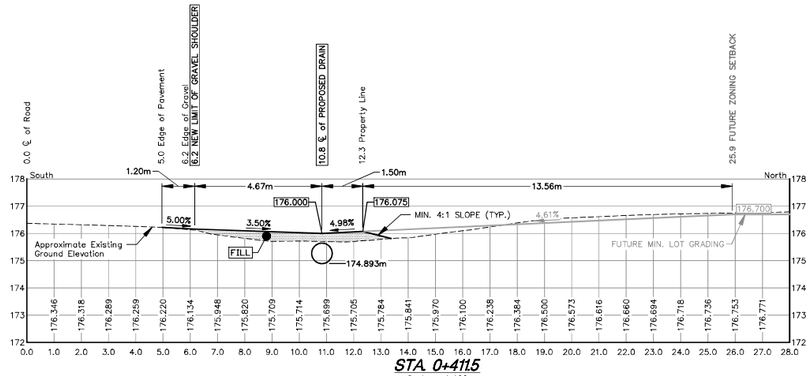

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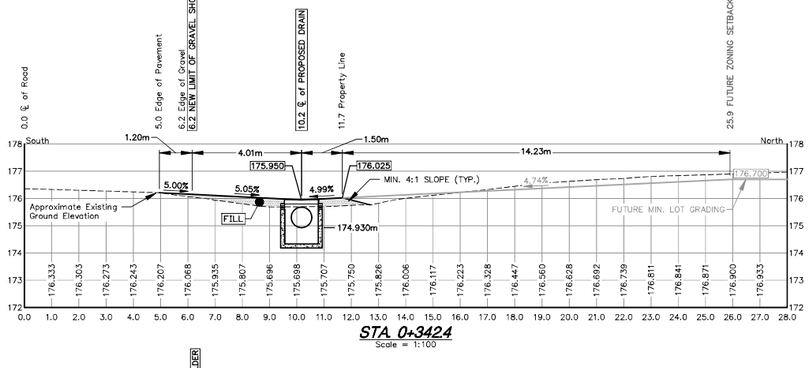

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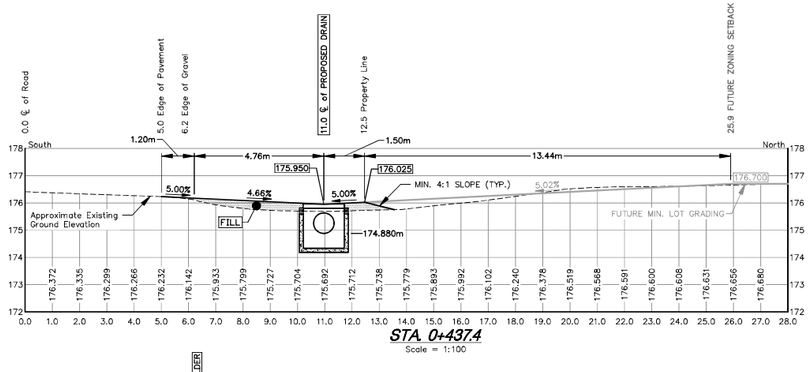

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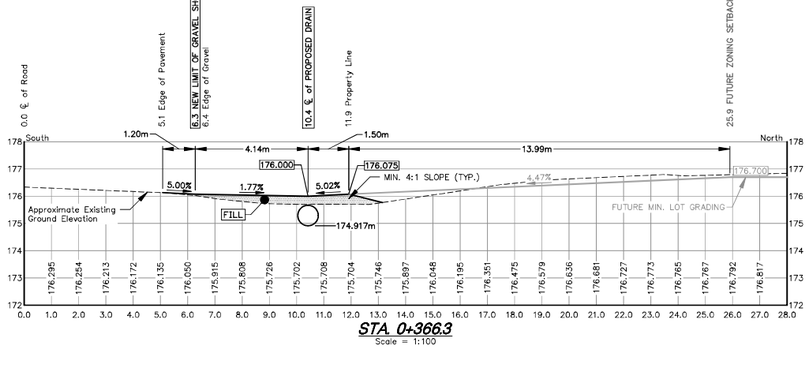

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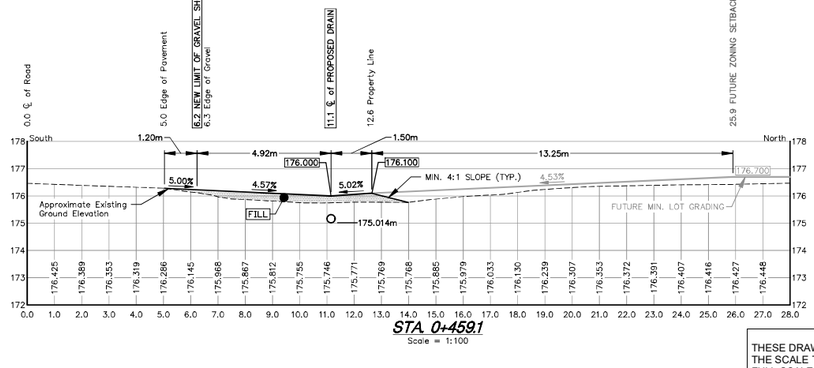

STA 0+459.1
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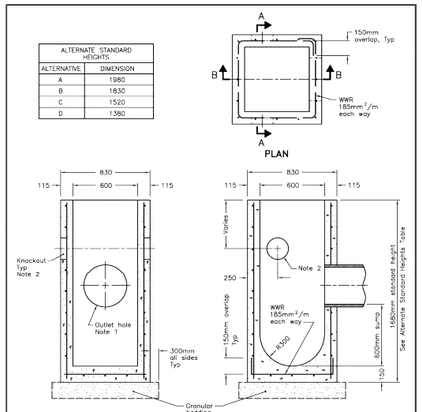
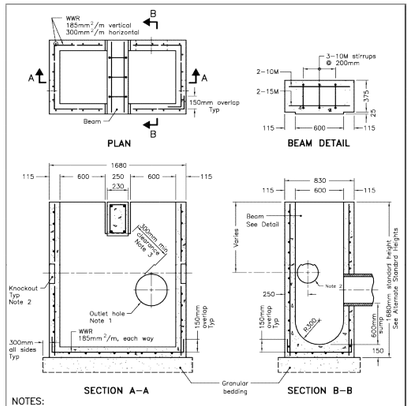
ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
F All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 Minimum clearance between beam recess and hole for pipe shall be 300mm or minimum clearance can be 150mm with addition of two 15M size rebar on 45 degree diagonal.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1680

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE TWIN INLET CATCH BASIN 600 x 1450mm		OPSD 705.020

Peralta Engineering
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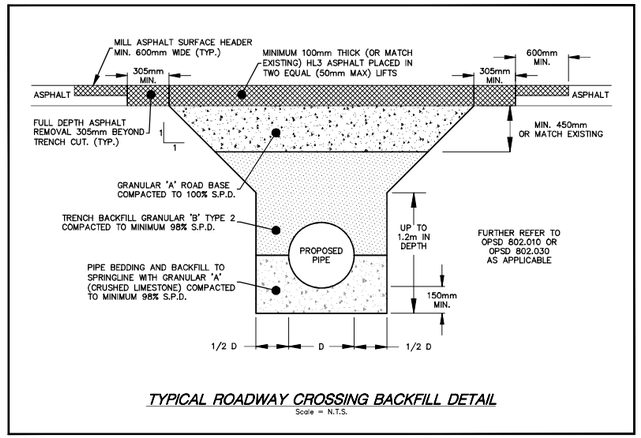
LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2024-08-23
PROVINCE OF ONTARIO

DATE: AUGUST 23, 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:
A.B.P.	N.D.H.	A.B.P.

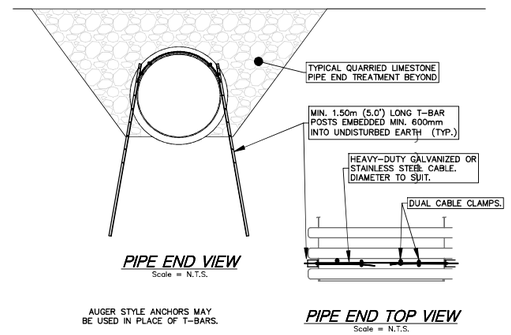
PROJECT No. D23-057 | SHEET No. 7 OF 8

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES.
FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.



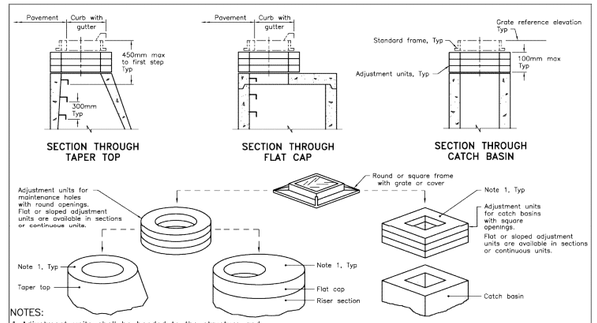
TYPICAL ROADWAY CROSSING BACKFILL DETAIL

Scale = N.T.S.



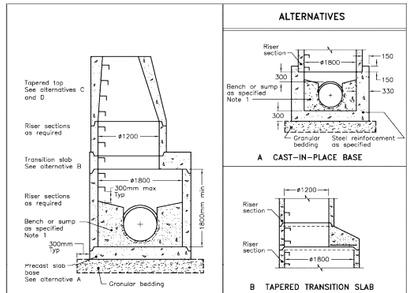
PIPE FLOATATION ANCHOR DETAIL

Scale = N.T.S.



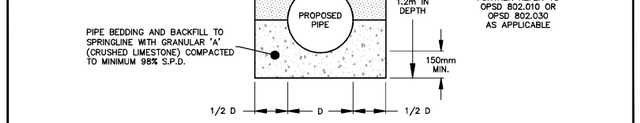
NOTES:
1 Adjustment units shall be bonded to the structure and each other as per manufacturer's recommendations.
A Installation and sealing of adjustment units and frame shall be according to adjustment unit manufacturer's recommendations.
B Adjustment units shall not extend beyond the outside edge of the structure.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
HIGH DENSITY POLYETHYLENE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS		OPSD 704.011



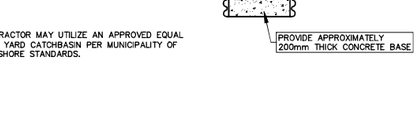
NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER		OPSD 701.012



TYPICAL DRIVEWAY CROSSING BACKFILL DETAIL

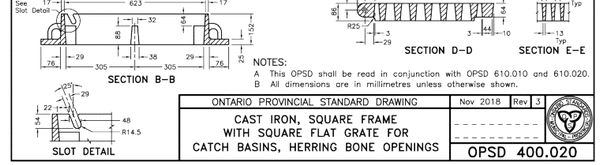
Scale = N.T.S.



NOTE: CONTRACTOR MAY UTILIZE AN APPROVED EQUAL REAR YARD CATCHBASIN PER MUNICIPALITY OF LAKESHORE STANDARDS.

TYPICAL TEMPORARY CATCH BASIN CONNECTION DETAIL

Scale = N.T.S.



NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

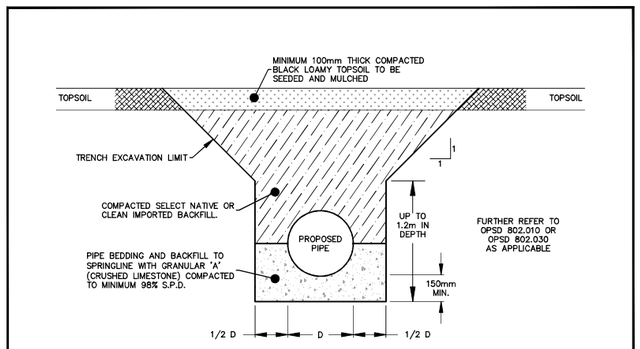
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS		OPSD 400.020

NOTES:

1. RISER & CONNECTION TO BE 125mmø PVC FOR SANITARY. RISER & CONNECTION TO BE 150mmø PVC FOR STORM.
2. PROVIDE 37mm x 89mm (2x4) MARKER POST PAINTED PINK FOR SANITARY AND GREEN FOR STORM.

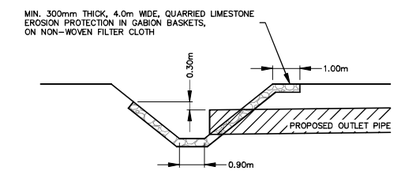
TYPICAL SERVICE CLEAN-OUT

Scale = N.T.S.



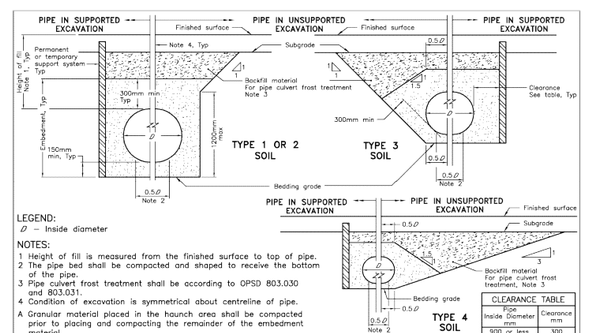
TYPICAL BOULEVARD AREA BACKFILL DETAIL

Scale = N.T.S.



OUTLET DETAIL

Scale 1:100



LEGEND:
D – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		OPSD 802.010

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES.
FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

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LICENSED PROFESSIONAL ENGINEER A. B. PERALTA 100138683 PROVINCE OF ONTARIO

DATE: AUGUST 23, 2024

DESIGNED BY:	DRAWN BY:	CHECKED BY:
A.B.P.	N.D.H.	A.B.P.

PROJECT No. D23-057 SHEET No. 8 OF 8

APPENDIX "D"

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APPENDIX D-1

Future Maintenance Schedule
Bernard Tellier Drain – West Branch

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FUTURE MAINTENANCE SCHEDULE OF ASSESSMENT
Bernard Tellier Drain - West Branch

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
	County Road 2				1.67	0.675	County of Essex	$ -	$ 1,330.00	$ 1,330.00
	Total on Municipal Lands							**$ -**	**$ 1,330.00**	**$ 1,330.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
6	610-13332	WRR	Pt. 2	1.97	1.97	0.797	Clayton Armstrong	$ -	$ 115.00	$ 115.00
7	610-29001	WRR	Pt. 1	1.23	1.23	0.498	Jason Mulhall	$ -	$ 93.00	$ 93.00
8	610-29020	WRR	Pt. 1	0.50	0.50	0.202	Alan & Elizabeth Jinks	$ -	$ 63.00	$ 63.00
9	610-29030	WRR	Pt. 1	0.50	0.50	0.202	Colleen Reaume	$ -	$ 68.00	$ 68.00
10	610-29040	WRR	Pt. 1	0.35	0.35	0.142	Richard Law & Dorothy Tellier-Law	$ -	$ 76.00	$ 76.00
11	610-29050	WRR	Pt. 1	0.35	0.35	0.142	Tai & Justyna Lam	$ -	$ 81.00	$ 81.00
12	610-29060	WRR	Pt. 1	0.35	0.35	0.142	Wajid Farooq	$ -	$ 85.00	$ 85.00
13	610-29070	WRR	Pt. 1	0.35	0.35	0.142	Derek Lachance & Jill Best	$ -	$ 89.00	$ 89.00
14	610-29080	WRR	Pt. 1	0.35	0.35	0.142	Marc & Tina Roy	$ -	$ 93.00	$ 93.00
	Total on Privately Owned - Non-Agricultural Lands							**$ -**	**$ 763.00**	**$ 763.00**

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
5	610-13330	WRR	Pt. 1 to 3	85.22	85.22	34.488	Clayton Armstrong & Susan Iatonna	$ -	$ 7,907.00	$ 7,907.00
			Total on Privately Owned - Agricultural Lands (grantable).....					**$ -**	**$ 7,907.00**	**$ 7,907.00**
	TOTAL ASSESSMENT				**92.84**	**37.571**		**$ -**	**$ 10,000.00**	**$ 10,000.00**

APPENDIX D-2

Future Maintenance Schedule
Bernard Tellier Drain – East Branch

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FUTURE MAINTENANCE SCHEDULE OF ASSESSMENT
Bernard Tellier Drain - East Branch

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
	County Road 2				7.22	2.923	County of Essex	$ -	$ 1,522.00	$ -	$ 1,522.00
	County Road 31				0.72	0.291	County of Essex	$ -	$ 425.00	$ -	$ 425.00
	Total on Municipal Lands							**$ -**	**$ 1,947.00**	**$ -**	**$ 1,947.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
1	610-08200	WRR	Pt. 2	0.75	0.75	0.304	Daniel & Pauline Tellier	$ -	$ 190.00	$ -	$ 190.00
2	610-08201	WRR	Pt. 2	0.48	0.48	0.194	Karmel Brockman	$ -	$ 14.00	$ -	$ 14.00
3	610-08220	WRR	Pt. 2	1.00	1.00	0.405	Cameron & Christina Lewis	$ -	$ 22.00	$ -	$ 22.00
4	610-08240	WRR	Pt. 2	1.00	0.50	0.202	Dino & Joan Santarossa	$ -	$ 11.00	$ -	$ 11.00
15	610-29201	WRR	Pt. 1	0.50	0.50	0.202	Bruce & Anita Bauer	$ -	$ 15.00	$ -	$ 15.00
16	610-29300	WRR	Pt. 2	3.67	3.67	1.485	Rochester Place Resort Inc.	$ -	$ 35.00	$ -	$ 35.00
17	610-29400	WRR	Pt. A, 1, & 2	91.14	0.15	0.061	Rochester Place Resort Inc.	$ -	$ 5.00	$ -	$ 5.00
19	Severance 1	WRR	Pt. 1	0.52	0.52	0.210	Rochester Place Resort Inc.	$ -	$ 16.00	$ -	$ 16.00
20	Severance 2	WRR	Pt. 1	0.52	0.52	0.210	Rochester Place Resort Inc.	$ -	$ 16.00	$ -	$ 16.00
21	Severance 3	WRR	Pt. 1	0.52	0.52	0.210	Rochester Place Resort Inc.	$ -	$ 16.00	$ -	$ 16.00
22	Severance 4	WRR	Pt. 1	0.50	0.50	0.202	Rochester Place Resort Inc.	$ -	$ 15.00	$ -	$ 15.00
23	Severance 5	WRR	Pt. 1	0.50	0.50	0.202	Rochester Place Resort Inc.	$ -	$ 15.00	$ -	$ 15.00
24	Severance 6	WRR	Pt. 1	0.59	0.59	0.239	Rochester Place Resort Inc.	$ -	$ 18.00	$ -	$ 18.00
25	Severance 7	WRR	Pt. 1	0.56	0.56	0.227	Rochester Place Resort Inc.	$ -	$ 17.00	$ -	$ 17.00
26	Severance 8	WRR	Pt. 1	0.55	0.55	0.223	Rochester Place Resort Inc.	$ -	$ 17.00	$ -	$ 17.00
27	Severance 9	WRR	Pt. 1	0.56	0.56	0.227	Rochester Place Resort Inc.	$ -	$ 17.00	$ -	$ 17.00

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

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
28	Severance 10	WRR	Pt. 1	0.59	0.59	0.239	Rochester Place Resort Inc.	$ -	$ 18.00	$ -	$ 18.00
29	Severance 11	WRR	Pt. 1	0.59	0.59	0.239	Rochester Place Resort Inc.	$ -	$ 18.00	$ -	$ 18.00
30	Severance 12	WRR	Pt. 1	0.59	0.59	0.239	Rochester Place Resort Inc.	$ -	$ 18.00	$ -	$ 18.00
31	610-33600	WRR	Pt. 2	0.70	0.70	0.283	David Mineau	$ -	$ 182.00	$ -	$ 182.00
	Total on Privately Owned - Non-Agricultural Lands							**$ -**	**$ 675.00**	**$ -**	**$ 675.00**

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

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
18	610-33500	WRR	Pt. 1 to 3	70.33	70.33	28.462	Rochester Place Resort Inc.	$ -	$ 7,378.00	$ -	$ 7,378.00
	Total on Privately Owned - Agricultural Lands (non-grantable)							**$ -**	**$ 7,378.00**	**$ -**	**$ 7,378.00**
	TOTAL ASSESSMENT				**92.61**	**37.480**		**$ -**	**$ 10,000.00**	**$ -**	**$ 10,000.00**