



# Project File Report

## Rapids Bridge Replacement

**Municipality of Tweed**  
**County of Hastings, Ontario**

August 2, 2019

Greenview File: 169.19.004



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## 1.0 Introduction

### 1.1 Background

The Rapids Bridge is owned and maintained by the Municipality of Tweed (Municipality) which is located in the on Rapids Road, crossing an unnamed tributary to the Moira River, west of the Village of Tweed (Figure 1). The year of construction for the bridge is unknown. The bridge was most recently inspected and assessed in 2018 is considered to be in a condition that has resulted in the Municipality needing to take action to address its deficiencies from a public safety perspective.

The Municipality of Tweed has an extensive municipal road network for a small, rural Municipality which correlates to include fifty-two (52) bridges and large culverts that the Municipality is responsible to perform bi-annual inspections on as per the Province of Ontario's Bridge Safety program. Municipal bridges inspections are performed in accordance with the guidelines in Ontario's Structure Inspection Manual (OSIM, Ontario Ministry of Transportation, April 2008). The Rapids Bridge is deemed as a priority replacement per the associated 2018 OSIM report.

The Municipality retained Greenview Environmental Management Limited (Greenview) to provide the required planning and technical support for the Rapids Bridge Replacement project. The project is subject to the requirements of the Municipal Class Environmental Assessment (MCEA, Municipal Engineers Association [MEA], amended 2015) and the Environmental Assessment Act, R.S.O. 1990, Chapter E.18 (EAA).

### 1.2 Class EA Planning Process

The Municipality has completed the Class EA in accordance with the purpose of the EAA:

"...the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment. R.S.O. 1990, c. E.18, s. 2."

The MCEA planning process was developed by the MEA as an alternative method to individual EAs for recurring municipal projects that are similar in nature, usually limited in scale and with a predictable range of environmental effects that would be expected to respond to mitigating measures.

The MCEA planning process does not require application for additional approvals under the EAA, provided the proponent has complied with the necessary requirements and procedures. These requirements and procedures include a full description of the project, consideration of alternatives, and identification of the impacts resulting from their implementation and continuance. The MCEA process also requires the proponent to inform and consult with the public, Indigenous peoples, and relevant agencies. A flowchart of the planning and design process requirements is included as Appendix A.

The main elements of the MCEA planning process are incorporated into five (5) phases. The Schedule designation determines which phases are required to be followed for a particular project. The phases are summarized as follows:

- Phase 1 – Identify the problem (deficiency) or opportunity.
- Phase 2 – Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution taking into account public and review agency input. At this point, determine the appropriate Schedule for the undertaking and document decisions in a Project File for Schedule B projects, or proceed through to the following Phases for Schedule C projects.
- Phase 3 – Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.

- Phase 4 – Document, in an Environmental Study Report, a summary of the rationale, and the planning, design and consultation process of the project as established through the above Phases, and make such documentation available for scrutiny by review agencies and the public.
- Phase 5 – Complete contract drawings and documents, and proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facilities.

This project has been undertaken, and was confirmed by the regulatory authority, as a Schedule “B” Class EA undertaking, and thereby follows Phases 1 and 2 of the MCEA planning process (Appendix A). Phase 5 would be completed following the completion of the MCEA process, and approval from relevant authorities as required. The results of the MCEA are documented in this Project File Report.

Upon review of this report and its contents, if concerns regarding this project cannot be resolved in discussions with the Proponent, a person or party may request that the MECP make an order for the project to comply with Part II of the EAA (referred to as a Part II Order). which addresses individual environmental assessments. Requests must be received by the Minister at the address below within 30 calendar days of the Notice of Study Completion. Should discussions proceed beyond the 30-day review period and such discussions are unsuccessful at resolving the concerns, a Part II Order request may be submitted a further seven (7) calendar days following the end of discussions.

### **1.3 Study Area and Planning Horizon**

The study area for this project is shown on Figure 1 and is confined to the existing location of the Rapids Bridge and the associated portion of Rapids Road. The Rapids Bridge serves an important role in local area traffic including agricultural use.

The planning period for the undertaking is anticipated to be between fifty (50) and one hundred (100) years, potentially to the year 2119, based on available technical and product information reviewed for the project’s alternatives assessment (Section 4.0).

### **1.4 Purpose and Scope**

The purpose of this study is to identify and recommend a cost-effective and environmentally-responsible, long-term solution for replacing the Rapids Bridge.

The MCEA requires that a project file be kept and made available for review by interested parties. This report acts as the project file and has been prepared to document the work completed through the Class EA process for submission to the MECP for approval. This report has been organized as follows:

- Section 1.0 – provides context of the methodology of the Class EA as undertaken by the Municipality, in consideration of applicable legislation, policies, and acts relevant to, and in consideration of, the need for the undertaking.
- Section 2.0 – defines the problem or opportunity statement, and alternative solutions for the project based on an understanding of current replacement technologies and a clear understanding of the problem/opportunity.
- Section 3.0 – provides a general account of the existing environment within the study area and the region within which the study area exists to provide a description of the natural, socio-cultural, and economic environments of the study area.
- Section 4.0 – provides the criteria for evaluation of the alternative solutions, summarizes the potential impacts of each alternative on the natural, socio-cultural and economic environments, and presents the comparative evaluation of the candidates for the “Preferred Solution”.

- Section 5.0 – identifies the “Preferred Solution” and summarizes the mitigative considerations for implementation of the “Preferred Solution”.
- Section 6.0 – provides a summary of the agency and public consultation that was undertaken as part of the Class EA planning process.
- Section 7.0 – details the conclusions and related recommendations pertaining to the results of the Class EA, and the specific recommendations for action as they relate to the “Preferred Solution”.
- Section 8.0 – a summary of other approvals, further to the approval of the Class EA under the EAA, which may be required prior to implementation of the identified “Preferred Solution”.

Each of the Sections of this report have been documented in sufficient detail to ensure that the MCEA process has been undertaken in a reasonable, transparent, and defensible manner consistent with the MCEA.

## 2.0 Problem / Opportunity Statement and Alternative Solutions

As required by Phase 2, Step 1 – Identification of alternative solutions to the problem (MCEA), this section presents the problem or opportunity statement for the study and identifies the alternative solutions considered for resolving the problem.

### 2.1 Problem or Opportunity Statement

The condition of the Municipality's Rapids Bridge has been assessed in accordance with applicable legislation and guidelines in 2018, as summarized in the OSIM report #52. Its condition is very poor (BCI 42.93), and has been recommended for replacement in the next 5 years. In 2019, a further visual condition review has indicated that the condition of the existing bridge has further deteriorated, and replacement is deemed necessary in 2019.

The location of the bridge is generally in an area where the predominant land use is agricultural. As part of the study, it is understood that heavy farm equipment with special attachments regularly use the bridge as a more convenient location to access area farmlands. Bridge load limits and associated signage was not observed for the bridge.

Due to the need to replace the existing bridge structure, there is an opportunity for the Municipality to do the replacement in a manner that meets the needs and requirements of the local environment.

### 2.2 Alternative Solutions

The alternative solutions identified for the project are as follows:

#### Alternative 1 – Replacement with Similar Bridge Structure

The replacement with a similar bridge structure would include a pre-cast concrete bridge or box culvert.

#### Alternative 2 – Replacement with Culvert Pipe(s)

The culvert pipe alternative would consider the removal of the bridge and the installation of appropriately-sized corrugated steel pipe (CSP) culverts.

#### Alternative 3 – Replacement with Structural Arch

The bridge's replacement with a structural plate, arch-type crossing.

#### Alternative 4 – Status Quo / Do Nothing

The status quo / do nothing alternative would involve the near future closure of the bridge, and stopping up of Rapids Road at the bridge location. Access to the properties north and south of the bridge could be achieved via alternative, extended route(s).

Alternative 4 has been screened out by the Municipality as not feasible from a public safety and environmental perspective.

Alternatives 1 through 3 include the widening of the road from a single lane to a dual lane at the bridge location, and the replacement of the existing bridge. These alternatives are further detailed in the sections to follow in this report.

## 3.0 Inventory of the Existing Environment

As required by Phase 2, Step 2 – Preparation of a physical description of the area where the project is to occur, and a general inventory of the natural, social, and economic environments (MCEA), this section presents the inventory of the study area’s existing environment.

### 3.1 Natural Environment

Natural environment information is focused to the site location, and associated hydraulic features, which is comprehensive. The municipal website reports that 18 square kilometres of land area is in some form of watercourse or system.

Baseline hydraulic and hydrologic information has been undertaken which has been documented in the project’s *Preliminary Design Report* (PDR; Greenview, June 18, 2019), and other technical information as attached in Appendix B.

An environmental impact study (EIS) has been completed for the project and was initially reported in June 2019 as part of Appendix B information. An updated EIS is provided as Appendix C to this report. Its findings and recommendations are duly noted therein.

### 3.2 Socio-Cultural Environment

The following sections present a general description of the various aspects of the existing socio-cultural environment for the study area.

#### 3.2.1 Human Population and Social Community

“Municipality of Tweed – Our Backyard” ([www.tweed.ca](http://www.tweed.ca), 2019).

The Municipality of Tweed is located on the south and eastern portion of Hastings County, spanning approximately 953 square kilometres, of which 30% is reported as being Crown Land. The municipality includes the hamlets of Actinolite, Marlbank, Queensborough, Stoco, and Thomasburg, and a large northern portion of the Municipality that is very rural and only marginally inhabited (Figure 1). The Municipality was formed under amalgamation with the Village of Tweed and the former townships of Hungerford, and Elzevir and Grimsthorpe, on January 1, 1998. The Municipal website reports that approximately 30% of the population resides in the urban centre of the Village of Tweed.

Population information was available from the Statistics Canada website (Statistics Canada, 2019). According to the 2016 census data, the Municipality has a population of approximately 6,044, with 3,023 total private dwellings. There is a considerable seasonal population in the Municipality, as the Tweed area is known as the “Gateway to the Land O Lakes and the Bay of Quinte” regions.

Based on 2016 census information, the economy of the Municipality of Tweed is focused primarily on manufacturing, retail trade, and health care and social assistance industries, whether they are working locally or commuting for work in adjacent municipalities, including the City of Belleville and/or the Town of Greater Napanee, along the Highway 401 corridor to the south.

The Municipality has an active agricultural sector, that represents approximately 4% of the total labour force NOC 2016, StatsCan 2019). The specific project area of the Rapids Bridge is an agricultural area of the Municipality (Figure 1). The bridge is accessed and used extensively by the local agricultural community.

#### 3.2.2 Cultural Heritage / Archaeology

In consultation with the Ministry of Tourism, Culture, and Sport (MTCS), no significant cultural heritage features were identified in the specific study area. For the Rapids Bridge, the MEA’s *Municipal Heritage Bridges Cultural*,

*Heritage and Archaeological Resources Assessment Checklist (Revised April 11, 2014)* was completed, and is attached in Appendix D to this report.

### **3.3 Economic Environment**

#### **3.3.1 Municipal Tax Base**

The 2019 Tax Base (revenue received from municipal taxes) for the Municipality of Tweed was \$4,012,699.00 as per the 2019 municipal budget. In 2019, the Municipality has planned for a balanced budget with revenues and expenditures equal at \$11,201,784.00. Approximately 40% of funding for municipal capital projects and operations is sourced from the municipal tax levy, provincial funding at 35%, and other municipal sources at a combined 25%.

#### **3.3.2 Household Income**

Per the 2016 census, Statistics Canada reports the median total income of private households in 2015 was \$66,420.

#### **3.3.3 Asset Management – Bridges & Large Culverts**

The Municipality is currently updating its asset management planning information commencing in 2019. According to the Municipality, a total of fifty-two (52) bridges (45) and large culverts (7) are inspected, managed and maintained in accordance with regulatory requirements by the Municipality. The average bridge condition index (BCI) was reported at 58.95 (poor condition), with total asset upgrade costs projected at \$25,069,500.

Clearly, the number of bridges and large culverts is significant for a small, rural municipality, and the condition of these assets is presenting a significant asset management issue for the Municipality. Consequently, this study considers potential impacts to the economic environment to be a priority.

## 4.0 Evaluation of Alternatives

As required by Phase 2, Step 3 – Identify impact of alternative solutions on the environment, and Step 4 – Evaluate alternative solutions, identify recommended solutions, this section presents the evaluation of alternative solutions (Section 2.2, Appendix A), taking into consideration the natural, socio-cultural, and economic environments and relevant criteria.

### 4.1 Evaluation Criteria and Methodology

The Municipality has developed evaluation criteria that was employed in evaluating the alternative solutions specific to a small, rural water crossing. These criteria are based on planning requirements and are considered applicable and reasonable for any small, rural Municipality, where financial resources are limited, and existing conditions warrant.

### 4.2 Special Studies Undertaken to Evaluate Alternatives

As noted in Section 3.0, water resources and environmental impact studies have been undertaken to inventory the existing environment. The studies have also considered the evaluation of the alternatives, and this information is included in Appendix B to this report. An updated EIS is provided in Appendix C.

Further to the natural environment review and in accordance with MCEA requirements, the Municipality has undertaken an assessment to determine the bridge's cultural heritage potential. Using the MEA's screening criteria, the MEA's *Municipal Heritage Bridges Cultural, Heritage and Archaeological Resources Assessment Checklist (Revised April 11, 2014)* was completed, and is attached in Appendix D. Upon completion of the checklist, the only aspect that was answered that could support further and more in-depth heritage studies on the bridge was related to the bridge's age (Part B, Question 1). The Municipality has advised that no original design or construction documentation is available, and consequently, the age of the bridge is unknown, but it is likely more than forty (40) years old. Based on research conducted, a search of the *Ontario Heritage Bridge Guidelines* (January 11, 2008), and consultation with the MTCS, it was found that the potential for cultural heritage value is low for the Rapids Bridge. Under Part C of the checklist (archaeological impact potential), it was determined that the proposed undertaking and its alternatives to be considered, would not result in significant ground disturbance, which would be specifically localised and focused in the immediate area of the bridge and watercourse crossing. As a result, no cultural heritage studies have been undertaken for this project.

### 4.3 Alternative 1 - Replacement with Similar Bridge Structure

#### 4.3.1 Description of Alternative

The replacement of the existing bridge with a similar bridge-type structure has been considered. The replacement structure is anticipated to be a pre-cast concrete box culvert type of structure, in conformance with the Canadian Highway Bridge Design Code (CSA S-6) and the MTO Structure Manual.

#### 4.3.2 Potential Impact on Natural Environment

Alternative 1 is anticipated to have a low potential impact on the natural environment. A replacement bridge structure would provide for similar water quality and flows, and would provide for similar habitat potential at the bridge location as currently exists. With the widened road, vehicular traffic is not generally anticipated to increase, and agricultural traffic is anticipated to be continued to be constrained, as new guards on each side of the new bridge are anticipated to be a continued impediment to local agricultural traffic.

#### 4.3.3 Potential Impact on Socio-Cultural Environment

The current land use in the area of the bridge is agricultural. The very poor condition of the existing bridge is expected to be a result of general age of the structure, and damage by use by local heavy agricultural equipment traffic. The replacement of the bridge with a similar structure would not be preferred by local residents/users due to agricultural equipment travel/access impacts.

As noted in Sections 3.2.2 and 4.2, the bridge's cultural heritage value was assessed, and the heritage potential for the bridge was determined to be low.

#### 4.3.4 Potential Impact on Economic Environment

A preliminary cost estimate was completed as part of the PDR (Appendix B). The results of the cost estimate indicated that Alternative 1 was anticipated to have the highest replacement cost of the alternatives considered.

#### 4.3.5 Alternative 1 - Summary Evaluation Statement

Based on the above and the summary in Table 1, Alternative 1 is anticipated to have a medium overall potential to impact the environment.

### 4.4 Alternative 2 – Replacement with Culvert Pipe(s)

#### 4.4.1 Description of Alternative

The replacement of the existing bridge with corrugated steel pipe(s) (CSP), in either a standard cylindrical shape (CSP) at 3.0m in diameter or arch configuration (CSPA) at 152 x 51mm were considered. For durability, the Municipality has identified the use of polymer-coatings. In either CSP or CSPA option, two (2) pipe units are required for hydraulic requirements. Additional technical information is included in Appendix B.

A sample image of the noted CSPA option, is shown for general information in the image below (CSPI 2019).



#### 4.4.2 Potential Impact on Natural Environment

As noted in the PDR and associated EIS for this project (Appendix B, C), Alternative 2 (CSPs or CSPAs) is expected to have a low potential impact on the natural environment.

#### 4.4.3 Potential Impact on Socio-Cultural Environment

The replacement of the existing single-lane bridge and its barriers with a culvert-based alternative would provide a significantly improved opportunity for the local population and agricultural community to access their lands and enhance their livelihoods.

As noted in Sections 3.2.2 and 4.2, the bridge's cultural heritage value was assessed, and the heritage potential for the bridge was determined to be low.

#### 4.4.4 Potential Impact on Economic Environment

A preliminary cost estimate was completed as part of the Preliminary Design Report (Appendix B). The results of the cost estimate indicated that Alternative 2 in a CSP configuration was anticipated to have the lowest replacement cost of the alternatives considered. The CSP configuration was slightly higher in the estimated cost to the CSP, due to material cost.

#### 4.4.5 Alternative 2 - Summary Evaluation Statement

Based on the above and the summary in Table 1, Alternative 2 is anticipated to have a low overall potential to impact the environment.

### 4.5 Alternative 3 – Structural Arch (Bridge Plate)

#### 4.5.1 Description of Alternative

The replacement of the existing bridge with a single-radius structural plate arch span up to 6m conforming to the Canadian Highway Bridge Design Code (CSA S-6) and the MTO Structure Manual.

A sample end (section) view image of the noted structural plate arch, also known as a bridge plate arch, as depicted in the image below (Atlantic Industries Limited 2019). Note the requirements for structure foundations in this alternative.



#### 4.5.2 Potential Impact on Natural Environment

The size of the span considered under this alternative is considerable at 6.0m. There are existing agricultural laneways directly adjacent to the watercourse that would likely be impacted by the considerable span.

As noted in the PDR and associated EIS for this project (Appendix B, C), Alternative 3 expected to have a low potential impact on the natural environment.

#### 4.5.3 Potential Impact on Socio-Cultural Environment

The replacement of the existing single-lane bridge and its barriers with a structural arch with the road widening would provide a significantly improved opportunity for the local population and agricultural community to access their lands and enhance their livelihoods.

The level of effort, resources, and timeline for the implementation of this alternative is not preferred. A less complex solution is preferred.

As noted in Sections 3.2.2 and 4.2, the bridge's cultural heritage value was assessed, and the heritage potential for the bridge was determined to be low.

#### 4.5.4 Potential Impact on Economic Environment

A preliminary cost estimate was completed as part of the PDR (Appendix B). The results of the cost estimate indicated that Alternative 3 was anticipated to have the relative mid-range replacement cost of the alternatives considered. The structural plate arch cost was similar to the CSPA configuration noted in Section 4.4, above.

#### 4.5.5 Alternative 3 - Summary Evaluation Statement

Based on the above and the summary in Table 1, Alternative 3 is anticipated to have a medium overall potential to impact the environment.

### 4.6 Alternative 4 – Status Quo / Do Nothing

As noted in Section 2.2, Alternative 4 was screened out by the Municipality as being irresponsible to the environment. This being noted, its analysis and evaluation summary is included in Table 1.

### 4.7 Comparative Evaluation Summary of Alternatives

Each of the alternatives was evaluated based on their potential to impact each of the listed criteria, on a scale from low to high, with low identifying a low potential for impacts and high identifying a high potential for impacts. As the Municipality's objective was to determine the "best solution" for addressing a needed bridge replacement, the alternative with the lowest potential for effects to the natural, socio-cultural, and economic environments was considered to be the best candidate for the "Preferred Solution".

The summary evaluation matrix is included as Table 1.

## 5.0 Identification of the “Preferred Solution”

### 5.1 The “Preferred Solution”

The identification of a “Preferred Solution” for the replacement of the Rapids Bridge was based primarily on an open, transparent, and objective assessment of the alternatives on the environment.

Based on the studies undertaken for this project, comparative evaluation of the alternatives, and further support from the public, the “Preferred Solution” for the Rapids Bridge Replacement Municipal Class EA is Alternative 2 – Replacement with Culvert Pipe(s) via dual, 3.0m diameter CSPs, and the widening of Rapids Road to accommodate two-way traffic.

The selection of the “Preferred Solution” is based on the assessment of impacts to the natural, socio-cultural, and economic environments applicable to this project as presented in Section 4.0 and technical information included in Appendix B and C.

Permitting and approvals for the implementation of the “Preferred Solution” would be undertaken in Phase 5 of the MCEA process, under the guidance of the MECP, and the local Conservation Authority having jurisdiction, Quinte Conservation.

### 5.2 Mitigative Considerations for Implementation of the “Preferred Solution”

The dual CSP alternative with the road widening has been selected as the “Preferred Solution” based on its relatively low potential impacts to the natural, socio-cultural, and economic environments. Through the course of this study, aspects of the various environments were identified that need to be considered in future implementation phases of the project.

The following is a general list of concerns identified and preliminary mitigative measures to minimize impacts to the related environments.

- Natural – general recommendations and mitigative measures are noted in the PDR and EIS as part of the technical studies associated with the project as attached in Appendix B and C.
- Cultural Heritage/Archaeology – as recommended by the MCTS, should previously undocumented archaeological resources be discovered, there may be an archaeological site, subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*. If human remains are encountered, all activities must cease immediately and the local police or coroner as well as the Registrar, Burials of the Ministry of Government and Consumer Services must be contacted: <https://www.ontario.ca/feedback/contact-us?id=26922&nid=72703>. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

A monitoring and reporting program is recommended as noted in the EIS (Appendix C).

## 6.0 Consultation Program

This section presents a general summary of the agency, Indigenous community, stakeholder, and public consultation that was undertaken as part of this project's MCEA planning process.

Appendix E includes all relevant items to the consultation record for this project.

### 6.1 Project Contact List & Consultation Summary

A project contact list was developed based on the straightforward nature of this project. The project contacts are provided in the attached Table 2. Project contact information was updated as required during the planning process.

Table 2 also provides a general summary of any responses and actions taken to official communications issued as part of the MCEA process. Copies of consultation correspondence is attached as part of the consultation record.

Prior to the Notice of Study Commencement, pre-consultation with Quinte Conservation (via electronic mail dated March 26, 2019), the MECP and the MNRF was undertaken in letters dated April 12, 2019 (Appendix E).

### 6.2 Notice of Study Commencement

On May 16, 2019, in accordance with Phase 2 – Step 5 of the MCEA, a Notice of Study Commencement was submitted to the MECP, and was posted to the municipal website on May 16, 2019 (Appendix E).

The MECP EA Coordinator provided a response on June 27, 2019.

Further consultation with review agencies/authorities, Indigenous communities, stakeholders, and the public (local area property owners) was undertaken on July 10, 2019.

### 6.3 Notice of Study Completion

On August 2, 2019, in accordance with Phase 2 – Step 5 of the MCEA, a Notice of Study Completion was submitted to the MECP, and was posted to the municipal website on the same date. A copy of the notice and associated letters to the project contact list are included in Appendix E.

## 7.0 Conclusions & Recommendations

Consistent with the requirements of the MCEA process (2015) for a Schedule B undertaking, the Municipality of Tweed has fulfilled its obligations with the study and this report to identify the best solution for replacing the Rapids Bridge, for an anticipated greater than fifty (50) year planning period.

The undertaking included a comprehensive evaluation of alternatives, based on economic, technical, and a consultative approach, with a complementary assessment of potential impacts to the natural, socio-cultural, and economic environments of the focused study area. The undertaking has been documented in the previous sections of this report, including consultation with the public, Indigenous communities, and other potential interested parties.

Based on the above conclusion, it is recommended that the Municipality of Tweed proceed with the implementation of the project at the earliest possible opportunity (MCEA Phase 5), with the priority being public safety. Diligence and care to ensure mitigative measures of the project are undertaken as presented herein and/or as provided in supporting technical studies or reports.

## 8.0 Other Approvals

The Municipality understands that the implementation phase (Phase 5) of the MCEA may require other approvals as required prior to the physical construction aspect of implementation.

Based on consultation with Quinte Conservation, it is understood that the approval authority for the bridge's replacement. Quinte Conservation's permit to proceed with the implementation of the preferred solution is included with the project's technical information attached in Appendix B.

No other permits or approvals to that of Quinte Conservation is understood to be required at this time.

## 9.0 Closing

This report and its findings are governed by the attached statement of service qualifications and limitations (Appendix F).

All respectfully submitted by,

**Greenview Environmental Management Limited**



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Tyler H. Peters, P.Eng.  
Project Director

## 10.0 References

Municipal Engineers Association. Municipal Class Environmental Assessment. 2015.

Statistics Canada, 2019. "Census Profile, 2016 Census". <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3512030&Geo2=POPC&Code2=0957&Data=Count&SearchText=Tweed&SearchType=Begin&SearchPR=01&B1=All&TABID=1>

Municipality of Tweed Website, 2019. <http://www.tweed.ca>. July/August 2019.

Jewell Engineering, 2018 OSIM Bridge Inspection Report. January 24, 2019.

## Tables





**Table 1**  
**Rapids Bridge Replacement**  
**Municipal Class Environmental Assessment**  
**Municipality of Tweed**

**Analysis and Evaluation of Alternatives**

	Alternative 1	Alternative 2		Alternative 3	Alternative 4
	<i>Similar Structure</i>	<i>Culvert Pipe(s) Replacement</i>		Structural Arch	<i>Status Quo / Do Nothing</i>
		Dual 3.0m CSPs	Dual 3.0m CSP Arch		
<b>Natural</b>					
Water Quality	Low	Low	Low	Low	Medium
Water Hydraulics/Hydrologics	Low	Low	Low	Low	High
Wetlands	N/A	N/A	N/A	N/A	N/A
Wildlife Habitat	Medium	Low	Low	Low-Medium	Medium-High
Significant Species / Species at Risk	N/A	N/A	N/A	N/A	N/A
<b>Socio-Cultural</b>					
Land Use	High	Low	Low	High	High
Cultural Heritage	Low	Low	Low	Low	Low
Traffic	Medium	Low	Low	Medium	High
Visual Aesthetics	Low	Low	Low	Low	High
Public Opinion	High	Low	Low	High	High
Public Health and Safety	Low	Low	Low	Low	High
<b>Economic</b>					
Capital Cost	High	Low	Low	Medium	Low
Operating Cost (Maintenance)	Low-Medium	Low	Low	Low	Low
<b>Potential Net Effects</b>	<b>Medium</b>	<b>Low</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>



**Table 2**  
**Rapids Bridge Replacement**  
**Municipal Class Environmental Assessment**  
**Municipality of Tweed**

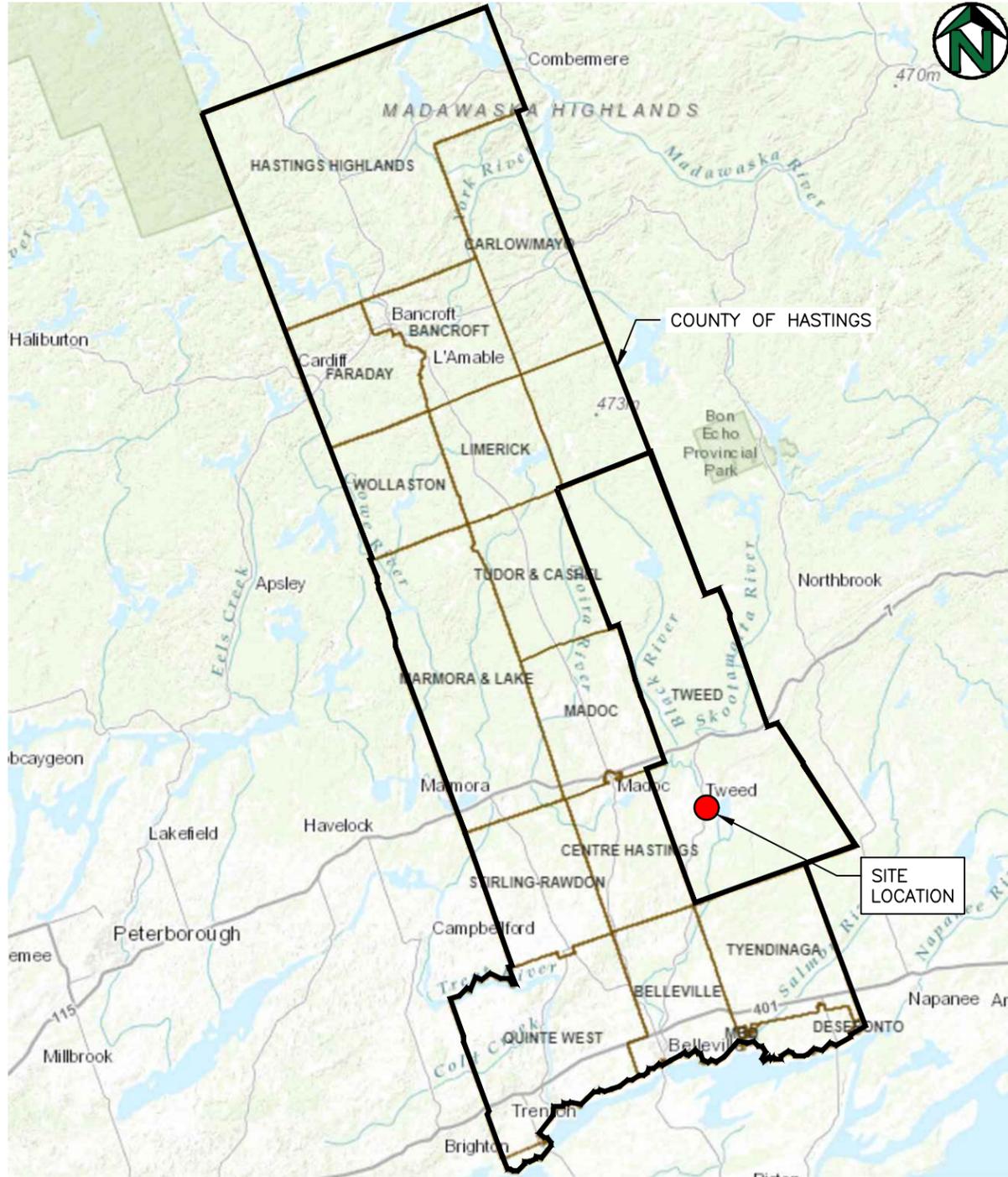
**Project Contact List & Consultation Summary**

Title	First Name	Last Name	JobTitle	Company	Office	Address 1	Address 2	City	Prov	Postal Code	Telephone	Email	Initial Response Date and Comments	Action/Follow-up (if/as required)
<b>Indigenous Communities</b>														
	Kaitlin	Hill	Consultation	Curve Lake First Nation		22 Winookeedaa Road		Curve Lake	Ontario	K0L 1R0	(705) 657-8045	<a href="mailto:KaitlinH@curvelake.ca">KaitlinH@curvelake.ca</a> <a href="mailto:CC:inquiries@williamstreatiesfirstnations.ca">CC:inquiries@williamstreatiesfirstnations.ca</a>	No response.	
	Julie	Kapyrka	Consultation	Curve Lake First Nation								<a href="mailto:JulieK@curvelake.ca">JulieK@curvelake.ca</a> <a href="mailto:CC:inquiries@williamstreatiesfirstnations.ca">CC:inquiries@williamstreatiesfirstnations.ca</a> <a href="mailto:tcowie@hiawathafn.ca">tcowie@hiawathafn.ca</a> <a href="mailto:CC:inquiries@williamstreatiesfirstnations.ca">CC:inquiries@williamstreatiesfirstnations.ca</a>	No response.	
	Tom	Cowie	Lands / Resources Consultation	Hiawatha First Nation		123 Paudash Street		Hiawatha	Ontario	K9J 0E6	(705) 295-4421 Ext: 00	<a href="mailto:CC:inquiries@williamstreatiesfirstnations.ca">CC:inquiries@williamstreatiesfirstnations.ca</a>	Jul11-19: Community would be interested in reviewing archaeological and report.	Jul23-19 - Response to Community provided via email. Refer to consultation record.
	Naomi	Taylor	Executive Assistant to Chief & Council, FNA	Alderville First Nation		11696 Second Line Rd		Roseneath	Ontario	K0K 2X0	(905) 352-2011	<a href="mailto:ntaylor@alderville.ca">ntaylor@alderville.ca</a> <a href="mailto:CC:inquiries@williamstreatiesfirstnations.ca">CC:inquiries@williamstreatiesfirstnations.ca</a>	No response.	
	Chief Kelly	LaRocca	Chief	Mississaugas of Scugog First Nation		22521 Island Road		Port Perry	Ontario	L9L 1B6	(905) 985-3337	<a href="mailto:klarocca@scuqogfirstnation.com">klarocca@scuqogfirstnation.com</a>	No response.	
	Chief R. Donald	Maracle	Chief	Mohawks of the Bay of Quinte		24 Meadow Drive		Tyendinaga Mohawk Territory	Ontario	K0K 1X0	(613) 396-3424	<a href="mailto:rdonm@mbq-tmt.org">rdonm@mbq-tmt.org</a>	No response.	
	Andy	Dufrane	President	MNO Peterborough and District Wapiti Metis Council		340 Charlotte Street		Peterborough	Ontario	K9J 2V9	(705) 876-9806	<a href="mailto:ptbometis@gmail.com">ptbometis@gmail.com</a>	No response.	
				Metis Nation of Ontario		66 Slater Street	Suite 1100	Ottawa	Ontario	K1P 5H1	(613) 798 1488	<a href="mailto:ottawar@metisnation.org">ottawar@metisnation.org</a>	No response.	
<b>Agencies &amp; Authorities</b>														
	Jeremy	Schultz	Administrative Officer	Canadian Environmental Assessment Agency		55 York Street, 6th Floor		Toronto	Ontario	M5J 1R7	(416) 952-1576	<a href="mailto:jeremy.schultz@canada.ca">jeremy.schultz@canada.ca</a>	No response.	
			Head, EA Section, Ontario Region	Environment Canada		867 Lakeshore Road		Burlington	Ontario	L7S 1A1			No response.	
Ms.	Kimberly	Livingstone	MTCS Heritage Planner	Ontario Ministry of Tourism, Culture and Sport	Programs & Services Branch	401 Bay Street	Suite 1700	Toronto	Ontario	M7A 0A7		<a href="mailto:Kimberly.Livingstone@ontario.ca">Kimberly.Livingstone@ontario.ca</a> <a href="mailto:karla.barboza@ontario.ca">karla.barboza@ontario.ca</a>	Jul12-19: Letter response received and further consultation undertaken. Refer to consultation record.	Specific consultation reviewed with MTCS on heritage requirements for bridge. Refer to consultation record.
Ms.	Elizabeth	Spang	District Planner	Ontario Ministry of Natural Resources & Forestry	Peterborough District Office	300 Water St., South Tower, 1st Floor		Peterborough	Ontario	K9J 3C7		<a href="mailto:Elizabeth.Spang@ontario.ca">Elizabeth.Spang@ontario.ca</a>	No response.	
Ms.	Suzanne	Shalla	District Manager	Ontario Ministry of Natural Resources & Forestry	Bancroft District Office	106 Monck Street	PO Box 500	Bancroft	Ontario	K0L 1C0		<a href="mailto:suzy.shalla@ontario.ca">suzy.shalla@ontario.ca</a>	Jul10-19: Advised to contact Elizabeth Spang at MNRF Peterborough.	Noted, included as primary agency contact.
Mr.	Jon	Morrish	Senior Environmental Officer	Ontario Ministry of the Environment Conservation and Parks	Belleville Area Office	345 College Street East		Belleville	Ontario	K8N 5S7		<a href="mailto:jon.morrish@ontario.ca">jon.morrish@ontario.ca</a>	Jul10-19- No additional comments.	
Ms.	Vicki	Mitchell	EA Coordinator	Ontario Ministry of the Environment	Eastern Region	133 Dalton Avenue	PO Box 820	Kingston	Ontario	K7L 4X6		<a href="mailto:vicki.mitchell@ontario.ca">vicki.mitchell@ontario.ca</a>	Jun27-19: Initial letter provided with guidance re MCEA process and Indigenous community contact information.	Performed Indigenous community consultation as directed.
			Curator	Tweed & Area Heritage Centre		40 Victoria Street N		Tweed	Ontario	K0K 3J0	(613) 478-3989	<a href="mailto:tweedheritageinfo@gmail.com">tweedheritageinfo@gmail.com</a>	No response.	
Mr.	Paul	McCoy	Manager, Planning & Regulations	Quinte Conservation Authority		2061 Old Hwy 2	RR 2	BELLEVILLE	Ontario	K8N 4Z2		<a href="mailto:PMcCoy@quinteconservation.ca">PMcCoy@quinteconservation.ca</a>	No response.	Permitting and approval authority. Permit issued on July 23, 2019.

Title	First Name	Last Name	JobTitle	Company	Office	Address 1	Address 2	City	Prov	Postal Code	Telephone	Email	Initial Response Date and Comments	Action/Follow-up (if/as required)
<b>Adjacent Property Owners</b>														
	EDWARD DANIEL JR	GAMBETA				1969 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			Jul17-19: Requested existing rural entrance to laneway near bridge remain.	Jul23-19: Response from GEML provided advising that Municipality intends not change existint entrances near bridge.
	JONATHAN JOSUE	SOSA				35 GILTSPUR DR		NORTH YORK	Ontario	M3L 1M4			No response.	
	JANICE ELIZABETH	BONTER				PO BOX 464		MADOC	Ontario	K0K 2K0			No response.	
	ANTHONY	MARYNISSEN				PO BOX 593		TWEED	Ontario	K0K 3J0			No response.	
	WILLIAM NORMAN	PALMATEER				RR 2		TWEED	Ontario	K0K 3J0			No response.	
	ANTHONY JOHN	BROEK				1748 QUIN MO LAC RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	BRUCE ALLAN	PALMATEER				1306 COUNTRYMAN RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	FAY THERESA	PALMATEER				1778 RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	GEORGE ARTHUR	PALMATEER				RR 1		TWEED	Ontario	K0K 3J0			No response.	
	EDWIN RICHARD	TIDMAN				2442 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	NEV ALICE	BEZAIRE				1151 FRENCH SETTLEMENT RD		TWEED	Ontario	K0K 3J0			Unable to deliver.	Moved
	DAVID NORMAN	BRADLEY				40 RAPIDS CRT	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	WILLIAM GRANT	ELSON				1653 QUIN MO LAC RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	RICHARD WILLIAM GLEN	DERRY				2409 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	LIHUA	CHEN				7 NORBURY CRES		SCARBOROUGH	Ontario	M1P 3J7			No response.	
	ROBERT WILLIAM CUMMING	SIM				753 PALMATEER RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	1978680 ONTARIO INC					PO BOX 587		COLBORNE	Ontario	K0K 1S0			No response.	
	KENNETH RONALD	BEATTIE				1898 CROOKSTON RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	CHARLES MICHAEL	PUTERBOUGH				22 RAPIDS CRT	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MICHAEL	WARNER				1775 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MARK JAMES	BRINSON				31 BRINSON RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	TODD MICHAEL	PREVOST				2655 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MARK JAMES	BRINSON				31 BRINSON RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	GARY	COX				2823A RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	LEONARD GORDON	ROBSON				2718 RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	MELISSA JO-ANN	RANGER				2760 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MYRTLE ELIZABETH	GUNNING				C/O CHARLES & JACQUELINE	2859 10TH LINE E	CAMPBELLFORD	Ontario	K0L 1L0			No response.	
	WANDA FAY	HERRINGTON				118 LOUISA ST		TWEED	Ontario	K0K 3J0			No response.	
	MATHEW GARNET	MCCANN				2571 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MARGARET MARY	PALMATEER				1994 RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	JAMES A	MACDONALD				2840 RAPIDS RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	PATRICK JOHN	MORGAN				2410 RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	DOUGLAS LAURASON	GUNNING				1456 RAPIDS RD		TWEED	Ontario	K0K 3J0			No response.	
	CHARLES JAMES	GUNNING				2859 10TH LINE E		CAMPBELLFORD	Ontario	K0L 1L0			No response.	
	WAYNE WOODROW	WHITE				652 PALMATEER RD	RR 1	TWEED	Ontario	K0K 3J0			No response.	
	MARCIN ADAM	PACH				16 RAPIDS CRT	RR 1	TWEED	Ontario	K0K 3J0			No response.	

## Figures





SOURCE: COUNTY OF HASTINGS GIS, 2019.



SOURCE: GOOGLE EARTH, 2015.



13 Commerce Court  
Bancroft, Ontario  
613.332.0057  
greenview-environmental.ca

No.	DATE	BY	REMARKS
0	AUG02-19	KSD	ISSUED FOR PROJECT FILE

DRAWN BY: KSD	CHECKED BY: THP
DESIGNED BY: KSD	APPROVED BY: THP
SCALE: NTS	DATE: JUL 2019

CLIENT:



PROJECT:

REGIONAL & SITE LOCATION PLAN  
RAPIDS BRIDGE REPLACEMENT  
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
MUNICIPALITY OF TWEED  
COUNTY OF HASTINGS, ONTARIO

PROJECT No:  
169.19.004

FIGURE:  
**1**  
1 OF 1