MUNICIPALITY OF ARRAN-ELDERSLIE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF SOPERS BRIDGE

SCREENING REPORT

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MUNICIPALITY OF ARRAN-ELDERSLIE

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SCREENING REPORT

January 12, 2022

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File No. BR1372

Contents

FIGURES

TABLES

APPENDICES

B. M. ROSS AND ASSOCIATES LIMITED
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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Municipality of Arran-Elderslie initiated a Class Environmental Assessment process in September 2020 to identify the best strategy for resolving deficiencies with key components of the bridge spanning Tara Creek along Sideroad 20, southwest of the community of Tara. The study process followed the procedures set out in the *Municipal Class Environmental Assessment* (Class EA) document, dated June 2000, as amended in 2007, 2010 & 2015. B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the proponent.

The Class EA investigation involved an evaluation of options to resolve problems identified with Sopers Bridge, which resulted in recommendations for replacement of the crossing. The framework of the study built upon the recommendations of recent engineering inspections, which identified significant problems with deterioration of key bridge components. To resolve these problems, the proponent is proposing to replace the existing structure with a concrete slab girder bridge, designed to accommodate two lanes of traffic.

The purpose of this report is to document the planning and design process followed during the Class EA investigation. The report includes a summary of the deficiencies with the existing structure, as well as a description of the alternative solutions considered to resolve the identified problems. A preferred alternative is also presented and the decision-making process leading to the selection of this option is documented.

1.2 Environmental Assessment Process

Municipalities must adhere to the *Environmental Assessment Act* of Ontario (EA Act) when completing road, sewer or waterworks activities. The Act allows the use of Class Environmental Assessments for most municipal projects. A Class EA is an approved planning document that describes the process that proponents must follow in order to meet the requirements of the EA

Act. The Class EA approach allows for the evaluation of alternatives to a project, and alternative methods of carrying out a project, and identifies potential environmental impacts. The process involves mandatory requirements for public input. Class EA studies are a method of dealing with projects which have the following important characteristics in common:

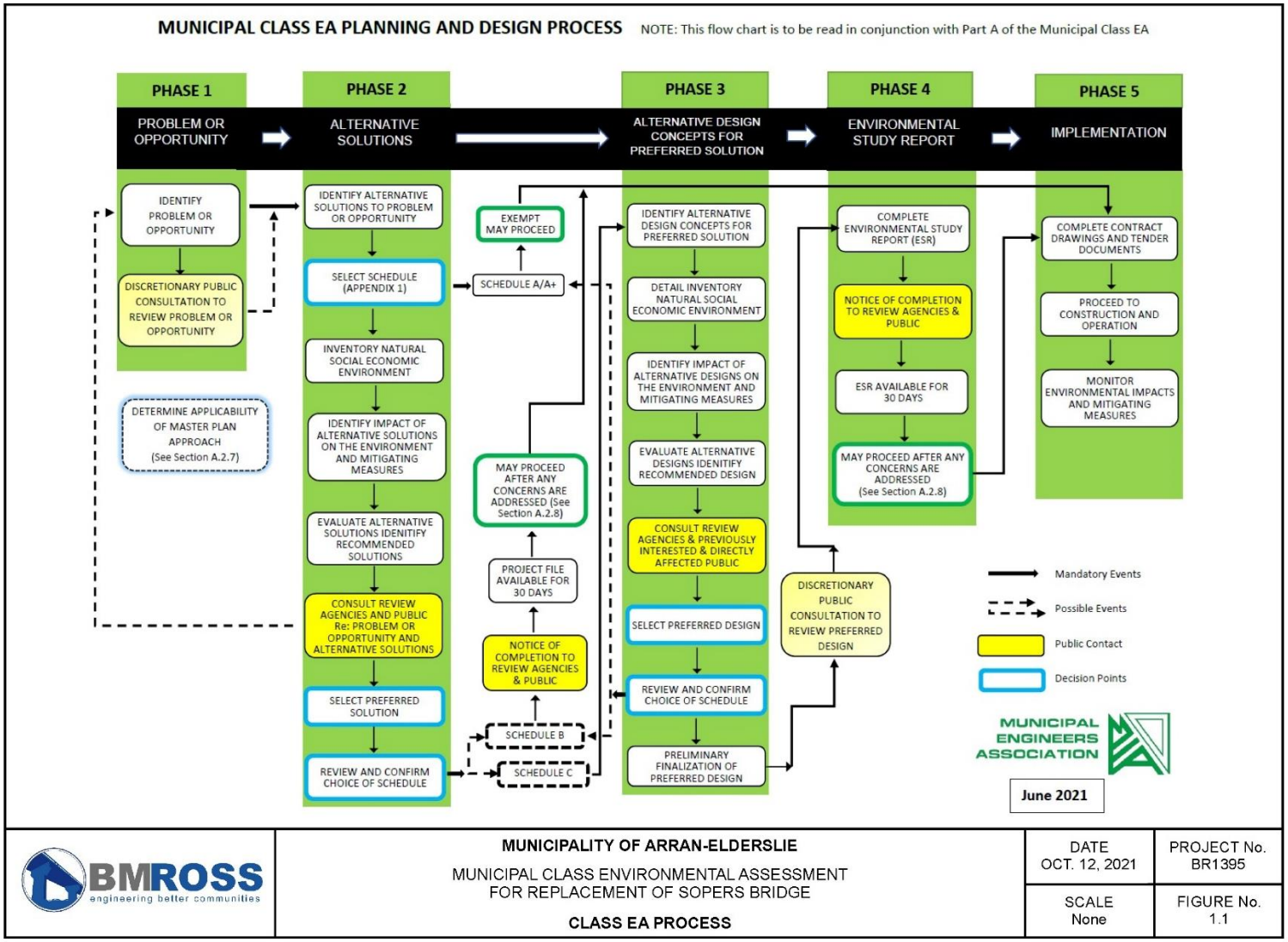
- They are recurring;
- They are usually similar in nature;
- They are usually limited in scale;
- They have a predictable range of environmental effects;
- They are responsive to mitigating measures.

If a Class EA planning process is followed, a proponent does not have to apply for formal approval under the EA Act. The development of this investigation has followed the procedures set out in the Class EA. Figure 1.1 presents a graphical outline of the procedures.

The Class EA planning process is divided into the following phases:

- Phase 1 - Problem identification;
- Phase 2 - Evaluation of alternative solutions to the defined problems and selection of a preferred solution;
- Phase 3 - Identification and evaluation of alternative design concepts in selection of a preferred design concept;
- Phase 4 - Preparation and submission of an Environmental Study Report (ESR) for public and government agency review;
- Phase 5 - Implementation of the preferred alternative and monitoring of any impacts.

Figure 1.1 – Class EA Process



1.3 Classification of Project Schedules

Projects are classified to different schedules according to the potential complexity and the degree of environmental impacts that could be associated with the project. There are three levels of schedules:

- Schedule A - Projects that are approved with no need to follow the Class EA process;
- Schedule A+ – Projects that are pre-approved but require some form of public notification.
- Schedule B – Projects that are approved following the completion of a screening process that incorporates Phases 1 and 2 of the Class EA process, as a minimum;
- Schedule C – Projects that are approved subject to following the full Class EA process.

The Class EA process is self-regulatory and municipalities are expected to identify the appropriate level of environmental assessment based upon the project they are considering.

1.4 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the Class EA, the requirement to prepare an individual environmental assessment is waived. However, if it is found that a project going through the Class EA process has significant environmental impacts, a person/party may request that the Municipality of Arran-Elderslie voluntarily elevates the project to a higher level of environmental assessment. In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights.

2.0 CLASS EA FRAMEWORK

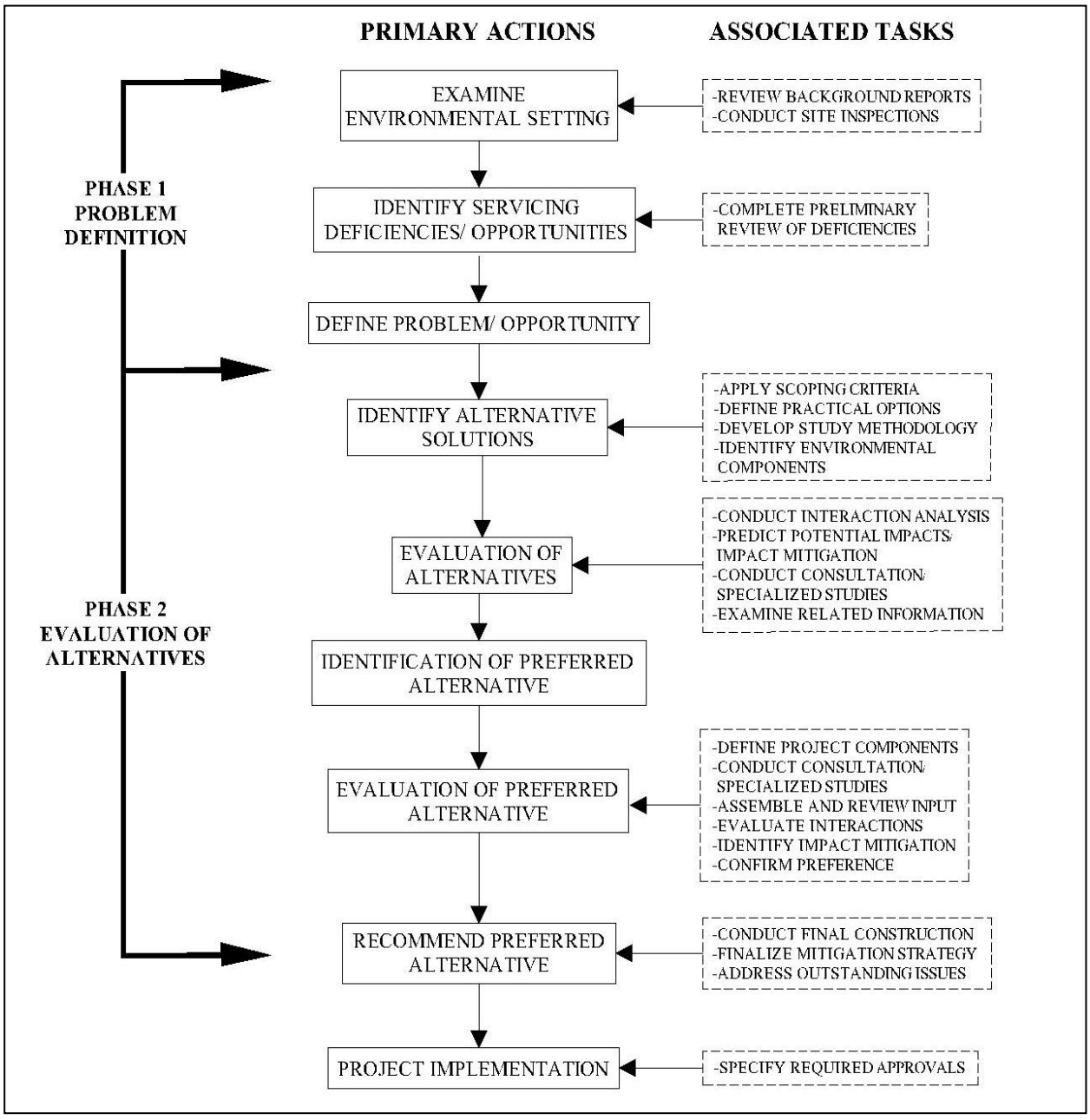
2.1 General Approach

The Municipality initiated a formal Class EA process in September 2020 to define and evaluate impacts associated with replacement of Sopers Bridge which spans Tara Creek southwest of the community of Tara. The associated investigations followed the environmental screening process prescribed for Schedule B projects under the Class EA document. In general, the screening process required to conduct a Class EA incorporates these primary components:

i. Background Review and Problem Definition
ii. Identification of Practical Solutions
iii. Evaluation of Alternatives
iv. Project Recommendations and Implementation

The following sections of this report document the findings for each stage of the Class EA. Figure 2.1 illustrates the general tasks associated with the Schedule B screening process.

Figure 2.1 - Class EA Schedule B Screening Process and Related Tasks



2.2 Background Review

A background review was carried out to characterize the project area and to identify those factors that could influence the selection of alternative solutions to the defined problems.

The background review for this Class EA process incorporated these activities:

- A general description of the study area and the Municipality of Arran-Elderslie.
- Assembly of information on the environmental setting and existing structure.
- Review of previous studies and reports pertaining to the project study area.
- Preliminary assessment of the identified deficiencies and potential remediation.

A desktop analysis of the project setting was completed as part of the background review. The following represent the key sources of information for this analysis:

- Ontario Structure Inspection Manual (OSIM) Report. B. M. Ross and Associates.
- Grey Sauble Conservation Authority. Website and Mapping Services.
- Ministry of Natural Resources & Forestry. Natural Heritage Information Centre (website).
- Municipality of Arran-Elderslie. Files and discussions with staff.
- Government of Canada. Species at Risk Public Registry website.

2.3 Environmental Setting

2.3.1 Municipality of Arran-Elderslie

The Municipality of Arran-Elderslie is located in the northwest portion of Southern Ontario at the easterly extent of Bruce County, just south of the Bruce Peninsula. The Municipality is bounded to the west by the Municipality of Saugeen Shores, to the south by the Municipality of Brockton, by Grey County to the east and by the Town of South Bruce Peninsula to the north. The project study area is situated in the northeast portion of the Municipality within the former Township of Arran, southeast of the community of Tara. Figure 2.2 shows the location of Arran-Elderslie and the project study area. The study area location is illustrated in more detail on Figure 2.3.

Arran-Elderslie was formed in January 1999, when the Townships of Arran and Elderslie, along with the Villages of Paisley and Tara and the Town of Chesley amalgamated to form the Municipality of Arran-Elderslie. The new Municipality has a population of more than 6,800 permanent residents and a land base of approximately 460 km^2. In general, Arran-Elderslie is comprised of three urban centres (being Paisley, Tara and Chesley), and a number of small rural settlements dispersed throughout a predominately rural landscape. Photos of the project study area found on Figure 2.4.

Figure 2.2 – General Location Plan

Figure 2.3 - Project Study Area

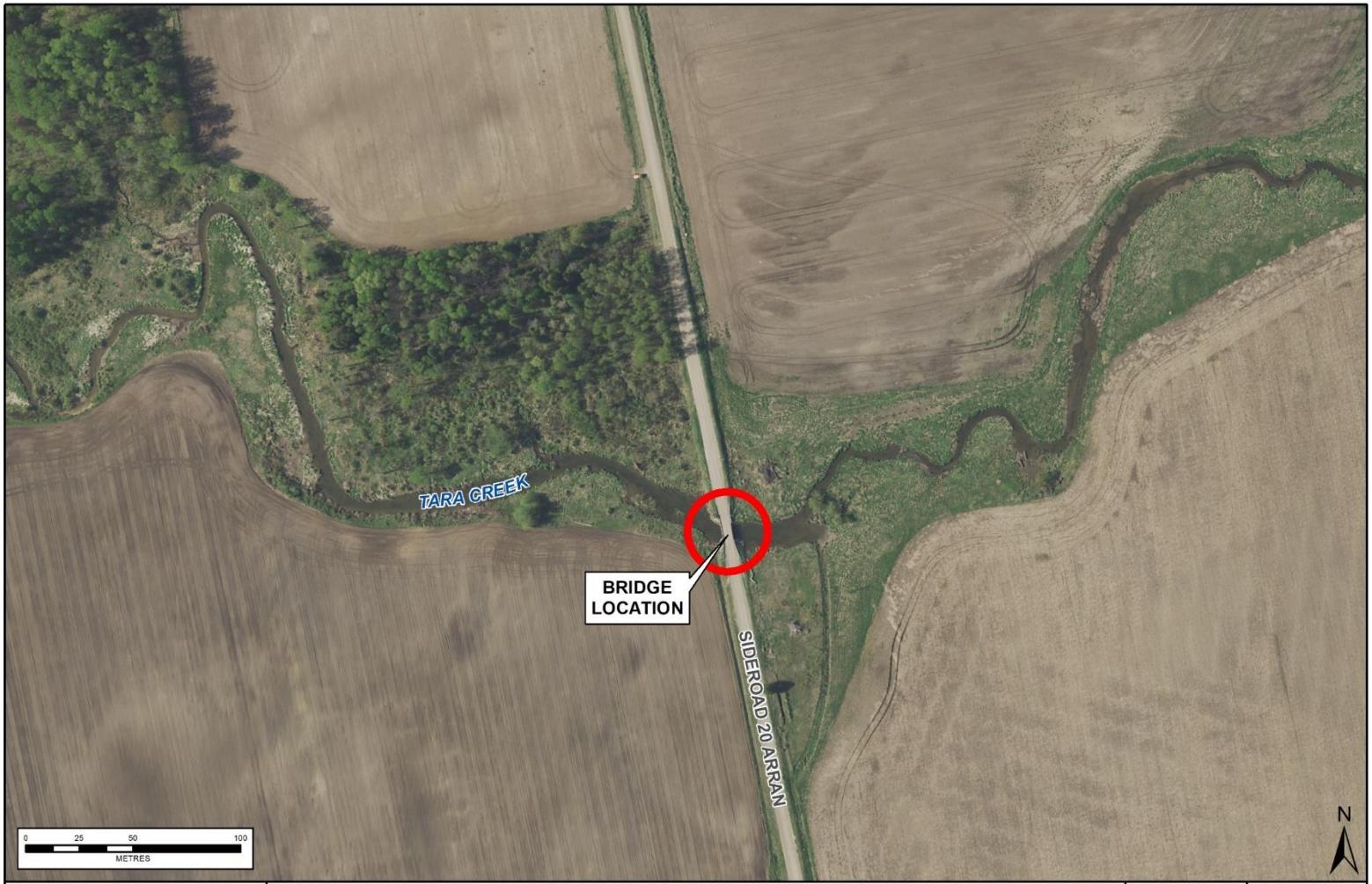


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Figure 2.4 - Bridge Photos

View of structure on Sideroad 20, looking north (December 3, 2012) ▲

West elevation of bridge (December 12, 2012) ▲

Tara Creek, upstream of bridge (September 20, 2020) ▲

Beaver Dam located downstream of bridge (September 20, 2020) ▲

2.3.2 Project Study Area Description

Sideroad 20 is a gravel-surfaced local road that extends in a north-south orientation approximately 0.8 km northerly from Concession Road 4, near the community of Tara. The existing structure is located between Bruce County Road 17 and Concession Road 4, southwest of the community of Tara. Sideroad 20 experiences relatively low traffic volumes due to the presence of few permanent residences and its single lane status.

The existing structure spanning Tara Creek is a steel beam bridge situated between Lots 20 and 21, Concession 5 in the former Township of Arran. The bridge has a span of 7.3m with a 10° skew. The existing deck has a width of 4.8 m as measured from the outside edge of the concrete curbs.

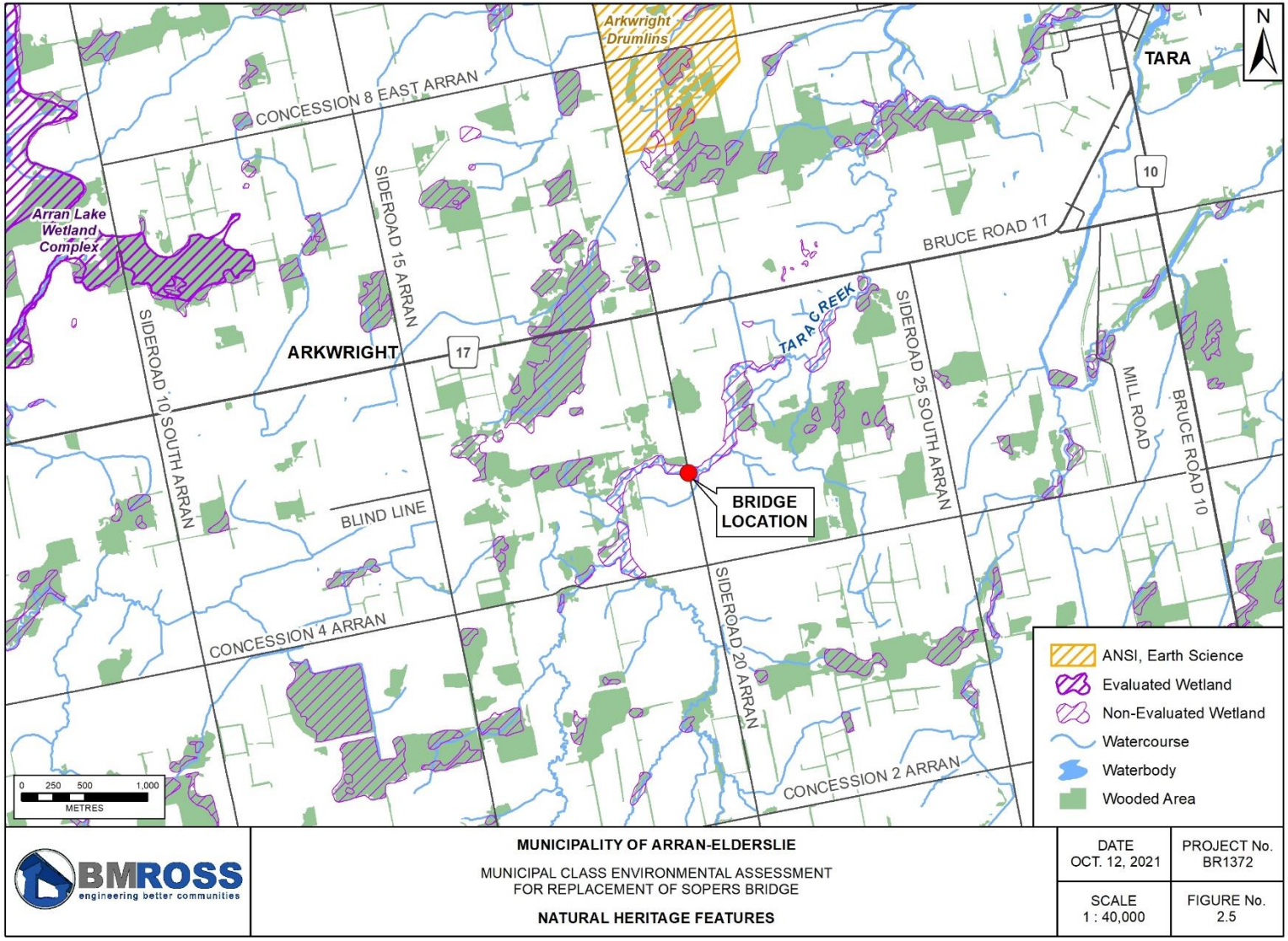
The bridge site spans Tara Creek, which is a tributary of the Sauble River. The Sauble River is located within the jurisdiction of the Grey Sauble Conservation Authority and is the largest river system in the watershed.

At the bridge site the creek is wide, slow flowing and supports aquatic vegetation characteristic of wetlands including cattails, water lilies and bulrushes as shown in the photos above. A beaver dam is located approximately 20 meters downstream of the bridge. Riparian vegetation is composed of common grasses. The creek is characterized as having a coldwater thermal regime and supports Brook Trout populations that rely on cold, highly oxygenated environments to survive. Baitfish, including Creek Chub, Bluntnose Minnow, Common Shiner, Golden Shiner and Northern Redbelly Dace, as well as a top predator, the Northern Pike, are also present within the system. Other fish species present include Central Mudminnow, Pumpkinseed, Sunfish, Rock Bass and White Sucker.

2.3.3 Significant Natural Areas

The project study area is located within the Sauble River watershed, which is managed by the Grey Sauble Conservation Authority. As discussed, the study area is located within a predominantly rural landscape and is generally surrounded by actively farmed agricultural lands. In the immediate vicinity of the bridge site, there are several naturalized areas including a wooded area to the north. A review of sensitive natural heritage features in the vicinity of the project area was carried out though the course of the Class EA process. The Ontario Ministry of Natural Resources' Natural Heritage Information Centre (NHIC) database was consulted to verify the current status of significant features in the vicinity of the project. Utilizing a jurisdictional search of the project study area, four significant natural areas were identified within a 10 km radius of the site. Figure 2.5 illustrates natural features located within the vicinity of the bridge site.

Figure 2.5 - Natural Heritage Features



2.3.4 Areas of Natural and Scientific Interest (ANSI)

The Ministry of Natural Resources and Forestry (MNRF) has identified significant natural features located within each eco-district that are representative of significant terrestrial and geologic features within the landscape, such as wetlands, woodlands and geologic formations.

There are four Provincially Significant Earth Science Areas of Natural and Scientific Interest (ANSI) located within 10km of the bridge site. Earth science ANSI's represent the best example of glacial landforms within the eco-district. No impacts to these features are anticipated as a result of the current project.

Arkwright Drumlins: The Arkwright Drumlins is a Provincially Significant Earth Science ANSI located approximately 3km north of the bridge site and 3km west if the village if Tara. Drumlins are oval shaped hills composed of deposited material formed during glacial retreat.

Tara Moraine and Esker: The Tara Moraine and Esker is a Provincially Significant Earth Science ANSI located approximately 6km northeast of the bridge site. Moraines are large unconsolidated deposits of boulders, till, gravel, sand and clay discarded from the melting ice. The Tara moraine represents the first in a series of 5 moraines that exist between Paisley and Wiarton indicating brief pauses of the ice front.

Tara Floodplain: The Tara Floodplain is a Provincially Significant Earth Science ANSI located approximately 5km southeast of the bridge site. Floodplains are formed during high water events where water exceeds the river's capacity and floods over the banks into the surrounding land areas.

Dobbinton Esker: The Dobbinton Esker is a 127 ha Provincially Significant Earth Science ANSI located approximately 7.5km southeast of the bridge site and east and southeast of the community of Dobbinton. Formed during the last ice age, eskers are described as long, meandering ridges of sand and gravel deposited by glacial streams in the ice.

2.3.5 Provincially Significant Wetlands

Arran Lake Wetland Complex

The Arran Lake Wetland Complex is a Provincially Significant Wetland located approximately 4 km northwest of the study area limits. It is described as a lacustrine wetland because it is associated with Arran Lake, which is also a popular recreational area. The wetland complex is over 1100 ha in size and is dominated by marsh. No impacts to this feature are anticipated.

2.3.6 Aquatic Habitat (Sauble River)

The bridge site spans Tara Creek, which is a tributary of the Sauble River. The Sauble River is located within the jurisdiction of the Grey Sauble Conservation Authority and is the largest river system in the watershed. The Grey Sauble watershed covers 3146 km² of land over eight

municipalities in Grey and Bruce Counties. In 2018, the Grey Sauble Conservation Authority assessed the health of the watersheds based on surface water quality, forest and wetland conditions. The Sauble South watershed has poor forest cover and wetland conditions and good surface water conditions. Appendix 'A' includes a copy of the Sauble River watershed report card.

2.3.7 Species at Risk

An evaluation for the presence of significant species and their associated habitats within the study area has been incorporated into the project planning process. A review of available information on species and habitat occurrences determined that the study area may contain species and/or associated habitats that are legally protected under Provincial and Federal species at risk legislation.

The protection for species at risk and their associated habitats is directed by the following federal and provincial legislation:

- The Federal *Species at Risk Act, 2002* (SARA) provides for the recovery and legal protection of listed wildlife species and associated critical habitats that are extirpated, endangered, threatened or of special concern and secures the necessary actions for their recovery on lands not federally owned, only aquatic species, and bird species included in the Migratory Bird Convention Act (1994), are legally protected; and
- The Provincial *Endangered Species Act, 2007* (ESA) provides legal protection of endangered and threatened species and their associated habitat in Ontario. Under the legislation, measures to support their recovery are also defined.

Based on the information available for the occurrence of species at risk and their associated habitats from the following sources, a summary of federally and provincially recognized species with the potential to be present within the project study area are listed in Table 2.1:

- Natural Heritage Information Centre, Make a Natural Heritage Map (Ministry of Natural Resources and Forestry).

NHIC data was assessed for the squares having coverage over the study area. These include NHIC 1km grids: 17MK8421 and 17MK8521.

Table 2.1 - Species at Risk within Study Area

Type	Species Common Name	Species Scientific Name	Federal Status	Provincial Status
Bird	Bobolink	*Dolichonyx oryzivorus*	Threatened	Threatened
	Eastern Meadowlark	*Sturnella magna*	Threatened	Threatened
	Loggerhead Shrike	*Lanuis ludovicianus*	Endangered	Endangered
Reptiles and Amphibian	Snapping Turtle	*Chelydra serpentina*	Special Concern	Special Concern
	Midland Painted Turtle	*Chrysemys picta marginata*	Special Concern	Special Concern

2.3.8 Source Water Protection

The project study area is located within the Grey Sauble Source Protection Area. Urban settlement areas located within the Municipalities of Arran-Elderslie are currently serviced by municipal well supplies. In accordance with Source Water Protection guidelines, Well Head Protection Areas (WHPA) have been mapped which identify vulnerable groundwater areas associated with each well supply. The Village of Tara is the only urban settlement area located near the project study area. The project study area is not located within the WHPA for Tara's well supply or other vulnerable area including Highly Vulnerable Aquifers (HVA) and Significant Groundwater Recharge Areas (SGRA). WHPA, HVA and SGRA surrounding the project study area are illustrated in Figure 2.6.

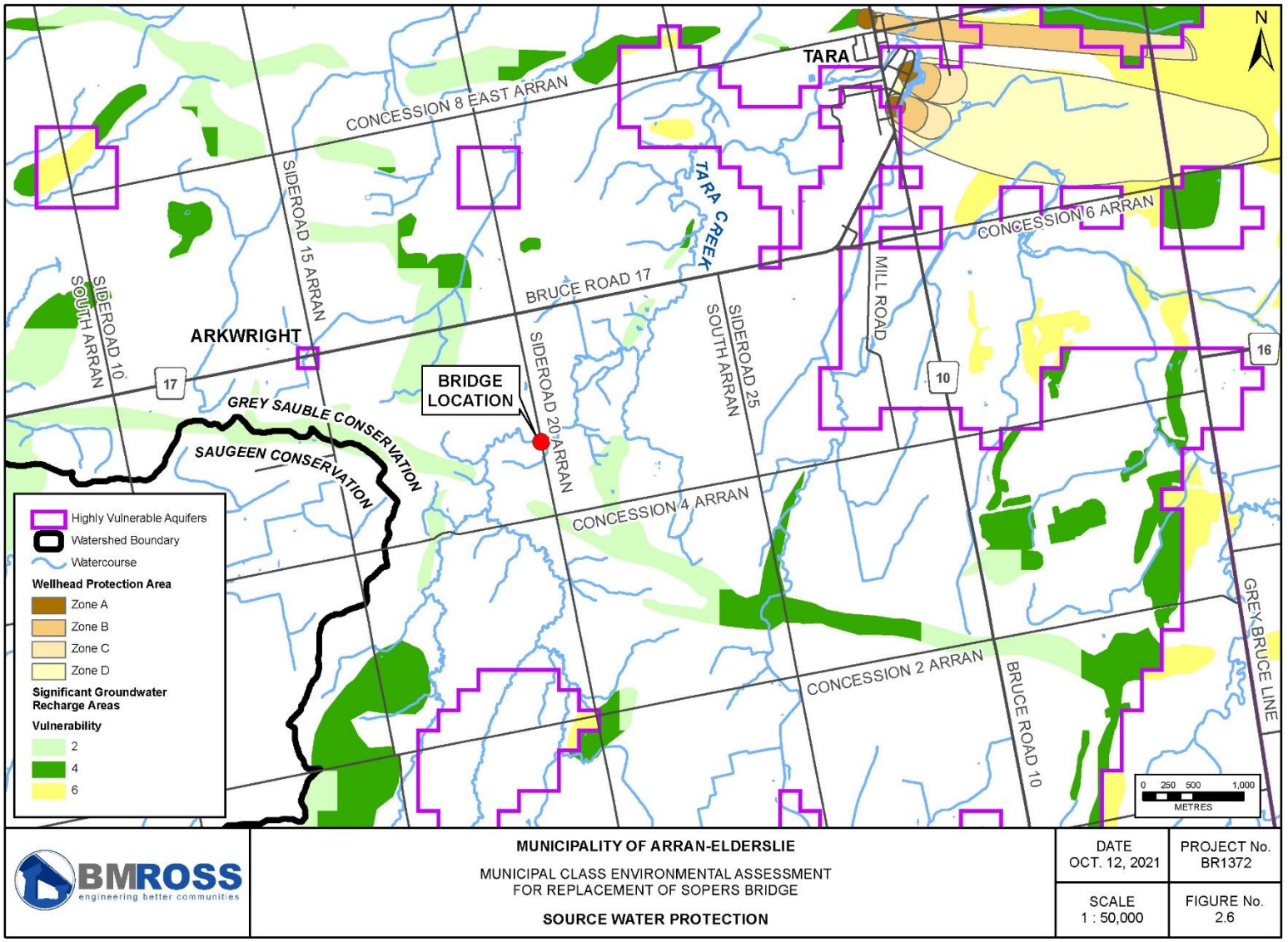
At the bridge site, the rural properties surrounding the crossing are serviced by individual private well supplies. The closest residence is located approximately 830 meters northwest of the bridge; impacts to the adjacent wells are therefore not anticipated.

2.3.9 Climate Change

As part of the Class Environmental Assessment process, the impacts associated with climate change need to be evaluated. Some of the phenomena associated with climate change that will need to be considered include:

- Changes in the frequency, intensity and duration of precipitation, wind and heat events.
- Changes in soil moisture.
- Changes in sea/lake levels.
- Shifts in plant growth and growing seasons.
- Changes in the geographic extent of species ranges and habitat.

Figure 2.6 - Source Water Protection



There are two approaches that can be utilized to address climate change in project planning. These are as follows:

1) Reducing a project's impact on climate change (climate change mitigation).
    a. Impact of greenhouse gas emissions related to the project
    b. Are there alternative methods to completing the project that would reduce any adverse contributions to climate change?

2) Increasing the project's and local ecosystem's resilience to climate change (climate change adaptation).
    a. How vulnerable is the project to climate-related severe events.
    b. Are there alternative methods of carrying out the project that would reduce the negative impacts of climate change on the project?

Through the evaluation of alternatives phase of the Class EA, a consideration of each of these approaches will be completed and included in the final determination of the preferred approach to completing the project.

2.4 Socio-Economic Environment

2.4.1 Provincial Policy Statement

The Provincial Policy Statement (2020) was issued under Section 3 of *Planning Act* and provides policy direction on matters of provincial interest. Land use planning decisions must be consistent with the policy statements. A number of the policies contained within the PPS have relevance to the current project. These are as follows:

Section 1.6 Infrastructure and Public Service Facilities

1.6.1 Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs.

Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning and growth management so that they are:

a) financially viable over their life cycle, which may be demonstrated through asset management planning; and

b) available to meet current and project needs.

1.6.2 Planning authorities should promote green infrastructure to complement infrastructure.

1.6.3 Before consideration is given to developing new infrastructure and public service facilities:

a) the use of existing infrastructure and public service facilities should be optimized; and

b) opportunities for adaptive re-use should be considered, wherever feasible.

Section 1.6.7 Transportation Systems

1.6.7.1 Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.

1.6.7.2 Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.

1.6.7.3 As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.

Section 2.1 Natural Heritage

2.1.1 Natural features and areas shall be protected for the long term.

2.1.2 The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E1, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

2.1.4 Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E1; and

b) significant coastal wetlands.

2.1.5 Development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;

b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;

c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;

d) significant wildlife habitat;

e) significant areas of natural and scientific interest; and

f) coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

2.1.9 Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.

Section 2.2 Water

2.2.1 Planning authorities shall protect, improve or restore the quality and quantity of water by:

a) using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;

b) minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;

c) evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level;

d) identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;

e) maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;

f) implementing necessary restrictions on development and site alteration to:

1. protect all municipal drinking water supplies and designated vulnerable areas; and

2. protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions;

g) planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;

h) ensuring consideration of environmental lake capacity, where applicable; and

i) ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

2.2.2 Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored.

Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.

Section 3.1 Natural Hazards

3.1.3 Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.

3.1.4 Despite policy 3.1.2, development and site alteration may be permitted in certain areas associated with the flooding hazard along river, stream and small inland lake systems:

a) in those exceptional situations where a Special Policy Area has been approved. The designation of a Special Policy Area, and any change or modification to the official plan policies, land use designations or boundaries applying to Special Policy Area lands, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources and Forestry prior to the approval authority approving such changes or modifications; or

b) where the development is limited to uses which by their nature must locate within the floodway, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows.

3.1.7 Further to policy 3.1.6, and except as prohibited in policies 3.1.2 and 3.1.5, development and site alteration may be permitted in those portions of hazardous lands and hazardous sites where the effects and risk to public safety are minor, could be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:

a) development and site alteration is carried out in accordance with floodproofing standards, protection works standards, and access standards;

b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;

c) new hazards are not created and existing hazards

d) no adverse environmental impacts will result.

Section 3.2 Human-Made Hazards

3.2.2 Sites with contaminants in land or water shall be assessed and remediated as necessary prior to any activity on the site associated with the proposed use such that there will be no adverse effects.

3.2.3 Planning authorities should support, where feasible, on-site and local re-use of excess soil through planning and development approvals while protecting human health and the environment.

2.4.2 Adjacent Land Uses

Land uses located adjacent to the bridge site include naturally vegetated and forested areas, actively cultivated agricultural lands and rural residential uses. Rural areas within the Municipality of Arran-Elderslie support a variety of facilities such as schools, places of worship and cemeteries for the surrounding Mennonite community that rely on horse-drawn vehicles as their primary means of transportation. The Mennonite community relies on local roads, such as Sideroad 20, to access these facilities on a daily basis. The Glad Tidings Mennonite Fellowship Church and the North Bend Old Order Mennonite Meetinghouse are examples of facilities located within the surrounding area that support the Mennonite community. Neither facility is located on Sideroad 20, therefore impacts associated with replacement of the crossing are not anticipated.

2.4.3 Land Use Planning

The Official Plan for Arran-Elderslie only applies to the urban areas of Paisley, Chesley and Tara. For rural areas, such as the project study area, the Bruce County Official Plan has jurisdiction.

Accordingly, the County of Bruce Official Plan (OP) and Municipality of Arran-Elderslie Zoning By-Law (# 36-09) were consulted to determine land use designations in the project study area. Agricultural lands located adjacent to the bridge site are designated as Agricultural in the County of Bruce Official Plan and A1: General Agriculture in the Zoning By-Law. The area buffering Tara Creek from surrounding land is designated as Hazard in the County of Bruce Official Plan and EP: Environmental Protection in the Zoning By-Law. Copies of relevant planning documents are included within Appendix 'B'. Several policies within the County of Bruce Official Plan and Municipality of Arran-Elderslie Zoning By-Law (# 36-09) have relevance to the current project as follows:

Section 4.6 – Transportation, in The County of Bruce Official Plan states the following pertaining to roads:

4.6 TRANSPORTATION
4.6.2 General Policies
1. County Council supports the planning, design and operation of a fully integrated County transportation network composed of Provincial highways, County roads, local roads, scenic roads, railways, recreational trails, airports and harbours.

Section 3 of the Municipality of Arran-Elderslie Zoning By-Law (# 36-09) states the following:

Section 3 - General Provisions For All Zones

3.1 Permitted Uses
3.1.1 Services and Utilities
1. Nothing contained in this By-law shall prevent the Corporation; any agency or department of the Federal, Provincial or County Government; any utility company; any railway company or any local or County Board or Commission from:

a) Installing a watermain, sanitary sewer main, sewage or water pumping station, storm sewer main, gas main, electric power transformer/distribution station, transmission tower, communications tower, pipeline, overhead or underground electric line, cable service, or telephone line, road or street subject to there being no outdoor storage of goods, materials or equipment in any yard.

2.5 Cultural Environment

2.5.1 Archaeological Resources

Based upon input received from the Ministry of Heritage, Sport, Tourism and Culture Industries, an assessment of potential impacts to archaeological resources, built heritage resources, and cultural heritage landscapes, must be undertaken in conjunction with the Class Environmental Assessment process.

To aid in this review, the Ministry provides screening tools to complete for each of these categories. Copies of the Screening Check Lists are included within Appendix 'C'. Based upon the results of the Archaeological Potential check list, a Stage 1 & 2 Archaeological Assessment may need to be completed for the project if the recommended improvements involve disturbance of native soils.

2.5.2 Built Heritage Resources

Due to the age of the structure (constructed in 1940), completion of a Cultural Heritage Evaluation Report (CHER) is required to assess the cultural heritage value of the crossing and to identify potential impacts associated with the proposed project. In March 2021, AECOM was retained to complete the assessment.

The determination of cultural heritage value is defined through Ontario Regulation 9/06 of the *Ontario Heritage Act.* Based upon the regulation, various aspects of the structure are examined to determine if they have value within the following categories:

- Design value or physical value;
- Historic value or associative value;
- Contextual value.

Sopers Bridge was examined based on the above criteria and was determined to have no design or physical value as it is a slab on I-beam girder bridge. This type of bridge was a common type in the second half of the 20th century and there are many still present throughout the Municipality of Arran-Elderslie. Based on background research and the field review, it was determined that

the current bridge replaced an earlier concrete slab bridge that was built in the 1940s and components of the earlier structure were used to construct the current structure. The bridge does not represent a rare, unique or early example of this style of structure.

The crossing was determined to have no historic value or associative value and no contextual value was identified as the bridge is almost invisible within the landscape except for its railings and does not serve as a landmark feature. The following statement of Cultural Heritage Value was established for the structure following completion of the assessment:

"Based on the results of background historical research, field review, and application of criteria from Ontario Regulation 9/06 of the *Ontario Heritage Act*, Structure A25, Soper's Bridge, was not determined to demonstrate sufficient cultural heritage value to merit designation under the *Ontario Heritage Act*. Accordingly, no Statement of Cultural Heritage Value or Interest, or list of Heritage Attributes has been prepared for Structure A25 in this CHER. This CHER serves as sufficient documentation of the structure, and no further cultural heritage reporting is required."

Recommendations

The Class EA process is evaluating a range of alternatives associated with the bridge crossing including repair/rehabilitation or replacement of the crossing. Should replacement be selected as the preferred alternative, then any defining heritage features of the bridge would be lost. Given that no significant heritage features were identified, the loss of the bridge would not result in an extensive loss of cultural heritage value or interest.

A copy of the heritage impact assessment is included within Appendix 'C'.

2.6 Identified Structural Deficiencies

Recent engineering inspections of the structure have identified significant concerns with the structural condition of the bridge. These deficiencies are identified within the Ontario Structural Inspection Manual (OSIM) inspection report, conducted by BMROSS in April 2017. A copy of the report is included within Appendix 'D':

2.6.1 Summary of Deficiencies

The following represent the primary deficiencies and safety concerns associated with the existing crossing:

- Steel Flex Beam on wood post in poor condition
- Top of flanges have scale rusting and are in poor condition
- Capacity - single lane crossing
- Abutments have heavy scale rusting and are in poor condition

Corrosion on abutment ↑

Beam Corrosion ↑

West Girder off Plumb ↑

2.6.2 Preliminary Assessment of Deficiencies

BMROSS, in conjunction with the Municipality of Arran-Elderslie, assessed the nature and scope of the problems associated with the structure, taking into consideration the findings of recent engineering inspections. From this assessment it was recommended that, given the extent and significance of the identified deficiencies, the bridge should be subject to complete replacement.

3.0 CLASS EA PROCESS

3.1 Identification of Problem/Opportunity

The first phase of the Class EA process includes the definition of the problem or opportunities, which need to be addressed. Based on the discussion above, the following problem/opportunity statement has been identified in conjunction with this project:

> *Key components of Sopers Bridge, which spans Tara Creek along Sideroad 20, exhibit advanced deterioration, which if not remediated, may have an adverse impact on the safe operation of the structure.*

The bridge replacement plan considered during the preliminary engineering review called for replacement of the existing structure with a two lane beam bridge. The existing crossing is classified as a single lane bridge, therefore this work requires additional environmental

assessment under the terms of the Class EA document. The proponents initiated the required Class EA investigation in September 2020. The investigation followed the planning and design process set out for Schedule B activities. Schedule B projects are approved subject to completion of a screening process which incorporates Phases 1 and 2 of the Class EA process (i.e., Problem Identification, Evaluation of Alternative Solutions). The purpose of the screening process is to identify potential environmental impacts related to the proposed bridge replacement and to plan for appropriate mitigation of any identified impacts.

3.2 Identification of Alternative Solutions

3.2.1 General

The second phase of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problems. The evaluation of alternatives is conducted by examining the technical, economic, and environmental considerations associated with implementing any alternative. Mitigation measures that could lessen environmental impacts are also defined. A preferred solution or solutions is then selected.

3.2.2 Stage 2: Identification of Practical Alternatives

The purpose of the second stage of this investigation was to define alternative solutions to the identified problems in a manner that minimizes potential environmental impacts.
A limited number of practical solutions to the defined problems were identified at the outset of this Class EA process. The alternatives, stated below, build upon the findings of the engineering review discussed previously in this report.

Alternative 1 - Replacement of the Existing Bridge. This alternative would involve the removal of the existing structure and its replacement with either a steel beam or hollow core slab bridge design.

Alternative 2 - Repair of the Existing Structure. This option would involve a series of repairs to the existing bridge which, when completed, would remediate the structural deterioration identified by recent engineering inspections.

Alternative 3 - Do Nothing. This option proposes that no improvements or changes be made to address the identified problem. The result would be eventual structural failure of the bridge to the point where even temporary repairs could not be made to keep it operating and the bridge becomes too dangerous to leave open. During the Class EA planning and design process, the “Do Nothing” alternative may be implemented at any time prior to the commencement of construction. A decision to “Do Nothing” would typically be made when the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

3.3 Stage 3: Evaluation of Alternatives

The third stage of the investigation involved the evaluation of the identified alternatives. The purpose of this stage was to examine the potential environmental impacts associated with the

proposed works and to examine potential mitigation for any identified impacts. The evaluation stage generally involved the following activities:

- Preliminary technical review of alternatives;
- Selection of a preferred option (preliminary);
- Public consultation;
- Consultation with review agencies;
- Selection of a preferred option (final).

3.4 Preliminary Review of Alternatives

3.4.1 Summary of Required Works

A preliminary engineering analysis was conducted to determine the works required to implement each of the identified study alternatives. Table 3.1 summarizes the findings of that assessment.

Table 3.1 - Primary Components of the Identified Alternatives

Alternative	Required Works
Alternative 1	- Replace the existing structure with a steel beam or slab girder bridge in the same alignment, spanning Tara Creek. The replacement structure would be wider than the existing crossing (4.6m road width). - The bridge would be designed in accordance with established standards of the *2019 version of the Canadian Highway Bridge Design Code* and the *Ontario Provincial Standard Specifications* (OPSS) Division 9, Structures. - New abutments would be constructed in the same general location as the existing, outside of the limits of the channel. - Rip rap erosion protection be placed around abutments to edge of channel.
Alternative 2	- Repair the existing structure as much as feasible to meet minimum safety standards or increased load postings, although not possible to meet width design requirements. - Patch repair delaminated deck areas. - Replace the existing railings with a solid barrier wall. - Install rock rip rap erosion protection around existing abutments.
Alternative 3	- No additional works proposed.

3.4.2 Environmental Considerations

Section 3.2 of this report listed the alternative solutions that were identified to resolve deficiencies with the existing bridge. As part of the evaluation process, it is necessary to assess what effect each option may have on the environment and what measures can be taken to mitigate the identified impacts. The two main purposes of this exercise are to:

- Minimize or avoid adverse environmental effects associated with a project;
- Incorporate environmental factors into the decision-making process.

Under the terms of the EA Act, the environment is divided into five general components:

- Natural environment;
- Social environment;
- Cultural environment;
- Economic environment;
- Technical environment.

The identified environmental components can be further subdivided into specific elements that have the potential to be affected by the implementation of the alternative solutions. Table 3.2 provides an overview of the Specific Environmental Components considered of relevance to this investigation. These components were identified following the initial round of public and agency input, and a preliminary review of each alternative with respect to technical considerations and the environmental setting of the project area.

Table 3.2 - Evaluation of Alternatives: Identification of Environmental Components

Environmental Components	Sub-Components	Specific Components
Natural Environment	Aquatic Environment	- Resident fish species
	Terrestrial Environment	- Aquatic plants
	Geology/Hydrogeology	- Subsurface conditions
	Hydrology	- Stream flow characteristics - Hydraulic capacity
Social Environment	Community	- Access Limitations - Noise/Dust
Cultural Environment	Buried archaeological resources	- Archaeological resources
	Built Cultural Resources	- Historical components of structure
Economic Environment	Capital cost of structure	- Taxes
Technical Environment	Engineering design standards	- Bridge design - Approach road design
	Transportation	- Traffic volume - Vehicular access - Bridge capacity
	Climate Change	- Mitigation strategies - Adaptation approaches

The environmental effects of each study alternative on the specific components are generally determined through an assessment of various impact predictors (i.e., impact criteria). Given the works associated with the alternative solutions, the following key impact criteria were examined during the course of this assessment:

- Magnitude (e.g., scale, intensity, geographic scope, frequency, duration);
- Technical complexity;
- Mitigation potential (e.g., avoidance, compensation, degree of reversibility);
- Public perception;
- Scarcity and uniqueness of affected components;
- Likelihood of compliance with applicable regulations and public policy objectives.

The evaluation process described above provides the proponent with a methodology to predict the potential effects of alternative solutions. The significance of the identified impacts is largely based on the anticipated severity of the following:

Using the above criteria, the potential impacts of each alternative solution were systematically evaluated. The significance of the potential impacts posed by each alternative was evaluated considering the anticipated severity of the following:

- Direct changes occurring at the time of project completion.
- Indirect effects following project completion.
- Induced changes resulting from a project.

For the purposes of this Class EA, impact determination criteria developed by Natural Resources Canada have been applied to predict the magnitude of environmental effects resulting from the implementation of a project. Table 3.2 summarizes the impact criteria.

Table 3.3 - Criteria for Impact Determination

Level of Effect	General Criteria
High	Implementation of the project could threaten sustainability of feature and should be considered a management concern. Additional remediation, monitoring and research may be required to reduce impact potential.
Moderate	Implementation of the project could result in a resource decline below baseline, but impact levels should stabilize following project completion and into the foreseeable future. Additional management actions may be required for mitigation purposes.
Low	Implementation of the project could have a limited impact upon the resource during the lifespan of the project. Research, monitoring and/or recovery initiatives may be required for mitigation purposes.
Minimal/ Nil	Implementation of the project could impact upon the resource during the construction phase of the project but would have a negligible impact on the resource during the operational phase.

Given the criteria defined in Table 3.3, the level of effect is predicated on these considerations:

- Impacts from a proposed alternative assessed as having a Moderate or High level of effect on a given feature would be considered significant.
- Impacts from a proposed alternative assessed as having a Minimal / Nil to Low level of effect on a given feature would not be considered significant.

3.4.3 General Review of Options

Table 3.4 provides a summary of the key considerations for each option with respect to the environmental considerations described in Table 3.2. To this end, the table identifies those benefits and impacts that were identified as significant during the initial evaluation of alternatives. Potential mitigation measures for the identified impacts are also presented.

Table 3.4 - Preliminary Evaluation of Alternatives

Alternative	Benefits	Impacts	Remediation
Alternative 1 (Replacement)	- Provides water crossing for vehicular traffic in accordance with established standards from the 2019 edition of the Canadian Highway Bridge Design Code. - Addresses safety concerns associated with advanced deterioration of primary bridge components. - Presents minimal impacts to air quality, noise levels and local aesthetics (following the completion of construction). - Provides a full capacity crossing for use by local agricultural operators.	- Terrestrial and aquatic features could be adversely affected, as construction would occur within the vicinity of the defined stream channel. - May impact hydraulic capacity of the watercourse. Hydraulic analysis of the new structure will need to be evaluated.	- Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). - Consult with the Grey Sauble Conservation Authority and the Ministry of Natural Resources and Forestry to assess the level of impact resulting from construction of the planned works. Provide mitigation and habitat compensation to address any significant concerns identified.
		- Requires complete removal of the existing structure. Traffic will need to be rerouted during construction process.	- Identified impact cannot be mitigated in any substantive manner. However, suitable detouring routes will be utilized.
		- More expensive option.	- Identified impact cannot be mitigated.
Alternative 2 (Repair)	- Temporarily addresses some of the safety concerns associated with the deterioration of bridge components. - Presents minimal impacts to air quality, noise levels and local aesthetics (following the completion of the construction phase). - Represents a less expensive option in the short term but only offers a few more years of service.	- Terrestrial and aquatic features could be adversely affected, as construction may be required in the vicinity of the defined stream channel. (ie. shoring and removals) - Repairs would not address deficiencies related to minimum width and load capacity standards.	- Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). - Consult with regulatory agencies to assess the level of impact resulting from construction of the planned works. Provide mitigation and habitat compensation, as required.
		- Traffic movement would be disrupted during the construction phase (i.e., may cause closure of the road due to extent of repairs required).	- Traffic control measures could be implemented to limit traffic impacts during the construction phase, although lane restrictions, or bridge closure, may be required for short durations.

Alternative	Benefits	Impacts	Remediation
Alternative 3 (Do Nothing)	- Represents the least expensive option. - Does not impact upon existing natural or cultural features.	- Fails to resolve the defined problem. - Road may have to be closed due to safety issues associated with existing structure.	- Identified impact cannot be mitigated.

3.5 Environmental Effects Analysis

The potential interactions between the project alternatives and the identified environmental components were examined as part of the evaluation of alternatives. The purpose of this analysis was to determine, in relative terms, the environmental effects of the identified alternatives on each the environmental components, using the impact criteria described in Table 3.3. Table 3.5 summarizes the outcome of the environmental effects analysis.

Table 3.5 - Environmental Effects Analysis

Environmental Component	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Natural • Aquatic	1) Replacement	Low to Moderate	• Limited impacts to aquatic habitat are anticipated as a result of construction-related activities, as the abutments would be constructed outside of the limits of the channel and rock rip rap would be installed adjacent to the abutments at the channels edge. • Sediment and erosion control measures would be implemented to prevent impacts to the aquatic environment.
	2) Repair	Low	• Limited impacts to aquatic habitat are anticipated as a result of construction-related activities, as repairs to the deck and steel trusses would be completed without in-water access and rock rip rap would be installed adjacent to the abutments. • Sediment and erosion control measures would be implemented to prevent impacts to the aquatic environment.
	3) Do Nothing	Low to Moderate	• No Impacts Anticipated. • Should the structure fail and need to be removed, there may be impacts to aquatic habitat which would result during removal.
• Terrestrial	1) Replacement	Moderate	• Moderate impacts to terrestrial habitat are anticipated as a result of the replacements. Vegetation clearing would be required to access the area. • Disturbed areas would be restored upon completion of work.
	2) Repair	Low	• No impacts are anticipated to complete repairs to the deck and beams.
	3) Do Nothing	Low	• No Impacts anticipated.
• Geology/ Hydrogeology	1) Replacement	Low	• Few impacts are anticipated given that the new bridge abutments would be constructed in the same general location as the existing foundations. • There would be no impacts associated with operation of the new crossing.
	2) Repair	Minimal/Nil	• No impacts are anticipated to complete repairs to the deck and beams.
	3) Do Nothing	Minimal/Nil	• No Impacts anticipated.
• Hydrology	1) Replacement	Low	• Based on the results of the hydraulic modeling, the proposed replacement structure will be designed to maintain hydraulic flows at the crossing and not aggravate flood elevations in the vicinity of the crossing.

Environmental Component	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	2) Repair	Minimal/Nil	• No impacts are anticipated to complete repairs to the deck and beams.
	3) Do Nothing	Minimal/Nil	• No Impacts anticipated.
Social • Community	1) Replacement	Moderate	• A moderate level of impact to residents is expected during construction due to the required closure of the crossing for approximately 2-3 months during construction. • Impacts are relatively short term and once completed, residents will have access to a full capacity crossing. • Few impacts are anticipated in relation to noise/dust from construction as no residences are located in close proximity to the bridge site.
	2) Repair	Low to Moderate	• Some impacts to traffic movement are anticipated during construction but will be for a shorter time period than full reconstruction of the crossings.
	3) Do Nothing	Moderate	• Should existing deterioration on the bridge not be remediated, the structure could become unsafe for vehicles and eventually need to be closed to vehicular traffic.
Cultural • Buried Cultural Heritage	1) Replacement	Low	• The proposed bridge reconstruction will occur in the same alignment of the existing crossing, within the limits of the existing road allowance. Therefore, impacts to buried cultural resources are expected to be low. • Should construction occur outside the limits of existing disturbed areas, a Stage 1 & 2 Archaeological Assessment will be completed prior to construction.
	2) Repair	Minimal/Nil	• No impacts are anticipated given that repairs would be focused on the existing beams, deck and abutments.
	3) Do Nothing	Minimal/Nil	• No impacts anticipated.
• Built Heritage	1) Replacement	Low to Moderate	• Although Sopers Bridge is an older structure, the heritage assessment determined that it did not have heritage value, therefore replacement of the structure will not result in a significant loss of heritage features.
	2) Repair	Minimal/Nil	• Few impacts to cultural heritage values are anticipated given that the bridge will remain in place and be rehabilitated.
	3) Do Nothing	Low	• No impacts initially, however if the deterioration is not addressed, the structures could fail in the future and the heritage value of the structure would be lost.

Environmental Component	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Economic • Municipal	1) Replacement	Moderate	• Construction of a new bridge would result in relatively high capital costs for small crossings that experience relatively low levels of traffic volume. • The Municipality obtained a grant for the proposed replacement crossing which will mitigate impacts associated with the anticipated capital construction costs.
	2) Repair	Low to Moderate	• Low to moderate economic impacts are anticipated, given that repair costs are relatively low in relation to the construction of new crossings.
	3) Do Nothing	Low	• No impacts anticipated initially, however should the deterioration not be remediated and the crossings fail, the Township may be liable for damages to the surrounding environment and to any affected vehicles.
Technical • Engineering Design Standards	1) Replacement	Low	• Construction of a small bridge at the location site would be a relatively routine design exercise.
	2) Repair	Moderate	• Given the condition of the existing crossing, completing necessary repairs in a manner that maintains the safety of the crossing will become increasingly challenging as deterioration increases.
	3) Do Nothing	Moderate	• Given the condition of the existing crossing, maintaining the crossing in a manner that ensures the safety of the traveling public will become increasingly challenging as deterioration increases.
Technical • Transportation	1) Replacement	Moderate	• Moderate impacts to the local transportation network will occur during construction of the new crossing when the road will be closed for a period of 2-3 months. • Following completion of construction transportation opportunities will be significantly improved.
	2) Repair	Low to Moderate	• Minor impacts to local traffic are anticipated during the crossing repairs. Although the road will be closed during completion of the repairs, the timeline will be significantly less than the replacement option. • Upon completion, the existing deterioration at the crossing will be corrected, however the bridge will still not meet minimum width design requirements.
	3) Do Nothing	Moderate to High	• No impacts initially, however if the deterioration is not remediated and the crossing fails, this would have a negative impact on residents in the area.
Technical • Climate Change	1) Replacement	Low to Moderate	• Replacement of the crossing would result in some climate change adaptation improvements by increasing the hydraulic capacity of the crossings. • Some negative climate impacts would result from construction-related activities.

Environmental Component	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	2) Repair	Low	• Repair of the crossing would not provide an opportunity to increase the hydraulic capacity of the crossings, making the crossing less resilient to high flows, however erosion protection would be installed to protect against scour related to high flows. • Repair of the crossings would minimize climate-related impacts associated with construction activities.
	3) Do Nothing	Low	• Hydraulic capacity of the crossings would not be improved, making the crossing susceptible to climate-related impacts associated with higher flow events. • As no construction would be required, there are no climate impacts anticipated.

3.6 Identification of a Preferred Solution

The relative merits of each option were examined during the preliminary technical review of the study alternatives. Based on this assessment, the Municipality indicated a preference for Alternative 1: Construction of a new bridge in the same general alignment as the existing crossing. There are a number of attributes associated with Alternative 1, which justified its consideration as the preferred servicing plan (listed below):

- Represents the most practical option from a safety and engineering perspective;
- Resolves concerns relating to the deterioration of beams, barriers and abutments present in the current structure;
- Addresses capacity limitations present with the existing single lane structure;
- Minimal impact to adjacent natural areas by replacing structure within the same general footprint.
- Federal/Provincial Grant obtained for the project, will address potential economic impacts.

4.0 CONSULTATION PROGRAM

4.1 General

Public consultation is an integral component of the Class EA process. Public consultation allows for an exchange of information, which assists the proponent in making informed decisions during the evaluation of alternative solutions. During Phases 1 and 2 of the study process, consultation was undertaken to obtain input from the general public, project stakeholders, Indigenous communities and review agencies that might have an interest in the project.

The components of the consultation program employed during the initial phases of the Class EA study are summarized in this section of the screening report and documented in Appendix 'F'. Comments received from the consultation program and related correspondence are also discussed below and documented in the appendix.

4.2 Initial Public Notice

Contents:	General study description, summary of proposed works, key plan
Issued:	September 30, 2020
Placed In:	The Sun Times (September 30; October 10, 2020)
Circulated To:	Neighbouring Property Owners
Input Period:	Concluded October 30, 2020

No public comments were received as a result of the notice**.**

4.3 Review Agency Circulation

Input into the Class EA process was solicited from government review agencies and identified stakeholders by way of direct mail or email correspondence. Agencies and organizations that might have an interest in the project were sent an information package detailing the nature of the

proposed works, an outline of the assessment process, and a general location plan of the project site. Photographs of the project site and surrounding properties were also incorporated into the location plan. Details are included below. Table 4.1 summarizes the comments received as a result of this consultation.

Contents: Background information, location plan, site photos
Circulated: September 30, 2020
Distributed To: 9 review agencies
Input Period: Concluded November 6, 2020

Table 4.1 - Summary of Agency Comments

Review Agency	Comments	Action Taken
Ministry of Heritage, Sport, Tourism and Culture Industries - October 26, 2020	- Advised that the Ministry has interest an interest relating to its mandate to conserving Ontario's cultural heritage. - Engagement with Indigenous communities, Municipal Heritage Committees, historical societies and other local heritage organizations is suggested to discuss known or potential cultural heritage resources. - Cultural, Heritage and Archaeological Resources Assessment checklist is required to determine the project's potential impact on cultural heritage resources. Required studies and recommendations are to be addressed and incorporated into the EA project.	- Comments noted and filed.
Bluewater District School Board – October 13, 2020	- Confirmation that bus routes will not be affected by the bridge closure during construction. - No further comments were made.	- Comments noted and filed.
Ministry of the Environment, Conservation and Parks – October 7, 2020	- Acknowledgement of the Class "B" project. - It is required that the impacts and necessary mitigation relating to climate change and Species at risk are identified during the study process. - Identification of required permits and approvals for all alternatives is required. - Consultation with affected Aboriginal communities is required. - Information regarding changes to the Environmental Assessment process was provided.	- Comments noted and filed.

4.4 Indigenous Community Circulation

4.4.1 Indigenous Consultation Process

The Crown has a duty to consult with First Nation and Métis communities if there is a potential to impact on Aboriginal or treaty rights. This requirement is delegated to project proponents as part of the Class EA process, therefore the project proponent has a responsibility to conduct adequate and thorough consultation with Aboriginal communities as part of the Class EA consultation process.

4.4.2 Background Review

In order to identify Aboriginal Communities potentially impacted by the project, the Aboriginal and Treaty Rights Information System (ATRIS) was consulted. A search was conducted for Aboriginal Communities, including their traditional territories that would lie within a 50 km radius of the project study area. Utilizing this process and feedback received from the MECP, six aboriginal communities/organizations were identified in conjunction with this project including: Chippewas of Saugeen First Nation, Chippewas of Nawash Unceded First Nation, Saugeen Ojibway Nation (SON) – Chippewas of Saugeen & Chippewas of Nawash, Historic Saugeen Métis, Metis Nation of Ontario, and Great Lakes Métis Council. Correspondence was subsequently forwarded to each community/ organization detailing the proposed project and asking for input.

Contents:	Background information, location plan, site photos, response form
Circulated:	October 15, 2020
Distributed To:	6 Indigenous communities
Input Period:	Concluded November 25, 2020

Input was received from Chippewas of Saugeen First Nation during a separate consultation process associated with a Federal/Provincial grant program awarded to the project. No concerns with the project were identified. A summary is included in Table 4.2.

No additional responses were received from indigenous communities contacted in regards to the Sopers Bridge project.

Table 4.2
Summary of Indigenous Community Comments

Indigenous Community	Comments	Action Taken
Chippewas of Saugeen First Nations – Chief Lester Anoquot May 8, 2020	- Responded to Scott McLeod's, Public Works Manager for the Municipality of Arran-Elderslie, letter that was sent on May 6, 2020. - Expressed appreciation for the update on the project. - No other feedback was provided.	- Comments noted and filed.

4.5 Consultation Summary

The consultation program developed for this project was focused on adjacent property owners, rural stakeholders that utilize the bridge for agricultural purposes, indigenous communities, and review agencies. No significant concerns were identified as a result of the consultation program.

5.0 ADDITIONAL STUDY INVESTIGATIONS

5.1 Design Considerations Associated with the Preferred Alternative

5.1.1 Bridge Design Options

Upon selection of the preferred alternative (replacement), additional analysis was undertaken to select the most suitable design to replace the existing structure. Table 6.1 summarizes the relative advantages and disadvantages of the two design alternatives given more detailed consideration.

Table 5.1 - Bridge Design Alternatives

Type	Advantages	Disadvantages
Prestressed slab girder	▪ Thinner profile resulting in fewer road upgrades. ▪ Improved clearance for the channel. ▪ Less expensive option.	▪ Construction may take longer due to the fabrication of the slab girders.
Steel Beam	▪ Minimize backwater impacts to watercourse.	▪ More expensive than the slab girders option. ▪ Will require grade adjustments to roadway to accommodate structure

Based on this assessment, the Municipality selected the pre-stressed slab girder bridge option primarily due to the fact that capital costs associated with construction were less than the steel beam option and fewer road upgrades would be required.

5.2 Aquatic Habitat Assessment

To further assess the potential impacts of construction on the receiving watercourse, an aquatic habitat assessment of Tara Creek was undertaken by technical staff from BMROSS. A summary of the methodology utilized to complete the assessment, as well as the report's conclusions and recommendations, are summarized below.

5.2.1 Methodology

Field investigation work on the subject stream crossing sites was carried out on June 4, 2021. Data collection specific to stream morphology, habitat composition and riparian vegetation was obtained. Observed aquatic and terrestrial species were recorded.

5.2.2 Fish Community

A search of OMNR records and reports revealed fish information for this sub-watershed area. Tara Creek has a coldwater thermal regime and the following fish species are present: Blackchin Shiner, Blacknose Dace, Bluntnose Minnow, Brook Trout, Central Mudminnow, Common Shiner, Creek Chub, Golden Shiner, Northern Pike, Northern Redbelly Dace, Pumpkinseed, Redfin Shiner, River Chub, Rock Bass and White Sucker. During the field investigation, four Green Frogs were observed east of the structure.

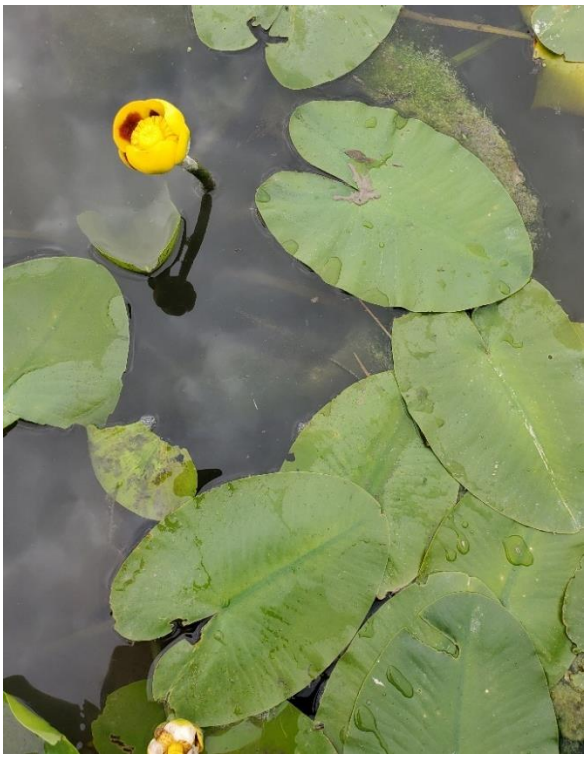
5.2.3 Aquatic Habitat

East of the structure, the substrate within the channel was composed of muck with patches of gravel and hard clay. Muck and patches of emergent aquatic vegetation were observed along the banks of the channel. Under the structure, the substrate was composed of rubble and gravel with larger rock and pieces of broken concrete along the base of the abutments. West of the structure, the substrate was composed of muck, silt and clay. Yellow Water Lily was abundant throughout the site. Other wetland plant species, including Pickerelweed and Spikerush were observed. Flows throughout the site were low in velocity during the site visit and water depths exceeded 1 meter in the middle of the channel. Throughout the site, riparian vegetation including dogwoods, willows, common grasses and Dame's rocket were observed.

5.2.4 Conclusions

In conjunction with the assessment, no unique or specialized fish habitat features were identified within the channel located immediately downstream or upstream from the project site. It was therefore determined that altering the existing substrate adjacent to the abutments should have no measurable negative impacts to fish habitat at this site. Specific site mitigation measures will be implemented during construction to further minimize the potential impacts to downstream fish habitat. These measures would include installation of sediment control measures during construction, restoration of woody vegetation adjacent to the new abutments, and removal of the broken concrete and replacement with rock rip rap comprised of natural stone. Photos of aquatic habitat at the site are included below.

Aquatic Habitat Site Photos



Nuphar Lutea (Yellow pond lily)

Hesperis Matronalis (Dame's Rocket)

Aquatic Habitat Upstream of the Bridge Site

5.3 Hydrological Investigation

5.3.1 General

BMROSS prepared a hydrology report (dated October 7, 2021) as part of the pre-design evaluation of the existing bridge and the bridge replacement options. For the purpose of the assessment, two design alternatives were evaluated; a pre-stressed slab girder or steel beam bridge. They have identical spans and low concrete, however the existing road profile over the structure will need to be raised up to 300mm for the steel beam option to accommodate the taller beams when compared to the thickness of the slab. The key findings of the assessment are summarized in this section of the report. A copy of the report is included in Appendix 'E'.

5.3.2 Watershed Description

The watershed drains 27 square kilometres southwest of Sideroad 20 and is located within the Municipality of Arran-Elderslie. At over 15 kilometre long, the watercourse rises at the upper limit of the watershed at 265 metres above mean sea level and flows to the bottom end of this portion of the watershed at elevation 225 metres above mean sea level. Figure 5.1 presents the watershed drainage area and includes details related to the slope of the main channel.

The climate for the project drainage area can be considered as temperate. The mean annual temperature is about 7°C with a mean annual precipitation over 1000 mm of which about 30% occurs as snowfall. The soils within the watershed generally lie in the B-C hydrologic class with the predominant soils being silt loam and only about 5% of the watershed currently under a form of forested vegetation. The remaining lands are primarily in agricultural production. The agricultural areas consist of an even split between row crop production, small grain production, and hay crop or pasture.

There does not appear to be any trends in agriculture that would alter the land use statistics to the point where there would be any major increase in runoff coefficients. The projected watershed trend is currently to more cropping and less hay and pasture (grassed land) production. The forest cover is not varying to any great extent.

5.3.3 Existing Structure

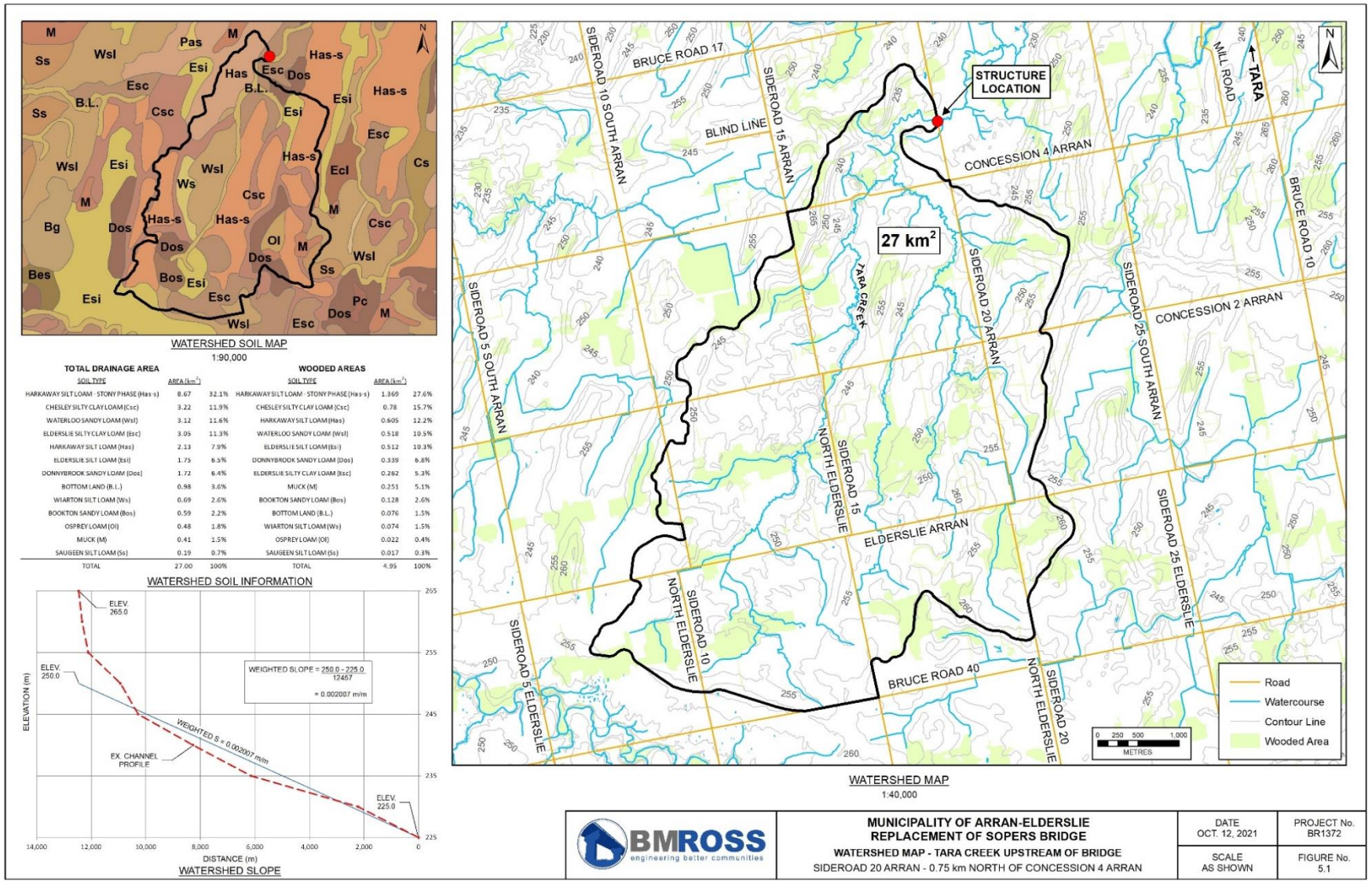
The existing structure is a steel I-beam bridge on a 10^{o} skew. The structure was built in 1940, and as per BMROSS survey has a clear span of 7.3m.

The width between the curbs is approximately 4.6m, making it a single lane structure. In the past, work on the structure has included repairs to the abutments and wingwalls, with deck patching since 2008. As per the Ontario Structural Inspection Manual (OSIM) report from 2018, the structure is recommended to be replaced before the year 2023 and should have a load posting until that time. The photograph below illustrates details of the existing structure.

East Elevation

Channel Upstream

Figure 5.1 - Tara Creek Watershed



TOTAL DRAINAGE AREA			WOODED AREAS		
SOIL TYPE	AREA (km²)		SOIL TYPE	AREA (km²)	
HARKAWAY SILT LOAM - STONY PHASE (Has-s)	8.67	32.1%	HARKAWAY SILT LOAM - STONY PHASE (Has-s)	1.369	27.6%
CHESLEY SILTY CLAY LOAM (Csc)	3.22	11.9%	CHESLEY SILTY CLAY LOAM (Csc)	0.78	15.7%
WATERLOO SANDY LOAM (Wsl)	3.12	11.6%	HARKAWAY SILT LOAM (Has)	0.605	12.2%
ELDERSLIE SILTY CLAY LOAM (Esc)	3.05	11.3%	WATERLOO SANDY LOAM (Wsl)	0.518	10.5%
HARKAWAY SILT LOAM (Has)	2.13	7.9%	ELDERSLIE SILT LOAM (Esl)	0.512	10.3%
ELDERSLIE SILT LOAM (Esl)	1.75	6.5%	DONNYBROOK SANDY LOAM (Dos)	0.339	6.8%
DONNYBROOK SANDY LOAM (Dos)	1.72	6.4%	ELDERSLIE SILTY CLAY LOAM (Esc)	0.262	5.3%
BOTTOM LAND (B.L.)	0.98	3.6%	MUCK (M)	0.251	5.1%
WIARTON SILT LOAM (Ws)	0.69	2.6%	BOOKTON SANDY LOAM (Bos)	0.128	2.6%
BOOKTON SANDY LOAM (Bos)	0.59	2.2%	BOTTOM LAND (B.L.)	0.076	1.5%
OSPREY LOAM (Ol)	0.48	1.8%	WIARTON SILT LOAM (Ws)	0.074	1.5%
MUCK (M)	0.41	1.5%	OSPREY LOAM (Ol)	0.022	0.4%
SAUGEEN SILT LOAM (Ss)	0.19	0.7%	SAUGEEN SILT LOAM (Ss)	0.017	0.3%
TOTAL	27.00	100%	TOTAL	4.95	100%

5.3.4 Proposed Structure

There are two options being considered for the proposed structure; steel beam or pre-stressed slab girder bridge. They have identical spans and low concrete, however the existing road profile over the structure will need to be raised up to 300mm for the steel beam option to accommodate the taller beams when compared to the thickness of the slab. The existing approach road profile approximately 20m north of the structure will be raised for the slab and beam options 200mm and 500mm respectively. No stream realignment is required at this site.

It is suggested that the new structure be designed with a deck width of sufficient size to accommodate two full lanes of traffic. A cross-fall of 2% should be used on the deck and approaches. Approach slabs should be used at each end of the bridge where possible to reduce dynamic loads and parapet walls should be constructed on each side of the new structure for vehicle safety.

Design criteria for the structure replacement include the following:

- Design storm frequency.
- Allowable vertical clearance between the design backwater elevation and the low concrete of the structure.
- Allowable increase in the flood elevation upstream of the structure.

a) Design Storms

Sideroad 20 in this block is a low volume road. MTO directive B-100 notes that for structures located on local roads, a 10 year design storm is acceptable. Stream diversions and channelization for local roads must convey the 2 year event; but the combined channel and floodplain shall accommodate a 25 year flood, or the regional event, if increases in flooding may impact buildings or developable lands. Based on a field survey, there are no buildings within the section of the floodplain immediately upstream of the structure location.

(b) Vertical Clearance – Soffit Clearance

As recommended in the Canadian Highway Bridge Design Code (Clause 1.10.7.1), the design clearance as measured from the lowest point of the structure soffit to the HWL corresponding to the design flood should be 0.3m. MTO directive B-100 suggests that the soffit elevation can be based on an existing opening; provided that it has proven to perform satisfactory in the past. Additionally, for local roads with low vulnerability structures, soffit clearance less than 0.3m is acceptable (Table 2 from the MTO directive, suggests a soffit clearance of 0 metres). There are no freeboard requirements for local volume roads.

Given the above, and based on an understanding that the existing bridge, with a similar soffit elevation, has performed well in the past, it is suggested that the new bridge be designed to provide a soffit clearance of 300mm during the design storm event.

(c) Backwater Elevation

In accordance with good design practice there should be minimal if any increase in the flood elevations for the full range of design storms.

(d) Design Flow Summary

The Hydrology Report includes the computation output from Hydropak, FLOODONT, OFAT III, and the Rational Method, for the full range of flows. A summary of the results for each computational method are summarized below in Table 5.2.

Table 5.2 - Summary of Theoretical Flood Analysis

Data Source	Frequency Event and Corresponding Flow (m^3/s)						
	2	**5**	**10**	**20**	**50**	**100**	**Hazel**
HydroPak2	2.9	7.1	10.4	15.1	18.9	22.8	103.5
Flood Index Method	4.7	6.2	7.6	8.9	10.5	11.9	--
OAFT III – Flood Index	4.7	6.2	7.6	9.2	11.2	12.9	--
OFAT III – Regression Eq.	6.4	10.2	13.1	16.1	19.3	22.6	--
Transposed	10.4	13.2	15.0	16.5	18.4	19.7	--
Rational Method	7.5	9.0	10.5	13.5	15.0	16.5	--

The above values show a general consistency across each storm event and provide confidence in the results.

(e) Design Storm Event

With consideration to the range of flows developed, the following design flood flow values were selected:

Table 5.3 - Proposed Design Flood Flows

Design Storm	**2 yr**	**5 yr**	**10 yr**	**20 yr**	**50 yr**	**100 yr**	**Hazel**
Flow (m^3/s)	7.0	10.0	12.0	15.0	18.0	22.0	70.5

For the 10 year design flow, a peak flow of 12 m^3/s is suggested for use in conjunction with the evaluation of vertical soffit clearance for both the existing and proposed structures.

5.3.5 Hydraulic Analysis

(a) Overview

BMROSS carried out a hydraulic analysis of the existing and proposed conditions to quantify water surface elevation differences. The software used for the analysis was GeoHECRAS, produced by CivilGeo Engineering Software, version 3.1.0.1192. The HEC-RAS analysis engine was version 5.0.7. The GeoHECRAS hydraulic model used in this analysis is based upon computer generated cross-sections developed from the field survey information obtained by BMROSS and supplemented with DTM point information obtained from the province.

Existing channel properties and floodplain vegetation were noted in the model to produce the mathematical representations of the hydraulic properties of this section of Tara Creek. The analysis used the full range of river flows summarized in Table 5.2 including the Regional Storm Event (Hazel). The locations of the HEC-RAS cross sections are shown on Figure 5.2 illustrating the Regional flood plain developed for the bridge site.

(b) Model Calibration and Sensitivity

The lack of historical flood flows and levels at the structure site make it difficult to calibrate the model properly, however, the use of the GeoHECRAS analysis techniques gives confidence in the information produced by the software. Based on casual observations by municipal staff there is no history of road overtopping at the site. This is supported through the completed modelling in that it is shown that only the Regional storm event will overtop the road.

5.3.6 Conclusions

It is concluded that the proposed bridge will not adversely affect any structures within the Design Storm floodplain. As analyzed using GeoHECRAS, sufficient clearance under the 20 year design flow of 15 m^3/s, will be available at the bridge site.

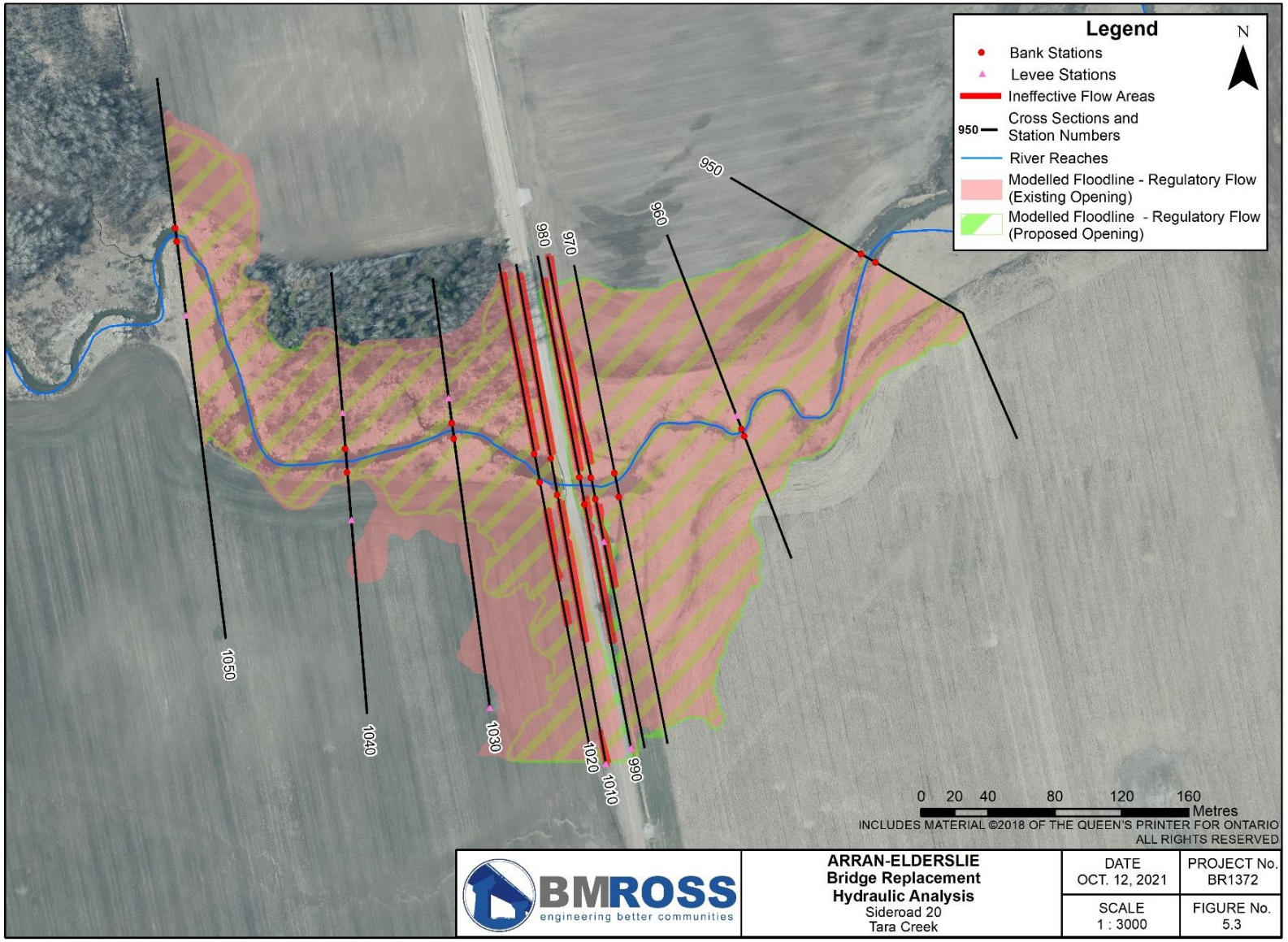
Erosion protection at the bridge site should be provided to protect the stream banks and slow the rate of scour in the watercourse. With velocities in the range of 0.65 m/s under a 100-year storm event, it is recommended that a nominal 230 mm stone rip rap be used where appropriate. The rip rap should be placed on the channel slopes at each end of the structure and under the deck to the design flood flow level. It is therefore recommended that:

1. The proposed bridge replacement of either option be used for final design on Tara Creek at Sideroad 20 (Structure A25) in the Municipality of Arran-Elderslie.

2. Grey Sauble Conservation should be prepared to approve the proposed structure under their "Development Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation."

3. Rip rap protection, nominal 230 mm stone, should be placed on the stream banks for erosion protection at the bridge site.

Figure 5.2 – Flood Modelling



6.0 IDENTIFICATION OF POTENTIAL IMPACTS

6.1 General

In reviewing the various criteria identified in Section 3.4 of this report and additional comments received during the consultation program, a number of specific environmental elements were identified which could be adversely affected by the implementation of the preferred alternative. The impact of specific components of the proposed bridge construction on the identified environmental elements, are summarized in Table 6.1. Specific mitigation measures for the identified impacts are also presented. The table identifies impacts directly related to the bridge reconstruction which are generally short-term in nature and of limited duration. Impacts of a greater magnitude and duration (traffic, impacts to natural features) are also discussed in the following section.

Table 6.1 - Construction Related Environmental Effects

	Environmental Components / Key Project Works and Activities	Hydraulic Resources	Aquatic Resources	Significant Environmental Features	Cultural Heritage Resources	Social Environment	Economic Environment	Technical Environment
1	**Construction Component**							
	Contractor Mobilization to the site	○	○	○	○	◘	○	○
	Establishment of Temporary Storage Areas	○	◘	○	○	◘	○	○
	Site Clearing	○	◘	○	○	○	○	○
	Installation of Sediment Control Devices	○	●	○	○	○	○	○
	Traffic Control Plan Implementation	○	○	○	○	●	○	○
	Removal of Existing Structure	○	●	○	○	○	○	○
	Excavation	●	●	●	◘	◘	○	◘
	Temporary Stockpiling of Soil/Bedding Material	○	◘	○	○	○	○	○
	Dewatering	●	●	◘	○	○	○	●
	Temporary Storage of Fuels	○	◘	○	○	○	○	○
	Installation of new structure	○	◘	○	○	○	○	●
	Reconstruction of Approach Roads	○	○	○	○	●	○	●
	Grading	○	◘	○	○	◘	○	○
	Construction Traffic	○	○	○	○	●	○	○
	Site Restoration (seeding/topsoil)	○	○	○	○	○	○	○

● Potential for Significant adverse effect ◘ Potential for limited adverse effect ○ No adverse effect expected

6.2 Potential Impact to Natural Features

6.2.1 General

Construction activities associated with the bridge reconstruction could pose a risk to the ecology of the study area, given the proximity of construction activities to the watercourse. Accordingly, a series of protective measures will be incorporated into construction plans to help mitigate any identified impacts. As well, any lands disturbed by the construction process would be restored. All remediation planned for the project will also be carried out in accordance with the mitigation and restoration requirements of the regulatory agencies.

6.2.2 Stream Disruption – Tara Creek

As noted in Section 5.2, Tara Creek at the bridge site is a cold water system with wetland habitat features located up and downstream of the existing structure. Habitat features located immediately adjacent to the structure, which will be directly impacted by the proposed construction, is less sensitive being dominated by broken concrete pieces, gravel from the road surface and muck. A timing window for in-stream construction works has been established from July 15 to September 30th, during periods of low to no flow. For this project, a majority of in-stream work will be completed at the beginning of the project during removal of the existing structure and excavation of the channel to accommodate the new structure.

To minimize construction-related impacts to the creek and downstream aquatic habitats, the watercourse will be isolated through the site by installing steel sheet piling adjacent to the abutments and allowing the channel to continue flowing through the crossing. Aquatic life will be transferred out of the isolated work areas prior to the start of construction. The existing stream bed gradient will be restored following installation of the new abutments; spillway slopes will be reshaped and armoured with riprap at the water's edge. While the overall project may last 8-12 weeks, the in-stream portion may only take up to four weeks. The proposed construction season is July to October. The photo at left shows existing concrete blocks adjacent to the existing abutments. All broken concrete will be removed and replaced with rip rap comprised of natural angular stone.

6.2.3 Terrestrial Habitat

During removal of the existing crossing and excavation for the new abutments, existing terrestrial vegetation adjacent to the abutments will be impacted. In advance of construction, woody growth and vegetation will be transferred, where feasible, to low lying areas adjacent to the site. Removal of vegetation will be minimized as much as practical and all disturbed areas will be restored upon completion of the project. Native shrubs will be planted adjacent to the new abutments upon completion of construction.

6.2.4 Sediment and Erosion Control

Sediment barriers will be installed in roadside ditches and along the creek banks adjacent to the bridge site to prevent surface water laden with sediment from entering the channel. All disturbed areas will be seeded following construction with a suitable seed-and-mulch mixture. Seed will not be placed on rip rapped areas. These will be installed prior to demolition and maintained during the entire construction period until the site is fully restored.

6.3 Social Environment

6.3.1 Potential Impact to Residents/Adjacent Properties

To facilitate reconstruction of the crossing, the existing structure will be removed and the new bridge will be constructed in the same general location as the existing bridge. This will require closure of the crossings for a period of approximately 2-3 months. Properties located in proximity to the bridge site will experience relatively limited direct impacts from construction (noise/traffic disruption/restricted access). The closest residence is located approximately 850 metres north of the bridge on Sideroad 20, therefore it is unlikely that impacts related to noise and dust will be experienced.

6.3.2 Traffic Disruption

As discussed, the preferred alternative will require closure of the crossing for a period of approximately 2-3 months. During construction, the affected sections of Sideroad 20 will be closed adjacent to the bridge site and traffic will need to be detoured around the site on adjacent local roads. Limited road work is required to blend the new road platform into the existing road approaches. Once the new bridge construction is completed, no long-term impacts to traffic are anticipated. Prior to construction, adjacent property owners will be notified of the impending road closures so that alternative access arrangements can be arranged.

6.4 Economic Environment

6.4.1 Capital Costs

Economic impacts to the Municipality associated with construction of the new bridge, will be mitigated through receipt of grant funding being provided through a joint Federal/Provincial Grant Program. The program is administered by Infrastructure Canada and is called the Investing in

Canada Infrastructure Program: Rural and Northern Stream. (ICIP) Funding equalling 83.33% of project costs is provided through the grant program.

7.0 STAGE 4: STUDY RECOMMENDATIONS AND PROJECT IMPLEMENTATION

7.1 General

The purpose of the fourth stage of the study was to develop study conclusions and recommendations for future action. The stage involved the completion of a final evaluation of study findings and the identification of a preferred alternative. This stage also involved identifying (1) future work required to implement the selected alternative and (2) measures to mitigate the impacts of constructing the proposed works.

7.2 Study Conclusions

Based upon a review of the current environmental setting, no potential impacts were identified with Alternative 1 that could not be mitigated. To this end, the proposed bridge replacement plan appears to be appropriate from a technical perspective and should not adversely affect the environmental setting, once the site is fully restored. It was therefore concluded from the study that the proponents should proceed with the project, pending the receipt of all required approvals and in accordance with all mitigation measures defined during the approvals process.

7.3 Selection of a Preferred Alternative

Given the foregoing, Alternative 1- Replacement of Sopers Bridge with a new pre-stressed slab girder bridge in the same location was selected as the preferred solution to the identified problem.

7.4 Class EA Project Schedule

The recommended solution is considered a Schedule B project under the terms of the Class EA document, as the project involves the reconstruction of a water crossing, where the reconstructed facility will not be for the same purpose, use, capacity and the same location (increase from a single lane bridge to a two lane bridge is an increase in capacity). This project is approved following the completion of an environmental screening process**.**

7.5 Final Public Consultation

A Notice of Completion was recently circulated to local residents, indigenous communities and government review agencies (refer to Appendix F). The notice identified the preferred alternative and provided the basis for appeal of the selected option.

The following summarizes the distribution of the notice.

Contents:	Identification of preferred solution, key plan, summary of appeal process
Issued:	January 12, 2022
Placed In:	The Sun Times (January 12 and 19, 2022)
Distributed To:	13 review agencies, neighbouring property owners
Review Period:	Concludes February 11, 2022

7.6 Project Implementation

7.6.1 Construction Period

The works associated with Alternative 1 will be constructed during the 2022 construction season, pending the successful completion of the Class EA process and the receipt of all necessary approvals. The project would commence in early July with the bridge being replaced over the following 8-12 weeks (restoration would occur shortly thereafter). The project will be completed by a qualified Contractor following a competitive selection process. The Contractor will warranty the constructed works for a period prescribed in the contract documentation (typically one year). Following the completion of the structure replacement, the proponent will maintain the physical condition and operation of the structure and will perform remediation work as required and in accordance with the requirements of applicable regulatory agencies.

7.6.2 General Construction Sequence

The construction plan for the bridge replacement project involves the following tasks:

- Erection of temporary road closure signs at intersections immediately north and south of the proposed bridge replacement;
- Provision of signs and barricades at the bridge;
- Mobilization of construction equipment to the site;
- Completion of site layout, including service locates;
- Dewatering of project site (via temporary damming and pumping or installation of a by-pass channel;
- Fish and aquatic life transfer out of work area;
- Transplanting of native plant material;
- Removal of existing structure;
- Excavation of existing materials;
- Construction of new concrete abutments;
- Installation of bridge deck;
- Completion of backfill and compaction with approved granular material;
- Provision of riprap protection along channel at upstream and downstream ends;
- Reshaping of stream bed; replacement of stream cobble;
- Reconstruction of approach roads;
- Completion of all required documentation and reporting on the works;
- Completion of any required remediation.

7.7 Impact Mitigation

A series of remediation measures will need to be implemented in order to minimize the environmental impacts associated with the proposed works. The following represent the key measures of the proposed mitigation plan:

- During construction, the stream channel will be isolated from construction through temporary damming and pumping around the work site or through the installation of a temporary by-pass. Aquatic life will be transferred out of the work area prior to dewatering.
- In-water work will be minimized as much as possible and restricted to periods of low flow, during timing windows established by applicable review agencies. This will minimize the impact of construction activity on fish populations and other aquatic species inhabiting the work zone.
- The Ontario *Occupational Health and Safety Act* will apply to all project related activity in order to minimize the risks posed by construction.
- The road will be closed to through traffic during the duration of the construction time-frame, no specific detour route will be established. Local traffic will be permitted access to those portions of Sideroad 25 not directly impacted by construction activities. Traffic movement in the vicinity of the project site will be coordinated by the Contractor in accordance with Book 7 (Temporary Conditions) of the Ontario Traffic Manual.
- Construction activities will be conducted in accordance with contract documentation and the impact mitigation requirements of various regulatory agencies. The work will be monitored through on-site supervision.
- Erosion and sediment control measures will be implemented throughout the entire work zone to minimize temporary sediment loadings to the watercourse.

7.8 Cost Recovery

The probable capital cost of the project is approximately $1,067,500 (including engineering). The proponent's share of the costs is $398,360 with the remainder being provided by grant funding. Arran-Elderslie intends to finance their share of the capital costs of the work through their public works budget.

7.9 Class EA Study Completion

The following activities are required in order to complete the formal Class EA screening process:

- Address outstanding issues resulting from the Notice of Completion;
- Finalize the Screening Report following the conclusion of the 30-day review period;

- Advise the Municipality of Arran-Elderslie and the Ministry of the Environment, Conservation and Parks (MECP) when the study process is complete (assuming no significant concerns are identified).

8.0 APPROVALS

8.1 General

A number of approvals will be required in order to facilitate implementation of the recommended solution. The following are the key approvals required to permit the construction of the proposed works:

(a) Conservation Authorities Act

The proposed bridge reconstruction works will involve construction on lands regulated by the Grey Sauble Conservation Authority (GSCA). In accordance with the Conservation Authorities Act, an application will be submitted to the Conservation Authority to obtain approval for the project. The application will set out measures proposed to protect sensitive lands, such as stream banks, during construction in order to minimize the negative impacts of the project on the ecology of the area. As discussed, a hydrology report has also been prepared which analysed the impact of the proposed structure on river hydraulics. A copy of the report will be submitted to the Conservation Authority in support of the application.

(b) Federal Fisheries Act

The works associated with the preferred alternative will be subject to the Federal Fisheries Act. The Department of Fisheries and Oceans (DFO) will review the proposal and determine if the project may cause fish habitat alteration, disruption or destruction (HADD). Once the project is reviewed, DFO will issue either a Letter of Advice (LOA) or require a formal authorization as compensation for the potential impacts.

9.0 PROJECT SCHEDULE

A general schedule for the proposed bridge replacement has been prepared based on the assumption that all necessary approvals will be obtained in the near future. The following represents the schedule for the completion of key project components:

- Completion of final design drawings and receipt of required approvals (December 2021)
- Obtain Conservation Authority Approval (March 2022)
- Initiation of works (July 2022).
- Completion of works (September 2022).

10.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to define a solution to resolve the identified deficiencies with key components of Sopers Bridge, which spans Tara Creek along Sideroad No. 20 in the northeast area of Arran-Elderslie. The preferred solution, to replace the existing bridge with a new integral abutment bridge in the same location as the existing, represents the most practical approach to resolving the defined problems with the existing bridge structure.

The proposed project is a Schedule B activity under the terms of the Class EA and is approved subject to the completion of a screening process. The Municipality of Arran-Elderslie intends to proceed with the implementation of this project upon completion of the Class EA investigation and after receipt of all necessary approvals.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Jeff Jones, P. Eng.

Per _____
Kelly Vader MCIP, RPP
Environmental Planner

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11.0 References

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