
MUNICIPALITY OF BROCKTON
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR SAUGEEN RIVERBANK EROSION



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LIST OF ACRONYMS

AA	Archaeological Assessment
ANSI	Area of Natural and Scientific Interest
BMROSS	B. M. Ross and Associates Limited
MCEA	Municipal Class Environmental Assessment
CA	Conservation Authority
CHER	Cultural Heritage Evaluation Report
CWA	Clean Water Act
DFO	Department of Fisheries and Oceans Canada
EA	Environmental Assessment
EP	Environmental Protection
ESA	Endangered Species Act
HIA	Heritage Impact Assessment
HSM	Historic Saugeen Métis
OP	Official Plan
PPS	Provincial Planning Statement
MBCA	Migratory Bird Convention Act
MECP	Ministry of the Environment, Conservation and Parks
MCM	Ministry of Citizenship and Multiculturalism
MNO	Métis Nation of Ontario
MNR	Ministry of Natural Resources
NHIC	Natural Heritage Information Centre
SAR	Species at Risk
SARA	Species at Risk Act
SGRA	Significant Groundwater Recharge Area
SOLRIS	Southern Ontario Land Resource Information System
SVCA	Saugeen Valley Conservation Authority
WHPA	Wellhead Protection Area



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ENVIRONMENTAL SCREENING REPORT

1.0 INTRODUCTION

1.1 Purpose of the Report

The Municipality of Brockton initiated a Class Environmental Assessment (EA) in June 2020 to address an ongoing erosion issue along the north bank of the Saugeen River, adjacent to the Valleyside Drive subdivision in the Community of Walkerton. The study process followed the procedures set out in the Municipal Class Environmental Assessment document, dated October 2000, as amended in 2007, 2011, 2015, 2023 and 2024 (Municipal Engineers Association, 2000). B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the Municipality of Brockton.

The purpose of this report is to document the Class EA planning and design process followed for this project. This report includes the following major components:

- A description of the project area and environmental setting;
- The identification of the problem/opportunity to be investigated;
- A description of the alternative solutions considered for improving the identified problems;
- A synopsis of the public consultation and decision-making process conducted to select a preferred alternative; and
- A detailed description of the preferred alternative.

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 infrastructure projects. A Class EA is an approved planning document which describes the process 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, alternative methods of carrying out a project, and identifies potential environmental impacts. The process includes 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; and
- They are responsive to mitigating measures.

If the 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 procedures set out in the EA Act. Figure 1.1 presents a graphical outline of the procedures.

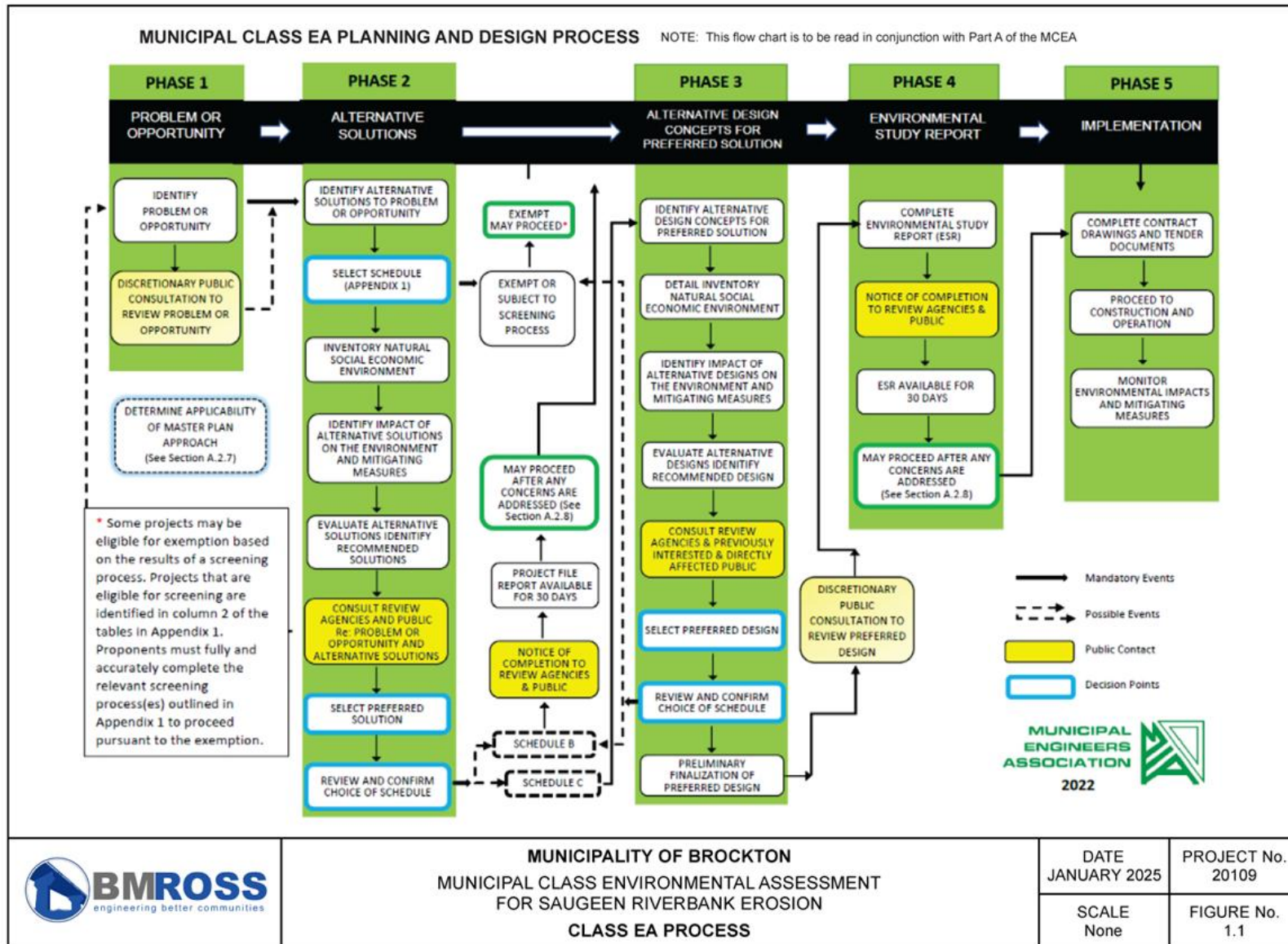
The Class EA planning process is divided into the following phases:

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

Throughout the Class EA process, proponents are responsible for the following key principles of environmental planning:

- Consultation with affected parties throughout the process;
- Examination of a reasonable range of alternatives;
- Consideration of effects on all aspects of the environment;
- Application of a systematic methodology for evaluating alternatives; and
- Clear documentation of the process to permit traceability of decision-making.

Figure 1.1 Municipal Class Environmental Assessment Process



1.3 Project Management

The Municipality of Brockton is considered the project proponent under the terms of the Class EA document. The Municipality engaged BMROSS to carry out the Class EA study process on their behalf.

1.4 Classification of Project Schedules

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

- Exempt – Projects are exempt from *Environmental Assessment Act* requirements;
- Eligible for Screening – Projects are eligible for exemption based on the results of the screening process(es);
- Schedule B – Projects that are approved following the completion of a screening process that incorporates, as a minimum, Phases 1 and 2 of the Class EA process; and
- Schedule C – Projects that are approved following the completion of the full Class EA process.

The Class EA process is self-regulating. Municipalities are expected to identify the appropriate level of environmental assessment based upon the project they are considering. Given that there may be works undertaken in a watercourse for the purposes of flood control or erosion control, it was identified initially that following the screening process associated with Schedule B projects was appropriate.

1.5 Environmental Screening Report

An Environmental Screening Report provides documentation of the decision-making process followed by the proponent of a project. Included in the report is a description of the problem or opportunity; pertinent background information; the rationale for the selection of the preferred solution; descriptions of the environmental considerations and impacts; any mitigating measures that will be undertaken to minimize environmental effects, a description of the consultation process; and a description of any monitoring programs to be carried out during the construction phase. Upon completion, the report is made available to the public and review agencies for a period of 30 calendar days.

1.6 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the Class EA, the requirement to prepare an individual environmental assessment for approval is waived. However, if it is perceived that a project going through the Class EA process has significant environmental impacts, a person/party may convey their concerns to the Municipality of Brockton for further consideration. A request may be made to the Ministry of the Environment, Conservation and Parks (MECP) 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 Indigenous and treaty rights. Requests made on any other grounds will not be considered by the MECP.

2.0 ENVIRONMENTAL SETTING

2.1 Class EA Approach

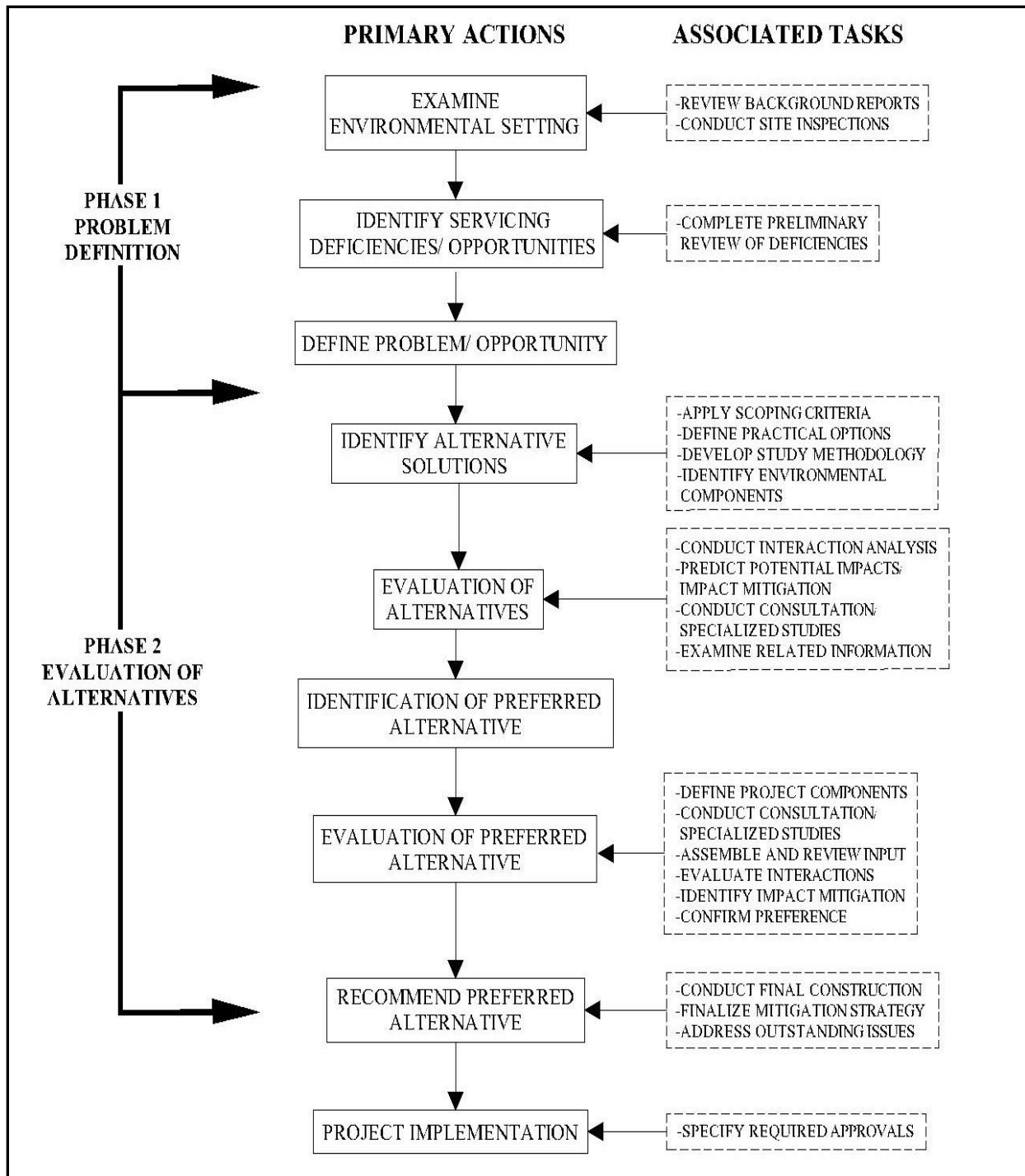
The Municipality initiated a formal Class EA process in June 2020 to review a number of approaches to address an ongoing erosion problem along the Saugeen River, adjacent to the Valleyside Drive subdivision in the Community of Walkerton. The associated investigations followed the environmental screening process prescribed for Schedule B activities under the Class EA document. The decision to follow the procedures for Schedule B projects reflects works undertaken in a watercourse for the purposes of erosion control.

In general, the screening process required to conduct a Class EA incorporates these primary components:

- Background Review and Problem Definition;
- Identification of Practical Solutions;
- Evaluation of Alternatives; and
- 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 study 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 Brockton;
- Assembly of information on the environmental setting and the existing infrastructure; and
- Review of previous studies and reports pertaining to the project study area.

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:

- B. M. Ross and Associates' files and related studies;
- Municipality of Brockton files and discussion with staff;
- Saugeen Valley Conservation Authority's (SVCA) files and related studies;
- Ministry of Natural Resources (MNR), Natural Heritage Information Centre (website);
- Environment and Climate Change Canada, Species at Risk Public Registry (website); and
- Saugeen, Grey Sauble, Northern Bruce Peninsula Source Water Protection (website).

2.3 Description of General Study Area

2.3.1 Municipality of Brockton and Community of Walkerton

The Municipality of Brockton was formed in 1999, following the amalgamation of the former municipalities of Brant, Greenock and Walkerton. Brockton is located in the southeastern corner of Bruce County, north of the Municipality of South Bruce and east of the Municipality of Kincardine. It is bordered by the Town of Hanover and Municipality of West Grey to the west. Provincial Highway 9 runs in an east-west direction across the southern portion of the Municipality, connecting Walkerton with Kincardine and Mildmay. Walkerton is the largest urban community within the Municipality with a population of 4,724 as of the 2021 Canada Census. It serves as a "county seat" for the County of Bruce, as well as an administrative, commercial, and industrial centre for Brockton. The town is located at the junction of Highway 9 and Bruce County Road 4. It is intersected by the Saugeen River.

Walkerton is predominately a residential centre, with a well-established downtown commercial core, a developed industrial sector and an expanding highway commercial component. The town provides a variety of facilities for local residents and the surrounding region, including an arena, community centre, elementary and secondary schools, and health care services, including a hospital. The community is serviced by a municipal sewage and water system and an established recreational trail system along the banks of the Saugeen River. Figure 2.2 shows the general location of Walkerton in relation to the project area.

2.3.2 Project Study Area

The study area consists of the north section of the Community of Walkerton, which is located within the Walkerton Urban Settlement Area, east of Yonge Street North and south of Valleyside Drive. The site forms part of the north bank of the Saugeen River and is partly vegetated as much has been lost to erosion. Beyond the site to the north is the Valleyside Drive subdivision, which contains 64 single detached dwellings and a four storey apartment dwelling. South of the site is the Saugeen River and Walkerton Riverbend Park, which is operated by the Municipality and contains a walking trail adjacent to the Saugeen River, as well as a woodland feature. South of the park are several commercial parcels and approximately 21 single detached dwellings, which are on the north periphery of the Historic Walkerton downtown area. Figure 2.4 provides additional site photos of the study area.

Figure 2.2 General Location Plan of Walkerton

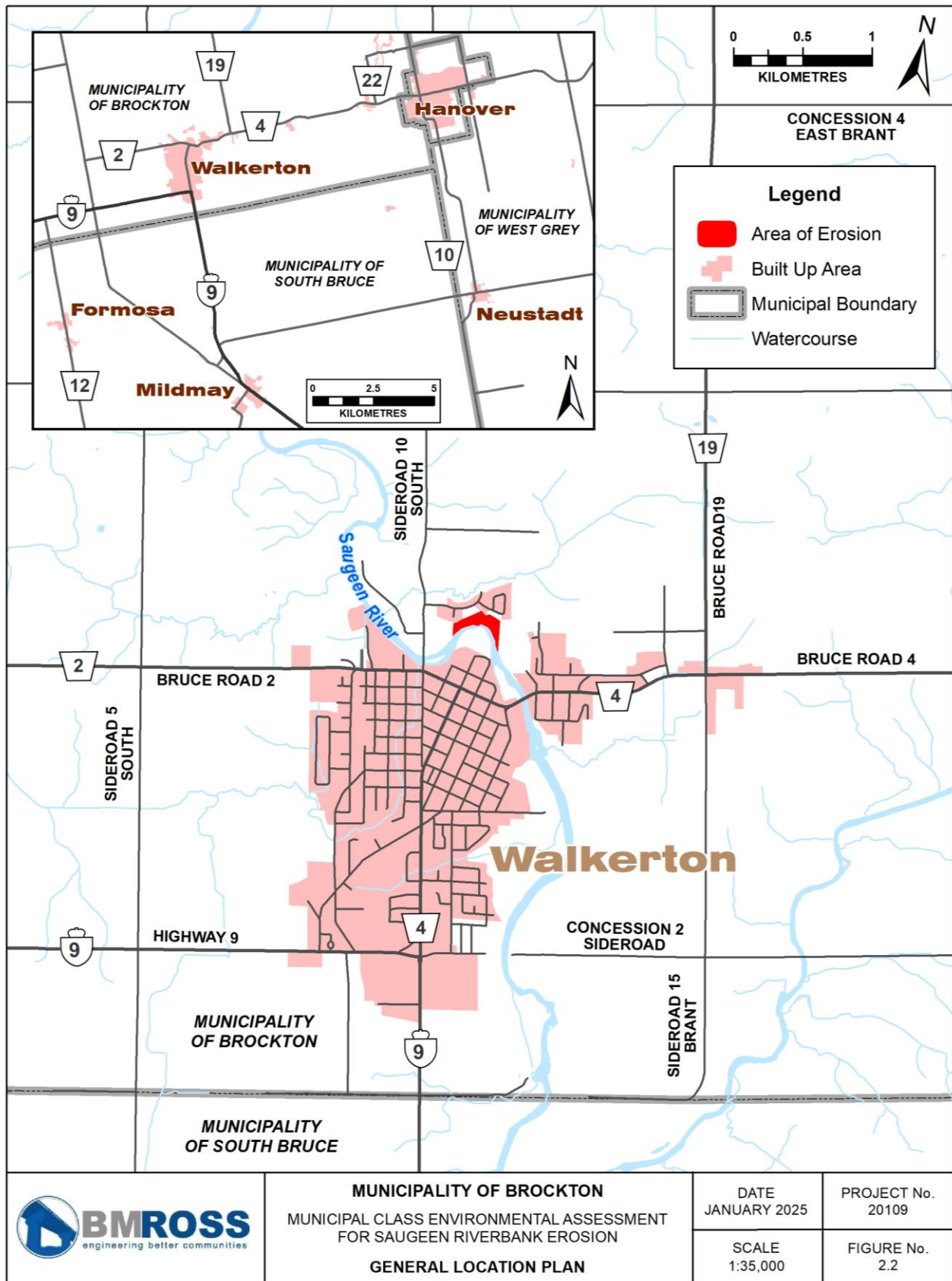


Figure 2.3 Project Study Area



Figure 2.4 Site Photos



View of central portion of exposed riverbank ▲



Westerly extent of riverbank ▲



Eastern section of riverbank ▲

Erosion at the top of the bank ▼



2.4 Natural Features

2.4.1 Physiography and Soils

Table 2.1 summarizes the general physiographic features and soils evident in the vicinity of the bridge.

Table 2.1
Physiographic Features and Soil Types

Feature	General Characteristics
Physiography	<ul style="list-style-type: none">• The project site is located within the Saugeen Clay Plain physiographic region, which is situated in the Saugeen River drainage basin, north of the Walkerton Moraine.• The Saugeen Clay Plain is a small clay plain underlain by deep stratified clay deposited in a bay of historic Lake Warren.
Soils (General)	<ul style="list-style-type: none">• The river valley area is classified as Bottomland. This is comprised of alluvial soils exhibiting variable drainage characteristics.• Study area soils primarily consist of Saugeen silty clay loam.

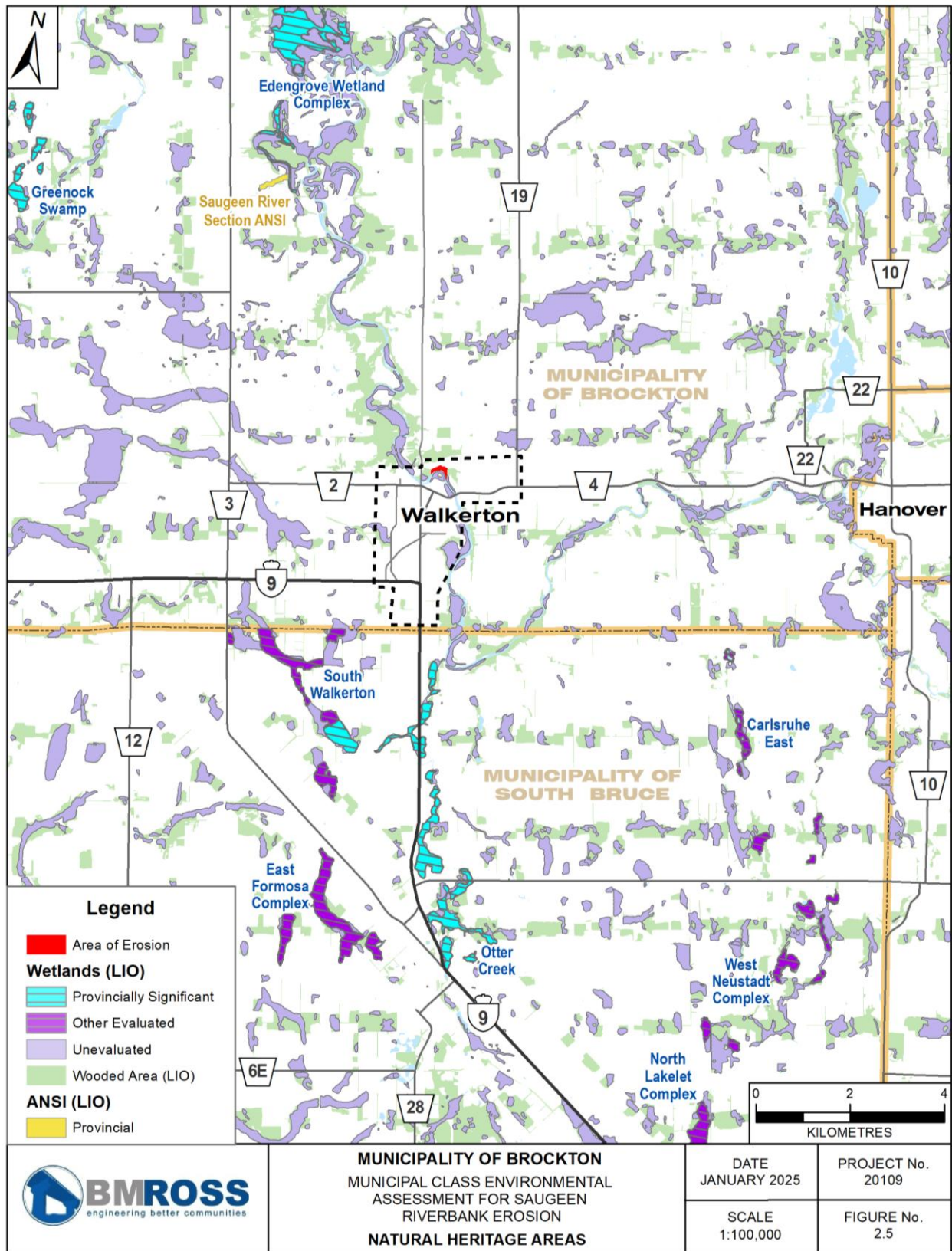
2.4.2 Saugeen River

The Saugeen River drains an area of over 4,000 km² in Midwestern Ontario, with the main branch headwaters located near Dundalk (Chapman & Putnam, 1984). The river maintains a strong summer flow, due in part to contributions from tributaries including the following: South Saugeen, Rocky Saugeen, Beatty and Styx rivers. The topography of the headwater area is generally rough and rocky; however, the majority of the watershed has been cleared for agricultural uses. Upstream of Walkerton, the Saugeen River flows within a glacial spillway associated with the Horseshoe Moraine. In Walkerton, the river turns north, through a river valley approximately 1 km wide and 150 m deep (Chapman & Putnam, 1984). From Walkerton, the Saugeen River flows north through Paisley and then the outlet to Lake Huron at Southampton. Historically, the river served as a transportation route between Southampton and Port Elgin to Walkerton and as a source of power for numerous dams, sawmills and grist mills. Currently, it is a popular canoeing route. The study area is directly adjacent to and forms the north bank of the Saugeen River. A copy of the Watershed Report Card for the Main Lower Saugeen River is found in Appendix A.

2.4.3 Significant Natural Heritage Features

A review of sensitive natural heritage features located in the vicinity of the project area was carried out as part of the background review. The MNR's Natural Heritage Information Centre (NHIC) database was consulted to verify the current status of significant natural areas in the vicinity of the bridge site (Ministry of Natural Resources, 2024). Sensitive natural features located within 5 km of the bridge site are illustrated on Figure 2.5. A description of significant features is included below.

Figure 2.5 Natural Heritage Features in Vicinity of Walkerton



(a) Areas of Natural and Scientific Interest (ANSI)

ANSI's take two forms; Earth Science, which are representative of significant geophysical landforms, and Life Science, which are representative of significant terrestrial features within the landscape, such as wetlands and woodlands (Ministry of Natural Resources, 2024). There are no ANSIs within or immediately adjacent to the study area. The nearest ANSI is the Saugeen River Section Earth Science ANSI, located approximately 7 km northwest of Walkerton. Given this distance, the proposed bridge project is not expected to have any impacts on ANSI features.

(b) Provincially Significant Wetlands

The Otter Creek Wetland and South Walkerton Wetland are located southwest of the study area. Otter Creek Wetland has been identified as a Provincially Significant Wetland while the South Walkerton Wetland is regionally significant (Ministry of Natural Resources, 2024). These wetland areas are located approximately 5 km southwest of the study area and given that distance, no impacts to these features are anticipated as a result of the project.

A number of small locally significant wetlands are also located adjacent to the river corridor up and downstream of the bridge site (Ministry of Natural Resources, 2024). Impacts to the surrounding aquatic environment will be minimized through implementation of appropriate mitigation measures. The natural features are shown in Figure 2.5.

2.4.4 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 that are federally owned (Environment and Climate Change Canada, 2002). Only aquatic species and bird species included in the Migratory Bird Convention Act (1994) are legally protected on lands not federally owned (Environment and Climate Change Canada, 1994); and

- The Provincial Endangered Species Act, 2007 (ESA) provides legal protection of endangered and threatened species and their associated habitat in Ontario (Ministry of Environment, Conservation and Parks, 2007). Under this 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 2.2:

- MNR, Species at Risk by Area (Ministry of the Environment, Conservation and Parks, 2024);
- NHIC, Make a Natural Heritage Map (Ministry of Natural Resources, 2024);
 - The project study area is located within the 1 km NHIC square identified as 17MJ8886. This square in addition to adjacent squares were consulted.
- Environment and Climate Change Canada, Species at Risk Public Registry. SARA Schedule 1 Species List (Environment and Climate Change Canada, 2024).

Table 2.2 Species at Risk Within the Study Area

Type	Species Common Name	Species Scientific Name	Federal Status	Provincial Status	Suitable Habitat in Study Area
Bird	Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Threatened	No
Bird	Bank Swallow	<i>Riparia riparia</i>	Threatened	Threatened	Yes
Bird	Bobolink	<i>Dolichonyx oryzivorus</i>	Not applicable	Threatened	No
Fish	Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Special Concern	Special Concern	Yes
Turtle	Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Special Concern	Yes

The list of potential species at risk within the study area is based on a NHIC data report for four 1km² squares surrounding the study area (17MJ8786, 17MJ8787, 17MJ8886, and 17MJ8887), which was obtained through the MNR website.

2.4.5 Bank Swallow Habitat

A habitat assessment of the Saugeen River and the affected slope area was carried out on September 1, 2021 by BMROSS technical staff. During the field investigation, inactive Bank Swallow (*Riparia riparia*) burrows were observed along the bare, vertical face of the eroding slope. It is estimated that there are approximately 500 or more burrows in this location. East of the eroding slope, a small vertical slope was observed among vegetation and approximately 30 burrows were observed in this location. Other

bird species, including the American Kestrel (*Falco sparverius*) and the Double Crested Cormorant (*Phalacrocorax auritus*) were observed within the general area during the field investigation.

Bank Swallows are listed as Threatened in Ontario and are protected through the Endangered Species Act (ESA). Bank swallow habitat is also protected. Should habitat be impacted by the proposed works, mitigation strategies will need to be identified through consultation with MECP. A photo of existing bank swallow burrows on the exposed cliff face, are shown in the photo below.



2.4.6 Breeding Birds

The Atlas of Breeding Birds of Ontario (2001-2005) was used to identify the bird species with confirmed, probable and possible breeding habitat in proximity to the study area. The study area lies within the 100 km² area covered in the Atlas as Square 17TMJ88, in Region 8: Bruce Region. Within the square, a total of 4 birds are confirmed to be breeding within the area, including Bank Swallows as noted above. An additional 41 species were categorized as having possible breeding status in the area (Bird Studies Canada, 2009).

The survey area includes key habitat for identified species, such as forests (in all stages of growth), riverine areas, agricultural areas, wetlands and shoreline areas. The project area forms a very small portion of this region and habitat opportunities are limited based on previous disturbances and active erosion of the cliff face which has reduced tree cover within the project area.

The eBird website was also consulted to identify the potential presence of bird species within the Walkerton area (Cornell Lab of Ornithology, 2019). The most commonly observed and recorded species in the vicinity of Walkerton include: Bank Swallow, Common Grackle, Northern Rough-winged Swallow, Ring-billed Gull, Rock Pigeon, Canada Goose, Common Goldeneye and European Starling.

2.5 Clean Water Act (Source Water Protection)

The intent of the Clean Water Act (CWA), 2006 is to “protect existing and future drinking water” sources in Ontario (Ministry of Environment, Conservation and Parks, 2006). Under the Act, source protection areas and regions were established, giving Conservation Authorities the duties and powers of a drinking water source protection authority. These duties focus on the development, implementation, monitoring and enforcement of information and policies related to source water protection.

The north Walkerton area is located within the Saugeen Valley Source Protection Area (Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region, 2015). There are no municipal water sources located within or immediately adjacent to the study area. Figure 2.6 shows the municipal wells and associated Well Head Protection Areas (WHPA) that service the Walkerton urban area. Municipal wells are located west of the community adjacent to Bruce Road 3 with WHPA’s extending south from the well locations. The Assessment Report for the Saugeen Valley Source Protection Area was consulted to determine if the study area has been identified as a vulnerable area (Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region, 2015). It was determined that the study area is partially within a Significant Groundwater Recharge Area (SGRA) with a vulnerability score of 2. Input received from the local Risk Management Official indicated that there are no source protection policies that apply to this area. It is noted that the proposed project (erosion control works) will not change or create new vulnerable areas.

2.6 Socio-Economic Environment

2.6.1 Provincial Planning Statement (PPS)

The Provincial Planning Statement was issued under Section 3 of *Planning Act* and provides policy direction on matters of provincial interest (Province of Ontario, 2024). 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 follow:

Section 4.1 Natural Heritage

1. *Natural features and areas shall be protected for the long term.*
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.*
6. *Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*
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.*

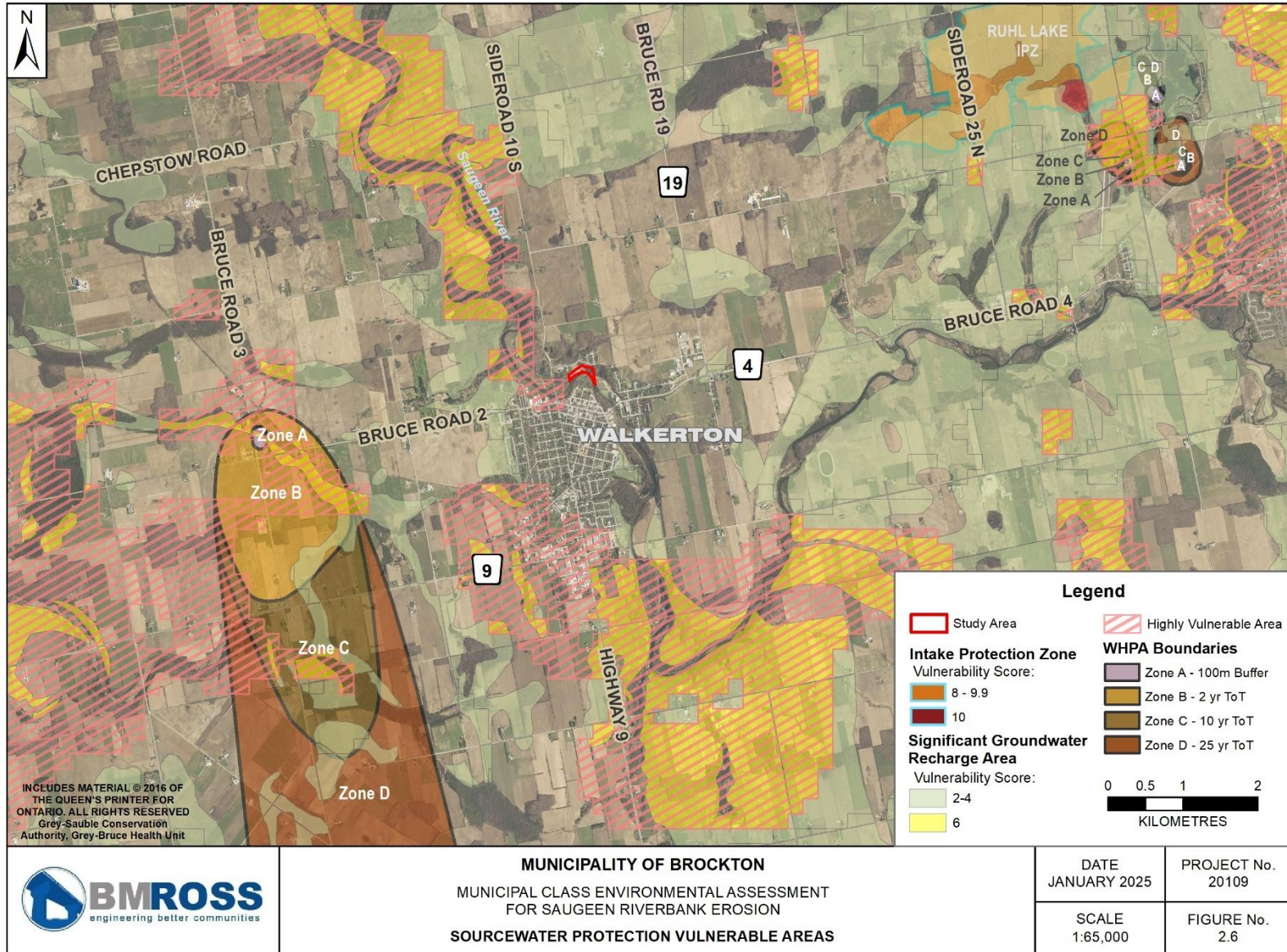
Section 4.2 Water

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, which may require mitigative measures and/or alternative development approaches.*

Section 5.2 Natural Hazards

1. *Planning authorities shall, in collaboration with conservation authorities where they exist, identify hazardous lands and hazardous sites and manage development in these areas, in accordance with provincial guidance.*
4. *Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.*
5. *Despite policy 5.2.3, 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.*

Figure 2.6 Source Water Protection Vulnerable Areas



2.6.2 Adjacent Land Uses

Land uses located in the vicinity of the project site include forested areas, high density residential and single-family residential developments. Wooded areas are located along the shoreline up and downstream from the project site. Municipally owned parkland is located on the south side of the river across from the site, with a trail system situated along the edge of the channel.

2.6.3 Official Plan Policies and Zoning Regulations

The Walkerton Community Official Plan (OP) outlines planning policies that guide land use within the community of Walkerton (Meridian Planning Consultants, 2017). The Plan recognizes the Saugeen River as the major natural feature in the community and has policies to provide for its protection and enhancement, so that it can be used for recreation, tourism, and appreciation of its scenic beauty (subsection 1.4 of OP).

The Plan also encourages the use of the Saugeen River for the recreational and passive enjoyment of area residents and visitors. This should include trail linkages, functional links between the river and the downtown, and accessibility for canoeing, fishing, and passive recreation (subsection 3.6 of OP).

The site is designated 'Environment Protection' (EP) in the OP, as it has inherent environmental hazards such as flood susceptibility, erosion susceptibility, and instability. The Plan prohibits development in this area and it is a goal of the Plan to protect and preserve lands having inherent physical and environmental constraints, in order to avoid potential danger to life or property from the use of such lands.

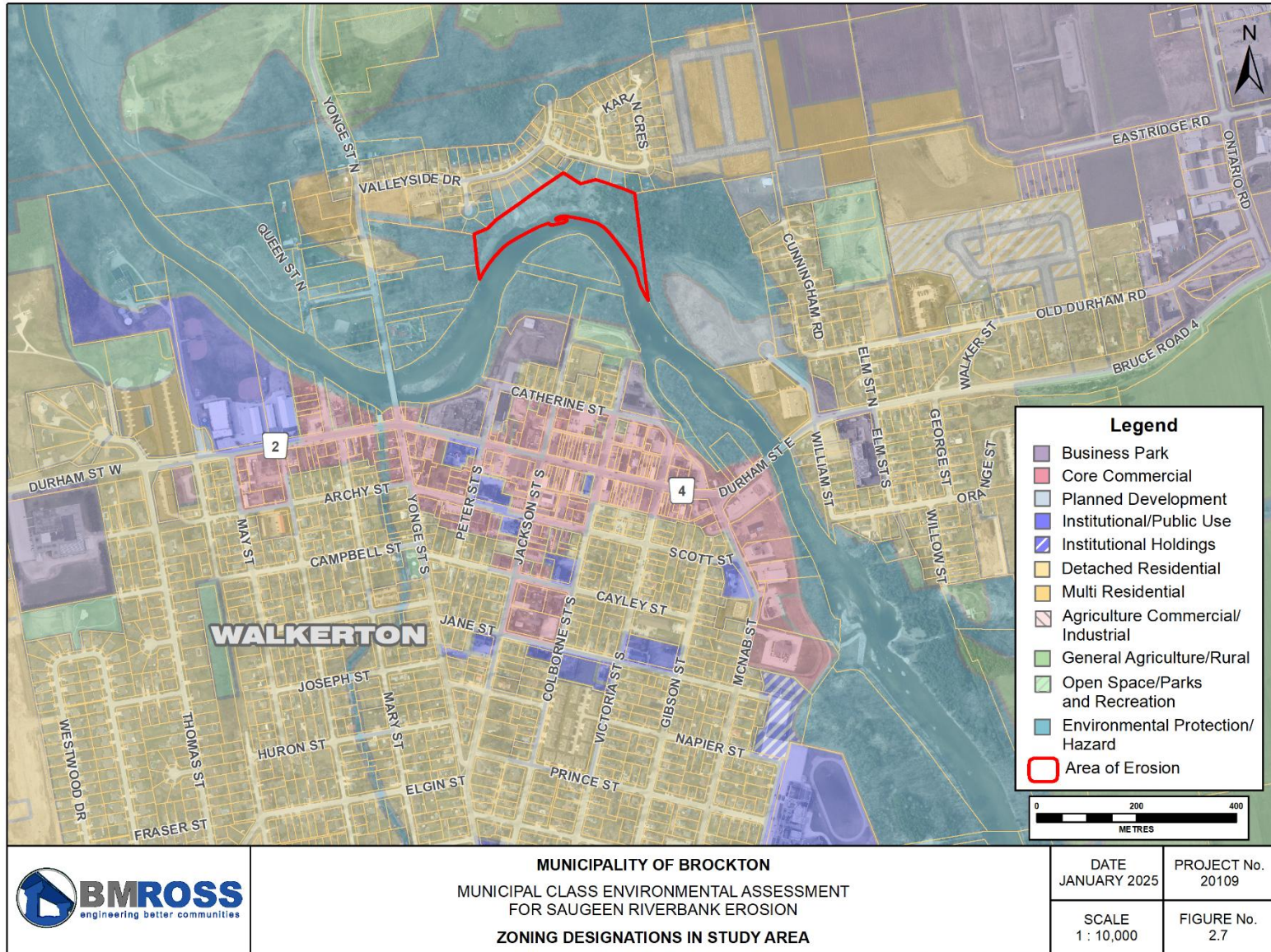
Permitted uses in the 'EP' designation include essential flood, erosion and sediment control structures undertaken by a public authority, and open space uses not requiring closed buildings or major alterations to the landscape such as non-intensive conservation, outdoor recreation, public parks, and essential municipal services.

According to Schedule 'C' – Natural Heritage System, the study area contains a "Not Evaluated Wetland" as well as a 'SOLRIS 2006 Wooded Areas'. The Municipality encourages the long-term protection of the Natural Heritage System and its associated ecological and hydrologic functions.

The Comprehensive Zoning Bylaw (By-law 2013-26) sets out the approved land uses and requirements for development in the Municipality. The site is zoned 'Environmental Protection (EP)', which allows conservation areas, public parks, boat launching and docking. Buildings and structures are prohibited, except those necessary for flood and/or erosion control purposes.

The Zoning By-law also recognizes that some of the lands within the EP zone may be subject to Saugeen Valley Conservation Authority's Ontario Regulation 169/06. Where development or site works are proposed within a Regulated Areas, a permit from SVCA may be required and consultation with the SVCA is encouraged. Copies of relevant policies and mapping are included within Appendix B. Figure 2.7 illustrates existing zoning within and adjacent to the study area.

Figure 2.7 Zoning Designations in the Study Area



2.7 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; and
- Changes in the geographic extent of species ranges and habitat.

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 should be completed and included in the final determination of the preferred approach to completing a project. The evaluation is included in Section 4.4 of this report.

2.8 Cultural Heritage and Archaeological Resources

Based on input received from the Ministry of Citizenship and Multiculturalism (MCM) 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.

2.8.1 Archaeological Resources

According to the Screening Checklist for Evaluating Archaeological Potential, the site is identified as having high archaeological potential as it is within 300 metres of a watercourse. For this reason, a combined Stage 1-2 Archaeological Assessment (AA) will be completed for the project to assess potential impacts to potentially disturbed areas.

2.8.2 Built Heritage Resources

According to the Screening Checklist for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, the study area has low potential for built heritage and cultural heritage landscapes. The completion of a Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) is therefore not required.

2.8.3 Cultural Heritage Landscapes

A Cultural Heritage Landscape is defined within the 2020 Provincial Policy Statement (PPS) as: *“a defined geographic area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the Ontario Heritage Act or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms”*. Section 2.6.1 of the PPS states that *“Significant built heritage resources and significant cultural heritage landscapes shall be conserved.”*

There are no designated Heritage Landscapes within the community of Walkerton, however there are several Listed Heritage properties in the community and several located on Durham Street East (Bruce Road 4). The heritage property located the closest to the project site is the Hampson’s Foundry, located at 10 Yonge Street North, approximately 190 metres west of the site. No impacts to this property are anticipated as a result of the project.

2.9 Geotechnical Investigations

2.9.1 1987 Golder Associates Report

In 1987, Golder Associates were retained by SVCA to complete a slope assessment at the site (Golder Associates, 1987). The report included the completion of 3 boreholes and a site evaluation and included a review of the geotechnical options available to address the slope instability.

The report identified the following remedial measures for the stabilization and control of the regression of the north river valley wall slopes:

- 1) Do nothing to repair the current instability or control erosion at the toe of the slope.
- 2) Maintain the existing river channel, provide erosion protection, and regrade the slope by cutting.
- 3) Re-channel the river away from the toe of the slope and regrade the slope by filling.
- 4) Re-channel the river away from the toe of the slope and regrade the slope by a combination of cutting and filling.

SVCA used the report in support of various grant applications to stabilize the riverbank. These were ultimately unsuccessful and the recommendations were never implemented.

2.9.2 2021 Golder Report Update

In 2021 Golder was retained to update the original report, reassess the slope and evaluate any changes to the site conditions that have occurred since the original report was completed (Golder Associates, 2022). In support of the 2021 evaluation, an updated topographic survey of the site was completed by BMROSS which provided sufficient data to map 5 cross-sections down the riverbank over the length of the affected area. Original borehole data was determined to still be valid.

As a result of the re-evaluation, a revised set of alternatives were identified to address the slope erosion hazard. These are as follows:

Alternative 1 - Provide Erosion Protection at Toe and Regrade Slope by Cutting

Alternative 2 – Realign River to South, Protect Toe and Regrade Slope by Filling

Alternative 3 – Realign River to South, Protect Toe and Regrade Slope by Filling and Cutting

Alternative 4 – Do Nothing

The alternatives identified by the geotechnical engineer will be utilized in support of the Class EA alternatives identified for this project. A copy of the 1987 and 2021 geotechnical report are included within Appendix D.

2.10 Aquatic Habitat Assessment

To further assess the potential impacts of construction on the receiving watercourse, an aquatic habitat assessment of the Saugeen River 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.

2.10.1 Methodology

Field investigation work was carried out on September 1, 2021 by BMROSS technical staff. Water depth, substrate composition and aquatic vegetation details were recorded every 1 to 3 metres along 9 transects. Transects ran perpendicular to the bank, starting on the south bank and ending when water depths were too deep, or flows were too strong to safely continue with data collection. Observed aquatic and terrestrial species were recorded (Due to water depths and slope inclinations, it was not possible to assess the river bottom at the toe of the north riverbank).

2.10.2 Proposed Habitat Alteration

Based on the geotechnical review of the site, potential solutions to address the erosion problem include installing erosion protection at the toe of the slope, re-grading the slope, realignment of the river, improving drainage, relocating structures away from the hazard zone or a combination of these strategies. Impacts to the terrestrial and/or aquatic environments within the project study area are anticipated depending on the solution selected.

The exposed cliff face has little vegetation and is nearly vertical in some places due to ongoing erosion at the toe and slumping action along the cliff face. This environment has provided a preferred nesting habitat for bank swallows, as noted in Section 2.4.5 of this report. Bank Swallows (*Riparia riparia*) are a Threatened species in Ontario and are protected under the *Endangered Species Act* (ESA) and the *Migratory Birds Convention Act* (MBCA). It is illegal to destroy protected breeding habitat during the breeding season between April and September. During the field investigation, breeding habitat for Bank Swallows (*Riparia riparia*) was identified within the project study area.

The section of river adjacent to the toe of slope was not able to be assessed since wading was not possible (strong flows and high water depths). This section of the river has been negatively impacted by active erosion of the slope face with soil slumping and vegetation entering the channel after sloughing from the cliff face. Given this level of disturbance, and assuming that characteristics are similar to the south bank, it was concluded that altering the aquatic environment along the north bank of the river to address the active erosion, should have no measurable negative impacts to fish habitat. Site specific mitigation measures would be implemented during construction.

2.10.3 Conclusions

In conjunction with the aquatic habitat assessment, the presence of freshwater mussels within the watercourse was confirmed. The presence of Bank Swallow (*Riparia riparia*) breeding habitat was also confirmed along the eroding cliff face. No other unique or specialized features were identified during the field investigation.

Section 5.0 of this report identified recommended mitigation measures to be implemented in conjunction with the preferred alternative identified through this report.

A copy of the Aquatic Habitat Assessment can be found in Appendix E.

2.11 Fluvial Geomorphic and Toe Erosion Assessment

In January 2022, Water's Edge Environmental Solutions was retained to complete a Fluvial Geomorphic assessment of the Saugeen River adjacent to the site (Water's Edge Environmental Solutions Team Ltd. , 2022). A fluvial geomorphic assessment involves an analysis of the river's processes and how they might impact, or be impacted by, the proposed project. A primary goal of the assessment was to understand how implementation of the proposed alternatives might impact river processes further downstream.

Background information on the project was forwarded to Water's Edge, including the geotechnical assessments, topographic details, recent aerial photography, and flow data from the Saugeen River. The following conclusions and recommendations were identified in the report.

1. Saugeen River is a sinuous channel,
2. The substrate and bank composition are typically silt and sand with highly erodible banks,
3. The creek was assessed as "Transitional/stressed" by the Rapid Geomorphic Assessment (RGA) and classed as "Fair" by the Rapid Stream Assessment Technique (RSAT) during the site assessment,
4. Background documentation and historical aerial photo analyses were used in the determination of the erosion rates, as outlined in Table 7 and displayed on Map 1 in Appendix A,
5. Photographs of the existing creek can be seen in Appendix B,
6. There are five alternatives provided in the report. Number 1 to number 4 include toe protection, while the last alternative is "Do Nothing",
7. The length of the toe protection should be approximately 350m along the north bank from upstream to downstream to tie into the stable banks on both sides,
8. For Alternatives 1 to 4 with toe protection, there will be no upstream impact due to stopping the toe from eroding but there could be potential impacts on the downstream and south bank.
9. For the "Do Nothing" approach, the excessive supply of sediment from the slope could create changes in the downstream channel dynamics, negatively affecting the river. In addition to the threat to the houses at top of the slope.

A copy of the report is included in Appendix F.

3.0 IDENTIFICATION OF THE PROBLEM AND PRACTICAL ALTERNATIVES

3.1 Phase 1 – Identification of Problem/Opportunity

Phase 1 of the Class EA process included the definition of the problem or opportunities that need to be addressed. Based on field observations and a number of geotechnical investigations, it was determined that the north bank of the Saugeen River adjacent to the Valleyside Drive subdivision in north Walkerton has significant ongoing erosion issues that threaten the long-term safety and stability of structures located adjacent to the top of the slope. Given this, the Municipality has elected to investigate options to address the erosion problem. The following problem/opportunity statement has been identified for this project:

The north bank of the Saugeen River, adjacent to Valleyside Drive in the community of Walkerton, is actively eroding creating instability and risk for structures located in proximity to the eroding slope.

3.2 Phase 2 – Identification of Practical Alternatives

Phase 2 of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problems or opportunity. A limited number of practical solutions to the defined problem were identified following the preliminary evaluation of alternatives. These alternatives built upon the findings of a Geotechnical Investigation Slope Stability and Erosion Control Study that was completed by Golder Associates in June 1987; and then updated in 2021. A more detailed description of each of these alternatives is included below.

3.3 Identified Alternatives for further Review

Alternative 1 - Provide Erosion Protection at Toe and Regrade Slope by Cutting

To address ongoing slope instability, this alternative will involve the installation of robust erosion protection at the toe of the slope and regrading of the slope face by cutting from the edge of river to a stable angle of repose at 2.25H:1.0V. Several benches would be constructed along the slope face with associated drainage infrastructure to address groundwater seepage. A shallow swale would be installed along the new top of bank to divert overland drainage away from the bank area. This option is illustrated on Figure 3.1. This alternative would result in significant encroachment into privately owned lands adjacent to the top of slope so is likely not feasible given current proximity of structures to the top of slope.

Alternative 2 – Realign River to South, Protect Toe and Regrade Slope by Filling

This alternative will involve the installation of robust erosion protection and fill material at the toe of the slope resulting in a shifting of the river channel to the south. The slope area would then be filled from the new toe of slope to achieve a stable angle of repose of 2.25H:1.0V. Several benches would be constructed along the slope face with associated drainage infrastructure to address groundwater seepage. A shallow swale

would be installed along the new top of bank to divert overland drainage away from the bank area. This option is illustrated on Figure 3.1. With this alternative, the current top of slope would remain in approximately the same location, with little encroachment into privately owned lands adjacent to the top of slope.

Alternative 3 – Realign River to South, Protect Toe and Regrade Slope by Filling and Cutting

This alternative will involve the installation of robust erosion protection and fill material at the toe of the slope resulting in a slight shift of the river channel to the south. The slope area would then be regrading by filling and cutting from the new toe of slope to achieve a stable angle of repose of 2.25H:1.0V. As with the previous options, several benches would be constructed along the slope face with associated drainage infrastructure to address groundwater seepage. A shallow swale would be installed along the new top of bank to divert overland drainage away from the bank area. This option is illustrated on Figure 3.2. With this alternative, the current top of slope would undergo some modifications to achieve the desired stable slope face, resulting in some encroachment into privately owned lands adjacent to the top of slope, however less than Alternative 1.

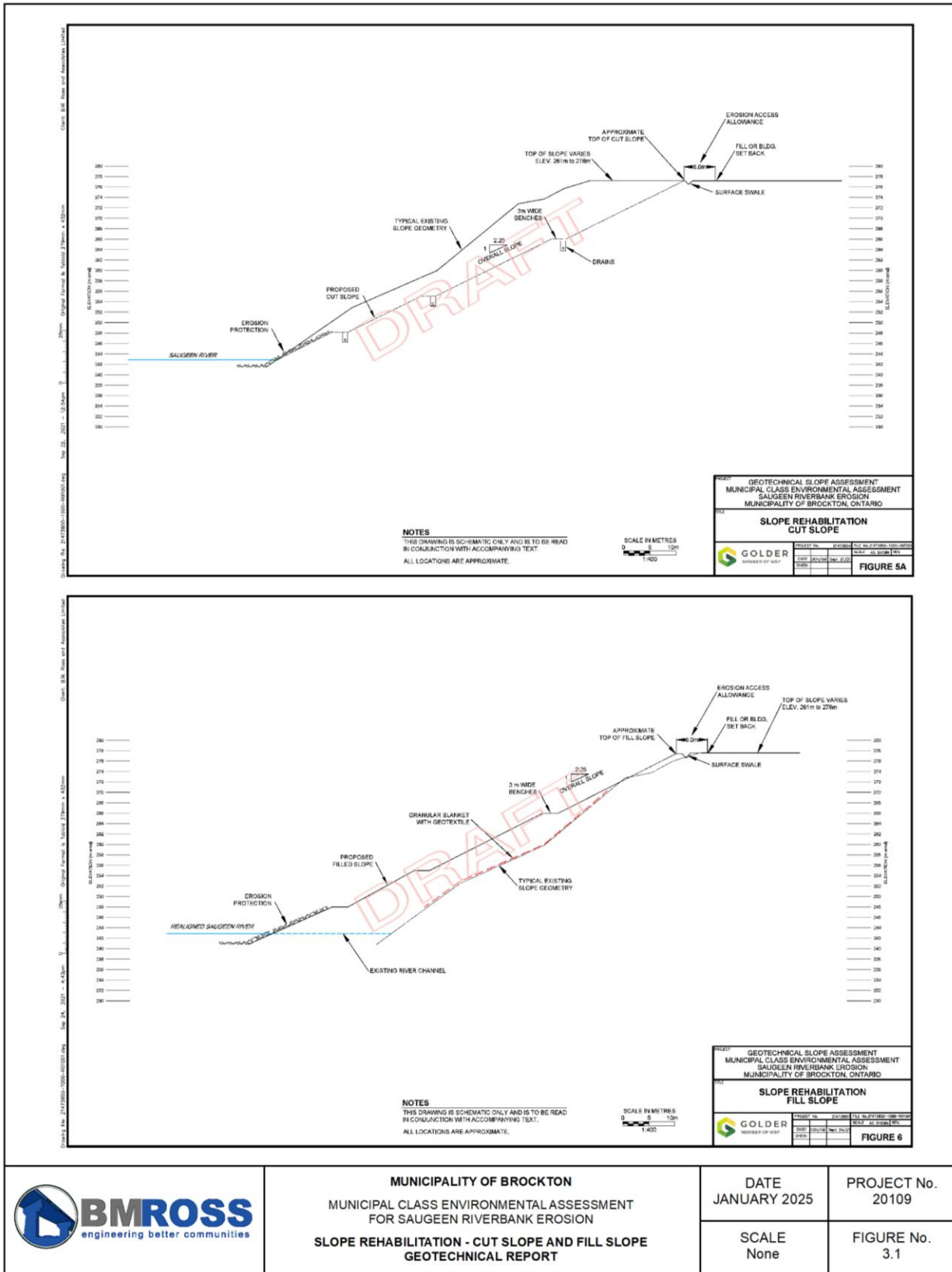
Alternative 4 – Protect the Toe of slope

Although not initially included in the geotechnical report, BMROSS is of the opinion that an additional alternative should be included, to protect the toe of slope and leave the slope as is to stabilize on its own over time. We would suggest that a French Drain and shallow swale be installed adjacent to the top of bank to collect surface runoff, and limited subsurface drainage, and be discharged at the toe of slope. This option is illustrated on Figure 3.3.

Alternative 5 – Do Nothing

This option proposes that no improvements or changes be made to address the identified problems. The Do Nothing Alternative may be implemented at any time in the design process prior to construction. This decision is typically made when the costs of all alternatives, both financial and environmental, significantly outweigh the benefits.

Figure 3.1 – Alternatives 1 & 2



MUNICIPALITY OF BROCKTON
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR SAUGEEN RIVERBANK EROSION
SLOPE REHABILITATION - CUT SLOPE AND FILL SLOPE
GEOTECHNICAL REPORT

DATE
JANUARY 2025

PROJECT No.
20109

SCALE
None

FIGURE No.
3.1

Figure 3.2 – Alternative 3 & 5

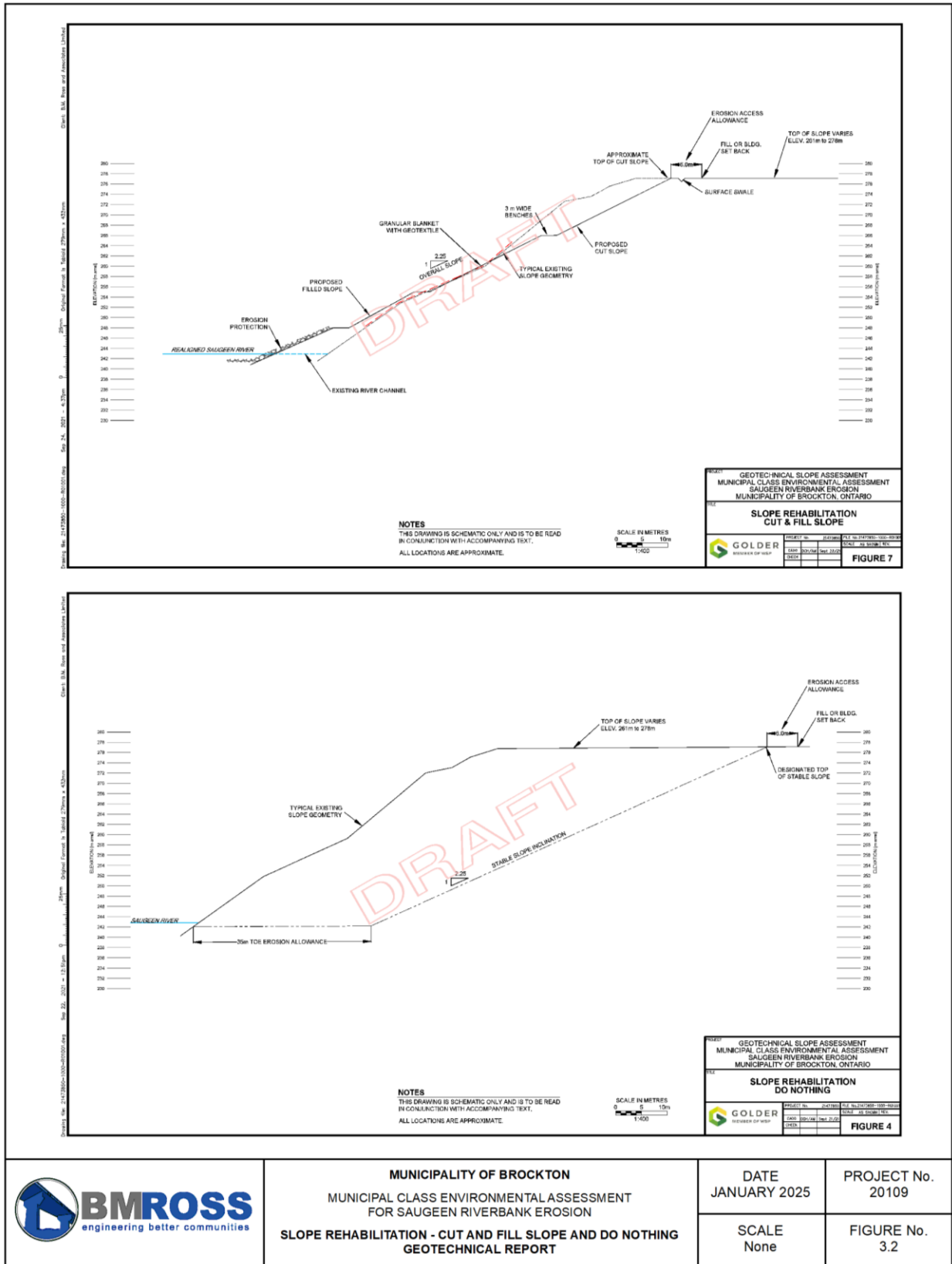
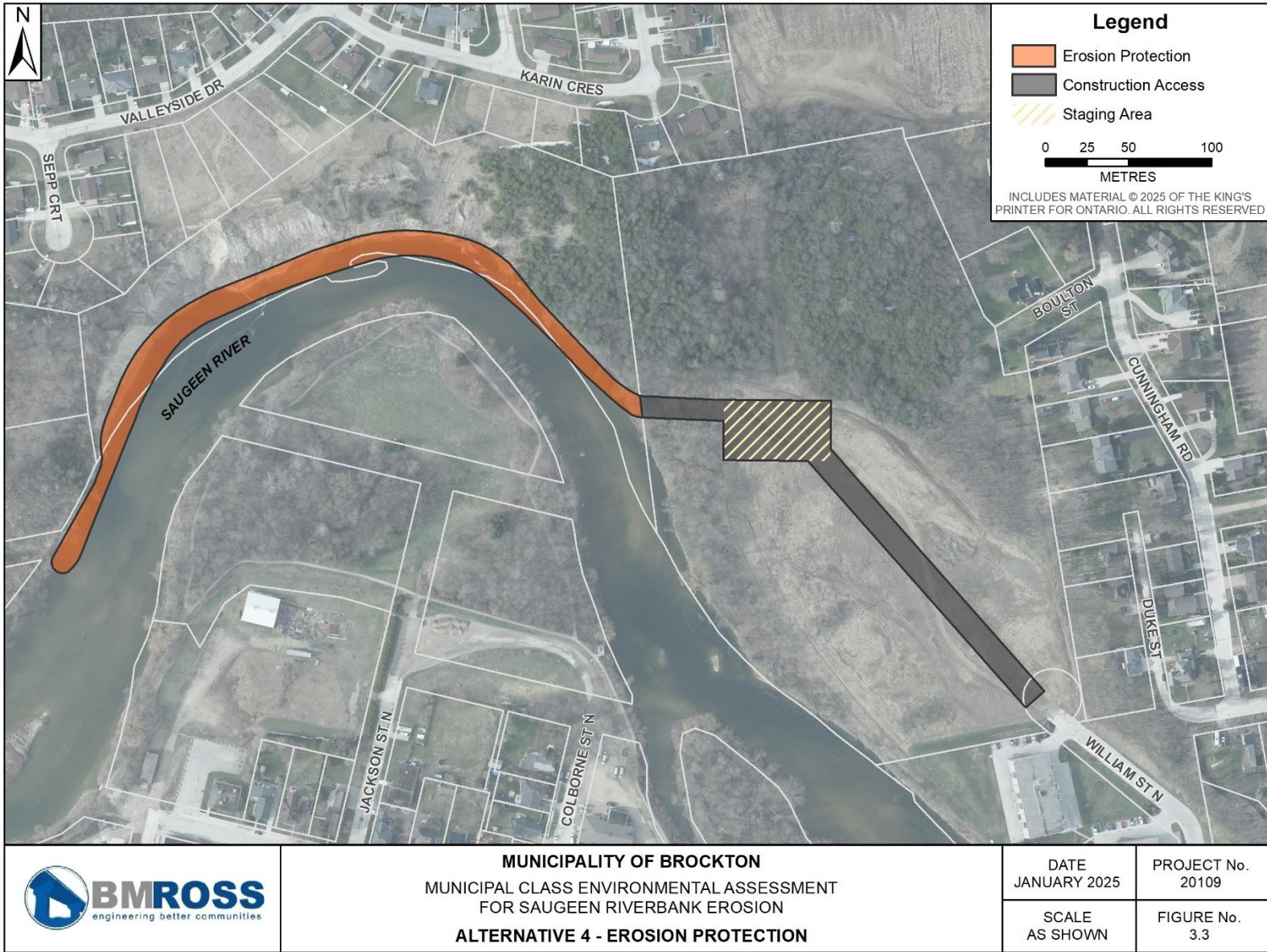


Figure 3.3 – Alternative 4



3.4 Evaluation of Alternatives

The second phase of the Class EA process includes the evaluation of the identified practical 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 the alternatives;
- Preliminary selection of a preferred alternative;
- Consultation with the general public and review agencies; and
- Final selection of a preferred alternative.

3.4.1 Evaluation Method and Procedure

The evaluation of alternatives process was carried out using a comparative assessment methodology, designed to predict the nature and magnitude of environmental impacts resulting from each defined option and to assess the relative merits of the alternative solutions. The evaluation method involves these principal tasks:

- Identification of existing environmental conditions (baseline conditions, inventories);
- Assessment of existing land use activities, infrastructure, natural features and socioeconomic characteristics (i.e., environmental scoping);
- Review of proposed alternatives and related works;
- Determination of the level of complexity required to complete the impact assessment;
- Identification of environmental components and sub-components that may be affected by the defined alternatives (i.e., define evaluation criteria);
- Prediction of environmental impacts (positive, negative) resulting from the construction and operation of the defined options;
- Identification and evaluation of measures to mitigate adverse effects;
- Prioritization of evaluation criteria, as required (i.e., weigh environmental components based on preference); and
- Selection of a preferred alternative following a comparative analysis of the relative merits of each option.

3.4.2 Environmental Evaluation Methodology

Section 3.2 of this report listed the practical alternative solutions that were identified to resolve the defined problem. As part of the evaluation process, it is necessary to determine what effect or impact each alternative will have on the environment and what measures can be taken to mitigate the impact. The two main purposes of this exercise are to:

- Minimize or avoid adverse environmental effects associated with a project; and
- 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; and
- Technical environment.

The identified environmental components can be further subdivided into specific elements that have the potential to be affected by the implementation of a solution. Potential impacts are noted in the following section of the report. Table 3.1 provides an overview of the specific environmental components considered relevant to this investigation. These components were identified following the initial round of public and agency input and following a preliminary review of each alternative with respect to technical considerations and the environmental setting of the project.

Table 3.1 Evaluation of Alternatives: Identification of Environmental Components

Environmental Component	Sub-Component	Specific Components
Natural Environment	Aquatic Environment	Aquatic habitat, water quality
	Terrestrial Habitat	Significant natural features, species at risk, vegetation
	Atmosphere	Air quality, noise
	Surface Water	Water quality and quantity, Source Water Protection
	Geology	Physiographic features and soils, drainage characteristics, erosion
	Climate Change	Greenhouse gases, extreme weather
Social Environment	Neighbourhood	Quality of life, disruption during construction, safety
	Community	Disruption during construction, recreational opportunities

Environmental Component	Sub-Component	Specific Components
Cultural Heritage Environment	Built Heritage Resources and Cultural Heritage Landscapes	Identified heritage attributes
	Archaeology	Archaeological resources and areas of archaeological potential
Economic Environment	Municipal	Capital costs, maintenance and operational costs
	Community	Property Values
Technical Environment	Infrastructure	Access issues, maintenance requirements, constructability

The environmental effects of each 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:

- Nature (direct, indirect or cumulative);
- Magnitude (including the scale, intensity, geographic scope, frequency and duration of potential impacts);
- Technical complexity;
- Mitigation potential (avoidance, compensation and degree of reversibility);
- Public perception;
- Scarcity and uniqueness of affected components; and
- Compliance with applicable regulations and public policy objectives.

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

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

For 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 the project. Table 3.2 summarizes the impact criteria.

Table 3.2 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	Implementation of the project could impact upon the resource during the construction phase of the project but would have negligible impact on the resource during the operation phase.

Given the criteria defined in Table 3.2, the significance of adverse effects is predicated on the following assumptions:

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

3.5 Environmental Evaluation

The potential interactions between the identified alternatives and environmental components (Table 3.1) were examined as part of the evaluation of alternatives phase. The purpose of this analysis was to determine, in relative terms, the environmental effects of constructing and operating each alternative on the defined environmental components and sub-components (using the impact criteria described in Table 3.2). In this regard, the level of effect for the environmental interactions were rated as High, Moderate, Low and Minimal. Potential mitigation measures were also considered as part of this evaluation. Table 3.3 summarizes the outcome of the environmental effects analysis carried out for the alternatives.

Table 3.3 Evaluation of Environmental Impacts of Alternative Solutions

Environmental Component	Alternative 1 – Provide erosion protection at toe and regrade slope by cutting	Alternative 2 – Realign river to the south, protect toe and regrade slope by filling	Alternative 3 – Realign river to the south, protect toe and regrade slope by filling and cutting	Alternative 4 – Install erosion protection at the toe of slope	Alternative 5 – Do Nothing
Natural – Aquatic Habitat	<ul style="list-style-type: none"> Will result in short-term impacts to aquatic habitat 	<ul style="list-style-type: none"> Will result in more significant impacts to aquatic habitat due to realignment of the channel 	<ul style="list-style-type: none"> Will result in more significant impacts to aquatic habitat due to realignment of the channel 	<ul style="list-style-type: none"> Will result in short-term impacts to aquatic habitat 	<ul style="list-style-type: none"> No impacts related to construction, however the ongoing erosion results in sediment loads to the channel.
Natural – Terrestrial Habitat	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact existing terrestrial habitat. 	<ul style="list-style-type: none"> Bank regrading would result in significant impacts to bank swallow habitat and any existing terrestrial habitat remaining on the slope. 	<ul style="list-style-type: none"> Bank regrading would result in significant impacts to bank swallow habitat and any existing terrestrial habitat remaining on the slope. 	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact existing terrestrial habitat. 	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact existing terrestrial habitat.
Natural – Atmosphere	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of construction equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of construction equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of construction equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of construction equipment exhaust. 	<ul style="list-style-type: none"> No impacts anticipated
Natural – Surface Water	<ul style="list-style-type: none"> A hydraulic analysis of the river will be completed to assess the impact of erosion protection. 	<ul style="list-style-type: none"> A hydraulic analysis of the river will be completed to assess the impact of realigning the river and installing erosion protection. 	<ul style="list-style-type: none"> A hydraulic analysis of the river will be completed to assess the impact of realigning the river and installing erosion protection. 	<ul style="list-style-type: none"> A hydraulic analysis of the river will be completed to assess the impact of erosion protection. 	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact the channel adjacent to the toe.
Natural – Geology	<ul style="list-style-type: none"> A fluvial geomorphology assessment will be completed to assess impacts on the geological processes within the river corridor. 	<ul style="list-style-type: none"> Re-grading of the bank area will negatively impact the geology of the river valley in the short term and stabilize it over the long term. 	<ul style="list-style-type: none"> Re-grading of the bank area will negatively impact the geology of the river valley in the short term and stabilize it over the long term. 	<ul style="list-style-type: none"> A fluvial geomorphology assessment will be completed to assess impacts on the geological processes within the river corridor. 	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact the bank area.
Natural – Climate Change	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of equipment exhaust. 	<ul style="list-style-type: none"> Minor impacts would occur during construction as a result of equipment exhaust. 	<ul style="list-style-type: none"> No impacts anticipated
Social – Neighbourhood	<ul style="list-style-type: none"> Would result in significant impacts to properties located adjacent to the top of slope 	<ul style="list-style-type: none"> Would result in significant impacts to properties located adjacent to the top of slope 	<ul style="list-style-type: none"> Would result in significant impacts to properties located adjacent to the top of slope 	<ul style="list-style-type: none"> Would result in some impacts to adjacent properties from construction-related impacts. 	<ul style="list-style-type: none"> No impacts related to construction however ongoing erosion would continue to negatively impact the long-term stability of the bank.
Social – Community	<ul style="list-style-type: none"> Would result in some construction-related impacts to the community from noise, and dust during construction. 	<ul style="list-style-type: none"> Would result in some construction-related impacts to the community from noise, and dust during construction. 	<ul style="list-style-type: none"> Would result in some construction-related impacts to the community from noise, and dust during construction. 	<ul style="list-style-type: none"> Would result in some construction-related impacts to the community from noise, and dust during construction. 	<ul style="list-style-type: none"> No impacts initially, however ongoing erosion will negatively impact river adjacent to the site.
Cultural Heritage – Archaeological	<ul style="list-style-type: none"> May result in impacts to archaeological resources adjacent to top of bank. 	<ul style="list-style-type: none"> May result in impacts to archaeological resources adjacent to top of bank. 	<ul style="list-style-type: none"> May result in impacts to archaeological resources adjacent to top of bank. 	<ul style="list-style-type: none"> Fewer impacts to archaeological resources 	<ul style="list-style-type: none"> No impacts anticipated

Environmental Component	Alternative 1 – Provide erosion protection at toe and regrade slope by cutting	Alternative 2 – Realign river to the south, protect toe and regrade slope by filling	Alternative 3 – Realign river to the south, protect toe and regrade slope by filling and cutting	Alternative 4 – Install erosion protection at the toe of slope	Alternative 5 – Do Nothing
Cultural Heritage – Built Heritage Resources	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> No impacts anticipated
Economic – Municipal	<ul style="list-style-type: none"> Significant impacts due to anticipated implementation costs 	<ul style="list-style-type: none"> Significant impacts due to anticipated implementation costs 	<ul style="list-style-type: none"> Significant impacts due to anticipated implementation costs 	<ul style="list-style-type: none"> Less expensive than Alternatives 1-3 	<ul style="list-style-type: none"> Less expensive initially, but could be more expensive if erosion impacts municipal infrastructure
Economic – Community	<ul style="list-style-type: none"> Residents would be compensated if property is directly impacted 	<ul style="list-style-type: none"> Residents would be compensated if property is directly impacted 	<ul style="list-style-type: none"> Residents would be compensated if property is directly impacted 	<ul style="list-style-type: none"> Fewer direct impacts to adjacent properties 	<ul style="list-style-type: none"> Property values may be negatively impacted
Technical - Infrastructure	<ul style="list-style-type: none"> Input would be sought from geotechnical engineers to support the design process 	<ul style="list-style-type: none"> Realignment of the river would be more technically complex 	<ul style="list-style-type: none"> Realignment of the river would be more technically complex 	<ul style="list-style-type: none"> Less technically complex than Alternatives 1-3 	<ul style="list-style-type: none"> Could result in impacts to existing infrastructure located at the top of bank.

3.6 Cost Analysis

Costs for the alternatives carried forward vary significantly, in terms of both initial capital and ongoing operational costs. The following table provides a relative comparison of the alternatives:

Table 3.4 Alternative Relative Cost Comparison

Alternative	Relative Initial Capital Cost	Operation & Maintenance Costs
1 – Protect Toe and Regrade Slope by Cutting	7.82M + HST	Moderate
2 – Realign River to south, protect toe and regrade slope by filling	< 7.82M + HST	Moderate
3 - Realign River to south, protect toe and regrade slope by filling and cutting	< 7.82M + HST	Moderate
4 – Install erosion protection at the toe of slope	3.6M + HST	Low/Moderate
5- Do Nothing	N/A	N/A

3.7 Comparative Analysis

Tables 3.5 - 3.9 provide summaries of the key considerations for each option with respect to the environmental components described in Table 3.1. The tables outline 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 3.5 Summary of Benefits, Impacts and Potential Mitigation for Alternative 1 (Toe Protection and Regrade Slope by cutting)

Anticipated Benefits	Potential Impacts	Potential Mitigation
<ul style="list-style-type: none"> • Would address erosion issues at the toe of slope and stabilize the slope over the long term. 	<ul style="list-style-type: none"> • One of the more expensive options • Would negatively impact bank swallow habitat • Would result in significant impacts to adjacent property owners as bank regrading would encroach on private property. 	<ul style="list-style-type: none"> • Consult with DFO to address fisheries impacts. • Complete in-water work only during approved in-water timing windows • Compensate property owners for land requirements • Identify mitigation options for terrestrial SAR.

**Table 3.6 Summary of Benefits, Impacts and Potential Mitigation for Alternative 2
(Realign river to south, protect toe, regrade slope by filling)**

Anticipated Benefits	Potential Impacts	Potential Mitigation
<ul style="list-style-type: none"> • Fewer impacts to adjacent property owners as bank would be filled to stabilize. 	<ul style="list-style-type: none"> • Would negatively impact aquatic habitat by realigning channel adjacent to the toe • Impacts to river hydraulics would need to be addressed • Would negatively impact bank swallow habitat 	<ul style="list-style-type: none"> • Consult with DFO to address fisheries impacts. • Complete in-water work only during approved in-water timing windows • Complete modeling to address hydraulic impacts. • Identify mitigation options for terrestrial SAR.

**Table 3.7 Summary of Benefits, Impacts and Potential Mitigation for Alternative 3
(Realign river to south, protect toe, regrade slope by filling & cutting)**

Anticipated Benefits	Potential Impacts	Potential Mitigation
<ul style="list-style-type: none"> • Some impacts to adjacent property owners however fewer impacts than alternative 1. 	<ul style="list-style-type: none"> • Would negatively impact aquatic habitat by realigning channel adjacent to the toe • Impacts to river hydraulics would need to be addressed • Would negatively impact bank swallow habitat 	<ul style="list-style-type: none"> • Consult with DFO to address fisheries impacts. • Complete in-water work only during approved in-water timing windows • Complete modeling to address hydraulic impacts. • Identify mitigation options for terrestrial SAR.

**Table 3.8 Summary of Benefits, Impacts and Potential Mitigation for Alternative 4
(Install Erosion Protection at Toe of slope)**

Anticipated Benefits	Potential Impacts	Potential Mitigation
<ul style="list-style-type: none"> • Would address the problem • Least impactful to adjacent property owners • Minimizes impacts to bank swallow habitat 	<ul style="list-style-type: none"> • Least expensive options. • Short-term impact to aquatic species and their habitat • May result in impacts to river hydraulics 	<ul style="list-style-type: none"> • Consult with DFO to address fisheries impacts • In-water work would be completed during approved in-water timing windows

Table 3.9 Summary of Benefits, Impacts and Potential Mitigation for Alternative 5 (Do Nothing)

Anticipated Benefits	Potential Impacts	Potential Mitigation
<ul style="list-style-type: none"> • Least expensive option in the short-term • Minimal short-term impacts 	<ul style="list-style-type: none"> • Does not address the identified problem, as erosion will continue 	<ul style="list-style-type: none"> • No potential mitigation measures identified

3.8 Evaluation Summary

Five alternative solutions were initially presented for evaluation. These were:

- Alternative 1:** Install Toe Protection and Regrade Slope by Cutting
- Alternative 2:** Realign River to South, Protect Toe, Regrade Slope by Filling
- Alternative 3:** Realign River to South, Protect Toe, Regrade Slope by Filling and Cutting
- Alternative 4:** Install Erosion Protection at the Toe of Slope
- Alternative 5:** Do Nothing

The environmental impacts, which include impacts to the natural, social, cultural, and technical environments, were evaluated for each of the Alternatives and are summarized in Table 3.3 and described below.

Alternative 1, which includes installation of toe protection and re-grading the slope by cutting back the slope to a stable long term angle, resulted in the greatest impacts to the social environment, by encroaching into adjacent properties with the regraded top of bank. Although this alternative would address the identified problem, economic impacts were also significant as were impacts to terrestrial habitat (bank swallows).

Alternative 2, which involves realigning the river by shifting the toe of slope to the south, protecting the toe and re-grading the slope by filling from the new toe of slope, resulted in the greatest impact to the economic and natural environments, due to costs associated with realigning the river and the resultant impacts to fish habitat and terrestrial habitat. This alternative was less impactful to the social environment

Alternative 3, is similar to option 3 and includes realigning the river by shifting the toe of slope to the south, protecting the toe and re-grading the slope through a combination of filling and cutting. This option also results in significant impacts to the economic and natural environments, due to costs associated with realigning the river and the resultant impacts to fish habitat and terrestrial habitat. However the impacts were not as severe as alternative 2, since the shift in the river would not be as significant. This alternative was less impactful to the social environment than alternative 1.

Alternative 4, includes protecting the toe of slope through the installation of erosion protection and leaving the slope as is. This alternative results in the fewest impacts to the economic environment while also addressing the problem and would also be the least impactful to the social and natural environments, by minimizing terrestrial impacts (bank swallow habitat) and leaving the current top of bank untouched.

Alternative 5, the 'do nothing' alternative, has very few impacts initially. However, it would not address the current erosion issues on the riverbank slope which, if not addressed, could lead to continued erosion and slope failure which would eventually impact the safety of structures located at the top of bank.

Table 3.10 Summary of Analysis

		Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Natural	Aquatic					
	Terrestrial					
	Atmosphere					
	Surface Water					
	Geology					
	Climate Change					
Social	Neighbourhood					
	Community					
Cultural Heritage	Built Heritage					
	Archaeology					
Economic	Project Area					
	Municipal					
Technical	Infrastructure					
		High Impacts	High-Moderate Impacts	High-Moderate Impacts	Moderate Impacts – Preliminary Preferred Alternative	Does Not Address Problem
	Impact Summary					

High
 Moderate-High
 Moderate
 Low-Moderate
 Low

3.9 Identification of a Preliminary Preferred Solution

The outcome of the evaluation of alternatives described in the previous subsections and summarized in Tables 3.6 to 3.11 is a preference for implementation of **Alternative 4: Protect the Toe of Slope**. This option was presented to Brockton Council on January 10, 2023. The following are the key attributes associated with this alternative which justified its selection as the preferred alternative:

- It addresses the identified problem statement;
- Is the most cost effective solution that addresses the problem;
- Minimizes impacts to adjacent properties;
- Results in fewer impacts to surface water and river hydraulics by maintaining the current location of the toe of slope.
- Results in the fewest impacts to aquatic and terrestrial species and their habitat, with any impacts being short-term in nature and mitigated through site specific measures.

3.10 Additional Geotechnical Review

Following the January 10, 2023 Council presentation which recommended Alternative 4 as the Preliminary Preferred Alternative for the project, BMROSS staff sought additional input from Golder Associates (now WSP) the geotechnical firm that completed the original slope assessment. Since alternative 4 was not recommended in the 2022 Golder Report input from the geotechnical firm was required to ensure that implementation of Alternative 4 would appropriately address the eroding slope.

A Technical Memorandum was prepared by WSP dated July 18, 2023. The Memorandum included a global slope stability analysis was undertaken in order to assess the recommended alternative. The assessment noted that a factor of safety of 1.3 to 1.5 is considered adequate for long-term stability for residential land use. The existing slope at sections B-B" and C-C' (refer to Figure 3.4) were determined to be unstable to marginally stable in their current configuration. The estimated factors of safety against deep-seated rotational failures are 1.0 and 1.1 respectively.

The evaluation of Alternative 4 determined that the factor of safety would improve only slightly to 1.1 and 1.2, respectively following implementation of Alternative 4. In addition, safety concerns were identified suggesting that workers could potentially be at risk during installation of the erosion protection should a bank failure occur during completion of the work. The long-term viability of the erosion protection was also questioned if the upper bank were to fail causing instability within the toe protection.

Due to the concerns noted above, and the limited improvement to the factor of safety associated with the slope, the geotechnical firm could not support completion of the toe protection without incorporation of the upper slope regrading work. A copy of the July 2023 Memorandum can be found in Appendix D.

3.11 Geotechnical Peer Review

Following receipt of the Technical Memorandum prepared by WSP a geotechnical Peer Review was undertaken to ensure that the recommendations were consistent with geotechnical standards and guidelines. CMT Engineering Inc. was retained to review the Technical Memorandum and comment on the conclusions and recommendations contained in the report. A letter report was received on November 21, 2023 indicating that CMT was in general agreement with the recommendations provided by WSP. Their opinion was that the erosion protection was the most critical component of the overall slope stability project, but that installation of the protection at the toe would not increase the overall stability of the slope. And as noted by WSP, a significant erosion event on the upper slope could result in damage to protection installed at the toe.

3.12 Approval Requirements

Subsequent to the additional geotechnical review, additional consultation was undertaken with review agencies to fully understand potential limitations associated with the required Fisheries Act and Endangered Species Act (ESA) approval requirements. It was determined, based upon this review, that a one month construction window would be available on any given year to undertake construction. The construction window occurs in September following the end of the active breeding bird season (April 1 - August 31), and prior to the end of the in-water fisheries timing window (July 15 - September 30). The limitations associated with a one month construction window would make implementation of the project nearly impossible.

3.13 Revised Recommendation for Preferred Alternative

Given the information noted above, BMROSS staff prepared an update for Brockton Municipal Council to confirm selection of the preliminary preferred alternative for the project initially recommended in January 2023. On December 10, 2024 BMROSS presented a project update to Brockton Council which included a recommendation to revise the preferred recommendation for the project to Alternative 5, the 'Do Nothing' alternative. With the updated geotechnical and approval requirements associated with the project it was determined that successful implementation of the project was not possible. As noted in Section 3.3, the Do Nothing Alternative may be implemented at any time in the design process prior to construction. The decision is typically made when the costs of all alternatives, both financial and environmental, significantly outweigh the benefits. The revised recommendation was presented to, and supported by, Brockton Council at the meeting on December 10, 2024.

It was noted at the meeting that some measures would be implemented as part of the 'Do Nothing' alternative. These measures are as follows:

- Ongoing monitoring of the slope area;
- Implementation of drainage improvements at the top of bank to divert overland flows away from the slope;

- Tree/shrub planting on private and municipally-owned lands, as directed by SVCA, provided that permission can be obtained from private property owners;
- Ongoing monitoring of municipal infrastructure so that relocation can be implemented if necessary;
- Continue to explore grant funding opportunities.

4.0 CONSULTATION

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, stakeholders, Indigenous Communities and review agencies that might have an interest in the project.

The components of the consultation program employed during the Class EA study are summarized in this Section of the Screening Report and documented in Appendix G.

Comments received from the program and related correspondence are discussed below and also documented in Appendix G.

4.2 Public Consultation

4.2.1 Initial Public Notice

Contents:	General study description, summary of problem/opportunity, map showing location of the subject lands.
Issued:	June 3, 2020
Placed In:	Walkerton Herald Times (June 3, 2020 and June 10, 2020 edition)
Circulated To:	145 adjacent property owners
Input Period:	Concluded July 3, 2020

Table 4.1 provides a summary of input received from members of the public as a result of the Notice.

Table 4.1 – Public Feedback: Initial Consultation Phase

Public	Comments	Action Taken
Resident of Yonge St. N - June 9, 2022 (via phone)	<ul style="list-style-type: none"> • Supports the project. • Stated that they would allow access to the site through their property. 	<ul style="list-style-type: none"> • Comments received and recorded.
Resident of Cunningham Rd June 10, 2020 (via email)	<ul style="list-style-type: none"> • Wanted more information on how the project might impact his property on Cunningham Road. 	<ul style="list-style-type: none"> • Advised that we would provide more information later in the EA process.
Area Resident June 11, 2020 (via E-mail)	<ul style="list-style-type: none"> • Had questions related to a slope study, impact on wildlife, slope regrading, river realignment, drainage improvements and the relocation of structures. 	<ul style="list-style-type: none"> • Indicated the EA will be studying the eroding slope to identify a preferred method to address the problem.
Former Resident of Karin Crescent June 15, 2020 (via phone)	<ul style="list-style-type: none"> • Born in Walkerton and currently lives in Gravenhurst • Lived in a home on Karin Crescent • Indicated that material has accumulated on the south bank of the river • Indicated that the toe could be protected using gabion baskets and backfill with material from the south side of the river 	<ul style="list-style-type: none"> • Comments received and recorded. • Contact information was provided for further comments/questions on the project.
Resident of Valleyside Drive June 15, 2020 (via email)	<ul style="list-style-type: none"> • Owner of a property and member of Bruce Condo Corp. 4. • Asked if the condo building is at risk • Wondered if access would be needed behind their buildings get to cliff erosion areas. • If river is changed as part of project, could that impact their property? • Will project costs be attributed to the benefiting owners? 	<ul style="list-style-type: none"> • Indicated that it was too early in the EA to respond to their questions accurately. • Advised that an approach to financing the project has not yet been determined.
Resident of Valleyside Drive June 16, 2020 (via phone)	<ul style="list-style-type: none"> • Owns a vacant lot on Valleyside Drive and wants to be able to build a home on the lot. 	<ul style="list-style-type: none"> • Said it would depend on study outcome. • CA still might have concerns.
Resident Area Resident June 16, 2020 (via email)	<ul style="list-style-type: none"> • Wanted to know if we had concept designs for the slope ready for review by the public. 	<ul style="list-style-type: none"> • Advised that EA had just begun. Concept drawings would be available for review later in the process.

Public	Comments	Action Taken
Resident of Valleyside Drive June 25, 2020 (via mail)	<ul style="list-style-type: none"> • Indicated a secondary erosion problem on Valleyside Drive, in addition to the erosion caused by the Saugeen River. • Recommendation to identify locations where the next “landslide” is expected, drill through and drain the water retaining layer, so the soil above the water retaining layer will not slide. 	<ul style="list-style-type: none"> •Comments received and documented.
Resident of Karin Crescent July 7, 2020 (via phone)	<ul style="list-style-type: none"> • Owns property on the Saugeen River where the erosion is at its worst. • Believes that his property cannot be sold due to the erosion problem. • Very happy to hear that Brockton is looking into the problem. • Has lost 25-30’ of his back yard in the last 20 years. 	<ul style="list-style-type: none"> •Advised that EA was starting and that more information would be available later in the process for review.
Resident of Karin Crescent July 14, 2020 (via email)	<ul style="list-style-type: none"> • Wondered if someone wanted to build on the lots located adjacent to his property. • Thought that was the reason the study was being completed. 	<ul style="list-style-type: none"> •Said EA was being initiated to address long-term erosion along the slope.
Resident of Gravenhurst – July 17, 2020 (via email)	<ul style="list-style-type: none"> • Believes protection at the toe of the slope combined with realignment of the river would be appropriate • Mentioned the toe needs to be stabilized • Indicated that he has often seen summers when the water flow is very minimal 	<ul style="list-style-type: none"> •Comments received and documented.

4.2.2 Project Update Letter

Following selection of a preliminary preferred alternative for the project, an update letter was compiled which summarized the alternatives identified and which alternative had been identified as the preliminary preferred alternative by Brockton Council. The information was sent to adjacent property owners that were initially contacted in regards to the Class EA process seeking their input on the additional project details.

Comments received from the public as a result of the project update letter are included in Table 4.2.

Table 4.2 – Public Feedback: Project Update Letter

Public	Comments	Action Taken
Resident January 14, 2023 (via email)	<ul style="list-style-type: none"> • Was unable to attend the council meeting and wanted an update on the Class EA • Questioned who owned the unopened road allowance off of Yonge Street adjacent to the river • Wondered if the road allowance could be used to access the river for construction 	<ul style="list-style-type: none"> • Information documented and filed.
Resident February 8, 2023 (via email)	<ul style="list-style-type: none"> • In the presentation shared online, each option seemed to include a swale along the top of the clay banks, except for the selected option where the toe is to be reinforced. Reinforcing the toe is obviously the best option amongst those presented, but I'm concerned — why isn't the municipality currently interested in taking a two-prong approach? • It is my understanding that native perennial plants' root systems are extremely efficient and effective at directing water flow and preventing erosion, and that the overland water flow is a significant contributing factor in the erosion of the clay banks. A bio swale across the top of the bank could assist immensely in redirecting overland water flow laterally toward the adjacent forested areas, which are already effectively controlling runoff. • My question: shouldn't a bio swale along the top of the ridge be included as a key aspect of the plan? 	<ul style="list-style-type: none"> • Confirmed that a swale was planned for the top of slope to direct runoff away from the bank. • Explained that a bio-swale would add water to slope so would not be recommended.
Walkerton Resident February 20, 2023 (via email)	<ul style="list-style-type: none"> • I am writing with regard to the ongoing Municipal Class EA about the erosion issues along the north bank of the Saugeen River adjacent to Valleyside Drive at the north end of Walkerton. • Regrettably I was not able to attend the public meeting on 1st February. I have however been through all the publically available (online) information on the environmental assessment process that is currently underway. • The Saugeen River can and should be considered a cultural landscape as defined by the Ontario Heritage Trust (an agency of the Provincial government) and all internationally accepted guidance. I am concerned that nothing in the Municipal Class EA process to date has recognised the Saugeen River as a cultural landscape, or called for this tangible and intangible aspect of the river course to be recognised in the environmental assessment process. 	<ul style="list-style-type: none"> • Advised that we are unsure of impacts at this time but that additional information would be provided later in the EA process. • Sought input from a heritage professional.

Public	Comments	Action Taken
	<ul style="list-style-type: none"> • The riverbanks are a visible and important record of the geology of the region going back to the Ice Age. The river course itself was a vital thoroughfare for both Indigenous populations and 19th century European settlers, and will almost certainly have physical evidence, including archaeological deposits along the banks and in the silt bed, of past human activity going back tens of thousands of years and up to and including European settlement. Stone armouring of the shoreline will do irreparable damage to any surviving archaeological features. • As a cultural heritage practitioner, I understand that conservation is the management of change, so I am not against change, especially works needed to protect residential developments from geological erosion. <p>I call on all mandated parties in the MCEA process to recognise the Saugeen River course as a cultural landscape, and to include a full Cultural Heritage Evaluation Report (CHER) in the EA process. This should include archaeological test pits along the shoreline, bore holes to sample the silt river bed material, and a recommendation that a full archaeological watching brief be committed to during the stone armouring works to allow for recovery of any archaeological significant finds discovered during the work.</p>	
<p>Walkerton Resident March 13, 2023 (via email)</p>	<ul style="list-style-type: none"> • Would you please advise me where I can view a copy of Ontario’s Environmental Assessment Guidelines and the Cultural Heritage Assessment protocol. 	<ul style="list-style-type: none"> • Links to Provincial protocols provided as requested.

4.2.3 Public Information Meeting

A public information meeting was arranged to update members of the public as well as adjacent property owners, and to solicit their input on possible outcomes associated with the various alternatives being considered. Notice of the public meeting was issued January 19, 2023 and the meeting was held on Wednesday February 1, 2023 at the Bruce County Council Chambers. The meeting included a formal presentation and a question-and-answer session. The purpose of the meeting was to provide audience members with the following:

- Project details;
- Results from the Geotechnical Assessment;

- Results from the Fluvial Geomorphology Study;
- A description of the alternatives;
- A description of additional measures to prevent slope erosion;
- A list of approvals and next steps required for the project to proceed;

There were 13 residents at the meeting. Notes can be found in Appendix F along with the presentation material. No comments were received from those in attendance.

4.2.4 Revised Project Recommendation

On December 10, 2024, BMROSS staff presented a revised recommendation to Brockton Council, based upon the receipt of additional geotechnical and regulatory information which indicated that successful implementation of the project was not possible. A Project Update Notice was subsequently emailed, mailed and hand-delivered to residents that were previously contacted.

Comments received from the public because of the Project Update Notice are included in Table 4.3.

Table 4.3: Public Feedback: Project Update Notice

Public	Comments	Action Taken
Resident December 16, 2024 (via email)	<ul style="list-style-type: none"> • Resident of Valleyside Drive for over 40 years. • Concerned with the do nothing alternative that was selected for the project. • Inquired about the specific reasonings for the selection of the do nothing alternative. Inquired if previous information was incorrect or if government grants are not available. • Believes that public input is discouraged when this topic is brought up. • Stated that the notice was left on doorstep and would prefer if doorbell was rang next time when hand delivering notices. 	<ul style="list-style-type: none"> • Information documented and filed.

4.2.5 Notice of Study Completion

A Notice of Study Completion was published for the project on May 21, 2026. The Notice provided a brief description of the project and indicated the preferred alternative selected by Brockton after completing the Class EA process. The Notice was emailed and mailed to adjacent properties contacted throughout the Class EA process.

4.3 Government Reviewing Agencies

4.3.1 Initial Consultation Phase

Input into the Class EA process was solicited from government review agencies by way of direct e-mail correspondence. Agencies that might have an interest in the project were initially sent an e-mail entailing the nature of the project.

Initial letters were sent to nine Agencies on June 5, 2020, informing them of the project and inviting them to provide input in regard to the project.

Appendix F contains a copy of the information circulated to the review agencies and a list of the Agencies request to comment on their project. Formal written correspondence from the agencies is also provided.

A summary of the comments received can be found in Table 4.4.

Table 4.4 – Agency Feedback: Initial Consultation Phase

Review Agency	Comments	Action Taken
Carl Seider (Grey Sauble Conservation Authority) June 6, 2020 (via E-mail)	<ul style="list-style-type: none"> • Indicated the area is not within a source water protection area where plan policies apply. • No specific comments on the proposed project. 	<ul style="list-style-type: none"> • Indicated a preferred approach has not been decided. • Impacts to vulnerable areas will be evaluated as part of EA.
Ken Mott District Planner MNR - Midhurst June 17, 2020 (via email)	<ul style="list-style-type: none"> • MNR would like to continue to be circulated on the Municipal Class EA for Saugeen Riverbank Erosion project as it moves forward. • Please use myself as the contact, using my email address listed below. 	<ul style="list-style-type: none"> • Information noted and filed.
Brandi Walter SVCA July 13, 2020 (via email)	<ul style="list-style-type: none"> • Advised that the study area is located within an area regulated by SVCA under Ontario Regulation 169/06. • SVCA staff would like to be involved during the technical review of alternatives phase of the EA and recommend that a geotechnical assessment be completed to inform the process. • Advised that a fluvial geomorphology study may be required to examine flows in the river. 	<ul style="list-style-type: none"> • Information noted and filed.

Review Agency	Comments	Action Taken
Barb Slattery EA/Planning Coordinator MECP November 4, 2020 (via email)	<ul style="list-style-type: none"> • Asked to be forwarded a copy of the EA notice as well as First Nation contact information. • She confirmed receipt and noted that the list of communities was completed. 	<ul style="list-style-type: none"> • Information noted and filed.

4.3.2 Project Update Letter

Following selection of a preliminary preferred alternative for the project, an update letter was compiled which summarized the alternatives identified and which alternative had been selected as the preliminary preferred alternative by Brockton Council. The information was forwarded to the 8 review agencies that were initially contacted in regard to the Class EA process.

A summary of feedback received from agencies because of the project update letter is included in Table 4.5.

Table 4.5 - Summary of Agency Comments

Review Agency	Comments	Action Taken
Joseph Harvey, Heritage Planner, Ministry of Citizenship and Multiculturalism February 15, 2023 (via email)	<ul style="list-style-type: none"> • Stated that the Ministry of Citizenship and Multiculturalism received the notice of commencement. • Potential impacts to cultural heritage features, including archaeological resources, built heritage resources and cultural heritage landscapes must be assessed during the Class EA process. • Checklists provided to assist with determinations. 	<ul style="list-style-type: none"> • Information noted and filed.
Mark Badali, Regional Environmental Planner - MECP February 28, 2023 (via email)	<ul style="list-style-type: none"> • Thanked us for providing the project update letter. • Would like to review the draft Screening Report prior to issuance of the Notice of Study Completion 	<ul style="list-style-type: none"> • Information noted and filed.

4.3.3 Revised Project Recommendation

On December 10, 2024, BMROSS staff presented a revised recommendation to Brockton Council, based upon the receipt of additional geotechnical and regulatory information which indicated that successful implementation of the project was not possible. A Project Updated Notice was subsequently emailed to agencies previously contacted regarding the project.

4.3.4 Notice of Study Completion

A Notice of Study Completion was published for the project on May 21, 2026. The Notice provided a brief description of the project and indicated the preferred alternative selected by Brockton after completing the Class EA process. The Notice was emailed and mailed to review agencies contacted throughout the Class EA process.

4.4 First Nation and Métis Consultation

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 First Nation and Métis communities as part of the Class EA consultation process. The information was circulated to six First Nation and Métis communities on June 5, 2020. They were asked to comment on the project on or before July 31, 2020.

4.4.1 Initial Consultation Phase

To identify First Nation and Métis communities that may have an interest in the proposed project, federal and provincial agencies were consulted, as was the Aboriginal and Treaty Rights Information System on the Indigenous and Northern Affairs Canada website. The following communities were sent a letter outlining the project (included in Appendix E) on June 5, 2020:

- Chippewas of Nawash Unceded First Nation;
- Chippewas of Saugeen First Nation;
- Saugeen Ojibway Nation – Chippewas of Saugeen & Chippewas of Nawash;
- Great Lakes Métis Council;
- Historic Saugeen Métis; and
- Métis Nation of Ontario.

The letter included information regarding the project, general location plan, and a self-addressed stamped envelope with a response form. A summary of correspondence with First Nation and Métis communities is provided in Table 4.6. Copies of all correspondence sent or received is included within Appendix F.

Table 4.6 - Summary of First Nation and Métis Communities Comments

Review Agency	Comments	Action Taken
Cindy Ashkewe Saugeen Ojibway Nation Environment Office (SON) June 5, 2020 (via email)	<ul style="list-style-type: none"> • Received a notification that their office was temporarily closed due to Covid-19 restrictions. • They have suspended all non-essential band business. 	<ul style="list-style-type: none"> • Information noted and filed.
Métis Nation of Ontario (MNO) June 5, 2020 (via email)	<ul style="list-style-type: none"> • Due to Covid-19, MNO will no longer review hard copy consultation notices mailed to MNO offices. • All consultation notices must be sent electronically to consultations@metisnation.org 	<ul style="list-style-type: none"> • Information noted and filed.
Chris Hachey (Historic Saugeen Métis (HSM)) June 22, 2020 (via e-mail)	<ul style="list-style-type: none"> • Indicated that interests related to the study include environmental effects, sustainability and the potential for archaeological resources. 	<ul style="list-style-type: none"> • Indicated that documentation related to their interests will be sent to HSM.

4.4.2 Project Update Letter

Following selection of a preliminary preferred alternative for the project, an update letter was compiled which summarized the alternatives identified and which alternative had been selected as the preliminary preferred alternative by Brockton Council. The information was forwarded to the 6 First Nation and Métis communities that were initially contacted in regards to the Class EA process. No comments were received as a result of the project update letter.

4.4.3 Revised Project Recommendation

On December 10, 2024, BMROSS staff presented a revised recommendation to Brockton Council, based upon the receipt of additional geotechnical and regulatory information which indicated that successful implementation of the project was not possible. A Project Updated Notice was subsequently emailed agencies previously contacted regarding the project.

4.4.4 Notice of Study Completion

A Notice of Study Completion was published for the project on May 21, 2026. The Notice provided a brief description of the project and indicated the preferred alternative selected by Brockton after completing the Class EA process. The Notice was emailed and mailed to review agencies contacted throughout the Class EA process.

4.5 Consultation Summary

The public consultation program developed for this project was directed towards property owners located in the Valleyside Drive subdivision, as well as property owners of lots on the Saugeen River, both upstream and downstream of the study area. Consultation was also directed towards residents of Walkerton, First Nation and Métis communities, and various review agencies. Comments received from the public were generally positive, with an acknowledgement that something needed to be done to address the ongoing erosion hazard. Agency consultation entailed the standard feedback from provincial review agencies, primarily concerned with approvals associated with the proposed work. Appendix F contains all consultation correspondence in relation to this project.

5.0 IDENTIFICATION OF POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Framework of Analysis

Following the selection of Alternative 5, 'Do Nothing' as the preferred alternative, a study framework was developed to further evaluate the potential impacts of implementing the Do Nothing alternative. The purpose of this review was to assess the environmental interactions resulting from implementation and to determine if the identified interactions would generate potential environmental impacts.

The assessment of the preferred alternative incorporated these activities:

- Assessment of construction and operational requirements of the proposed works;
- Consultation with the public, stakeholder groups and government agencies;
- Prediction of the environmental interactions between the recommended works and the identified environmental components; and
- Evaluation of the potential impacts of the project on the environmental features; including residual effects following mitigation.

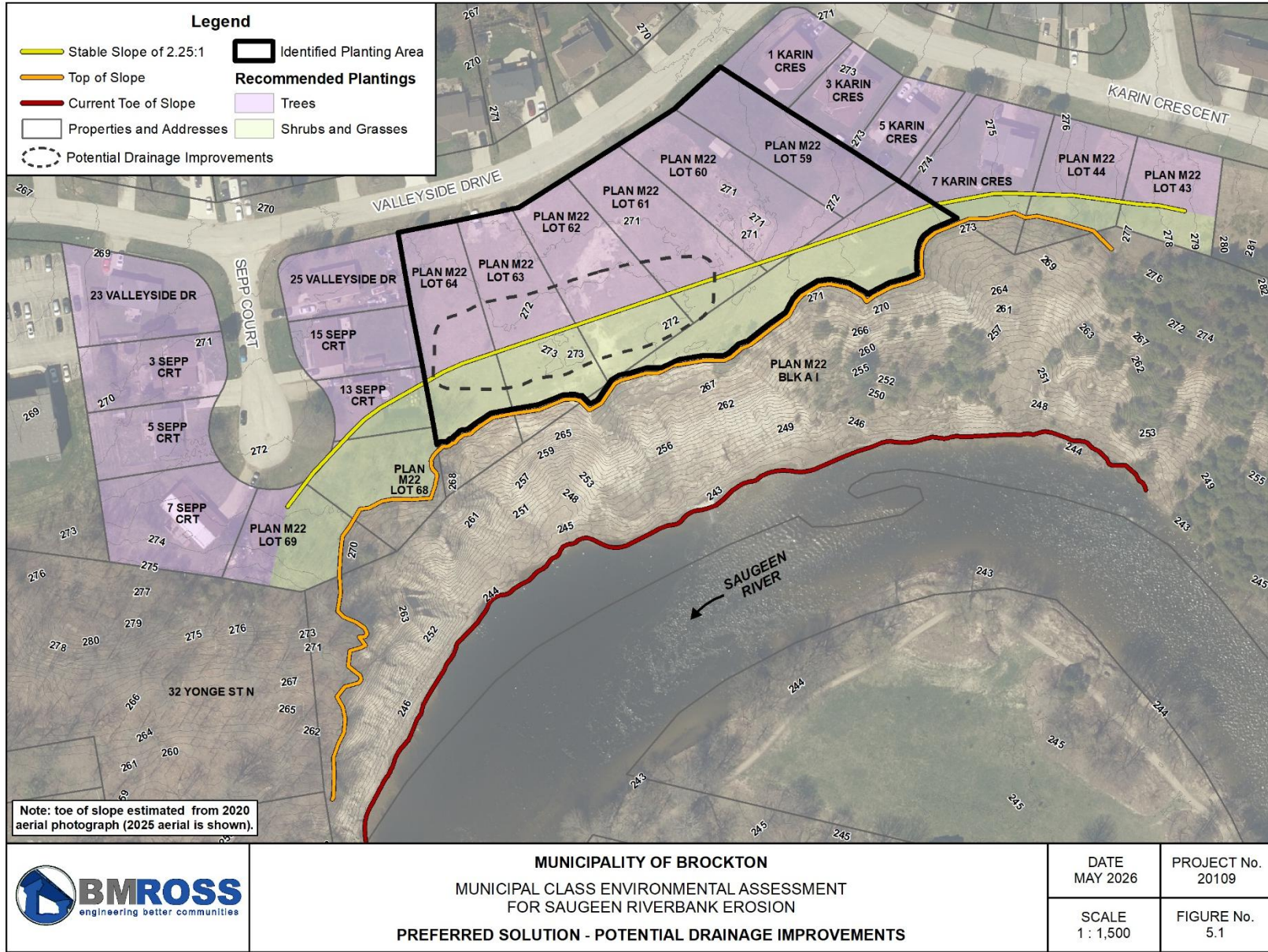
5.2 General Project Scope

As noted in section 3.13, implementation of the 'Do Nothing' alternative does include some limited construction activity and other measures. The works summarized below and illustrated conceptually in Figure 5.1 represent the scope of construction planned for this project. The project will involve the following general components:

- Mobilize to site;
- Install sediment and erosion control measures;
- Install an interceptor drain adjacent to the top of bank to capture sub-surface drainage current discharging on the face of the bluff and install a protected outlet at the toe of the slope;

- Create a shallow swale adjacent to the slope to capture surface runoff and direct it to a protected outlet at the toe of the slope;
- Implement tree and shrub plantings on lands north and east of the slope as directed by SVCA;
- Restoration of disturbed areas; and
- Demobilization.
- Continue ongoing monitoring of the bank area and slope recession;
- Monitor the bank recession rate in relation to existing residences and existing municipal infrastructure so that appropriate measures can be implemented if required.

Figure 5.1 Preferred Solution – Drainage Improvements and Tree Planting



5.3 Impact Assessment and Mitigation Measures

5.3.1 Assessment of Impacts

Based upon the findings of the general impact assessment (Table 3.4) and input received through the public and agency consultation program, the project has the potential to impact upon several environmental components. The potential impacts are associated with the following project issues and components:

- Social Environment

This section of the report summarizes the above-noted matters and outlines the measures proposed to mitigate potential environmental effects. The selection of mitigation measures incorporated an evaluation of alternative forms of mitigation and a consideration of three broad approaches to mitigation: avoidance, minimization of adverse effects, and compensation.

5.3.2 Social Environment

(a) Potential Impact to Residents/Adjacent Properties – Short Term

The proposed drainage swale installation will require construction of a temporary access road in order to access the top of bank to install the interceptor drain and construct the swale and outlet pipe. Portions of the swale location are on vacant, privately owned lands. Easements will be required prior to installation of the drainage swale to allow access to the areas for construction and ongoing monitoring.

Tree/shrub plantings and ongoing monitoring should result in similar limited impacts to residents. Access to the top of bank area will still be available for passive uses, eg. walking, however motorized vehicles (ATV's) will no longer be permitted to access the area adjacent to the top of bank. Compaction of the soil caused by vehicle access (ATV's and dirt bikes) can aggravate erosion rates. It will also be important to protect tree and shrub plantings from damage.

(b) Potential Impact to Residents/Adjacent Properties – Long Term

Long term impacts associated with implementation of the 'Do Nothing' alternative will be potentially significant to those properties located within the 100 year erosion rate. As shown on Figure 5.2, the 100 year erosion limit was determined by taking the long term stable slope of 2.25:1 and an annual recession rate of 0.35m/year, as determined in the 2022 Golder Associates Report. The orange line shown on the map is the expected location of the top of bank in 100 years, if the erosion continues at the same rate. Structures located within the 100 year limit will need to be relocated when the top of bank has receded to a point where the safety of the structure is at risk. The Municipality will continue to monitor the erosion rate and advise residents if a structure is at risk.

6.0 CONCLUSION AND PROJECT IMPLEMENTATION

6.1 Selection of a Preferred Alternative

Given the foregoing, **Alternative 5 – Do Nothing** is identified as the preferred solution to the identified problem. A recommendation to this effect was presented to and supported by, staff of the Municipality of Brockton.

6.2 Impact Mitigation

Based upon a review of the current environmental setting, there was one significant environmental impact associated with implementation of the preferred Alternative that could not be mitigated. Implementation of the 'Do Nothing' alternative will not address the ongoing erosion of the riverbank and will ultimately result in significant impacts to those structures located in close proximity to the eroding slope.

6.3 Final Public Consultation

A Notice of Completion was circulated to local residents, First Nation and Métis Communities, and government review agencies. The notice identified the preferred Class EA alternative and indicated the approval process needed to move forward with implementation. The following summarizes the distribution of the Notice.

Contents: Identification of the preferred solution, primary components, key plan

Issued: May 21, 2026

Placed In: Walkerton Herald-Times and Hanover Post, Municipal website

Distributed To: 145 adjacent property owners

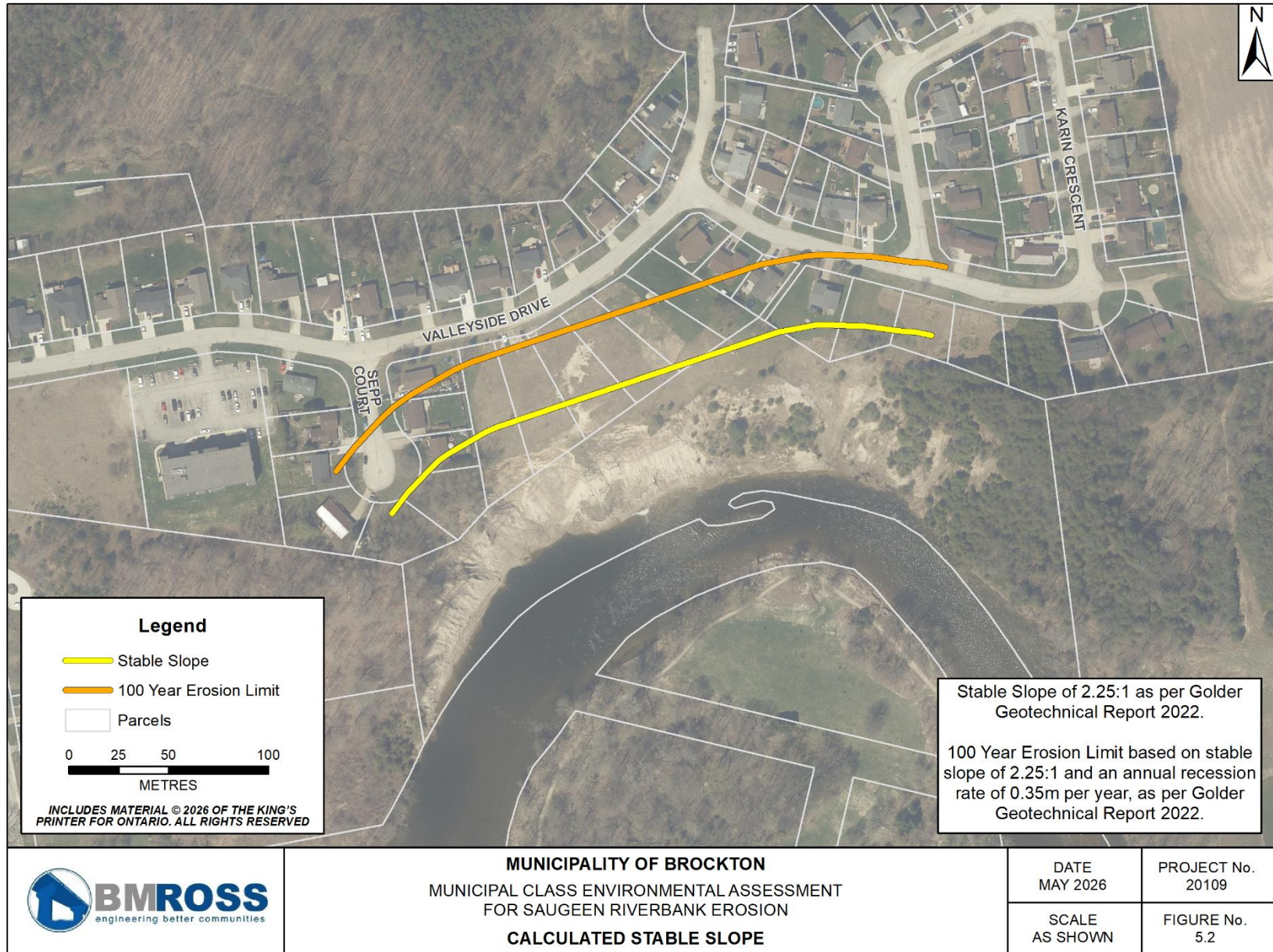
Review Period: June 20, 2026

6.4 EA Completion

The recommended solution is considered a pre-approved activity under the terms of the Class EA document. The following activities are required to complete the formal Class EA screening process:

- Complete the 30-day review period, defined in the Notice of Study Completion
- Address any outstanding issues
- Finalize the Screening Report
- Advise the Municipality and MECP when the Class EA study process is complete and,
- Obtain necessary approvals prior to construction.

Insert Figure 5.2. – 100 Year Recession Rate



6.5 Environmental Commitments

As an outcome of the Class EA planning process, the Municipality is committed to carrying out the following measures to mitigate potential environmental impacts related to project implementation:

- That drainage improvements be implemented adjacent to the top of bank to direct surface runoff away from the bank area, provided that permission is obtained from private property owners.
- The Municipality will continue to monitor the erosion of the bank and advise property owners if safety concerns are identified.
- A tree/shrub planting plan will be implemented on lands adjacent to the top of bank, provided that permission is obtained from private property owners.
- Implementation of standard construction mitigation measures to minimize impacts to the natural and social environments.
- Submission of required applications for approvals, as well as implementation of all conditions issued in association with the subsequent approvals.
- Input will be sought from the Saugeen Valley Conservation Authority on implementation of the tree planting plan;
- Any areas which are disturbed as a result of construction will be restored following completion of the works;

6.6 Approvals

Implementation of the recommended solution is subject to the receipt of all necessary approvals. Following a review of the existing framework of legislation, it was determined that a number of formal approvals may be required to permit implementation of the proposed works.

6.6.1 Ontario Heritage Act

If archaeological resources are impacted by EA project work, please notify Ministry of Citizenship and Multiculturalism (MCM) at archaeology@ontario.ca. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist will carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists. If human remains are encountered, all activities must cease immediately and the local police and coroner should be notified. In situations where human remains are associated with archaeological resources, MCM should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

6.6.2 Conservation Authorities Act

That a permit application pursuant to Ontario Regulation 171/06 be submitted to the Saugeen Valley Conservation Authority along with details associated with the proposed

drainage work. Input from SVCA will also be sought on implementation of the planting program for lands located adjacent to the bluff area.

7.0 SUMMARY

This report documents the Municipal Class Environmental Assessment (EA) process conducted to review alternatives for addressing an ongoing erosion issue impacting the north bank of the Saugeen River adjacent to Riverside Drive in the community of Walkerton. The toe of the riverbank slope is actively eroding causing instability along the face of the slope and resulting in slope failure and movement at the top of bank. Existing residential developments located in close proximity to the slope area are at risk. Given the above, the Municipality has elected to investigate options to address the ongoing erosion issue. The following problem/opportunity statement has been identified for this project:

The north bank of the Saugeen River adjacent to Valleyside Drive, in the community of Walkerton, is actively eroding creating instability and risk for structures located in proximity to the eroding slope.

To address the identified problem the following alternative solutions were identified:

Alternative 1: Install Toe Protection and Regrade Slope by Cutting

Alternative 2: Realign River to South, Protect Toe, Regrade Slope by Filling

Alternative 3: Realign River to South, Protect Toe, Regrade Slope by Filling & Cutting

Alternative 4: Install Erosion Protection at the Toe of Slope

Alternative 5: Do Nothing

Initially, a background review was carried out to characterize the project study area and identify factors influencing the selection of the alternative solutions. The background review included an updated geotechnical investigation, habitat assessment of the river, review of species at risk, and an examination of site access opportunities.

The alternatives were evaluated in terms of their potential impacts on the natural, social, cultural, economic and technical environments. Alternatives 1 to 3 result in varying impacts to the natural, social and technical environments, and also have significant impacts to the economic environment. Alternatives 5 & 6, variations of the Do Nothing approach, have fewer environment and economic impacts, but will not address the ongoing erosion issue.

Alternative 3 had the fewest impacts to the social, economic and natural environments, of the options that addressed the erosion problem. Although this option still presented some impacts to various environmental components, it was the least impactful of the identified alternatives.

The result of the evaluation initially indicated a preference for implementation of **Alternative 4 – Install Erosion Protection at the Toe of the Riverbank.**

However, additional geotechnical input obtained following identification of the preliminary preferred alternative questioned the viability of installing erosion protection at the toe of the bank, without stabilizing the upper portion of the bank as well. Additionally, a review of approval requirements associated with the project indicated that construction of the project would be extremely difficult and add significantly to anticipated project costs.

On December 10, 2024 a revised recommendation was presented to Brockton Council, to implement the 'Do Nothing' alternative as the preferred approach for the project. The revised recommendation was supported by Brockton staff and Council. As part of the 'Do Nothing' alternative, the following measures will be implemented:

- Ongoing monitoring of the slope area;
- Implementation of drainage improvements at the top of bank to divert overland flows away from the slope;
- Tree/shrub planting on private and municipally-owned lands, as directed by SVCA, provided that permission can be obtained from private property owners;
- Ongoing monitoring of municipal infrastructure so that relocation can be implemented if necessary;
- Continue to explore grant funding opportunities.

The proposed project is a pre-approved activity under the terms of the Class EA document. It is expected that following completion of this EA, the Municipality will proceed with implementation of the drainage improvements in 2026 and continue with ongoing monitoring. All of which is respectfully submitted.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Kelly Vader, MCIP, RPP
Environmental Planner

Per _____
Steve Jackson, P. Eng.
Project Engineer

:hv

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