Municipal Class Environmental Assessment for Redesign of Municipal Wharf: Environmental Study Report

Municipality of Killarney

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Environmental Study Report

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ERRATA

Summary

This Errata was prepared to identify revisions made to the Environmental Study Report (ESR) to incorporate comments provided by the Ministry of Citizenship and Multiculturalism (MCM). The 30-day public review for the ESR commenced January 11, 2024 and ended February 12, 2024.

The updates noted below have been incorporated into revision 1 of the ESR (June 15, 2025).

Updates to the ESR

The following table summarizes the updates made to the ESR based on the comments received from MCM and the findings of the 2025 Cultural Heritage Evaluation Report.

Section	**Updated Text**
8.5.1 Archaeological	A stage 1 archaeological assessment (AA) was completed for this project (under Project Information Form (PIF) number P094-0330-2022). The Stage 1 AA report notes that no previously registered archaeological sites are located within one kilometer of the Study Area. The report concluded the project site does not retain archaeological potential on account of deep and extensive land disturbance and will not require further archaeological assessment. A copy of the Stage 1 Archaeological Assessment is provided in Appendix B-1. The report has been submitted to MCM and (as of August 1, 2024) is awaiting review. MCM notes that archaeological concerns are not considered fully addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that: 1. The archaeological assessment (AA) of the project area is complete, and 2. All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the Ontario Heritage Act) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy. A marine archaeological assessment screening was completed for this project using the Criteria for Evaluation Marine Archaeological Potential: A Checklist for Non-Marine Archaeologists. Question 8 of the checklist asks if the entire property or project area been subjected to recent, extensive and intensive disturbance. Based on a desktop review, the project team concluded that there has been extensive disturbance at and around the wharf has occurred due to past dredging and construction activities. For example, the United States Environmental Protection Agency reported in 1974 that the Killarney Channel was a waterway with commercial status, and it was routinely dredged by the Federal Department of Public Works to maintain a 27-foot seaway depth .

Section	Updated Text
	Additionally, construction activities have taken place around the wharf periodically in recent decades that would have created disturbances. Examples of these are presented in Appendix B-2 and include infill of the shoreline to create a parking lot at the wharf and installation of a watermain (off the west side of the wharf) to George Island, on the other side of the channel. The results of the checklist indicate that the area of potential in-water impacts has low marine archaeological potential and therefore no marine assessment is required. A copy of the screening results is provided in Appendix B-2.

8.5.2 Cultural	A Cultural Heritage Evaluation Report was prepared for this project to evaluate the cultural heritage value of the wharf as per the criteria within Ontario Regulation 9/06 of the Ontario Heritage Act . The evaluation determined that the Killarney Wharf has historical and associative value as well as contextual value, based on the following criteria:
	
	• Criterion #4: *The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community*:
	  ○ The wharf meets this criterion as its locations and various iterations over time has a direct association with the theme of commerce and with the activity of fishing. In particular, the wharf site has been busy from the arrival and settlement of fishermen in the community in the early nineteenth century through to the present.
	
	• Criterion #7: *The property has contextual value because it is important in defining, maintaining or supporting the character of an area*:
	  ○ The wharf meets this criterion because it supports and makes a significant contribution to the area's commercial identity, transportation services, and waterfront tourism industry.
	
	• Criterion # 8: *The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings*:
	  ○ The wharf meets this criterion because it is functionally and historically linked to its surroundings. The wharf, much like the buildings and lots in its vicinity, have historically been associated with water-based transportation and recreational activities in the area, such as fishing, boating, and tourism.

Section	Updated Text
	• Criterion #9: *The property has contextual value because it is a landmark*: ○ The wharf meets this criterion because it has been the site of a wharf since at least the mid-nineteenth century. As such, it has been the site of significant commercial activity to the community, many of whom relied on fishing for their livelihoods. Furthermore, until the early 1960s, the wharf site was the only access point to the village and had been used as a stopping and departure point for tourists, particularly for those travelling by steamboat between Killarney and Manitoulin Island. It continues to be a significant destination point for tourists in the community. Also, the following footnote was added: 8 When the Notice of Completion had been issued, the ESR reported that the Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes Checklist had been completed by the project team to assess the potential for built heritage or cultural heritage landscape on the property. At that time, the outcome from the checklist was that a Cultural Heritage Evaluation Report (CHER) was not required. Based on review and feedback from MCM, it was determined that a CHER was in fact required. The CHER was completed in 2025 and its results included in the updated ESR, as indicated in the ESR Errata.
Section 12.2, Table 7	The Cultural Environment Summary for each alternative design concept was updated to read (new text **in bold**): Both alternatives are equally preferred, **as they align with the CHER criteria confirming the wharf's cultural heritage value**.
Section 13.6, Table 11	Table updated to reflect MCM's feedback

Section	Updated Text
Section 15.1 Summary of Potential Impacts and Mitigation Measures	• Table 12 (Summary of Potential Impacts and Mitigation) updated to reflect MCM's comments on the Stage 1 AA's submission. • The table was also updated to summarize the findings of the CHER, with the following text: o The wharf itself has cultural heritage value or interest related to its: ▪ Direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community (i.e., commerce, fishing, and the settlement of fishermen in the community); ▪ Importance in defining, maintaining or supporting the area's character (e.g., supports and contribution to the area's commercial identity, transportation services, and waterfront tourism industry); ▪ Linkages (physical, functional, visual and/or historical) to its surroundings (e.g., the wharf's historical associations with water-based transportation and recreational activities in the area); and ▪ Contextual value as a landmark (i.e., being the site of a wharf since at least the mid-nineteenth century, enabling significant commercial and travel-related opportunities for the community). • The table also updated to indicate that "The preferred design is consistent with the cultural heritage components noted." • Based on the CHER findings, the following proposed mitigation measure was added: o A Cultural Heritage Evaluation Report (CHER) was prepared confirming the wharf has cultural heritage value. A Heritage Impact Assessment (H.I.A.) of the wharf will be completed to evaluate the expected impacts to the property and document the existing conditions of the wharf prior to its reconstruction. • Text in Section 15.1 also notes that the Municipality will wait to receive the MCM's review letter indicating that the Stage 1 AA report has been entered into the Register before proceeding with any ground disturbing activities, and that a Heritage Impact Assessment (H.I.A.) of the wharf will be completed to evaluate the expected impacts to the property and document the existing conditions of the wharf prior to its reconstruction.

Section	**Updated Text**
Section 15.4 1 Permits and Approvals	The reference to the Archaeological Assessment Clearance Letter from MCM has been updated to indicate that the Stage 1 Archaeological Assessment prepared for this Class EA was submitted to MCM and is awaiting review and entry into the Ontario Public Register of Archaeological Reports.
Appendix B-3 Cultural Heritage Evaluation Report	Appendix B-3 formerly held the completed Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage. The checklist has been deleted and replaced with the CHER.

Appendix B-4 MCM Comments on ESR and Related Correspondence	Appendix B-4 has been added to Appendix B of the ESR and includes the following correspondence and attachments:
	• 2024, Feb. 9 – MCM Comments to EXP on the ESR.
	• 2024, Jul. 10 – EXP's responses to MCM's comments, with the following attachments:
	  ○ Aerial images depicting the project area, overlain with extracts from maps and drawings from between the years 1905 to 2013.
	  ○ Copy of the Public Works of Canada "Wharf and Warehouse Plans and Details" sheets (1951).
	  ○ Copy of the 1974 United States Environmental Protection Agency document "Future Dredging Quantities in the Great Lakes".
	• 2024, Jul 10 – MCM confirmation of receipt of EXP's responses.
	• 2024, Aug 01 – MCM Comments on EXP's responses
	Additionally, an insert has been added in Appendix B-2 directing readers to the correspondence in Appendix D-4 dated July 10, 2024 for documentation of previous extensive disturbance in the marine environment near the project area.

Section	**Updated Text**
Appendix D – Evaluation of Alternative Designs	The evaluation of alternative designs in Appendix D has been updated to consider the findings of the CHER. The findings supported and did not alter the conclusion of the evaluation. The following text was added under the *Effect on Cultural Heritage Resources* criteria for each alternative design concept, without changing the overall result: • Both design concepts will continue to enable the wharf's association with the theme of commerce and with the activity of fishing. • Both design concepts will allow the wharf to continue contributing to the area's commercial identity, transportation services, and waterfront tourism industry. • Both design concepts will allow the wharf's historical association with water-based transportation and recreational activities in the area (such as fishing, boating, and tourism) to continue. • Both design concepts will allow the wharf to continue to act as a landmark in the community, as it will ensure the wharf's ability to operate as a safe and desirable destination point for tourists. Therefore, no loss or disturbance of cultural heritage resources is anticipated.

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1 INTRODUCTION

Located at the top of Georgian Bay on Lake Huron, the Killarney Municipal Wharf has been adversely impacted by the significant water level fluctuations of the Great Lakes. In 2019 and 2020, when the water level of Georgian Bay was at its record height, part of the wharf was submerged, denying transient boaters from docking and access to local business. To address this situation, the Municipality undertook a Wharf Improvement Study that recommended reconstruction of the entire wharf with a higher deck elevation.

The Municipality has accepted the recommendation and is proceeding with the detailed design of the wharf reconstruction. The reconstruction design will optimize the wharf's benefit to the village, including opportunities for cruise vessels to dock and visit the area, increased transient boater business, and integration with a re-energized wharf and waterfront area that could potentially become a venue for local events and small enterprise".

This project involved completion of a Municipal Class EA. The project followed a Schedule C Class EA process, which is documented by this Environmental Study Report (ESR). This ESR addresses the following items:

- The purpose of the project, including the study's Problem / Opportunity Statement;
- The Project Study Area;
- The community and planning context for the project;
- The Class EA Schedule and study timeline;
- Class EA proponents;
- Description of background conditions;
- Identification and evaluation of Alternative Solutions;
- Identification and evaluation of Alternative Designs;
- Description of the proposed project;
- Potential impacts and proposed mitigation measures; and
- The public and stakeholder consultation undertaken during the study.

2 CLASS EA STUDY AREA

The municipal wharf is located at 21 Channel Street South in the Village of Killarney. The land is owned by the municipality. The study area for this Class EA extends approximately 50 m from the boundary of the municipal property. Figure 1 (following page) shows the location of the municipal wharf in the context of the municipality, while Figure 2 (on proceeding pages) depicts the study area within the context of the municipal wharf and surrounding properties.

Highway 637 (also referred to as Charles Street within the village) is a provincial highway that ends at Channel Street by the wharf.

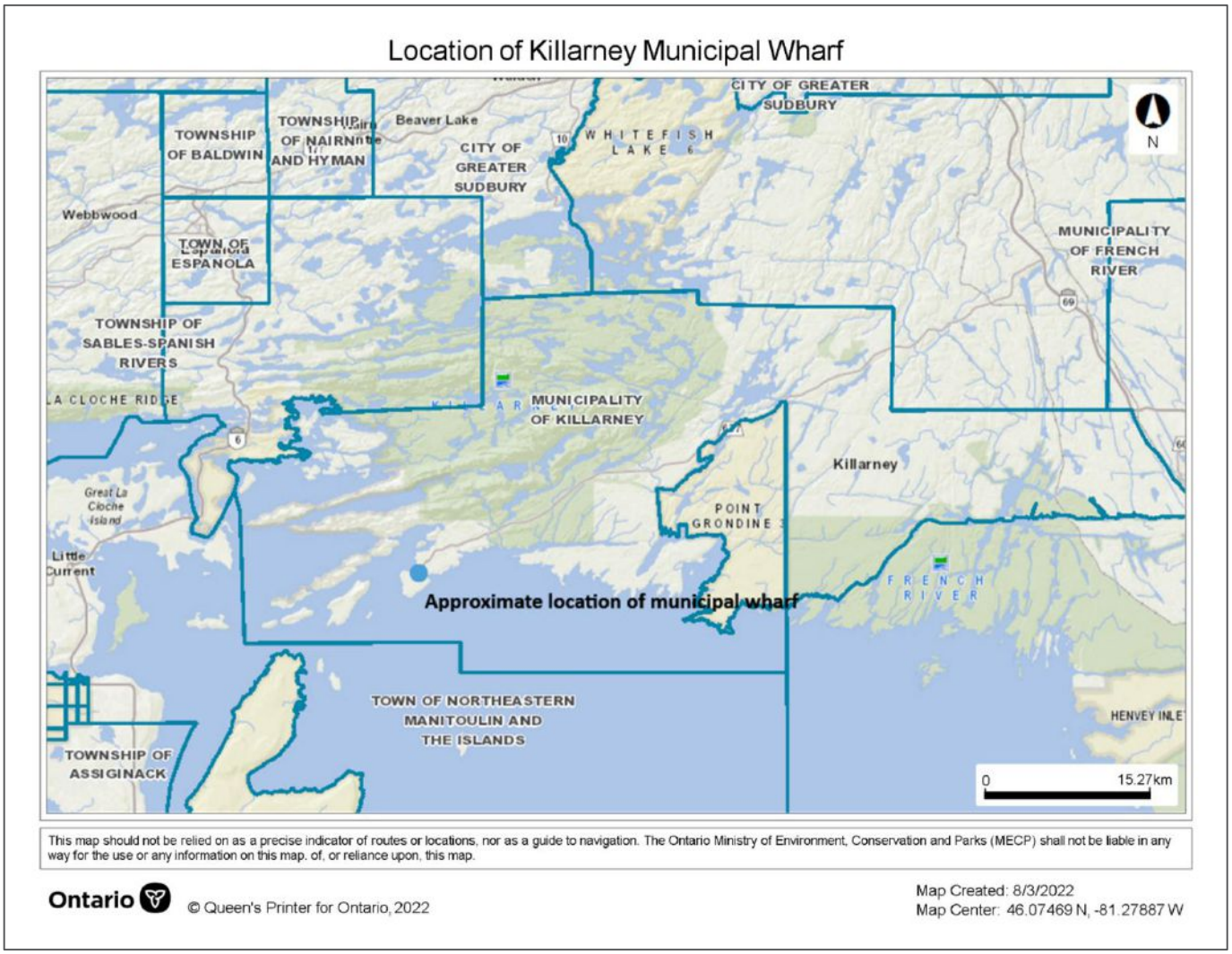

Figure 1: Approximate Location of Killarney Municipal Wharf in the Municipality of Killarney

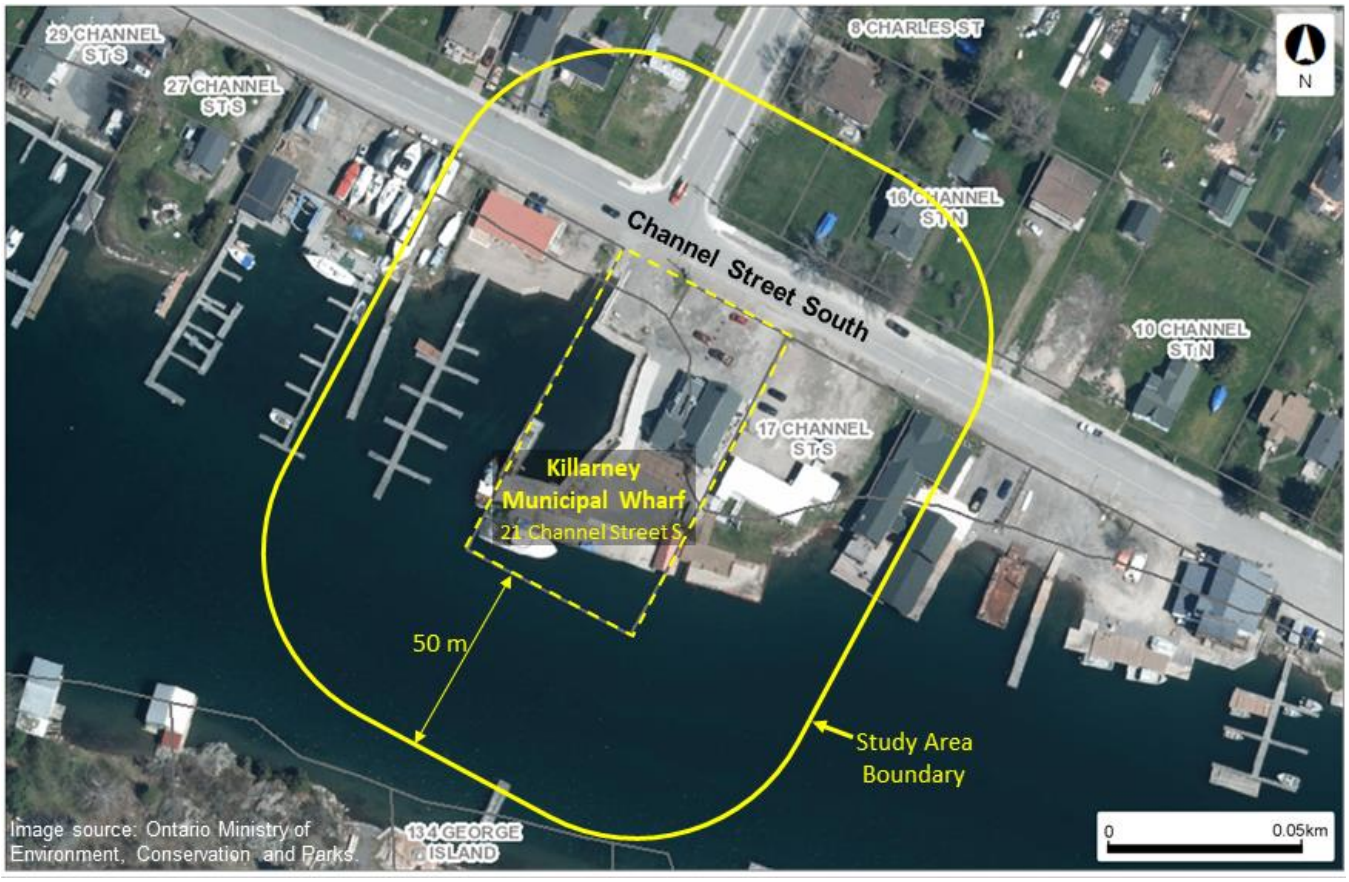

Figure 2: Class EA Study Area Boundary

3 PROPONENT

The proponent for this project is the Municipality of Killarney. The Municipality's lead consultant on this study is EXP Services Inc (EXP). Contact information for the proponent and consultant information is provided below.

Municipal Proponent	Prime Consultant
Kelly Champaigne Project Manager **Municipality of Killarney** 32 Commissioner Street Killarney, ON P0M 2A0 Tel: 1.705.287.2424	Stephen Ho, M.Eng., P.Eng. Consultant Project Manager **EXP Services Inc.** 885 Regent Street, Suite 3-6A Sudbury, ON P3E 5M4 Tel: 1.705.674.9681

4 MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PROCESS

4.1 Overview

The Class EA was initiated in the Fall of 2022, with the Notice of Commencement issued on October 27, 2022. It was initiated under the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (MCEA) process (October 2000, Amended 2015). A review of the project tables identified the following project description as being most closely aligned with this undertaking, from the list of Wastewater Schedule C Activities:

> *9. Construct new shore line works, such as off-shore breakwaters, shore-connected breakwaters, groynes and sea walls.*

Based on previous assessments and conceptual design work prepared for the Municipality, it was determined that the municipal wharf would require replacement with the construction of a new sea wall. Given this new sea wall, the project was initiated as a Schedule C Class EA.

In March 2023, the Minister of the Environment, Conservation and Parks approved an amendment to the MCEA. This amendment updated the Project Tables that define the projects and determine to which Class EA Schedule they belong. Table B: Municipal Water and Wastewater Projects includes the following Shoreline/In Water Works project as a Schedule C project:

> *58. Construct new shore line works, such as off-shore breakwaters, shore-connected breakwaters, groynes and sea walls.*

Therefore, this project is continued as a Schedule C Municipal Class EA. Figure 3 illustrates the process to be followed. Key milestone dates for the project are provided in Table 1.

Table 1: Summary of Class EA Milestones

Class EA Milestone	Date
Contact information database of public/agency/other stakeholders prepared	October 2022
Notice of Commencement (Phase 1)	October 2022
Public Information Centre # 1 (Phase 2)	February 2023
Public Information Centre # 2 (Phase 3)	August 2023
Notice of Completion (Phase 4)	January 2024

4.2 Section 16 Orders

The EAA allows a person with concerns pertaining to potential adverse impacts to Aboriginal or treaty rights by the project that have not been addressed through the Class EA process to request under Section 16 of the EAA that the Minister make an order requiring an individual EA or that conditions be imposed on the project. The request can only be made on the grounds that the order may prevent, mitigate or remedy adverse impacts on Constitutionally protected Aboriginal or treaty rights. Requests that are not made on these grounds will not be considered by the Minister. The Ministry notes requestors should attempt to resolve any concerns directly with the project proponent through the Class EA process before submitting a Section 16 Order request.

If a Section 16 Order request is received by the Minister, then the proponent may not proceed with the project until a decision is made by the Minister on the request, or the ministry notifies the proponent that they may proceed.

Requestors are to send their Section 16 Order requests to the Minister of Environment, Conservation and Parks and the Director of Environmental Assessment Branch. Submissions can be made by mail, email, fax or hand delivered to:

- Minister

Ministry of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.mecp@ontario.ca

- Director

Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
EABDirector@ontario.ca

Requestors should also send a copy of the written request to the project proponent.

The following information is to be included in the submitted requests:

- Requester contact information, including full name;
- Project name;
- Proponent name;
- The type of order that is being requested (that is, a request for an individual EA approval before being able to proceed, or for conditions be imposed on the project);
- Specific reasons on how an order may prevent, mitigate or remedy potential adverse impacts on Aboriginal and treaty rights;
- Information about efforts to date to discuss and resolve concerns with the proponent; and
- Any other information in support of statements in the request.

If a request for a section 16 order is received by the ministry that meets the grounds in section 16(6), then the Ministry will contact the proponent for a response to the concerns raised in the section 16 order request. The proponent must respond in a timely manner with complete information.

If the minister makes a Section 16 Order, the proponent may only proceed with the project in accordance with the Order. The Order may a) require the proponent to submit an application for approval of the project before they proceed, generally referred to as an individual EA; or, b) require the proponent to meet further conditions (in addition to conditions in the Class EA), such as conditions for further study, monitoring or consultation.

Additional information on the Section 16 Order process is provided on at:
www.ontario.ca/page/class-environmental-assessments-section-16-order.

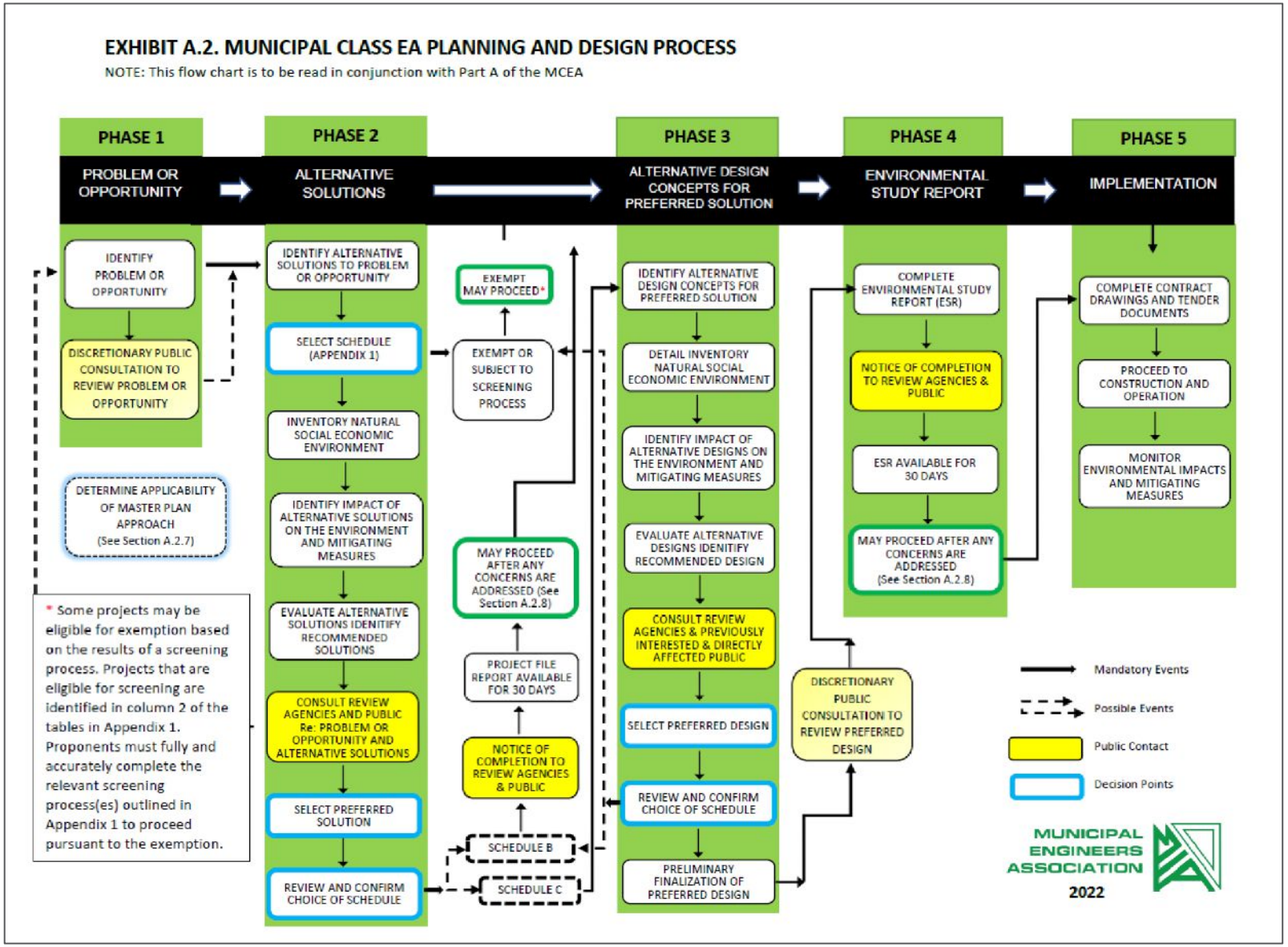

Figure 3: Municipal Class Environmental Assessment Process (2023)

5 PLANNING CONTEXT

5.1 Municipal

5.1.1 Overview

As noted in the introduction, the Municipality of Killarney is Located at the top of Georgian Bay on Lake Huron. The 2021 Census indicates that the Municipality has a population of 397[1]. While the Municipality covers a large area (1,470 km^2), the bulk of residents and commercial activity occurs in the Village of Killarney, which is the largest settlement in the Municipality.

According to the Municipality's Strategic Plan, Killarney's economy is heavily dependent on the tourism and recreation industry. Tourists are drawn to the area by the area's nearby parks (Killarney Provincial Park and French River Provincial Park) and natural wilderness, lakes and forests. Visitors to the area help to support its accommodation, retail and food service businesses[2].

5.1.2 Sudbury East Planning Area

The Municipality is located within the Sudbury East Planning Area (SEPA), which is situated north of Georgian Bay between Sudbury, North Bay and Parry Sound. It consists of the Municipality plus 16 other municipalities and townships. Planning matters for those jurisdictions within the SEPA is managed by the Sudbury East Planning Board (Board), including matters such as the Official Plan (for the entire SEPA), Official Plan (OP) amendments, rezoning applications, plans of subdivision and consents[3].

The Village of Killarney is among the largest urban settlements in the SEPA. The OP identifies the village as a Community Policy Area, which is an area that has the highest concentration and intensity of land uses, is the primary focus for residential and commercial development, and provides the largest range of dwelling types in the Planning Area.

Schedule C of the OP maps land uses within the planning area. Schedule C for the Killarney (West) Planning District shows that the properties on the north and south sides of Channel Street within proximity of the wharf are classified as Mixed-Use (see Figure 3). The OP defines Mixed-Use as lands intended to be the primary focus for a wide variety of commercial, residential, institutional, and light employment uses.

[1] Statistics Canada. 2022. Census Profile. 2021 Census. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released September 21 2022. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E
[2] Municipality of Killarney. Strategic Plan for the Municipality of Killarney. October 2014.
[3] MMM Group. Official Plan for the Sudbury East Planning Area. Prepared for the Sudbury East Planning Board. September 28, 2010.

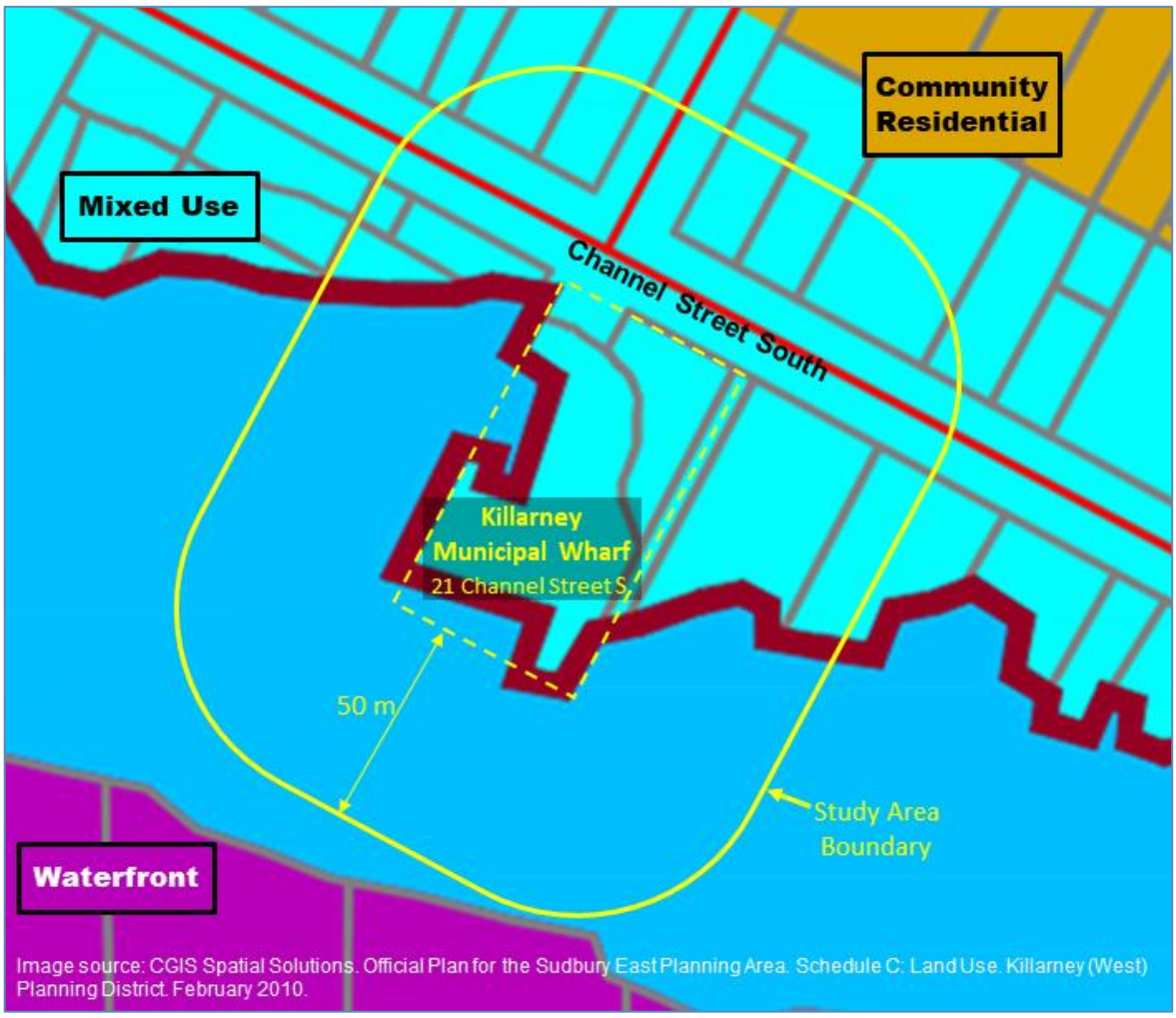

Figure 4: Official Plan Land Use Planning in the EA Study Area

5.1.3 Killarney Zoning By-law

The Municipality's zoning by-law was adopted by Council in June 2014. Schedule A1 presents the zoning for the Village of Killarney. It shows that the area currently occupied by the wharf (including the entire row of properties on the south side of Channel Street) is zoned as Commercial Community (CC), with Special Provision S3 (see Figure 4). The special provision permits additional uses beyond those permitted in the CC zone. Among the additional uses are a watercraft launching facility and a watercraft mooring facility[4].

[4] MMM Group. Zoning By-law. Municipality of Killarney. By-law N. 2014-29. Prepared for the Sudbury East Planning Board. Adopted by Council June 17, 2014.

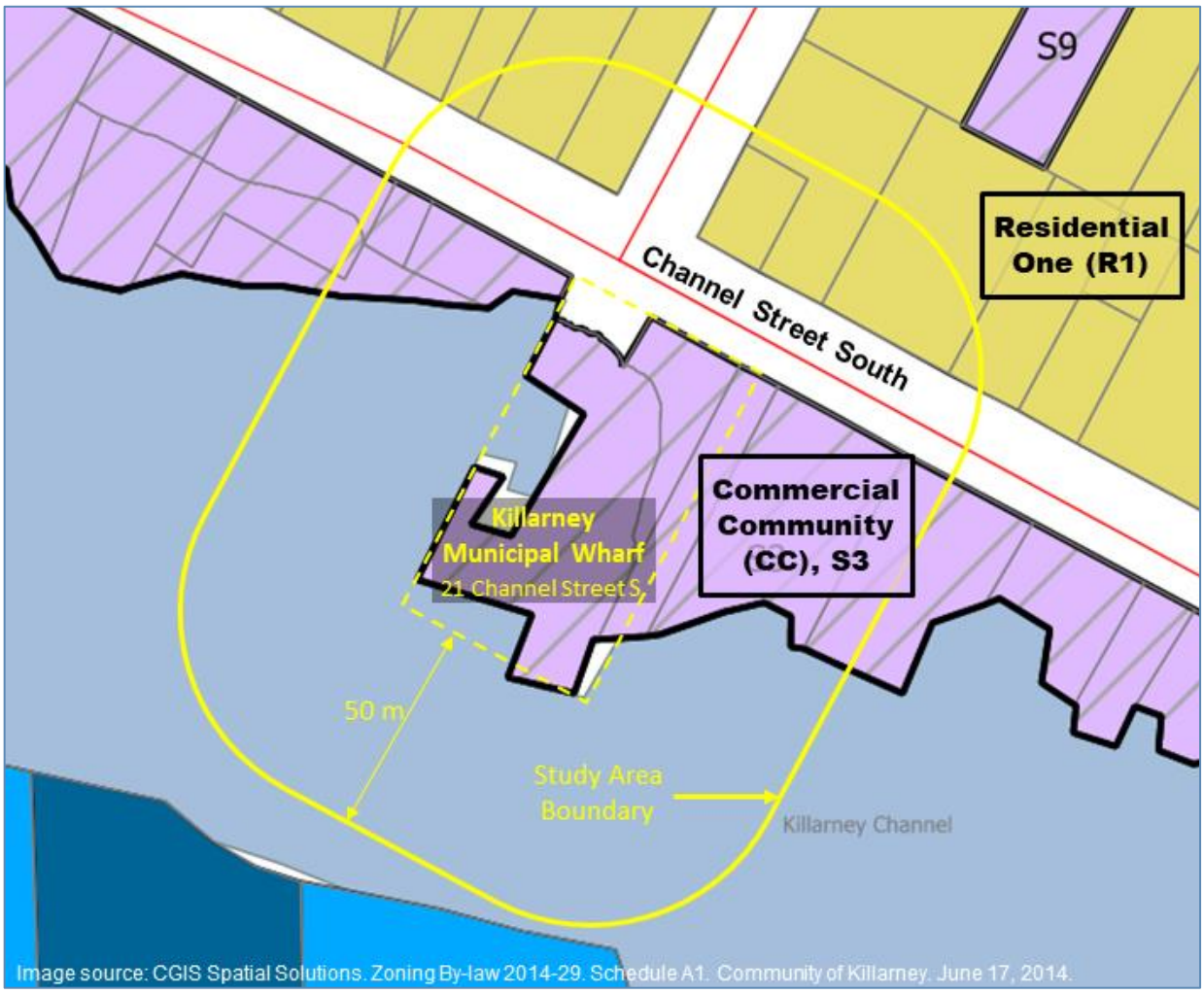

Figure 5: Municipal Zoning in the Study Area

5.2 Provincial

5.2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) is a provincial policy document that provides direction on land use planning and development. It was first issued under Section 3 of the Planning Act in 2005. The current PPS came into effect May 1, 2020 and replaces 2014 PPS.

Section 1.6 of the PPS provides guidance on the provision of infrastructure and public service facilities, in particular:

> *1.6.1 Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs.*
>
> *Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning and growth management so that they are:*
>
> *a. Financially viable over their life cycle, which may be demonstrated through asset management planning; and*
>
> *b. Available to meet current and projected needs.*
>
> *1.6.3 Before consideration is given to developing new infrastructure and public service facilities:*
>
> *a. The use of existing infrastructure and public service facilities should be optimized; and*
>
> *b. Opportunities for adaptive re-use should be considered, wherever feasible.*

5.2.2 Climate Change Mitigation and Adaptation

Class EA's are required to consider and address climate change when planning their projects, as per its 2017 guide "Consideration of Climate Change in Environmental Assessments in Ontario." The two approaches for this include:

1. Reducing a project's effect on climate change (mitigation); and
2. Increasing the project's and the local ecosystem's resilience to climate change (adaptation).

A key aspect of this project will be ensuring the municipal wharf has increased resiliency to future climate change impacts.

5.2.3 International Great Lakes Datum (1985).

All elevation levels used in this report to describe lake levels and the elevation of dock and wharf surfaces are based on the International Great Lakes Datum of 1985 (IGLD1985). Typically, survey elevations included in engineered plans use the Canadian Geodetic Vertical Datum of 2013 (CGVD2013), which is the reference standard for heights across Canada. Care should be taken when comparing the elevations noted in this report against past or future engineered plans or topographical survey data. IGLD1985 elevations at this location can be approximately converted to CGVD2013 elevations by adding 0.472m.

6 PROJECT BACKGROUND

6.1 Municipality of Killarney

6.1.1 Municipal Wharf

Located at 21 Channel Street South on the Killarney Channel, the Killarney Municipal Wharf is a centrepiece in the Village of Killarney that has been in place for decades. It has long been used for commercial fishing operations. An eatery is operated on the site, as the wharf has become an active hub for recreational boaters, tourists and local residents.

The wharf, originally built in 1951 by the Public Works of Canada, is a rock-filled timber crib construction with a wood deck surface, and wood curb along the perimeter. The south-east section of the wharf has a concrete deck and wood curb on the south edge along the water. The area behind the concrete dock has been losing fill, indicating some deterioration in the ability of the crib to retain the fill behind it. The condition of the existing timber crib is unknown.

The wharf has undergone a number of repairs and upgrades since the original 1951 construction. A major extension of the wharf was constructed with timber cribs and timber decking. In 2013, the wharf underwent significant upgrades, which included timber decking replacement and construction of a new building on a concrete slab. The new building currently houses the Herbert Fisheries eatery.

While the boat launch and wharf are both open to the public, Badgeley Island Aggregates (BIA) and Herbert Fisheries each lease space at the wharf from the Municipality. In previous years, Herbert Fisheries operated the municipal boat launch and transient municipal dockage under licence from the Municipality; however, this role is currently with the municipality.

In recent years, the condition of the wharf has deteriorated and been adversely impacted by significant water level fluctuations of the Great Lakes. Figure 6 depicts the flooded wharf areas in July 2020.

Figure 6: Flooding at the Killarney Municipal Wharf (July 2020)

The wharf has in recent years been impacted by high lake levels. In 2019 and 2020, the water level in Georgian Bay approached record levels of about 177.5 m. This submerged the north and north-east

docks, which have a top of deck elevation of 177.38 m. This left them inaccessible to boaters and visiting tourists. This elevated water level also raised concerns about the stability of the lightweight fill (i.e., large Styrofoam blocks) that were previously placed behind the dock to relieve earth pressure against the structure. The increased buoyance force due to the higher-than-expected water levels may have caused the Styrofoam blocks to float, causing extensive damage to the area. Counterweight in the form of pre-cast concrete barriers is currently placed in the area as precaution measure (see Figure 7).

Counterweight on concrete slab

Loss of fill at north end of concrete slab

Figure 7: Example of Wharf Conditions (2020)

A boathouse is located on the site by the concrete dock. While currently used as a storage shed, it is in a state of disrepair and has been condemned by the Municipality's building officer due to public safety concerns. May 31, 2023, the Municipality's Chief Building Official issued Order to Comply #23-101 and deemed the boathouse a safety hazard. In response, on June 14, 2023 the municipal council passed a resolution to have the boathouse demolished.

6.2 Assessment of Repairs or Replacement

In November 2020, the Municipality undertook an assessment of wharf upgrades to address the issues related to deterioration and water elevation. The assessment identified two feasible upgrade alternatives, which included:

- Option 1: A short-term solution that would raise the lower north and east docks to the same elevation as the main concrete dock at the south.
- Option 2: A long-term solution that would reconstruct the wharf to a higher deck elevation, providing increased freeboard to the record high water level of Lake Huron.

The Municipality determined that the preferred option would be to reconstruct the wharf, and the wharf redesign process was initiated. The Municipality's wharf design consultant (EXP) developed two alternative designs for the wharf reconstruction. The redesign includes a sea wall, which resulted in the need for the project to be undertaken as a Class EA.

7 PROBLEM AND OPPORTUNITY STATEMENT

The Problem and Opportunity (P&O) statement for this EA is based on the following considerations:

- The poor condition of the wharf;
- Recent record-high water elevations experienced at the wharf; and
- The economic and recreational importance of the wharf to the local community.

The P&O statement reads:

- The problem that this Class EA is intended to address is the poor condition of the Killarney Municipal Wharf. Allowing the wharf to continue in its current condition without intervention would result in its continued deterioration, which would negatively impact its ability to carry out its community role.
- Addressing the poor condition of the wharf presents opportunities for the Municipality. These include ensuring the wharf is better able to resist future elevated water levels and improving the accessibility of the wharf for community use.

8 EXISTING CONDITIONS

8.1 Natural Environment

8.1.1 Overview

Figure 8 presents a Natural Heritage Areas map prepared using the MNRF's natural heritage viewer. The map shows that there are no ANSI's, wetlands or woodlands located near the site.

8.1.2 Terrestrial Habitat and Species

The immediate project site is heavily disturbed and does not include significant natural heritage features or habitat. The municipality reports, however, that the timber cribs have been observed as hosting nests, likely the barn swallow, which is a species of special concern (although not a species at risk, or SAR).

Based on consultation with MECP and MNRF, the following endangered or threatened terrestrial or avian SAR and/or SAR habitat may occur in the vicinity of the project:

- Chimney swift;
- Eastern whip-poor-will;
- Short-eared owl;
- Wood thrush;
- Red-headed woodpecker;
- SAR bats (little brown myotis, northern myotis, eastern small-footed myotis, and tri-colored bat).

The MNRF also indicated that they were aware of observations of the following Special Concern species: Caspian Tern; Bald Eagle; and Eastern Pewee.

8.1.3 Aquatic Habitat and Species

Environmental field work was conducted in May 2022 by Holla Engineering & Environmental Inc. in support of the wharf design work. The field work found that the substrate throughout the area of the existing wharf was generally very fine silt and fine sand. A thick mat of aquatic vegetation was observed to be present in and around all of the existing wharf out to a depth of about 3m. Due to the time of year (May 2022), the aquatic vegetation was unable to be readily identified, but it is likely a variety of pondweed. No woody debris or other critical habitat was noted during the survey. A copy of the field work results is provided in Appendix A.

Given the site's location on the Killarney Channel, there are a number of fish species known to be present in the project area, including chinook salmon, coho salmon, rainbow trout, lake trout, walleye, yellow perch and bass. It is likely that many other species common to Lake Huron are also present, including a variety of minnow species.

Based on consultation with MECP and MNRF, the following endangered or threatened aquatic or amphibious SAR and/or SAR habitat may occur in the vicinity of the project:

- Blanding's turtle;
- Massasauga rattlesnake (Great Lakes-St. Lawrence population);
- Lake sturgeon (Great Lakes-Upper St. Lawrence population).

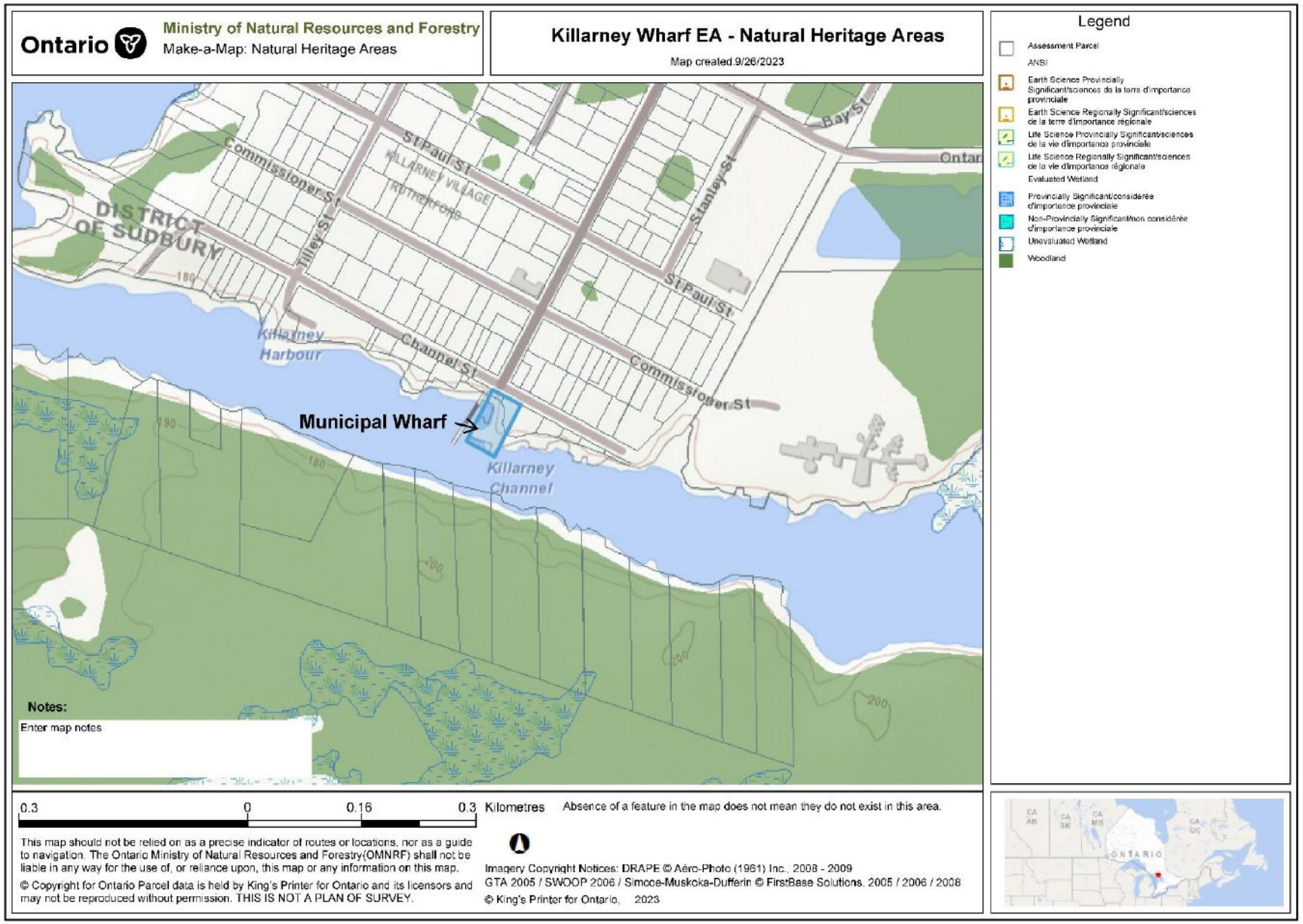

Figure 8: Natural Heritage Areas

8.2 Climate Change Considerations

When this project was initiated, it was envisioned that the elevation of the concrete dock would be raised to slightly above the historical high-water level of Georgian Bay to protect the wharf against future high lake levels and related wave activity. This was viewed as a climate change adaptation measure, as rising lake levels are a possible climate change impact. This premise, however, is complicated by the considerable variability of Lake Huron and Georgian Bay's historic water levels. It is acknowledged that there is some uncertainty of how climate change will affect Georgian Bay's lake levels in the years ahead however, studies indicate that there will higher high-water levels and lower low-water levels.

For example, studies describing this variability were presented in April 2022 by W.F. Baird & Associates Coastal Engineers Ltd. and by Environment and Climate Change Canada (ECCC) at a Great Lakes Coastal Wetlands webinar series hosted by ECCC and the Toronto and Region Conservation Authority. The Baird study projected that water levels on Lakes Michigan-Huron and Georgian Bay could drop to an elevation of 174.5 m by 2030 and increase to a high of 177.8 m by 2040 (about 0.3 metres above the 1986 record high). The ECCC study reportedly presented similar findings[5].

Fisheries and Oceans Canada (DFO) has a water level monitoring station for Lake Huron at Little Current, which is located approximately 30km west of the municipal wharf. Figure 9 presents the monthly lake elevation as recorded at the Little Current station, from 1959 to 2021. The existing elevations of the concrete deck (177.85m) and the north docks (177.38m) are included for reference.

Consideration of the potential impacts of Climate Change on municipal infrastructure and public service facilities in their design is in alignment with the Provincial Policy Statement.

[5] Thompson, Lori. Lakes Huron/Michigan could see 3.5 foot drop below record low levels by 2030: study. Toronto Star. Wednesday, May 25, 2022. https://www.thestar.com/news/canada/lakes-huron-michigan-could-see-3-5-foot-drop-below-record-low-levels-by-2030/article_1ab7eaf9-b67f-5ac1-b66a-e39a8ee51626.html. Accessed August 31, 2023.

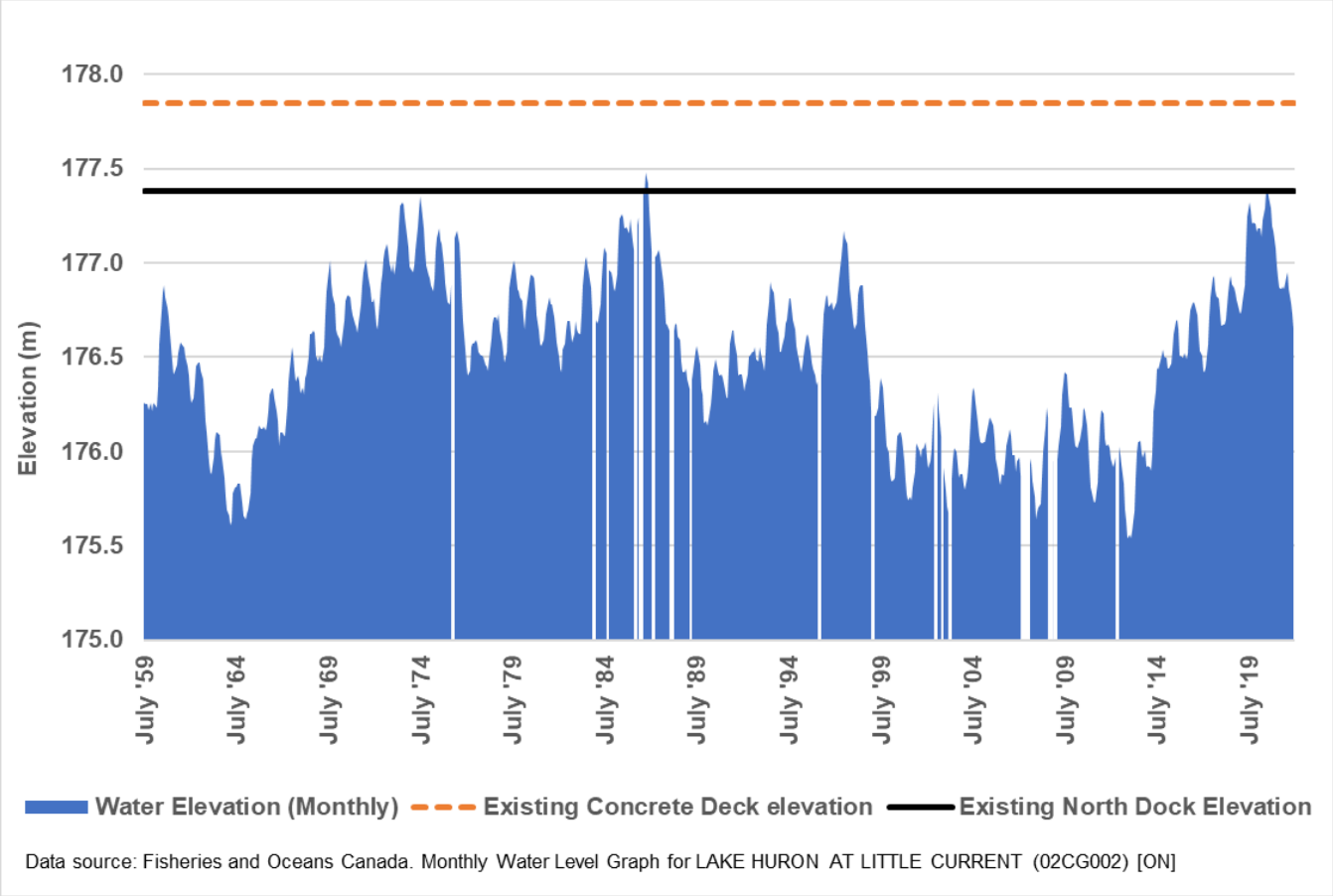

Figure 9: Monthly Water Levels at Little Current (1959 to 2021)

8.3 Source Water Protection

According to the MECP's Source Protection Information Atlas[6], the project location is situated within the Lake Huron Secondary Watershed, which is located in the Great Lakes – St. Lawrence River Primary Watershed (see Figure 10).

The project location is not located within a Source Protection Area. As such, there are no designated wellhead protection areas, intake protection zones or highly vulnerable aquifers within the project area.

The Municipality's drinking water system for the community has a water intake (PTTW 3554-A26N6P) situated within the Killarney Channel, located approximately 100m west of the project area (see Figure 11).

[6] https://www.lioapplications.lrc.gov.on.ca/SourceWaterProtection/index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-CA

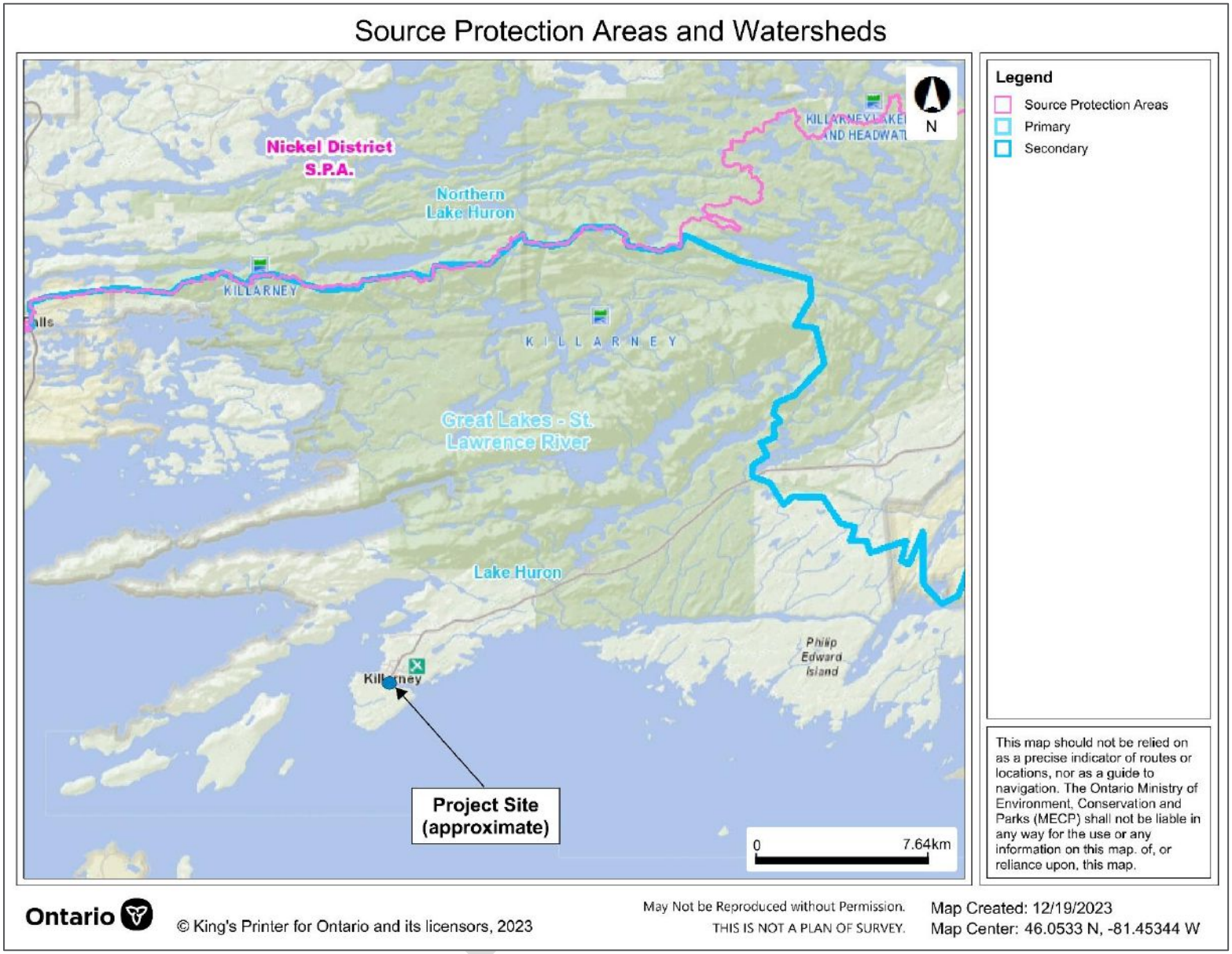

Figure 10: Project Location and Source Protection Mapping

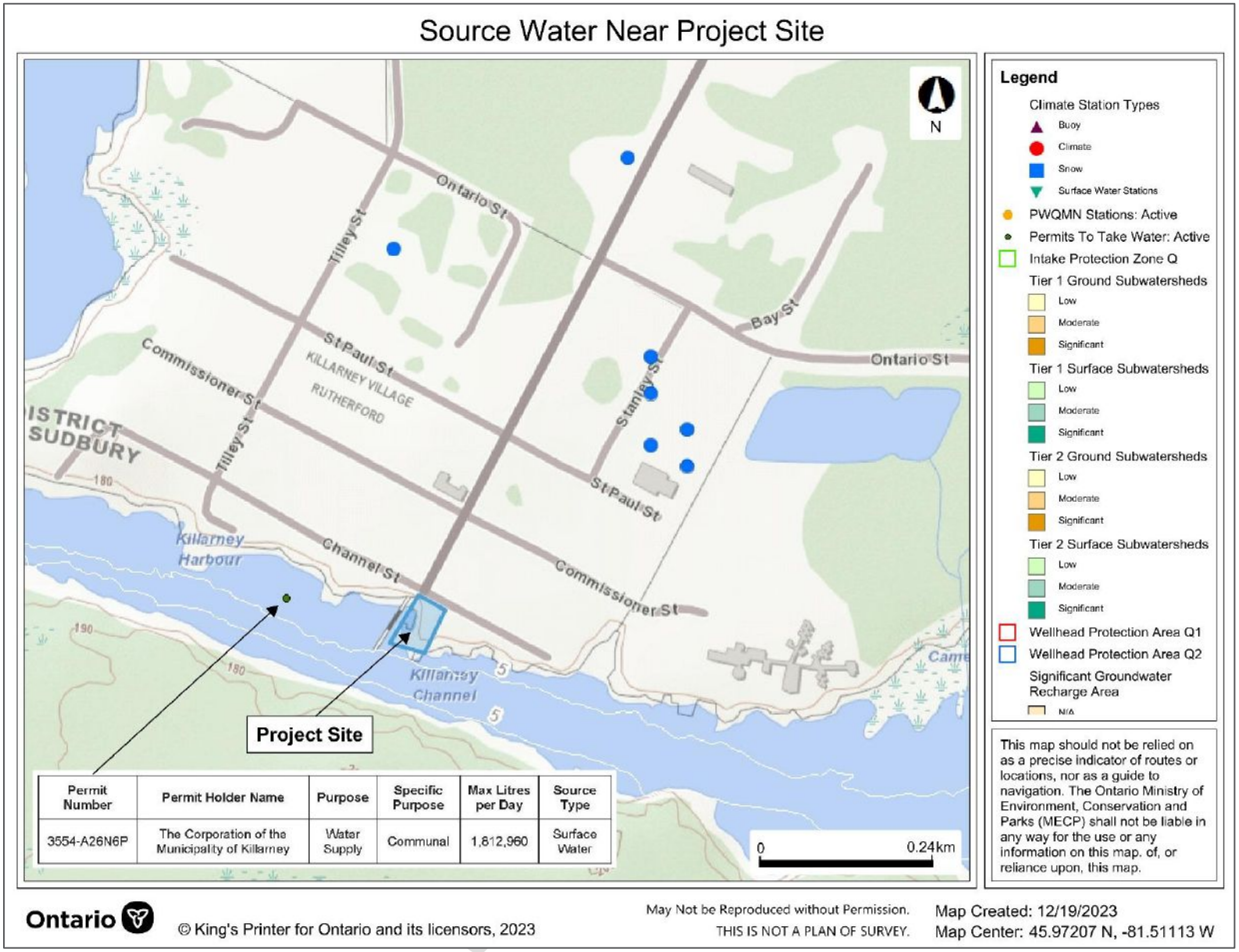

Figure 11: Source Water Features near Project Location

8.4 Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was undertaken for the municipal wharf property. The ESA included a review of historical land-use and occupancy records, a visual inspection of the Site and surrounding properties, and interviews. The purpose of ESA was to identify potential site contamination or potential contaminating activities. Key results of the ESA included:

- The ESA did not identify any significant Areas of Potential Environmental Concern on the site.
- While the exact origin of the wharf's fill material is unknown, its small volume and assumed probable suppliers suggest a low probability of contaminated fill on the site.
- Despite the presence of above-ground fuel storage tanks (AST) on adjacent properties east and west of the property, the site's close proximity to a major waterbody and the assumed direction of groundwater flow suggests there would be minimal lateral movement of groundwater from adjacent properties onto the Site. Therefore, there is a low probability of contamination of the site due to the ASTs located at adjacent properties.

The Phase 1 ESA was reviewed by the MECP as part of its review of the draft ESR. The MECP noted that Regulation 153/04, which governs ESA work for the purpose of filing a record of site condition, an industrial property is considered an enhanced investigation property. Such a property must undergo a Phase II investigation, whereby soil and groundwater samples undergo lab analysis. The MECP acknowledged that the regulation does not strictly govern the situation for this project; however, they recommended a Phase II ESA be conducted due to the historic nature of the wharf. A Phase II ESA will be conducted as part of the detailed design of the proposed project.

8.5 Social and Cultural Environment

8.5.1 Archeological

A stage 1 archaeological assessment (AA) was completed for this project (under Project Information Form (PIF) number P094-0330-2022).

The Stage 1 AA report notes that no previously registered archaeological sites are located within one kilometer of the Study Area. The report concluded the project site does not retain archaeological potential on account of deep and extensive land disturbance and will not require further archaeological assessment.

A copy of the Stage 1 Archaeological Assessment is provided in Appendix B-1. The report has been submitted to MCM and (as of August 1, 2024) is awaiting review. MCM notes that archaeological concerns are not considered fully addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that:

1. The archaeological assessment (AA) of the project area is complete, and
2. All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the Ontario Heritage Act) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.

A marine archaeological assessment screening was completed for this project using the *Criteria for Evaluation Marine Archaeological Potential: A Checklist for Non-Marine Archaeologists*. Question 8 of the checklist asks if the entire property or project area been subjected to recent, extensive and intensive

disturbance. Based on a desktop review, the project team concluded that there has been extensive disturbance at and around the wharf has occurred due to past dredging and construction activities. For example, the United States Environmental Protection Agency reported in 1974 that the Killarney Channel was a waterway with commercial status, and it was routinely dredged by the Federal Department of Public Works to maintain a 27-foot seaway depth[7].

Additionally, construction activities have taken place around the wharf periodically in recent decades that would have created disturbances. Examples of these are presented in Appendix B-2 and include infill of the shoreline to create a parking lot at the wharf and installation of a watermain (off the west side of the wharf) to George Island, on the other side of the channel.

The results of the checklist indicate that the area of potential in-water impacts has low marine archaeological potential and therefore no marine assessment is required. A copy of the screening results is provided in Appendix B-2.

8.5.2 Cultural

A Cultural Heritage Evaluation Report was prepared for this project to evaluate the cultural heritage value of the wharf as per the criteria within Ontario Regulation 9/06 of the *Ontario Heritage Act*[8]. The evaluation determined that the Killarney Wharf has historical and associative value as well as contextual value, based on the following criteria:

- Criterion #4: *The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community*.
  - The wharf meets this criterion as its locations and various iterations over time has a direct association with the theme of commerce and with the activity of fishing. In particular, the wharf site has been busy from the arrival and settlement of fishermen in the community in the early nineteenth century through to the present.
- Criterion #7: *The property has contextual value because it is important in defining, maintaining or supporting the character of an area*:
  - The wharf meets this criterion because it supports and makes a significant contribution to the area's commercial identity, transportation services, and waterfront tourism industry.
- Criterion # 8: *The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings*:
  - The wharf meets this criterion because it is functionally and historically linked to its surroundings. The wharf, much like the buildings and lots in its vicinity, have historically been associated with water-based transportation and recreational activities in the area, such as fishing, boating, and tourism.

[7] United States Environmental Protection Agency. Future Dredging Quantities in the Great Lakes. EPA-660/3-74-029. December 1974.

[8] When the Notice of Completion had been issued, the ESR reported that the *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes Checklist* had been completed by the project team to assess the potential for built heritage or cultural heritage landscape on the property. At that time, the outcome from the checklist was that a Cultural Heritage Evaluation Report (CHER) was not required. Based on review and feedback from MCM, it was determined that a CHER was in fact required. The CHER was completed in 2025 and its results included in the updated ESR, as indicated in the ESR Errata.

- Criterion #9: *The property has contextual value because it is a landmark*:
  - The wharf meets this criterion because it has been the site of a wharf since at least the mid-nineteenth century. As such, it has been the site of significant commercial activity to the community, many of whom relied on fishing for their livelihoods. Furthermore, until the early 1960s, the wharf site was the only access point to the village and had been used as a stopping and departure point for tourists, particularly for those travelling by steamboat between Killarney and Manitoulin Island. It continues to be a significant destination point for tourists in the community.

9 IDENTIFICATION OF ALTERNATIVE SOLUTIONS

Four potential alternative solutions were considered in this EA study. Each were evaluated against a set of evaluation criteria that considered the natural, social and cultural environments, its technical merits, and its economics. The alternative solutions considered include:

1) **Raising the North and East Docks:** This short-term repair presented in EXP's November 2020 Wharf Improvement Study Report to the Municipality consisted of raising the lower north and east docks to the same elevation as the main concrete docks at the south.
2) **Reconstruction of the Wharf:** This long-term solution included reconstructing the wharf to a higher deck elevation, which would provide increased freeboard to Georgian Bay, and Lake Huron's record-high water levels. It was also presented in EXP's November 2020 Wharf Improvement Study Report.
3) **Build a New Municipal Wharf:** This solution would see the Municipality build a new Municipal Wharf in a new location.
4) **Do Nothing:** This alternative is the "base-case" alternative that would see the Municipality do nothing and leave the wharf as-is.

These alternative solutions are discussed in greater detail below.

9.1 Alternative Solution #1: Raising the North and East Docks

This alternative would consist of placing an anchored sheet pile wall at the front of the existing timber structure, which would be used to raise the north and east docks to match the average south dock elevation of 177.63 m. The sheet pile wall would reinforce the existing crib structures and retain the additional fill behind them. The existing concrete relief slab behind the east dock and the lightweight fill below it would be removed and then replaced with a granular material. This granular material would be regraded to suit the new deck elevation. The erosion/sink hole in the parking lot would be repaired at the same time.

This option would raise the wharf slightly above the highest recorded water level. However, it may still be susceptible to wave action, and water may still wash over the deck surface in high-wind conditions.

The 2020 Wharf Improvement Study Report provided an opinion of probable cost for engineering and construction of about $943,000.

Figure 12 illustrates this alternative solution.

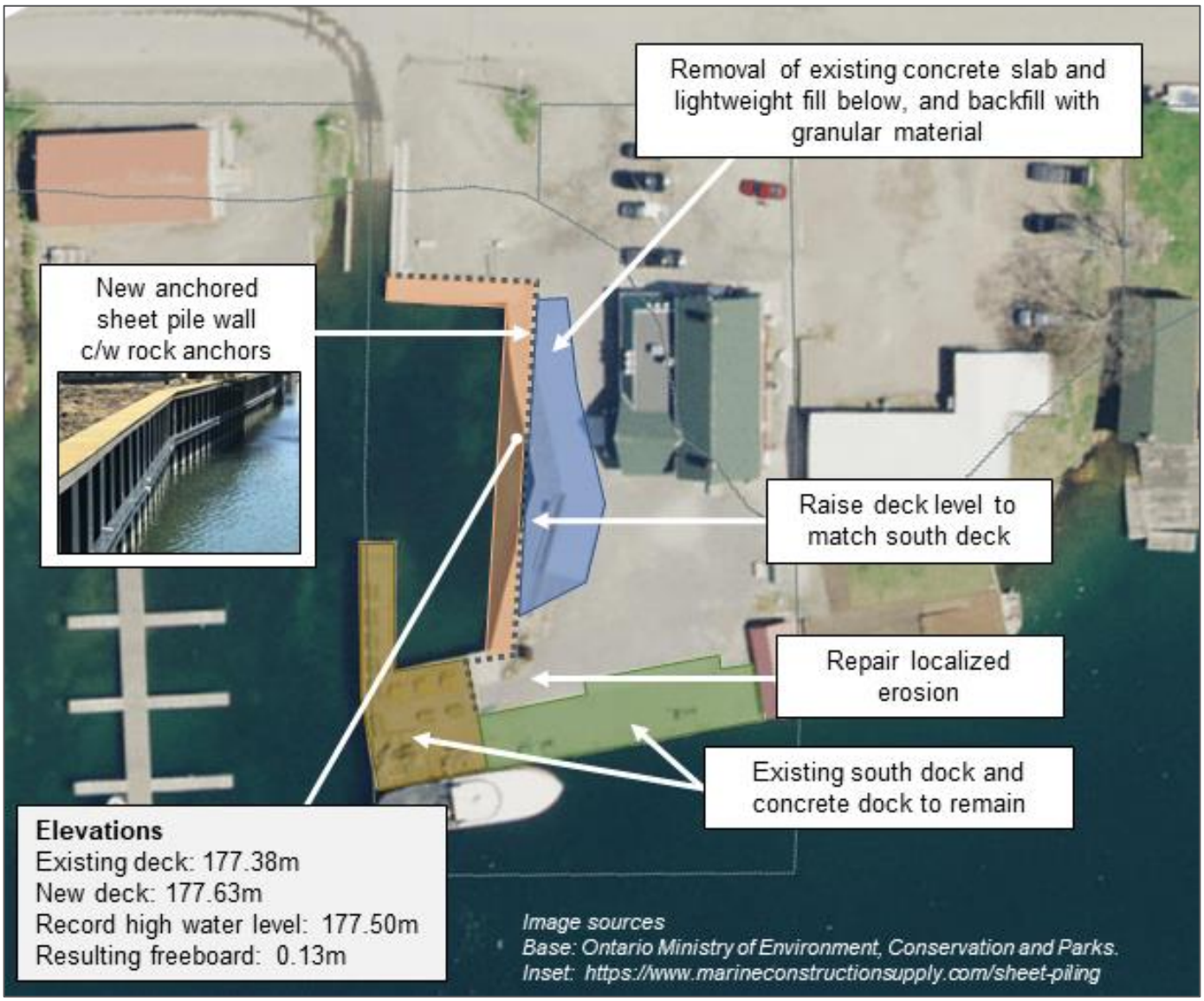

Figure 12: Alternative Solution #1: Raising the North and East Docks

The advantages of this alternative solution are that the cost of the upgrades will be less than the complete reconstruction of the wharf, and that the wharf will not be taken out of service for as long a period. This will allow the wharf users to make more use of the facility than other options as the construction will be completed more quickly. In addition, there will be less potential for contaminants from construction to enter the water.

Disadvantages of this concept include potential for rising water levels to continue causing problems for users and the Municipality. Although the north and east docks would be raised, the south docks would remain as is. Considering the length of time this wharf has been in service, it is likely that repairs, or even replacement, will be required on the existing wood and concrete south docks and timber cribs in the next decade which would interrupt wharf use for another season.

9.2 Alternative Solution #2: Reconstruction of the Wharf

Alternative Solution #2 would consist of the reconstruction of the municipal wharf at a higher deck elevation. This would include raising the existing north deck elevation by about 0.72m and the south deck by about 0.3 m, resulting in each with an elevation 178.10m. This would provide a freeboard of 0.60m compared to the record high water level of Georgian Bay.

The layout of the reconstructed wharf would generally match the existing configuration, with the exception of the removal of the small finger dock currently at the south-west corner of the wharf. Removal of this small dock would allow for new floating docks that could be installed on the small craft basin by the boat launch, providing dockage for small recreational boats. A mooring area for larger commercial vessels would remain on the south side of the wharf by the main channel. In addition, there is the potential for the east dock to be straightened and extended to the west, and for the concrete wharf to be extended 1 m further into the channel, thereby increasing the usable space on the wharf. These would be explored further in Phase 3.

Construction of the north dock would generally consist of steel sheet pile seawalls with anchors to the underlying bedrock and floating docks with timber deck. The channel facing south dock would consist of steel tube piles socketed into bedrock supporting a concrete deck which would be provided for commercial vessels. The existing concrete relief slab behind the east dock and the lightweight fill below would be removed, and the entire parking lot would be regraded to suit the new wharf elevation.

Those old timber cribs under the finger dock and concrete wharf and in front of the new sheet pile seawall would be removed, either completely or to a depth where it would not pose a risk to boats. This alternative solution is illustrated in Figure 13, followed by a general arrangement of the supporting posts in Figure 14.

The 2020 Wharf Improvement Study Report provided an opinion of probable cost for engineering and construction of about $2,772,000.

The advantages of this alternative solution are that the entire wharf will be upgraded at the same time. The new wharf will provide more slips for transient users and increased footage behind the wharf for community use. The entire dock will also be raised above record high levels and will be at one consistent elevation, which will remove existing steps among different sections of the wharf and potential tripping hazards. This option will renew the service life of the wharf increase the capacity to allow for more users.

Disadvantages of this concept include a higher capital cost and longer construction period, and the wharf would be out of service for a longer period.

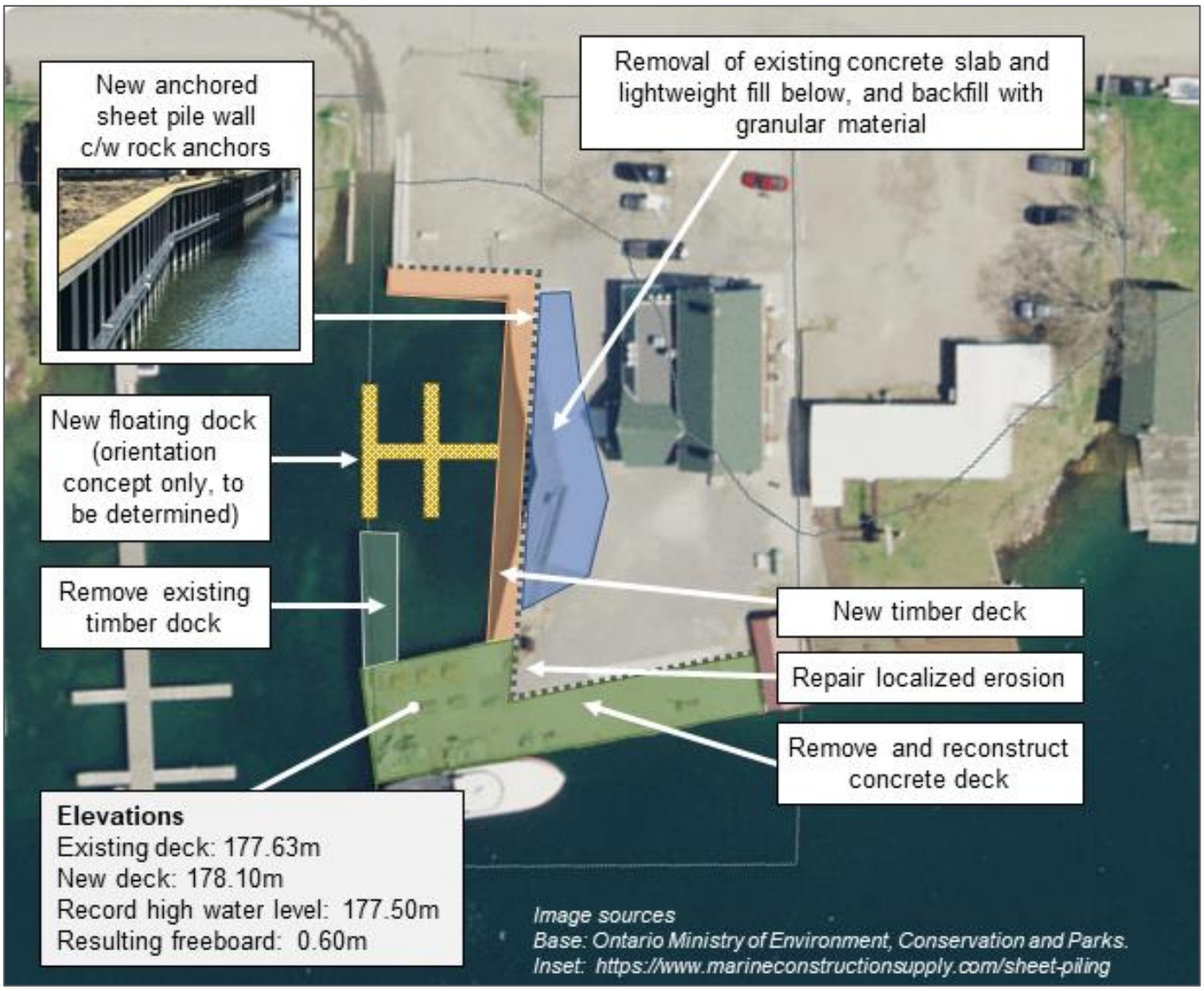

Figure 13: Alternative Solution #2: Reconstruction of the Wharf

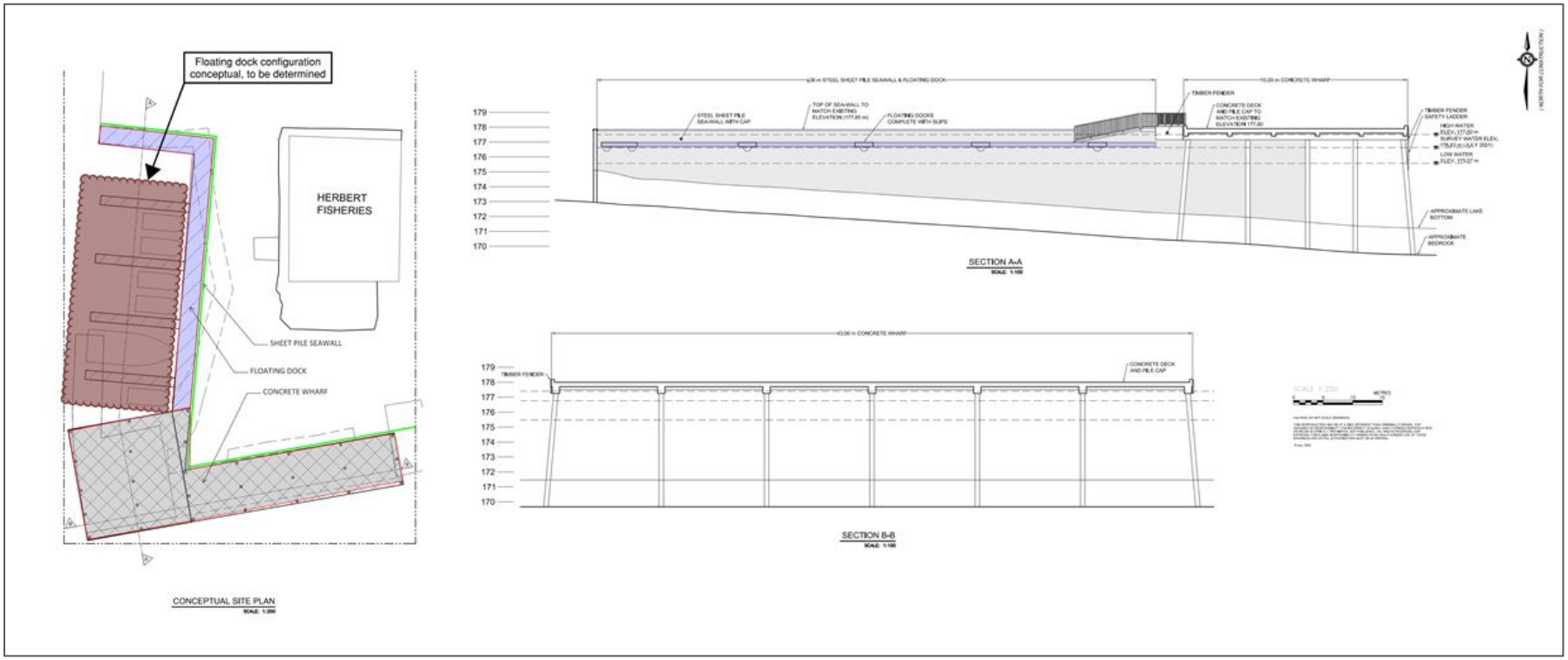

Figure 14: Alternative Solution 2 (General Arrangement)

9.3 Alternative Solution #3: Build a New Municipal Wharf

Alternative #3 would see the Municipality build a new municipal wharf in a new location on a separate property. For the purpose of this exercise, it was assumed that the new location would be located along Channel Street to ensure the municipal wharf retains an accessible location for the community. A review of mapping for the community indicates that there are no vacant properties along Channel Street suitable for the construction of a new municipal wharf (see Figure 15). The municipality would be required to either purchase a property along Channel Street for redevelopment as a municipal wharf or obtain a property to the west or east of the channel. At the time this option was being considered during the EA process, it was considered to be not feasible for a number of reasons, including:

- Purchasing a property for redevelopment as a municipal wharf would result in a significant delay in the design and construction of the wharf, as it would require negotiation or expropriation, execution of an agreement with the property owner, demolition of the assets on the property, design and construction of the wharf, and obtaining any necessary approvals for said demolitions and construction. The timeline for these activities could take several years.
- Pursuit of this option would be a more costly exercise compared to either alternative solutions 1 or 2.
- The Municipality currently has partial federal funding for the wharf upgrades[9], which must be initiated by a certain time period or the funding will be lost. The nature of the costs and the extensive timelines for alternative solution #3 could put the funding at risk.
- Building a new municipal wharf at an available vacant property that might be found outside of the Killarney Channel would mean that it would no longer be a centrepiece of the community. This is not consistent with the Municipality's vision.
- Building a new municipal wharf at a different location would leave the Municipality with a redundant asset, as the current municipal wharf would still be owned by the Municipality and need to be maintained.

Given the above, alternative solution #3 was determined not to be feasible and was carried forward for further consideration.

[9] Government of Canada. Government of Canada invests in reconstruction and expansion of Village of Killarney waterfront. https://www.canada.ca/en/fednor/news/2022/06/government-of-canada-invests-in-reconstruction-and-expansion-of-village-of-killarney-waterfront.html. Date modified: 2022-06-09.

Figure 15: Channel Street, Village of Killarney

This information was presented to the public in February 2023. In the Winter of 2023, the Municipality purchased the marina located adjacent to the municipal wharf at 23 Channel Street (see Figure 16). The municipality's plans for the marina have yet to be determined. Purchase of this marina negates some rationale for not building a new wharf at a new location, such as delay due to purchase of the new property or location of the property outside of the channel and away from the centre of the community. However, the other aspects noted remain relevant, such as:

- Delay due to the need for completely new wharf designs;
- Demolition of existing marina assets;
- Permits and approvals related to demolitions and in-water works; and
- The need for improvements at the existing municipal wharf would remain.

Given the above, the decision to screen out alternative solution #3 stood.

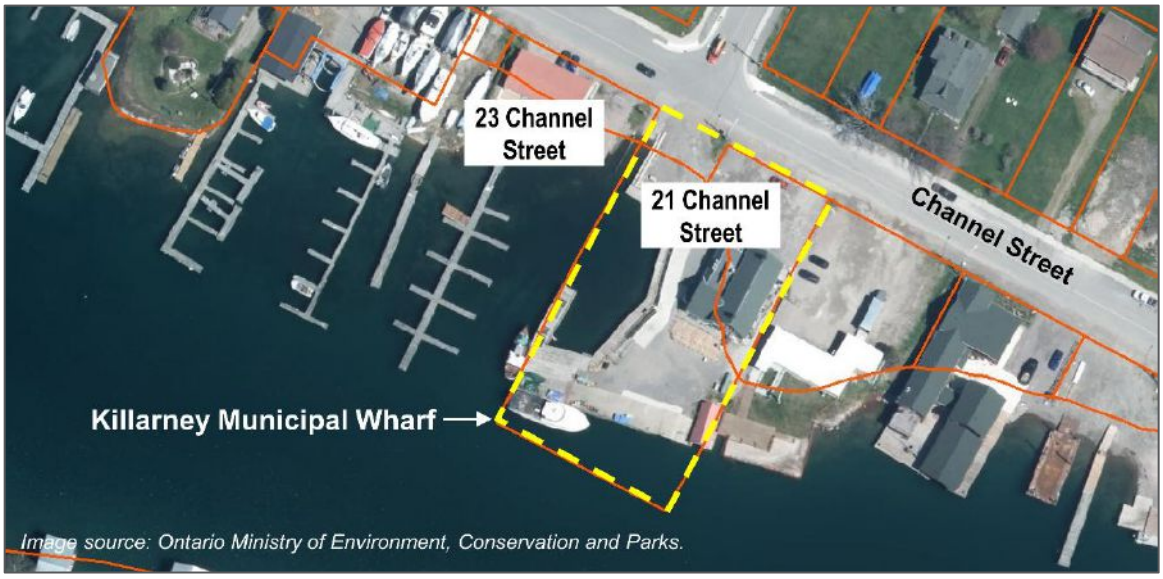

Figure 16: Location of Marina at 23 Channel Street

9.4 Alternative Solutions #4: Do Nothing

The Do-Nothing scenario is the standard base-case scenario against which all other alternatives are considered. In this case, the Do-Nothing scenario would see the municipality not undertake any upgrades to the wharf, beyond superficial repairs. While this may be the least costly scenario in the short-term, there are significant implications to this that could become costly, including:

- Superficial repairs to localized sink holes and erosion would not address the structural issues that relate to the crib's ability to retain fill. As such, the fill is likely to continue escaping, creating new sink holes.
- Future high-water levels will continue to impact the wharf's ability to function and increase structural damage. The high-water level will also increase the risk of existing lightweight fill "floating" to the surface, which would cause excessive damages and further require the use of unsightly concrete barriers as counterweights.
- As the wharf continues to experience high-water levels and structural damage, the public's use of the wharf will likely need to be curtailed or prohibited. Eventually, the wharf's structural integrity could become degraded to the point where there is a risk to public safety.
- Depending on the extent of deterioration, the Municipality's ability to fulfill its obligations to wharf tenants may be impacted.

10 EVALUATION OF ALTERNATIVE SOLUTIONS

10.1 Evaluation Criteria

Under the Class Environmental Assessment (Class EA) process, municipalities are required to consider all aspects of the environment in their assessment and evaluation of infrastructure projects. Based on Ontario's *Environmental Assessment Act*, the broad definition of the environment includes the natural, social, cultural, economic and built environments. The Act requires a systematic evaluation of the alternatives under consideration in terms of their advantages and disadvantages. Proponents are required to consider both the positive and negative effects on the environment in the evaluation.

The evaluation criteria used to assess the EA's proposed alternative solutions are organized based on the Act's interpretation of environment. In addition, criterion have been included to reflect the project's technical and financial considerations. The evaluation criteria and indicators are summarized in the following table.

Table 2: Alternative Solutions Evaluation Criteria

Category / Criteria	Indicator(s)
Natural Environment	
Effect on Aquatic Habitat	Temporary effects on aquatic species (including species at risk) and habitat quality during construction
	Permanent effects on aquatic species (including species at risk) and habitat quality
Effect on Terrestrial Habitat	Temporary effects on terrestrial habitat quality and species (including species at risk) during construction
	Permanent effects on terrestrial habitat quality and species (including species at risk)
Source Water Protection	Temporary and permanent effects on community drinking water source.
Social Environment	
Effect on Area Users (including both positive and negative effects)	Type and magnitude of effects during construction
	Type and magnitude of effects after construction
Recreational Boating	Ability to accommodate recreational boating
Cultural Environment	
Effect on Archaeological Resources	Loss and/or disturbance of archaeological resources
Effect on Cultural Heritage Resources	Loss and/or disturbance of cultural heritage resources
Built Environment	
Effect on Wharf and Associated Facilities	Disturbance/improvements to the wharf, docking areas, landing and on-site amenities
Alignment with Land-use Planning	Implications of alternative for current zoning and designated land uses.
Economic Environment	
Effect on Economic Development	Potential benefits and impacts on local businesses and economic opportunities
Effect on Municipal Leases	Ability of Municipality to meet terms of municipal wharf leases
Technical	
Wharf Longevity	Anticipated longevity of alternative solution / anticipated timeline on future wharf upgrades and repairs
Climate Change Adaptation	Resilience of wharf to future climate change impacts, including increased lake levels and severe weather events
Financial	
Capital Costs	Anticipated net capital costs (considering federal grants)
Operating Costs	Anticipated annual operations and maintenance costs

10.2 Evaluation Results

The evaluation criteria were used to undertake a comparative evaluation of the three alternatives. The alternatives were ranked according to preference, based on the potential impacts and benefits of the alternative with respect to each criterion. The preference scoring definitions are presented in Table 2, including colour-coding for easy visual reference.

Table 3: Evaluation Assessment Potential Results

Preference	Description
Most Preferred	Least Negative Impact and/or Greatest Benefit
Moderately Preferred	Moderate Negative Impact and/or Moderate Benefit
Least preferred	Greatest Negative Impact and/or Least Benefit

The alternative solutions were then ranked in terms of reference for each criteria category and then as a whole, with all criteria considered together. The evaluation summary is presented in Table 3; the detailed evaluation is provided in Appendix C. Based on the evaluation, Alternative Solution #2 (Reconstruction of the Wharf) was the preliminary preferred alternative solution due to the following reasons:

- It provides a long-term solution that allows the Municipality to continue meeting its obligations under the wharf lease while providing opportunities for increased economic benefits arising from greater community use of the wharf.
- This alternative avoids potential future disruptions that would be caused by the eventually-needed repair or replacement of the south dock.
- This alternative provides the greatest resilience to potential future climate change impacts, including high-water levels and extreme weather events.
- Any potential permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf are anticipated to be minor.

This recommended alternative solution was presented to the public at an open house on February 15, 2023. Based on the feedback received, this alternative solution was confirmed as the preferred alternative solution.

Table 4: Evaluation Summary of Alternative Solutions

Category / Criteria	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Natural Environment Summary	• Given the nature of the permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf, the overall temporary and permanent impacts to aquatic and terrestrial/avian species and on the community's drinking water source is low for both Alternatives 1 and 2. **Moderately Preferred**	• Given the nature of the permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf, the overall temporary and permanent impacts to aquatic and terrestrial/avian species and on the community's drinking water source is low for both Alternatives 1 and 2. **Moderately Preferred**	• There would be no temporary or permanent impacts to aquatic and terrestrial/avian habitats or on the community's drinking water source in the Do-Nothing alternative. **Most Preferred**
Social Environment Summary	• While the anticipated construction disruptions would be shorter than Alternative 2, there would still be the potential future disruptions due to high-water level closures and future repair/replacement works. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Moderately Preferred**	• While the anticipated construction disruptions would be longer than Alternative 1, it would lesson potential future disruptions due to high-water level closures and future repair/replacement works. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Most Preferred**	• The lack of structural repairs and wharf improvements increases the likelihood of service disruptions and closures at the wharf. • The existing wharf would have less potential to accommodate recreational boating compared to the alternatives 1 and 2. **Least Preferred**
Cultural Environment Summary	• All three alternatives are equally preferred. **Most Preferred**	• All three alternatives are equally preferred. **Most Preferred**	• All three alternatives are equally preferred. **Most Preferred**
Built Environment Summary	• Alternatives 1 and 2 would be better able to accommodate docking areas and on-site amenities compared to the Do Nothing alternative while aligning with the site's existing defined land uses. **Most Preferred**	• Alternatives 1 and 2 would be better able to accommodate docking areas and on-site amenities compared to the Do Nothing alternative while aligning with the site's existing defined land uses. **Most Preferred**	• The continued deteriorating conditions resulting from the Do Nothing alternative have a negative impact on wharf usage compared to Alternatives 1 and 2. . **Least Preferred**

Category / Criteria	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Economic Environment Summary	Alternative 1 provides similar economic benefits and opportunities compared to Alternative 2, but these would be disrupted in the future for a second round of repair or replacement works. It also allows the Municipality to meet the terms of the municipal wharf leases. **Moderately Preferred**	Alternative 2 provides similar economic benefits and opportunities compared to Alternative 1, while avoiding the need for disruptions in the future for a second round of repair or replacement works. It also allows the Municipality to meet the terms of the municipal wharf leases. **Most Preferred**	The deteriorating conditions resulting from the Do Nothing alternative degrade the potential for local business activities and economic opportunities. They could also potentially impact the Municipality's ability to meet the terms its municipal wharf leases. **Least Preferred**
Technical Summary	Alternative 1 would be a solution for the short to mid-term, but future wharf upgrades and repairs would be required for the south docks. The wharf under Alternative 1 would also be less resilient to extreme weather events compared to Alternative 2. **Moderately Preferred**	Alternative 2 provides a long-term solution that provides the greatest resilience to future extreme weather events. **Most Preferred**	The Do Nothing alternative negatively impacts the wharf's longevity and is vulnerable to extreme weather events. **Least Preferred**
Financial Summary	Alternative 2 is moderately preferred as it likely will have higher long-term capital costs compared to Alternative 2, but lower operating costs compared to the do-nothing alternative. It also would have lower financial risk to the municipality compared to the do-nothing alternative. **Moderately Preferred**	Alternative 1 is most preferred as it likely will have lower long-term capital costs compared to Alternative 1 and lower operating costs compared to the do-nothing alternative. It also would have lower financial risk to the municipality compared to the do-nothing alternative. **Most Preferred**	The Do Nothing alternative is least preferred. While it has the lowest capital cost, the operating costs compared to alternatives 1 and 2 would be higher. It also would have higher financial risk to the municipality due to issues of liability. **Least Preferred**

Category / Criteria	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Overall Evaluation Summary	Alternative 1 is moderately preferred compared to Alternative 2. It is a short to mid-term that, like Alternative 2, will allow the Municipality to continue meeting its obligations under the wharf lease while providing opportunities for increased economic benefits arising from greater community use of the wharf. However, these activities would be disrupted due to the eventual needed repair or replacement of the south dock. Alternative 1 also provides less resilience to potential future climate change impacts, including high-water levels and extreme weather events. Any potential permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf are anticipated to be minor. Alternative is likely to higher long-term capital costs compared to Alternative 1, but less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Moderately Preferred**	Alternative 2 is most preferred because it is a long-term solution that allows the Municipality to continue meeting its obligations under the wharf lease while providing opportunities for increased economic benefits arising from greater community use of the wharf. This alternative also avoids the potential future disruptions that would be caused by the eventual needed repair or replacement of the south dock. Alternative 2 also provides the greatest resilience to potential future climate change impacts, including high-water levels and extreme weather events. Any potential permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf are anticipated to be minor. Alternative is likely to have the lowest long-term capital costs and less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Most Preferred**	The Do Nothing alternative is least preferred because it provides no extra economic opportunities and does nothing to avoid the continued degradation of the wharf, which could threaten public safety and the Municipality's ability to meet is obligations under the wharf lease. The wharf under the Do Nothing alternative continues to be vulnerable to potential future climate change impacts, including high-water levels and extreme weather events. Alternative is likely to have the lowest long-term capital costs and less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Least Preferred**

11 IDENTIFICATION OF ALTERNATIVE DESIGNS

Two alternative designs were prepared and presented at the public open house on February 15, 2023, based on the preliminary preferred alternative. Based on feedback from that open house, a larger fender installed on the dock posts was added to the alternative designs to act as a breakwater and offer additional protection from wave actions for boats using the docks. The alternatives are discussed below and depicted in Figures 19 and 20 at the end of this section. Figure 21 depicts a typical cross section for Alternative Design Concept B, which would be similar to Alternative Design Concept A.

Each of the alternative design concepts incorporated the following aspects:

- Reconstruction of the municipal wharf at a higher elevation.
- North deck elevation to be raised by 0.72m and the and south deck by 0.3 m, bringing both to an elevation of 178.10m. This provides a freeboard of 0.60m compared to the record high water level of Georgian Bay.
- The layout of the reconstructed wharf would generally match the existing configuration, except for the removal of the finger dock at the south-west corner of the wharf. Potential to extend concrete dock about 1m further into channel, providing larger usable dry area.
- Removal of the finger dock would allow for new floating docks to be installed on the small craft basin by the boat launch, providing dockage for small recreational boats.
- A mooring area for larger commercial vessels would remain on the south side of the wharf by the main channel.
- Construction of the north dock would generally consist of steel sheet pile seawalls (see Figure 17 for example) with anchors to the underlying bedrock and floating docks with timber deck.
- The south dock would consist of steel tube piles socketed into the bedrock to support a concrete deck, which could be used for commercial vessels, including the current lease holders at the wharf. The dock would be designed to support full Canadian Highway truck loadings.
- The south dock would include a fender on all sides. The fenders will extend below the water surface to act as a seabreak.
- The existing concrete relief slab behind the east dock and the lightweight fill below would be removed, and the entire parking lot regraded to suit the new wharf elevation.

Image source: Atlantic Industries Limited. www.ail.ca/product/steel-sheet-piling/

Image source: Marine Construction Supply. www.marineconstructionsupply.com/sheet-piling

Figure 17: Examples of Sheet Pile Walls

11.1 Alternative Design Concept A

Both alternative design concepts called for a new sea wall installed along the perimeter of the dock within the property limits, starting at the edge of the boat launch to the current location of the boathouse, which the Municipality intends to remove[10]. Currently, the portion of the dock situated perpendicular to Channel Street includes an angle that bends inward. While this increases the length of wharf edge, it limits the amount of space on the dock surface. The bend would be removed, and the portion of the dock perpendicular to Channel Street would be straight. This would allow for an increase in the amount of usable dock surface between the dock edge and the Herbert Fisheries building.

The finger dock and rock cribs (see Figure 18) are in poor condition. They would be completely removed and not replaced. Docking space currently provided by the finger dock would be provided with a new floating dock system (the floating dock configuration is to be completed in detailed design).

Figure 18: Killarney Wharf Finger Dock

[10] Order to Comply #23-101 was issued by the Municipality's Chief Building Official May 31, 2023 deeming the boathouse a safety hazard. In response, Council passed a resolution at its June 14, 2023 meeting to have the boathouse demolished.

In Alternative Design Concept A, the wooden dock adjoining the finger dock to the south would also be removed and not replaced. This area would be open water and contribute surface area for the floating dock system.

The concrete dock would be removed and replaced with a concrete deck supported by piles socketed into bedrock. The south edge of the concrete deck would extend approximately 1m further into the channel from the existing footprint.

The current usable “dry area” of the wharf (which includes the concrete and wooden dock, finger dock, and the wharf area to the west and south of the Herbert Fisheries building) is about 1,183 m^2. The usable dry area of Alternative Design Concept A would reduce this by about 3 m^2, to 1,180 m^2 (excluding the floating docks).

The current mooring length at the dock is about 146m. The approximate mooring length for Alternative Design Concept A is greater than 200m (depending on the configuration of the floating docks).

11.2 Alternative Design Concept B

Like Alternative Design Concept A, Alternative Design Concept B would have a new sea wall installed along the perimeter of the dock within the property limits. It would have a similar configuration, in that the portion of the dock perpendicular to Channel Street would be straight to allow for an increase in the amount of usable dock surface between the dock edge and the Herbert Fisheries building.

The finger dock and rock cribs depicted in Figure 16 would be completely removed and not replaced, as is proposed for Alternative Design Concept A. Likewise, the docking space currently provided by the finger dock would be provided with a new floating dock system.

In Alternative Design Concept B, the wooden dock adjoining the finger dock to the south would be removed, but it would be replaced by a concrete deck and piles. This concrete deck and piles would be part of the concrete deck and piles that would replace the concrete dock along the channel. The concrete deck would extend approximately 1m further into the channel, as with Alternative Design Concept A.

This alternative would increase the amount of usable dry area of the wharf by 122 m^2 (to 1,305 m^2 from 1,183 m^2), excluding the floating docks.

The current mooring length at the dock is about 146m. The approximate mooring length for Alternative Design Concept B is in the order of 160m (depending on the configuration of the floating docks).

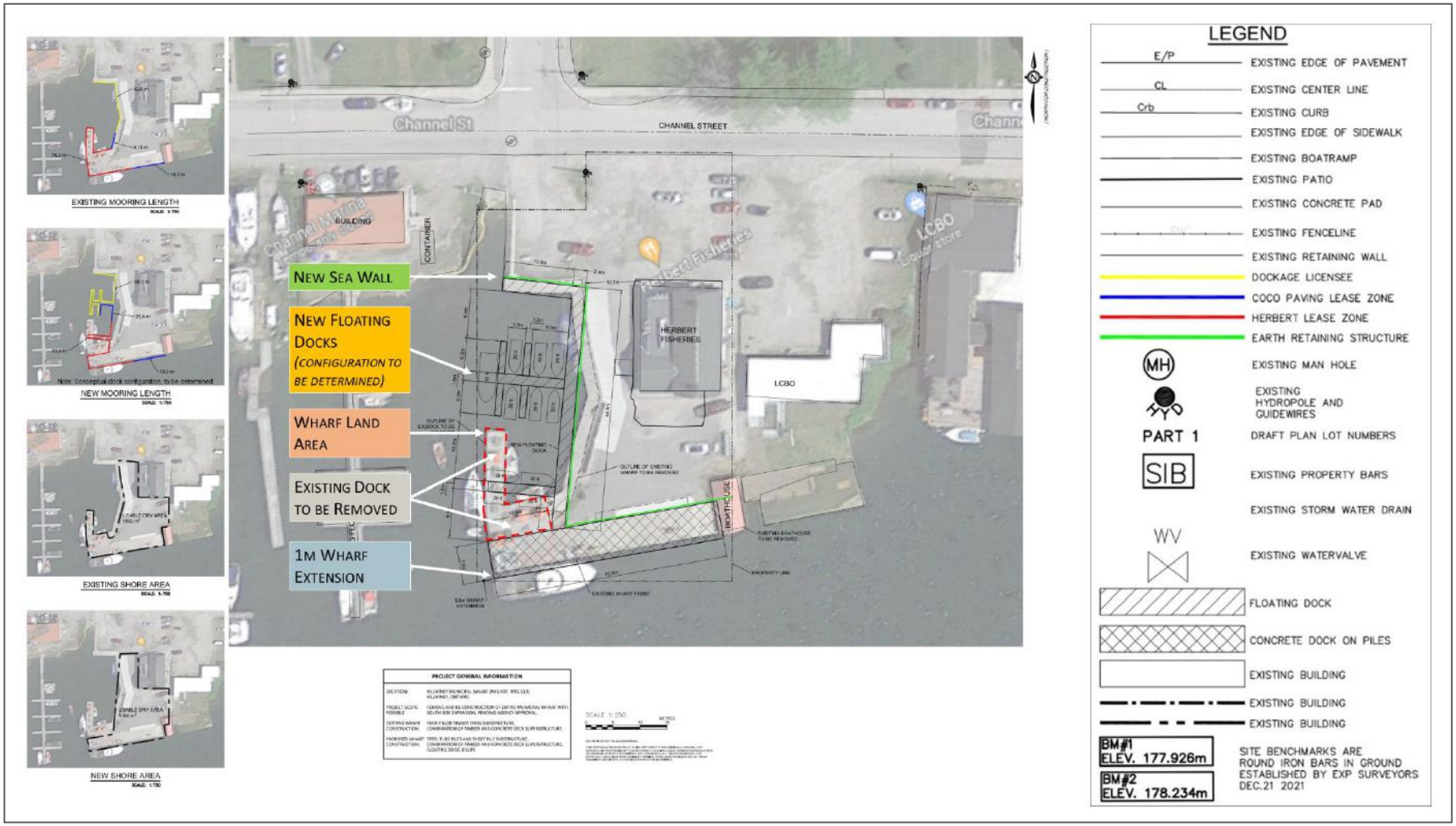

Figure 19: Alternative Design Concept A

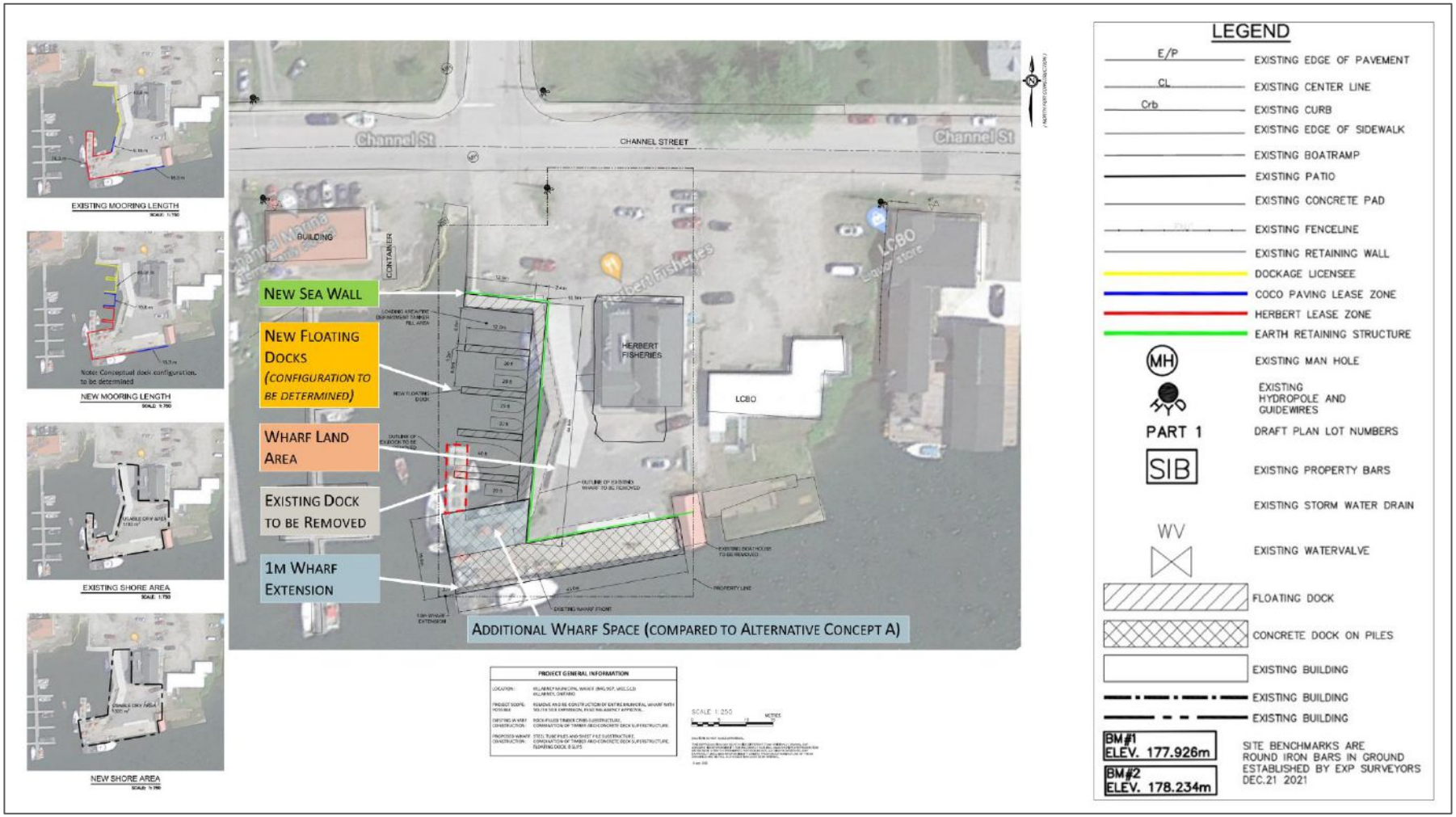

Figure 20: Alternative Design Concept B

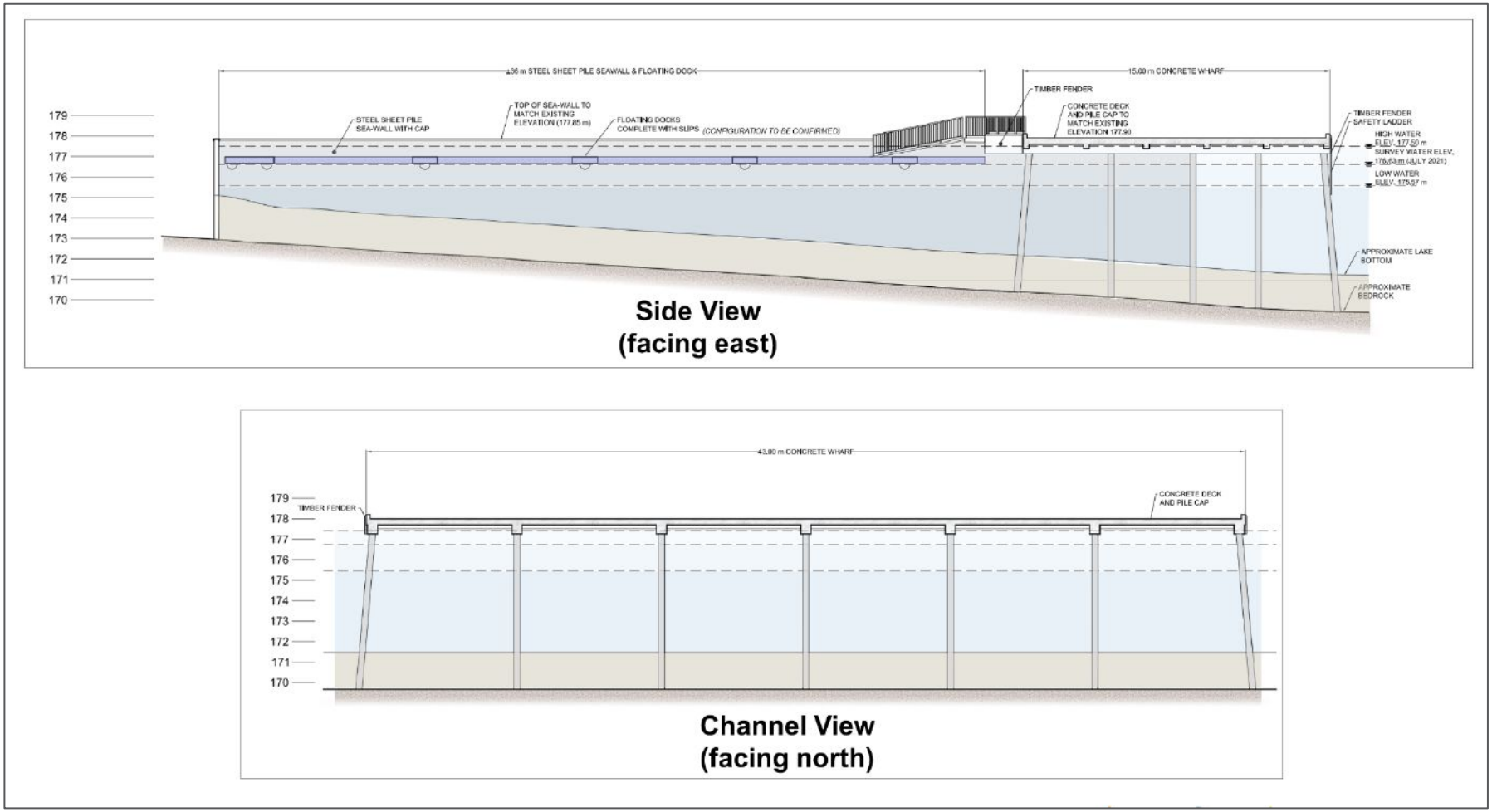

Figure 21: Typical Cross Sections of Alternative Design Concept B

12 EVALUATION OF ALTERNATIVE DESIGNS

12.1 Evaluation Criteria

Under the Class Environmental Assessment (Class EA) process, municipalities are required to consider all aspects of the environment in their assessment and evaluation of infrastructure projects. Based on Ontario's Environmental Assessment Act, the broad definition of the environment includes the natural, social, cultural, economic and built environments. The Act requires a systematic evaluation of the alternatives under consideration in terms of their advantages and disadvantages. Proponents are required to consider both the positive and negative effects on the environment in the evaluation.

The evaluation criteria used to assess the EA's proposed alternative solutions in Phase 2 were used for the evaluation of alternative designs, with minor updates. The criteria are based on the Act's interpretation of environment as well as the project's technical and financial considerations. The evaluation criteria and indicators are summarized in the following table.

Table 5: Alternative Design Evaluation Criteria

Category / Criteria	Indicator(s)
Natural Environment	
Effect on Aquatic Habitat	Temporary effects on aquatic species (including species at risk) and habitat quality during construction
	Permanent effects on aquatic species (including species at risk) and habitat quality
Effect on Terrestrial Habitat	Temporary effects on terrestrial habitat quality and species (including species at risk) during construction
	Permanent effects on terrestrial habitat quality and species (including species at risk)
Source Water Protection	Temporary and permanent effects on community water supply.
Social Environment	
Effect of construction on Area Users	Type and magnitude of effects during construction
Community Space	Area to accommodate community use
Recreational Boating	Ability to accommodate recreational boating
Cultural Environment	
Effect on Archaeological Resources	Loss and/or disturbance of archaeological resources
Effect on Cultural Heritage Resources	Loss and/or disturbance of cultural heritage resources
Built Environment	
Effect on Wharf and Associated Facilities	Disturbance/improvements to the wharf, docking areas, landing and on-site amenities
Alignment with Land-use Planning	Implications of alternative for current zoning and designated land uses
Economic Environment	
Effect on Economic Development	Potential benefits and impacts on local businesses and economic opportunities
Effect on Municipal Leases	Ability of Municipality to meet terms of municipal wharf leases
Technical	
Construction material	Construction material readily available
Construction schedule	Anticipated length of construction period
Climate Change Adaptation	Resilience of wharf to future climate change impacts, including increased lake levels and severe weather events
Financial	
Capital Costs	Anticipated net capital costs (considering federal grants)
Operating Costs	Anticipated annual operations and maintenance costs

12.2 Evaluation Results

The evaluation criteria were used to undertake a comparative evaluation of the two alternatives. The alternatives were ranked according to preference, based on the potential impacts and benefits of the alternative with respect to each criterion. The preference scoring definitions are presented in Table 6, including colour-coding for easy visual reference.

Table 6: Evaluation Assessment Potential Results

Preference	Description
Most Preferred	Least Negative Impact and/or Greatest Benefit
Moderately Preferred	Moderate Negative Impact and/or Moderate Benefit
Least preferred	Greatest Negative Impact and/or Least Benefit

The alternative designs were then ranked in terms of reference for each criteria category and then as a whole, with all criteria considered together. The evaluation summary is presented in Table 7; the detailed evaluation is provided in Appendix D. Based on the evaluation, Alternative Design Concept B was the preliminary preferred alternative design due to the following reasons:

- Generally, the two design concepts will each affect the natural, economic and social environment similarly, based on the evaluation.
- However, Alternative Design Concept B is considered the most preferred design option due to increased surface area compared to Alternative Design Concept B. This increased surface area provides for more economic and social opportunities for the community at the wharf.
- While Concept B is expected to have a slightly longer construction duration due to the larger size of the concrete dock, this duration is not expected to be significant.

This information was presented to the public at a public open house on Wednesday, August 30, 2023 and made publicly available online through the Municipality's website. Based on feedback received from the public, and in consultation with Municipality staff, Alternative Design Concept B was confirmed as the preferred design alternative, with the following change:

- The surface elevation of the new concrete dock would be built to the same elevation as the existing concrete dock. This is due to concerns raised by stakeholders that increasing the height of the concrete dock would make it more difficult to use during periods of lower lake levels. Based on previous lake level records, it was felt that periods of extended lower lake levels were likely to occur more often than lake levels that reach record highs, which could be managed as they occur.

Table 7: Evaluation Summary of Alternative Design Concepts

Category	Alternative Design Concept A:	Alternative Design Concept B:
Natural Environment Summary	• Given the limited nature for permanent and temporary disturbances to aquatic, terrestrial and avian habitats at the wharf, the overall impact to the natural environment or drinking water supply is low for both alternative design concepts. **Most Preferred**	• Given the limited nature for permanent and temporary disturbances to aquatic, terrestrial and avian habitats at the wharf, the overall impact to the natural environment or drinking water supply is low for both alternative design concepts. **Most Preferred**
Social Environment Summary	• The anticipated construction disruptions are similar for both design concepts. • While Concept A provides an increased area to accommodate recreational boaters, it will not provide an increase to the area available for non-boating uses, including pedestrians, site-seers, and other users of the wharf. **Moderately Preferred**	• The anticipated construction disruptions are similar for both design concepts. • While Concept A provides an increased area to accommodate recreational boaters, Concept B will provide an increase area for pedestrians and other users of the wharf. **Most Preferred**
Cultural Environment Summary	• Both alternatives are equally preferred, as they align with the CHER criteria confirming the wharf's cultural heritage value. **Most Preferred**	• Both alternatives are equally preferred, as they align with the CHER criteria confirming the wharf's cultural heritage value. **Most Preferred**
Built Environment Summary	• Both alternatives would similarly accommodate the existing use of the wharf and align with existing and zoned land uses. **Most Preferred**	• Both alternatives would similarly accommodate the existing use of the wharf and align with existing and zoned land uses. **Most Preferred**
Economic Environment Summary	• Concept A is less preferred compared to Concept B because it will result in less wharf area than Concept B, thereby providing less space for local activities that may generate economic opportunities. **Moderately Preferred**	• Concept B is most preferred as it provides the more wharf area than Concept A (thereby providing more opportunity for local activities that may generate economic opportunity) while allowing the Municipality to meet terms of municipal wharf leases. **Most Preferred**
Technical Summary	• Both concepts would use similar construction materials and methods and include similar resiliency to extreme weather events. • However, Concept A is most preferred because of its slightly shorter construction period compared to Concept B. **Most Preferred**	• Both concepts would use similar construction materials and methods and include similar resiliency to extreme weather events. • However, Concept B is moderately preferred to Concept A as it will have a slightly longer construction period. **Most Preferred**

Category	Alternative Design Concept A:	Alternative Design Concept B:
Financial Summary	• The anticipated capital and operating costs are not significantly different for either concept. **Most Preferred**	• The anticipated capital and operating costs are not significantly different for either concept. **Most Preferred**
Overall Evaluation Summary	**Moderately Preferred**	**Most Preferred**
	Generally, the two design concepts will each affect the natural, economic and social environment similarly, based on the evaluation. However, Alternative Design Concept B is considered the most preferred design option due to increased surface area compared to Alternative Design Concept A. This increased surface area provides for more economic and social opportunities for the community at the wharf. While Concept B is expected to have a slightly longer construction duration due to the larger size of the concrete dock, this duration is not expected to be significant.	

13 CONSULTATION SUMMARY

Consultation for this project consisted of:

- Issuing of the Notice of Commencement;
- Hosting of two in-person Public Open Houses;
- Creation of a project website to provide relevant information to the general public and to facilitate input; and
- One-on-one correspondence with key stakeholders, in particular agencies and lease holders of the wharf.

This section of the ESR provides a summary of the consultation activities undertaken, responses received, and how they were addressed in the project design. All supporting information (such as copies of notices, presentation materials and copies of correspondence) are provided in Appendix E.

13.1 Phase 1 Consultation Activities

13.1.1 Project Webpage

A key element of the engagement in this EA was the development of a project webpage. It was linked from the Municipality's webpage and was used to post information about the project. It allowed interested persons to obtain relevant information about the project and was also used to invite feedback.

Topics included on the webpage included:

- An overview of the project, including its purpose and why the Municipality is undertaking it;
- Project notifications;
- Project information for public review;
- Online comment forms; and
- Opportunities for public engagement, among other things.

An online form was included on the website during Phases 1 and 2 to help engage members of the public on the project and obtain insight into the importance of the wharf to the community. The form asked:

- How do you use the Killarney Municipal Wharf and how often?
- Why is the Killarney Wharf important to you?

Five responses were received. While not a large sample, the feedback was consistent with the project team's understanding of how the site is an important community hub. The feedback received is presented in Table 8.

Table 8: Online Form Responses - Wharf Use

How do you use the Killarney Municipal Wharf and how often?	Why is the Killarney Municipal Wharf important to you?
Launching and pulling boats 4 times a year.	It is the only launch in town and has space to temporarily tie up as required to prep boat for going in or out.
We utilize the boat launch, and enjoy sitting on the dock	It's the hub of town. Love to see area for vendors, an information booth to pay launch or usage fees and general information.
Bringing Friends, Eating Fish, Showing off the waterfront, and launching my boat.	The town needs public access to the bay - the town can't afford to let itself get landlocked by selling away all the waterfront between it and the water.
Once a week, for a couple of hours to access supplies, post office and refuse drop off.	It is the only viable link for us to access vital supplies and services.
Currently, I only go the wharf to launch my boat in the spring and take it out in the fall. There really isn't much else to draw me there, but I think it could be a great space for additional businesses and entertainment if developed thoughtfully.	Basically, the only public space on the waterfront. It has great potential as a community hub but this hasn't been realized as it is monopolized by a single business.

13.1.2 Notice of Commencement

The Notice of Commencement for this project was distributed on October 31, 2022. As the community has no local newspaper, the notice was circulated through the following mechanisms:

- Distribution by e-mail to agencies and other key stakeholders.
- Distribution by e-mail and mail to Aboriginal Communities identified by the project teams a potentially having an interest.
- Distribution by mail to owners of property in the Community of Killarney whose mailing address is not within the community.
- Placing a copy of the notice in each mailbox in the community's local post office.
- Posting the notice on the project webpage.
- Providing a link to the notice on the main page of the Municipality's website.

A copy of the notice and the Notice of Commencement Form were each submitted to the MECP.

13.2 Phase 2 Consultation Activities

13.2.1 Public Open House #1

An in-person Public Open House was held on Wednesday, February 15, 2023 from 6:00 pm to 8:00 pm at the Veteran's Memorial Hall, 58 Charles Street in the community of Killarney. The notice was circulated

using the same approach as with the Notice of Commencement. The open house was also included on the Municipal website's events calendar.

The purpose of the open house was to provide an update to the community on the status of the project, present the identification and evaluation of alternative solutions, and present two preliminary design alternatives based on the recommended alternative solution. This information was presented on display boards that attendees were able to view. A copy of the display boards were posted on the project website.

The open house was attended by four members of the public in addition to municipal councilors and staff. The feedback received was generally in support of the wharf reconstruction. Specific feedback received included:

- Regarding the preliminary alternative design with the two finger docks, the finger docks should be far enough away from the launch ramp so that boats have a turn area. This would be important on days where there is a strong west wind. If that area is closed in, it would be difficult to maneuver a boat from the launch.
- Concern that the docks are stable enough and capable to tying in a barge or larger vessel.
- Access is available to commercial lease holders with minimal interference from recreational users.
- Access for a staging area when accessing the wharf, including refueling if required.
- Management and use of the wharf, particularly in how it may impact access to commercial leaseholders.
- Minimized impact to lease holders with respect to use of the wharf.
- Clarification on construction timelines and potential for additional fees on lease holders.
- A suggestion for a location on the Channel Marina side for a temporary tie-up area for people launching or pulling out boats using the ramp.

The responses received provided general support for the recommended alternative solution. Based on the feedback received, the project updated the preliminary alternative designs to include timber fenders on the dock in order to provide additional protection to boats from wave action. A copy of the notice, display boards, sign-in sheet and comments received are provided in Appendix E.

Additionally, the project webpage online form was updated around the time of the first open house with new questions for the public. One set of answers was received. The questions and their answers are provided in Table 9.

Table 9: Online Form Responses - Feedback on Recommended Solution

Question	Response
Do you agree with the recommended alternative solution to reconstruct the municipal wharf? If no, please indicate why not.	Yes
What do you feel are especially important for the project team to consider when preparing alternative designs for the preferred solution?	I feel the permanent physical structure is the most important thing. Floating docks and aesthetics can be changed.
Please share with us any other thoughts or comments about the Killarney Municipal Wharf Improvements project that you may have.	I think it is important to increase the footprint of the wharf which means using the straight shore area concept and even increasing space by pushing it further west. I prefer conceptual layout B which includes the cement extension and removal of the existing finger dock (outlined in red). The layout of the floating finger docks may need to be reconsidered once the structure is built.

13.3 Phase 3 Consultation Activities

13.3.1 Public Open House #2

A second in-person Public Open House was held on Wednesday, August 30, 2023 from 6:00 pm to 8:00 pm at the Veteran's Memorial Hall, 58 Charles Street in the community of Killarney. The notice for this open house was circulated using the same approach as for the Notice of Commencement and first Open House. The second open house was also included on the Municipality's website events calendar.

The purpose of the open house was to provide an update to the community on the status of the project, confirm the selection of preferred alternative solution, and present the evaluation of alternative designs. This information was presented on display boards that attendees were able to view. A copy of the display boards were posted on the project website.

The open house was attended by three members of the public. Members of council and staff also attended. While there was general support for the recommended design alternative, one feedback form was received that did not agree with it. The reason stated was that the plan should maximize the available docking space. Other feedback received included:

- The plan should include the docks at the Channel Marina. Floating docks are important given the fluctuating water levels. Tobermory has a nice floating dock concept that should be considered.
- Support that the design includes an area for tables, allowing space for tourists to enjoy fish and chips.
- Concern about how the concrete dock will allow for servicing of commercial activities if the water levels decrease, noting that in the past a section had been cut out of the wooden dock to allow for a ramp down to fishing boats for unloading.

- Concern how boats will be able to launch from the ramp if there are floating docks on the inside slip.
- Important considerations of the project team in preparing the design include the ability for transient dockage to move with fluctuating water levels and having accessible surfacing when redoing the parking and pedestrian areas.
- The reconstruction is an important project that cannot be put off. The integrity of the structure is crucial to protect it for future generations.
- Concerns raised over potential impacts to businesses, in particular Herbert Fisheries.
- A business plan should be prepared for the reconstruction.
- The construction should be scheduled to minimize interruption to local businesses.
- Concern raised about impacts of project on traffic, parking and boat and trailer storage.

In addition to the comments received, EXP met with Mr. Ross Herbert of Herbert Fisheries on September 12, 2023 to review the design alternatives and discuss Herbert Fisheries' comments or concerns. Key points noted in the meeting included the following:

- The existing concrete dock elevation worked well with Herbert Fisheries during the record high Georgian Bay water levels in the 1980's and in 2020.
- There is reportedly a municipal watermain at the lake bottom along the west face of the wharf that crosses the channel to feed the George Island Marina.
- The Option B layout generally meets the needs of Herbert Fisheries, except that they prefer no finger docks within Herbert's Fisheries dockage area.
- There is a predominantly west wind in the area. On a windy day, boaters may have difficulty maneuvering in and out of the finger docks close to the boat launch.
- Construction of the new wharf will likely take a whole year, during which the existing wharf will not be usable. Long term users (Herbert and Coco) will have to find alternative dockage.

As a result of the feedback received, it was determined that the level of the concrete wharf would not be raised and be left at the current level to minimize potential impacts during periods of lower water levels.

13.4 Phase 4 Consultation Activities

13.4.1 Review of Draft ESR

A copy of the draft ESR was circulated to the MECP for review and comment on October 16, 2023. Comments were received from the MECP on December 5, 2023. Key updates made to the ESR in response to the feedback included:

- Text added regarding Section 16 Orders;
- Clarifications made regarding mitigation of impacts related to dust, excess soil management, noise, species at risk, erosion and sediments, and spills;
- Clarification made regarding construction monitoring;
- Text added regarding Source Water Protection; and,
- A Phase 2 ESA has been planned for detailed design.

A copy of MECP's comments and the project team's responses are provided in Appendix E.

13.5 Aboriginal Communities Consultation

The Indigenous Services Canada online Geoviewer[11] was used to identify potential Aboriginal communities located in proximity of the community to include in the consultation. Based on the mapping results, the Wikwemikong Unceded Territory and the Whitefish River First Nation communities were included on the stakeholder register.

On November 22, 2022, a response to the Notice of Commencement was received from the MECP. In the response, the MECP confirmed the inclusion of the Wikwemikong Unceded Territory and the Whitefish River First Nation communities and advised that the Métis Nation of Ontario (MNO) Region 4 - Killarney Historical Métis Council be added as well. EXP consulted with an MNO Consultation Advisor, who confirmed MNO Region 5 was the appropriate region and provided the necessary contact information. The MNO Region 5 contacts were added to the stakeholder register for subsequent notices.

Table 10 provides a summary of the notices distributed to Aboriginal Communities and the MNO, how they were distributed, and feedback received. A copy of the correspondence is provided in Appendix ##.

Table 10: Correspondence with Aboriginal Communities and MNO

	Wikwemikong Unceded Territory	Whitefish River First Nation (WRFN)	Métis Nation of Ontario (MNO)
Notice of Commencement	E-mail and mail to: • Chief Duke Pelier • Mr. John Manitowabi, Director of Department of Lands and Natural Resources	Mail to: • Chief Franklin Paibomsai • Manager of Lands	n/a
Notices of Open House #1 and #2	Mail and E-mail to: • Chief Duke Pelier • Mr. John Manitowabi, Director of Department of Lands and Natural Resources E-mail only: • Mr. Kevin Wassegijig, Director of Operations	E-mail and Mail to: • Chief Franklin Paibomsai • Ms. Kathleen Migwanabi, Lands Manager/IRA E-mail only: • Mr. Stephen McGregor, Consultation Manager	E-mail and mail to: • Ms.Suzanne Fortin, President, MNO Sudbury Métis Council E-mail only to: • Mr. Ethan Roy, Regions 4 & 7 Consultations Advisor • consultations@ metisnation.org
Feedback Received	None received	Request by WRFN Lands Department to be added to mailing list, with updated contact information.	Confirmation of appropriate project contact for MNO

[11] https://geo.aadnc-aandc.gc.ca/geoviewer-geovisualiseur/index-eng.html

13.6 Agency Consultation

Table 11 provides a summary of the agencies that were consulted during this Class EA and the nature of the feedback received, if any. Documentation of correspondence is provided in Appendix E.

Table 11: Summary of Agency Feedback

Agency	Feedback Received
Environment Canada - Ontario Region, Environmental Assessment Section	• Acknowledgement of receipt of notice of Public Open House #1.
Fisheries and Oceans Canada	• Acknowledgement of receipt of notice of Public Open House #1. • Indication (through the project's Natural Heritage sub-consultant) that they will conduct their review on the final conceptual drawing, but that they are pleased with the full project description and do not anticipate an issue.
Ministry of the Environment, Conservation and Parks	• MECP's letter of acknowledgement in response to the Notice of Commencement and submission of the Streamlined EA Project Information Form. Letter of acknowledgement included information on the MECP's areas of interest and requirements for Aboriginal consultation. • Request (through the project's Natural Heritage sub-consultant) for a full preliminary screening for Species at Risk. • Comments on the draft ESR (noted previously). • Confirmation of contact information.
Ministry of Transportation	• Acknowledgement of receipt of notice of Public Open House #1. • Confirmation that the project area is located within MTO's permit control area and subject for review under the Public Transportation and Highway Improvement Act. The correspondence also indicated what documents would be required to support the permit application.
Ministry of Natural Resources and Forestry	• Confirmation of interest in project and updated contact information. • Acknowledgement of confirmation that there is barn swallow nesting at the project site and confirmation that the barn swallow has been downlisted to special concern under the Endangered Species Act. • Provision of the Client's Guide to Preliminary Screening for Species at Risk. • Recommendations on timing windows and that DFO be contacted to review project activities in and near water. • Confirmation that a work permit under the Public Lands Act may be required for the wharf reconstruction.
Ministry of Agriculture, Food & Rural Affairs	• No response.
Ministry of Municipal Affairs and Housing	• No response.

Agency	Feedback Received
Ministry of Citizenship and Multiculturalism	• Letter providing their initial advice for the project and confirmation of agency contacts, and subsequent correspondence. *Comments received as part of the ESR review period:* • Archaeological concerns have not been fully addressed until the Stage 1 AA has been entered into the Ontario Public Register of Archaeological Reports. • Proponents should wait to receive the MCM's review letter indicating that the report(s) has been entered into the Register before issuing a decision or proceeding with any ground disturbing activities. • Recommendation that the ESR or an erratum indicate the status and PIF number of the AA report. • Recommendation that the ESR or erratum articulate the rationale why there is low potential for marine archaeological resources, with supporting documentation included in the ESR (e.g., in an appendix). • The answer to question 4d of the *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* screening checklist should have been 'yes', with the position that the wharf itself be considered a structure. • Recommendation that the proponent clarify with additional supporting documentation why a CHER is not required. If documentation cannot be provided, then a CHER shall be undertaken by a qualified person to support this EA project. • Subsequent correspondence confirming the need for a CHER to be completed.

14 DESCRIPTION OF PREFERRED ALTERNATIVE DESIGN

The Preferred Alternative Design is Alternative Design Concept B, which has been modified slightly based on feedback received after Public Open House #2. The Preferred Alternative Design Concept includes the following key aspects:

- The elevation of the reconstructed wharf will be made consistent with the elevation of the existing concrete dock. The grading of the wharf surface would match the concrete dock and be such that it allows for proper surface drainage.
- The layout of the reconstructed wharf would generally match the existing configuration, except for the removal of the finger dock at the south-west corner of the wharf. The concrete dock would be extended about 1m further into channel, providing larger usable dry area.
- Removal of the finger dock would allow for new floating docks to be installed on the small craft basin by the boat launch, providing dockage for small recreational boats.
- A mooring area for larger commercial vessels would remain on the south side of the wharf by the main channel.
- Construction of the north dock would generally consist of steel sheet pile seawalls with anchors to the underlying bedrock and floating docks with timber deck.
- The south dock would consist of steel tube piles socketed into the bedrock to support a concrete deck, which could be used for commercial vessels, including the current lease holders at the wharf. The dock would be designed to support full Canadian Highway truck loadings.
- The south dock would include a fender on all sides. The fenders will extend below the water surface to act as a seabreak.
- The existing concrete relief slab behind the east dock and the lightweight fill below would be removed.

The detailed design of the wharf would also consider resilience to climate change impacts, such as ability to resist extreme weather events and elevated water levels.

The implementation schedule is funding dependent. However, it is intended that tendering be undertaken the summer the funding is available, with construction to take place over the September to June period.

15 Potential Impacts and Mitigation

15.1 Summary of Potential Impacts and Mitigation Measures

The recommended alternative design aims to minimize impacts to the surrounding environment. However, while the benefits of the proposed wharf reconstruction outweigh the potential negative effects, mitigation of potential impacts will be required as the project continues. The approach to addressing potential impacts is as follows:

- Avoid potential impacts by taking proactive preventive measures. This prevents the occurrence of negative impacts and can result in net positive effects; and
- Implement mitigation measures to reduce the magnitude and duration of unavoidable impacts.

The following table summarizes the potential impacts and proposed mitigation measures associated with the project. These will be confirmed and further developed during the detailed design stage.

Table 12: Summary of Potential Impacts and Mitigation

Potential Impacts	Proposed Mitigation Measures
NATURAL ENVIRONMENT	
• Potential impacts on the aquatic environment due to construction activities, for example: ○ Spills of construction and demolition debris into the water during wharf removal and construction, potentially covering existing habitat. ○ Spills, leaks and wash debris from construction vehicles entering the water, potentially causing contamination. ○ Suspension and settling of disturbed soil particles in the water column, creating increased turbidity and deposition of soil particles that could impact fish and fish habitat. ○ Impacts resulting from the storage and removal of materials during construction.	• Develop an erosion and sediment control plan during detailed design or by the contractor as a condition of the tender to be implemented prior to and during construction [12]. This plan is to be submitted to MECP for review once finalized. • Implement use of a turbidity curtain to enclose the area during and immediately after work periods. • Ensuring all waste materials are contained, collected and removed off-site for disposal. • Conduct an analysis of original fill material for contamination. • O. Reg. 406/19: On-Site and Excess Soil Management was filed on December 4, 2019 under the Environmental Protection Act. Activities involving the management of excess soil are to be completed in accordance with O. Reg. 406/19, as well as the Ministry's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices." • Implement standard best management practices to mitigate potential noise, dust, erosion, and pollution impacts for construction sites, including a Spills Prevention and Management Plan. • The contractor should ensure there are adequate spill clean-up equipment and/or contingency supplies available at the site for fuel, oil, and lubricant spills, with all on-site operators being familiar with the use of such equipment and/or supplies. • Check construction vehicles and machinery for leaks each day. • Do not wash concrete trucks or equipment on the site, and do not allow any wash water to enter the channel.

[12] In developing the plan, refer to Sections 7.0 (Potential Impacts and Proposed Mitigation) and 8.0 (Erosion and Sediment Control Plan) in the technical memo titled "Existing Conditions, Impact Assessment and Mitigation Report, Killarney Municipal Wharf Expansion and Redesign, Killarney, Ontario" (September 25, 2023) from Holla Engineering & Environmental Inc. to Stephen Ho, EXP Services Inc. Provided in Appendix A.

Potential Impacts	Proposed Mitigation Measures
• Potential impacts to avian species - including species at risk - that may be nesting among the timber cribs of the existing wharf.	• Putting measures in place to protect nesting birds, such as preventing the establishment of nests within the timber cribs and construction area. • Monitoring of existing nests to determine if they are in use. • As feasible, completing the demolition and construction activities outside of the nesting timing window (May to August 31st). • If additional Species at Risk are identified at the project site, then the MECP is to be advised and the approach to project implementation be updated accordingly.
• Potential impacts to aquatic species - including species at risk - that may be breeding or residing in the study area waters.	• Where feasible, follow the *Water Work Timing Window Guidelines for the Protection of Fish and Fish Habitat* provide for both spring and fall spawning species in the Northeast Region. • As no in-water work is generally allowed between April 1 and July 15 for waters that contain spring spawning species and from September 1 until June 15 for waters containing fall spawning species, then all in-water work should therefore be completed at the site between July 16 and August 31, if at all possible. • Given that the scope of work required to be completed within this 6-week time frame is considerable, it is likely that an in-water work timing extension of about 10 weeks will be required either before or after the existing in-water work window, or a combination of both. This extension would need to be negotiated with the regulatory agencies.

Potential Impacts	Proposed Mitigation Measures
SOURCE WATER PROTECTION	
• Potential impacts on the community's drinking water supply contamination and/or debris affecting the intake crib. Contamination could potentially arise from: ○ Spills of construction and demolition debris into the water during wharf removal and construction. ○ Spills, leaks and wash debris from construction vehicles entering the water. ○ Suspension and settling of disturbed soil particles in the water column, creating increased turbidity and deposition of soil particles near or on the crib intake. • Impacts resulting from the storage and removal of materials during construction.	• As noted previously: ○ Develop an erosion and sediment control plan; ○ Ensuring all waste materials are contained, collected and removed off-site for disposal; ○ Implementation of a Spills Prevention and Management Plan; ○ Implementation of standard best management practices to mitigate potential noise, dust, erosion, and pollution impacts for construction sites; ○ Checking construction vehicles and machinery for leaks daily; ○ Not washing concrete trucks or equipment on the site, and do not allow any wash water to enter the channel; • Monitoring of surface water conditions, including wind and wave direction, during construction activities that may increase water turbidity. • Ensure the Spills Prevention and Management Plan provide direction to notify the Municipality's water supply operators and Public Works manager of spills.
SOCIAL AND ECONOMIC ENVIRONMENT	
• Impacted air quality during construction, including nuisance dust during construction and emissions from construction vehicles.	• Application of standard and best practice dust control measures for construction activities. • Minimization of construction vehicle idling time. • MECP recommends that non-chloride dust suppressants be applied during construction. MECP also recommends referring to the report "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (March 2005), prepared for Environment Canada by Cheminfo Services Inc., for a comprehensive list of fugitive dust prevention and control measures.
• Noise impacts for existing tenant (Herbert Fisheries) and adjacent property owners / tenants during construction.	• Adhere to all relevant noise by-laws. • Prior notification of start of construction activities to community, in particular to owners and tenants of property situated within 50 m of the construction. • Noise control measures are to be used as necessary during construction to mitigate adverse noise impacts to nearby residential and commercial land uses. This will include a noise complaint response plan.

Potential Impacts	Proposed Mitigation Measures
• Unavailability of wharf for approximately 35-40 weeks during construction. • Disruption of local economic and community activities at the wharf during construction.	• Advance notification of construction staging to wharf users and other potentially impacted stakeholders. • Investigation of alternative options for launching and retrieving boats in the community.
CULTURAL ENVIRONMENT	
• The Class EA's Stage 1 Archaeological Assessment (see Appendix B-1) indicated low potential for archaeological potential. However, the possibility remains of archaeological resources being unexpectedly encountered during construction, despite the assessment. • As of the submission of this ESR, the Stage 1 AA (PIF number P094-0330-2022) has been submitted to MCM and is awaiting review. • The wharf itself has cultural heritage value or interest related to its: ○ Direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community (i.e., commerce, fishing, and the settlement of fishermen in the community); ○ Importance in defining, maintaining or supporting the area's character (e.g., supports and contribution to the area's commercial identity, transportation services, and waterfront tourism industry); ○ Linkages (physical, functional, visual and/or historical) to its surroundings (e.g., the wharf's historical associations with water-based transportation and recreational activities in the area); and ○ Contextual value as a landmark (i.e., being the site of a wharf since at least the mid-nineteenth century, enabling significant commercial and travel-related opportunities for the community). • The preferred design is consistent with the cultural heritage components noted.	• If archaeological resources are unexpectedly encountered during construction, all activities impacting them must cease immediately, MCM must be notified (at archaeology@ontario.ca) and a licensed consultant archaeologist must be retained to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the 2011 Standards and Guidelines for Consultant Archaeologists. In the event that human remains are encountered, all activities must cease immediately and the local police and coroner must be contacted. • A Cultural Heritage Evaluation Report (CHER) was prepared confirming the wharf has cultural heritage value. A Heritage Impact Assessment (H.I.A.) of the wharf will be completed to evaluate the expected impacts to the property and document the existing conditions of the wharf prior to its reconstruction.

In addition to the mitigation measures noted above, the following activities shall specifically be undertaken either during detailed design, prior to construction, or during construction, in response to feedback received during this Class EA:

- Phase II ESA to be conducted, due to the historic nature of the wharf.
- The existing timber cribs should be tested to determine if they contain any creosote products. If so, additional care should be taken to minimize the in-water breakage or cutting of creosote-treated dock materials. This will reduce the exposure of new surfaces that may release contamination into the environment. The creosote-treated dock materials will need to be disposed of at an approved landfill.
- If the existing timber cribs contain any creosote products, they should not be burned in open fires or fireplaces, used as mulch, or left on-site or in stockpiles for extended time periods[13].
- The Municipality will wait to receive the MCM's review letter indicating that the Stage 1 AA report has been entered into the Register before proceeding with any ground disturbing activities.
- A Heritage Impact Assessment (H.I.A.) of the wharf will be completed to evaluate the expected impacts to the property and document the existing conditions of the wharf prior to its reconstruction

In addition, concern had been raised during the EA process about potential for scheduling and usage conflicts amongst wharf stakeholders. This could include, for example, commercial tenants requiring the wharf to load or off-load boats while a community or other event is taking place. Procedures that would address situations such as this and other aspects of managing the wharf would be documented in a Municipal Wharf Management Plan. It would outline operational procedures related to the wharf and provide the Municipality with a protocol to help it manage the needs of the lease holders, the general public, recreational/transient boaters, other wharf users, and the Municipality itself.

The Municipal Wharf Management Plan would be developed by the Municipality at a later date. Topics that may be included in the plan include:

- Anticipated user groups, including how they would use the wharf;
- Allowable wharf uses for the community, individuals and organizations;
- Permitting process for wharf uses;
- Mechanism for ensuring usage conflicts do not arise between those with a permitted wharf use and lease holders undertaking a commercial use;
- Wharf public health and safety considerations;
- Plans for extreme weather events or climate conditions; and
- Communications plan for advising lease holders, wharf stakeholders and the general public of relevant information as necessary (e.g., wharf closures, maintenance issues, precautions related to weather events or elevated or low lake levels, among other things).

[13] Western Wood Preservers Institute. Specifiers Guide - Best Management Practices for the use of preserved wood in aquatic and sensitive environments. https://preservedwood.org/portals/0/documents/BMP_Specifiers_Guide.pdf.

15.2 Climate Change Impact and Mitigations

The Ministry of the Environment, Conservation and Parks (MECP) has published a guide titled *Considering Climate Change in the Environmental Assessment Process* that outlines the ministry's expectations for Class EA projects. The guide states that proponents are expected to address the project's impact on greenhouse gas emissions and carbon sinks and propose climate change mitigation accordingly. Proponents must also address the potential impacts of climate change on the project.

Provincial and municipal plans also address climate change in the context of developing strategies to reduce GHG emissions and improving the capability of civil infrastructure to withstand the impacts of changing climatic conditions. The key planning document that speaks to climate change mitigation and adaptation includes the Provincial Policy Statement, 2020.

The project is not expected to be a significant contributor toward climate change. The reconstructed wharf will continue a similar function, and no significant change in wharf activities are expected to occur that would result in a significant change in greenhouse gas emissions.

Reconstruction of the wharf will increase the wharf's resiliency to potential future climate change impacts, in particular its ability to withstand extreme weather events (including intense storm waves and surges) and fluctuating lake levels. For instance, the sheet pile walls will provide greater structural strength for the wharf and minimize the potential for erosion and washout of granular material. As noted previously, Climate Change is expected to result in greater variability in lake levels, including higher high-water levels and lower low-water levels.

To ensure the resiliency of the proposed design to future climate change impacts, the design and construction of the proposed works are to be to the latest relevant standards.

15.3 Proposed Construction Monitoring

Proposed mitigation measures will be refined and further developed during detailed design and through the tender process. Construction and post-construction monitoring plans should be developed either during detailed design in consultation with the appropriate regulatory agencies or developed by the contractor as a condition of the Tender. The Tender documents should include a requirement of the contractor to prepare a construction monitoring plan. The construction monitoring plan should consider the following DFO code of practices:

- Interim code of practice: repair, maintenance and construction of docks, moorings and boathouses (https://www.dfo-mpo.gc.ca/pnw-ppe/codes/interim-provisoire/docks-moorings-boathouses-quais-amarrages-hangars-bateaux-eng.html);
- Interim code of practice: repair and maintenance of in-water structures (https://www.dfo-mpo.gc.ca/pnw-ppe/codes/interim-provisoire/structures-eng.html).

On-site inspection staff will ensure that specified mitigation measures are implemented and maintained during construction. This will ensure that potential impacts to the social, economic, natural, and cultural environments are prevented or minimized.

15.4 Permits and Approvals

As the project proceeds, the following permits and approvals are expected to be required. These will be obtained prior to construction:

- **Natural Environment**
  - **In-water Works Window Extension:** Based on the relevant in-water works timing windows, there is about a 6-week period when in-water works would be able to occur, based on the DFO in-water works guidelines. However, this is likely to be insufficient to complete the works required. Therefore, an in-water work timing extension would likely be required.
  - **Ministry of Natural Resources and Forestry (MNRF) Work Permit**: The proposed works would require submission of an MNRF work permit application to the Sudbury District Office. Continued consultations with MNRF personnel should continue once the application has been submitted to determine the exact approval requirements (such as any additional information or studies required to support of the application). MNRF may also require a permit to occupy the bed of Lake Huron.
  - **Department of Fisheries and Oceans (DFO) Fisheries Act Approval**: An application for Fisheries Act Approval should be submitted to DFO, beginning with the submittal of a Request for Review Form (available from the DFO website) to the DFO Triage Unit. Submittal of the application should be followed with continued discussions with DFO personnel to determine the exact approval requirements.
  - **Approvals under the Navigation Protection Act**: Lake Huron is a "Scheduled Water" under the *Navigation Protection Act* (NPA). The NPA Protection Act defines a work as "any structure, device or thing-temporary or permanent-made by humans that is in, over, under, through or across any navigable water. To be considered a work it must have some degree of interference with navigation. A work may also include dumping of fill or the excavation of materials from the bed of any navigable water." Works meeting the criteria of the Minor Works Order are considered "designated works" under the NPA and may proceed without Notice to the Minister as long as they comply with the legal requirements set out in the Order. Among the classes of works currently established for minor works, the one with the most potential relevance is "Docks and Boathouses." Transport Canada should be engaged to confirm their requirements.
  - **Endangered Species Act Permit or Authorization**: A permit or other authorization under the *Endangered Species Act* may be required from MECP. This would be determined in further consultations with MECP.
- **Cultural Heritage**
  - **Archaeological Assessment Clearance Letter from MCM**: The Stage 1 Archaeological Assessment prepared for this Class EA was submitted to MCM[14] and is awaiting review and entry into the Ontario Public Register of Archaeological Reports. The report is reviewed by the Ministry to ensure it complies with the standards and guidelines issued by the Ministry and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area have been addressed to the satisfaction of the Ministry, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed works.

[14] Responsibility for administration of the *Ontario Heritage Act* and matters related to cultural heritage in 2022 transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM).

- **Additional**
  - **Ministry of Transportation Permit:** The project site is located within an MTO permit control area s. The subject lands are located within MTO's permit control area and is subject for review under the *Public Transportation and Highway Improvement Act R.S.O 1990*. Figure 22 presents the permit control area by the Killarney Municipal Wharf in as shown in the Ministry's online viewer (the location of the wharf is indicated by the "Herbert Fisheries" icon). MTO is to be made aware of any changes to the wharf's site plan (i.e. expanding site footprint or construction of any new buildings/structures). Depending on the scope of any proposed improvements, MTO may require submission of a site plan or building and land use permits prior to any official approval.
  - **Disposal Permits**: If the existing wood timbers contain creosote, then they will require disposal in an approved disposal site. An approval for disposal may be required.
  - **Permit to Take Water:** A Permit to Take Water may be required if dewatering is required during construction.

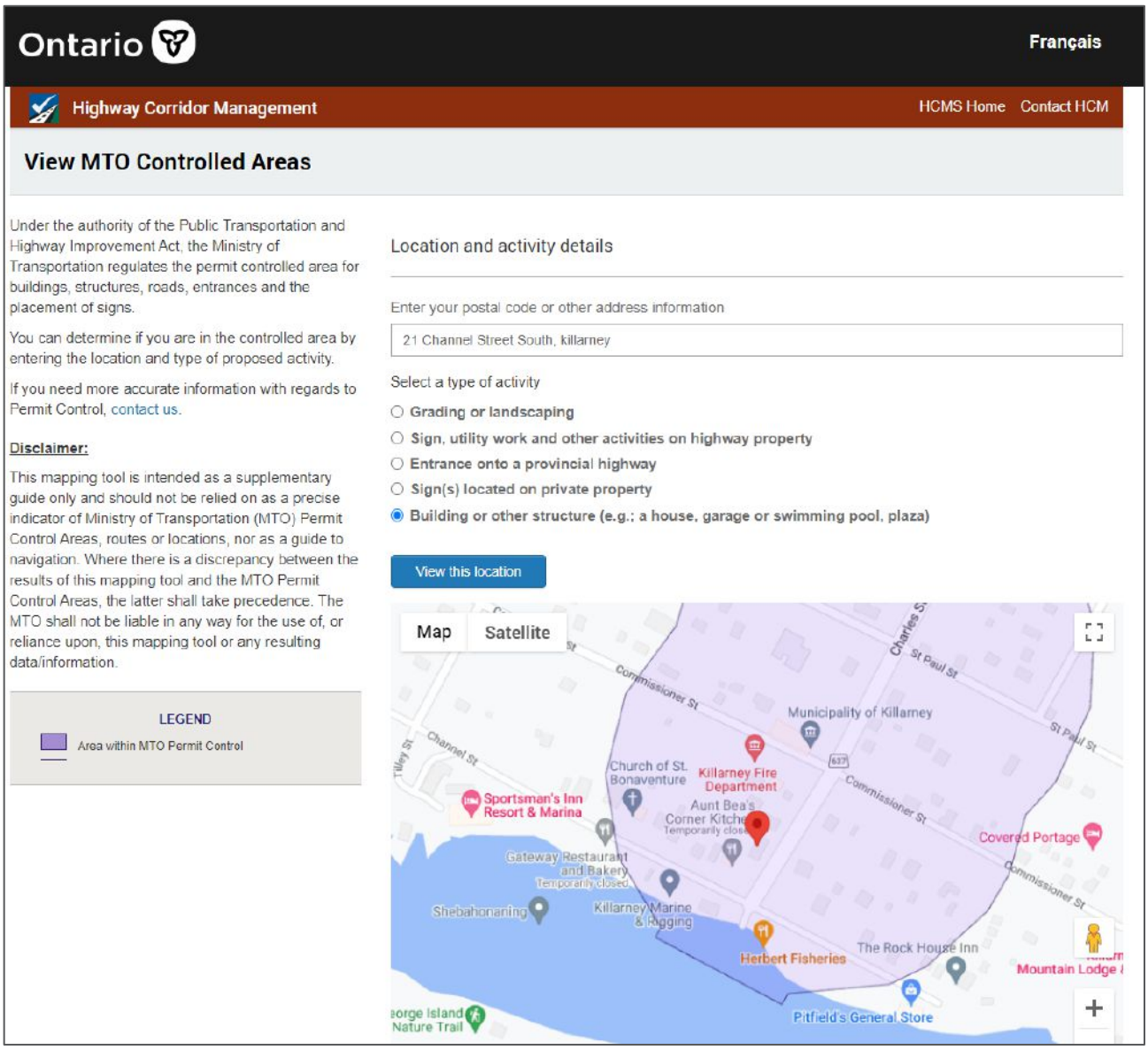

Figure 22: MTO Permit Controlled Areas (Killarney Wharf)

16 CONCLUSION

This MCEA process has confirmed that reconstruction of the Killarney Municipal Wharf is the preferred alternative solution to address its poor condition. Further, a preferred conceptual design has been identified that is intended to best meet the needs of community stakeholders.

The Problem and Opportunity Statement for this project states:

- The problem that this Class EA is intended to address is the poor condition of the Killarney Municipal Wharf. Allowing the wharf to continue in its current condition without intervention would result in its continued deterioration, which would negatively impact its ability to carry out its community role.
- Addressing the poor condition of the wharf presents opportunities for the Municipality. These include ensuring the wharf is better able to resist future elevated water levels and improving the accessibility of the wharf for community use.

Based on a consideration of environmental, social/cultural, and economic factors, the preferred alternative solution is to reconstruct the wharf. This will provide a long-term solution that allows the Municipality to continue meeting its obligations under its wharf leases while providing opportunities for increased economic benefits arising from greater community use of the wharf. This alternative also avoids the potential future disruptions that would be caused by additional repairs or replacement of the south dock if the other alternative solutions had been chosen.

The preferred alternative design for the wharf was selected based on its ability to withstand extreme climate events, meet the needs of current users of the wharf, and provide municipal infrastructure that is able to function as a community focal point. The Preferred Alternative Design is Alternative Design Concept B, which had been modified slightly compared to what was presented at the second public open house in response to feedback received. The Preferred Alternative Design Concept includes the following key aspects:

- The elevation of the reconstructed wharf will be made consistent with the elevation of the existing concrete dock. If water levels exceed record levels during extreme weather events, then the surface of the dock may experience flooding for a brief period. However, feedback received indicated that increasing the dock elevation may impact access to and loading of boats during periods where water levels are typical or below average. The grading of the wharf surface would match the concrete dock and be such that it allows for proper surface drainage.
- The layout of the reconstructed wharf would generally match the existing configuration, except for the removal of the finger dock at the south-west corner of the wharf. The concrete dock would be extended about 1m further into channel, providing a larger usable dry area.
- Removal of the finger dock would allow for new floating docks to be installed on the small craft basin by the boat launch, providing dockage for small recreational boats. The configuration of the floating docks will be determined at a later date.
- A mooring area for larger commercial vessels would remain on the south side of the wharf by the main channel.
- Construction of the north dock would generally consist of steel sheet pile seawalls with anchors to the underlying bedrock and floating docks with timber deck.

- The south dock would consist of steel tube piles socketed into the bedrock to support a concrete deck, which could be used for commercial vessels, including the current lease holders at the wharf. The dock would be designed to support full Canadian Highway truck loadings.
- The south dock would include a fender on all sides. The fenders will extend below the water surface to act as a seabreak.
- The existing concrete relief slab behind the east dock and the lightweight fill below would be removed.

The investigations, assessments and consultations have identified a broad suite of measures to mitigate or prevent potential impacts to the natural, social and environment, in particular to the aquatic habitat by the wharf, the community's drinking water supply, and local businesses. Examples of key mitigation measures include:

- Development of an Erosion and Sediment Control Plan and a Spills Prevention and Management Plan to help avoid impacts due to erosion and spills.
- Implementation of standard best management practices to mitigate potential noise, dust, erosion, and pollution impacts for construction sites;
- Working with regulatory agencies to determine appropriate times for in-water works;
- Providing advance notification of construction staging to wharf users and other potentially impacted stakeholders;
- Future investigation of alternative options for launching and retrieving boats in the community during construction;
- Development of a Municipal Wharf Management Plan to provide operational procedures related to management of the wharf and managing the needs of the lease holders, the general public, recreational/transient boaters, other wharf users, and the Municipality itself.

Protection of the local environment will continue to be at the forefront as the project proceeds through detailed design and the permitting process. Engagement of agencies through pre-consultations and permit applications will provide agencies with continued access to the project and opportunities for input and oversight. The end result will be a municipal wharf that will contribute to the economic, social and cultural well-being of the community of Killarney for decades to come.

The implementation schedule is funding dependent. However, it is intended that tendering will be undertaken the summer that the funding is available, with construction to take place over the September to June period.

APPENDICES

Appendix A – Natural Heritage

Appendix B –
Archaeological and Built / Cultural Heritage

Appendix B-1
Stage 1 Archaeological Assessment

Appendix B-2
Criteria for Evaluation Marine Archaeological Potential: A Checklist for Non-Marine Archaeologists

Appendix B-3
Cultural Heritage Evaluation Report

Appendix B-4
MCM Comments on ESR and Related Correspondence

Appendix C –
Evaluation of Alternative Solutions

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Natural Environment				
Effect on Aquatic Habitat	Temporary effects on aquatic species (including species at risk) and habitat quality during construction	• Potential for timber, rock fill and other construction and demolition debris spikes to be spilled into water during wharf removal and construction, potentially covering existing habitat. • During demolition and construction activities, potential for disturbed soil particles to be suspended in the water column, resulting in increased turbidity and relocation and deposition of soil particles that could impact fish and fish habitat. • This could potentially be mitigated using a turbidity curtain to enclose the area during and immediately after work periods, and by ensuring all waste materials are contained, collected and removed off-site for disposal. • The types of potential effects for Alternatives 1 and 2 are similar. While Alternative 1 will cover a slightly smaller area than Alternative 2, the difference in area coverage is not significant. • The potential impacts to aquatic habitat during demolition and construction are anticipated to be minor and temporary. Long term impacts are anticipated to be negligible compared to existing conditions. **Moderately Preferred**	• Potential for timber, rock fill and other construction and demolition debris spikes to be spilled into water during wharf removal and construction, potentially covering existing habitat. • During demolition and construction activities, potential for disturbed soil particles to be suspended in the water column, resulting in increased turbidity and relocation and deposition of soil particles that could impact fish and fish habitat. • This could potentially be mitigated using a turbidity curtain to enclose the area during and immediately after work periods, and by ensuring all waste materials are contained, collected and removed off-site for disposal. • The types of potential effects for Alternatives 1 and 2 are similar. While Alternative 1 will cover a slightly smaller area than Alternative 2, the difference in area coverage is not significant. • The potential impacts to aquatic habitat during demolition and construction are anticipated to be minor and temporary. Long term impacts are anticipated to be negligible compared to existing conditions. **Moderately Preferred**	• There would be no construction impacts on the aquatic habitat in a “do nothing” scenario. **Most Preferred**
	Permanent effects on aquatic species (including species at risk) and habitat quality	• No long-term impacts from construction activities are anticipated. • The removal of the existing timber cribs and replacement with steel piles, steel sheet pile walls and floating docks will result in the net gain of available channel floor surface, providing additional aquatic habitat. • No existing aquatic habitat vegetation will be covered by the proposed work. **Most Preferred**	• No long-term impacts from construction activities are anticipated. • The removal of the existing timber cribs and replacement with steel piles, steel sheet pile walls and floating docks will result in the net gain of available channel floor surface, providing additional aquatic habitat. • No existing aquatic habitat vegetation will be covered by the proposed work. **Most Preferred**	• There would be no change in aquatic habitat conditions in a “do nothing” scenario. Therefore, there would be no net gain of available channel floor surface to provide additional aquatic habitat. **Moderately Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Effect on Terrestrial Habitat	Temporary effects on terrestrial habitat quality and species (including species at risk) during construction	• The wharf area does not contain any natural terrestrial habitat. • Barn swallows have been identified as nesting on the site in and around the wharf area. There is the potential for some disturbance of nesting sites during construction. However, these can be mitigated either through completing the construction outside of the nesting timing window (May to August 31st) or, if not, putting measures in place to protect nesting birds, such as making sure the birds do not nest and monitor existing nests if being used. **Moderately Preferred**	• The wharf area does not contain any natural terrestrial habitat. • Barn swallows have been identified as nesting on the site in and around the wharf area. There is the potential for some disturbance of nesting sites during construction. However, these can be mitigated either through completing the construction outside of the nesting timing window (May to August 31st) or, if not, putting measures in place to protect nesting birds, such as making sure the birds do not nest and monitor existing nests if being used. **Moderately Preferred**	• There would be no temporary impacts on terrestrial habitat quality and species (including species at risk) in a “do nothing” scenario. **Most Preferred**
	Permanent effects on terrestrial habitat quality and species (including species at risk)	• Nesting under the dock will no longer be available due to the steel sheet pile sea walls. • Nesting will continue to be available under the new concrete wharf. **Moderately Preferred**	• Nesting under the dock will no longer be available due to the steel sheet pile sea walls. • Nesting will continue to be available under the new concrete wharf. **Moderately Preferred**	• There would be no permanent impacts on terrestrial habitat quality and species (including species at risk) in a “do nothing” scenario. **Most Preferred**
Source Water Protection	Impacts to drinking water supply from during or after construction	• Construction debris, spills, sediments or turbidity could potentially drift toward and be drawn into the community’s drinking water intake, depending on the direction of the currents, wind direction, and/or wave action. **Least Preferred**	• Construction debris, spills, sediments or turbidity could potentially drift toward and be drawn into the community’s drinking water intake, depending on the direction of the currents, wind direction, and/or wave action. **Least Preferred**	• No impacts to the drinking water supply are anticipated in a “do nothing” scenario. **Most Preferred**
Natural Environment Summary		• Given the nature of the permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf and potential risk to drinking water supply, the overall anticipated impact to the natural environment is low for both Alternatives 1 and 2. **Moderately Preferred**	• Given the nature of the permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf and potential risk to drinking water supply, the overall anticipated impact to the natural environment is low for both Alternatives 1 and 2. **Moderately Preferred**	• There would be no temporary or permanent impacts to aquatic and terrestrial/avian habitats or the drinking water supply in the Do-Nothing alternatives. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Social Environment				
Effect on Area Users (including both positive and negative effects)	Type and magnitude of effects during construction	• Construction of the wharf will result in its unavailability for use by the community for approximately 20-25 weeks. • Noise would be expected from driving in the sheet pile wall. The duration of this noise would be less than Alternative 2. • Noise and dust are anticipated from the construction activities. The duration of this disturbance would be less than Alternative 2. **Moderately Preferred**	• Construction of the wharf will result in its unavailability for use by the community for approximately 35-40 weeks. • Noise would be expected from driving in the sheet pile wall. The duration of this noise would be longer than Alternative 1. • Noise and dust are anticipated from the construction activities. The duration of this disturbance would be longer than Alternative 1. **Least Preferred**	• There would be no disturbance from construction activities. **Most Preferred**
	Type and magnitude of effects after construction	• While this option would raise the wharf slightly above the highest recorded water level, it may still be susceptible to wave action, with water washing over the deck surface in high-wind conditions. This would cause temporary disruptions of wharf use. • As the south docks would remain as is, their age makes it likely that repairs or replacement will be required on the existing wood and concrete structures in the next decade. These works would interrupt wharf use for another season. **Moderately Preferred**	• Raising the entire dock above record high levels will best ensure the wharf is least impacted by water levels and wave action. • This alternative will renew the service life of the wharf, avoiding the requirement for a second future closure to complete repairs or replacement of the south docks. **Most Preferred**	• Superficial repairs to localized sink holes and erosion would not address the structural issues that relate to the crib's ability to retain fill. As such, fill will continue escaping, creating new sink holes. In addition, the future high-water levels would continue to impact the wharf's ability to function and increase structural damage. This would likely create disruptions to service and create potential safety hazards. • High-water levels would increase the potential for the existing lightweight fill being pushed up to the wharf surface, causing excessive damages and requiring the continued use unsightly concrete barriers as counterweights. • Postponing reconstruction would result in the continued degradation of the wharf's structural integrity, where it could become a risk to public safety. **Least Preferred**
Recreational Boating	Ability to accommodate recreational boating	• Both alternatives 1 and 2 would have similar potential to accommodate recreational boating. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Most Preferred**	• Both alternatives 1 and 2 would have similar potential to accommodate recreational boating. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Most Preferred**	• The existing wharf would have less potential to accommodate recreational boating compared to the alternatives 1 and 2. **Least Preferred**
Social Environment Summary		• While the anticipated construction disruptions would be shorter than Alternative 2, there would still be the potential future disruptions due to high-water level closures and future repair/replacement works. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Moderately Preferred**	• While the anticipated construction disruptions would be longer than Alternative 1, it would lesson potential future disruptions due to high-water level closures and future repair/replacement works. • Both alternatives 1 and 2 would have increased potential to accommodate recreational boating compared to the existing wharf. **Most Preferred**	• The lack of structural repairs and wharf improvements increases the likelihood of service disruptions and closures at the wharf. • The existing wharf would have less potential to accommodate recreational boating compared to the alternatives 1 and 2. **Least Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Cultural Environment				
Effect on Archaeological Resources	Loss and/or disturbance of archaeological resources	• A Stage 1 Archaeological Assessment and a Marine archaeological screening indicated that the site does not have any archaeological potential. Therefore, no loss and/or disturbance of archaeological resources is expected. **Most Preferred**	• A Stage 1 Archaeological Assessment and a Marine archaeological screening indicated that the site does not have any archaeological potential. Therefore, no loss and/or disturbance of archaeological resources is expected. **Most Preferred**	• A Stage 1 Archaeological Assessment and a Marine archaeological screening indicated that the site does not have any archaeological potential. Therefore, no loss and/or disturbance of archaeological resources is expected. **Most Preferred**
Effect on Cultural Heritage Resources	Loss and/or disturbance of cultural heritage resources	• No loss or disturbance of cultural heritage resources is anticipated. **Most Preferred**	• No loss or disturbance of cultural heritage resources is anticipated. **Most Preferred**	• No loss or disturbance of cultural heritage resources is anticipated. **Most Preferred**
Cultural Environment Summary		• All three alternatives are equally preferred. **Most Preferred**	• All three alternatives are equally preferred. **Most Preferred**	• All three alternatives are equally preferred. **Most Preferred**
Built Environment				
Effect on Wharf and Associated Facilities	Disturbance/improvements to the wharf, docking areas, landing and on-site amenities	• Alternatives 1 and 2 would similarly accommodate and provide flexibility to maximize docking areas, the landing and on-site amenities. **Most Preferred**	• Alternatives 1 and 2 would similarly accommodate and provide flexibility to maximize docking areas, the landing and on-site amenities. **Most Preferred**	• Deteriorating conditions would impact the wharf's ability to function as desired and safely. **Least Preferred**
Alignment with Land-use Planning	Implications of alternative for current zoning and designated land uses	• Alternative aligns with existing and zoned land uses **Most Preferred**	• Alternative aligns with existing and zoned land uses **Most Preferred**	• Alternative aligns with existing and zoned land uses **Most Preferred**
Built Environment Summary		• Alternatives 1 and 2 would be better able to accommodate docking areas and on-site amenities compared to the Do Nothing alternative while aligning with the site's existing defined land uses. **Most Preferred**	• Alternatives 1 and 2 would be better able to accommodate docking areas and on-site amenities compared to the Do Nothing alternative while aligning with the site's existing defined land uses. **Most Preferred**	• The continued deteriorating conditions resulting from the Do Nothing alternative have a negative impact on wharf usage compared to Alternatives 1 and 2. **Least Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Economic Environment				
Effect on Economic Development	Potential benefits and impacts on local businesses and economic opportunities	• The concepts considered in alternatives 1 and 2 would provide similar economic benefits and potential economic opportunities arising from greater community use of the wharf. • However, potential activities established at the wharf would be temporarily disrupted at some point in the future due to future repairs or replacement required on the existing wood and concrete structures. **Moderately Preferred**	• The concepts considered in alternatives 1 and 2 would provide similar economic benefits and potential economic opportunities arising from greater community use of the wharf. • Compared to alternative 1, no future disruptions would be required due to the repairs or replacement required on the existing wood and concrete structures. **Most Preferred**	• Deteriorating conditions would impact the wharf's ability to function as desired and safely. • This would create negative impacts on local businesses and curtail potential for economic opportunities. **Least Preferred**
Effect on Municipal Leases	Ability of Municipality to meet terms of municipal wharf leases	• Alternatives 1 and 2 would similarly allow the Municipality to meet terms of municipal wharf leases **Most Preferred**	• Alternatives 1 and 2 would similarly allow the Municipality to meet terms of municipal wharf leases **Most Preferred**	• Deteriorating conditions would impact the wharf's ability to function as desired and safely. • This could potentially impact the Municipality's ability to meet the terms its municipal wharf leases. **Least Preferred**
Economic Environment Summary		Alternative 1 provides similar economic benefits and opportunities compared to Alternative 2, but these would be disrupted in the future for a second round of repair or replacement works. It also allows the Municipality to meet the terms of the municipal wharf leases. **Moderately Preferred**	Alternative 2 provides similar economic benefits and opportunities compared to Alternative 1, while avoiding the need for disruptions in the future for a second round of repair or replacement works. It also allows the Municipality to meet the terms of the municipal wharf leases. **Most Preferred**	The deteriorating conditions resulting from the Do Nothing alternative degrade the potential for local business activities and economic opportunities. They could also potentially impact the Municipality's ability to meet the terms its municipal wharf leases. **Least Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Technical				
Wharf Longevity	Anticipated longevity of alternative solution / anticipated timeline on future wharf upgrades and repairs	• While Alternative 1 will upgrade the wharf and improve the functionality of the north and east docks, the south docks would require repairs or replacement of the existing wood, timber cribs and concrete dock. **Moderately Preferred**	• Alternative 2 will renew the service life of the wharf (approximately 50 to 60 years). This will allow the wharf to operate without significant structural upgrades or refits for the foreseeable future. **Most Preferred**	• The Do Nothing alternative would allow the wharf's deteriorating conditions to continue, impacting the wharf's ability to function as desired and safely in the future. **Least Preferred**
Climate Change Adaptation	Resilience of wharf to future climate change impacts, including increased lake levels and severe weather events	• The anchored sheet pile wall would provide greater resiliency to extreme weather events than the site's existing conditions. • While Alternative 1 would raise the north and east docks slightly above the highest recorded water level, it may still be susceptible to wave action, with water washing over the deck surface in high-wind conditions. • The south dock would remain at the same elevation and continue to be vulnerable to flooding during high-water levels. **Moderately Preferred**	• The anchored sheet pile wall would provide greater resiliency to extreme weather events than the site's existing conditions. • Alternative 2 would raise the entire dock above the record high levels to best ensure the wharf is least impacted by water levels and wave action. **Most Preferred**	• The Do Nothing alternative would allow the wharf's continued exposure to and vulnerability against extreme weather events and high-water level conditions. This would allow the wharf's deteriorating conditions to continue, impacting the wharf's ability to function as desired and safely in the future. **Least Preferred**
Technical Summary		Alternative 1 would be a solution for the short to mid-term, but future wharf upgrades and repairs would be required for the south docks. The wharf under Alternative 1 would also be less resilient to extreme weather events compared to Alternative 2. **Moderately Preferred**	Alternative 2 provides a long-term solution that provides the greatest resilience to future extreme weather events. **Most Preferred**	The Do Nothing alternative negatively impacts the wharf's longevity and is vulnerable to extreme weather events. **Least Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Financial				
Capital Costs	Anticipated net capital costs (considering federal grants)	• The anticipated capital cost for Alternative 1 is $943,000 (based on 2020 estimate). • This cost does not include the additional design and mobilization costs for activities related to the anticipated future repairs or replacements required for the south docks, which would likely be more expensive if done separately at a future date. Further, it is not known how much - if any - of these future costs would be offset by provincial or federal grants. **Least Preferred**	• The anticipated capital cost for Alternative 1 is $2,772,000 (based on 2020 estimate). • While this capital cost is greater than Alternative 1, it would avoid the additional design and mobilization costs for activities related to the anticipated future repairs or replacements required for the south docks. **Moderately Preferred**	• There are no capital costs associated with the Do Nothing alternative. **Most Preferred**
Operating Costs	Anticipated annual operations and maintenance costs	• The annual operations and maintenance costs for Alternatives 1 and 2 are anticipated to be similar in magnitude. **Most Preferred**	• The annual operations and maintenance costs for Alternatives 1 and 2 are anticipated to be similar in magnitude. **Most Preferred**	• The annual operations and maintenance costs for the Do Nothing alternatives is anticipated to be greater than Alternatives 1 and 2, due to the need for on-going repairs. • As the Do Nothing alternative would allow the wharf's deteriorating conditions to continue, public safety risks and hazards could lead to injuries, including those for which the Municipality may be held liable. This could result in financial implications for the Municipality. **Least Preferred**
Financial Summary		• Alternative 2 is moderately preferred as it likely will have higher long-term capital costs compared to Alternative 2, but lower operating costs compared to the do-nothing alternative. It also would have lower financial risk to the municipality compared to the do-nothing alternative. **Moderately Preferred**	• Alternative 1 is most preferred as it likely will have lower long-term capital costs compared to Alternative 1 and lower operating costs compared to the do-nothing alternative. It also would have lower financial risk to the municipality compared to the do-nothing alternative. **Most Preferred**	• The Do Nothing alternative is least preferred. While it has the lowest capital cost, the operating costs compared to alternatives 1 and 2 would be higher. It also would have higher financial risk to the municipality due to issues of liability. **Least Preferred**

Category / Criteria	Indicator(s)	Alternative 1: Raising the North and East Docks	Alternative 2: Reconstruction of the Wharf	Alternative 4: Do Nothing
Overall Evaluation Summary		Alternative 1 is moderately preferred compared to Alternative 2. It is a short to mid-term that, like Alternative 2, will allow the Municipality to continue meeting its obligations under the wharf lease while providing opportunities for increased economic benefits arising from greater community use of the wharf. However, these activities would be disrupted due to the eventual needed repair or replacement of the south dock. Alternative 1 also provides less resilience to potential future climate change impacts, including high-water levels and extreme weather events. Any potential permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf are anticipated to be minor. Alternative is likely to higher long-term capital costs compared to Alternative 1, but less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Moderately Preferred**	Alternative 2 is most preferred because it is a long-term solution that allows the Municipality to continue meeting its obligations under the wharf lease while providing opportunities for increased economic benefits arising from greater community use of the wharf. This alternative also avoids the potential future disruptions that would be caused by the eventual needed repair or replacement of the south dock. Alternative 2 also provides the greatest resilience to potential future climate change impacts, including high-water levels and extreme weather events. Any potential permanent and temporary disturbances to aquatic and terrestrial/avian habitats by and near the wharf are anticipated to be minor. Alternative is likely to have the lowest long-term capital costs and less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Most Preferred**	The Do Nothing alternative is least preferred because it provides no extra economic opportunities and does nothing to avoid the continued degradation of the wharf, which could threaten public safety and the Municipality's ability to meet is obligations under the wharf lease. The wharf under the Do Nothing alternative continues to be vulnerable to potential future climate change impacts, including high-water levels and extreme weather events. Alternative is likely to have the lowest long-term capital costs and less financial risk compared to the Do Nothing alternative due to issues of liability. Operating costs for Alternatives 1 and 2 would be similar and less than the Do Nothing alternative. **Least Preferred**

Appendix D –
Evaluation of Alternative Designs

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
Natural Environment			

Effect on Aquatic Habitat	Temporary effects on aquatic species (including species at risk) and habitat quality during construction	• Both design concepts will have similar potential effects on aquatic species, including:
		  ○ Construction and demolition debris spills into the water during wharf removal and construction, potentially covering existing habitat.
		  ○ Suspension and settling of disturbed soil particles in the water column, creating increased turbidity and deposition of soil particles that could impact fish and fish habitat.
		• Impacts can be mitigated using a turbidity curtain to enclose the area during and immediately after work periods and by ensuring all waste materials are contained, collected and removed off-site for disposal.
		• The potential impacts to aquatic habitat during demolition and construction are anticipated to be minor and temporary, with no long-term impacts anticipated.
		Moderately Preferred
			• Both design concepts will have similar potential effects on aquatic species, including:
			  ○ Construction and demolition debris spills into the water during wharf removal and construction, potentially covering existing habitat.
			  ○ Suspension and settling of disturbed soil particles in the water column, creating increased turbidity and deposition of soil particles that could impact fish and fish habitat.
			• Impacts can be mitigated using a turbidity curtain to enclose the area during and immediately after work periods and by ensuring all waste materials are contained, collected and removed off-site for disposal.
			• The potential impacts to aquatic habitat during demolition and construction are anticipated to be minor and temporary, with no long-term impacts anticipated.
			Moderately Preferred

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
	Permanent effects on aquatic species (including species at risk) and habitat quality	• No long-term impacts from construction activities are anticipated for either design alternative. • The removal of the existing timber cribs and replacement with steel piles, steel sheet pile walls and floating docks will result in the net gain of available channel floor surface, providing additional aquatic habitat. • No existing aquatic habitat vegetation will be covered by the proposed work. **Most Preferred**	• No long-term impacts from construction activities are anticipated for either design alternative. • The removal of the existing timber cribs and replacement with steel piles, steel sheet pile walls and floating docks will result in the net gain of available channel floor surface, providing additional aquatic habitat. • No existing aquatic habitat vegetation will be covered by the proposed work. **Most Preferred**
Effect on Terrestrial Habitat	Temporary effects on terrestrial habitat quality and species (including species at risk) during construction	• The potential for temporary impacts on terrestrial habitat quality and species during construction is equally low for both alternative designs. • Barn swallows have been identified as nesting on the site in and around the wharf area. There is the potential for some disturbance of nesting sites during construction. However, these can be mitigated either through completing the construction outside of the nesting timing window (May to August 31st) or, if not, putting measures in place to protect nesting birds, such as making sure the birds do not nest and monitor existing nests if being used. • The wharf area does not contain any natural terrestrial habitat. **Most Preferred**	• The potential for temporary impacts on terrestrial habitat quality and species during construction is equally low for both alternative designs. • Barn swallows have been identified as nesting on the site in and around the wharf area. There is the potential for some disturbance of nesting sites during construction. However, these can be mitigated either through completing the construction outside of the nesting timing window (May to August 31st) or, if not, putting measures in place to protect nesting birds, such as making sure the birds do not nest and monitor existing nests if being used. • The wharf area does not contain any natural terrestrial habitat. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
	Permanent effects on terrestrial habitat quality and species (including species at risk)	• The potential for permanent effects on terrestrial habitat quality and species is equally low for both alternative designs. • Nesting under the dock will no longer be available due to the steel sheet pile sea walls. • Nesting will continue to be available under the new concrete wharf. **Most Preferred**	• The potential for permanent effects on terrestrial habitat quality and species is equally low for both alternative designs. • Nesting under the dock will no longer be available due to the steel sheet pile sea walls. • Nesting will continue to be available under the new concrete wharf. **Most Preferred**
Source Water Protection	Impacts to drinking water supply from during or after construction	• The potential for effects on the drinking water supply is equally low for both alternative designs. • The drinking water intake is about 100m away from the project site. Site controls will ensure erosion and spills are managed and are not allowed to create a risk. **Most Preferred**	• The potential for effects on the drinking water supply is equally low for both alternative designs. • The drinking water intake is about 100m away from the project site. Site controls will ensure erosion and spills are managed and are not allowed to create a risk. **Most Preferred**
Natural Environment Summary		Given the limited nature for permanent and temporary disturbances to aquatic, terrestrial and avian habitats at the wharf, the overall impact to the natural environment or drinking water supply is low for both alternative design concepts. **Most Preferred**	Given the limited nature for permanent and temporary disturbances to aquatic, terrestrial and avian habitats at the wharf, the overall impact to the natural environment or drinking water supply is low for both alternative design concepts. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
Social Environment			
Effect of construction on Area Users	Type and magnitude of effects during construction	• The anticipated construction impacts are similar for both design alternatives, including: ○ The wharf will be unavailable for use by the community for approximately 35-40 weeks during construction. ○ Noise will be generated when driving in the sheet pile wall. ○ Noise and dust are anticipated from the construction activities. **Moderately Preferred**	• The anticipated construction impacts are similar for both design alternatives, including: ○ The wharf will be unavailable for use by the community for approximately 35-40 weeks during construction. ○ Noise will be generated when driving in the sheet pile wall. ○ Noise and dust are anticipated from the construction activities. **Moderately Preferred**
Community Space	Area to accommodate community use	• This alternative does not increase the amount of surface area available for community use. **Least Preferred**	• This alternative creates an additional 122 m^2 of surface area that could be potentially used by the community. **Most Preferred**
Recreational Boating	Ability to accommodate recreational boating	• Concept A has greater potential to accommodate additional recreational boaters compared to Concept B. **Most Preferred**	• While Concept A has greater potential to accommodate additional recreational boaters compared to Concept B, Concept B still provides increased capacity for boaters compared to the current wharf. **Moderately Preferred**
Social Environment Summary		The anticipated construction disruptions are similar for both design concepts. While Concept A provides an increased area to accommodate recreational boaters, it will not provide an increase to the area available for non-boating uses, including pedestrians, site-seers, and other users of the wharf. **Moderately Preferred**	The anticipated construction disruptions are similar for both design concepts. While Concept A provides an increased area to accommodate recreational boaters, Concept B will provide an increase area for pedestrians and other users of the wharf. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
Cultural Environment			
Effect on Archaeological Resources	Loss and/or disturbance of archaeological resources	• A Stage 1 Archaeological Assessment and a Marine archaeological screening indicated that the site does not have any archaeological potential. Therefore, no loss and/or disturbance of archaeological resources is expected. **Most Preferred**	• A Stage 1 Archaeological Assessment and a Marine archaeological screening indicated that the site does not have any archaeological potential. Therefore, no loss and/or disturbance of archaeological resources is expected. **Most Preferred**
Effect on Cultural Heritage Resources	Loss and/or disturbance of cultural heritage resources	• Both design concepts will continue to enable the wharf's association with the theme of commerce and with the activity of fishing. • Both design concepts will allow the wharf to continue contributing to the area's commercial identity, transportation services, and waterfront tourism industry. • Both design concepts will allow the wharf's historical association with water-based transportation and recreational activities in the area (such as fishing, boating, and tourism) to continue. • Both design concepts will allow the wharf to continue to act as a landmark in the community, as it will ensure the wharf's ability to operate as a safe and desirable destination point for tourists. • Therefore, no loss or disturbance of cultural heritage resources is anticipated. **Most Preferred**	• Both design concepts will continue to enable the wharf's association with the theme of commerce and with the activity of fishing. • Both design concepts will allow the wharf to continue contributing to the area's commercial identity, transportation services, and waterfront tourism industry. • Both design concepts will allow the wharf's historical association with water-based transportation and recreational activities in the area (such as fishing, boating, and tourism) to continue. • Both design concepts will allow the wharf to continue to act as a landmark in the community, as it will ensure the wharf's ability to operate as a safe and desirable destination point for tourists. • Therefore, no loss or disturbance of cultural heritage resources is anticipated. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
Cultural Environment Summary		Both alternatives are equally preferred. ***Most Preferred***	Both alternatives are equally preferred. ***Most Preferred***
Built Environment			
Effect on Wharf and Associated Facilities	Disturbance/improvements to the wharf, docking areas, landing and on-site amenities	• Both alternatives would provide long-term improvements to the dock and docking areas and accommodate existing on-site amenities. • Both alternatives would accommodate the Municipality's future plans for the adjacent marina purchased in the Fall of 2022. **Most Preferred**	• Both alternatives would provide long-term improvements to the dock and docking areas and accommodate existing on-site amenities. • Both alternatives would accommodate the Municipality's future plans for the adjacent marina purchased in the Fall of 2022. **Most Preferred**
Alignment with Land-use Planning	Implications of alternative for current zoning and designated land uses	• Both alternatives align with existing and zoned land uses. **Most Preferred**	• Both alternatives align with existing and zoned land uses. **Most Preferred**
Built Environment Summary		Both alternatives would similarly accommodate the existing use of the wharf and align with existing and zoned land uses. **Most Preferred**	Both alternatives would similarly accommodate the existing use of the wharf and align with existing and zoned land uses. **Most Preferred**

Category / Criteria	Indicator(s)	Alternative Design Concept A:	Alternative Design Concept B:
Economic Environment			
Effect on Economic Development	Potential benefits and impacts on local businesses and economic opportunities	• Both concepts would similarly disrupt potential activities established at the wharf during construction. • Concept A has less wharf area available for potential future local economic development activities compared to Concept A. **Moderately Preferred**	• Both concepts would similarly disrupt potential activities established at the wharf during construction. • Concept B has more wharf area available for potential future local economic development activities compared to Concept B. **Most Preferred**
Effect on Municipal Leases	Ability of Municipality to meet terms of municipal wharf leases	• Both concepts would similarly allow the Municipality to meet terms of municipal wharf leases. **Most Preferred**	• Both concepts would similarly allow the Municipality to meet terms of municipal wharf leases. **Most Preferred**
Economic Environment Summary		Concept A is less preferred compared to Concept B because it will result in less wharf area than Concept B, thereby providing less space for local activities that may generate economic opportunities. **Moderately Preferred**	Concept B is most preferred as it provides the more wharf area than Concept A (thereby providing more opportunity for local activities that may generate economic opportunity) while allowing the Municipality to meet terms of municipal wharf leases. **Most Preferred**

Category / Criteria	**Indicator(s)**	**Alternative Design Concept A:**	**Alternative Design Concept B:**
Technical			
Construction Material	Construction material readily available	• Both alternatives would utilize similar construction material including steel sheet piles, steel tube piles and reinforced concrete. Most Preferred	• Both alternatives would utilize similar construction material including steel sheet piles, steel tube piles and reinforced concrete. Most Preferred
Construction Schedule	Anticipated length of construction period	• Smaller concrete dock footprint would translate to shorter construction period. Most Preferred	• Bigger concrete dock footprint would translate to longer construction period. Moderately Preferred
Climate Change Adaptation	Resilience of wharf to future climate change impacts, including increased lake levels and severe weather events	• Both alternatives would provide similar resiliency to extreme weather events trough the anchored sheet pile wall. • Both alternatives would raise the entire dock above the record high levels to best ensure the wharf is least impacted by water levels and wave action. Most Preferred	• Both alternatives would provide similar resiliency to extreme weather events trough the anchored sheet pile wall. • Both alternatives would raise the entire dock above the record high levels to best ensure the wharf is least impacted by water levels and wave action. Most Preferred
Technical Summary		• Concept A is most preferred due to its relatively shorter construction period. Most Preferred	• Concept B is moderately preferred as a longer construction period is anticipated. Moderately Preferred
Financial			
Capital Costs	Anticipated net capital costs (considering federal grants)	• The anticipated capital cost for both alternatives are in the order of $2.8M (based on 2020 estimate). Most Preferred	• The anticipated capital cost for both concepts are in the order of $2.8M (based on 2020 estimate). Most Preferred

Category / Criteria	**Indicator(s)**	**Alternative Design Concept A:**	**Alternative Design Concept B:**
Operating Costs	Anticipated annual operations and maintenance costs	• The annual operations and maintenance costs for both concepts are anticipated to be similar in magnitude. Most Preferred	• The annual operations and maintenance costs for both concepts are anticipated to be similar in magnitude. Most Preferred
Financial Summary		The anticipated capital and operating costs are not significantly different for either concept. Most Preferred	The anticipated capital and operating costs are not significantly different for either concept. Most Preferred
Overall Evaluation Summary		Moderately Preferred	Most Preferred
		• Generally, the two design concepts will each affect the natural, economic and social environment similarly, based on the evaluation. • However, Alternative Design Concept B is considered the most preferred design option due to increased surface area compared to Alternative Design Concept A. This increased surface area provides for more economic and social opportunities for the community at the wharf. • While Concept B is expected to have a slightly longer construction duration due to the larger size of the concrete dock, this duration is not expected to be significant.	

Appendix E –
Consultation Documentation

Appendix E-1
Stakeholder Register

Appendix E-2
Public Open House Materials and Feedback

Appendix E-3
Public Stakeholder Correspondence

Appendix E-4
Aboriginal Communities and First Nations Correspondence

Appendix E-5
Agencies Correspondence