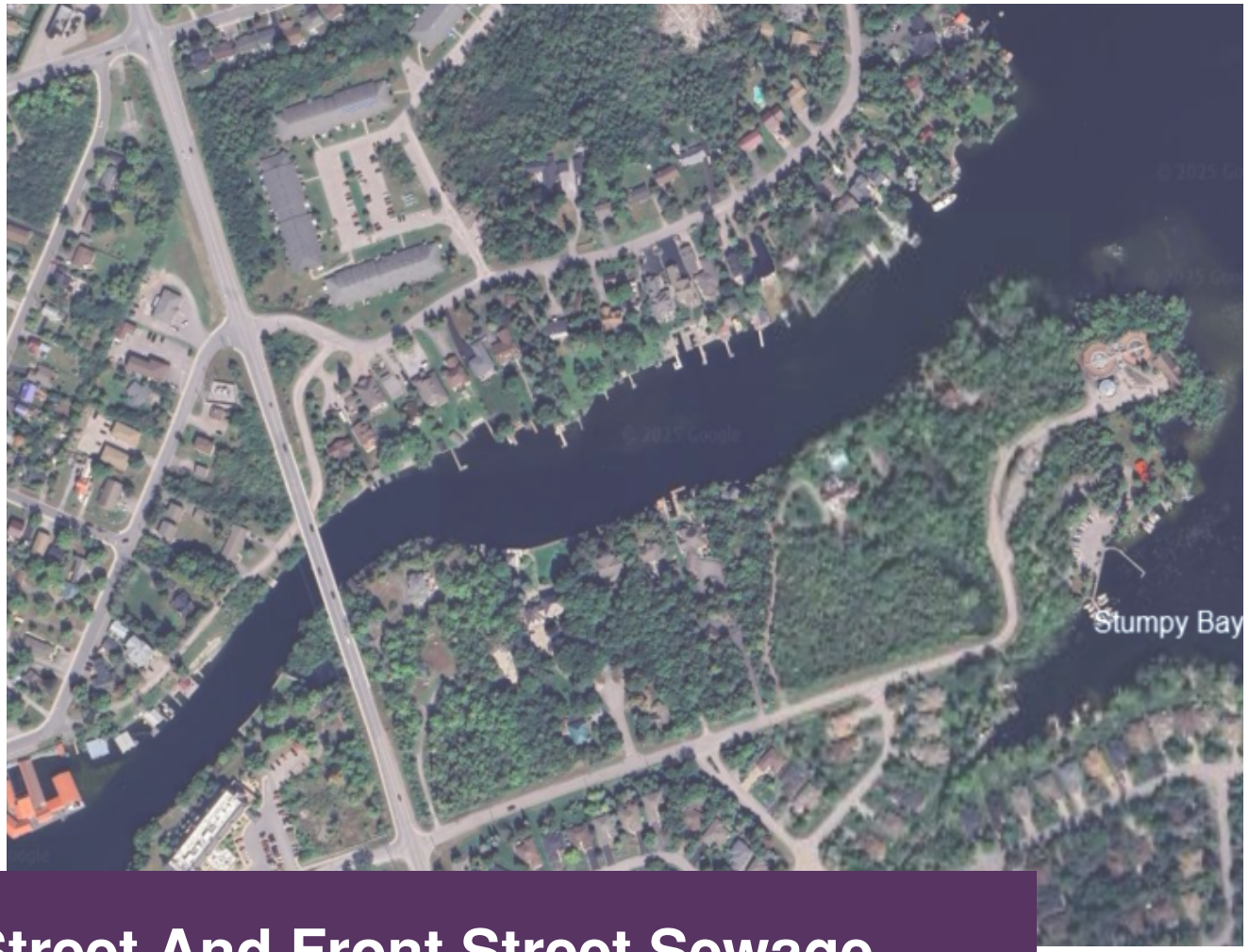

Anne Street And Front Street Sewage Pumping Station And Forcemain Upgrade

Project File Report (Draft)

Schedule "B" Municipal Class Environmental Assessment

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Executive Summary

Introduction And Background

Concept Dash Inc. has been retained by the City of Kawartha Lakes to undertake two Schedule B Municipal Class Environmental Assessment (MCEA) studies focused on the upgrade and expansion of the Anne Street and Front Street Sewage Pumping Stations (SPS) and their associated forcemain infrastructure in the community of Bobcaygeon. Both stations form key components of the wastewater collection system serving distinct catchment areas north of the Bobcaygeon River and play an essential role in conveying wastewater to the Bobcaygeon Waste Water Treatment Plant (WWTP), supporting residential, commercial, and industrial development. The studies aim to select preferred approaches with preliminary design elements that will address existing operational challenges and accommodate projected growth.

The Anne St SPS is located at 47 Anne St, Bobcaygeon. The existing settlement within the North-West area is serviced by the Front St SPS (also referred to as SPS #5). The Front St SPS is a tributary SPS to the Anne St SPS (also referred to as SPS #6). The Front St SPS and the Anne St SPS are located on the north side of the Bobcaygeon River. The Anne St SPS collects flows from the entire north side of the Bobcaygeon River through various gravity mains from its own sewer shed in addition to the flows from the Front St SPS sewer shed and the Bobcaygeon SPS numbers 3, 4, and 11 sewer sheds. The station has a control building and is equipped with three submersible pumps (two duty and one standby) each with a rated capacity of 30.5 L/s at a TDH of 29 m. The station discharges through a 300 mm diameter, about 1,160 m long Ductile Iron force main that crosses above the Bobcaygeon River (heat traced at required sections) and terminates at the Bobcaygeon WWTP. There is also a 100 mm diameter bypass connection to provide external pumping to the force main. The projected flow is 313 l/s exceeding both SPS and forcemain capacity, additional deficiencies include aging electrical aging electrical systems. The station does not have an overflow. It is noted that the forcemain from the Anne St SPS connects with 250 mm force main from Bobcaygeon SPS number 7, which has three pumps (two duty and one standby) each with a rated capacity of 42.0 L/s, at approximately Boyd St and Navigators Trail. The Anne St SPS is equipped with a 100-kW diesel emergency power generator with a 910L fuel tank.

The Front Street SPS, located at the southern section of the Front Street West road allowance adjacent to 200 Front Street West, manages flows from catchments serving the Northwest settlement area of Bobcaygeon. The need for upgrades arises from increasing flows due to growth and development as outlined in the City's forecasts. The station currently operates with two submersible pumps (duty and standby), each rated at 13.9 l/s, with a 150 mm diameter forcemain approximately 240 m long. Projected inflows could reach 74 l/s, exceeding both pump and forcemain capacity. Additional deficiencies include aging electrical systems, lack of an

emergency generator. Overflow currently discharges Eastward to Anne Street gravity sewer shed, underscoring the need for improvements to overall system reliability and environmental protection.

These Municipal Class Environmental Assessment studies evaluate a range of upgrade and expansion options intended to address these deficiencies and ensure wastewater infrastructure can meet regulatory requirements and future service demands sustainably. The studies consider technical, environmental, and community factors and identify preferred solutions that will support ongoing growth in Bobcaygeon while protecting public health and the environment. The recommendations will guide detailed design, permitting, and construction phases to modernize the Anne Street and Front Street SPS facilities and their associated forcemain networks.

Study Area

Figure 1 Key map

The combined study areas encompass the Anne Street SPS and Front Street SPS properties and their wastewater servicing catchments north of the Bobcaygeon River. Each includes the respective pumping station sites, forcemain routes to the Bobcaygeon WWTP, and integration with key upstream network pumping stations. The geographic scopes were defined to assess capacity, integration, and the potential environmental impacts of the proposed works within each service area.

Municipal Class Environmental Assessment Process

Both studies were conducted in accordance with the Municipal Engineers Association's Municipal Class Environmental Assessment manual (October 2000, as amended in 2007, 2011, 2015 & 2024), and the requirements of the Ontario Environmental Assessment Act.

As Schedule B projects, the siting or upgrading of sewage pumping stations is subject to Phase 1 (Problem or Opportunity) and Phase 2 (Alternative Solutions) of the MCEA planning process.

Phase 1: Problem Or Opportunity Statement

Phase 1 of the five-phase Municipal Class EA planning process requires the proponent of an undertaking (i.e., the City) to document factors leading to the conclusion that the improvement is needed, and to develop a clear statement of the identified problems or opportunities to be addressed. As such, the Problem/Opportunity Statement is the starting point in the undertaking of a MCEA and becomes the central theme and integrating element of the Project. It also assists in setting the scope of the Project. The following problem or opportunity statement has been developed for this study:

For the Anne Street SPS,

- The intent is to review upgrade and expansion requirements for the pumping station, forcemain, and associated infrastructure to address age and design lifespan while meeting current standards.
- The objective is to determine a preferred solution that serves existing customers and anticipated growth while considering environmental effects.

For the Front Street SPS,

- The intent is to assess requirements for upgrading and expanding the existing SPS, forcemain, and associated systems to address aging infrastructure, limited capacity, and compliance with current standards.
- The objective is to determine a preferred solution that meets current and future community needs while considering environmental impacts.

Phase 2: Alternative Solutions

Phase 2 of the Municipal Class Environmental Assessment process involves the identification and evaluation of reasonable alternative solutions to the problem (Phase 1), as well as consultation with review agencies, stakeholder, Indigenous Communities, and the public to solicit comment and input to inform the selection of the preferred solution.

The following sanitary sewer pumping station and expansion options have been identified and evaluated for this study:

- Do Nothing.
- Rehabilitate and Upgrade Existing SPS.
- Maintain Existing SPS and Build New SPS for Additional future loads.
- Construct a single New SPS at a Better Site.

For the Anne Street SPS, the preferred solution is to construct a new, single SPS at the existing Anne Street site with a total capacity of approximately 310+ l/s and an upgraded backup generator. Forcemain works include construction of a new 450 mm main and rehabilitation of existing lines as required. The estimated capital cost is approximately $9.5 million.

For the Front Street SPS, the preferred alternative is to rehabilitate and upgrade the existing SPS at the Front Street site for additional flows, with future capacity expansion and a backup power generator. Forcemain upgrades will include installation of 250 mm diameter main and rehabilitation as needed. The estimated capital cost is approximately $2.5 million, with construction anticipated following Council approval and the public review period.

Communication And Consultation Overview

As part of the Municipal Class Environmental Assessment Schedule B planning and design process, several steps have been undertaken to inform various government agencies, Indigenous communities, the local community and the general public to solicit comments. The Municipal Engineers Association Municipal Class Environmental Assessment manual outlines specific mandatory public and agency consultation contact points and methods. In order to properly communicate the Project details and to solicit feedback throughout the planning and design process, the following activities were undertaken:

- Development of a contact list at the onset of the Project to notify agencies, stakeholders, Indigenous Communities, and members of the public that requested to be kept informed.
- Distribution of the Notice of Commencement, Notice of Public Information Centre, and Notice of Completion
- Posting of relevant project details on the City's website
- Hosting an in person Public information Centre, giving interested participants, including community members an opportunity to review the Project and provide feedback for consideration
- Outreach and information sharing with Indigenous Communities that may potentially be interested in the Project
- Individual meetings with relevant stakeholders and agencies, as required, or as opportunities arose

Potential Impacts And Proposed Mitigation Measures

Potential environmental impacts from construction activities are expected to be local, temporary, and manageable through best management and construction practices.

Key issues addressed include protection of water quality at the Bobcaygeon River crossing, mitigation of potential sediment runoff, noise, vibration, and ecological disturbances. Special attention is given to compliance with source water protection requirements in intake protection areas. Mitigation commitments include erosion control, timing restrictions on in-water work, species-at-risk surveys, archaeological assessments, and construction monitoring to minimize impacts and ensure environmental compliance.

Conclusions

The Anne Street and Front Street Sewage Pumping Station and forcemain upgrades satisfy the requirements under the Environmental Assessment Act for Schedule B projects. The preferred solutions address existing system limitations, future capacity needs, and environmental considerations through sustainable infrastructure improvements. With appropriate mitigation and consultation measures in place, no significant environmental concerns remain outstanding. Subject to the 30-day public review and agency clearances, the City of Kawartha Lakes will proceed with detailed design, permitting, and construction beginning with Anne Street SPS upgrades in 2027 supporting the continued growth and effective wastewater management of the Bobcaygeon community.

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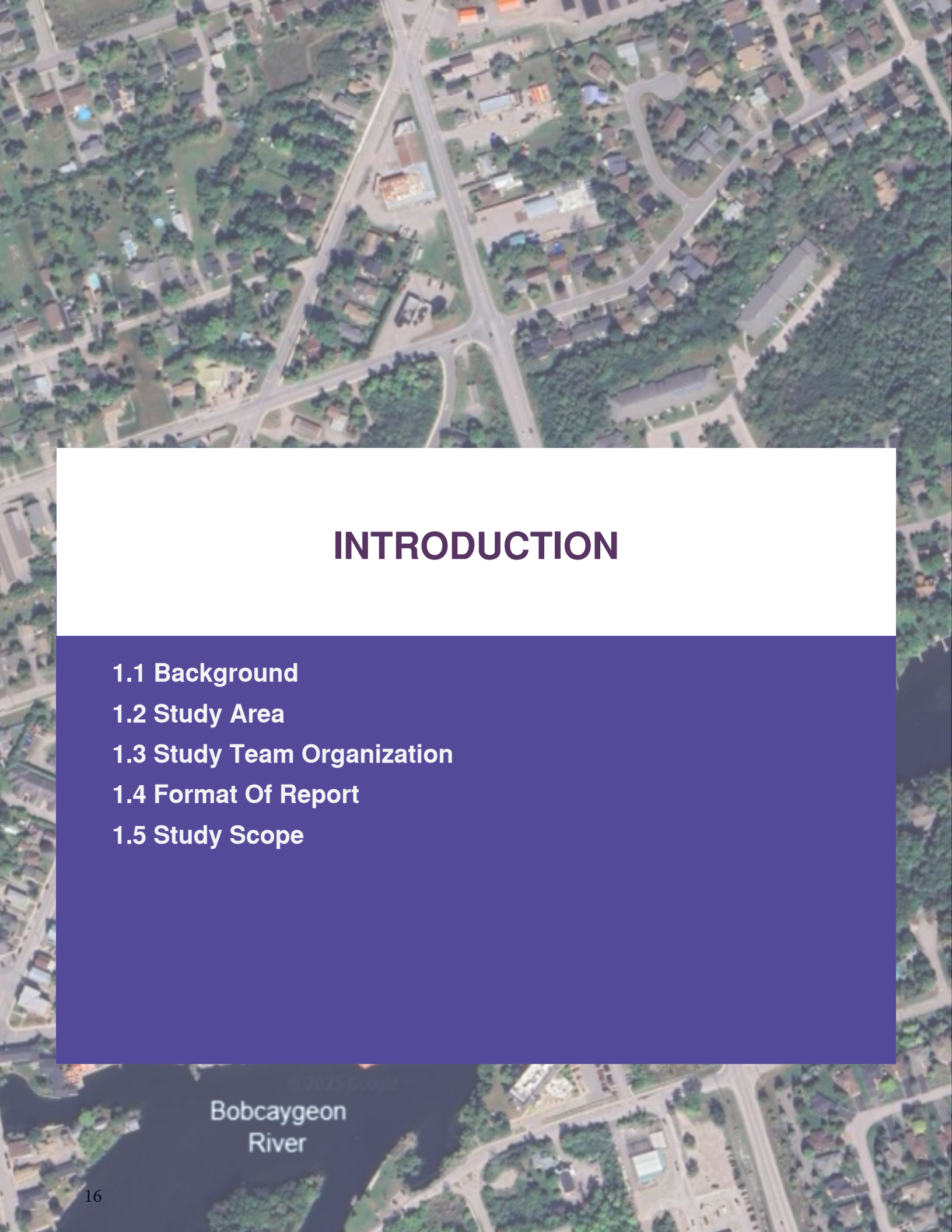

INTRODUCTION

1.1 Background
1.2 Study Area
1.3 Study Team Organization
1.4 Format Of Report
1.5 Study Scope

1. Introduction

1.1 Background

The Corporation of the City of Kawartha Lakes (the City) intends to service the existing population and support future growth in Bobcaygeon through optimization and potential upgrades to two key sewage pumping stations: the Anne Street Sewage Pumping Station (SPS) and the Front Street Sewage Pumping Station (SPS).

The Anne Street SPS, centrally located at 47 Anne Street, plays a vital role in the municipal wastewater collection system by receiving flows from several catchment areas and tributary stations on the north side of the Bobcaygeon River. The facility manages residential, commercial, and industrial wastewater, including contributions from major sources such as the local water treatment plant and Kawartha Dairy, and conveys these flows through a forcemain to the Bobcaygeon Waste Water Treatment Plant (WWTP). Reliable operation and expansion of the station are essential to accommodate community growth and meet regulatory requirements.

The Front Street SPS, strategically located at the southern section of the Front Street West road allowance adjacent to 200 Front Street West, is a critical asset in the municipal wastewater collection system, managing flows from the northwest settlement catchment that receives residential, commercial, and industrial wastewater. This station serves as a tributary to the Anne Street SPS, conveying flows via forcemain to the Bobcaygeon Water Pollution Control Plant (WPCP). Reliable operation and enhancement of the Front Street SPS are similarly essential to accommodate anticipated growth and meet regulatory standards.

1.2 Study Area

The Anne Street SPS study area encompasses the pumping station property and the surrounding wastewater servicing catchment north of the Bobcaygeon River within Bobcaygeon, City of Kawartha Lakes. It includes the existing sewage pumping station site, new forcemain connecting to the Bobcaygeon WWTP, and consideration of key connecting pumping stations within the network. The geographic boundary was defined to assess the capacity, integration, and environmental impacts of the proposed upgrading and expansion works.

The Front Street SPS study area encompasses the pumping station property and the wastewater servicing catchment for the northwest settlement within Bobcaygeon. It includes the existing pumping station site, forcemain connecting to the Bobcaygeon WPCP, and relevant network connections and tributary stations. The geographic boundary was defined to properly assess current capacity, system integration, and potential environmental impacts associated with both existing operations and proposed upgrades.

Figure 2 Study Area Limits

1.3 Study Team Organization

The Municipal Class Environmental Assessments for both Anne Street SPS and Front Street SPS have been collaborative efforts between the City of Kawartha Lakes and Concept Dash Inc. Key members from the Study Team are listed below.

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1.4 Format Of Report

This report was prepared to meet the requirements of the Ontario Ministry of the Environment, Conservation and Parks (MECP) Municipal Class Environmental Assessment planning process. The report combines all phases of the planning process under one cover and incorporates steps considered essential for compliance with the requirements of the Environmental Assessment Act (EAA).

1.5 Study Scope

The purpose of this combined study is to identify preferred solutions for the Anne Street and Front Street Sewage Pumping Stations, including associated forcemain routes connecting to the Bobcaygeon Waste Water Treatment Plant (WWTP/WPCP), to support existing servicing demands and future approved growth within Bobcaygeon.

Anne Street SPS
The objectives for the Anne Street SPS MCEA study include:

- Confirming sanitary sewage design flows to the new Anne Street SPS to reflect current and projected conditions.
- Identifying feasible sites for the installation of the new sewage pumping station.
- Identifying feasible routing alignments for the associated forcemain.
- Evaluating potential pumping station sites and selecting the preferred site.
- Evaluating routing alignments for the associated forcemain and identifying the preferred alignment.
- Preparing a cost estimate for construction of the new SPS and related linear infrastructure.
- Recommending an implementation and phasing plan for the proposed works.
- Conducting consultation with the public, agencies, and Indigenous communities to share information, gather input, and develop project alternatives.

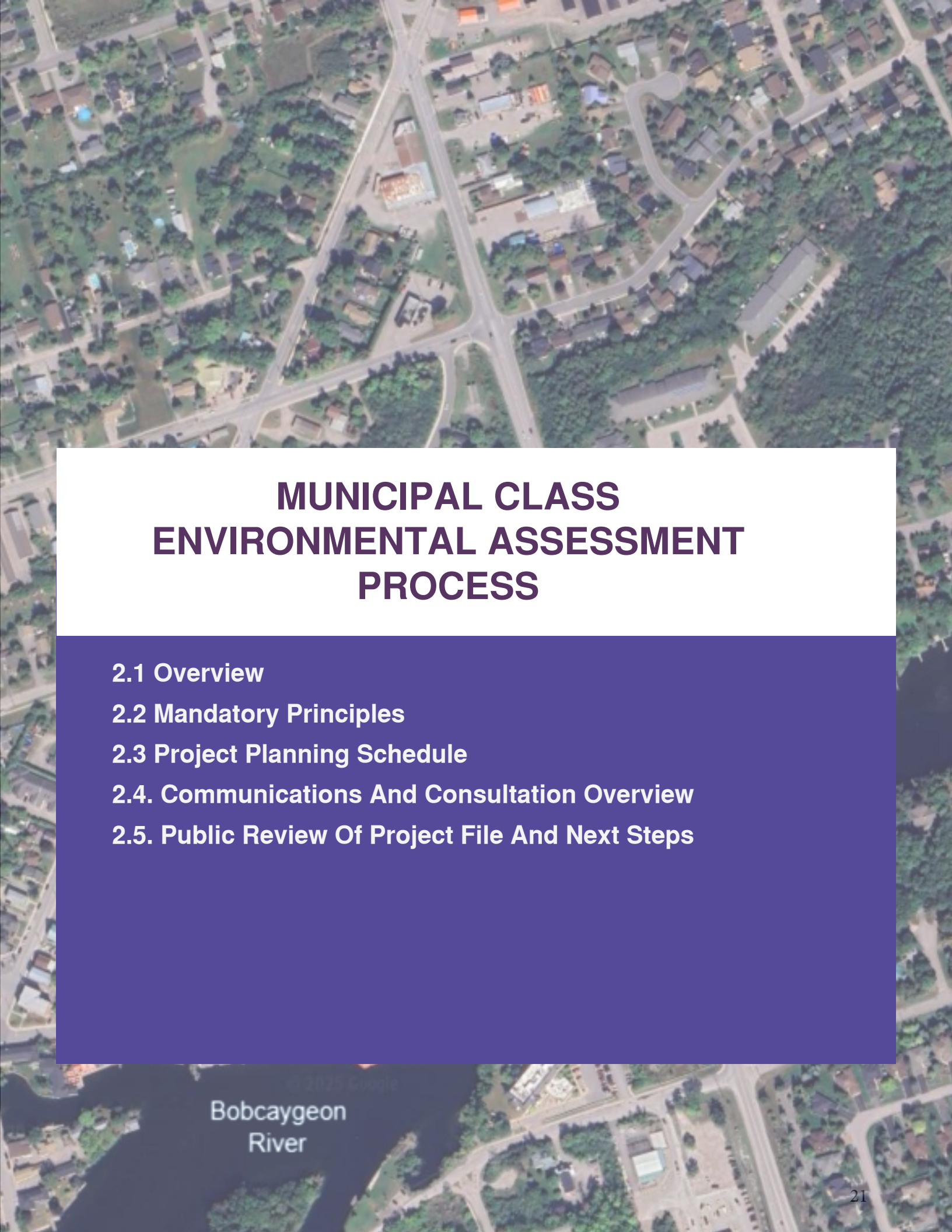
Following MCEA documentation filing and clearance, proceeding to the preliminary design phase of the project. The need and justification for this EA were assessed at a project-specific

level of detail. The study identifies a preferred alternative for upgrading the existing Anne Street SPS to address current deficiencies and long-term capacity needs. This project is endorsed by the City, supported by stakeholders, and aligned with community growth objectives, ensuring its sustainability over the long term.

Front Street SPS
The objectives for the Front Street SPS MCEA study include:

- Confirming sanitary sewage design flows to the upgraded Front Street SPS.
- Identifying feasible alternatives for upgrading, expanding, or potentially relocating the SPS.
- Identifying and assessing forcemain routing alignments for network optimization.
- Evaluating options and selecting the preferred solution for both the Front Street SPS and its forcemain system.
- Preparing construction cost estimates for recommended infrastructure.
- Recommending a phased implementation plan for the works.
- Facilitating consultation with the public, agencies, and Indigenous communities for review and feedback.
- Filing the MCEA documentation and, upon clearance, advancing to preliminary design and implementation stages.

The need and justification for this EA were also assessed at a project-specific level, focusing on addressing system constraints and ensuring stakeholder support, long-term sustainability, and alignment with the City's wastewater servicing goals under Schedule B classification.



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PROCESS

2.1 Overview
2.2 Mandatory Principles
2.3 Project Planning Schedule
2.4. Communications And Consultation Overview
2.5. Public Review Of Project File And Next Steps

2. Municipal Class Environmental Assessment Process

2.1 Overview

All Municipalities in Ontario, including the City of Kawartha Lake, are subject to the provisions of the Environmental Assessment Act (EAA) and requirements to prepare an Environmental Assessment for applicable public works projects. The "Municipal Class Environmental Assessment" (MCEA) (October 2000, as amended in 2007, 2011, 2015 and 2024) provides Municipalities with a five-phase planning procedure approved under the EAA to plan and undertake all municipal sewage, water, storm water management, and transportation projects that occur frequently, are usually limited in scale, and have a predictable range of environmental impacts and applicable mitigation measures.

In Ontario, infrastructure projects are subject to the Municipal Class Environmental Assessment process and must follow a series of mandatory steps as outlined in the Municipal Class Environmental Assessment Municipal Engineers Association manual. The Municipal Class Environmental Assessment manual consists of five phases and the application of the phases depends on the Municipal Class Environmental Assessment Schedule that applies to a project. The phases are summarized below:

- Phase 1 - Problem or Opportunity: Identify the problems or opportunities to be addressed and the needs and justification
- Phase 2 - Alternative Solutions: Identify alternative solutions to the problems or opportunities by taking into consideration the existing environment, and establish the preferred solution considering public, review agency, stakeholder and Indigenous Communities review and input.
- Phase 3 - Alternative Design Concepts for the Preferred Solution: Examine alternative methods of implementing the preferred solution based on the existing environment, public and agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
- Phase 4 - Environmental Study Report: Document in an Environmental Study Report, a summary of the rationale, planning, design, and consultation process for the project as established through Phases 1 to 3 above and make such documentation available for scrutiny by the public, review agencies, stakeholders and potentially impacted Indigenous Communities.
- Phase 5 - Implementation: Complete contract drawings and documents, proceed to construction and operation, and monitor construction for adherence to environmental provisions and commitments. Also, where special conditions dictate, monitor the operation of the completed facilities.

Only Phases 1, 2 and 5 of the Municipal Class Environmental Assessment process apply to the

project as it falls under the Schedule B project category. The Municipal Class Environmental Assessment process ensures that all projects are carried out with effectiveness, efficiency and fairness. The process serves as a mechanism for understanding economic, social and environmental concerns while implementing improvements to municipal infrastructure.

2.2 Mandatory Principles

The MEA process followed not only adheres to the guidelines outlined by the Class EA document, but reflects the five mandatory principles of Class EA planning under the EA Act:

1. Consultation with affected parties early on, such that the planning process is a co-operative venture.
2. Consideration of a reasonable range of alternatives.
3. Identification and consideration of the impacts of each alternative on all aspects of the environment.
4. Systematic evaluation of alternatives in terms of their advantages and disadvantages to determine the net environmental effects; and
5. Provision of clear and complete documentation of the planning process, to allow traceability of decision-making with respect to the project.

Following these five principles ensures that the EA process is devoted to the prevention of problems and damage through thorough planning and decision-making, recognizing that research and evaluation of possible impacts have been taken into account prior to the implementation of the project.

2.3 Project Planning Schedule

The Municipal Class Environmental Assessment defines four types of projects and the processes required for each (referred to as Schedule A, A+, B, or C). The selection of the appropriate schedule is dependent on the anticipated level of environmental impact, and for some projects, the anticipated construction costs. Projects are categorized according to their environmental significance and their effects on the surrounding environment. This study is categorized as a schedule B planning activity. The following describes the Municipal Class Environmental Assessment planning schedules:

- **Schedule A:** Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are pre-approved and may proceed to implementation without following the full Municipal Class Environmental Assessment planning process.
- **Schedule A+:** The purpose of Schedule A+ is to ensure appropriate public notification for certain projects that are pre-approved under the Municipal Class Environmental Assessment. It is appropriate to inform the public of municipal infrastructure project(s) being constructed or implemented in their area.
- **Schedule B:** Projects have the potential for some adverse environmental effects. The

proponent is required to undertake a screening process (Phases 1 and 2), involving mandatory contact with directly affected public and with relevant review agencies to ensure that they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. At the end of Phase 2, a Project File documenting the planning process followed through Phases 1 and 2 shall be finalized and made available for public and agency review. However, if a concern is raised related to aboriginal and treaty rights which cannot be resolved, a Section 16 Order request may be requested and considered by the Minister of the Environment, Parks and Conservation. Alternatively, the proponent may elect voluntarily to plan the project as a Schedule C undertaking.

- **Schedule C:** Projects have the potential for significant adverse environmental effects and must proceed under the full planning and documentation (Phases 1 to 4) procedures specified in the Municipal Class Environmental Assessment manual. Schedule C projects require that an Environmental Study Report be prepared and filed for review by the public and review agencies. If concerns related to aboriginal and treaty rights are raised that cannot be resolved then a Section 16 Order may be requested.

The Municipal Class Environmental Assessment process ensures that all projects are carried out with effectiveness, efficiency and fairness. This process serves as a mechanism for understanding economic, social and environmental concerns while implementing improvements to municipal infrastructure.

2.3.1 Anne Street And Front Street Sanitary Sewer Pumping Station Municipal Class Environmental Assessment Schedule

The Anne Street and Front Street Sanitary Sewer Pumping Station Upgrades were completed under the Municipal Class Environmental Assessment (EA) Schedule B planning process. The proposed works include the construction of new pumping stations, forcemains, and standby power facilities located within the municipal right-of-way (Schedule B activities). As required by the Schedule, Phases 1 and 2 of the Municipal Class EA planning process apply to these

Project Description	Exempt	Eligible for Screening	Schedule B	Schedule C
SEWAGE SYSTEMS – MAINTENANCE, OPERATION, DISTRIBUTION, STORAGE & RETIREMENT				
23b Increase pumping station capacity where new equipment is located in a newbuilding or structure and the new building or structure is located on the existing pumping station site, or located on municipally owned lands adjacent to the existing pumping station site where the lands are not in an environmentally sensitive natural area.			X	
22c Establish, extend or enlarge a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not located in an existing road allowance, or existing utility corridor			X	

Table 1: Project Description

studies. A single Project File will be prepared and made available for review by the public and review agencies.

2.4 Communications And Consultation Overview

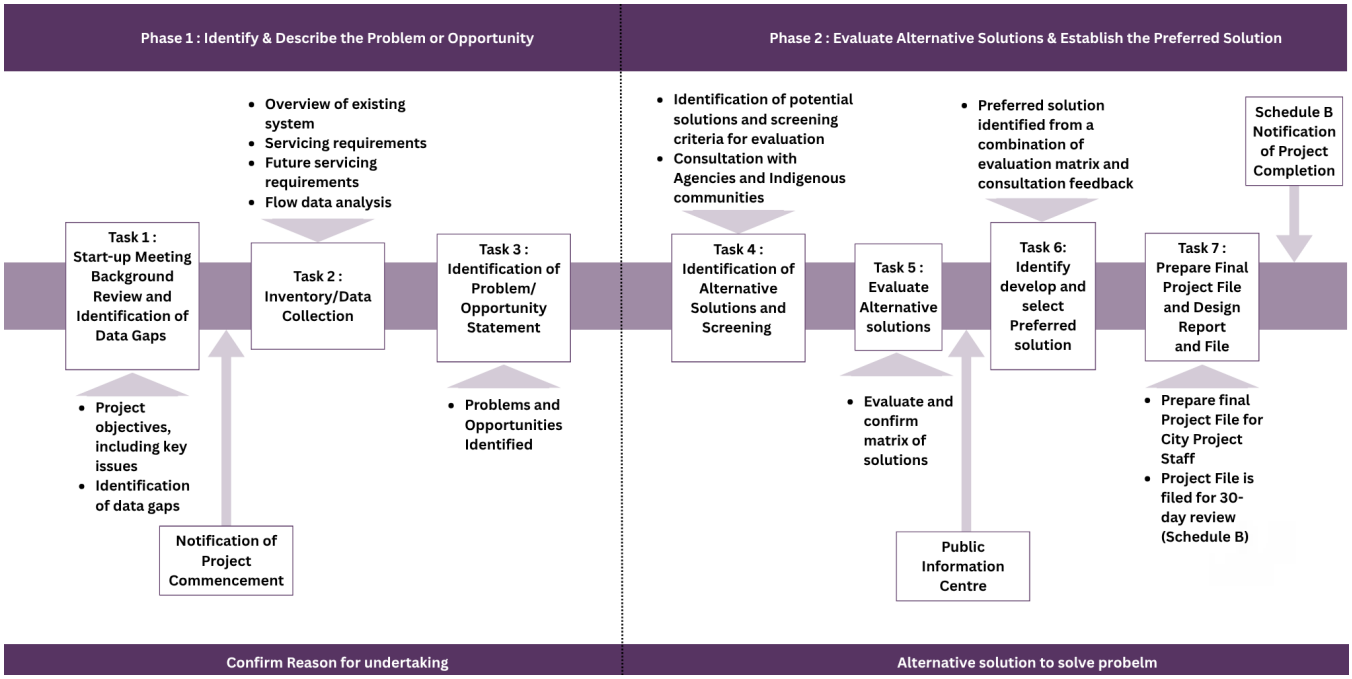


Figure 3 MCEA Planning Process for Schedule B Projects

As part of the planning process, several steps have been undertaken to inform government agencies, affected landowners and the local community/general public of the project and to solicit comments.

The MEA Municipal Class EA document outlines specific mandatory public and agency consultation contact points and methods. In order to properly communicate the project and solicit feedback throughout the planning process, the following activities will be undertaken:

- Notice of Commencement to immediate neighbours of the SPS.
- Newspaper notices for all project milestones; including a Notice of Commencement
- Direct mailing (e.g. Notices of Project Commencement and Project Information Center Notice) to stakeholders, affected land owners and review agencies, including First Nations.
- Posting project milestones (i.e. Notice of Commencement and Project Information Center Notice) on the City's website.

2.5 Public Review Of Project File And Next Steps

This Project File comprises the documentation for Schedule B requirements. Placement of the Project for public review completes Phase 2 of the Project.

The Project File is available for public review and comment for a period of 30 calendar days. A public notice (Notice of Study Completion) is published to announce the commencement of the review period. Copies of the Project File Report and all supporting documentation are available during normal business hours at the following location:

26 Francis street
Lindsay
City of Kawartha Lakes

Alternative arrangements to view the reports are available upon request.

Interested persons may provide written comments to our project team. All comments and concerns should be sent directly to the Project Managers:

- **Marten Leclerc**
  Senior Engineering Tech
  Engineering & Corporate Assets, City of Kawartha Lakes
  (705) 324 9411 ext. 1131
  mleclerc@kawarthalakes.ca

- **Rob Flindall**
  Director, Municipal Engineering
  Civil Department, Concept Dash Inc.
  rob.flindall@conceptdash.ca

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual/ comprehensive Environmental Assessment approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name.

Requests should specify what kind of order is being requested (request for conditions or a request for an individual/ comprehensive environmental assessment), how an order may prevent, mitigate or remedy potential adverse impacts on Aboriginal and treaty rights, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to **both:**

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

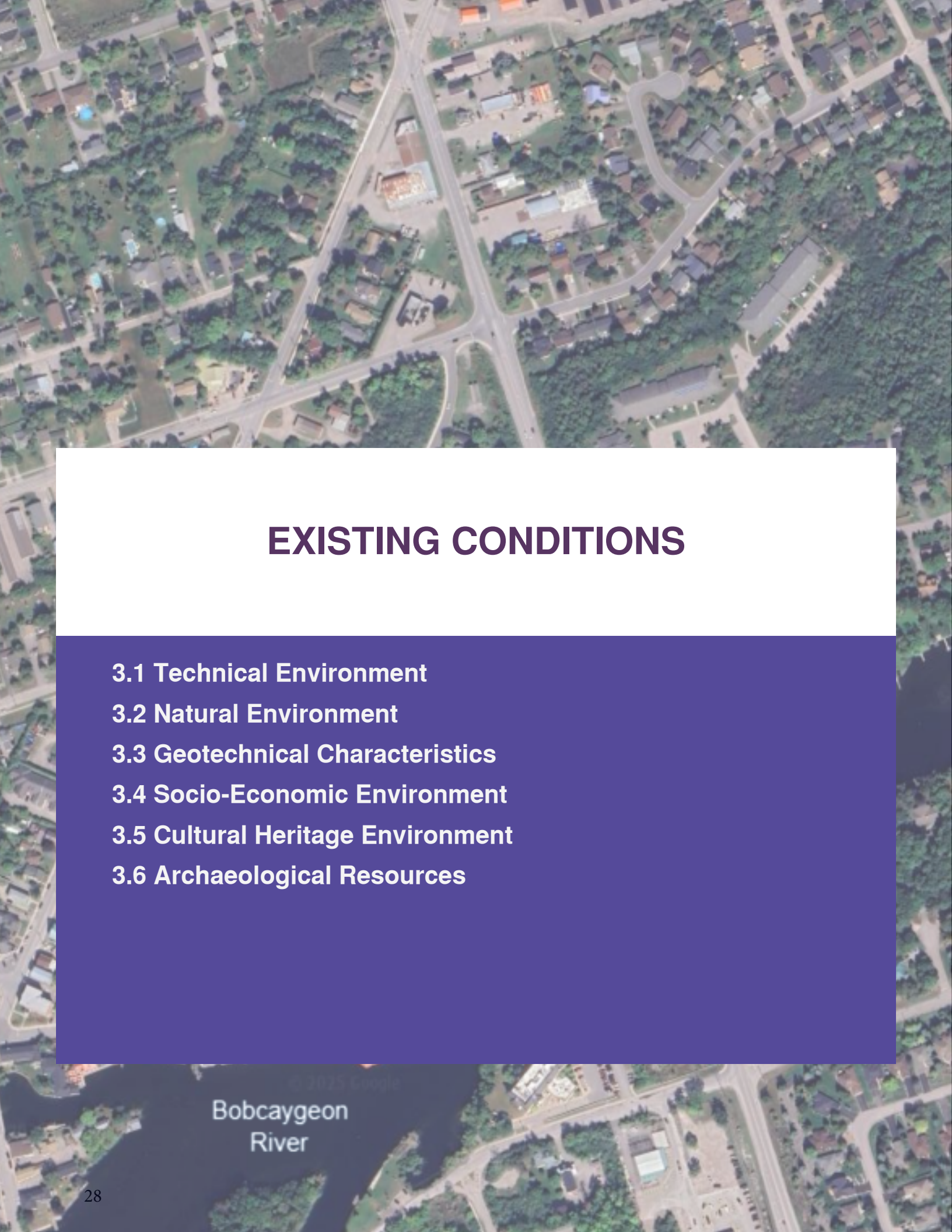
- Director, Environmental Assessment Branch
  Ministry of Environment, Conservation and Parks
  135 St. Clair Avenue West, 1st Floor, Toronto, Ontario M4V 1P5
  EABDirector@ontario.ca

Requests should also be copied to the City of Kawartha Lakes by mail or by e-mail to:

- **Marten Leclerc**
  Senior Engineering Tech
  Engineering & Corporate Assets, City of Kawartha Lakes
  (705) 324 9411 ext. 1131
  mleclerc@kawarthalakes.ca

Please visit the ministry's website for more information on requests for orders under Section 16 of the Environmental Assessment Act at: https://www.ontario.ca/page/class-environmental-assessments-section-16-order

All personal information included in your request - such as name, address, telephone number and property location - is collected, under the authority of Section 30 of the Environmental Assessment Act and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the Freedom of Information and Protection of Privacy Act does not apply (s.37). Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.



EXISTING CONDITIONS

3.1 Technical Environment
3.2 Natural Environment
3.3 Geotechnical Characteristics
3.4 Socio-Economic Environment
3.5 Cultural Heritage Environment
3.6 Archaeological Resources

3. Existing conditions

3.1 Technical Environment

3.1.1 Anne Street Sewage Pumping Station

The Anne Street Sewage Pumping Station (SPS) is located at 47 Anne Street, Bobcaygeon, and serves as a key component of the municipal wastewater system in the community of Bobcaygeon Service Area. Anne Street SPS Receives flows from the north side of the Bobcaygeon River,

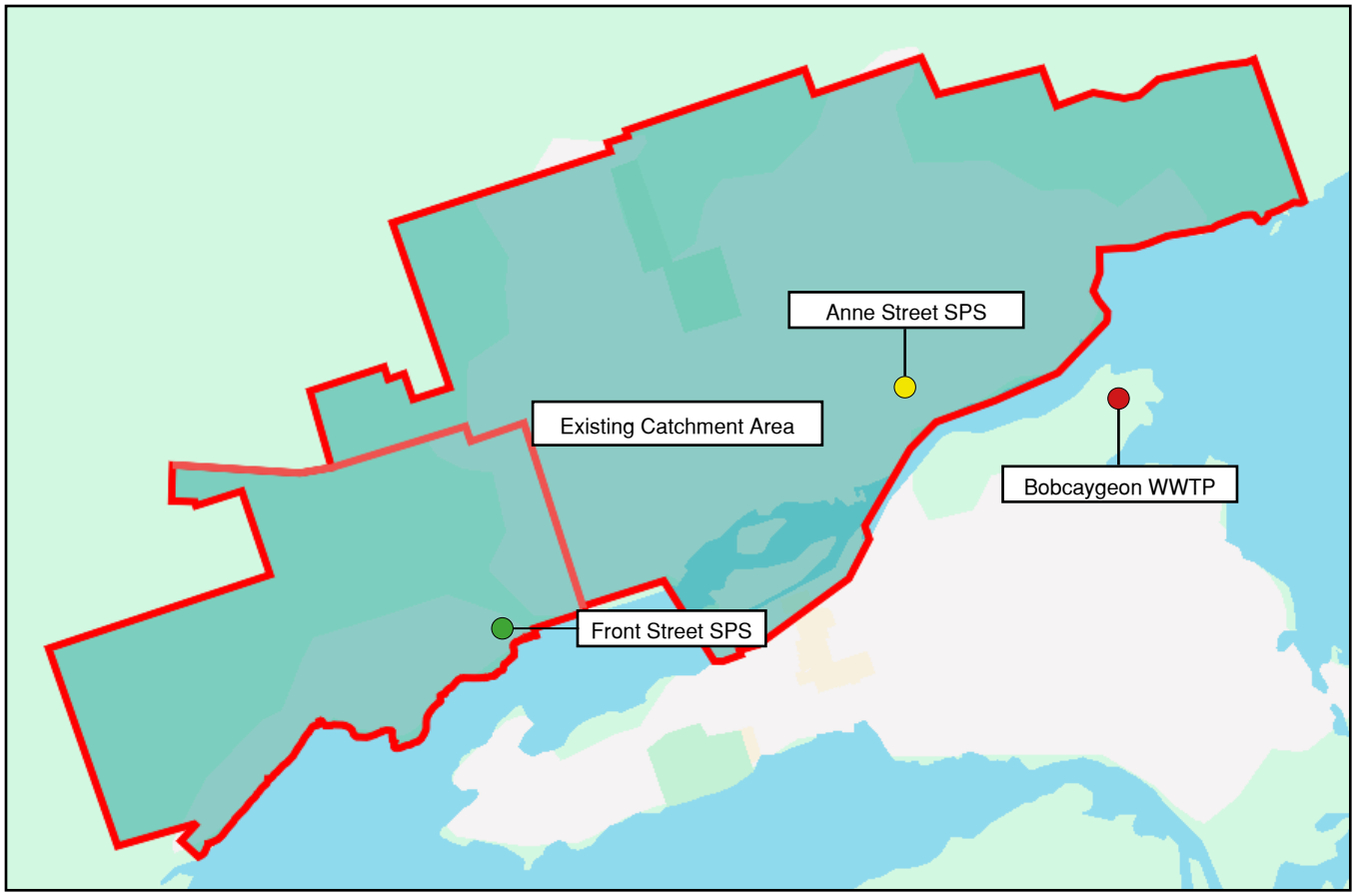


Figure 4 Existing Catchment Area

including its own catchment as well as tributary stations - Front Street SPS (#5), and Bobcaygeon SPS numbers 3, 4, and 11.

Infrastructure:

- Control building on site.
- Three submersible pumps (two duty, one standby), each rated at 30.5 L/s at a total dynamic head (TDH) of 29 m.

- Discharge through a 300 mm diameter, 1,160 m long ductile iron forcemain, heat-traced over select sections, crossing the river and terminating at Bobcaygeon Waste Water Treatment Plant (WWTP).

Connectivity:

- 100 mm diameter bypass connection for external pumping.
- Forcemain connects with the 250 mm forcemain from Bobcaygeon SPS #7 (three pumps; two duty, one standby; each rated at 42.0 L/s) near Boyd St and Navigators Trail.

Power & Safety:

- 100-kW diesel emergency generator with a 910 L fuel tank provides backup power.
- No overflow is present at the station.

3.1.1.1 Existing And Future Sanitary Flows

3.1.1.1.1 Existing Flow Estimate

- Existing sanitary flows were estimated based on current residential, commercial, and institutional (ICI) developments.
- Existing contributors include:
  - Front Street SPS (Existing Residential & ICI) - 8.78 L/s
  - Anne Street SPS (Excluding Front Street) - 159.64 L/s
- Total Existing Flows ≈ 168 L/s (before expansion and future growth).

Refer Appendix G for more details.

3.1.1.1.2 Future Flow Estimate

- Future flows account for planned residential growth, commercial expansions, and institutional demand in the service areas.
- Additional residential units are assigned population equivalents and design flows accordingly, with extraneous allowances, as per city standard design criteria.
- Major contributors include:
  - Front Street SPS - Growth (1,124 units) - incorporated into Front St SPS total of 74.02 L/s
  - Anne Street SPS sewershed growth (650 units) excluding Front Street SPS - added into total 239 L/s (including existing and WWTP process waste)
- Combined Ultimate Design Flow = 313.00 L/s (Front Street + Anne Street + future expansions). Forcemain of size 450 mm diameter from Anne Street SPS to WWTP, Velocity for 450 mm diameter forcemain is 2.26 m/s.

Refer Appendix G for more details.

3.1.1.1.3 Recommendation

- The existing capacity of the system must be reviewed against the current 168 L/s flow contribution to confirm adequate service.
- The ultimate sanitary flow of 313.00 L/s should be used for design of pumping station upgrades, forcemains, and downstream conveyance systems.
- It is recommended that:

    - **Pumping stations (Front Street SPS and Anne Street)** be designed/upgraded for the ultimate flow scenario.
    - Coordination with City standards on infiltration, extraneous flows, and commercial/ industrial allocations continues during detailed design.

3.1.1.2 Emergency Storage

In accordance with municipal servicing guidelines, provisions for emergency storage are typically required to mitigate the risk of uncontrolled sewage discharge during pump station downtime or power outages. For this site, it is proposed to provide 1 hour of emergency storage capacity within the wet well itself. Due to the topographical limitations of the site, which is underlain by shallow bedrock, and the overall site constraints, constructing a separate overflow chamber is not feasible. Integrating the emergency storage directly within the wet well represents the most practical and technically achievable solution, while still ensuring system reliability and compliance with operational standards.

Justification: The proposed 1-hour emergency storage period is consistent with MECP Design Guidelines for Sewage Works (2008) and common municipal practice, which generally recommend a minimum of 1 to 2 hours of storage to account for pump station outages and allow sufficient time for operator response or standby power systems to be activated. Providing this storage within the wet well ensures the system remains protective of public health and the environment by reducing the risk of sanitary sewer overflows, while also accommodating the unique physical and space constraints of the site.

3.1.1.3 Existing Conveyance System

The Anne Street Sewage Pumping Station (SPS) is the primary conveyance facility serving the north side of the community. In addition to its local service area, the station also receives flows from the Front Street SPS and several upstream sewer sheds, including SPS #3, #4, and #11, making it a critical node in the sanitary network.

The facility is equipped with three submersible pumps in a 2-duty, 1-standby arrangement, each rated at 30.5 L/s at 29 m TDH. Based on City design guidelines, the existing peak flow through the station is approximately 168 L/s, while the ultimate build-out condition is projected to increase to about 256 L/s. Additional inflows include an estimated 20 L/s of process wastewater from the Bobcaygeon Water Treatment Plxant, which is not currently metered. The station has backup

power supplied by a 100 kW diesel generator with a 910 L fuel tank; however, no overflow chamber is provided, and emergency provisions rely on a 100 mm bypass connection for external pumping. The site itself poses challenges due to its limited area (~0.76 acres), shallow bedrock, and proximity to the Trent-Severn shoreline, which introduces regulatory sensitivities. Wastewater is conveyed from Anne Street SPS via a 300 mm diameter ductile iron forcemain approximately 1,160 m in length, discharging directly to the Bobcaygeon WPCP.

The alignment includes a river crossing of the Bobcaygeon River via bridge or overwater configuration, with heat tracing installed on exposed sections to mitigate freezing risk. Along its route, the Anne Street forcemain hydraulically connects with a 250 mm forcemain from SPS #7 near Boyd Street and Navigators Trail, combining flows before discharge. Operational appurtenances such as air release valves, scour points, and isolation valves are provided along the alignment, though the system does not include a dedicated overflow facility, leaving emergency storage dependent on wet well capacity and bypass arrangements

3.1.1.4 Utilities

Utilities within the Anne Street SPS Study Area support essential municipal services and infrastructure.

- Storm water Sewers- Manage and convey stormwater runoff from the surrounding area to prevent flooding and protect water quality.
- Sanitary Wastewater Sewers - Collect and transport sanitary sewage from residential, commercial, and industrial sources to the pumping station.
- Municipal Water - Provides potable water to homes, businesses, and public facilities within the study area.
- Hydro (Electricity) - Includes both overhead and underground electrical distribution systems for reliable power supply.
- Telecommunications - Supports communication networks through wired and wireless infrastructure for residents and businesses.

3.1.2 Front Street Sewage Pumping Station

The Front Street Sewage Pumping Station (SPS) is located at the southern section of the Front Street West Road allowance, adjacent to 200 Front Street West, Bobcaygeon.

Service Area
The Front Street Sewage Pumping Station (SPS #5) serves the North-West settlement area and functions as a tributary to the Anne Street SPS (SPS #6).

Infrastructure
- The station has a concrete wet well measuring 2.4 m in diameter and 7.5 m deep.
- Equipped with two submersible pumps: one duty and one standby.
- Each pump is rated at 13.9 L/s at a total dynamic head (TDH) of 8.1 m.

- Sewage is discharged through a 150 mm diameter polyethylene (PE) forcemain.
- The forcemain length is approximately 240 meters, running to a downstream manhole (MH-7) at the intersection of Front Street West and West Street.

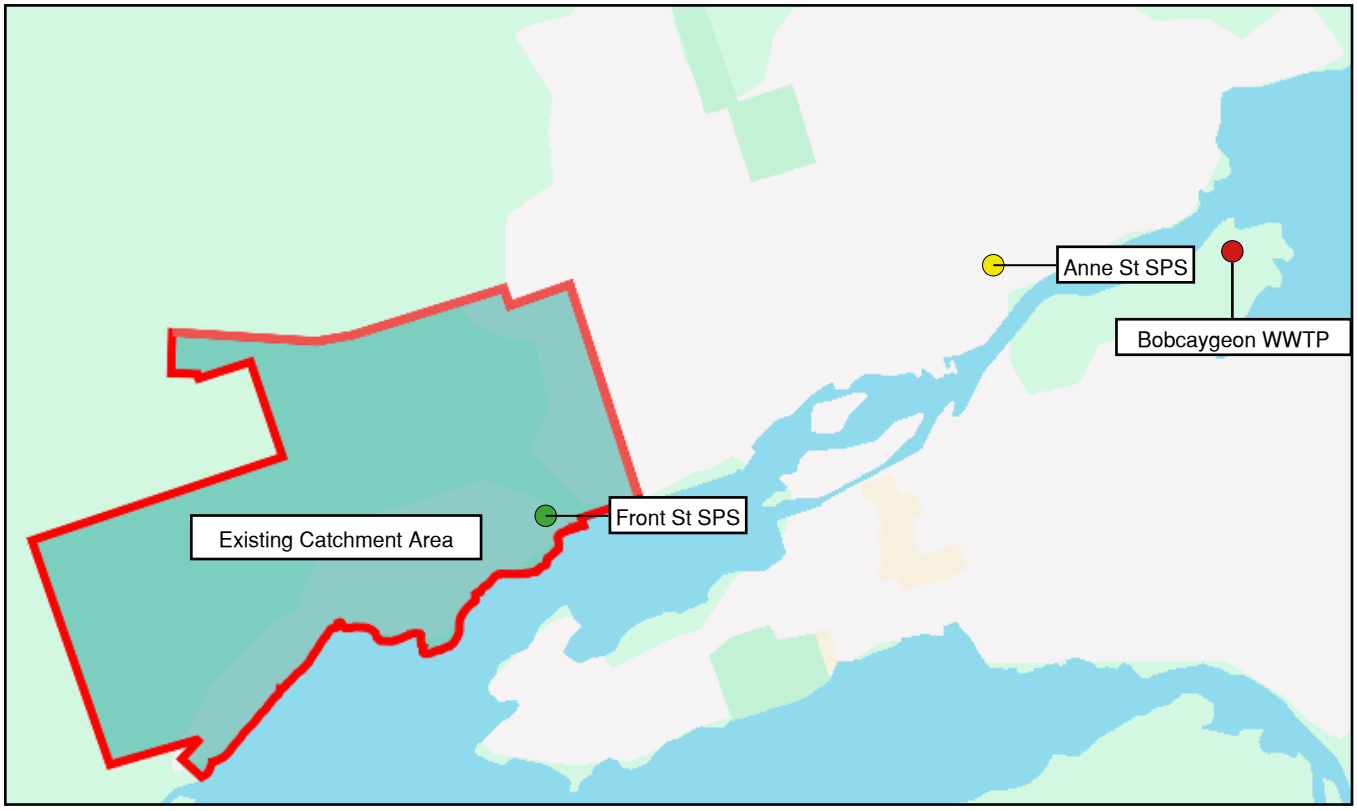


Figure 5 Existing Catchment Area

Capacity and Flow

- Projected peak flows: approximately 74 L/s.
- Existing pumps capacity: 13.9 L/s each, insufficient for projected flows.
- Existing forcemain maximum flow: about 40 L/s at 2.5 m/s velocity.
- Requirement to upgrade to larger pumps and larger diameter forcemain to meet future demands.

Electrical and Backup Systems

- Existing electrical system is aging.
- No emergency power generator.
- Upgrades needed to support larger pumps and additional equipment:
- Flow metering
- Automatic transfer switch for generator support.

Overflow Provisions

- No internal overflow in the station.
- In case of sewer backup, overflow occurs at West Street.
- Overflow flows by gravity into the Anne Street SPS system.

3.1.2.1 Existing And Future Sanitary Flows

Combined existing and future design flow = 74.02 L/s

Refer Appendix G for more details.

3.1.2.1.1 Recommendation

The recommended approach for the Front Street Sewage Pumping Station (SPS) project is to rehabilitate and upgrade the existing facility by improving pump capacity, piping, and integrating modern systems to address projected growth and ensure operational reliability. Key upgrades will include the installation of a new backup generator to address current emergency overflow limitations and provide robust reliability during outages. In parallel, the project proposes the construction of a new 250mm diameter forcemain to replace the existing force main, with the existing main to be safely removed. Velocity for 250mm diameter forcemain will be 2.34m/s. Allowing initial upgrades to meet near-term growth needs while incorporating provisions for full future build-out.

3.1.2.2 Existing Conveyance System

The Front Street Sewage Pumping Station (SPS), located adjacent to 200 Front Street West in Bobcaygeon, consists of a 2.4 m diameter x 7.5 m deep concrete wet well and is equipped with two submersible pumps, operating as one operating and one standby. Each pump has a rated capacity of 13.9 L/s at a total dynamic head (TDH) of 8.1 m, discharging flows through a 150 mm diameter PVC forcemain approximately 240 m in length to a downstream manhole at the intersection of Shea Street on Front Street West. The station does not currently include an overflow structure or a permanent emergency power generator. With a firm pumping capacity of 13.9 L/s, the station is adequate for existing flows of about 8.8 L/s; however, it is significantly undersized compared to the projected future design flow of 74.02 L/s, indicating that upgrades or replacement will be required to accommodate planned growth within the catchment.

3.1.2.3 Utilities

Utilities within the Front Street SPS Study Area support essential municipal services and infrastructure.

- Storm water Sewers- Manage and convey stormwater runoff from the surrounding area to prevent flooding and protect water quality.
- Sanitary Wastewater Sewers - Collect and transport sanitary sewage from residential, commercial, and industrial sources to the pumping station.
- Municipal Water - Provides potable water to homes, businesses, and public facilities within the study area.
- Hydro (Electricity) - Includes both overhead and underground electrical distribution

systems for reliable power supply.
- Natural Gas - Delivers natural gas for heating and energy requirements across the area.
- Telecommunications - Supports communication networks through wired and wireless infrastructure for residents and businesses.

3.2 Natural Environment

The Anne Street and Front Street SPS and Forcemain Project, are located within urbanized sections of Bobcaygeon, City of Kawartha Lakes. Both sites feature terrain comprised mainly of manicured lawns, municipal infrastructure, and developed lands, with remaining natural areas largely limited to corridors such as the Bobcaygeon River, a critical aquatic feature intersected by both proposed forcemains. Vegetation within the immediate project footprints is mostly ornamental or disturbed, with intact natural communities found predominantly outside the construction zones. Project-related activities will be confined primarily to previously developed land, thereby minimizing new ecological disturbance.

3.2.1 Aquatic Conditions

The primary aquatic feature in both Anne and Front Street project areas is the Bobcaygeon River, a segment of the Trent-Severn Waterway and recognized as a significant fish habitat. As Anne Street forcemain will cross this watercourse at East Street Bridge and at the location of the existing 96" culvert, several alternatives were evaluated. However, due to the shallow rock conditions in the area, we are proposing a utility bridge with an approximate span of 10-15 m to carry the 450 mm forcemain across Pigeon Lake. This approach ensures that no portion of Pigeon Lake is disturbed during construction.

Potential impacts include temporary increases in turbidity and sedimentation during construction, disturbance to the riverbed and banks, risks of accidental pollutant spills (e.g., fuels or hydraulic fluids), and disruption to fish during sensitive periods such as spawning and migration. Mitigation measures for both projects will include adhering to regulated in-water work timing windows (July 1 - March 31), continuous turbidity monitoring during construction. Isolating work areas with cofferdams, conducting fish salvage operations prior to in-water activities, restoring disturbed banks with native vegetation upon completion.

3.2.2 Terrestrial Conditions And Wildlife

Terrestrial environments at both Anne Street and Front Street SPS sites are characterized primarily by managed landscapes, including lawns and boulevard plantings. At 47 Anne Street, more than half of the property, particularly toward the rear of the lot, supports dense natural vegetation cover that has regenerated since 1980 and may need to be removed to accommodate the proposed SPS construction, as documented in the Natural Heritage Assessment. Provincially Significant Wetlands and significant woodlands remain absent from the immediate construction footprints; however, inland river associated with the Bobcaygeon River occur nearby and warrant

careful consideration in detailed design and mitigation planning.

3.2.2.1 Vegetation Communities

Vegetation across both sites primarily comprises manicured lawns and ornamental plantings. At Anne Street, a narrow band of Fresh-Moist Mixed Forest (FOM) ecological community was identified by the Ecological Land Classification (ELC) system; a similar FOM corridor exists adjacent to Front Street, underlying local ecological connectivity.

3.2.3 Wildlife

Wildlife observations documented during the May 2025 site inspections at Anne and Front Street included common urban and riparian species. River and shoreline habitats support nesting and foraging for species such as barn swallows, turtles, and aquatic fauna. The urban character of both sites limits species diversity and abundance; however, the Bobcaygeon River remains an important ecological corridor, especially for migratory birds and turtles.

3.2.4 Species At Risk

Desktop reviews and field surveys for both Anne and Front Street projects identified potential for several Species at Risk (SAR) including: Snapping Turtle (Chelydra serpentina), Midland Painted Turtle (Chrysemys picta marginata), Eastern Milksnake (Lampropeltis triangulum), Blue-spotted Salamander (Ambystoma laterale), Black Ash (Fraxinus nigra), Eastern Meadowlark (Sturnella magna), Eastern Wood-pewee (Contopus virens), and Canada Warbler (Cardellina canadensis). No SAR individuals were directly observed within the footprints, although suitable habitat exists locally. Mitigation actions applicable to both sites include:

- Pre-construction surveys for turtle nesting during May - July if work occurs near the river.
- Avoidance of tree and shrub removal during bird nesting season (April 1- August 31), unless a biologist confirms nests are inactive.
- If a SAR is encountered during construction, work pauses and authorities are notified for further action

3.2.5 Assessment Of Significance

Based on thorough field and desktop reviews, sites at Anne Street and Front Street are assessed as having low overall ecological significance due to urban modification and limited natural communities. However, the Bobcaygeon River is recognized as a significant natural corridor supporting Regionally Important Fish Habitat and potential SAR habitat. Implementation of mitigation measures including sedimentation/erosion control, timing restrictions, and environmental monitoring is expected to prevent significant long-term adverse effects

3.2.5.1 Provincially Ranked Species And Features

No Provincially Significant Wetlands, Significant Woodlands, or Areas of Natural and Scientific Interest (ANSIs) were observed directly within either project area. Black Ash, listed as Endangered, has potential habitat in the vicinity but was not recorded within construction limits.

3.2.5.2 Regionally Ranked Species And Features

The Bobcaygeon River is regionally significant for aquatic habitat. Beyond this, no additional regionally ranked terrestrial species or features were identified in either report other than the general ecological value of the river's riparian zone.

3.3 Geotechnical Characteristics

Geotechnical investigations at both Anne Street and Front Street SPS sites are ongoing. Regional water well records under the Ontario Water Resources Commission Act, 1957, Water Well Records have been reviewed to characterize subsurface and groundwater conditions.

Anne Street Subsurface Conditions

- Shale noted at shallow depths (surface to ~5 feet).
- Fractured grey limestone beneath shale (~5 to 21.5 feet).
- Fresh, hard limestone bedrock beyond these depths.
- Groundwater encountered at ~21.5 feet, static water level at ~16 feet.
- A nearby well showed groundwater at 14 feet and static level near 9 feet.

Front Street Subsurface Conditions

- Brown Clay stone identified from surface to ~14 feet.
- Hard grey limestone below clay stone (~14 to 17 feet).
- Seam grey limestone from ~17 to 18 feet.
- Limestone bedrock from ~18 to 20 feet.
- Groundwater found at ~20 feet, static water level near 12 feet.

Both areas are consistently characterized by overburden atop competent limestone bedrock. Groundwater is typically encountered 12-22 feet below grade, with static levels commonly rising to 9-16 feet. Additional site-specific investigations will supplement these regional data for the final engineering design.

3.4 Socio-Economic Environment

3.4.1 Existing Land Use

At Anne Street, the SPS project site currently includes a wet well, control building, standby

power supply, and monitoring system. The surrounding land uses are primarily residential and commercial. Additionally, there is a Hydro One electrical substation located on Anne Street, as well as another at 123 Boyd Street (adjacent to the WWTP), both classified as industrial/ commercial uses.

The forcemain from the Anne Street SPS to the WWTP is supported on a bridge hanger at East Street/Highway 36, then continues along Boyd Street before reaching the treatment plant. The Bobcaygeon River and Pigeon Lake, which the system traverses near, form part of the Parks Canada Trent-Severn Waterway, a designated historical site.

At Front Street, the SPS is located roughly 70 metres from the Bobcaygeon River shoreline on the Trent-Severn Waterway, situated within an opened road allowance and bordered by residences. The existing station comprises a 2.4 m diameter by 7.5 m deep concrete wet well and two submersible pumps (13.9 L/s capacity). This station's firm capacity meets present flows but is undersized for future projected flows, and notably lacks an overflow structure and permanent emergency generator.

3.4.2 Future Land Use

Both sites will be upgraded as critical elements of the sanitary collection system, enabling improved system efficiency and supporting projected growth. Enhanced facilities will provide the capacity to convey wastewater from new and existing developments to downstream trunk sewers and treatment facilities, and will include modern control buildings with robust power and monitoring systems to ensure ongoing performance.

3.5 Cultural Heritage Environment

3.5.1 Built Heritage Resources And Cultural Heritage Landscapes

Archaeological Research Associates Ltd. (ARA) conducted a comprehensive Cultural Heritage Assessment for the Anne Street and Front Street Sewage Pumping Station (SPS) Upgrades and associated Forcemain projects in the City of Kawartha Lakes, Ontario. The assessments form part of the Schedule B Municipal Class Environmental Assessment (MCEA) process, addressing potential impacts on cultural heritage resources arising from infrastructure upgrades required to accommodate projected population growth and future commercial development north of the Bobcaygeon River.

The assessments involved detailed reviews of known and potential Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) within and adjacent to the combined project areas. These reviews were supported by historical research, field surveys, and consultation with municipal staff and Indigenous communities. Field investigations were completed in June 2025, documenting a total of six BHRs, including two properties formally recognized by the City of Kawartha Lakes, the designated Edgewood Dry Stone Wall at 28 Boyd Street and the listed Edwardian residence known as Stonehenge at 46 Boyd Street.

The cultural and historical context developed through these assessments reflects both the enduring Indigenous presence and settlement patterns within the region, as well as Euro-Canadian developments dating back to the 19th century. The Anne Street and Front Street study areas encompass historically significant structures and landscapes that are closely associated with the evolution and growth of the Bobcaygeon community and the surrounding rural environment.

The assessments concluded that no direct physical impacts to identified heritage properties are anticipated, given that the construction works for both SPS sites will occur primarily within existing municipal rights-of-way. However, potential indirect effects such as vibration resulting from excavation activities and heavy equipment operations could pose risks to nearby heritage attributes. To mitigate these possible impacts, a series of conservation measures have been recommended, including:

- Avoidance of BHRs during construction staging, laydown, and equipment storage.
- Installation of temporary protective fencing along the property boundaries of all identified heritage resources.
- Engagement of qualified engineers to undertake vibration impact Zone of Influence (ZOI) studies where deemed necessary.
- Implementation of vibration monitoring protocols during construction, with defined threshold limits established to prevent structural damage to heritage features.
- Continuous consultation and monitoring throughout the project lifecycle to ensure adherence to heritage protection commitments.

The assessments also recommend that ongoing evaluation and heritage review be undertaken should any design modifications occur during detailed design or construction, ensuring that cultural heritage considerations continue to inform decision-making. In addition, both reports emphasize continued coordination with Indigenous communities and compliance with applicable municipal, provincial, and federal heritage legislation.

Overall, the Cultural Heritage Assessment for the Anne Street and Front Street SPS Upgrades confirms that, with the application of the recommended mitigation strategies and best management practices, the projects can proceed without causing significant adverse effects on identified or potential cultural heritage values. This approach ensures that the historical and cultural integrity of the study areas is preserved while enabling the delivery of essential wastewater infrastructure improvements to support the community's long-term growth and development.

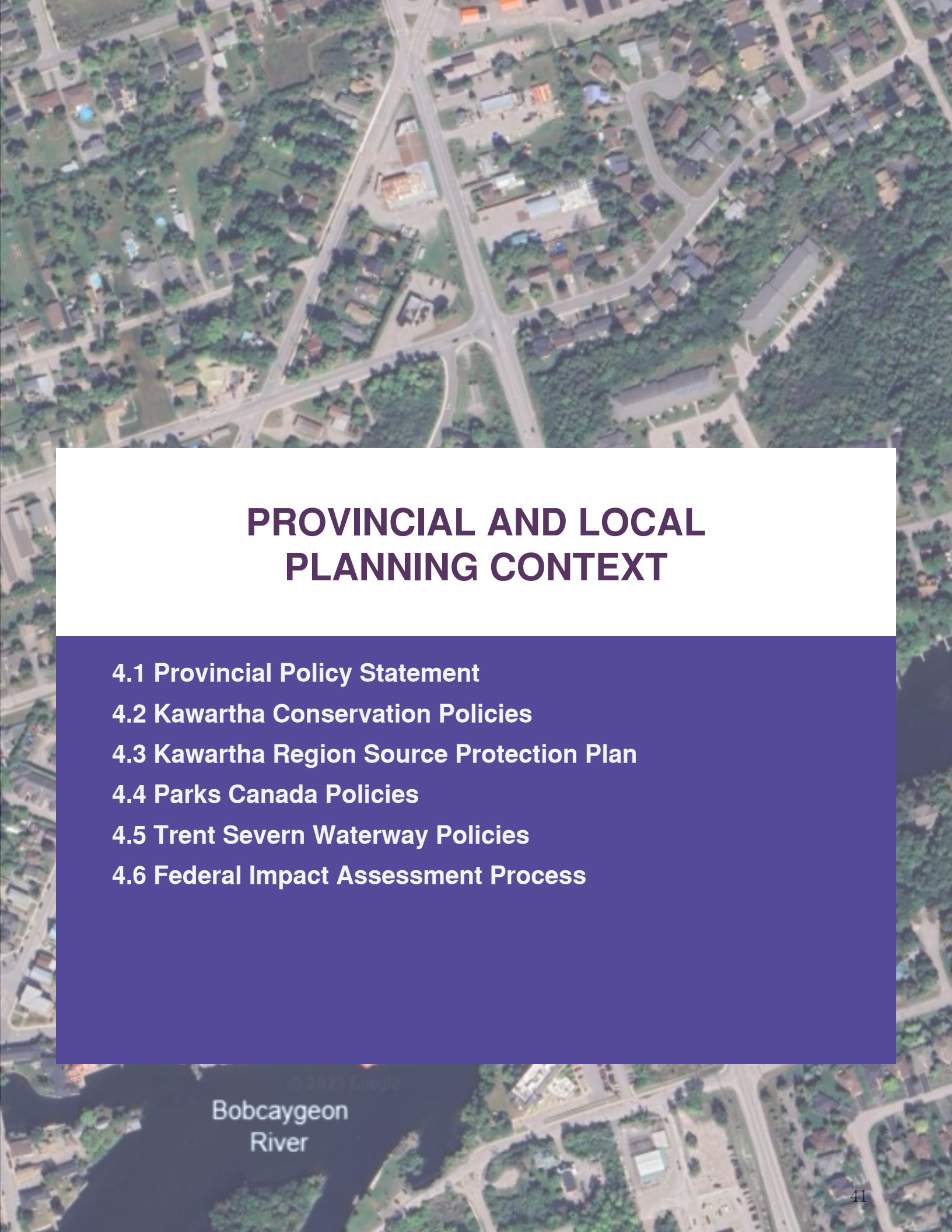
3.6 Archaeological Resources

Stantec Consulting Ltd. (Stantec) was retained by Concept Dash (the Client) to complete Stage 1-2 archaeological assessment for proposed sanitary pumping station (SPS) and forcemain improvements at 47 Anne Street and 123 Boyd Street, Bobcaygeon, City of Kawartha Lakes,Ontario (the Project). The Stage 1-2 archaeological assessment was undertaken in the preliminary planning and design process for an environmental assessment under the Municipal

Class Environmental Assessment process (Municipal Engineers Association 2024). The study area consists of two parcels, measuring 0.57 hectares in total, one at 47 Anne Street in the Town of Bobcaygeon, part of Lot 16, Concession 10, in the Geographic Township of Verulam, former County of Victoria; and the second at 123 Boyd Street, part of Lot 15, Concession 19, in the Geographic Township of Harvey, former Peterborough County, now City of Kawartha Lakes, Ontario.

The Stage 1-2 archaeological assessment was conducted on November 26, 2025, under Project Information Form number P4154-0617-2025 issued to Patrick Hoskins, MA, RPA, by the Ministry of Citizenship and Multiculturalism (MCM). Stage 1 background research determined that the study area retained potential for the identification and documentation of archaeological resources and thus Stage 2 survey was recommended. The Stage 2 survey was completed on November 26, 2025, with Lucas Hillcoat (R1145) as the Field Director.

The Stage 1-2 archaeological assessment of the study area identified no archaeological resources and as per Section 2.2 and Section 7.8.4 Standard 3 of the MCM's 2011 Standards and Guidelines



PROVINCIAL AND LOCAL PLANNING CONTEXT

4.1 Provincial Policy Statement
4.2 Kawartha Conservation Policies
4.3 Kawartha Region Source Protection Plan
4.4 Parks Canada Policies
4.5 Trent Severn Waterway Policies
4.6 Federal Impact Assessment Process

4. Provincial And Local Planning Context

4.1 Provincial Policy Statement

The Provincial Policy Statement (Provincial Policy Statement; 2020) provides provincial policy direction on matters related to land use planning and development that affect communities, such as ensuring the appropriate infrastructure is available to accommodate current and future needs. The Provincial Policy Statement applies to any land use planning decisions made under the Planning Act by municipal councils, local boards, planning boards, provincial ministers, provincial government and agency officials. Regional and municipal planning decisions are to be consistent with the policies of the Provincial Policy Statement.

The key sections of policies relevant to the Project are as follows:

- Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns;
- Coordination;
- Infrastructure and Public Service Facilities;
- Natural Heritage;
- Cultural Heritage and Archaeology; and
- Protecting Public Health and Safety.

Relevance to this Study: Pursuant to Provincial Policy Statement policy 1.2.1, the Project is consistent with the Provincial Policy Statement through the implementation of a coordinated, integrated and comprehensive approach to dealing with infrastructure. The Anne Street and Front Street sewage pumping stations, including the associated forcemains and sewer routing to the Bobcaygeon Wastewater Treatment Plant, will meet the current and projected needs of the city.

Subsection 1.6.6 of the Provincial Policy Statement outlines the policies for sewage. Policy 1.6.6.1 states Planning for sewage and water services shall:

A. Direct and accommodate expected growth or development in a manner that promotes the efficient use and optimization of existing:
   1. Municipal sewage services and municipal water services; and
   2. Private communal sewage services and private communal water services, where municipal sewage services and municipal water services are not available;

B. Ensure that these systems are provided in a manner that:
   1. Can be sustained by the water resources upon which such services rely;
   2. Is feasible, financially viable and complies with all regulatory requirements; and
   3. Protects human health and the natural environment;

C. Promote water conservation and water use efficiency;
D. Integrate servicing and land use considerations at all stages of the planning process; and
E. Be in accordance with the servicing hierarchy outlined through policies 1.6.6.2, 1.6.6.3, 1.6.6.4 and 1.6.6.5.

Consistent with Provincial Policy Statement policy 1.6.6.1, this Municipal Class Environmental Assessment includes the integration of municipal sewage servicing and land use considerations. The siting of sewage pumping station alternatives considered, among other factors, existing and planned land uses. All of the Project Alternatives were also reviewed on the basis of their feasibility, cost and compliance with regulatory requirements.

4.2 Kawartha Conservation Policies

Section 2 of Ontario Regulation 319/09 prohibits construction and operational activities within or adjacent to areas prone to flooding, erosion, or unstable stream valleys, as well as within 120 meters of Provincially Significant Wetlands and 30 meters of other wetlands. Any infrastructure works involving site alterations to shorelines or watercourses in these regulated zones must consider potential impacts on the hydrologic functions of these sensitive features. Consequently, infrastructure projects within Kawartha Conservation's regulated areas are required to obtain all necessary permits and approvals prior to commencement. This includes submitting an Environmental Impact Study for any work proposed within wetlands larger than 2 hectares, as part of the application process under the Conservation Authorities Act and associated regulations to ensure compliance with environmental protection standards.

4.3 Kawartha Region Source Protection Plan

The City of Kawartha Lakes is committed to integrating a Secondary Plan for the Bobcaygeon settlement area to guide future infrastructure expansion while preserving the area's natural heritage, historic character, and streetscapes. This plan will establish preferred land use patterns, density, and define servicing and transportation capacities and requirements. Until the Secondary Plan is finalized, infrastructure projects must be planned and implemented to align with the objectives and intent of the Secondary Plan framework.

The Kawartha Region Source Protection Plan establishes critical conditions to safeguard drinking water sources during the planning and execution of new municipal infrastructure and works. Key policy requirements include:

- Infrastructure projects located within Wellhead Protection Areas (WHPAs) and Intake Protection Zones (IPZs) must undergo review for potential impacts to drinking water and may be subject to a Risk Management Plan under the Clean Water Act.
- New or expanded sewage and stormwater infrastructure in these vulnerable zones must prioritize connection to municipal sewage systems where feasible to minimize groundwater contamination risks.
- Where municipal connections are not feasible, such infrastructure must conform to

stringent technical standards and may only proceed with appropriate mitigation measures to prevent significant drinking water threats.

- Activities posing significant drinking water risks such as the storage of chemicals, bulk fuels, application of road salts, or pesticide handling are strictly regulated or prohibited within vulnerable areas according to risk-based policies.
- Stormwater management systems within these zones must be designed to divert runoff outside vulnerable areas whenever possible and rigorously demonstrate protection of source water quality.
- Infrastructure proponents may be required to obtain a Source Protection Notice or consult with a Risk Management Official before receiving design or construction approvals, particularly if projects involve regulated activities or lie within delineated vulnerable zones.
- The city and proponents are encouraged to adopt best management practices, enter stewardship agreements, and where applicable, utilize conservation easements to protect the most sensitive vulnerable areas during infrastructure planning and implementation.

**This policy summary is derived from the City of Kawartha Lakes Official Plan and Official Plan Amendment No. 35 Source Water Protection.*

4.4 Parks Canada Policies

Parks Canada policies emphasize the protection and conservation of cultural heritage resources and natural landscapes within and adjacent to national parks and heritage sites. Infrastructure projects must ensure minimal adverse effects on designated heritage resources, including archaeological sites and built heritage. Where projects affect areas under Parks Canada's management or influence, there is a requirement for early consultation, adherence to heritage conservation guidelines, and implementation of mitigation measures to preserve the cultural and environmental integrity of these spaces. The project will coordinate with Parks Canada to manage any potential impacts on heritage landscapes or cultural resources identified during the environmental assessment.

4.5 Trent Severn Waterway Policies

The Trent Severn Waterway (TSW) policies guide the sustainable management and protection of waterway systems, including aquatic habitats, shorelines, and adjacent lands. Projects involving infrastructure near or crossing the waterway must comply with TSW regulations aimed at preserving water quality, fish and wildlife habitats, and recreational values. The Anne Street and Front Street SPS and forcemain upgrade projects will implement best management practices to prevent sedimentation, control erosion, and protect aquatic ecosystems, especially during in-water works. All planned works will be aligned with TSW staff recommendations to ensure safe and environmentally responsible construction activities adjacent to or within the waterway.

4.6 Federal Impact Assessment Process

Infrastructure projects under federal jurisdiction must comply with the Federal Impact Assessment (IA) process, which evaluates potential environmental, social, and health effects of the project. This process involves collaboration among federal agencies, Indigenous communities, and stakeholders to ensure thorough assessment and public participation. For the Anne Street and Front Street SPS project, compliance with federal legislation such as the Fisheries Act and the Species at Risk Act is mandatory. Where applicable, measures to avoid, mitigate, or compensate for adverse effects will be documented, and all necessary permits or authorizations will be secured prior to construction commencement.

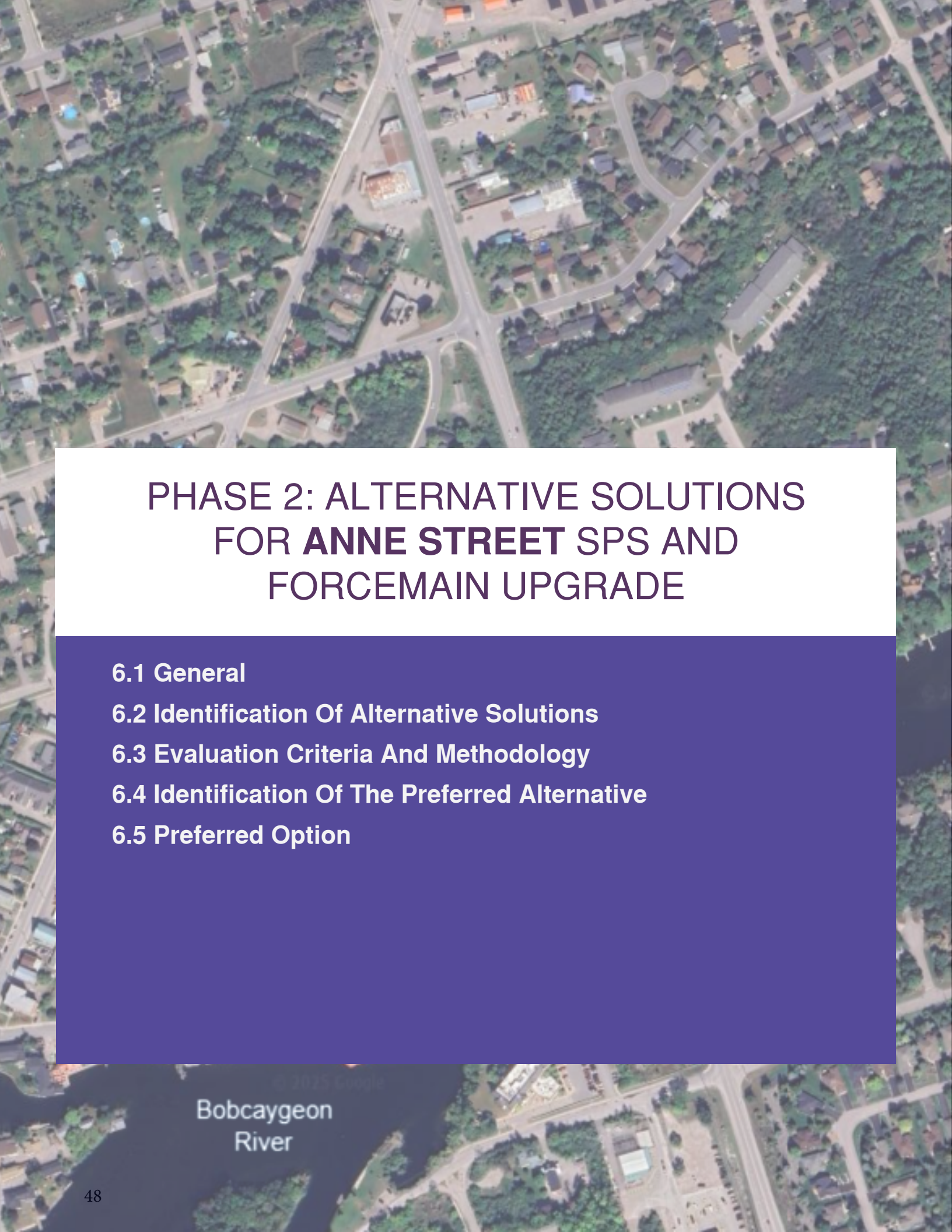
Additionally, the project is being executed within the scope of pre-approved types of construction defined by Parks Canada for activities within the Trent-Severn Waterway National Historic Site, ensuring compliance with their specific requirements and preservation mandates.

PHASE 1: PROBLEM OR OPPORTUNITY STATEMENT

5. Phase 1: Problem Or Opportunity Statement

Phase 1 of the five-phase Municipal Class EA planning process requires the proponent of an undertaking (i.e., the City) to first document factors leading to the conclusion that the improvement is needed, and to develop a clear statement of the identified problems or opportunities to be addressed. As such, the Problem/Opportunity Statement is the main starting point in the undertaking of a MCEA and becomes the central theme and integrating element of the Project. It also assists in setting the scope of the Project. The following problem or opportunity statement has been developed for this study:

- The intent of this study is to review upgrade and expansion requirements for the Anne Street and Front Street Sanitary Sewer Pumping Station, Forcemain and associated infrastructure to address age and expected lifespan as well as to meet current standards.
- The objective is to determine a preferred solution for the Sanitary Sewer Pumping Station that meets the needs of existing customers and future development in the area while considering environmental effects



PHASE 2: ALTERNATIVE SOLUTIONS FOR **ANNE STREET** SPS AND FORCEMAIN UPGRADE

6.1 General

6.2 Identification Of Alternative Solutions

6.3 Evaluation Criteria And Methodology

6.4 Identification Of The Preferred Alternative

6.5 Preferred Option

6. Phase 2: Alternative Solutions For Anne Street SPS And Forcemain Upgrade

6.1 General

The Class EA process requires the identification and evaluation of alternative solutions to address the identified problem and opportunity statement. The Problem and Opportunity statement has identified the need to address sewage capacity and operational deficiencies in the Anne Street SPS Sewage Pumping station and Forcemain.

Alternative Solutions were assessed on the basis of a comprehensive set of factors and criteria that reflected the following considerations:

- Provincial and federal government legislation, policies and guidelines.
- Municipal policy.
- Existing and future social, economic, cultural and traffic conditions within the study area.
- Issues and concerns identified during consultation with ministries, agencies, municipalities, ratepayer and interest groups, local community and the general public; and
- Study team investigations and expertise.
- A number of planning alternatives were identified and subjected to a screening process typically used for projects of this complexity.

6.2 Identification Of Alternative Solutions

The following list of Alternative Solutions was identified as having potential to address the problems and opportunities within the study area. The alternatives have been divided into two parts, SPS Upgrades and Forcemain Upgrades.

6.2.1 SPS

6.2.1.1 Do Nothing

This option refers to keeping status quo, potentially delaying or avoiding necessary maintenance, repairs, and/or capacity expansions

6.2.1.2 Rehabilitate and Upgrade Existing SPS

- **Rehabilitate Existing SPS by Increasing Pump Capacity -**
  Option involves rehabilitating existing infrastructure to address any deterioration or damage, increasing the capacity of the current pumps to handle larger volumes of wastewater, installing additional pumps to increase overall pumping capacity, and upgrading the wet

well to improve flow control and reduce the risk of flooding or overflows. A thorough evaluation of each option will be conducted to determine the most cost-effective and sustainable solution for meeting the current and future needs of the City.

- **Rehabilitate Existing SPS by Installing Additional Pumps -**
  This option proposes to rehabilitate existing Sewage Pumping Stations (SPS) by installing additional pumps to enhance capacity and improve overall wastewater conveyance. By increasing pumping capacity, the system can effectively handle increased flow volumes, reduce overflows and backups, and minimize the risk of environmental contamination.
- **Rehabilitate Existing SPS by Upgrading wet well -**
  This option proposes to rehabilitate the existing Sewage Pumping Station (SPS) to improve its efficiency and reliability. The core of this rehabilitation effort lies in upgrading the existing wet well. By implementing strategic modifications to the wet well, such as optimizing its size and shape, enhancing its flow characteristics, and incorporating modern technologies like level sensors and alarm systems, we aim to mitigate operational challenges, reduce maintenance requirements, and ensure the long-term sustainability of the SPS.

6.2.1.3 Maintain Existing SPS And Build New SPS For Additional flows

To address the growing demand and ensure the reliable and efficient operation of the sewage system, two primary upgrade options are being considered: (1) Maintaining the existing SPS while adding a new, independent station to augment capacity; and (2) Completely decommissioning the existing station and replacing it with a modern, high-capacity SPS. This analysis will evaluate the feasibility, costs, environmental impacts, and operational advantages of each option to determine the most suitable solution for the long-term needs

6.2.1.4 Construct A Single New SPS

Completely decommissioning the existing station and replacing it with a modern, high-capacity SPS. Constructing a new sewage pumping station presents a comprehensive solution to address the limitations of the current system.

This approach offers the opportunity to incorporate modern technologies, such as energy-efficient pumps and advanced control systems, resulting in improved operational efficiency and reduced environmental impact. A new station can be designed to accommodate future growth and demands, ensuring the long-term sustainability of the sewage infrastructure and enhancing the overall quality of life for the City.

Carry Out Additional Upgrades

A. Add the back-up power generator
B. Provide onsite emergency storage capacity
C. Upgrades/ Maintenance of appurtenances of SPS, Electrical and mechanical equipment.
D. Implement Advanced Control Systems

6.2.2 Forcemain

6.2.2.1 Do Nothing

This option suggests no upgrades to the existing condition; it essentially involves deferring necessary maintenance or repairs to the existing Forcemain.

6.2.2.2 Construct New Single Forcemain And Abandon Existing

Option is to construct a new, single Forcemain to replace the aging and inadequate existing infrastructure for future flows. Approach involves the installation of a modern, high-capacity Forcemain designed to efficiently convey sewage to the treatment plant. Upon constructing new Forcemain, the existing lines will be abandoned in a safe and environmentally responsible manner, minimizing potential risks and improving the overall system reliability and efficiency.

6.2.2.3 Build New Forcemain And Rehabilitate Existing

Rehabilitation:

Option to enhance the capacity and resilience of the existing Sewage Pumping Station by implementing a two-pronged approach. Firstly, the existing forcemain will undergo comprehensive rehabilitation to address any existing deficiencies and optimize its performance.

New Construction:

A new forcemain will be constructed to augment the existing capacity, providing crucial redundancy in the event of unforeseen disruptions or increased flow demands. This dual strategy will ensure the reliable and efficient conveyance of sewage, mitigating the risk of overflows and improving overall system performance.

Hybrid Approach (Rehabilitate and Construct New):

- Balanced Approach: Combines the benefits of both strategies.
- Optimized System: Improved reliability and capacity.
- Phased Implementation: Allows for a more gradual and manageable approach.

6.2.2.4 Build New Twin Forcemain And Abandon Existing

This option involves a comprehensive upgrade to the existing sewage pumping station by constructing two new, larger diameter forcemain alongside the existing infrastructure. This approach aims to significantly enhance the system's capacity, improve flow efficiency, and reduce the risk of blockages and overflows. Upon completion of the new forcemain, the existing line will be decommissioned and abandoned in place, minimizing the need for extensive excavation and disruption while ensuring continued service during construction.

6.2.2.5 Realign The Forcemain And Abandon The Existing

This option proposes a significant upgrade to the existing sewage pumping station by realigning the forcemain and abandoning the existing pipeline. This approach aims to address operational challenges, improve system efficiency, and enhance long-term sustainability. By realigning the forcemain, the project seeks to optimize the flow path, reduce energy consumption, and minimize maintenance requirements. Abandoning the existing forcemain will eliminate potential risks associated with aging infrastructure, such as leaks, blockages, and structural failures, thereby improving overall system reliability and reducing the risk of environmental contamination.

6.3 Evaluation Criteria And Methodology

Each category above will be assigned a Relative Weights in the Evaluation Matrix based on its criticality and importance. The total Relative Weights for all categories would be 100%. The alternatives will be scored for each of the criteria based on the level of achieving the requirements of the criteria. The scoring values would be between 1 and 5 as shown in the Table 1:

Evaluation criteria are standards or principles used to assess the merit to provide a framework for making decision for option suitability. Each of the alternatives mentioned in section will be evaluated based on criteria included in the following five categories:

Sr.no	Description	Rating out of 5
1	Significant impacts, Highest costs, least preferred	1
2	Moderate impacts, Modest costs	2
3	Low impacts, Marginal costs	3
4	Minimal impacts, Meets expectations	4
5	Insignificant impacts, lowest costs	5

Table 2: Weights and Scoring

1. Technical:
   A. Future Flow Requirement
   B. Robust design & Materials
   C. Impact of inflow and infiltration on capacity
   D. Health and Safety Concerns

2. Financial:
   A. Capital Costs

B. Annual Operation and Maintenance Costs
C. Land acquisition

3. Environmental:
   A. Impact on Natural Environmental
   B. Impact to Private Property/Owners
   C. Energy Usage

4. Social Factors
   A. Cultural Heritage Evaluation
   B. Archaeological Assessment
   C. Architectural and Urban Design

5. Compliance:
   A. Noise
   B. Odour
   C. Construction Nuisances
   D. Access and Confined Space Entry
   E. Meets Design Guidelines
   F. Permits and Approvals

The alternatives were assessed using a criteria-based summary of comparative evaluation. This method identifies and highlights the differences in net impacts associated with the various alternatives. The relative significance of the impacts has been examined to provide a clear rationale for the selection of a preferred alternative solution.

The matrix presents the assessment table used to evaluate the Alternative Solutions for SPS and Forcemain upgrade. Through evaluation criteria, technical considerations, cultural, socio-economic and natural environments are used to evaluate and compare impacts of each of the Alternative Solutions. A recommendation was made for the Preferred Alternative Solution based on the results presented in this table (See appendix 1), presented at PIC

6.4 Identification Of The Preferred Alternative

As part of Phase 2 of the Class EA process, several alternatives have been developed to address the problem/opportunity statement. A Preliminary Screening was conducted to eliminate alternatives that would not meet the basic criteria below

- Screening Criteria No. 1 - Does the Alternative address the need to provide additional system capacity to service population growth
- Screening Criteria No. 2 - Does the Alternative meet the minimum technical requirement?
- Screening Criteria No. 3 - Can the Alternative be implemented without significant impacts that mitigation measures could not address?

6.4.1 Alternatives Evaluation Matrix

Rating Score	Evaluation Criteria			
	Financial	Environmental	Social & Cultural	Technical & Regulatory Compliance
5 Most Preferred	Low Impact	Low Impact	Low Impact	High Technical Merit
4 Moderately to Highly Preferred	Low to Moderate Impact	Low to Moderate Impact	Low to Moderate Impact	Moderate to High Technical Merit
3 Moderately Preferred	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Technical Merit
2 Less Preferred	Moderate to High Impact	Moderate to High Impact	Moderate to High Impact	Low to Moderate Technical Merit
1 Least Preferred	High Impact	High Impact	High Impact	Low Technical Merit

Table 3: Evaluation Criteria

Each of the alternatives is evaluated based on their potential impact on the environment (Financial, Natural Environment, Social and Cultural Environment; Technical and Compliance), with "Low Impact" as the most preferable result and High Impact as the least preferable result, ensuring sustainable and responsible decision-making. Low impact as the most preferable result and "High Impact" as the least preferable result.

6.4.1.1 Anne Street SPS Alternative Evaluation

Evaluation Criteria	Do Nothing	Rehabilitate and upgrade existing for additional flows	Maintain Existing SPS & Build new SPS for additional flows	Construct a single new SPS
Financial • Capital cost • Annual Operation and Maintenance Costs • Land Acquisition Costs	4	4.3	3.67	4
Technical • Meets future Capacity Requirements • Provides Robust Design & Material • Impact of inflow and infiltration on capacity • Health & Safety Requirements	1.5	2.5	4	4 .75
Natural Environment • Impact on Natural Environment • Impact to Private Property • Energy usage	2	3	3.33	3.67
Social & Cultural Environment • Cultural Heritage Evaluation • Archaeological Assessment • Architectural and Urban Design	3	3.33	3	4
Compliance • Noise • Odour • Construction Nuisances • Access and Confined Space Entry • Meets Design Guidelines • Permits and Approvals	2	3	2.5	4
Overall Score	12.5	16.16	16.5	20.9

Table 4: Anne Street SPS Alternative Evaluation

The table summarizes the evaluation of SPS upgrade alternatives across financial, technical, environmental, and social criteria. The "Construct a single new SPS" option achieves the highest overall score, indicating it best meets capacity, regulatory, and sustainability requirements among all options considered.

6.4.1.2 Anne Street Forcemain Alternative Evaluation

Evaluation Criteria	Do nothing	Construct New Single FM And Rehabilitate Existing	Construct New twin FM	Construct single larger FM and remove existing	Realign the forcemain and abandon Existing
Financial • Capital cost • Annual Operation and Maintenance Costs • Land Acquisition Costs	4	4	3.67	4	3
Technical • Meets future Capacity Requirements • Provides Robust Design & Material • Impact of inflow and infiltration on capacity • Health & Safety Requirements	1.75	4.5	5	5	3.8
Natural Environment • Impact on Natural Environment • Impact to Private Property • Energy usage	3	3.3	4.6	4	3.5
Social & Cultural Environment • Cultural Heritage Evaluation • Archaeological Assessment • Architectural and Urban Design	3.5	3.5	4	4	3.5
Compliance • Noise • Odour • Construction Nuisances • Access and Confined Space Entry • Meets Design Guidelines • Permits and Approvals	2	3	3.5	5	4
Overall Score	14.25	18.3	20.77	22	17.8

Table 5: Anne Street Forcemain Alternative Evaluation

The table provides a comparative evaluation of forcemain upgrade alternatives based on financial, technical, environmental, and social criteria. The "Construct a single larger FM" option scores highest overall, demonstrating superior performance in capacity, regulatory compliance, environmental protection, and community impact among all alternatives analyzed.

6.5 Preferred Option

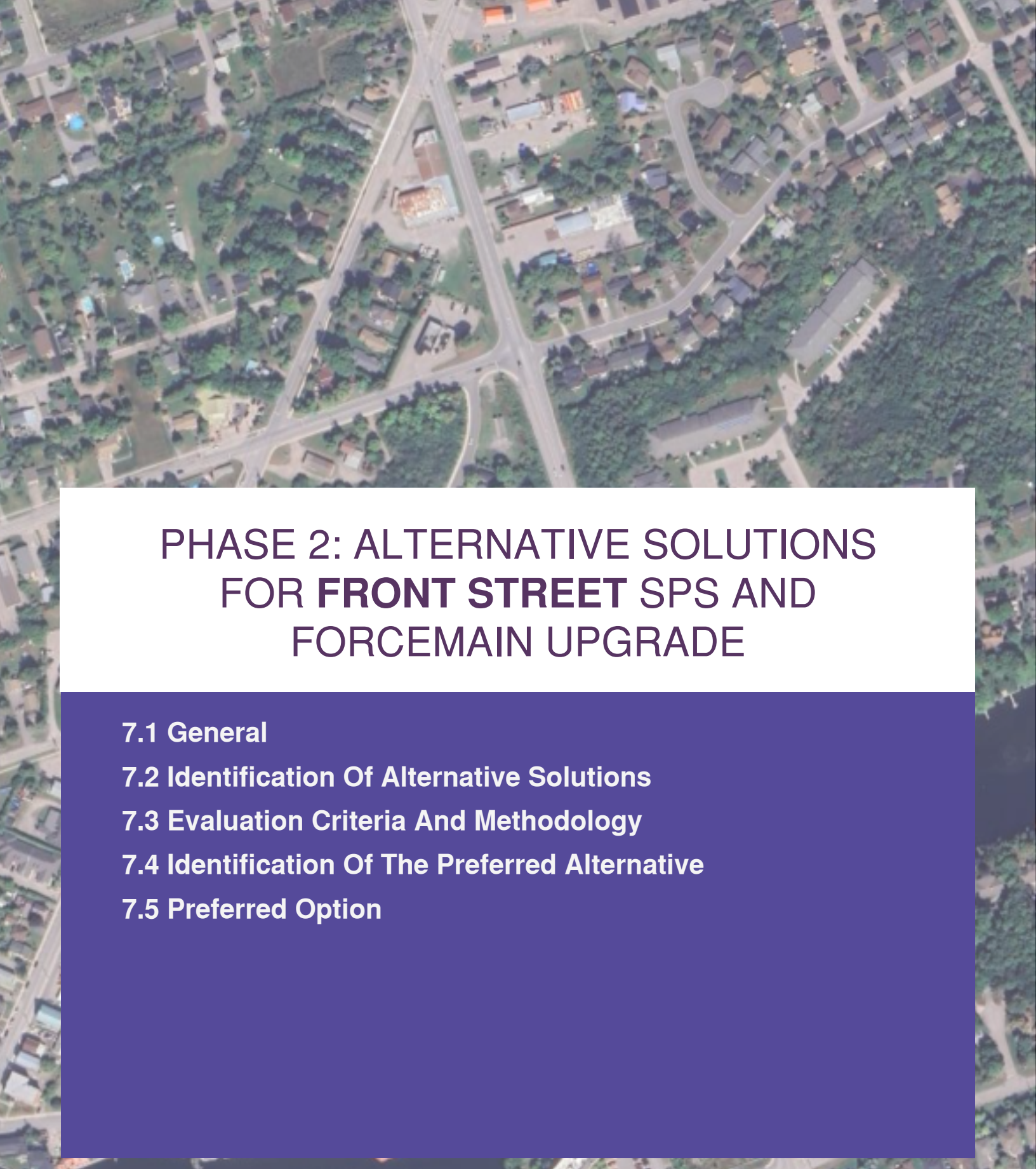
Construct a single new SPS that meets all future flow requirements within the Existing Site

- Meets operational requirement of 313 L/s rated capacity and improved reliability.
- Emergency Overflow limitations are addressed with a New Back-up Generator.

Construct new single Forcemain

- New, 450mm diameter single force main to replace the existing force main for sewage flows from Anne Street SPS
- Maintain the existing 300mm diameter force main east from Navigator Trail following rehabilitation to convey sewage from SPS #7

Estimated Capital cost: $ 9.5 M, Refer Appendix H for more details.
Proposed Construction: Starting 2027



PHASE 2: ALTERNATIVE SOLUTIONS FOR **FRONT STREET** SPS AND FORCEMAIN UPGRADE

7.1 General

7.2 Identification Of Alternative Solutions

7.3 Evaluation Criteria And Methodology

7.4 Identification Of The Preferred Alternative

7.5 Preferred Option

7. Phase 2: Alternative Solutions For Front Street SPS And Forcemain Upgrade

7.1 General

The Class EA process requires the identification and evaluation of alternative solutions to address the identified problem and opportunity statement. The Problem and Opportunity statement has identified the need to address sewage capacity and operational deficiencies in the Front Street SPS Sewage Pumping station and Forcemain.

Alternative Solutions were assessed on the basis of a comprehensive set of factors and criteria that reflected the following considerations:

- Provincial and federal government legislation, policies and guidelines.
- Municipal policy.
- Existing and future social, economic, cultural and traffic conditions within the study area.
- Issues and concerns identified during consultation with ministries, agencies, municipalities, ratepayer and interest groups, local community and the general public; and
- Study team investigations and expertise.

A number of planning alternatives were identified and subjected to a screening process typically used for projects of this complexity.

7.2 Identification of Alternative Solutions

The following list of Alternative Solutions was identified as having potential to address the problems and opportunities within the study area. The alternatives have been divided into two parts, SPS Upgrades and Forcemain Upgrades.

7.2.1 SPS

7.2.1.1 Do Nothing

This option refers to keeping status quo, potentially delaying or avoiding necessary maintenance, repairs, and/or capacity expansions

7.2.1.2 Rehabilitate And Upgrade Existing SPS For Additional Flows

Rehabilitate Existing SPS by Installing new Pumps of higher capacity -
This Alternative proposes to rehabilitate existing Sewage Pumping Stations (SPS) by installing

new pumps to enhance capacity and improve overall wastewater conveyance. By increasing pumping capacity, the system can effectively handle increased flow volumes, reduce overflows and backups, and minimize the risk of environmental contamination.

Rehabilitate Existing SPS by Upgrading wet well -
This option proposes to rehabilitate the existing Sewage Pumping Station (SPS) to improve its efficiency and reliability. The core of this rehabilitation effort lies in upgrading the existing wet well. By implementing strategic modifications to the wet well, such as optimizing its size and shape, enhancing its flow characteristics, and incorporating modern technologies like level sensors and alarm systems, we aim to mitigate operational challenges, reduce maintenance requirements, and ensure the long-term sustainability of the SPS.

7.2.1.3 Maintain Existing SPS And Build New SPS for Additional Flows

To address the growing demand and ensure the reliable and efficient operation of the sewage system, two primary upgrade options are being considered: (1) Maintaining the existing SPS while adding a new, independent station to augment capacity; and (2) Completely decommissioning the existing station and replacing it with a modern, high-capacity SPS. This analysis will evaluate the feasibility, costs, environmental impacts, and operational advantages of each option to determine the most suitable solution for the long-term needs

7.2.1.4 Relocate New SPS to Better Site

Completely decommissioning the existing station and replacing it with a modern, high-capacity SPS. Constructing a new sewage pumping station presents a comprehensive solution to address the limitations of the current system.

This approach offers the opportunity to incorporate modern technologies, such as energy-efficient pumps and advanced control systems, resulting in improved operational efficiency and reduced environmental impact. A new station can be designed to accommodate future growth and demands, ensuring the long-term sustainability of the sewage infrastructure and enhancing the overall quality of life for the City.

7.2.2 Forcemain

7.2.2.1 Do Nothing

This option suggests no upgrades to the existing condition; it essentially involves deferring necessary maintenance or repairs to the existing Forcemain.

7.2.2.2 Rehabilitate Existing Forcemain And Construct New Forcemain

Option involves a comprehensive upgrade to the existing sewage pumping station by

constructing new, larger diameter forcemain. This approach aims to significantly enhance the system's capacity, improve flow efficiency, and reduce the risk of blockages and overflows. Upon completion of the new forcemain, the existing line will be decommissioned and rehabilitated in place, minimizing the need for extensive excavation and disruption while ensuring continued service during construction.

7.2.2.3 Build New Twin Forcemain

A new forcemain will be constructed to augment the existing capacity, providing crucial redundancy in the event of unforeseen disruptions or increased flow demands. This dual strategy will ensure the reliable and efficient conveyance of sewage, mitigating the risk of overflows and improving overall system performance.

7.2.2.4 Construct New Single Forcemain And Abandon Existing

Option is to construct a new, single Forcemain to replace the aging and inadequate existing infrastructure for future flows. Approach involves the installation of a high-capacity Forcemain designed to efficiently convey sewage to Anne st SPS. Upon constructing new Forcemain, the existing lines will be removed in a safe and environmentally responsible manner, minimizing potential risks and improving the overall system reliability and efficiency.

7.3 Evaluation Criteria And Methodology

Each category above will be assigned a Relative Weight in the Evaluation Matrix based on its criticality and importance. The total Relative Weights for all categories would be 100%. The alternatives will be scored for each of the criteria based on the level of achieving the requirements of the criteria. The scoring values would be between 1 and 5 as shown in the Table 1:

Evaluation criteria are standards or principles used to assess the merit to provide a framework for making decision for option suitability. Each of the alternatives mentioned in section will be evaluated based on criteria included in the following five categories:

Sr.no	Description	Rating out of 5
1	Significant impacts, Highest costs, least preferred	1
2	Moderate impacts, Modest costs	2
3	Low impacts, Marginal costs	3
4	Minimal impacts, Meets expectations	4
5	Insignificant impacts, lowest costs	5

Table 6: Weights and Scoring

1. Technical:
   A. Future Flow Requirement
   B. Robust design & Materials
   C. Impact of inflow and infiltration on capacity
   D. Health and Safety Concerns

2. Financial:
   A. Capital Costs
   B. Annual Operation and Maintenance Costs
   C. Land acquisition

3. Environmental:
   A. Impact on Natural Environmental
   B. Impact to Private Property/Owners
   C. Energy Usage

4. Social Factors
   A. Cultural Heritage Evaluation
   B. Archaeological Assessment
   C. Architectural and Urban Design

5. Compliance:
   A. Noise
   B. Odour
   C. Construction Nuisances
   D. Access and Confined Space Entry
   E. Meets Design Guidelines
   F. Permits and Approvals

The alternatives were assessed using a criteria-based summary of comparative evaluation. This method identifies and highlights the differences in net impacts associated with the various alternatives. The relative significance of the impacts has been examined to provide a clear rationale for the selection of a preferred alternative solution.

The matrix presents the assessment table used to evaluate the Alternative Solutions for SPS and Forcemain upgrade. Through evaluation criteria, technical considerations, cultural, socio- economic and natural environments are used to evaluate and compare impacts of each of the Alternative Solutions. A recommendation was made for the Preferred Alternative Solution based on the results presented in this table (See appendix 1), presented at PIC

7.4 Identification Of The Preferred Alternative

As part of Phase 2 of the Class EA process, several alternatives have been developed to address the problem/opportunity statement. A Preliminary Screening was conducted to

eliminate alternatives that would not meet the basic criteria below

- Screening Criteria No. 1 - Does the Alternative address the need to provide additional system capacity to service population growth
- Screening Criteria No. 2 - Does the Alternative meet the minimum technical requirement?
- Screening Criteria No. 3 - Can the Alternative be implemented without significant impacts that mitigation measures could not address?

7.4.1 Alternatives Evaluation Matrix

Rating Score	Evaluation Criteria			
	Financial	Environmental	Social & Cultural	Technical & Regulatory Compliance
5 Most Preferred	Low Impact	Low Impact	Low Impact	High Technical Merit
4 Moderately to Highly Preferred	Low to Moderate Impact	Low to Moderate Impact	Low to Moderate Impact	Moderate to High Technical Merit
3 Moderately Preferred	Moderate Impact	Moderate Impact	Moderate Impact	Moderate Technical Merit
2 Less Preferred	Moderate to High Impact	Moderate to High Impact	Moderate to High Impact	Low to Moderate Technical Merit
1 Least Preferred	High Impact	High Impact	High Impact	Low Technical Merit

Table 7: Evaluation Criteria

Each of the alternatives is evaluated based on their potential impact on the environment (Financial, Natural Environment, Social and Cultural Environment; Technical and Compliance), with "Low Impact" as the most preferable result and High Impact as the least preferable result, ensuring sustainable and responsible decision-making. Low impact as the most preferable result and "High Impact" as the least preferable result.

7.4.1.1 Front Street SPS Alternative Evaluation

Evaluation Criteria	Do Nothing	Rehabilitate and upgrade existing SPS for additional flows	Maintain Existing SPS & Build new SPS for additional flows	Relocate New SPS to better site
Financial • Capital cost • Annual Operation and Maintenance Costs • Land Acquisition Costs	4	4.55	3.67	2
Technical • Meets future Capacity Requirements • Provides Robust Design & Material • Impact of inflow and infiltration on capacity • Health & Safety Requirements	1.5	4	4	4
Natural Environment • Impact on Natural Environment • Impact to Private Property • Energy usage	2	4	3.33	3
Social & Cultural Environment • Cultural Heritage Evaluation • Archaeological Assessment • Architectural and Urban Design	3	4.2	3	4
Compliance • Noise • Odour • Construction Nuisances • Access and Confined Space Entry • Meets Design Guidelines • Permits and Approvals	2	4	2.5	4
Overall Score	12.5	**20.97**	16.5	17

Table 8: Front St SPS Alternative Evaluation

The table summarizes the evaluation of SPS upgrade alternatives across financial, technical, environmental, and social criteria. The "Rehabilitate and upgrade existing SPS for additional flows" option achieves the highest overall score, indicating it best meets capacity, regulatory, and sustainability requirements among all options considered.

7.4.1.2 Front Street Forcemain Alternative Evaluation

Evaluation Criteria	Do Nothing	Rehabilitate existing FM and construct an additional "twin" FM	Construct new "twin" FMs	Construct a single larger FM
Financial • Capital cost • Annual Operation and Maintenance Costs • Land Acquisition Costs	4	4	3.67	4
Technical • Meets future Capacity Requirements • Provides Robust Design & Material • Impact of inflow and infiltration on capacity • Health & Safety Requirements	1.75	4.5	5	5
Natural Environment • Impact on Natural Environment • Impact to Private Property • Energy usage	3	3.33	4.6	4
Social & Cultural Environment • Cultural Heritage Evaluation • Archaeological Assessment • Architectural and Urban Design	3.5	3.5	4	4
Compliance • Noise • Odour • Construction Nuisances • Access and Confined Space Entry • Meets Design Guidelines • Permits and Approvals	2	3.5	3.5	5
Overall Score	14.25	18.3	20.77	**22**

Table 9: Front St Forcemain Alternative Evaluation

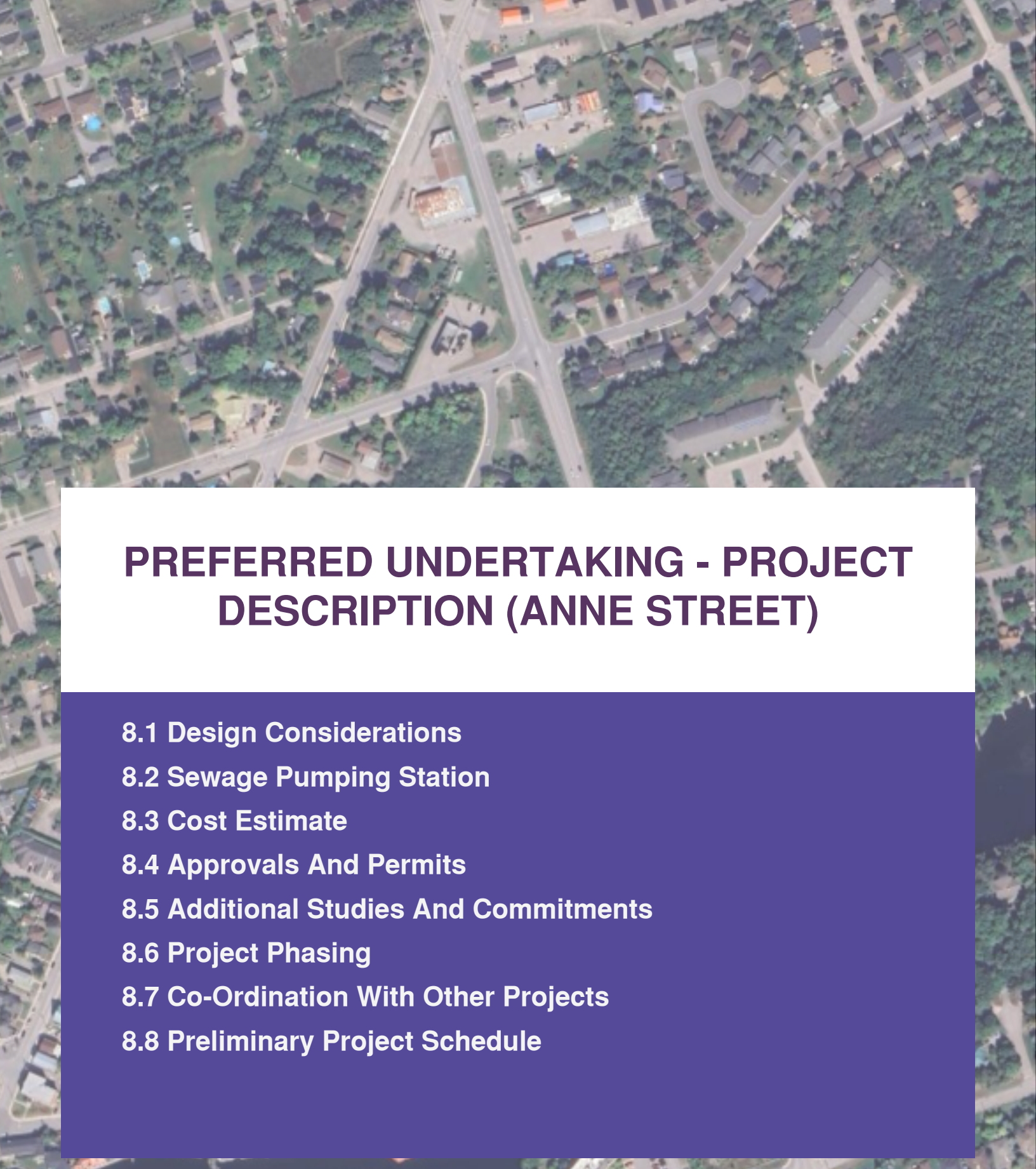
The table provides a comparative evaluation of forcemain upgrade alternatives based on financial, technical, environmental, and social criteria. The "Construct a single larger FM" option scores highest overall, demonstrating superior performance in capacity, regulatory compliance, environmental protection, and community impact among all alternatives analyzed.

7.5 Preferred Option

Rehabilitate and Upgrade Existing SPS

The Recommended Alternative focuses on improving the efficiency, capacity, and reliability of the existing Sewage Pumping Station (SPS) by upgrading pumps, piping and integrating modern technologies. Emergency Overflow limitations are addressed with a New Back-up Generator.

Estimated Capital cost: $ 2.5 M, Refer Appendix H for more details.



PREFERRED UNDERTAKING - PROJECT DESCRIPTION (ANNE STREET)

8.1 Design Considerations
8.2 Sewage Pumping Station
8.3 Cost Estimate
8.4 Approvals And Permits
8.5 Additional Studies And Commitments
8.6 Project Phasing
8.7 Co-Ordination With Other Projects
8.8 Preliminary Project Schedule

8. Preferred Undertaking - Project Description (Anne Street)

8.1 Design Considerations

The following sections present the primary design considerations for each of the project elements needed to define the infrastructure solutions required to complete the Municipal Class Environmental Assessment and the preliminary design of the project.

8.2 Sewage Pumping Station

The major factor that was considered during the preliminary design of the sewage pumping station is depth. The required minimum depth of the wetwell was calculated as to accommodate future trunk sanitary sewers needed to service the entire Pigeon Lake Drainage Area. The sewage pumping station depth also provides the opportunity to decommission existing Anne Street SPS and service their drainage areas by means of new forcemain connection sewer connections to the future sewage pumping station. Odour control measures are not foreseen to be required during early build out of the station. However, provisions for future addition of Odour control measures within the station will be allowed for in the design.

8.2.1 Existing Sewage Pumping Station Decommissioning And Other Staging Considerations

Concept Dash evaluated several staging opportunities at a conceptual level to be considered further during the detailed design. These opportunities included flow diversion and decommissioning of existing sewage pumping stations, commissioning and build out timeline for the new Anne Street sewage pumping station.

8.3 Cost Estimate

The preliminary cost estimate for the proposed Anne SPS and Forcemain Upgrade has been established at $ 9.5 M. This estimate encompasses all key components of the project.

Refer Appendix H for Detailed Cost Estimate

Description	Amount
Division 1 - General Requirements	$193,200.00
Division 2 - Existing Conditions	$500,000.00
Division 3 - Concrete	$222,500.00

Description	Amount
Division 5 - Metal	$454,000.00
Division 20 - Mechanical	$100,000.00
Division 22 - Plumbing	$304,000.00
Division 25 - Integrated Automation	$70,000.00
Division 26 - Electrical	$169,000.00
Division 31 - Earthwork	$1,007,000.00
Division 32 - Exterior Improvements	$1,898,200.00
Division 33 - Utilities	$2,441,600.00
Division 40 - Process Interconnections	$3,000.00
Control Building	$300,000.00

Table 10: Anne Street Cost Summary

8.4 Approvals And Permits

The anticipated permits and approvals required prior to construction are summarized in Table 10. Permitting requirements will be confirmed during the preliminary and detailed design phases of the Project and where required, will require additional consultation with the applicable regulatory agencies.

Agency	Permit Type
Trent Severn Waterway	Bridge Licence - Force main In Water Works - Force main Species at Risk: To be reviewed with the Permit Application. Submit the Natural Heritage Evaluation Report including the SAR assessment.
Kawartha Region Conservation Authority	Section 59 Notice - Source Protection Notice Work in Regulated Area Permit - Anne Street FM on Boyd Street.
MECP	CLI ECA Amendment for SPS Increase Capacity greater than 30% Increase; (both Stations; Species at Risk - Notice to MECP if required and possible Permit requirements.
Fisheries and Oceans (DFO)	Project Review Application
Transport Canada navigable waterways	Work Approval

Table 11: Approvals and Permits

8.5 Additional Studies And Commitments

The following additional future work should be completed during the preliminary or detailed design stage for the preferred option:

- Development of an Erosion and Sediment Control Plan should be prepared during Detailed Design for the works which includes required monitoring of the protective measures.
- Completion of a tree inventory to document required removals based on the construction footprint and for use in consideration of replacement plantings, if any.
- Consult with Kawartha Region Conservation Authority and Ministry of the Environment, Conservation and Parks regarding Source Water Protection requirements, as needed. Preliminary comments have been received and reviewed from the relevant agencies

8.6 Project Phasing

The project is scheduled to commence with the detailed design phase in 2025, extending into 2026. Construction activities are planned to begin in 2027, contingent upon the receipt of all necessary approvals and confirmation of funding. The construction period is projected to span approximately two years, with substantial completion expected by late 2028.

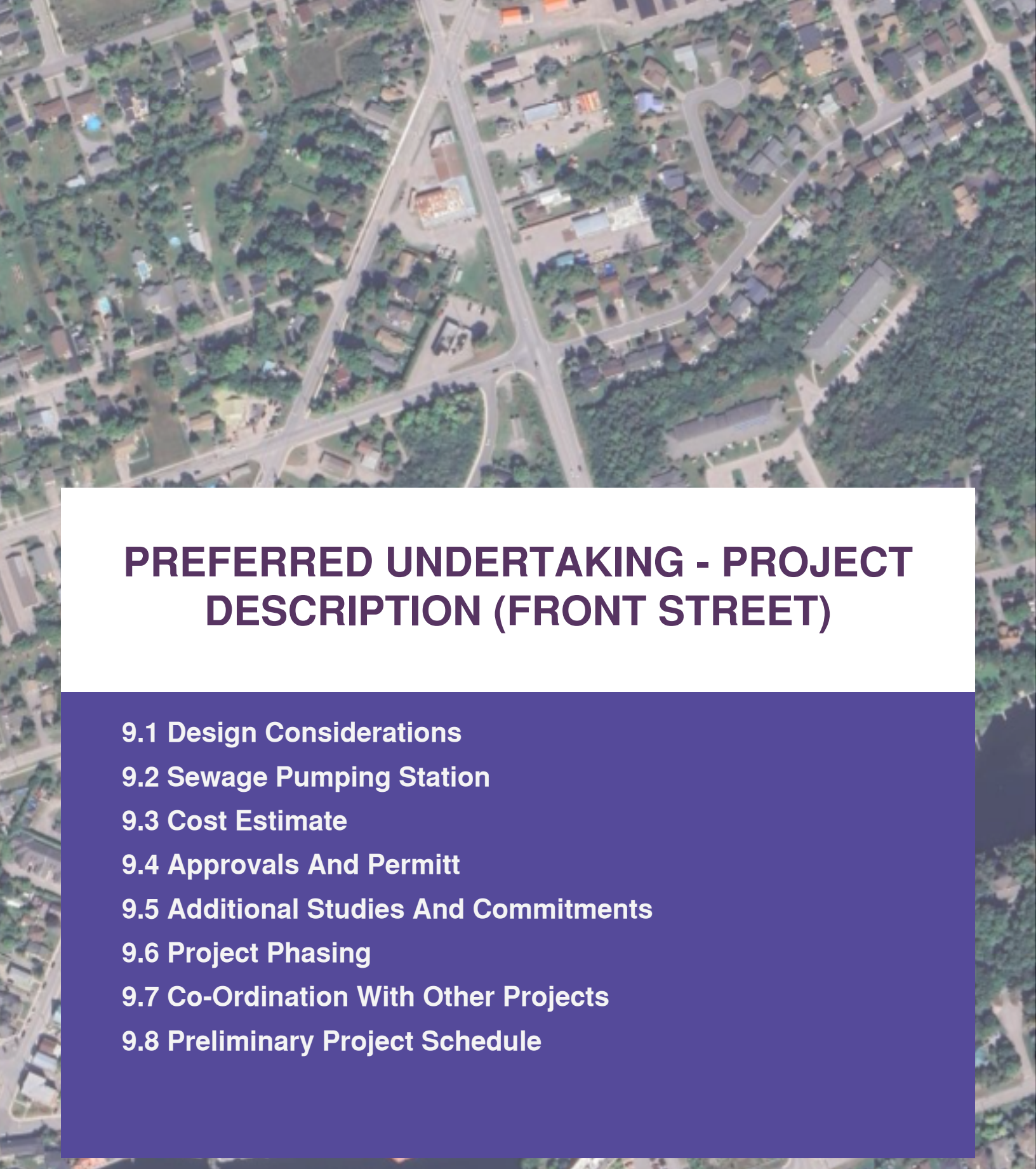
8.7 Co-ordination With Other Projects

Concept dash has been working with the City to identify need for other projects to be coordinated with the preferred infrastructure solutions in this Municipal Class Environmental Assessment. The following coordination needs have been identified:

1. The landowners in the service area of the sewage pumping station will need to coordinate their efforts with the City to plan, design and implement the future trunk sanitary sewer's needed to connect both future development and the five existing pumping stations to be decommissioned.
2. Locating the Anne Street Pressure Sewer outside of recently reconstructed roads and aligning the route to the WPCP on existing roads that will require reconstruction/widening in the near future.

8.8 Preliminary Project Schedule

The Project will proceed to construction in January 2027 and beyond (subject to Council approval and funding). Estimated preliminary construction duration of approximately two years will be required to complete the sewage pumping station and interim connection of the Anne Street Pressure Sewer from SPS to WWTP. Completion of the construction is anticipated by the end of 2028.



PREFERRED UNDERTAKING - PROJECT DESCRIPTION (FRONT STREET)

9.1 Design Considerations
9.2 Sewage Pumping Station
9.3 Cost Estimate
9.4 Approvals And Permitt
9.5 Additional Studies And Commitments
9.6 Project Phasing
9.7 Co-Ordination With Other Projects
9.8 Preliminary Project Schedule

9. Preferred Undertaking - Project Description (Front Street)

9.1 Design Considerations

The following sections present the primary design considerations for each of the project elements needed to define the infrastructure solutions required to complete the Municipal Class Environmental Assessment and the preliminary design of the project.

9.2 Sewage Pumping Station

The major factor that was considered during the preliminary design of the sewage pumping station is depth. The required minimum depth of the wet well was calculated to accommodate future trunk sanitary sewers needed to service the entire Sturgeon lake Drainage Area. The sewage pumping station depth also provides the opportunity to retrofit existing Front Street SPS and service their drainage areas by means of new forcemain connection sewer connections to the future sewage pumping station. Odour control measures are not foreseen to be required during early build out of the station. However, provisions for future addition of Odour control measures within the station will be allowed for in the design.

9.3 Cost Estimate

The preliminary cost estimate for the proposed Front SPS and Forcemain Upgrade has been established at $ 2.5 M. This estimate encompasses all key components of the project.

Refer Appendix H for Detailed Cost Estimate

Description	Amount
Division 1 - General Requirements	$189,000.00
Division 2 - Exisiting Conditions	$100,000.00
Division 3 - Concrete	$44,500.00
Division 5 - Metal	$256,000.00
Division 20 - Mechanical	$100,000.00
Division 22 - Plumbing	$17,500.00
Division 31 - Earthwork	$406,000.00

Description	Amount
Division 32 - Exterior Improvements	$428,000.00
Division 33 - Utilities	$470,600.00

Table 12: Front Street Cost Summary

9.4 Approvals And Permits

The anticipated permits and approvals required prior to construction are summarized in Table 11. Permitting requirements will be confirmed during the preliminary and detailed design phases of the Project and where required, will require additional consultation with the applicable regulatory agencies.

Agency	Permit Type
Trent Severn Waterway	Bridge Licence - Force main In Water Works - Force main Species at Risk: To be reviewed with the Permit Application. Submit the Natural Heritage Evaluation Report including the SAR assessment.
Kawartha Region Conservation Authority	Section 59 Notice - Source Protection Notice Work in Regulated Area Permit - Front St. SPS and FM
MECP	CLI ECA Amendment for SPS Increase Capacity greater than 30% Increase. Species at Risk - Notice to MECP if required and possible Permit requirements.
Fisheries and Oceans (DFO)	Project Review Application
Transport Canada navigable waterways	Work Approval

Table 13: Approvals and Permits

9.5 Additional Studies And Commitments

The following additional future work should be completed during the preliminary or detailed design stage for the preferred option:

- Development of an Erosion and Sediment Control Plan should be prepared during Detailed Design for the works which includes required monitoring of the protective measures.

- Completion of a tree inventory to document required removals based on the construction footprint and for use in consideration of replacement plantings, if any.
- Consult with Kawartha Region Conservation Authority and Ministry of the Environment, Conservation and Parks regarding Source Water Protection requirements, as needed. Preliminary comments have been received and reviewed from the relevant agencies

9.6 Project Phasing

The project is scheduled to commence with the detailed design phase in 2025, extending into 2026. Construction activities are planned to begin in 2027, contingent upon the receipt of all necessary approvals and confirmation of funding. The construction period is projected to span approximately two years, with substantial completion expected by late 2028.

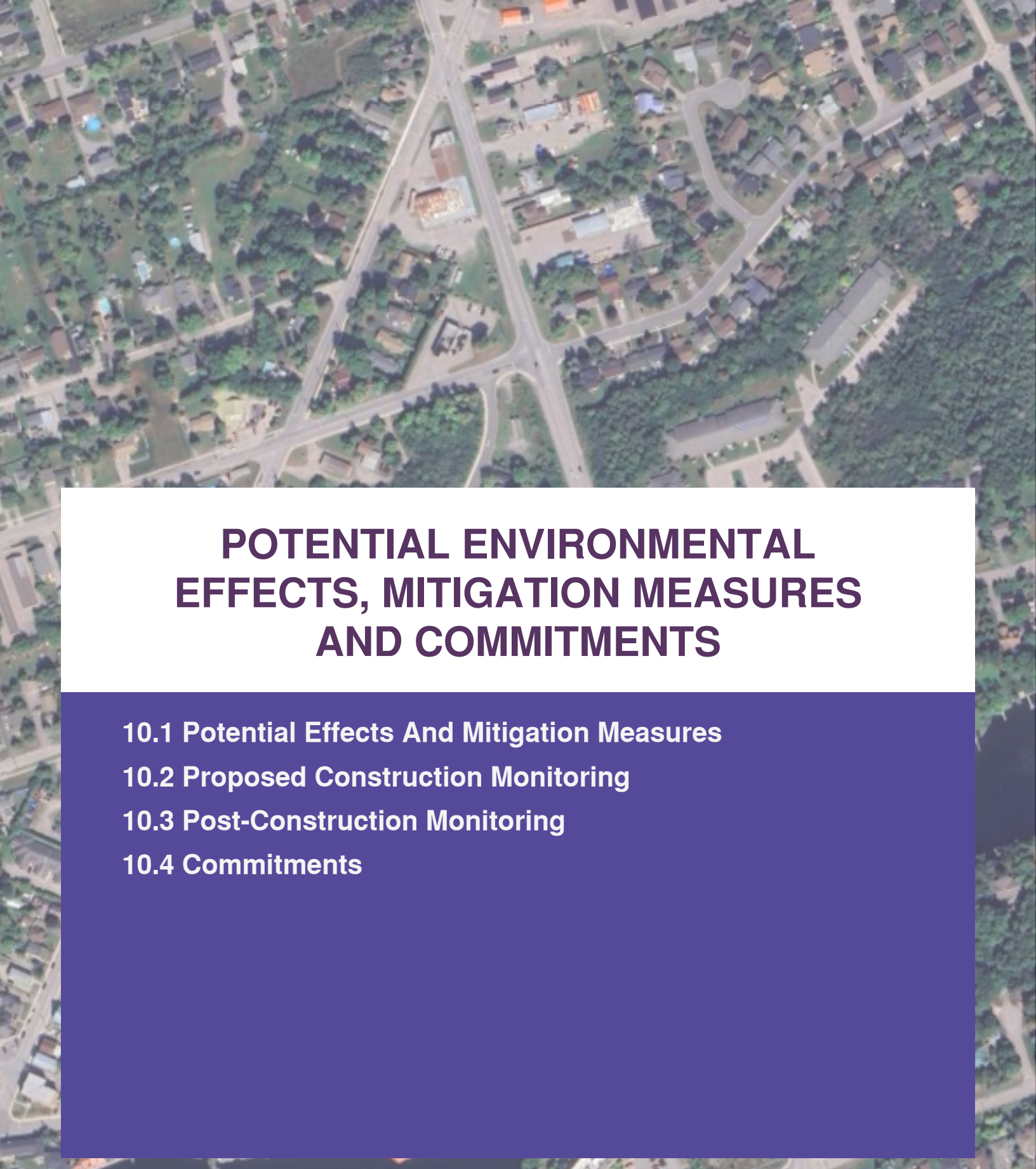
9.7 Co-ordination With Other Projects

Concept dash has been working with the City to identify need for other projects to be coordinated with the preferred infrastructure solutions in this Municipal Class Environmental Assessment. The following coordination needs have been identified:

1. The landowners in the service area of the sewage pumping station will need to coordinate their efforts with the City to plan, design and implement the future trunk sanitary sewer's needed to connect both future development and the five existing pumping stations to be decommissioned.
2. Locating the Front Street Pressure Sewer outside of recently reconstructed roads and aligning the route to the WPCP on existing roads that will require reconstruction/widening in the near future.

9.8 Preliminary Project Schedule

The Project will proceed to construction in January 2027 and beyond (subject to Council approval and funding). Estimated preliminary construction duration of approximately two years will be required to complete the sewage pumping station and interim connection of the Front Street Pressure Sewer to the MH100. Substantial completion of the construction is anticipated by the end of 2028.



POTENTIAL ENVIRONMENTAL EFFECTS, MITIGATION MEASURES AND COMMITMENTS

10.1 Potential Effects And Mitigation Measures
10.2 Proposed Construction Monitoring
10.3 Post-Construction Monitoring
10.4 Commitments

10. Potential Environmental Effects, Mitigation Measures And Municipal Class Environmental Assessment Commitments

10.1 Potential Effects And Mitigation Measures

Potential effects related to construction of the proposed Sewage Pumping Station Site at Anne Street based on the preferred Sewage Pumping Station Site Alternative 6.2.1.4 and proposed Sewage Pumping Station Site at Front Street based on the preferred Sewage Pumping Station Site Alternative 7.2.1.2, and proposed construction techniques, construction is expected to have varied environmental effects. By incorporating proper best management practices and construction techniques, adverse construction related effects can be minimized. In order to address potential effects, the following approach is recommended:

- Avoidance: The first priority is to prevent the occurrence of negative or adverse environmental effects associated with construction of the proposed sewage pumping station and related forcemain;
- Mitigation: Where adverse environmental effects cannot be avoided, it will be necessary to develop appropriate measures to eliminate, or reduce to some degree, the negative effects associated with construction of the proposed sewage pumping station and related forcemain; and
- Compensation: In situations where appropriate mitigation measures are not available, or significant net adverse effects will remain following the application of mitigation measures, compensation measures may be required to counterbalance the negative effect through replacement in kind, or provision of a substitute or reimbursement.

10.2 Proposed Construction Monitoring

Contract tender documents will address mitigation in an explicit manner to ensure that compliance is maintained. The provision of an experienced field representative to review construction will ensure that the Project follows contract specifications and does not unnecessarily impact vegetation, the community or aquatic environment.

10.3 Post-Construction Monitoring

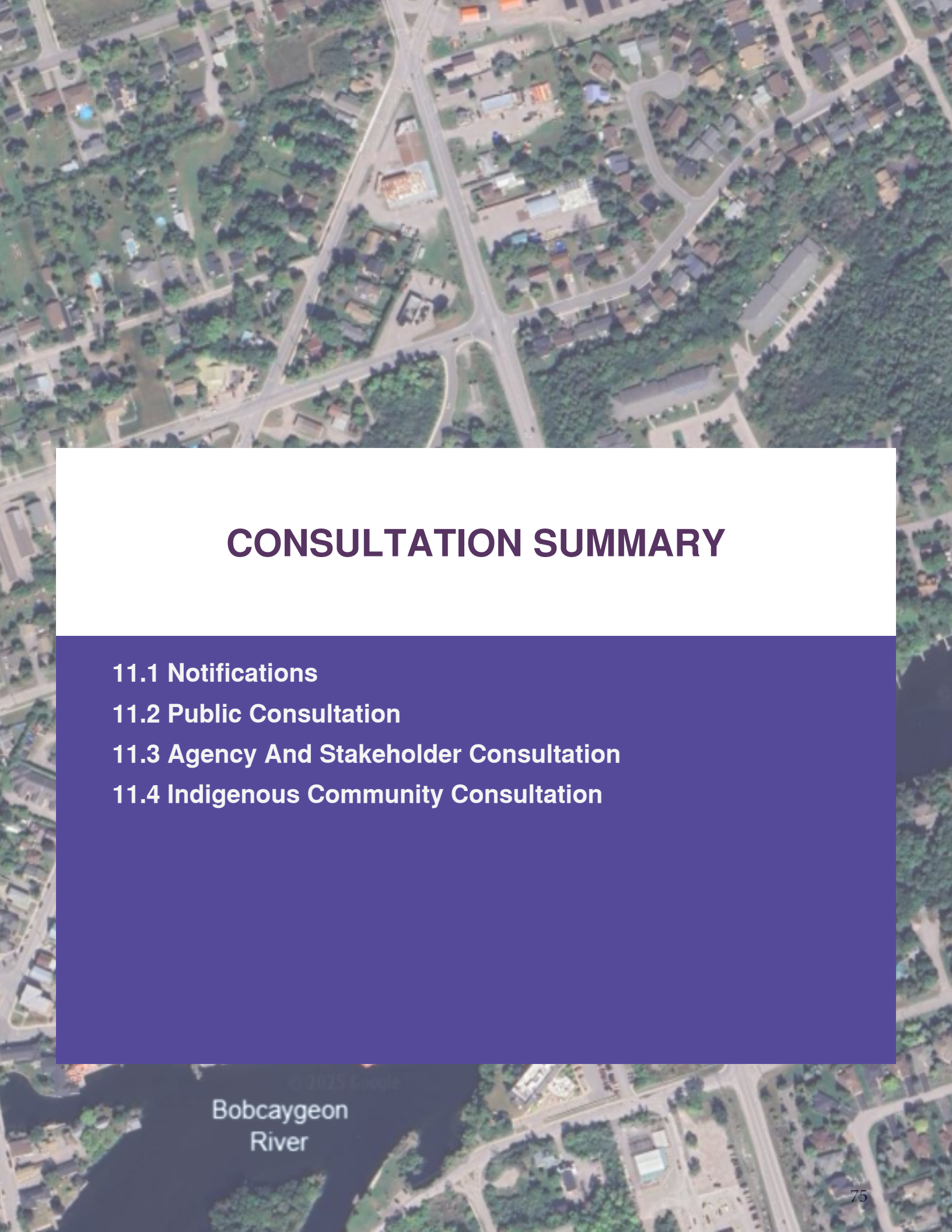
Following construction, the operation of the proposed sewage pumping station and its new forcemain that will connect the new sewage pumping station to the WWTP is not expected to result in any negative impacts. Post construction monitoring will be required following construction to ensure that any disturbances have been properly restored (e.g. grading, seeding and planting). Post construction monitoring details will be developed during detailed design.

10.4 Commitments

This report identifies specific items to be completed, reviewed and confirmed during the preliminary design, detailed design and construction phases of the Project. Beyond the anticipated permits and approvals identified in Table 3, the following summarizes the Municipal Class Environmental Assessment commitments, including additional studies identified during the Municipal Class Environmental Assessment process.

Category	Commitment	Project Phase
Technical	Complete detailed geotechnical and hydrogeological investigations.	Detailed Design
Odour	An Odour dispersion assessment and Odour control study has been recommended to be completed as part of the Detailed Design.	Detailed Design
Natural Environment	A dewatering zone of influence assessment and dewatering monitoring plan will be required and should be confirmed with Kawartha Conservation.	Detailed Design
Cultural Heritage	The recommended noise and vibration monitoring will be completed for the built heritage resources indirectly impacted by the preferred wastewater servicing strategy.	Detailed Design

Table 14: Summary of MCEA Assessment Commitments



CONSULTATION SUMMARY

11.1 Notifications
11.2 Public Consultation
11.3 Agency And Stakeholder Consultation
11.4 Indigenous Community Consultation

11. Consultation Summary

Several steps have been undertaken to inform and facilitate dialogue with interested and affected stakeholders, review agencies, Indigenous communities and members of the public in the Municipal Class Environmental Assessment decision-making process, thereby contributing to the study outcome. The following hereafter summarizes the public, agency/ stakeholder and Indigenous community consultation activities during Municipal Class Environmental Assessment Phases 1 and 2.

11.1 Notifications

11.1.1 Notice Of Commencement

The Notice of Commencement was issued on October 10, 2024, introducing the Municipal Class Environmental Assessment study for the detailed design and potential upgrade of the Anne Street and Front Street Sewage Pumping Stations (SPS) in Bobcaygeon. The notice included contact information for the City and consultant project managers, outlining objectives such as accommodating increased growth, reviewing alternatives, and recommending upgrades or new SPS infrastructure to support future development north of the Bobcaygeon River. The following describes the methods by which the notice was distributed:

- Advertised in local newspapers
- Published on the City's project webpage
- Issued to the study's contact list
- Provided to relevant government agencies, stakeholders, Indigenous Communities, and affected landowners

11.1.2 Notice Of Public Information Centre

The Notice of Public Information Centre was first issued in advance of the Public Information Centre scheduled on April 29, 2025, providing details of the session held at the Bobcaygeon Community Centre (51 Mansfield St, Bobcaygeon). The notice included contact information for project managers and outlined the purpose and process of the Municipal Class Environmental Assessment, inviting public input and participation. The following describes the methods by which the notice was distributed:

- Advertised in local newspapers
- Published on the City's project webpage
- Issued to the study's contact list
- Issued to all individuals and organizations expressing interest in the project

11.1.3 Notice Of Completion

The Notice of Completion will be published to announce the commencement of the public review period, allowing stakeholders and agencies to access the Project File Report and submit comments within the prescribed timeframe. The following describes the methods by which the notice will be distributed:

- Advertised in local newspapers
- Published on the City's project webpage
- Issued to the study's contact list
- Issued to relevant stakeholders and review agencies

11.2 Public Consultation

11.2.1 Public Information Centre

Public Information Centre was held at Bobcaygeon Community Centre 51 Mansfield St, Bobcaygeon on April 29, 2025.
The purpose of the public information Centre was to:

- Introduce the Anne Street and Front Street Sewage Pumping Station Municipal Class Environmental Assessment study;
- Provide an overview of the Municipal Class Environmental Assessment planning process and Study Area;
- Provide an overview of existing and future conditions;
- Present the studys problem and opportunities and evaluation of alternative
- Solutions;
- Gather feedback on the preliminary recommended wastewater servicing strategy for the Project Area, including sanitary sewage pumping station and related piping to the WPCP;
- Explain how potential impacts to the community and environment will be addressed; and
- Provide an overview of the Project Schedule and next steps.

11.3 Agency And Stakeholder Consultation

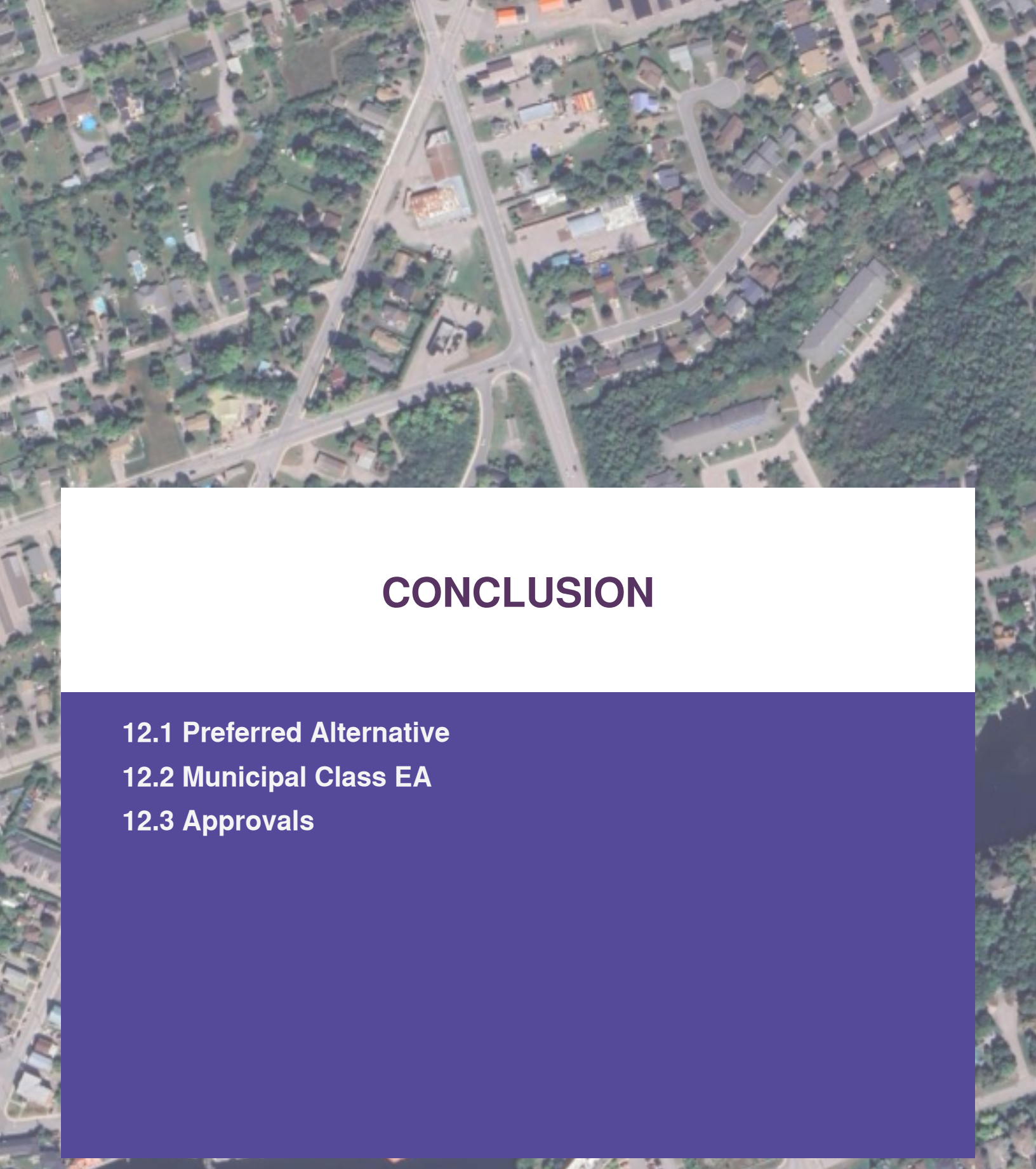
The following key agencies and stakeholders were notified at key milestones over the course of the study:

- City of Kawartha Lakes Planning staff
- Kawartha Region Conservation Authority (KRCA)
- Trent-Severn Waterway (TSW) Commission
- Ministry of Heritage, Sport, Tourism and Culture Industries

11.4 Indigenous Community Consultation

The following Indigenous Communities and organizations were identified and notified as part of this Municipal Class Environmental Assessment study:

- Mississaugas of Scugog Island First Nation
- Curve Lake First Nation
- Mohawks of the Bay of Quinte
- Alderville First Nation
- Kawartha Nishnawbe
- Hiawatha First Nation
- Chippewas of Georgina Island
- Chippewas of Rama First Nation
- Chippewas of Beausoleil First Nation



CONCLUSION

12.1 Preferred Alternative

12.2 Municipal Class EA

12.3 Approvals

12. Conclusion

12.1 Preferred Alternative

This Project File identified alternative technical solutions and a preferred alternative for SPS and Forcemain based on the needs of the community, sound engineering principles, environmental criteria, and consultation with the public and other stakeholders. The Preferred Alternatives are:

For Anne Street SPS and Forcemain

SPS
- Construct a single new SPS

FORCEMAIN
- Construct new single Forcemain

For Front Street SPS and Forcemain

SPS
- Rehabilitate and Upgrade Existing SPS

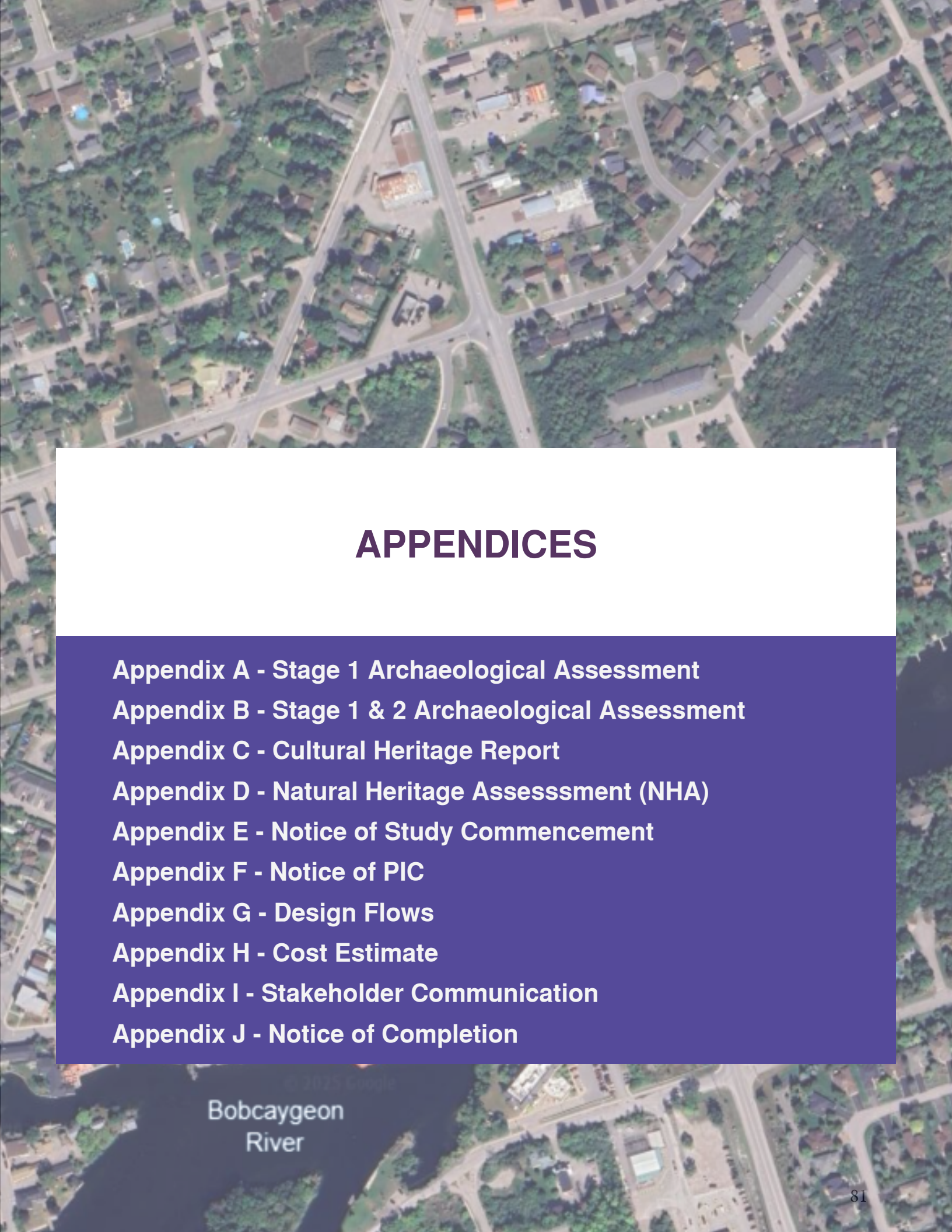
FORCEMAIN
- Construct new single Forcemain and remove existing

12.2 Municipal Class EA

As per the Municipal Class EA process and a Schedule B undertaking, the Project File Report will be made available to the public and a Completion Notice will be published in the local newspaper and issued to all stakeholders and agencies. The 30-day notification period will commence with publication of the notice.

12.3 Approvals

Upon achieving the 30-day notification period with no requests to bump-up the environmental Assessment the City will proceed with detailed design of the facility and its appurtenances which will be approved under the City's CLI-ECA (based on pump sizes) or MOECP's Environmental Compliance Approval. Construction will commence once final approval has been received.



APPENDICES

Appendix A - Stage 1 Archaeological Assessment

Appendix B - Stage 1 & 2 Archaeological Assessment

Appendix C - Cultural Heritage Report

Appendix D - Natural Heritage Assesssment (NHA)

Appendix E - Notice of Study Commencement

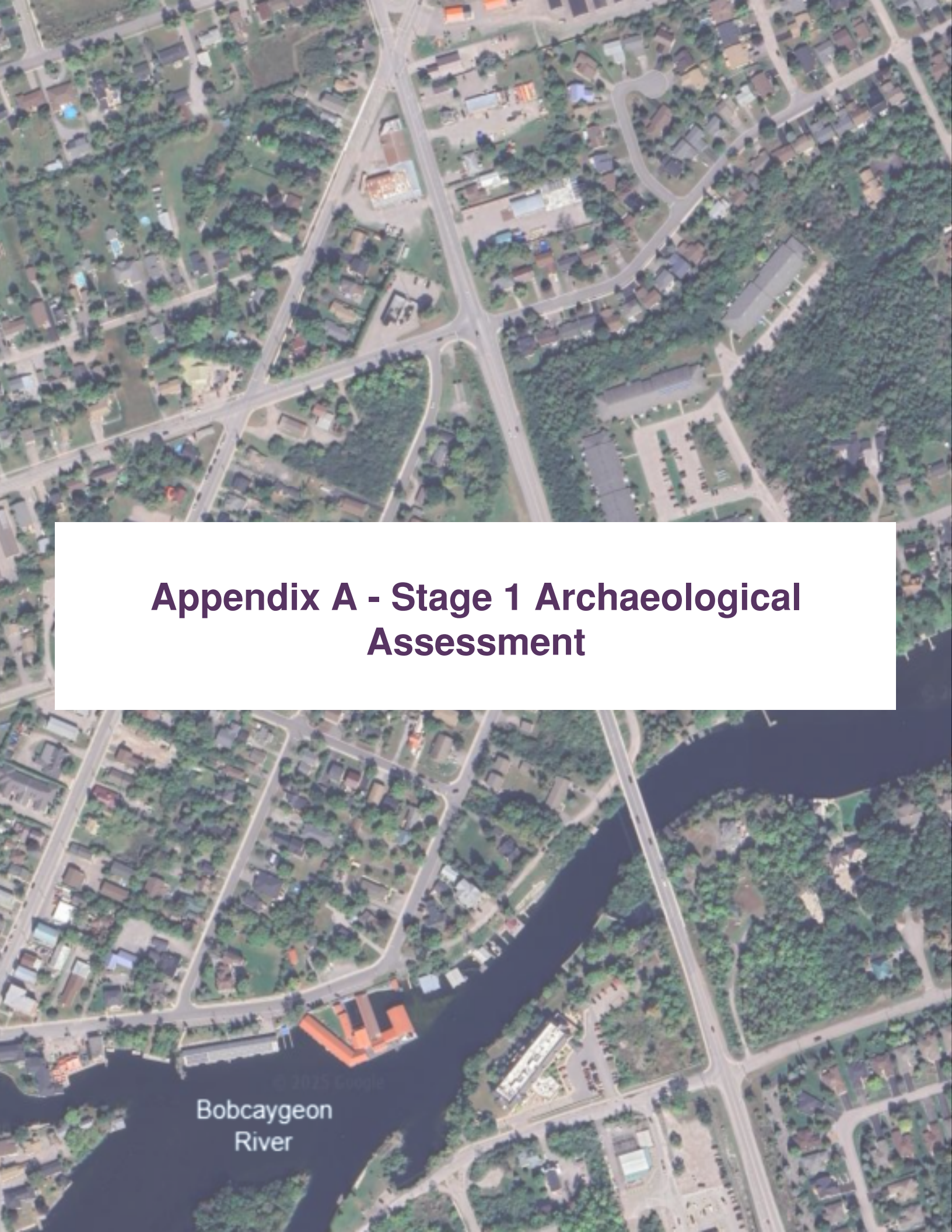
Appendix F - Notice of PIC

Appendix G - Design Flows

Appendix H - Cost Estimate

Appendix I - Stakeholder Communication

Appendix J - Notice of Completion



Appendix A - Stage 1 Archaeological Assessment

Stage 1 Archaeological Assessment: Bobcaygeon Community Expansion Project

Various Lots and Concessions, Geographical Townships of Emily and Verulam, Victoria County, Geographical Township of Harvey, Peterborough County, and Geographical Townships of Manvers and Cavan, Durham County, Ontario

August 26, 2022

Prepared for:

Enbridge Gas Distribution Inc.
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Markham ON L6C 0M6

Prepared by:

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400-1331 Clyde Avenue
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Licensee: Patrick Hoskins, MA
License Number: P415
PIF Number: P415-0323-2021
Project #: 160951282

REVISED REPORT

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APPENDIX B - History of the Nation Huronne-Wendat

Land Acknowledgement

We respectfully and thoughtfully acknowledge that the Bobcaygeon Community Expansion Project resides on Michi Saagiig (commonly referred to as the Mississauga First Nations), Treaty 20 territory. Since time immemorial, these lands and waters were, and are today, the traditional territory of the Michi Saagiig and Chippewa Nations, collectively known as the Williams Treaties First Nations. This includes Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Beausoleil First Nation, Chippewas of Georgina Island First Nation, Chippewas of Scugog Island First Nation, and Chippewas of Rama First Nation. Additionally, we would gratefully recognize that the Project area is also on the ancestral lands of the Huron Wendat Nation.

Executive Summary

Enbridge Gas Inc. ("Enbridge") is proposing to construct the Bobcaygeon Community Expansion Project (“the Project”) to supply the community with affordable natural gas. The Project is located in the City of Kawartha Lakes and Township of Cavan-Monaghan and will consist of approximately 50 kilometres (km) of a combination 6-inch and 8-inch steel and plastic natural gas pipeline. Specifically, the Project is located within various lots in the geographical townships of Emily and Verulam, former Victoria County, geographical Township of Harvey, former Peterborough County, and the geographical townships of Manvers and Cavan, former Durham County. The Project is planned to be within the existing municipal Right-of-Way (RoW) with the potential for Temporary Working Space (TWS). The preliminary preferred route and potential alternative route are described below.

The proposed Project is divided into two components: the Supply Lateral, and the Reinforcement, each of which have two (2) routes being considered: one Preliminary Preferred Route (PPR) and one alternative route. For the Supply Lateral, both routes will start near Cowan’s Drive and Peace Road and end near the intersection of Highway 36 and Duke Street, crossing the Little Bob and Big Bob Channel. An alternate route is being considered which has a minor deviation east along Traceys Hill Road, north on Eagle Road, east on St. Lukes Road and north on Cork Road to Pigeon Lake Road. For the Reinforcement, both route options require the reinforcement portion which starts near the intersection of Marina Street and Peace Road, travels east on Peace Road and south on Emily Park Road to Stewarts Line where it will end. An additional reinforcement pipeline is required on Highway 35 between Bethany Hills Road and Mt Horeb Rd, with an alternate route along Mt. Horeb Road and St. Marys Road, ending at Bethany Hills Road.

Enbridge retained Stantec Consulting Ltd. (Stantec) to undertake an environmental study of the construction and operation of the proposed natural gas pipelines. As part of the environmental study, Stantec completed a Stage 1 archaeological assessment of the preferred and alternative routes for the project. This assessment was triggered by the Ontario Energy Board’s *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario - 7th Edition* and was completed with reference to the *Ontario Heritage Act*.

The Stage 1 archaeological assessment, involving background research and a property inspection, resulted in the determination that portions of the study area were observed to exhibit potential for the identification and recovery of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) 2011 *Standards and Guidelines for Consultant Archaeologists*, **Stage 2 archaeological assessment is recommended for portions of the study area which have been identified as retaining archaeological potential.** Detailed recommendations can be found in the body of the report.

Portions of the Project study area have been subject to previous archaeological assessments The recommendations from those reports, both pertaining to the general Project study area and the preferred routing options, have been carried forward to this report.

With respect to the Lawrie (BcGp-1) site, the site retains cultural heritage value or interest. A Stage 2 archaeological assessment is recommended to relocate the site. The Stage 2 archaeological assessment will be conducted through test pit survey as outlined in Section 2.1.2 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have all soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill.

If future construction is anticipated near the site before it has been subject to Stage 3 archaeological assessment and it is decided that the site will be avoided**, it is recommended that a temporary protective fence be installed 20 metres away from the site limits during future construction. The archaeological site and its protective buffer will be protected and no construction impacts will be allowed. This protective buffer will extend 20 metres past the limits of the Stage 2 artifact scatter. The construction monitoring zone ranging from 20 metres to 70 metres from the site will also be observed where a licensed archaeologist will be required to monitor any construction activities impacting that zone.**

The portion of the Project study area containing the Bobcaygeon River, Pigeon River, Sturgeon Lake, and Pigeon Lake may retain potential for the identification of marine archaeological resources (Figure 6). At this time, no construction impacts to the Bobcaygeon River, Pigeon River, Sturgeon Lake, or Pigeon Lake are anticipated as part of the Project. Thus, no marine archaeological assessment is required. However, if it is determined that in-water impacts to the Bobcaygeon River, Pigeon River, Sturgeon Lake, or Pigeon Lake will occur as part of the Project, it is recommended that potential for marine archaeological resources be evaluated using the MHSTCI's Criteria for Evaluating Marine Archaeological Potential Checklist.

In addition to the above, the Stage 1 archaeological assessment determined that there are areas within the study area which retain low to no archaeological potential. In accordance with Section 1.3.2 and Section 7.7.4 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists*, **Stage 2**

archaeological assessment is not required for portions of the study area which retain low to no archaeological potential.

Since even thorough archaeological assessments might miss some archaeological resources or relevant information, if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property, please contact:

Curve Lake First Nation
Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0
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Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

The MHSTCI is asked to accept this report into the Ontario Public Register of Archaeological Reports.

Project Personnel

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Acknowledgements

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1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

Enbridge Gas Inc. ("Enbridge") is proposing to construct the Bobcaygeon Community Expansion Project ("the Project") to supply the community with affordable natural gas. The Project is located in the City of Kawartha Lakes and Township of Cavan-Monaghan and will consist of approximately 50 kilometres of a combination 6-inch and 8-inch steel and plastic natural gas pipeline (Figure 1). Specifically, the Project is located within various lots in the geographical townships of Emily and Verulam, former Victoria County, geographical Township of Harvey, former Peterborough County, and the geographical townships of Manvers and Cavan, former Durham County (see Section 1.22 for specific lots and concessions). The Project is planned to be within the existing municipal Right-of-Way (RoW) with the potential for Temporary Working Space (TWS). The preliminary preferred route and potential alternative route are described below.

The proposed Project is divided into two components: the Supply Lateral, and the Reinforcement, each of which have two (2) routes being considered: one Preliminary Preferred Route (PPR) and one alternative route. For the Supply Lateral, both routes will start near Cowan's Drive and Peace Road and end near the intersection of Highway 36 and Duke Street, crossing the Little Bob and Big Bob Channel. An alternate route is being considered which has a minor deviation east along Traceys Hill Road, north on Eagle Road, east on St. Lukes Road and north on Cork Road to Pigeon Lake Road. For the Reinforcement, both route options require the reinforcement portion which starts near the intersection of Marina Street and Peace Road, travels east on Peace Road and south on Emily Park Road to Stewarts Line where it will end. An additional reinforcement pipeline is required on Highway 35 between Bethany Hills Road and Mt Horeb Road, with an alternate route along Mt. Horeb Road and St. Marys Road, ending at Bethany Hills Road.

Enbridge retained Stantec Consulting Ltd. (Stantec) to undertake an environmental study of the construction and operation of the proposed natural gas pipelines. As part of the environmental study, Stantec completed a Stage 1 archaeological assessment of the preferred and alternative routes for the project. This assessment was triggered by the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario - 7th Edition* (OEB 2016) and was completed with reference to the *Ontario Heritage Act* (Government of Ontario 1990a).

1.1.1 Objectives

The objectives of the Stage 1 assessment were to compile available information about the known and potential archaeological resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the provincial standards and guidelines set out in the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

- To provide information about the study area's geography, history, previous archaeological fieldwork, and current land conditions.

- To evaluate the study area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property.
- To recommend appropriate strategies for Stage 2 survey.

To meet these objectives, Stantec archaeologists employed the following research strategies:

- A review of relevant archaeological, historic, and environmental literature pertaining to the study area.
- A review of the land use history, including pertinent historic maps.
- An examination of the Ontario Archaeological Sites Database (ASDB) to determine the presence of known archaeological sites in and around the study area.
- A site visit to document existing ground conditions and confirm and presence or absence of features of archaeological potential.

Permission for Stantec staff to conduct archaeological field work was provided by Enbridge. The property inspections occurred in publicly accessible lands and no specific landowner permission to access was required.

1.2 HISTORICAL CONTEXT

1.2.1 Post-contact Indigenous Resources

"Contact" is typically used as a chronological benchmark when discussing Indigenous archaeology in Canada and describes the contact between Indigenous and European cultures. Contact in what is now the province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

During the early post-contact period the north shore of Lake Ontario was occupied by two distinct peoples with different cultural traditions: the Michi Saagiig Nishnaabeg (Mississauga Anishinaabeg) and the Huron-Wendat. It has long been the understanding of archaeologists that prior to the 16th century the north shore of Lake Ontario was occupied by Iroquoian-speaking populations (Birch and Williamson 2013; Birch 2015; Dermarkar et al. 2016). Traditionally, the Huron-Wendat were farmers and fishermen-hunter-gatherers with a population of between 30,000 and 40,000 individuals. The Huron-Wendat traveled widely across a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence, along both sides of the Saint Lawrence River, and throughout the Great Lakes. The Huron-Wendat were, and continue to be, intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Huron-Wendat formed alliances and traded goods with other Indigenous partners among the networks that stretched across the continent, and later incorporated the French into that trading network.

Recently, the direct correlation in Ontario between archaeology and ethnicity, and especially regional identity, has been questioned (cf. Fox 2015:23; Gaudreau and Lesage 2016:9-12; Ramsden 2016:124). Recent considerations of Indigenous sources on cultural history have led to the understanding that prior to the 16th century the north shore of Lake Ontario was co-habited by Iroquoian and more mobile Anishnaabeg populations (Kapyrka 2018), the latter of whom have not been represented in previous analyses of the archaeological record and most likely left a more ephemeral archaeological record than that of more densely populated agricultural settlements (cf. Appendix A). The apparent void of semi-permanent village settlement along the north shore of Lake Ontario continued through the first half of the 17th century; however, this does not preclude the occupation of the region by mobile Anishnaabeg

peoples. Both Huron and Mississauga traditional history indicate that the Huron-Wendat and Mississauga cohabited the region (Kapyrka 2018).

The Mississauga traditional homeland stretched along the north shore of Lake Ontario and its tributary rivers from present-day Gananoque in the east to Long Point on Lake Erie in the west. In the winter the communities dispersed into smaller groups and travelled in-land to the north, to the area around present-day Bancroft and the Haliburton Highlands. Mississauga oral history relates that their ancestors occupied this part of southern Ontario from the time of the last deglaciation and continued to occupy it up to the start of the Contact period (Kapyrka 2018).

The Mississauga traditional territory was located between two powerful confederacies, the Three Fires Confederacy (consisting of the Odawa, Ojibwa and Pottawatomi) located to the north and west, and the Haudenosaunee (Five Nations Iroquois) Confederacy on the south shore of Lake Ontario in present-day New York State. In this geo-political context, the Mississauga acted as peacekeepers among the various Indigenous nations, acting as negotiators and emissaries (Kapyrka 2018).

By the turn of the 16th century, the region of the study area appears to have been abandoned of semi-permanent village settlement. In 1649, the Seneca, with the Mohawk, led a campaign to the north shore of Lake Ontario and dispersed the Huron-Wendat, Tionontate (Petun) and Attiwandaron (Neutral) Nations (Trigger 1978:354-356). At this time the semi-permanent settlements associated with the ancestral Huron-Wendat (the Huron) were abandoned and the Mississauga retreated from the area along the north shore of Lake Ontario into the hinterlands of their territory, waiting until the conflicts had ended and the political situation had stabilized before returning (Heidenreich 1990; Kapyrka 2018; Ramsden 1990).

After 1650 a series of villages affiliated with the Five Nations Iroquois were established along the north shore of Lake Ontario and through the Trent Valley. Four of those villages were located around the study area, including: the Cayuga villages of Quinte (Keint-he), located near the mouth of the Trent River at Trenton, Ganaraske, located at the mouth of the Ganaraska River at Port Hope, and Quintio, located on Rice Lake; and the Oneida village of Ganneious, located on the Bay of Quinte near the mouth of the Napanee River (Konrad 1981). Travel along the north shore of Lake Ontario and the connecting rivers occurred frequently.

In 1667, surviving Huron Wendat warriors joined alliance with the French-allied Ojibwa and Mississaugas to counterattack the Iroquois who had settled along the north shore of Lake Ontario. By 1690, Ojibwa (Anishinaabe) speaking people had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). Mississauga oral traditions, as told by Chief Robert Paudash and recorded in 1905, indicate that after the Mississauga defeat of the Mohawk Nation the Mohawk retreated to their homeland south of Lake Ontario and a peace treaty was negotiated between those groups around 1695 (Paudash 1905). Upon the Mississaugas' return they decided to settle permanently in southern Ontario and began to reestablish their role as peacekeepers in the region, extending that to include the incoming Euro-Canadian settlers (Curve Lake First Nation no date [n.d.]; Kapyrka 2018). The Huron-Wendat permanently left the region, moving to the east in Quebec and to the southwest in the present-day United States.

Project Context

Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario have been included in various treaties, land claims, and land cessions. Though not an exhaustive list, Morris (1943) provides a general outline of some of the treaties within the Province of Ontario from 1783 to 1923. Based on Morris (1943), the study area falls within the boundaries of the Crawford's Purchases, Williams Treaty, and Rice Lake Treaty.

The Crawford's Purchases treaty areas (indicated by B1 and B2 on Figure 2) include two separate treaties. The first, negotiated in 1783 contained land that ran "...from the mouth of the Gananoque River to the mouth of the Trent River was purchased from the Mississaug[a]... [and] includes the southern portions of the Counties of Hastings, Lennox and Addington, and Frontenac" (Morris 1943:16-17. A second treaty, from 1787, added land "…from the mouth of the Trent River to [the] Toronto Purchase and back from Lake Ontario to Lake Simcoe and Rice Lake was purchased from the Mississa[auga].[and] includes the County of Northumberland, excepting the northeast corner, Durham, the southern part of Ontario, and the east part of York" (Morris 1943:16-17). The 1787 treaty, sometimes known as the "Gunshot Treaty", was negotiated at Carrying Place.

The study area is also situated within lands governed by the 1818 Rice Lake Treaty (Treaty No. 20). The area of the Rice Lake Treaty, indicated by the letter Q on Figure 2, which allowed for the initial settlement of Peterborough County, begins

> *"…at the northwest angle of the Township of Rawdon; then north 16 degrees west, 33 miles or until it strikes the line forty-five; then along said line to a Bay at the northern entrance of Lake Simcoe; then southerly along the waters edge to the entrance of Talbot River; thence up Talbot River to the eastern boundary line of the Home District; thence along said boundary line south 16 degrees east to the south west angle of the Township of Darlington; then along the northern boundary line of the Township of Darlington, Clarke, Hope and Hamilton to Rice Lake; then along the southern shore of said lake and of the River Trent to the Western Division Line of the Midland District; then north 16 degrees west to the place of beginning."*
>
> (Morris 1943:24)

The study area also falls within the territory of the seven Anishnaabeg First Nations which are signatories to the Williams Treaties. These include the Mississaugas of Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Scugog Island First Nation, the Chippewas of Beausoleil First Nation, Georgina Island First Nation, and the Rama First Nation (Williams Treaties First Nations 2022). The Williams Treaty (shown as AG on Figure 2) between the Crown and the Anishnaabeg First Nations in this area are part of "[t]hree separate and large parcels of land in southern and central Ontario…acquired by the Government of Canada in 1923" (Surtees 1986:1). This particular parcel includes parts of:

> *… the Counties of Northumberland, Durham, Ontario and York...[c]ommencing at the point where the easterly limit of that portion of the lands said to have been ceded...[as part of Treaty Number 13] intersects the northerly shore of Lake Ontario; thence northerly along the said easterly and northerly limits of the confirmed tract to the Holland River; thence northerly along the Holland River and along the westerly shore of Lake Simcoe and Kempenfeldt Bay to the narrows between Lake Couchiching and Lake Simcoe; thence south easterly along the shores of Lake Simcoe to the Talbot River; thence easterly along the Talbot River to the boundary*

> *between the Counties of Victoria and Ontario; thence southerly along that boundary to the north west angle of the Township of Darlington; thence along the northern boundary of the Township of Darlington, Clarke, Hope and Hamilton to Rice Lake; thence along the southern shore of said Lake to River Trent, and along the River Trent to Bay of Quinte; thence westerly and southerly along the shore of the Bay of Quinte to the road leading to Carrying Place and Wellers Bay; then westerly along the northern shore of Lake Ontario to the place of beginning.*
>
> (Morris 1943:62)

It is also worth noting that this area also "included substantial portions of land that had been the object of previous land cession treaties" (Surtees 1986:1).

1.2.2 Euro-Canadian Resources

In 1791, the Provinces of Upper Canada and Lower Canada were created from the former Province of Quebec by an act of British Parliament (Craig 1963:17). At this time, Colonel John Graves Simcoe was appointed as the Lieutenant Governor of Upper Canada and was tasked with governing the new province, directing its settlement and establishing a constitutional government modelled after that of Britain (Coyne 1895). The change was affected at the behest of United Empire Loyalists who wished to live under the British laws and customs they were familiar with in Great Britain and the former 13 Colonies (Craig 1963:10-11). John Graves Simcoe had ambitious plans to create a model British society in North America, stating a desire to "inculcate British customs, manners, and principles in the most trivial, as well as most serious matters" in Upper Canada (Craig 1963:21). At its inception, Upper Canada was only sparsely settled by Europeans and the land had not been officially surveyed to any great extent. Thus, there was an urgency to survey this new province in order to establish military roads and to prevent settlers from clearing and settling land not legally belonging to them. In 1792, Simcoe divided Upper Canada into 19 counties consisting of previously settled lands, new lands opened for settlement, and lands not yet acquired by Crown. These new counties stretched from Essex in the west to Glengarry in the east.

1.2.2.1 Victoria County

Geographic Township of Verulam

Before the Township of Verulam was surveyed a trader by the name of Billy McDeough had set up on the present-day site of Bobcaygeon to trade goods with the local Mississaugas (Kirkconnell 1921). After lands in Verulam came to market in 1832, so much of it was acquired by land speculators that settlement within the township was hampered for several years, including limiting the construction of less than 20 miles of wagon roads by 1860 (Belden 1881). Early settlers along the north shore of Sturgeon Lake in Verulam included retired army and navy officers and other English gentry (Kirkconnell 1921). Since the land in Verulam Township is suitable but not ideal for agriculture, the population growth and rural development remained low in the vicinity of the project, with the notable exception of the Town of Bobcaygeon.

In 1832 Thomas Need was granted 400 acres of land on and adjacent to Bobcaygeon Island (Kirkconnell 1921). In the beginning Need built a sawmill, and afterwards a grist mill and store (Kirkconnell 1921). A town site was initially laid out on the north bank of the Bobcaygeon River but Need had the island

surveyed and laid out and the town developed both on and off of Bobcaygeon Island. In 1844 Need sold all of his interests to Mossum Boyd, and he left Bobcaygeon (Kirkconnell 1967).

The first canal and lock to allow navigation between Pigeon and Sturgeon Lakes was undertaken as early as 1834 but was not completed until 1840 (Kirkconnell 1967). The canal ran approximately a half mile (or about three-quarters of a kilometre) (Belden 1881). The lock was rebuilt in 1857 and again in 1921. This lock and canal were incorporated into the Trent-Severn Canal system.

The original survey map of Verulam Township (Huston 1823) does not contain a great deal of detail beyond the surveyed lot and concession lines. There is no indication of Indigenous settlements or early unauthorized European settlers on the survey map. The river network is depicted, including a notation that the Pigeon River was navigable to Manvers, and marshland, indicated by stippling, is illustrated along surveyed lot and concession lines, including at the southeast corner of the township (Huston 1823). Kains' (1877) map of Victoria County indicates the names of landowners and the location of houses, orchards, public buildings, and industrial buildings (Figure 3). Belden's 1881 *Victoria Supplement in Illustrated Atlas of the Dominion of Canada* depicts a developed township with established road and rail networks (Figure 4). A small number of landowners and buildings are illustrated on the atlas, some of them within the Project study area. Table 1 details the landowners and historical features for each lot and concession (Con.) within the Project study area from the 1877 and 1881 mapping.

Table 1: Property Owners and Historical Features Depicted on Historical Mapping of Verulam Township

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
19	10	Whole lot	James McConnell	House and orchard	Whole lot	None given	None indicated
18		North ½ South ½	J.L. Read Bow Park	None indicated House	Whole lot	None given	None indicated
17		Whole lot	Town of Bobcaygeon	Town area, roads, church	Whole lot	Town of Bobcaygeon	Town area, roads
16		Whole lot	Town of Bobcaygeon	Town area, roads, dam	Whole lot	Town of Bobcaygeon	Town area, roads
15		Whole lot	Town of Bobcaygeon	Town area, roads, schoolhouse	Whole lot	Town of Bobcaygeon	Town area, roads
14		Whole lot	M. Boyd	None indicated	Whole lot	None indicated	None indicated
13		Whole lot	C. Fairbairn	House and orchard	Whole lot	Chas. Fairbairn	House
12		Whole lot	C.E. Bonnell, MD	House	Whole lot	None given	None indicated
11		Whole lot	C. Dunsford	None indicated	Whole lot	None given	None indicated
10		West ½ East ½	S.P. Dunn M. McConnell	None indicated None indicated	Whole lot	Hy. Dunn	House

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
9		Whole lot	W. Argue	House and orchard	Whole lot	None given	None indicated
8		Whole lot	W. Morrow	None indicated	Whole lot	None given	None indicated
7		North 1/2 SW quarter SE quarter	?. Scott A. Dunbar D. Hunter Sr.	None indicated None indicated None indicated	Whole lot	None given	None indicated
6		West ½ East ½	A. Dunbar D. Hunter Sr.	House and orchard None indicated	Whole lot	None given	None indicated
5		West ½ East ½	W. White M. Boyd	None indicated Road (present day Old Survey Line Road)	Whole lot	Jos. White	Road (present day Old Survey Line Road)
4		North ½ South ½	W.S. Hunter D. Hunter	Road (present day Old Survey Line Road) House and orchard; road (present day Old Survey Line Road)	Whole lot	None given	Road (present day Old Survey Line Road)
3		North ½ South ½	Mrs. P. Harkness J.C. Robinson	House; road (no longer extant) House; road (no longer extant)	Whole lot	None given	Road (no longer extant)
2		Whole lot	N. Nichols	House; road (no longer extant)	Whole lot	None given	Road (no longer extant)
1		Whole lot	H. Gillice	House; schoolhouse Number 5	Whole lot	None given	Schoolhouse
19	9	North ½ South ½	W. Kelso A. Kelso	None indicated None indicated	Whole lot	None given	None indicated
18		North ½ South ½	A. Kelso J. Kelso Jr.	None indicated House and orchard	Whole lot	None given	None indicated
17		West ½ East ½	J. Kelso Sr. J. Kelso Jr.	Town area, roads, telegraph line	East ½ West ½	J. Kelso Sr. None indicated	House None indicated
16		West ½ East ½	J. Kelso Sr. Town of Bobcaygeon	Town area, roads	Whole lot	Town of Bobcaygeon	Town area, roads
15		West ½ East ½	J. Kelso Sr. M. Boyd	Town area, roads, schoolhouse Grist and saw mills	Whole lot	None given	None indicated
14		South part	H.T. Wickham	None indicated	Whole lot	None given	None indicated

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
13		West ½ East ½	G. Dunsford H. Rapley	None indicated House, orchard	Whole lot	None given	None indicated
12		West ½ East ½	C. Thurston M. Boyd	House None indicated	Whole lot	None given	None indicated
11		West ½ East ½	None indicated T. Argue	School house House	Whole lot	None given	School house
10		West ½ East ½	W. Thurston Mrs. Taylor	House, orchard House, orchard	Whole lot	Wm. Thurston	House
9		West ½ East ½	Geo. H. Dunn J. Stacey	None indicated House, orchard	Whole lot	None given	None indicated
8		West ½ East ½	J. Middleton Geo. H. Dunn	None indicated None indicated	Whole lot	Wm. McGregor	House
7		West ½ Central part East ½	J. Middleton M. Boyd J. Simpson	None indicated None indicated None indicated	Whole lot	None given	None indicated
6		Whole lot	J. Simpson	None indicated	Whole lot	None given	None indicated
5		Whole lot	J. Davidson	House and orchard	Whole lot	None given	None indicated
4		Whole lot	Jos. Davidson	House	Whole lot	None given	None indicated
3		North ½ South ½	T. Corbel R. White	House and orchard House	North half South half	T. Corbel R. White	House House
2		Whole lot	G. Simpson	House and orchard	Whole lot	Geo. Simpson	House
1		West half East half	G. Hunter J. Quigley	House House	Whole lot	Geo. White	House
17	8	NW ¼ SW ¼ East ½	Jas. Martin Wm. Martin J. Patterson	House, orchard House, orchard House, orchard	Whole lot	None given	None indicated
16		North ½ South ½	Jos. Finlay Wm. Finlay	None indicated None indicated	Whole lot	None given	None indicated
15		Whole lot	None indicated	None indicated	Whole lot	None given	None indicated

Geographic Township of Emily

Emily Township was named after Emily Charlotte, daughter of Lord George Lennox and sister of the Governor General of Canada. The township was opened for settlement in 1821, though Maurice Cottingham and others visited the township in 1820 to clear brush. In 1821, Cottingham returned and built a log cabin on his property near where the village of Omemee would eventually be located. That same

year a group of 400 Protestant Irish arrived and settled in the southern half of the township. In 1825, Cottingham erected a mill beside Pigeon Creek. That same year saw the arrival of roughly 700 Catholic Irish settlers, who settled in the north half of the township (Kirkconnell 1921).

The village of Omemee originated as a mill built by William Cottingham in 1821. The importance of the mill increased with the influx of settlers in 1825. A store was built in 1826 and a post office and school in 1835. The village was originally known as Williamstown, then changed to Metcalfe in the 1840's, and Omemee in the 1850's. The Port Hope, Lindsay, and Beaverton Railway was built through the township in 1857. The station was built at a distance from the village, although in time the village grew to surround the station. Omemee was incorporated as a village in 1874. Omemee reached a peak population of 835 in 1878. By 1920, the population had decreased to 467 (Kirkconnell 1921).

The available 1819 survey map of Emily Township (Wilmot 1819) does not depict any landowners. The river network is illustrated and marshland, indicated by stippling, is also illustrated along surveyed lot and concession lines. There is no indication of Indigenous settlements or early unauthorized European settlers on the survey map. Kains' (1877) map of Victoria County indicates the names of landowners and the location of houses, orchards, public buildings, and industrial buildings (Figure 5). Belden's 1881 *Victoria Supplement in Illustrated Atlas of the Dominion of Canada* depicts a developed township with established road and rail networks (Figure 6). A small number of landowners and buildings are illustrated on the atlas; however, none of them are within the Project study area. Table 2 details the landowners and historical features for each lot and concession within the Project study area from the 1877 and 1881 mapping.

Table 2: Property Owners and Historical Features Depicted on Historical Mapping of Emily Township

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
20	14	West ½ East ½	Mar Devin Jos. Hunter	None given house	Whole lot	None given	None indicated
21		Whole lot	M. O'Neil	Portion of present-day Pigeon Lake Road	Whole lot	None given	None indicated
22		Northeast ¼ South and east ¾	H. McLaughlin None indicated	House and orchard None indicated	Whole lot	None given	None indicated
23		West part	None indicated	Mostly swamp	Whole lot	None given	None indicated
23	13	West part	None indicated	Mostly swamp	Whole lot	None given	None indicated
22		Whole lot	T. Collin	House	Whole lot	None given	None indicated
21		North ½ South ½	A. Brennan M. Devin	House House and orchard	Whole lot	None given	None indicated
20		North ½ Southwest ¼ Southeast ¼	T. Brennan Mrs. Donovan J. King	House None indicated None indicated	Whole lot	None given	None indicated

Project Context

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
23	12	West part	None indicated	Mostly swamp	Whole lot	None given	None indicated
22		Water lot	n/a	n/a	Water lot	n/a	n/a
21		North ½ South ½	John Sullivan R. Owens	West pier of "Floating Bridge" None indicated	Whole lot	None given	None indicated
20		North ½ South ½	Wm. Herlihey R. Perdue	None indicated House	Whole lot	None given	None indicated
19		Northeast ¼ Southeast ¼ West ½	J. Owens D. Owens Jas. Toomy	None indicated House and orchard House	Whole lot	None given	None indicated
18		North ½ South ½	Wm. Herlihey Al Hodge	None indicated None indicated	Whole lot	None given	None indicated
17		NW ¼ NE ¼ South ½	Thos. Dwyer H. Fitzgerald F. Duffy	None indicated None indicated None indicated	Whole lot	None given	None indicated
22	11	West part	None indicated	Mostly swamp	Whole lot	None given	None indicated
21		East part	None indicated	Mostly swamp	Whole lot	None given	None indicated
20		North ½ South ½	H. Fitzgerald Swamp	House None indicated	Whole lot	None given	None indicated
19		East ½ Northwest ¼ Southwest ¼	T. Crowley Mar. Devin J. Guiry	House and orchard None indicated None indicated	Whole lot	None given	None indicated
18		North ¼ Central ¼ South ½	John Lee Wm. Lundy Wm. Hennessey	House and orchard None indicated House	Whole lot	None given	None indicated
17		North ½ South ½	Garrett Guiry Pat Guiry	None Indicated House	Whole lot	None given	None indicated
16		North ¼ Central ¼ South ½	T. Crimmon Thos. Garvey Garrett Guiry	None Indicated None Indicated None Indicated	Whole lot	None given	None indicated
15		South and east ¾ Northwest ¼	J. Guiry Mrs. Scully	Schoolhouse No. 6 None indicated	Whole lot	None given	School house Number 6
14		North ¼ Central ¼ South ½	M. Dorgan Tim Dorgan Mrs. Scully	House and orchard None indicated House	Whole lot	None given	None indicated
13		North ¾ South ¼	M. O'Neil John Hobem	House and orchard House	Whole lot	None given	None indicated

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
12		North ½ South ½	M. O'Neil M. Finn	None indicated House	Whole lot	None given	None indicated
11		West 1/3 East 2/3	Mrs. C Melaney Canada Land Co.	None indicated None indicated	Whole lot	None given	None indicated
20	10	Whole lot	None indicated	Mostly swamp	Whole lot	None given	Mostly swamp
19		Whole lot	Mrs. C. Melaney	Mostly swamp	Whole lot	None given	Mostly swamp
18		North ½ South ½	Neil Hennessy Tim Morrissey	House, orchard None indicated	Whole lot	None given	None indicated
17		North ½ South ½	Pat Guiry Tim Morrissey	Orchard House and orchard	Whole lot	None given	None indicated
16		North ½ Southeast ¼ Southwest ¼	J, Guiry Den. Begley Dan Begley	House House House	Whole lot	None given	None indicated
15		North ½ South ½	Garrett Guiry T. Flinn	None indicated House and orchard	Whole lot	None given	None indicated
14		East ½ Northwest ¼ Southwest ¼	Ed. Morrissey T. Flinn D. Fitzpatrick	None indicated None indicated None indicated	Whole lot	None given	None indicated
13		All but SW corner SW Corner	J. Callaghan None indicated	Orchard House in SW lot	Whole lot	None given	None indicated
12		North ½ South ½	O. O'Brien Mrs. Hennessy	None indicated House	Whole lot	None given	None indicated
11		North ½ South ½	O. O'Brien J. Owens	None indicated House and orchard	Whole lot	None given	None indicated
19	9	Whole lot	None indicated	Mostly swamp	Whole lot	None given	Mostly swamp
18		Whole lot	Rev. J. Vicars	Mostly swamp	Whole lot	None given	None indicated
17		Whole lot	Rev. J. Vicars	None indicated	Whole lot	None given	None indicated
16		East ½ West ½	H. O'Leary Jer. Shea	None indicated House	Whole lot	None given	None indicated
15		North ½ South ½	Ed. Herlihey J. Brown	House and orchard House	Whole lot	None given	None indicated
14		North ½ South ½	Ed. Morrissey M. Fitzpatrick	House and orchard House	Whole lot	None given	None indicated
13		North ½ South ½	D. Callaghan Ed. Morrissey	House None indicated	Whole lot	None given	None indicated
12		North ½ South ½	O. O'Brien Den. Clancy	House None indicated	Whole lot	None given	None indicated

Project Context

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
11		West ½ East ½	Pat Clancy Den. Clancy	House and orchard House	Whole lot	None given	None indicated
17	8	Whole lot	M. Lows	Mostly swamp	Whole lot	None given	Mostly swamp
16		Whole lot	H. O'Leary	Mostly swamp	Whole lot	None given	None indicated
15		North ½ South ½	P. Duffy None Indicated	House Mostly swamp	Whole lot	None given	None indicated
14		Northeast ¼ Southeast ¼ West ½	Alb. Coles T. Matchet Wm. Spencer Jr.	House House None indicated	Whole lot	None given	None indicated
13		East ¾ West ¼	Wm. and J. O'Brien H. Meadows	House None indicated	Whole lot	None given	None indicated
12		North ½ South ½	D. Fitzpatrick H. Meadows	House None Indicated	Whole lot	None given	None indicated
11		West ½ East ½	M. Carroll J. Birney	None Indicated None Indicated	Whole lot	None given	None indicated
14	7	North ½ Southwest ¼ Southeast ¼	T. Matchet Jos. Smith J. Kirkpatrick	None indicated House House	Whole lot	None given	None indicated
13		North ½ Southwest ¼ Southeast ¼	Wm. Matchell T.W. Blackwell Thos. Fee	None Indicated None Indicated None Indicated	Whole lot	None given	None indicated
12		Northwest ¼ Southwest ¼ East ½	Mrs. Venatte Gus Wood H. Meadows	Part of present day Centreline Road House; part of present day Centreline Road Part of present day Centreline Road	Whole lot	None given	None indicated
11		North ½ South ½	F. McMahon J. Atwell	None indicated House and orchard; art of present day Peace Road	Whole lot	None given	None indicated
10		North and west ¾ Southeast ¼	J. Bailey A. Brownson	Part of present day Peace Road Part of present day Peace Road	Whole lot	None given	None indicated
9		North ½ South ½	Wm. Miller A.D. Spence	House House and orchard	Whole lot	None given	None indicated

Project Context

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
14	6	West ½ NE 2/3 SE 1/3	J. Lowes M. Lowes S. Lowes	House, orchard House None indicated	Whole lot	None given	None indicated
13		North ½ South ½	W.H. Mitchel S. Stinson	House House	Whole lot	None given	None indicated
12		Northwest ¼ Northeast ¼ South ½	(..) McQuade T. Fee A. Wilson	Road from Cowan's Bridge Road bisects lot House and orchard; road from Cowan's Bridge	Whole lot	None given	Cowans Bridge
11		Whole lot	A. Wilson	None indicated	Whole lot	None given	None indicated
10		Whole lot	Pt. Collingham Est.	None Indicated	Whole lot	None given	None indicated
9		North ½ South ½	J. Bailey (….) (..)uade	House None identifiable	Whole lot	None given	None indicated
14	5	West ½ Northeast ¼ Southeast ¼	T. Germaine S, Lowes Mary Hamilton	House House and orchard House and orchard	Whole lot	None given	None indicated
13		North ½ South ½	J. Foxe J.J. Blackwell	House and orchard House and orchard	Whole lot	None given	None indicated
12		Whole lot	Thos. Fee	House and orchard	Whole lot	None given	None indicated
11		Whole lot	Ar. McQuade M.P.	None indicated	Whole lot	None given	None indicated
14	4	North ½ South ½	Mary Hamilton T. Mitchell	None indicated House and orchard ("Cedardale")	Whole lot	None given	None indicated
13		Northwest ¼ Southwest ¼ East ½	Z. Mitchel R. Henderson J. Mitchel	None indicated House and orchard House and orchard	Whole lot	None given	None indicated
12		North ¼ Central ¼ South ½	T.W. Blackwell A. McQuade W. Trotter	School house No.8 None indicated House, orchard, cemetery, telegraph line	Whole lot	None given	School house Number 8; cemetery
11		Northwest ¼ Northeast ¼ South ½	Ar, McQuade M.P. None indicated None indicated	House and orchard House House, two orchards	Whole lot	None given	None indicated
14	3	North ½ South ½	Hum. Jones Chas. Mills	House and orchard House and orchard	Whole lot	None given	None indicated

Lot	Con.	1877			1881		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
13		Northwest ¼ East ¼ Southwest ¼ East ¾	T. Mitchel H. Sheridan I. Mitchel Rob. McConnel	None indicated None indicated None indicated House and orchard	Whole lot	None given	None indicated
12		North ¼ Central ¼ South ½	Rob. Henderson W. Troller Wm. Morton	House and orchard House and orchard House and orchard	Whole lot	None given	None indicated
11		Northwest ¼ NW Corner Southeast ¼ South ½	T. Stevenson W.C. M. McElwain Is. Thornton	House and orchard House House House	Whole lot	None given	None indicated
14	2	North ½ Southwest ¼ Southeast ¼	H. Mitchel Jas. Fee W. Best J.P.	House and orchard None indicated None indicated	Whole lot	None given	None indicated
13		North ½ South ½	H. Mitchel Jas. Fee	House House and two orchards	Whole lot	None given	None indicated
12		North ¼ North central ¼ South central ¼ South ¼	J. Lawrence H. Col(….) Geo. Ellson Jas. Fee	House Orchard House Orchard	Whole lot	None given	None indicated
11		North ½ South ½	J. Widdis Ed. Sheridan	House and orchard House	Whole lot	None given	None indicated
14	1	North ½ South ½	W. Best J.P. J. Best	House and orchard House and orchard	Whole lot	Valentine Best	House and orchard
13		North ½ South ½	J. H. Best Ham. T. Best	House and orchard None indicated	Whole lot	None given	None indicated
12		Northeast ¼ Southeast ¼ Northwest 1/3 West central South portion	S. Jamieson Ham. T. Best S. Jamieson (…..)est, J.P. C.P.C.	Orchard; church and cemetery House and orchard School house # 9 None Indicated None Indicated	Whole lot	None given	School house Number 9; cemetery
11		North ½ South ½	C. Fee W. Best J.P.	House House and orchard	Whole lot	Samuel H. Best	House

Ops Township was surveyed by Colonel Duncan McDonnell in 1825. During that survey, Lots 20 and 21 of Concession 5 were reserved as a town site. This site would eventually become the Town of Lindsay. The first settler in the area was Patrick Connell, who settled on Lot 7, Concession 4. The founders of Lindsay were William Purdy and his two sons Jesse and Hazard. In 1827, the Purdys were hired by the government to build a dam on the Scugog River at the Lindsay town site and build a sawmill and grist mill on parts of Lots 20 and 21, Concession 6 (Kirkconnell 1921).

In 1834, John Huston came to Lots 20 and 21, Concession 5 with a small party in order to lay out the town site into streets and lots. One of Huston's men, Lindsay, was accidentally killed during the survey and the town was named after him on the plan (Kirkconnell 1921). Settlement of the town was slow but steady and Lindsay had a population of 300 in 1851. Settlement and business increased with the presence of the railway and the use of steamboats along the Scugog River. Lindsay was incorporated as a town in 1857 (Kirkconnell 1921). The Town of Lindsay saw an increase in growth with the addition of a number of commercial and industrial businesses, such as lumber, brickmaking, iron-working, several manufacturers and numerous stores. By 1921, Lindsay had a population of 8,025 (Kirkconnell 1921). In 2001, the Town of Lindsay was merged with Victoria County to form the City of Kawartha Lakes.

The survey map of Ops Township (McDonell 1825) has been updated with the names of initial settlers on the individual lots; though much of it is illegible the name of Peter Shannon is identifiable in Lot 1 in Concession 4 and Concession 5. There is no indication of Indigenous settlements or early unauthorized settlers on the survey map or in the survey notes (McDonell 1825). The available Kains' (1877) map of Victoria County has a large gap along the south edge of Ops township and information for that part of the Project study area is missing. Belden's 1881 *Victoria Supplement in Illustrated Atlas of the Dominion of Canada* depicts the established road and rail networks and settlements and post offices (Figure 7). A small number of landowners and buildings are illustrated on the atlas, including one within the Project study area. William Reynolds is shown as the owner of Lot 1, Concession 7, with a residence in the southeast corner of the lot, east of the Project study area (Figure 7). A schoolhouse and the Mount Horeb post office are indicated along the concession line between Concession 7 and Concession 8. A church is shown in the southeast corner of Lot 2, Concession 7 (Figure 7).

1.2.2.2 Peterborough County

The administrative history of Peterborough County began in 1798 when the Newcastle District was established as one of the original districts of Upper Canada. In 1841 the district was reorganized and the Colborne District was established. Less than 10 years later the Colborne District was reorganized again, creating the United Counties of Peterborough and Victoria. In 1861, the united counties were separated into individual counties (Cole 1975: 2).

Geographic Township of Harvey

Initial Euro-Canadian settlement in Harvey Township began around 1832, when some recent emigrants set up near the shore of Pigeon Lake in the southwest corner of the township, and near Sandy Lake, at the north end (Poole 1867:191). However, due to a variety of reasons, including poor soil, lack of general framing knowledge, bad (or nonexistent) roads and distances to a market, the small settlement had been abandoned (Poole 1867:191). After that there were few new settlers in the township, and up until 1866

Harvey Township, lacking sufficient numbers of settlers to warrant its own municipal governance, was associated with Smith Township (Poole 1867: 192).

Harvey was originally surveyed in the 1820s (Mulvany 1884:448). However, a re-survey of Harvey Township was undertaken by Theodore Clementi in 1865 (Clementi 1865; Poole 1867:192). The 1865 survey map of Harvey Township depicts the lot layout and size, waterways, and the names of settlers at that time (Figure 8). At that time there were very few settlers noted, most of them being located along the township boundary (Bobcaygeon Road) with Verulam north of Bobcaygeon, at the north end of Pigeon Lake around Nogies Creek and along the north shore of Buckhorn Lake (Clementi 1865). Two settlers and their houses are identified in lots within the Project Study area, located just north of present day Bobcaygeon: J. Stewart in Lot 17, Concession 19, and G. Harkness in Lot 18, Concession 19 (Clementi 1865). Concession 19 was identified as being “tolerably well settled” at that time, and this part of the township regarded as having good soils, compared to other parts of the township (Mulvany 1884:449).

Although not part of Victoria County, the Kains (1877) map does show some details of the Harvey Township lots on the west side of Pigeon Lake (Figure 3). Mossum Boyd’s mill and lumber yard is shown on the far eastern end of the island part of Bobcaygeon. Directly across from Lot 13, Concession 10 of Verulam, in what would be Lot 12, Concession 19 of Harvey Township is a substantial looking structure owned by H. Oliver, marked as “Mere House”, indicating that just the house is being shown and it is likely that there were additional outbuildings and other structures associated with the lot.

The Miles & Co. (1879) *County of Peterborough* map offers very few details about the study area. No landowners are identified on the map (Figure 9). The only structures illustrated are churches and schools and the location of the Lakehurst and Hall’s Bridge (now Buckhorn) post offices, none of which are within the Project study area (Figure 9). The presence of these structures does indicate that there was a fairly wide settlement of the township, irrespective of the lack of landowner names. The only other major feature shown is the Buckhorn Road, running north to south through the whole township

1.2.2.3 Durham County

By 1798, population levels in Upper Canada had increased to a point where it was desirable to create smaller administrative regions and thus, the counties of Northumberland and Durham were partitioned from the Home District and joined as the Newcastle District (Armstrong 2004). In 1837 the northern part of Newcastle District was used to form the Colbourne District (later Peterborough County).

In 1850, the Newcastle District was dissolved, and the constituent counties joined as the United Counties of Northumberland and Durham (Armstrong 2004). This larger county was subsequently dissolved in 1974 when half of the original Durham County was merged with the former Ontario County to establish the Regional Municipality of Durham. The Township of Hamilton was retained by Northumberland County during this municipal re-alignment and is bounded on the north by Rice Lake; on the west by the Township of Hope (in the County of Durham, now Regional Municipality of Durham); on the south by Lake Ontario; and on the east by the Township of Haldimand.

Geographic Township of Cavan

Cavan Township was first settled in 1816-1817 by United Empire Loyalists, most of the early settlers being Irish and they named the township after a county in northern Ireland of the same name (Dodds 1880:139; Belden 1878:vii). The population in 1820 was registered as 244, although there were only 24 ratepayers (Dodd 1880:139). However, owing to the generally excellent nature of the soil for farming purposes the population of the township grew quickly, and by 1840 the township had a population of 2,868 (Dodd 1880:139). In 1861 the population was registered as 4,901, a little under half of whom were immigrants from the British Isles, the remainder being born in Canada (Belden 1878:vii). The major town of Cavan was Millbrook, which was situated on the Midland railroad line, which allowed for the town to be a regional centre for shipping of grain and other produce (Dodds 1880:139).

The survey map of Cavan Township (Wilmot n.d.) depicts the lot layout, waterways, and marshland, indicated by stippling. The map has been updated with the names of initial settlers on the individual lots; though much of it is illegible, the family name of Hodgson is identifiable in Lot 13 Concession 14. There is no indication of Indigenous settlements or early unauthorized European settlers on the survey map (Wilmot n.d.).

The *Tremaine's Map of the County of Durham, Upper Canada* (Tremaine 1861) includes the names of landholders, the location of public buildings such as churches and schools, existing roads, railway lines and town plots, locations of industrial operations such as mills, blacksmiths etc., and waterways (Figure 10). The map also includes the location of several private residences, although not all properties are shown with a residence. It is likely that most of the properties were in fact occupied and that residences were shown for those who had subscribed to receive a copy of the map. Within the Project study area, the Tremaine map shows the location of the Town of Mount Pleasant and some private residences (Tremaine 1861). A sawmill is also indicated on the property of Joseph Shield in Lot 12, Concession 14, along Jackson Creek (Figure 10).

The Belden & Co. (1878) *Illustrated Historical Atlas of the Counties of Northumberland and Durham* depicts Cavan Township as extensively settled, with residences shown on most lots within the Project study area (Figure 11). Landowners and structures are depicted on most lots (Figure 13). In addition, the sawmill in Lot 12, Concession 14 is still present (Figure 11). Table 3 details the lot landowners within the study area.

Table 3: Property Owners and Historical Features Depicted on Historical Mapping of Cavan Township

Lot	Con.	1861			1879		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
11	14	West ½ East ½	Foster Shield Francis Gardner	House House	West ½ East ½	Foster Shield Francis Gardner	Two houses House

Lot	Con.	1861			1879		
		Portion	**Owner/ Resident**	**Features**	**Portion**	**Owner/ Resident**	**Features**
12		West ½ East ½	Joseph Shield Geo. Jamison	House; sawmill; Bland Line Mount Pleasant town plot; Bland Line	West ½ East ½	Joseph Shield Geo. Jamison	House; sawmill; Bland Line House; Mount Pleasant town plot; Bland Line
13		West ½ East ½	Geo. Jamison Jon. Hodgson	Mount Pleasant town plot None indicated	West ½ East ½	Geo. Jamison Mrs. Ann Hodgson	House, Mount Pleasant town plot Two houses
14		West ½ Northeast ¼ Southeast ¼	Jon. Hodgson Wm. Finley Mrs. McCall	None indicated None indicated None indicated	West ½ Northeast ¼ Southeast ¼	Mrs. Ann Hodgson S. McCormick Mary McCall	None indicated House None indicated
11	13	North ½ South ½	Abr. Best Robert Thaxton J.P.	None indicated House (“Levin’s Hall”)	North ¼ South ¾	Jos. Bland Robert Thaxton J.P.	House and sawmill House
12		South and east ¾ Northwest ¼	Abr. Webster Abr. Best	House; Mount Pleasant town plot; Mill Street House	South and east ¾ Northwest ¼	Abr. Webster Jno. Best	House; Mount Pleasant town plot; Mill Street House
13		Whole lot	Workman Estate	Mount Pleasant town plot	West ½ East ½	H. Ewing Geo. Seney	House; Mount Pleasant town plot house
14		North ½ South ½	George Caine Workman Estate	None indicated None indicated	North ½ South ½ SE Corner	Wm. Whitfield A. Best N.R.	House None indicated None indicated
11	12	North ½ Southwest ¼ Southeast ¼	John Thaxton Non-resident C. Lowes	None indicated None indicated None indicated	North ½ Southwest ¼ Southeast ¼ SW Corner	Jno. Thaxton Alex Baptiste T. Jackson F. Elliott	None indicated None indicated None indicated None indicated
12		Whole lot	John McPherson	None indicated	Whole lot	Jno. McPherson	House
13		North ½ South ½	John W. Lowes Robert Mills	None indicated House (later notation of “Low Grove Hall”)	North ½ South ½	Matt Lowes Robert Mills	House Three houses/ structures

Lot	Con.	1861			1879		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
14		Northwest ¼ Southwest ¼ East ½	Non-resident Robert Mills William Young	None indicated None indicated None indicated	West ½ East ½	Robert Mills Wm. Young	None indicated House
11	11	Whole lot	John Vance	House	Whole lot	Rob. Vance Jr.	Two houses
12		West ½ East ½	Caleb Lows George Ferguson	None indicated Churchville area in SE corner	West ½ East ½	T. Jackson S. Ferguson	House House
13		West ½ East ½	John W. Lowes Joseph Thompson	Churchville in SW corner None indicated	West ½ East ½	Matt Lowes Samuel Staples	House, Ida and Ida Post Office None Indicated
14		West ½ East ½	John Grandy None indicated	None indicated None indicated	Whole lot	Samuel Staples	Three houses/ structures

Geographic Township of Manvers

Manvers Township, being a back township in Durham, was not surveyed until 1816 to 1817 (Aitken 1989; Dodds 1880). Settlement in Manvers was slow, and by 1835 there was a population of only 154 (Dodds 1880). Over the next five years the population increased to 548, and by 1855 had reached 2,568 (Dodds 1880). Part of the reason for the slow growth was the only fair quality of much of the land for agricultural purposes (Belden 1878: vii). However, there were excellent stands of hardwood and pine forests throughout the township that resulted in much timbering and the development of several sawmills (Belden 1878:vii; Dodds 1880: 166).

The survey map of Manvers Township (Wilmot 1816) depicts the lot layout, waterways, and marshland, indicated by stippling. No landowners are listed on the survey map. There is no indication of Indigenous settlements or early unauthorized European settlers on the survey map (Wilmot 1816).

The *Tremaine's Map of the County of Durham, Upper Canada* (Tremaine 1861) includes the names of landholders, the location of public buildings such as churches and schools, existing roads, railway lines and town plots, locations of industrial operations such as mills, blacksmiths etc., and waterways (Figure 12). The map also includes the location of several private residences, although not all properties are shown with a residence. It is likely that most of the properties were in fact occupied and that residences were shown for those who had subscribed to receive a copy of the map. Within the Project study area, the Tremaine map shows the location of Schoolhouse Number 6 in Lot 17, Concession 12, Schoolhouse Number 10 in Lot 13, Concession 14, and a Wesleyan Methodist Church in Lot 11, Concession 14 (Tremaine 1861) (Figure 12). Few private residences are shown in any of the lots with the Project study area.

The Belden & Co. (1878) *Illustrated Historical Atlas of the Counties of Northumberland and Durham* depicts Manvers Township as extensively settled, with residences shown on most lots within the Project

study area (Figure 13). Landowners and structures are depicted on most lots (Figure 13). In addition to the previously documented church in Lot 11, Concession 14 there is also a new schoolhouse in that lot, likely replacing the one that had been previously located in Lot 13, Concession 14 (Figure 13). Two new churches are shown in Lots 16 and 17, Concession 12, on either side of St. Marys Road and School house # 6, and two other new churches are located along Concession 10, in Lots 13 and 15 (Figure 13). There is also an Orange Hall located in Lot 18, Concession 10 (Figure 13). Additionally, there are dashed lines that appear to indicate the extent of low and wet ground throughout the township. Table 4 details the lot landowners within the study area.

Table 4: Property Owners and Historical Features Depicted on Historical Mapping of Manvers Township

Lot	Con.	1861			1879		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
9	14	Whole lot	William Stinson	House	Whole lot	Wm. Stinson	House
10		Whole lot	Robert Magill	None indicated	Whole lot	Jno. McGill	House
11		West ½ East ½	Henry Hunt Josiah Mulligan	Wesleyan Methodist Church None indicated	West ½ East ½	Jas. Jones H. Mulligan	Two houses and a church House and schoolhouse
12		Whole lot	Josiah Mulligan	None indicated	Whole lot	H, Mulligan	None Indicated
13		West ½ Northeast ¼ Southeast ¼	John Porter John Ellis Jas. Shea	None indicated None indicated School house No. 10	North and west 3/4 Southeast ¼	Jno. Porter Jas. Shea	House House
14		North ¼ West 1/3 East 2/3	Jno. Beamish John Shea Wm. Reihell	None indicated None indicated None indicated	North ¼ West 1/3 East 2/3	Wm. Skuce Jas. Shea Wm. Ingram	House House House
15		North ½ South ½	Isaac (…..) John Hickson	None in remaining map House	North ½ South ½	Thos. Howe Jno. Hickson	House House
16		Whole lot	James Willson	None indicated	Whole lot	Williams Estate	House
17		West ½ East ½	Wm. H. Pallard James Pallard	None indicated None indicated	West ½ East ½	Jno. Beamish Wm. Griffin	House House
18		Whole lot	John Belch	None indicated	Whole lot	Mary J. Belch	Two house
9	13	North ½ South ½	J. Montgomery C. Johnstone	None indicated None indicated	North ½ SW ¼ SE ¼	J. Montgomery C. Johnstone Wm. Johnston	House House House

Lot	Con.	1861			1879		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
10		North ¼ Central ¼ Southwest 1/8 South central 1/8 Southeast ¼	Geo. Windrum Rich. Windrum G. McLean Thos. How (sic) J. Anderson	None indicated None indicated None indicated None indicated None indicated	North and east ¾ Southwest 1/8 South central 1/8	Samuel Stinson G. McLean T. Howe	None indicated House None indicated
11		North ½ South ½	Thos. Magill Wm. Magill	None indicated None indicated	North ½ South ½	Jno. Magill Wm. Magill	Two houses House
12		West ½ East ½	Rob.Thompson Thos. Leadlaw	None indicated None indicated	West ½ East ½	Wm. Stinson T. Laidley	House House
13		North and east ¾ Southwest ¼	William Armstrong (…) Meredith	None indicated None indicated	North and east ¾ Southwest ¼	Wm. Armstrong T. Laidley	Three houses
15		Whole lot	Illegible	None identifiable	North ½ NW corner South ½	Thos. McGee L.M. Jos. Staples	House None indicated None indicated
16		West ½ East ½	Thos. Staples Francis Beamish	None indicated None indicated	West ½ East ½	Williams Estate Jno. Hart	Two houses House
17		Whole lot	Hermon Hari	None indicated	Whole lot	Herman Hart	Four houses
18		West ½ East ½	Thomas Woods John Hart	None indicated None indicated	West ½ East ½	Thos. Woods J.S. Davidson	House House
10	12	Whole lot	William Campbell	None indicated	Whole lot	Jas. Campbell	House
11		North and east ¾ SW¼	Samuel Jacks H.H. Meredith	None indicated None indicated	North and east ¾ SW¼	Jno. D. Armstrong H.H. Meredith	House None Indicated
12		Whole lot	J. Haslip	None indicated	North ½ South ½	Wm. Magill Mary Heaslip	None indicated House
13		Whole lot	Thomas Coulter	None indicated	West ½ East ½	Wm. Coulter Hugh Coulter	House None indicated
15		North ½ South ½	John Wallace Wm. Robinson	None indicated None indicated	North ½ South ½	Jno. McGill Rich. Arnott	House House
16		Whole lot	Joseph Lee	None indicated	North ½ South ½	Jos. Lee Estate Wm. Grandy	Two houses House and church
17		Whole lot	Thomas Staples	School house No.6	Whole lot	T.E. Staples Estate	School house and church
18		Whole lot	Thomas Shea	Two houses	Whole lot	Thomas Shea	House

Lot	Con.	1861			1879		
		Portion	**Owner/ Resident**	**Features**	**Portion**	**Owner/ Resident**	**Features**
10	11	North ½ Southeast part Southwest part	Jas. Maguire Wm. Colvin Sqr. Williams	None indicated None indicated None indicated	North and west ¾ Southeast ¼	None indicated J. McCausland	None indicated House
11		Whole lot	Isaac Eyres	None indicate	Whole lot	William Mitchell	House
12		West ½ East ½	John Sutton Jane Elliot	None indicated None indicated	West ½ East ½	John Sutton Mrs. Elliot	House House
13		Whole lot	Isaac Eyers	None indicated	Whole lot	William Mitchell	house
15		West and south ¾ Northeast ¼	Illegible Th. Leslie	None identifiable None indicated	Northwest ¼ Northeast ¼ South ½	Jas. Cairnes Thos. Leslie Jno. Cairnes Jr.	None indicated House House
16		North ½ South ½	Tho. Robison Wm. Robison	None indicated None indicated	North ½ of north ½ South ½ of north ½ South ½	T.E. Staples Estate Chris Chittick Thos. Fee	House House House
17		Whole lot	Robert Staples	None indicated	North ¼ South ¾	Wm. Werry Geo. Werry	None indicated House
18		North ½ South ½	James Brown John Brown	None indicated None indicated	North ½ South ½	John Brown Jas. Brown	None indicated House
10	10	North ½ Central ¼ South ¼	Wm. Colvin A. Wilson J. Wilson	House None indicated None indicated	North ½ Central ¼ South ¼	Jas. Colvin Sr. Geo. Wilson Jno. Wilson	Two houses None indicated House
11		North ½ South ½	Arch Wilson John Wilson	None indicated None indicated	North ½ South ½	Geo. Wilson John Neals	Two houses House
12		Whole lot	Richard Staples	None indicated	Whole lot	Rich. Staples	Two houses
13		Whole lot	Archibald Wilson	Part of town of Lifford	Whole lot	Arch Wilson	Two house, church and hamlet of Lifford
15		Whole lot	Robert Eyrs (sic)	None indicated	SW corner Remaining lot	J. Sutton Robt. Staples	House House and church
16		North ½ South ½	Henry Grandy Thos. Grandy	None indicated None indicated	North ½ South ½	Wm. Ward T.G. (likely Thos. Grandy)	None indicated House
17		Northwest ¼ Southwest ¼ East ½	Henry Grandy Thos. Grandy Rich. Grandy	None indicated None indicated None indicated	Northeast ¼ South and east ¾	Wm. Ward Thos. Grandy	House House

Lot	Con.	1861			1879		
		Portion	Owner/ Resident	Features	Portion	Owner/ Resident	Features
18		Whole lot	Samuel Vance	None indicated	Whole lot	Robt. Hannah	House and Orange Hall

Structures illustrated on historical county atlases and maps were not necessarily depicted or placed accurately (Gentilcore and Head 1984). In fact, historical county atlases were produced primarily to identify factories, offices, residences, and landholdings of subscribers and were funded by subscription fees. Landowners who did not subscribe were not always listed on the maps (Caston 1997:100). However, the road grid depicted demonstrates that, by 1878, much of the current road system was constructed and still recognizable today. Further, review of historical mapping also has inherent accuracy difficulties due to potential error in geo-referencing. Geo-referencing is conducted by assigning spatial coordinated to fixed locations and using these points to spatially reference the remainder of the map. Due to changes in “fixed” locations over time (e.g., road intersections, road alignment, watercourses, etc.), errors/difficulties of scale and the relative idealism of the historical cartography, historical maps may not translate accurately into real space points. This may provide obvious inconsistencies during historical map review.

1.2.2.4 Trent-Severn Waterway

The Project study area does cross the Bobcaygeon River and is in close proximity to Pigeon Lake, both of which are part of the Trent-Severn Waterway. Additionally, the Project study area does include the Bobcaygeon Lock and associated infrastructure, which is under the jurisdiction and operation of Parks Canada. The Trent-Severn Waterway is a 386-kilometre-long canal connecting Lake Ontario at Trenton to Georgian Bay at Port Severn. The canal was originally intended as a military route, but the first lock was built as a commercial venture in 1833. Several locks along the interior of the route were constructed by the 1830s, including the Bobcaygeon Lock, which was the first one constructed, in 1833. Construction was put on hold with no outlets for the canal. Construction was restarted in the 1880s with the route continuing westward but was put on hold soon after. The route was completed with the construction of the lock at Trenton in 1918. The canal is used by pleasure boats as shipping boats are too large for the canal (Legget 2015).

1.3 ARCHAEOLOGICAL CONTEXT

1.3.1 Natural Environment

The majority of the Project study area is located within the Peterborough Drumlin Field physiographic region (Chapman and Putnam 1984:113). The Peterborough Drumlin Field is a rolling till plain with an area of about 4,500 square kilometres (Chapman and Putnam 1984:169). Extending from Hastings County in the east to Simcoe County in the west the physiographic region contains approximately 3,000 drumlins and many other drumlinoid hills and surface flutings. In general, the region is between 180 and 250 metres above sea level (Chapman and Putnam 1984:169). With respect to agricultural use of the land in the region there is a roughly even split between crops and pasturage (Chapman and Putnam 1984:172).

Project Context

The Project study area near Mount Horeb is located within the Schomberg Clay Plains (Chapman and Putnam 1984:113). The Schomberg Clay Plains are a series of basins along the northern slopes of the Oak Ridges Moraine. The basins are located near Schomberg, Newmarket, and to the north of Lake Scugog. The clay plain near Lake Scugog overlies a flat till plain and a few drumlins occur (Chapman and Putnam 1984:176).

The study area contains a wide variety of soil series, listed in Table 5 (Gillespie and Richards 1957). Most of the soil types are suitable for agricultural purposes and these soil types make up a large portion of the study area. There are, however, fairly widespread occurrences of less suitable soil types which have poor or excessive drainage.

Table 5: Soils within Study Area

Soil Type	Slope	Drainage	Use
Brighton sandy loam	Gently rolling	Good	Suitable for agriculture
Cramahe Gravel	Hilly	Excessive	Not suitable for agriculture. Primarily used for pasture or left as woodlot
Dundonald sandy loam	Moderately rolling	Good	Suitable for agriculture
Dummer loam	Hilly	Good to excessive	Suitable for agriculture
Emily loam	Undulating	Imperfect	Suitable for agriculture after tile drainage
Granby sandy loam	Nearly level	Poor	Suitable for agriculture after tile drainage
Otonabee loam (including shallow and steep phases)	Moderately rolling to steep	Good to excessive	Suitable for agriculture
Simcoe clay	Nearly level	Poor	Not suitable for agriculture. Primarily used for pasture
Tecumseth sandy loam	Undulating	Imperfect	Suitable for agriculture with some limitations
Bottom land	Nearly level	Variable	Used for pasture
Muck	Depressional	Very poor	Used for woodlot

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southwestern Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to current water is one of the most commonly used variables for predictive modeling of archaeological site locations in Ontario. The Project study area is well situated with respect to potable water sources. Much of the Project study area is located near Pigeon Lake and Sturgeon Lake. Notable watercourse drainages within the Project study area include Pigeon River, Bobcaygeon River, Emily Creek, Jackson Creek and Stony Creek. Additionally, there are several small, unnamed watercourses that drain marshy areas into Pigeon Lake.

1.3.2 Pre-contact Indigenous Resources

Much of what is understood about the lifeways of Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based on observed changes in formal lithic tools, and separated into the Early Paleo-Indian, Late Paleo-Indian, Early Archaic, Middle Archaic and Late Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful tool for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 6 below, with dates indicated using the before Common Era (BCE) and Common Era (CE) designation (Ellis and Ferris 1990).

The following summary of the prehistoric occupation of Southern Ontario is based on syntheses in Archaeologix (2008), Damjkar (1990), Ellis and Ferris (1990), Jacques Whitford (2008), Ramsden (1989), and Sutton (1990).

Table 6: Generalized Cultural Chronology for Southern Ontario

Cultural Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 - 8400 BCE	spruce parkland / caribou hunters
Late Paleo-Indian	Hi-Lo Projectiles	8400 - 8000 BCE	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 - 6000 BCE	slow population growth
Middle Archaic	Brewerton-like points	6000 - 2500 BCE	environment similar to present
Late Archaic	Lamoka (narrow points)	2500 - 1800 BCE	increasing site size
	Broad Points	1800 - 1500 BCE	large chipped lithic tools
	Small Points	1500 - 1100 BCE	introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 BCE	emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 BCE	introduction of pottery
Middle Woodland	Dentate / Pseudo-Scallop Pottery	400 BCE – 550 Common Era (CE)	increased sedentism
	Princess Point	550 – 900 CE	introduction of corn
Late Woodland	Early Late Woodland Pottery	900 – 1300 CE	emergence of agricultural villages
	Middle Late Woodland Pottery	1300 – 1400 CE	long longhouses (100 m +)
	Late Late Woodland Pottery	1400 – 1650 CE	tribal warfare and displacement

Between 9000 and 8000 BCE, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively mobile existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups. One method of maintaining social ties was gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013:35-40).

By approximately 8000 BCE, evidence exists and becomes more common for the production of groundstone tools such as axes, chisels, and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production and arguably craft specialization. This latter statement is also supported by evidence, dating to approximately 7000 BCE of ornately carved stone objects which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 BCE, the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure 1.1.C). It is presumed that most human settlements would have been focused along these former shorelines. At approximately 6500 BCE, the climate had warmed considerably since the recession of the glaciers and the environment had grown more like the present day. Evidence exists at this time for an increase in population and the contraction of group territories. By approximately 4500 BCE, evidence exists from southern Ontario for the utilization of native copper (naturally occurring pure copper metal) (Ellis 2013:42). The known origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 3500 BCE, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reached a point which significantly affected the watershed of the Great Lakes basin. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French-Mattawa river valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin had changed to its present course. This also prompted a significant increase in water-level to approximately modern levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013:28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013:46). By 2500 BCE, the earliest evidence exists for the construction of fishing weirs (Ellis *et al*. 1990: Figure 4.1). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development of social organization and communal identity. The large-scale procurement of food at a single location also has significant implications for permanence of settlement within the landscape. This period is also marked by further population increase and by 1500 BCE evidence exists for substantial permanent structures (Ellis 2013:45-46).

By approximately 950 BCE, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to seasonally exploit natural resources. This advent of the ceramic technology is correlated, however, with the intensive exploitation of seed foods such as goosefoot and knotweed as well as mast such as nuts. The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchange throughout the Great Lakes basin and beyond, and craft production (Williamson 2013:48-54).

By approximately 550 CE, evidence emerges for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous peoples' diet and economy (Birch and Williamson 2013:13-14). The archaeological evidence is supported by Mississauga oral history that speak of people coming into the Mississauga territory between 500 and 1000 CE and seeking permission to establish villages and an agricultural-based economy. Maize-based agriculture gradually became more important to

societies and by approximately 900 CE permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as hunting, fishing, and foraging. This archaeologically defined culture, known as the Late Woodland in southern Ontario and is often divided into three temporal components: Early, Middle and Late Late Woodland. Sites associated with the Early Late Woodland period indicate that there was a continuation of similar subsistence practices and settlement patterns as the Middle Woodland. Villages tended to be small, with small longhouse dwellings that housed either nuclear or, with increasingly, extended families. Smaller camps and hamlets associated with villages served as temporary bases from which wild plant and game resources were acquired. Horticulture appears to have been for the most part a supplement to wild foods, rather than a staple.

The Middle Late Woodland period marks the point at which a fully developed horticultural system emerged, and at which point cultivars became the staple food source. By approximately 1250 CE, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. In this period villages become much larger than in the Early Late Woodland period, and longhouses also become much larger, housing multiple, though related, nuclear families. For those Indigenous peoples who began practicing cultivation, food production through horticulture resulted in the abandonment of seasonal mobility. Hunting, fishing, and gathering of wild food activities continued to occur at satellite camps. However, for the most part, most Late Woodland people inhabited large, sometimes fortified villages throughout southern Ontario.

During the Late Late Woodland period longhouses became smaller again, although villages became even larger. A number of Huron village sites have been discovered in the region that contain material culture associated with both Huron and St. Lawrence Iroquoians, suggesting that St. Lawrence Iroquoians who had abandoned their home territory along the north shore of the St. Lawrence River and found refuge in the Trent Valley and Kawartha Lakes area (Ramsden 2016). The villages were abandoned in the 16th century and the region was used as a buffer between the Huron and the Five Nations Iroquois.

The Late Late Woodland period in the Trent River system and along the north shore of Lake Ontario is marked by the emergence of the Huron-Wendat, one of several discrete groups that emerge out of the Middle Late Woodland period. Pre-contact Huron-Wendat villages have been documented in clusters along the north shore of Lake Ontario from just west of Toronto to Bellville, and north up through the Kawartha Lakes region. The Huron-Wendat were similar to other Iroquoian societies in many ways, including material culture, semi-permanent settlement practices, and a tendency toward agricultural mixed with hunting and gathering subsistence strategy (Ramsden 1990). Huron-Wendat settlements include large villages of several longhouses and camps for specialized extractive activities such as hunting and fishing, although there is discussion that these camps may actually be ancestral Mississauga sites. During the Late Late Woodland period, Huron-Wendat settlements along the north shore of Lake Ontario begin to move through the Humber River, Don River, Duffins Creek/Rouge River and Trent River systems and eventually coalesce into what is now Simcoe County and the area traditionally identified as “Huronia” (Birch 2012).

These communities living within the region of the Study Area are believed to have possessed many cultural traits similar to the historic Indigenous Nations (Williamson 2013:55). Both Huron-Wendat and

Anishnaabeg traditional history indicate that the Huron-Wendat and Anishnaabeg cohabited the region (Kapyrka 2018).

1.3.3 Known Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MHSTCI who maintain the *Ontario Archaeological Sites Database*. The study area is located within Borden blocks BbGo, BbGp, BcGp and BdGp.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy* Act (Government of Ontario 1990b). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MHSTCI will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* has shown that three archaeological sites have been registered within a one kilometre radius of the study area (Government of Ontario 2021a). The sites are detailed below in Table 7. One site, BcGp-1, is located within the Project preferred routing, and all three are located within the wider study area. The general locations of the sites are provided in the Supplemental Documentation to this report.

Table 7: Registered Sites within One Kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Disposition
BcGp-1	Lawrie	Middle Woodland Indigenous	Campsite	Unknown
BcGp-2	Tuftsville	Pre-contact Indigenous	Campsite	No further CHVI
BcGp-3	none given	Pre-contact Indigenous	Campsite	No further CHVI

In addition to the identified registered archaeological sites, land registry data indicates that a private burying ground is associated with a property north of Park Street and west of Mansfield Street. Further, oral history from Curve Lake First Nation records a potential archaeological site in proximity to the Bobcaygeon Branch of the Kawartha Lakes Public Library (Melanie Book, Enbridge, personal communication, November 25, 2021).

Project Context

Although there have been periods of extensive archaeological research in the Trent River Valley system throughout the early and later parts of the 20th century, much of that work has been focused on the Lower Trent Valley, from Lake Ontario up to and including Rice Lake, and in the Upper Trent Valley around Balsam Lake (Heritage Quest Inc. 2000; Ramsden 1994; Sutton 1990). Little archaeological research has occurred for much of Sturgeon Lake, and recently has largely been associated with cultural resource management studies.

An examination of the *Ontario Public Register of Archaeological Reports* has shown that eight previous archaeological assessments have been completed in, or within 50 metres of, the study area (Government of Ontario 2021b). These assessments are detailed below in Table 8.

Table 8: Previous Archaeological Assessments within 50 metres of the Study Area

Project Information Form (PIF) Number	Report	Reference
P156-0130-2011	*A Stage I-II Archaeological/Heritage Assessment for the Harrison Severance Rezoning By-Law Application: at the North End Of 23 Wipsi Shore Road, R.R. #5, Lindsay, Ontario. Located In Part Lot 19, Concession 10 (Former Geographic Township of Emily, City of Kawartha Lakes (Formerly Known as Victoria County), Ontario*	York North Archaeological Services Inc. (YNAS) 2012
P367-003-2012	*Stage 1-2 Archaeological Assessment, Front and West Streets, Part of Lot 16, Concession 9 Geographic Township of Verulam, County of Victoria, City of Kawartha Lakes, Ontario*	Wagner Archaeological Services Inc. (WASI) 2012
P156-0200-2014	*A Stage 1-2 Archaeological Assessment of The Lonesome Pine Resort Located at 2346 Pigeon Lake Road, In Lots 22 And 23, Concession 14, Emily Township, City of Kawartha Lakes (Formerly Victoria County), Ontario.*	YNAS 2014a
P156-0218-2014	*A Stage 3 Archaeological Assessment of BcGp-4 at The Lonesome Pine Resort Located at 2346 Pigeon Lake Road, In Lots 22 And 23, Concession 14, Emily Township, City of Kawartha Lakes (Formerly Victoria County), Ontario.*	YNAS 2014b
P156-0233-2014	*A Stage 1 Archaeological Assessment of Emily Provincial Park Located At 797 Kawartha Lakes County Road 10 (Emily Park Road), In Lot 12, Concession 6, Emily Township, City of Kawartha Lakes (Formerly Victoria County), Ontario.*	YNAS 2015
P046-0185-2016	*Stage 1 and 2 Archaeological Assessment of Port 32, Part of Lot 40 Registrar's Compiled Plan #564 and Part of Lot 12, Concession 19, Geographic Township Of Harvey, City of Kawartha Lakes, Ontario*	Archaeological Services Inc. (ASI) 2016
P310-0200-2018	*Stage 1 & 2 Archaeological Assessment 8 Mitchell Drive, Part of Lot 13, Concession 7, Geographic Township of Emily, City of Kawartha Lakes*	Earthworks Archaeological Services Inc. (EASI) 2018
P415-0286-2021	*Stage 1 Archaeological Assessment: ARROW Kawartha Lakes Campbellford Former Rail Line: Various Lots and Concessions, various Geographic Townships, various Lower Tier Municipalities, Hastings County, Northumberland County, Peterborough County, and Kawartha Lakes, Ontario*	Stantec 2021

YNAS completed a Stage 1-2 archaeological assessment under PIF number P156-0130-2011 issued to Patricia Dibb for a lot severance application for a property located in the north half of Lot 19, Concession 10 in the Township of Emily (YNAS 2012). The Stage 1 portion of the study identified the property as retaining archaeological potential and Stage 2 assessment was completed through test pit survey (YNAS 2012). No archaeological resources were recovered during the Stage 2 assessment and the property was deemed to be clear of further archaeological concerns (YNAS 2012).

WASI completed a Stage 1 -2 archaeological assessment under PIF number P367-003-2012 issued to Teresa B. Wagner as part of a Zoning By-Law Amendment for a property located on the north bank of the Bobcaygeon River, in part of Lot 16, Concession 9 in the Township of Verulam, in the Town of Bobcaygeon (WASI 2012). The Stage 1 portion of the study identified the property as retaining

archaeological potential, due in part to it being one of the first lots purchased in Verulam and for its proximity to the Bobcaygeon River (WASI 2012). Stage 2 assessment was completed through test pit survey; no archaeological material was recovered during the Stage 2 assessment and no further assessment was recommended (WASI 2012).

Under PIF number P156-0200-2014 issued to Patricia Dibb, YNAS conducted a Stage 1-2 archaeological assessment of a property for a rezoning application in Lots 22 and 23, Concession15, Township of Emily (YNAS 2014a). The Stage 1 assessment identified that the property retained archaeological potential and Stage 2 assessment by test pit survey was recommended (YNAS 2014a). The Stage 2 assessment identified one positive test pit and a 1 x 1 metre test unit was excavated over the location of the positive test pit (YNAS 2014a). One unworked piece of Trent Valley chert was recovered from the test pit and four pieces of Trent Valley chert chipping detritus were recovered from the test unit excavation (YNASA 2014a). Based on the results of the Stage 2 assessment YNAS recommended additional Stage 3 assessment for the site, which was given Borden number BcGp-4 (YNAS 2014a). YNAS completed the Stage 3 assessment of BcGp-4 under PIF number P156-0218-2014 issued to Patricia Dibb (YNAS 2014b). A total of 11 test units were excavated, of which eight were found to contain additional chipping detritus and faunal material (YNAS 2014b). In all 14 pieces of Trent Valley chert shatter, three pieces of quartz shatter, seven calcined bone pieces and one fish bone (YNAS 2014b). No archaeological features were identified in any of the test units. Based on Section 3.4.1 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) the site did not meet criteria to move to Stage 4 mitigation of impacts and the cultural heritage value or interest of the site was considered to be sufficiently documented at Stage 3 (YNAS 2014a).

In 2018 EASI completed a Stage 1-2 archaeological assessment for a lot severance application for a property in Lot 13, Concession, Township of Emily under PIF P310-0200-2018 issued to Anthony Butler (EASI 2018). Based on an evaluation that the property retained archaeological potential Stage 2 assessment was completed across the property. No archaeological resources were identified during the Stage 2 test pit assessment and no further assessment was recommended (EASI 2018).

Under PIF number P156-0233-2014 issued to Patricia Dibb, YNAS completed a Stage 1 archaeological assessment of Emily Provincial Park, Located in Lot 12, Concession 6 of Emily Township (TNAS 2016). The Stage 1 found that, except for two areas of previous extensive disturbance along the Pigeon River that had been subject to extensive grading below topsoil and fill activities, the remainder of the park retains potential for the recovery of archaeological resources and further Stage 2 assessment was recommended in areas where additional development of park lands may occur (YNAS 2016).

ASI completed Stage 1 and 2 archaeological assessment under PIF number P046-0185-2016 issued to Andrew Clish of a potential development property in Port 32, pat of Lot 12, Concession 19 of Harvey Township, at the east end of the island that forms the Town of Bobcaygeon (ASI 2016). The Stage 1 assessment identified the property as retaining archaeological potential, due to its proximity to the Bobcaygeon River, and Stage 2 assessment through test pit survey was recommended (ASI 2016). The test pit survey identified areas that had been previously extensively disturbed, amounting to approximately 31% of the study area, or were composed of exposed bedrock (14% of the study area) (ASI 2016). The remainder was subject to test pit survey. No archaeological resources were identified during the Stage 2 assessment and no further assessment was recommended (ASI 2016).

Stantec (2021) carried out a Stage 1 archaeological assessment for an abandoned rail line, entitled *Stage 1 Archaeological Assessment: ARROW Kawartha Lakes Campbellford Former Rail Line: Various Lots and Concessions, various Geographic Townships, various Lower Tier Municipalities, Hastings County, Northumberland County, Peterborough County, and Kawartha Lakes, Ontario.* The Stage 1 for the ARROW – Kawartha Lakes Campbellford Former Rail Line crosses the present study area at Emily Park Road, south of Cowan's Bay. The Stage 1 assessment of the ARROW – Kawartha Lakes Campbellford Former Rail Line found that the rail bed was previously disturbed and did not retain potential for the recovery of archaeological resources. Other portions of the study area, however, did exhibit potential for the identification and recovery of archaeological resources. These areas were recommended for a Stage 2 archaeological assessment.

Additionally, Northeastern Archaeological Associates Ltd. (NAA) completed Stage 1 and 2 archaeological assessment around Bobcaygeon Beach Park entitled *Stage 1 and 2 Archaeological Assessment of Bobcaygeon Beach Park, Lot 15, Concession 10 And 9, Village of Bobcaygeon, Geographic Township of Verulam, City of Kawartha Lakes, Ontario* under PIF number P025-0706-2021 (Lawrence Jackson, personal communication, January 21, 2022; NAA *in press*). Although the report has not yet been accepted into the *Ontario Public Register of Archaeological Reports* and the full details of the assessment are not available, the report does document a plan of Bobcaygeon, based on a sketch by Thomas Need from 1833, indicating the location of a possible cemetery or "burying ground" along the south bank of the Big Bob Channel in part of Lot 15, Concession 10 in Verulam Township (Figure 14). Although that historical sketch and present-day land registry records demarcate the property as a burial ground there is no evidence that burials ever occurred here (Lawrence Jackson, personal communication, January 21, 2022) and no other available historical mapping indicates a cemetery here. Moreover, Thomas Need, in his book *Six Years in the Bush* makes no mention of any cemetery or burying ground along the bank of the river (Need 1838) and no indication of such is evident on the original survey map (Huston 1823). The Stage 2 assessment identified only a single artifact, associated with the historical land-use by the Lindsay, Bobcaygeon and Pontypool Railway, and determined that the property had been extensively and deeply disturbed by rail activity and modern construction activities (NAA *in press*).

1.3.3.1 Previous Studies

Two previous studies have been completed for portions of the Project study area.

In 2006, under PIF# P002-067-2006 issued to Colin Varley, Jacques Whitford completed a Stage 1 archaeological assessment of a proposed pipeline to Bobcaygeon entitled *Stage 1 Archaeological Assessment, Proposed Gas Distribution Pipeline, Bobcaygeon, City of Kawartha Lakes, Ontario* (Jacques Whitford 2006). That study area, which follows a portion of the PPR for the proposed Supply Lateral to Bobcaygeon, was focused on the existing road allowances starting from Peace Road and heading north along Centreline Road and Pigeon Lake Road to the Town of Bobcaygeon (Jacques Whitford 2006). Five areas of archaeological potential were identified and recommended for Stage 2 assessment (see Figure 14-1 to 14-6) (Jacques Whitford 2006, 2017). The recommendations of that report were made under the *Archaeological Assessment Technical Guidelines 1993 (Stages 1-3 & Reporting Format)* (Government of Ontario 1993), which have been superseded by the 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). However, the MHSTCI confirmed that the

recommendations of the 2006 Stage 1 assessment would be allowed to stand for the project, with additional assessment recommended for the lands surrounding the channels of the Bobcaygeon River (Andrea Williams, MHSTCI, email personal communication, June 26, 2017). The recommendation of Stage 2 assessment for those areas has been carried forward into the recommendations for this report.

In 2016 Stantec completed a Stage 1 assessment of a proposed pipeline to Fenelon Falls under PIF # P415-0060-2016 issued to Patrick Hoskins entitled *Stage 1 Archaeological Assessment, Proposed Pipelines to Serve the Communities of Fenelon Falls and Bobcaygeon: Various Lots, Concessions 8-10, Clarke Township, Concessions 1-14, Manvers Township, Regional Municipality of Durham and Concessions 1-8, Ops Township, Concessions 2-11, Fenelon Township, Concessions 1-10, Verulam Township, Victoria County, City of Kawartha Lakes, Ontario* (Stantec 2016). This assessment, focused on existing road allowances, identified general archaeological for most of the study area, including the portions of the PPR of the proposed Reinforcement Lateral of the current Project study area along Highway 35 and St. Marys Road near Mount Horeb (Stantec 2016) (Figures 14-9 to 14-11). Additionally, the assessment identified archaeological potential along most of the study area in Bobcaygeon (Stantec 2016). Areas of archaeological potential were recommended for Stage 2 assessment and have been carried forward into the recommendations for this report.

1.3.4 Existing Conditions

The Project study area is approximately 50 kilometres in length in an overall study area of approximately 11,907 hectares and, though centred on municipal RoWs does include areas of forest, scrubland, meadow, agricultural fields, manicured lawn, residential and commercial development, the Town of Bobcaygeon, and low and wet areas, the latter particularly notable along the shore of Pigeon Lake. The study area also contains a portion of the Trent Severn Waterway, notably the Bobcaygeon Lock, that is on land owned and operated by Parks Canada.

2.0 FIELD METHODS

The Stage 1 archaeological assessment compiled information concerning known and/or potential archaeological and heritage resources within the study area. A property inspection was conducted on October 29, 2021, under PIF P415-0323-2021 issued to Patrick Hoskins, MA, by the MHSTCI. The property inspection involved spot checks of the study area to identify the presence or absence of features of archaeological potential, in accordance with Section 1.2 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to the start of the Stage 1 property visit, the Client provided mapping which defined the limits of the study area. These files were then geo-referenced by Stantec's Geographic Information Services (GIS) team and a digital file (i.e., a shape file) was created of the Project's study area. The digital file was uploaded to handheld devices for use in the field.

The Project study area was accessed by publicly accessible roadways. During the property inspection, the weather was sunny to overcast and cool. Visibility of land features was excellent throughout the study area. Lighting and weather conditions were not detrimental to the identification of features of archaeological potential. The photography from the property inspection (see Section 7.1) confirms that the requirements for a Stage 1 property inspection were met, as per Section 1.2 and Section 7.7.2 Standard 1 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The Project study area incorporates an area of approximately 11,907 hectares within which the 50 kilometres of proposed new Supply and Reinforcement Laterals is incorporated. The Stage 1 property inspection consisted of reviewing and photographing the general conditions of the PPR and specific areas of interest, such as wet ground, areas of steep slope, and areas of disturbance within the Project study area observable from municipal roadways. No access was provided to private properties. In the Town of Bobcaygeon a sample of photos was taken to provide a general understanding of conditions. However, the Town of Bobcaygeon is considered to have general archaeological potential.

3.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the Ontario MHSTCI (Government of Ontario 2011) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Government of Ontario 2011).

Distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site locations and types to varying degrees. The MHSTCI (Government of Ontario 2011) categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, creeks.
- Secondary water sources: intermittent streams and creeks, springs, marshes and swamps.
- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes.
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

The Project study area is well situated with respect to potable water sources. Much of the Project study area is located near Pigeon Lake and Sturgeon Lake. Notable watercourse drainages within the Project study area include Pigeon River, Bobcaygeon River, Emily Creek, Jackson Creek, and Stony Creek. Additionally, there are several small, unnamed watercourses that drain marshy areas into Pigeon Lake.

Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. The Project study area contains several well drained soils suitable for Indigenous and Euro-Canadian cultivation (Brighton sandy loam, Dundonald sandy loam, Dummer loam, Otonabee loam, and Tecumseth sandy loam). There are, however, fairly widespread occurrences of less suitable soil types which have poor or excessive drainage.

There are three registered pre-contact Indigenous sites within one kilometre of the Project study area, and several more known sites outside of that one-kilometre buffer. The Trent River system is one of the most important drainages for pre- and post-contact Indigenous occupation and travel and archaeological sites are documented throughout its length.

For Euro-Canadian sites, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990a); and properties that local histories or informants have identified with possible historical events, activities or occupations. Much of the study area was initially settled in the early to mid-19th century and by the late 19th century settlement had occurred over most of the lands in and around the Project study area. The Bobcaygeon Lock was the first lock constructed for what is now the Trent-Severn waterway, making it an early commercial venture providing ease of movement of vessels between Pigeon and Sturgeon lakes.

When the above listed criteria are applied, the study area demonstrates general potential for the recovery of pre-contact Indigenous, post-contact Indigenous, and Euro-Canadian archaeological resources. However, the property visit has determined that the existing roadway and associated ditches have caused disturbance in the municipal RoW that has removed archaeological potential where those disturbances have occurred. However, the entire width of the RoW has not been disturbed in all areas and those undisturbed portions of the RoW retain archaeological potential. Moreover, some areas of steep slope and low and wet ground were identified during the property visit. These areas have also been determined not to retain archaeological potential.

Several previous archaeological assessments (ASI 2016; EASI 2018: WASI 2012: YNAS 2012, 2014a, 2014b, 2105) have been completed within the Project study area, including one along the PPR of the Supply Lateral to Bobcaygeon. These previous assessments have identified that no further archaeological assessment is required for some portions of the Project study area. Additionally, some recommendations for further assessment were made in three of those reports and those recommendations have been carried forward into the recommendations of this report.

4.0 RECOMMENDATIONS

The Stage 1 archaeological assessment, involving background research and a property inspection, resulted in the determination that portions of the study area were observed to exhibit potential for the identification and recovery of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 archaeological assessment is recommended for portions of the study area which have been identified as retaining archaeological potential (Figures 14.1 to 14.11 and Figures 15.1 to 15.17).** Archaeological construction monitoring may be necessary within built-up areas where Stage 2 field assessment is not feasible.

The objective of the Stage 2 archaeological assessment will be to document any archaeological resources within the portions of the study area still retaining archaeological potential and to determine whether these archaeological resources require further assessment. If the Project is constructed within the limits of municipal RoW the Stage 2 archaeological assessment will be conducted through test pit survey as outlined in Section 2.1.2 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have all soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill.

Where Project temporary workspaces, laydowns, or other facilities are to be located outside of the municipal RoW and those areas are within areas of current or recent agricultural activity then Stage 2 archaeological assessment will also include the systematic walking of open ploughed fields at five metre intervals as outlined in Section 2.1.1 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards further require that all agricultural land, both active and inactive, be recently ploughed and sufficiently weathered to improve the visibility of archaeological resources. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing, and must be able to ensure at least 80% ground surface visibility.

Should any additional areas of disturbance or features indicating that archaeological potential has been removed, including permanently wet areas, exposed bedrock, and steep slopes, not previously identified during the Stage 1 property inspection be encountered during the Stage 2 archaeological assessment, they will be documented as outlined in Section 2.1.8 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

Portions of the Project study area have been subject to previous archaeological assessments (ASI 2016; EASI 2018: WASI 2012: YNAS 2012, 2014a, 2014b, 2105) and specifically some parts of the preferred preliminary routing options have been subject to previous Stage 1 assessment (Jacques Whitford 2006, 2017; Stantec 2016) (Figures 14-1 to 14-6 and 14-9 to 14-11). The recommendations from those reports, both pertaining to the general Project study area and the preferred routing options, have been carried forward to this report including the recommendation for Stage 2 assessment for portions from the

previous Bobcaygeon pipeline route Stage 1 assessment along Pigeon Lake Road and Centreline Road (Jacques Whitford 2006, 2017) and the Fenelon Falls pipeline route along Highway 35 (Stantec 2016).

Any portion of the Project route that is proposed to cross the Bobcaygeon River through property owned by Parks Canada will require assessment under Parks Canada policy and standards, which differ from the MHSTCI *Standards and Guidelines for Consultant Archaeologists.* It should also be noted that these specific areas have the highest degree of archaeological potential. It is recommended that any discussions between the proponent and Parks Canada for permission to conduct assessment and/or access the land for project purposes occur early so that any specific Parks Canada requirements are met.

In addition to the above, the Stage 1 archaeological assessment determined that there are areas within the study area which retain low to no archaeological potential due to previous deep and/or extensive disturbances, typically within the municipal RoW, or presence of permanently wet ground, including in the Bobcaygeon River and Pigeon Lake. In accordance with Section 1.3.2 and Section 7.7.4 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 archaeological assessment is not required for portions of the study area which retain low to no archaeological potential (Figures 14-1 to 14-11 and Figure 15-1 to 15-17).**

With respect to the property identified as a possible burying ground, Stage 2 assessment of the property has been completed and no archaeological resources were identified and the property has been recommended for no further assessment (NAA *in press*). Avoidance of this property for the current project is suggested, however, for due diligence. Prior to any Stage 2 assessment for the current project the MHSTCI should be contacted to confirm that the recommendations for no further assessment on the property have been accepted, which will help formulate Stage 2 assessment fieldwork planning.

With respect to the Lawrie (BcGp-1) site, the site retains cultural heritage value or interest. A Stage 2 archaeological assessment is recommended to relocate the site. The Stage 2 archaeological assessment will be conducted through test pit survey as outlined in Section 2.1.2 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have all soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill.

If future construction is anticipated near the site before it has been subject to Stage 3 archaeological assessment and it is decided that the site will be avoided**, it is recommended that a temporary protective fence be installed 20 metres away from the site limits during future construction. The archaeological site and its protective buffer will be protected and no construction impacts will be allowed. This protective buffer will extend 20 metres past the limits of the Stage 2 artifact scatter. The construction monitoring zone ranging from 20 metres to 70 metres from the site will also be observed where a licensed archaeologist will be required to monitor any construction activities impacting that zone.**

The portion of the Project study area containing the Bobcaygeon River, Pigeon River, Sturgeon Lake, and Pigeon Lake may retain potential for the identification of marine archaeological resources (Figure 6). At

this time, no construction impacts to the Bobcaygeon River, Pigeon River, Sturgeon Lake, or Pigeon Lake are anticipated as part of the Project. Thus, no marine archaeological assessment is required. However, if it is determined that in-water impacts to the Bobcaygeon River, Pigeon River, Sturgeon Lake, or Pigeon Lake will occur as part of the Project, it is recommended that potential for marine archaeological resources be evaluated using the MHSTCI's Criteria for Evaluating Marine Archaeological Potential Checklist.

Since even thorough archaeological assessments might miss some archaeological resources or relevant information, if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property, please contact:

Curve Lake First Nation
Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0
Tel: (705) 657-8045
E-mail: juliek@curvelake.ca

Nation Huronne-Wendat
Bureau du Nionwentsïo
255 Place Chef Michel Laveau
Wendake, Québec G0A 4V0
Tel: (418) 843-3767
E-mail: dominic.ste-marie@wendake.ca

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

The MHSTCI is asked to accept this report into the Ontario Public Register of Archaeological Reports.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

In accordance with Section 7.5.9 of the MHSTCI's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), the following standard statements are a required component of archaeological reporting and are provided verbatim from the MHSTCI's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18 (Government of Ontario 1990a). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (Government of Ontario 1990a) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990a).

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a). The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a).

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c. 33 (Government of Ontario 2002) requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a) and may not be altered, or have artifacts removed, except by a person holding an archaeological licence.

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7.0 PHOTOS

7.1 IMAGES

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Photos

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Photo 8: Disturbed RoW and adjacent undisturbed lawn and wooded area, facing northwest

Photos

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Photos

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Photos

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Photo 20: Disturbed roadway, undisturbed wooded areas adjacent, facing west

Photos

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Photos

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Photo 26: Pigeon River and associated wetlands along banks, low and permanently wet, facing northwest

Stage 1 Archaeological Assessment: Bobcaygeon Community Expansion Project

Various Lots and Concessions, Geographical Townships of Emily and Verulam, Victoria County, Geographical Township of Harvey, Peterborough County, and Geographical Townships of Manvers and Cavan, Durham County, Ontario

August 26, 2022

Prepared for:

Enbridge Gas Distribution Inc.
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PIF Number: P415-0323-2021
Project #: 160951282

Revised Supplementary Documentation

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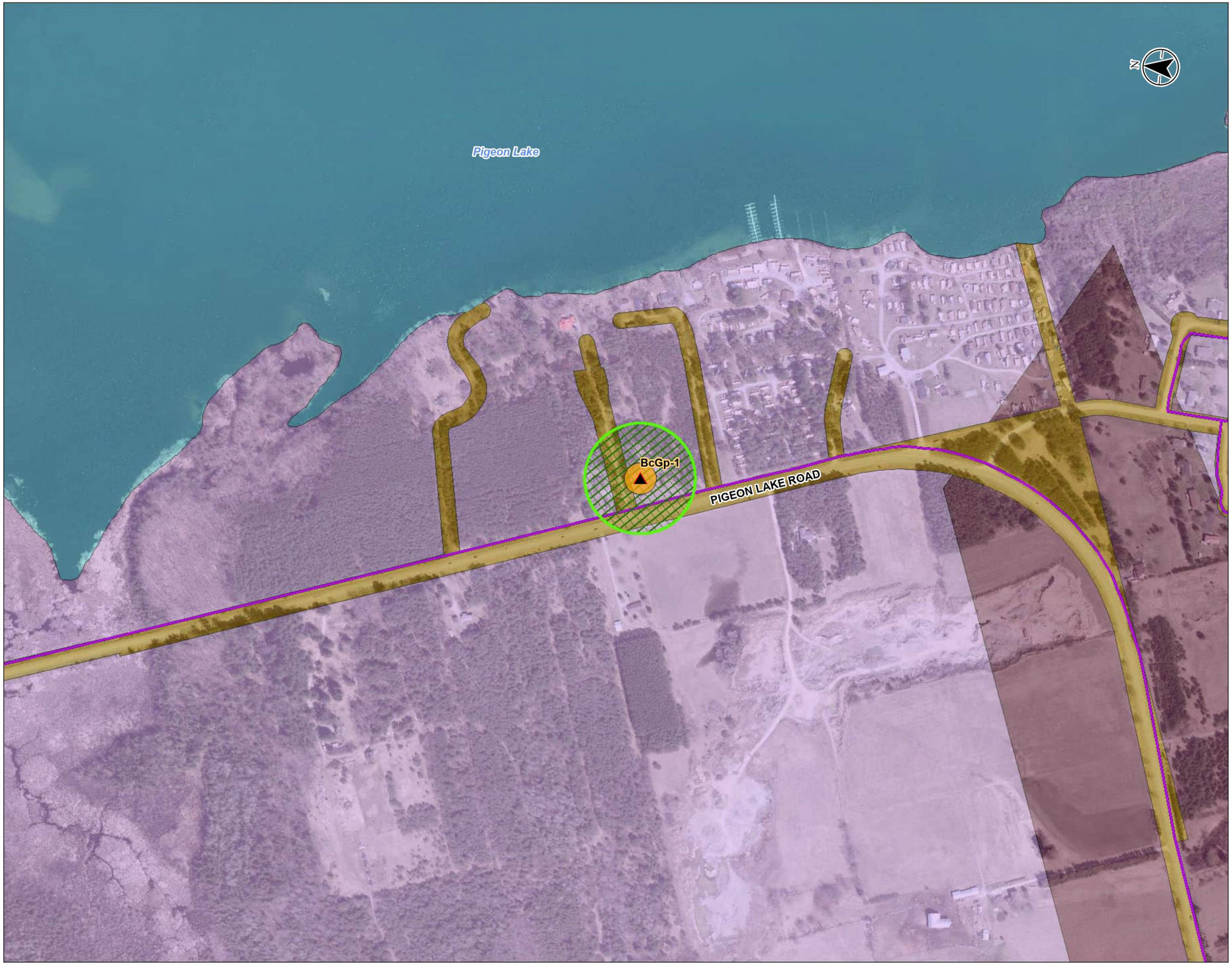
2.0 SITE LOCATIONS 1

1.0 MAP

Further work recommendations regarding Lawrie (BcGp-1) are illustrated in the tile below.



Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 2)

Archaeology Features

- BcGp-1
- 20 m No-Go Protective Buffer
- 50 m Monitoring Buffer
- Study Area

Assessment Method

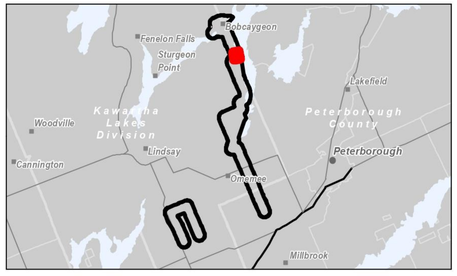
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment

0 100 200 Metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the OntarioM inistry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date, 2008 and Kawartha Conservation, Imagery date, 2018.



Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Tile No.
1

Title
Stage 1-2 Methods and Results

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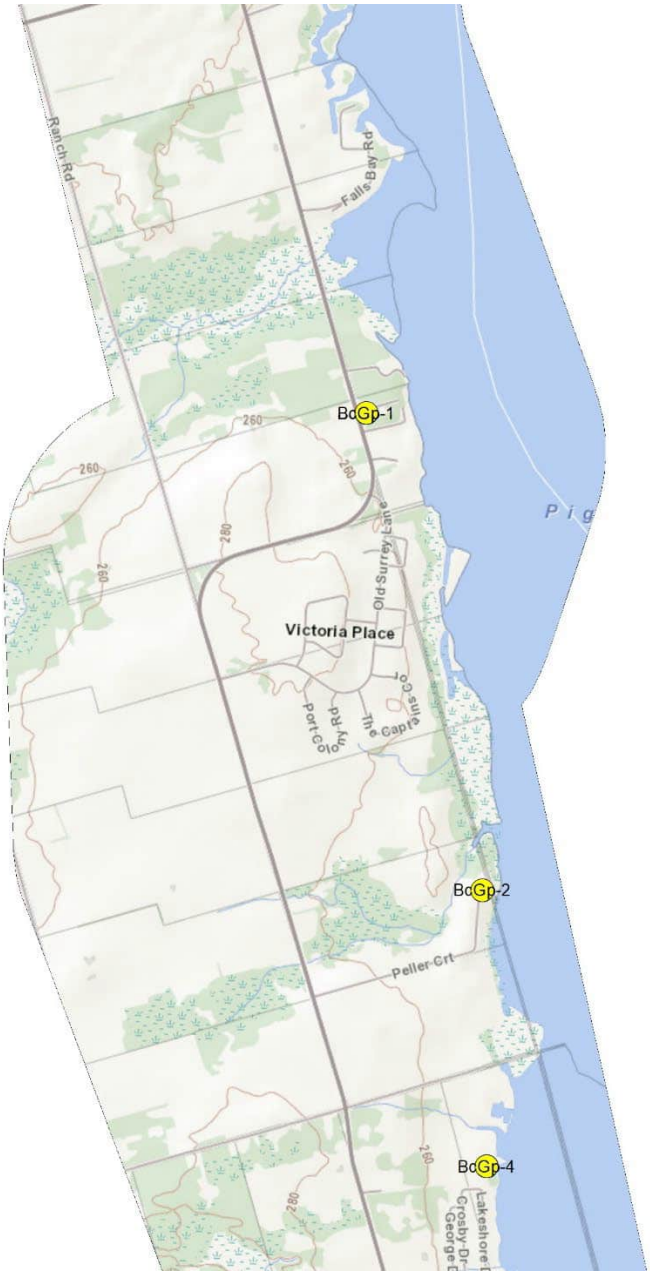
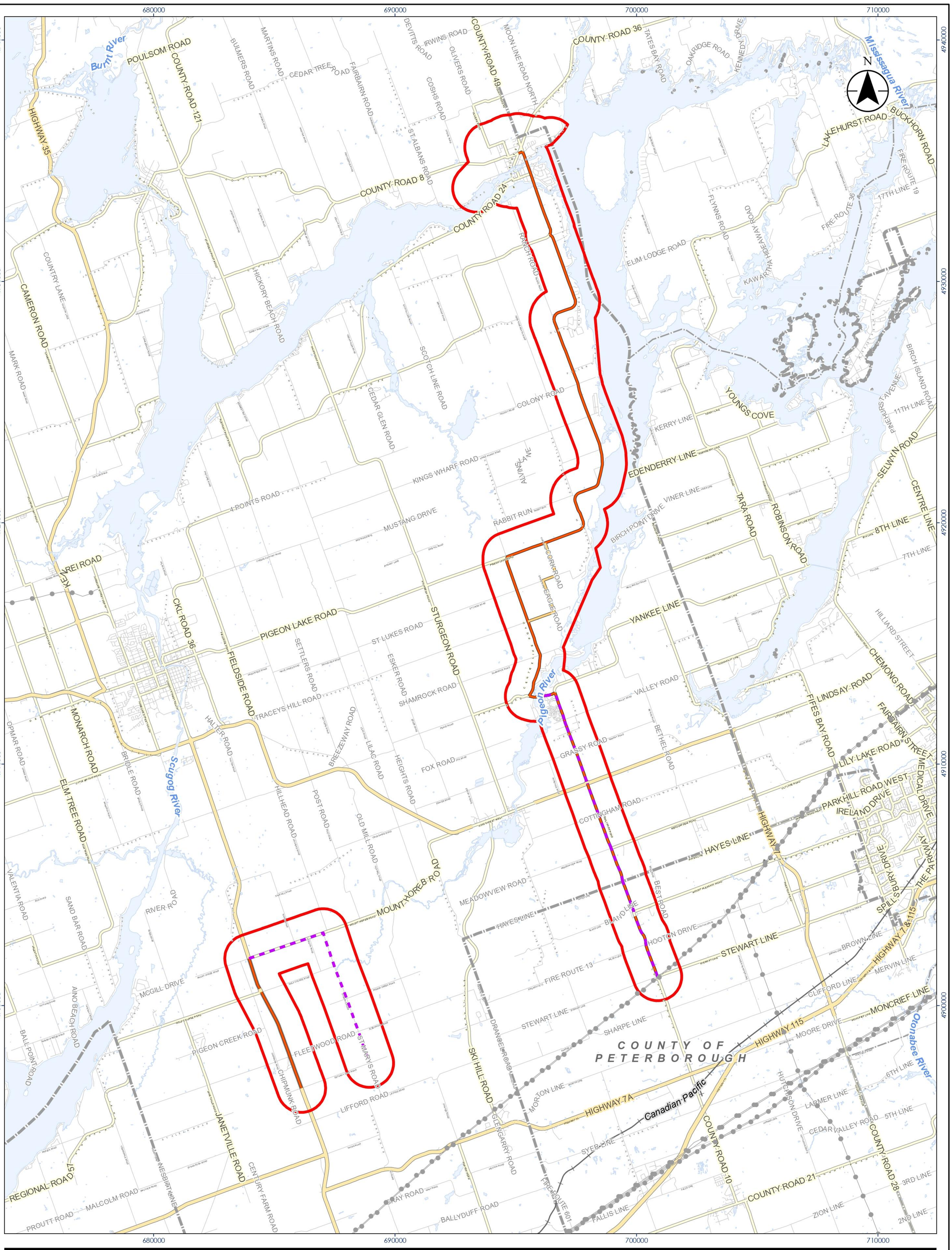
2.0 SITE LOCATIONS

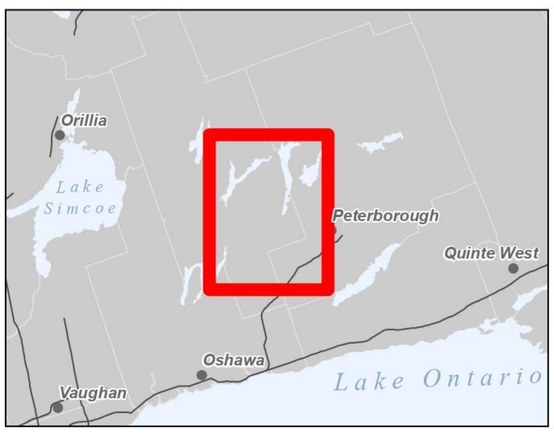
For the purposes of route planning for the project, a map showing the general location of the registered archaeological sites within the study area is shown below.



8.0 MAPS

All maps will follow on succeeding pages.





Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2017.

Legend

- Preliminary Preferred Route for Supply Lateral
- Alternative Route for Supply Lateral
- Alternative Route for Reinforcement
- Study Area
- Hydro Line
- Expressway / Highway
- Major Road
- Minor Road
- Municipal Boundary
- Municipal Boundary, Lower
- Waterbody

0 2,900 5,800 metres

1:160,000 (At Original document size of 11x17)

Stantec ENBRIDGE

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2022-03-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
1

Title
Project Location - Overview

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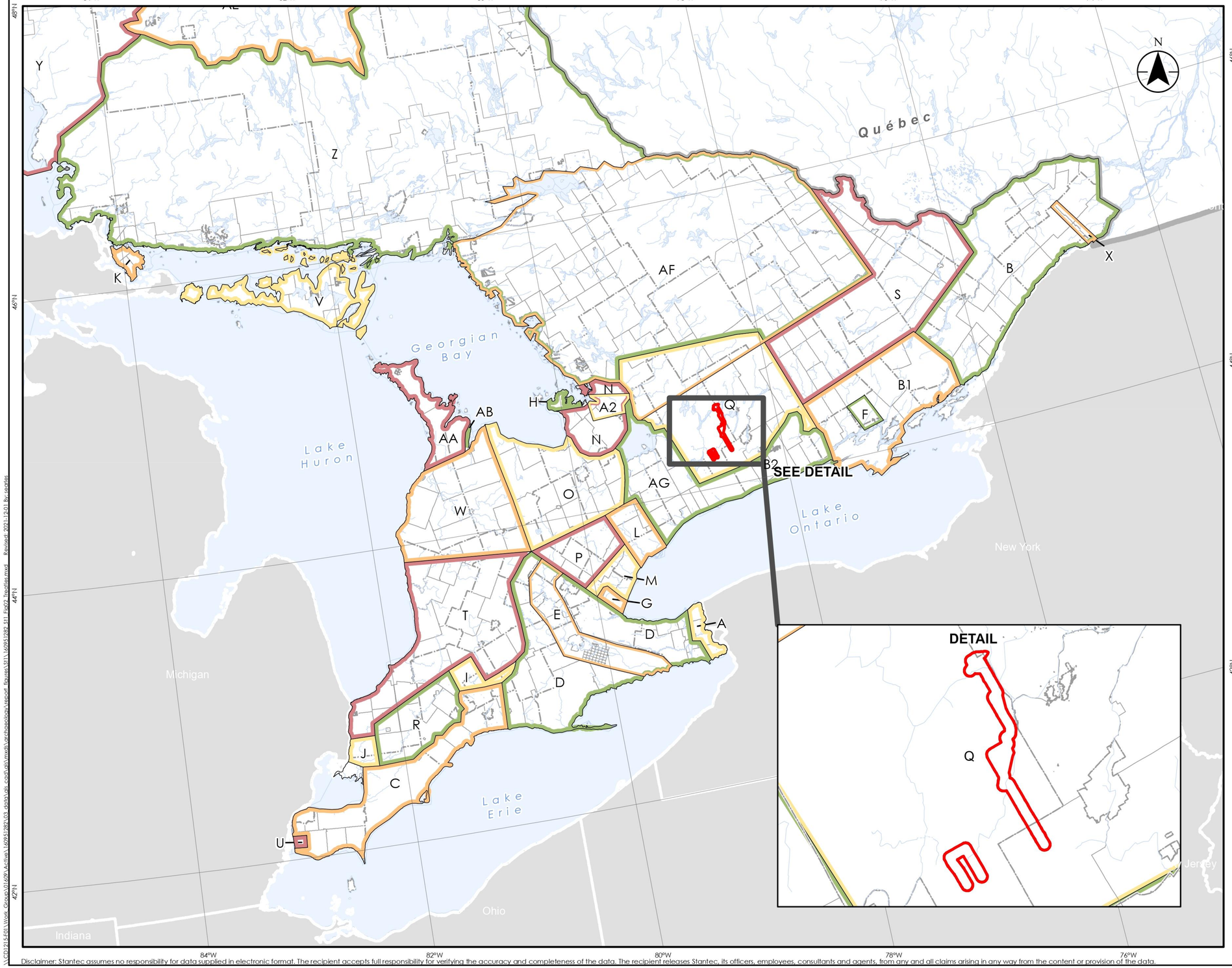

Stantec

Legend

- Study Area
- Waterbody
- Municipal Boundary - Upper Tier
- Municipal Boundary - Lower or Single Tier

A Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AE Treaty No. 9, James Bay 1905, 1906 (Ojibway and Cree)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)
A2 John Collins' Purchase, 1785 (Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchase, 1783, 1787, 1788 (Mississauga)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract: from the Crown to the Mohawk, 1793
F Tyendinaga: from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4: from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
K Treaty No. 11, June 30th, 1798 (Chippewa)
L Treaty No. 13, August 1st, 1805 (Mississauga)
M Treaty No. 13A, August 2nd, 1805 (Mississauga)
N Treaty No. 16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W Treaty No. 45½, August 9th, 1836 (Saugeen)
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Y Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
Z Treaty No. 61, Robinson, Huron, September 9th, 1850 (Ojibwa)

0 50 100 Km
1:3,000,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
2

Title
Treaties and Purchases (Adapted from Morris 1943)

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Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Kains, T., 1877. Map of the County of Victoria, Province of Ontario. Library and Archives Canada, National Map Collection, H2/420/Victoria/1877

Project Location City of Kawartha Lakes and County of Peterborough	160951282 REVA Prepared by KB on 2021-12-01 Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

3

Title

Study Area as Shown Over 1877 Map of Verulam Township

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Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Belden, H., 1881. Victoria Supplement in Illustrated atlas of the Dominion of Canada. Toronto: H. Belden & Co.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
4

Title
Study Area as Shown Over 1881 Map of Verulam Township

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N

Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Belden, H.. 1881. Victoria Supplement in Illustrated atlas of the Dominion of Canada. Toronto: H. Belden & Co.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
6

Title
Study Area as Shown Over 1881 Map of Emily Township

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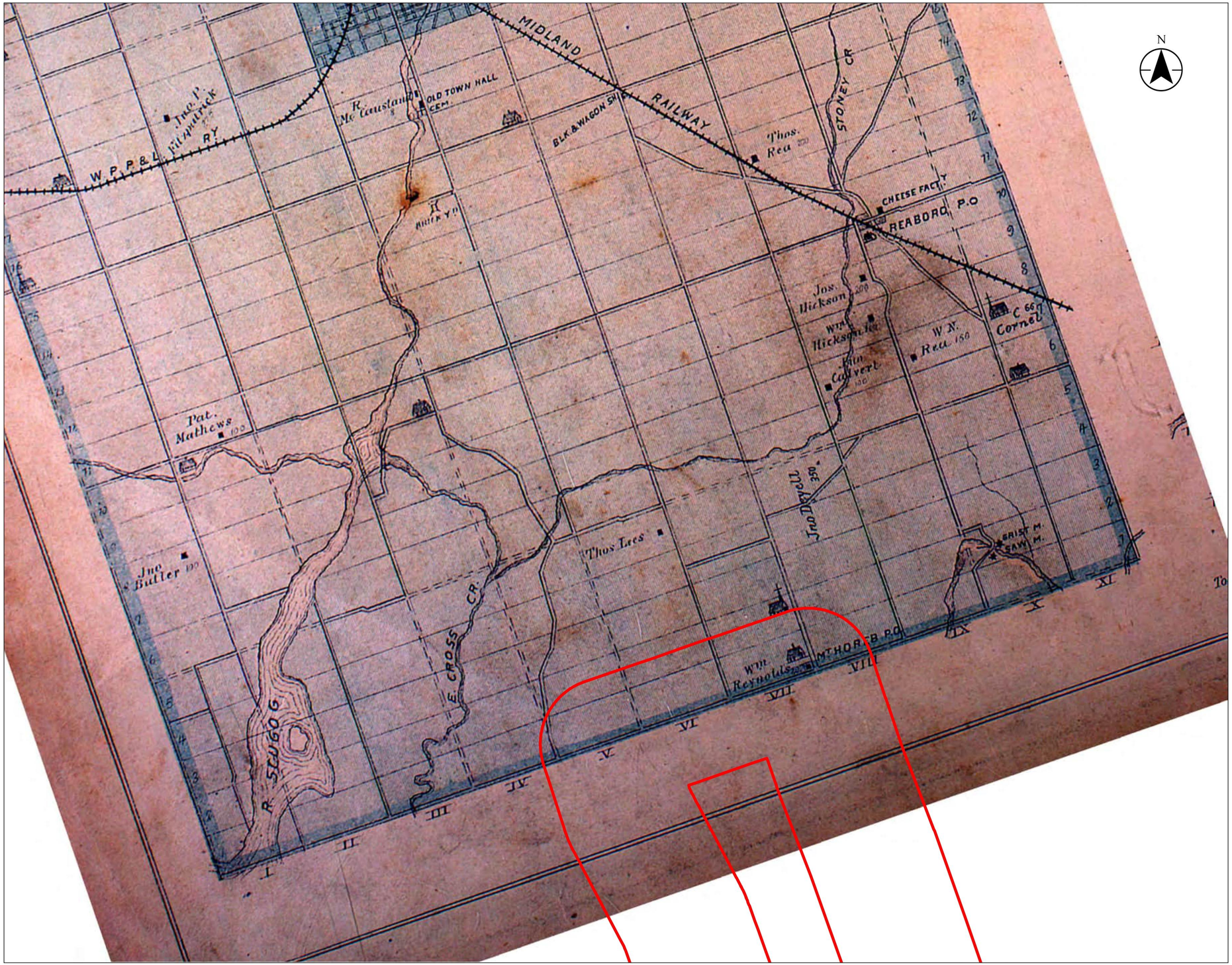

Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Belden, H., 1881. Victoria Supplement in Illustrated atlas of the Dominion of Canada. Toronto: H. Belden & Co.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
7

Title
Study Area as Shown Over 1881 Map of Ops Township

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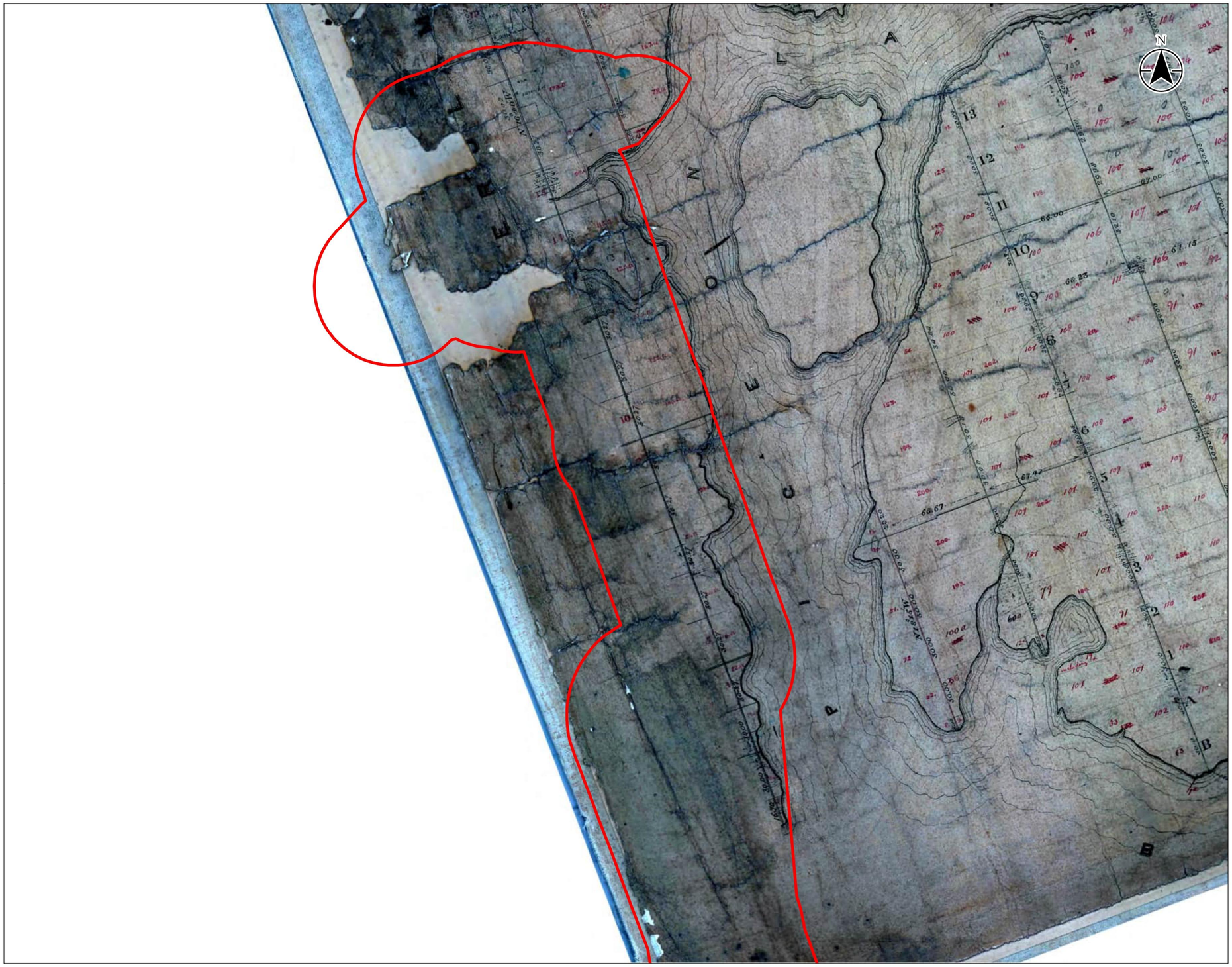

Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Clementi, Theodore. 1865. Harvey (No.28). Map on file with the Ministry of Natural Resources and Forestry, Peterborough.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
8

Title
Study Area as Shown Over 1865 Survey of Harvey Township

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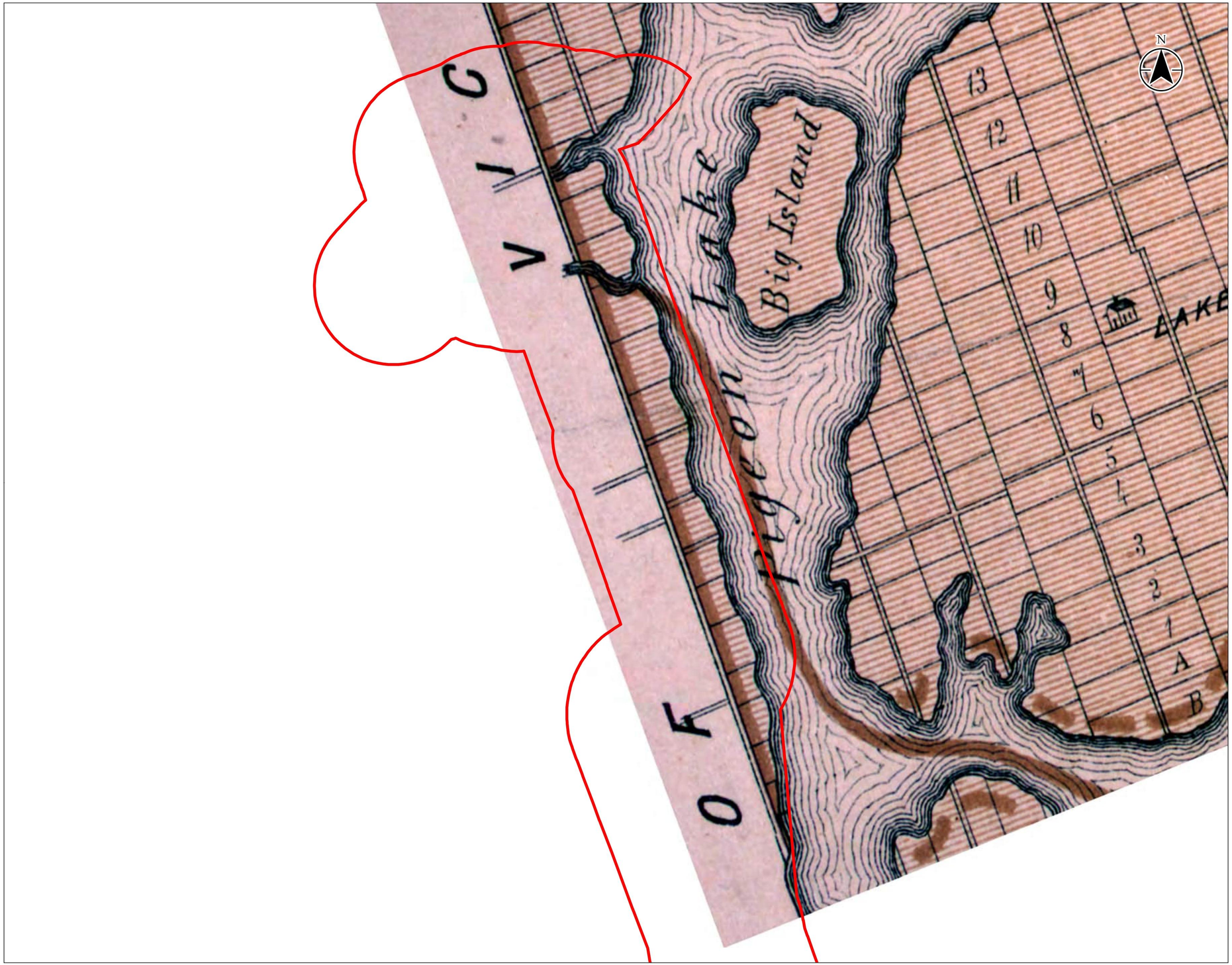

Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Miles and Co. 1879. County of Peterborough. Toronto : Miles & Co.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
9

Title
Study Area as Shown Over 1879 Map of Harvey Township

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Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Tremaine, Geo. C. 1861. Tremaine's Map of the County of Durham, Upper Canada. Toronto: Geo. C. Tremaine.

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2021-12-01
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
10

Title
Study Area as Shown over 1861 Map of Cavan Township

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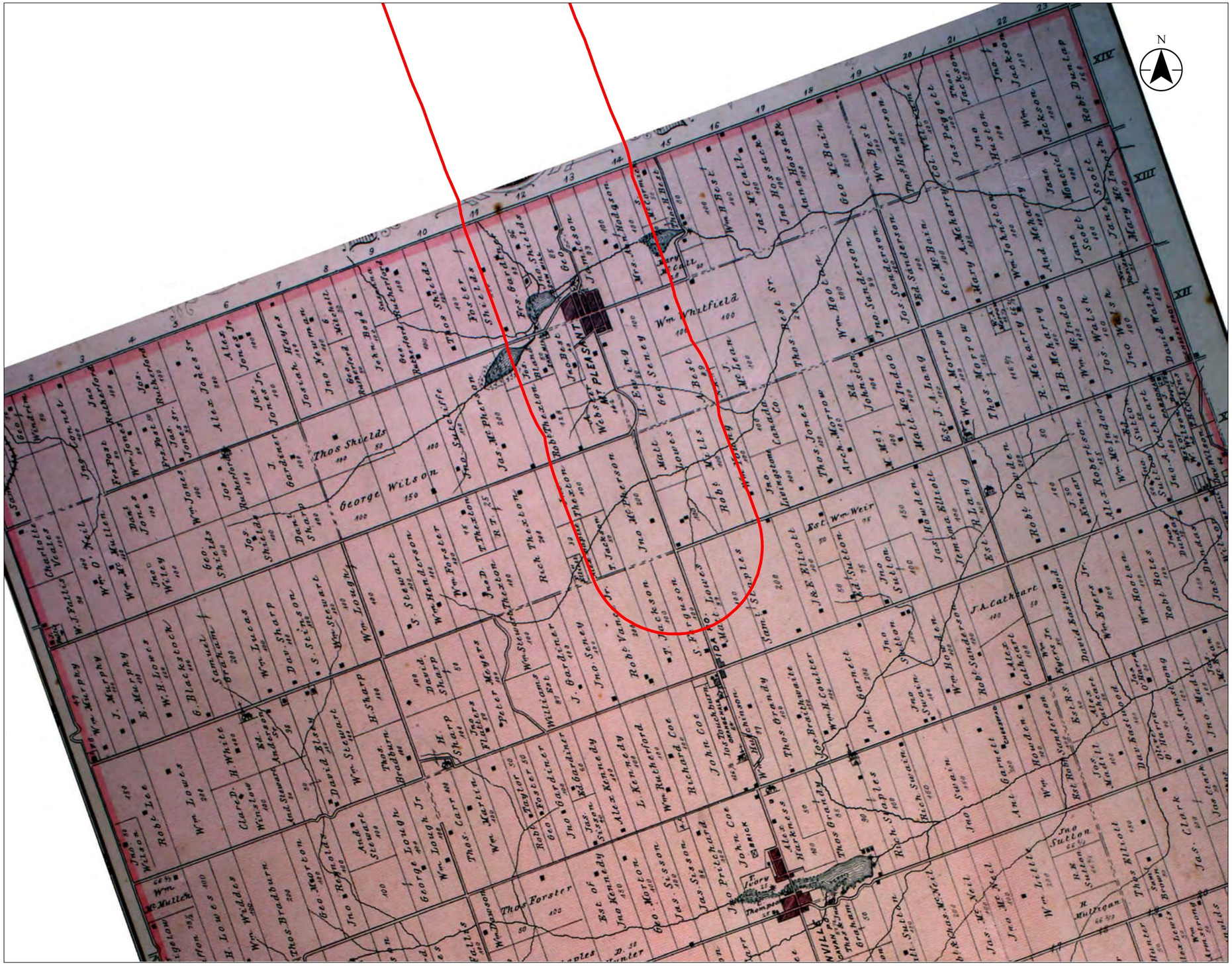
N
Thos Shields
George Wilson
Wm Whitfield
Jno Best
Jas McCall
Jno Hossack
Geo McBain
Wm Best
Thos Henderson
Jas Peggett
Jno Huston
Wm Jackson
Robt Dunlap
Jane Scott
Mary McInnes
Wm Hoolton
Jno Sunderson
Jos Sunderson
Ed Sunderson
Geo McBain
Mary A McHarry
Wm Johnston
Jno Johnston
Jas Sunderson
Thos Morrow
Jno Sutton
Jno Walsh
Jno Wilson
Robt Lee
Wm Lowes
Jno Lowes
Wm Murphy
Jno Murphy
Wm Lucas
Samuel Graham
Jno Sharp
Wm Sharp
Jno Clark
Jno Wiley
Jno Neumann
Josiah Hayes
Jno Connel
Jno Rutherford
Wm Jones
Alex Jones Sr
Alex Jones Jr
Jas Jones Jr
Jas Jones Sr
Jno Gardiner
Thos Shields
Jno Stukeliffe
Jas McPherson
Robt Thexton
Jno Best
Webster PLEASANT
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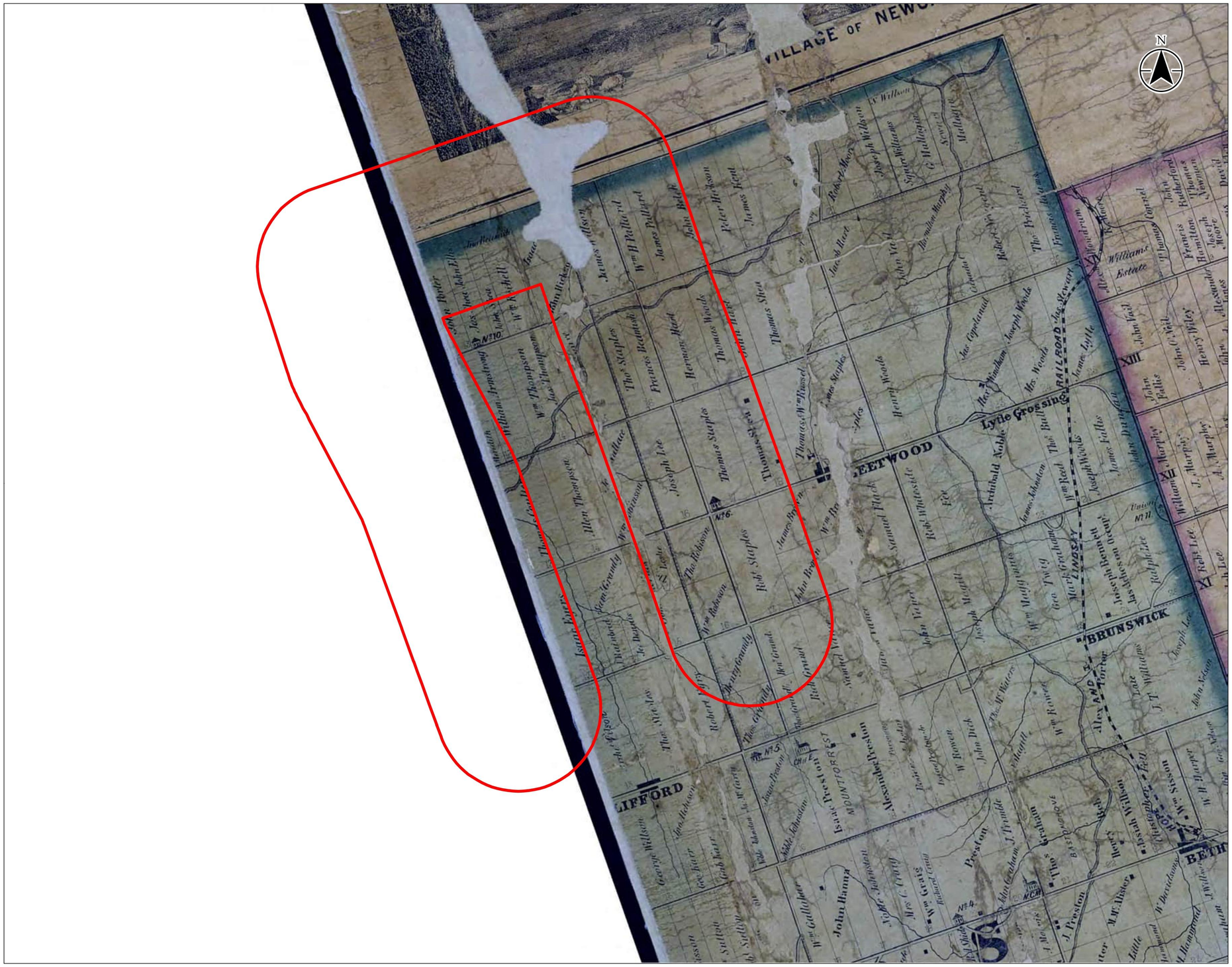
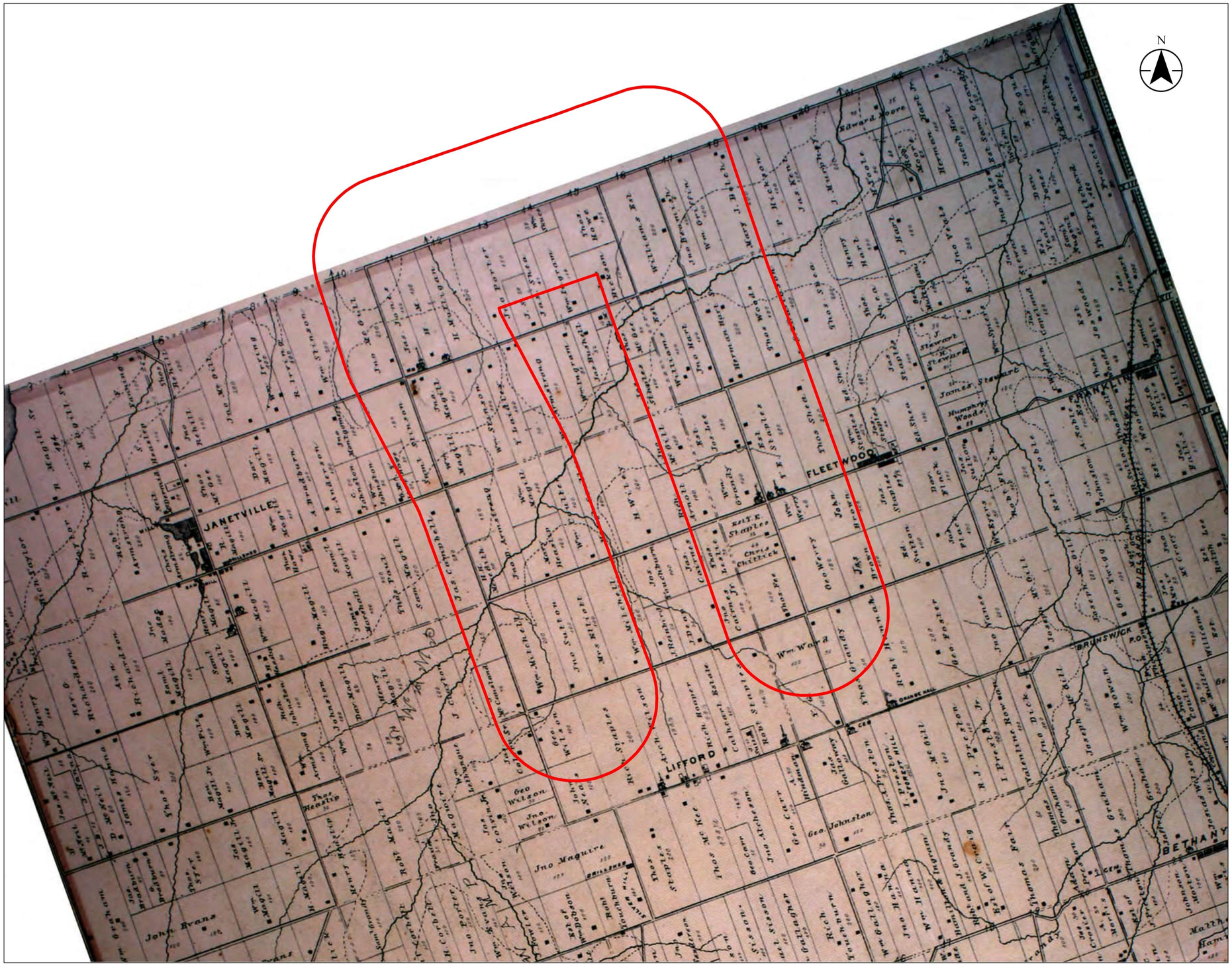

VILLAGE OF NEWC
N
Williams Estate
Lytle Gros sing
RAILROAD
BRUNSWICK
LIFFORD
BETH
MOUNTORREST
Isaac Preston
Alexander Preston
John Hanna
Thomas Staples
Thomas Shea
Henry Woods
Joseph Woods
Joseph Lee
Hermon Reed
Peter Hutson
James Kent
James Pollard
Wm H Pollard
Thos Staples
Frances Reddick
Thomas Woods
Robert Murray
Joseph Wilson
Squire Williams
G Mallegin
Several
Mallegin
Thomas Conrad
John Sutherland
Francis Hamilton
Thomas Newman
Joseph Moore
John Vail
Henry Wiley
John Fallis
John Murphy
J. Murphy
A. Murphy
Joseph Woods
James Fallis
John Dargavel
Wm Sisson
Josiah Wilson
Henry Reed
Thos Graham
Wm Graig
Robert Craig
Robt Stephens
Robt Mitchell
Wm Robeson
Wm Gallacher
Wm Thompson
Allen Thompson
Joseph Lee
Thos Robeson
Robert Perry
Thos Gilgore
George Wilson
Geo Fiers
Geo Barr
Wm Gallacher
Jno Robeson
Jno Johnston
Jno Graham
J. Preston
W. Preston
W. Davidson
W. Harper
Jno Nelson
Jno Dick
Jno Vair
Jno Hart
Jas Copeland
Robert Vogel
Thos Pickerd
Francis Reddick
Thomas Shea
Thomas Wm Russel
Mrs Staples
Mrs Windham
Mrs Woods
Jas Lytle
Archibald Noble
Jas Johnston
Wm Reed
Thos Ball
Jas Johnson
Jno Vair
Thomas Murphy
Robert Vogel
Edward
Jno Hart
Isaac Hart
Jno Vair
Thomas Shea
John Hart
Peter Hutson
James Kent
James Pollard
Wm H Pollard
Thos Staples
Frances Reddick
Thomas Woods
Hermon Reed
Joseph Lee
Thomas Staples
Thomas Shea
Henry Woods
Thomas Wm Russel
Mrs Staples
Mrs Windham
Mrs Woods
Jas Lytle
Archibald Noble
Jas Johnston
Wm Reed
Thos Ball
Jas Johnson



Stantec

Legend

Study Area

Figure Not to Scale

Notes

1. Source: Tremaine, Geo. C. 1861. Tremaine's Map of the County of Durham, Upper Canada. Toronto: Geo. C. Tremaine.

Project Location City of Kawartha Lakes and County of Peterborough	160951282 REVA Prepared by KB on 2021-12-01 Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.

PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

13

Title

Study Area as Shown Over 1878 Map of Manvers Township

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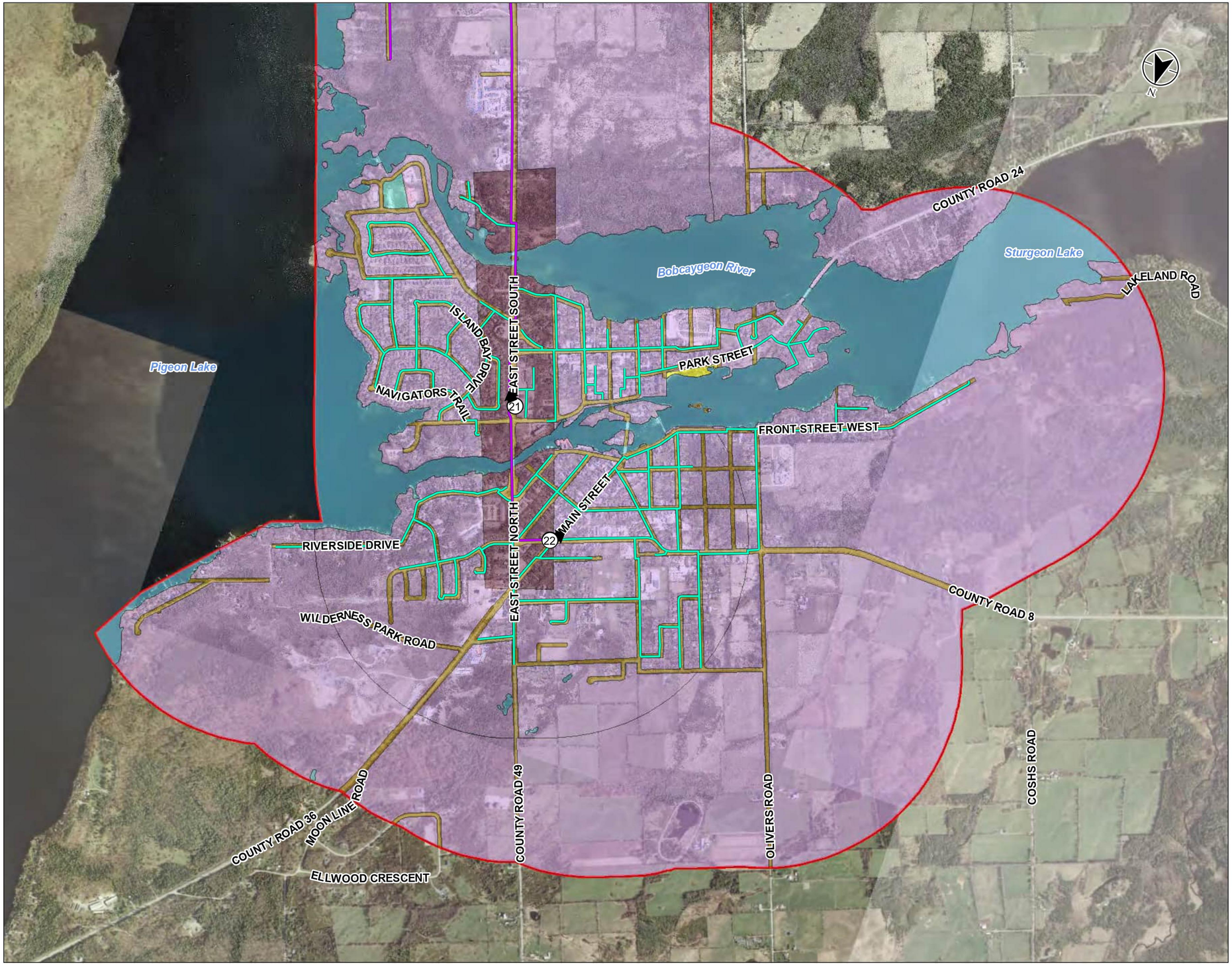


Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 2)
- Preferred Route (Phase 3)

Archaeology Features

- Archaeology Photo Log
- Study Area

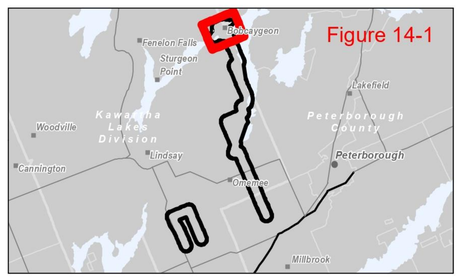
Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Possible Burying Ground
- Previously Assessed, ASI 2016 - No Further Assessment Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment

0 250 500 Metres
1:20,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date, 2008 and Kawartha Conservation, Imagery date, 2018.



Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-1

Title
Stage 1-2 Methods and Results

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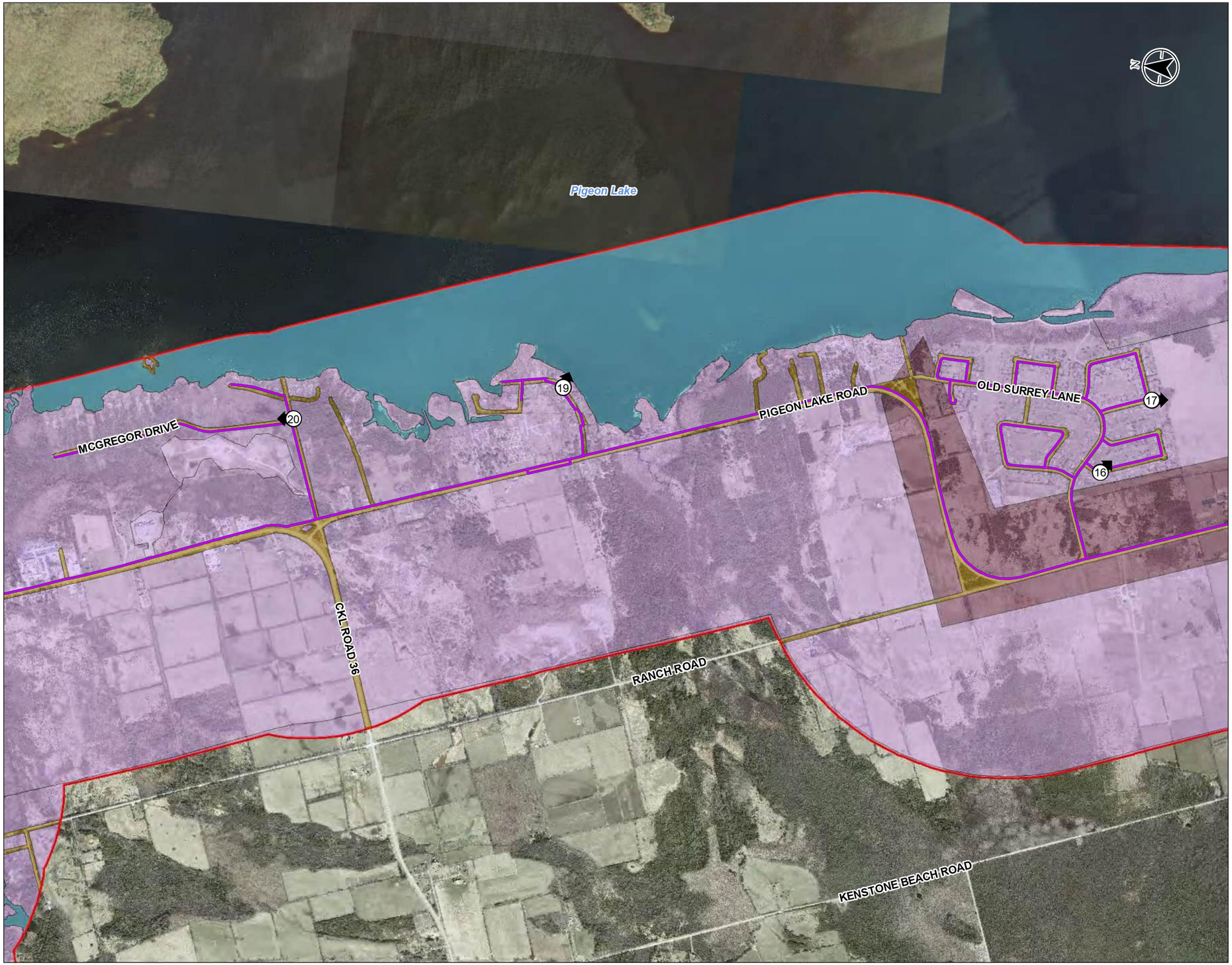

Stantec

Legend

Enbridge Gas Features

Preferred Route (Phase 2)

Archaeology Features

Archaeology Photo Log

Study Area

Assessment Method

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

Area of General Archaeological Potential - Stage 2 Recommended

Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment

0 250 500
Metres
1:20,000 (At original document size of 11x17)

Notes

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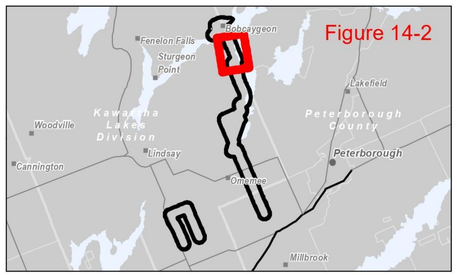

Project Location
City of Kawartha Lakes and County of Peterborough

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-2

Title
Stage 1-2 Methods and Results

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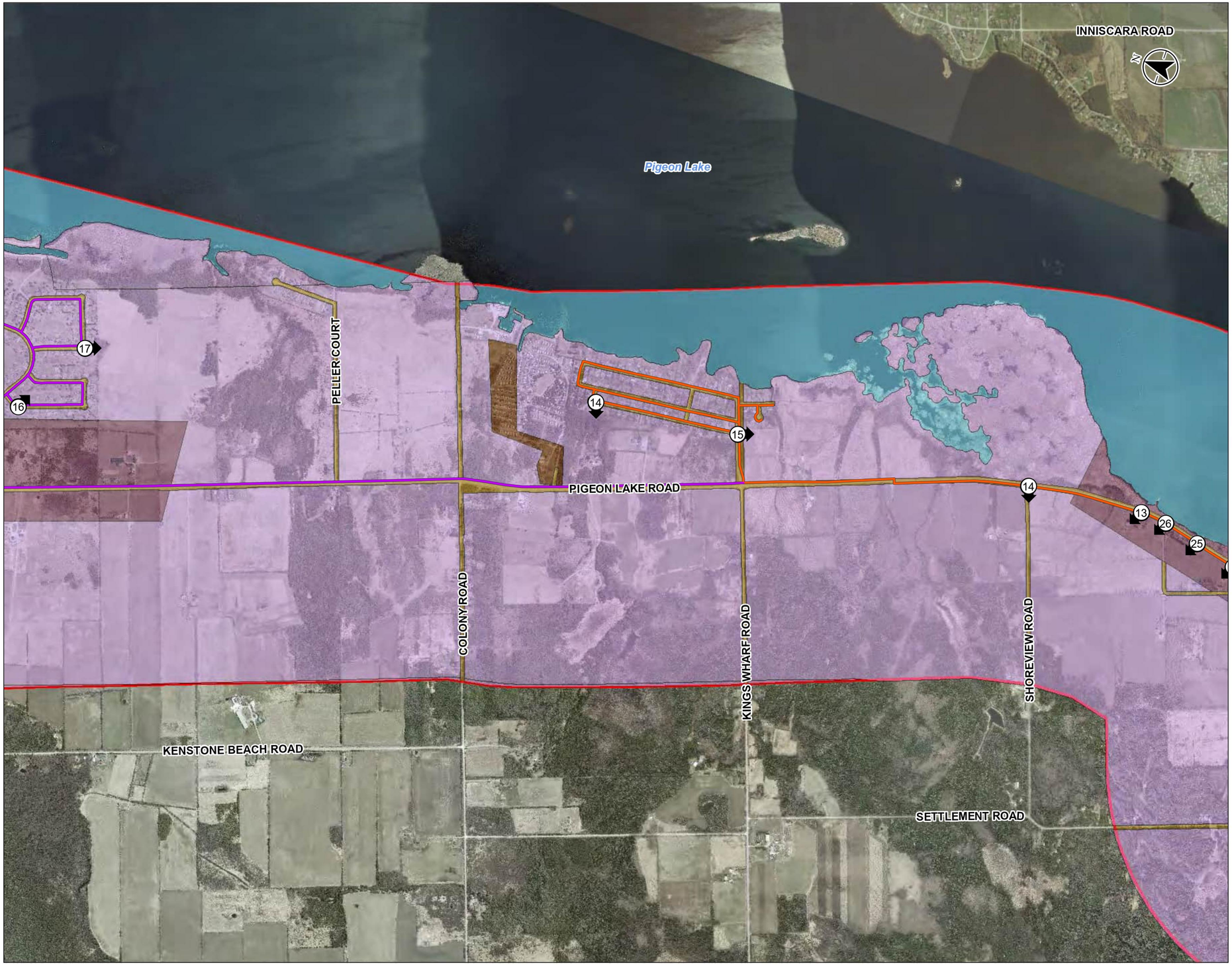

Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 2)

Archaeology Features

- Archaeology Photo Log
- Study Area

Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2014a, 2014b- No Further Assessment Recommended

0 250 500 Metres
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Notes

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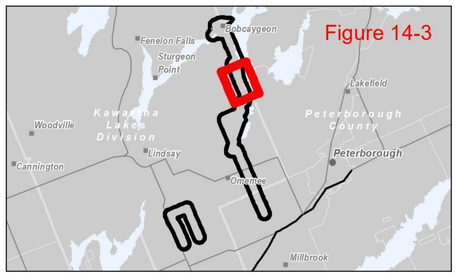

Project Location
City of Kawartha Lakes and County of Peterborough

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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-3

Title
Stage 1-2 Methods and Results

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Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 2)

Archaeology Features

- Archaeology Photo Log
- Study Area

Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2012 - No Further Assessment Recommended

0 250 500
Metres
1:20,000 (At original document size of 11x17)

Notes

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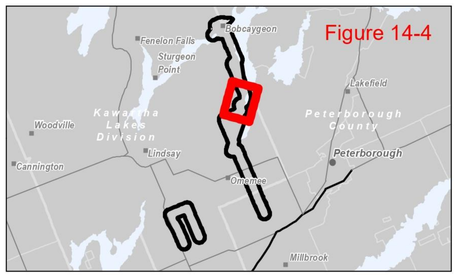

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City of Kawartha Lakes and County of Peterborough

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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-4

Title
Stage 1-2 Methods and Results

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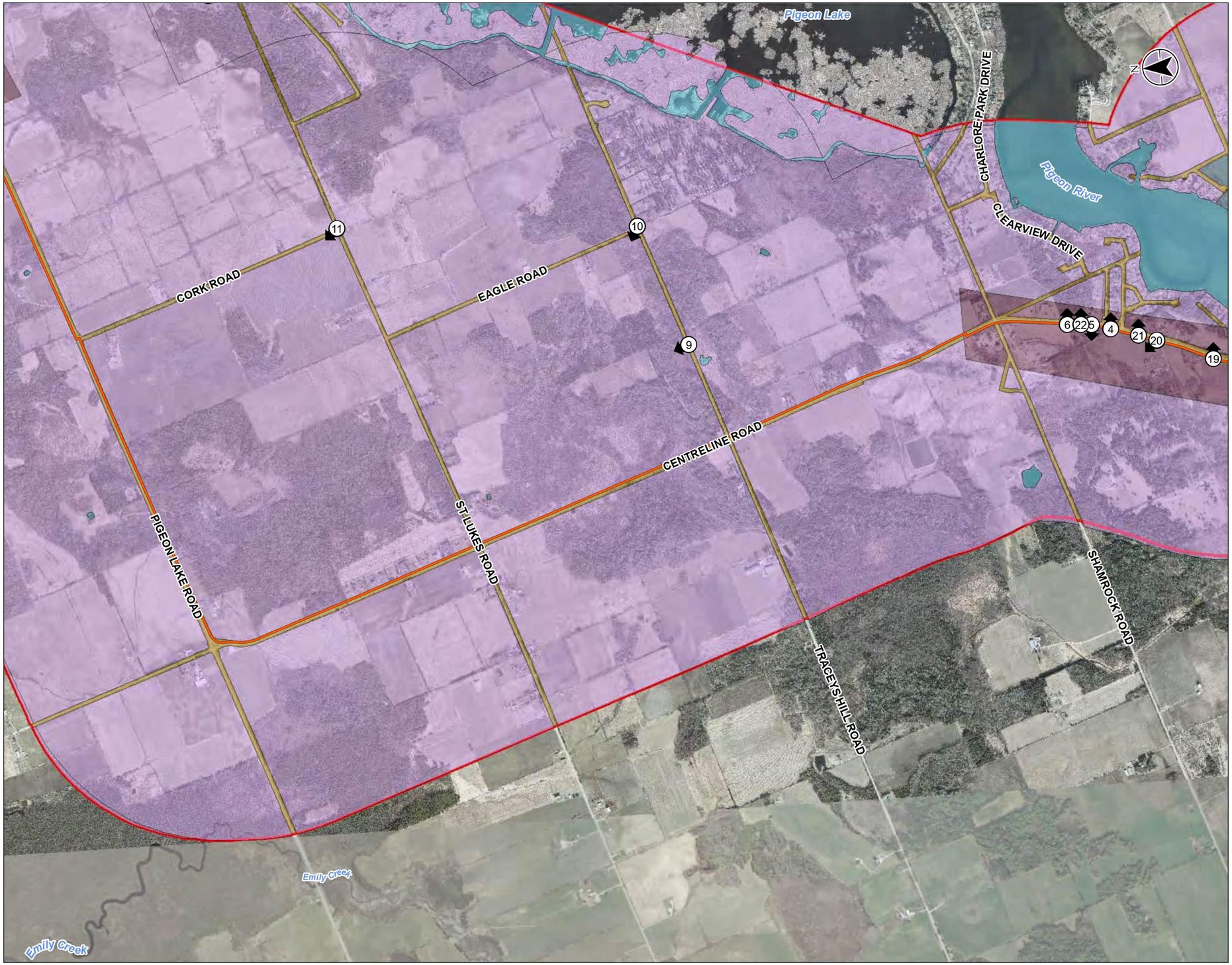

Stantec

Legend

Enbridge Gas Features

Preferred Route (Phase 1)

Archaeology Features

Archaeology Photo Log

Study Area

Assessment Method

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

Area of General Archaeological Potential - Stage 2 Recommended

Previously Assessed, EASI 2018 - No Further Assessment Recommended

Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment

0 250 500
Metres
1:20,000 (At original document size of 11x17)

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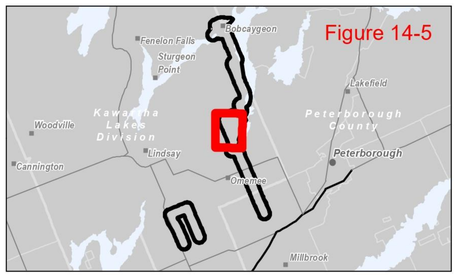

Project Location
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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-5

Title
Stage 1-2 Methods and Results

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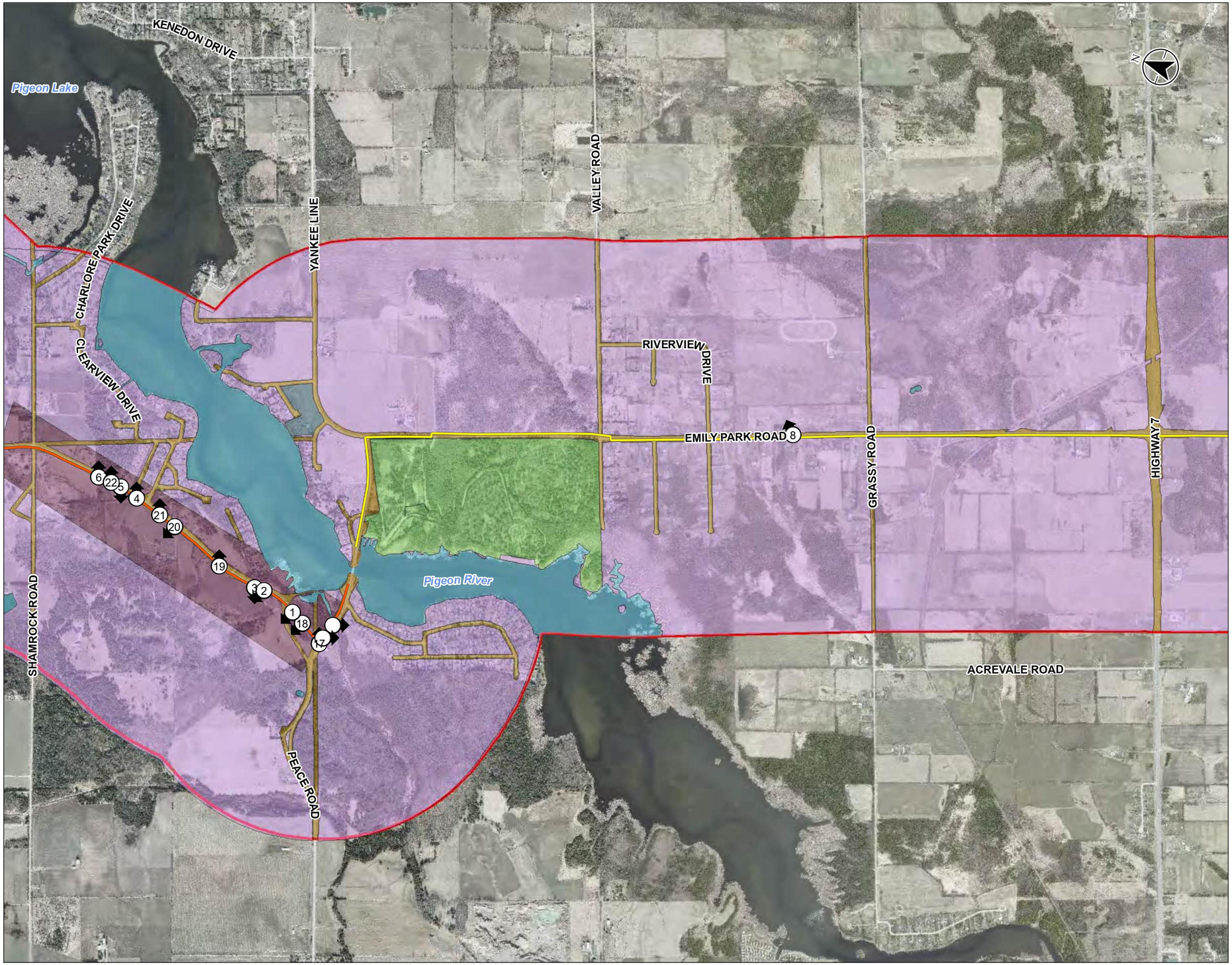

Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 4 - Part 1)

Archaeology Features

- Archaeology Photo Log
- Study Area

Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, EASI 2018 - No Further Assessment Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2015 - Stage 2 Assessment Recommended

0 250 500 Metres
1:20,000 (At original document size of 11x17)

Notes

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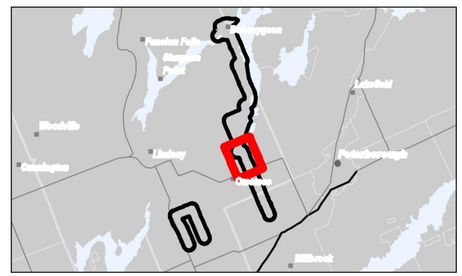

Project Location
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ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-6

Title
Stage 1-2 Methods and Results

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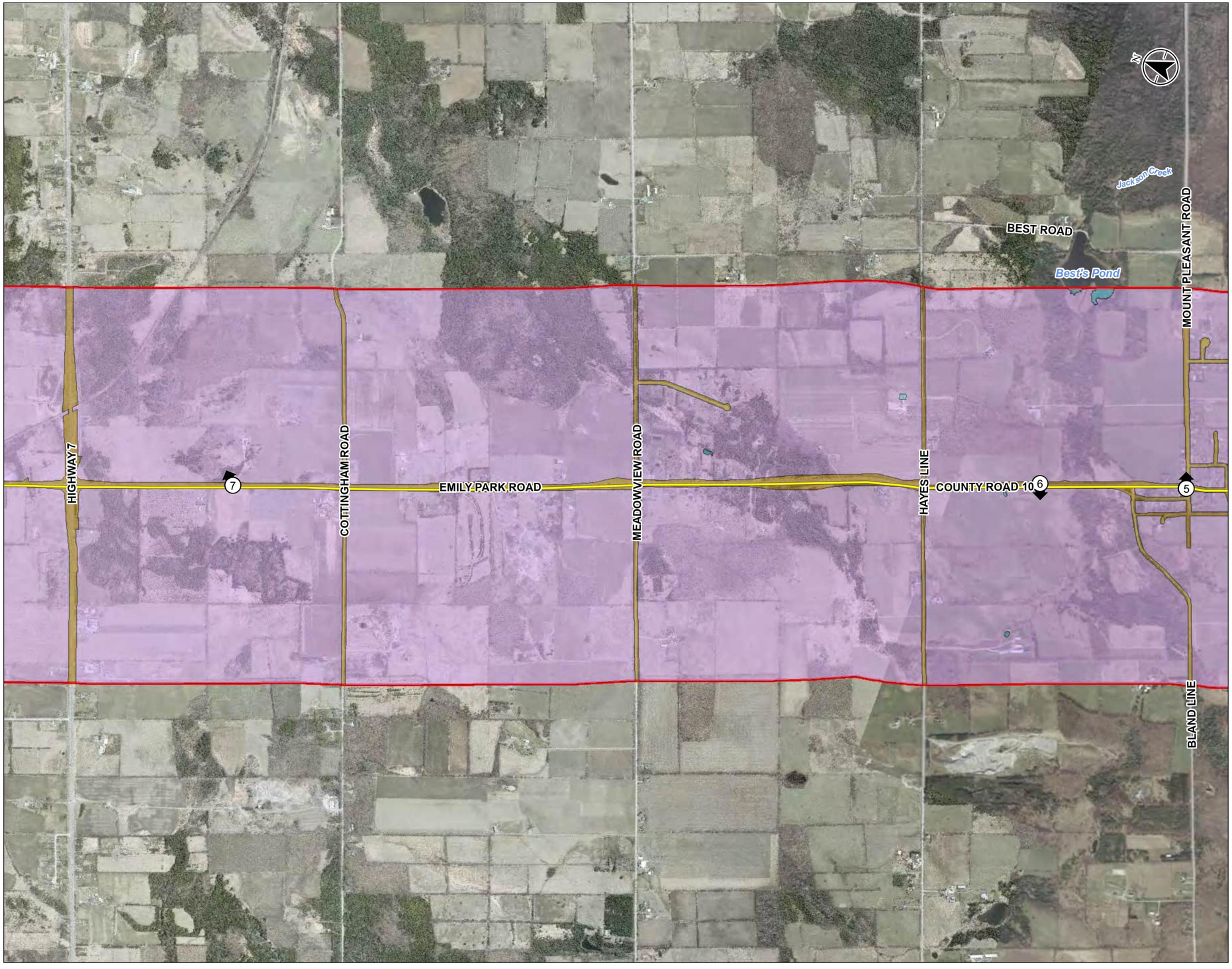

Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 1)

Archaeology Features

- Archaeology Photo Log
- Study Area

Assessment Method

- Area of Steep Slope, Low to No Archaeological Potential - No Further Archaeological Work Required
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended

0 250 500 Metres

1:20,000 (At original document size of 11x17)

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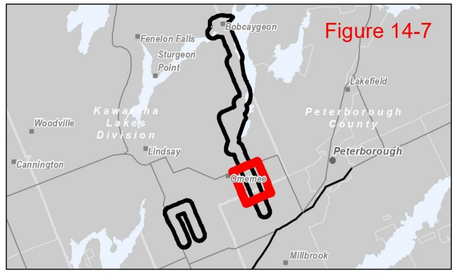

Project Location
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ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-7

Title
Stage 1-2 Methods and Results

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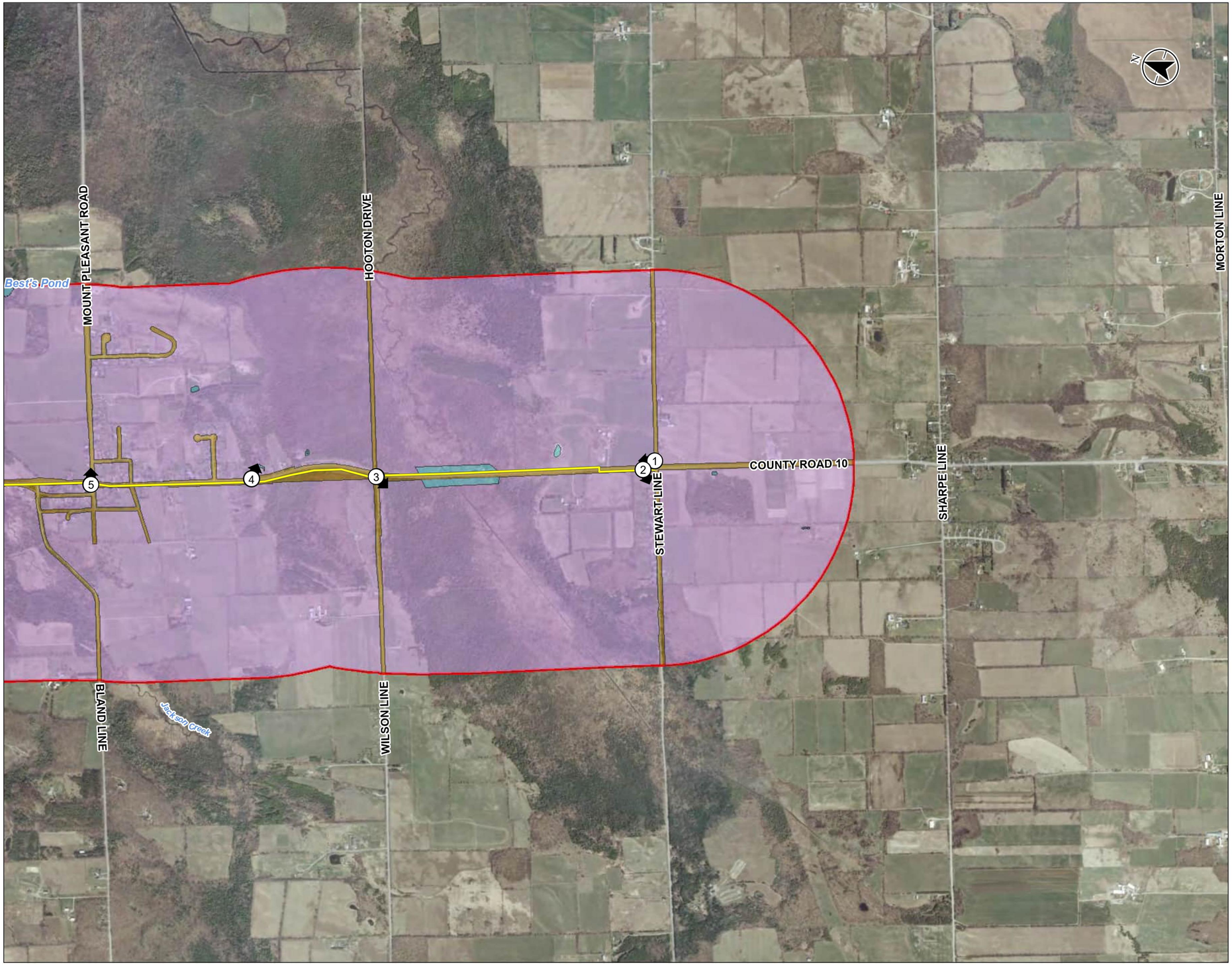

Stantec

Legend

Enbridge Gas Features

Preferred Route (Phase 4 - Part 1)

Archaeology Features

Archaeology Photo Log

Study Area

Assessment Method

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

Area of General Archaeological Potential - Stage 2 Recommended

0 250 500 Metres

1:20,000 (At original document size of 11x17)

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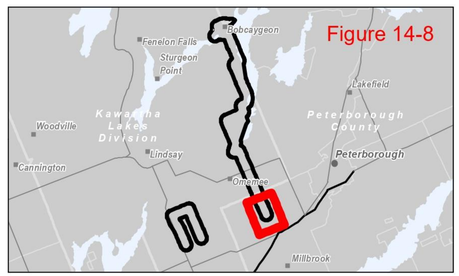

Project Location
City of Kawartha Lakes and County of Peterborough

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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-8

Title
Stage 1-2 Methods and Results

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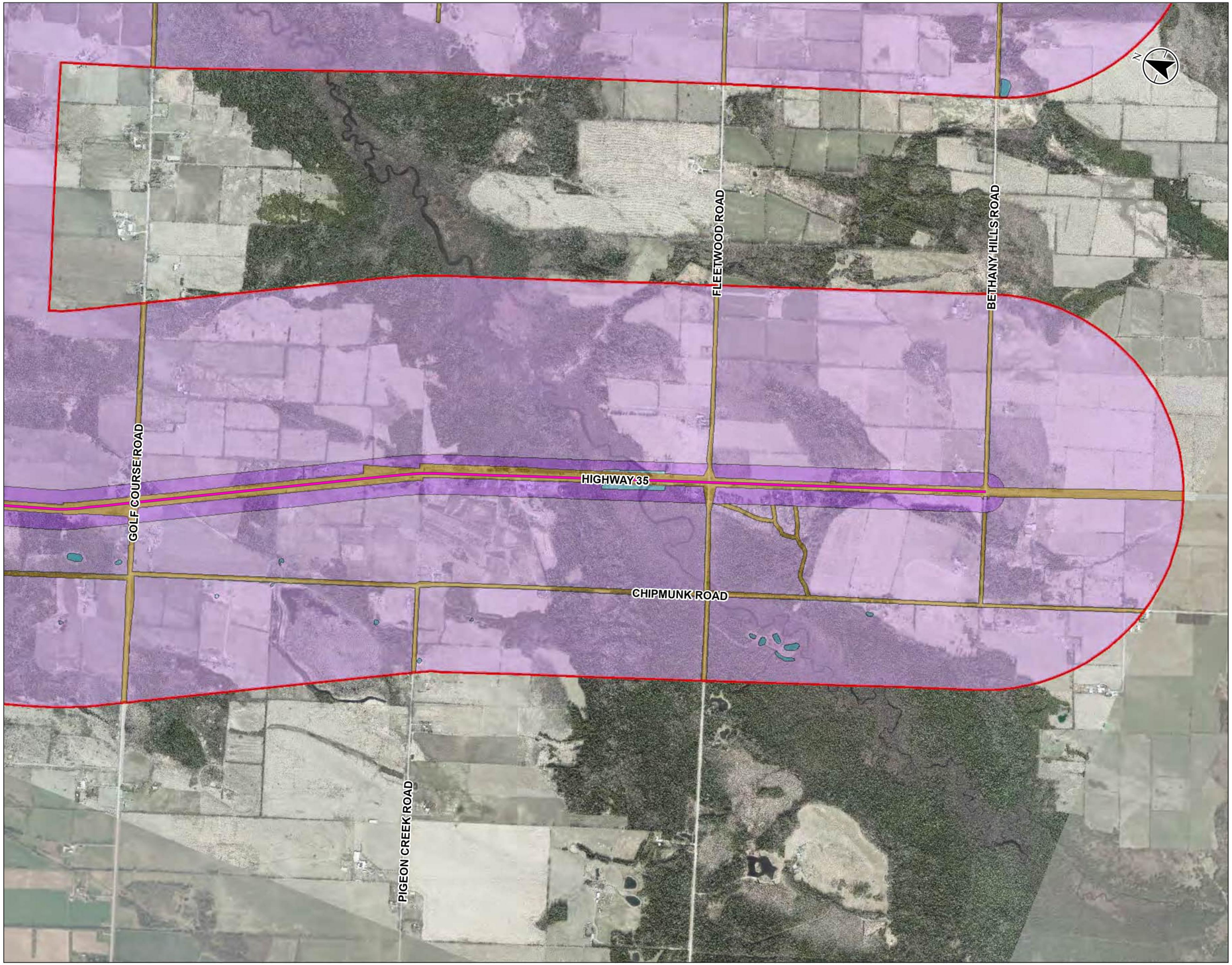

Stantec

Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 2)
- Study Area

Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment

0 250 500
Metres
1:20,000 (At original document size of 11x17)

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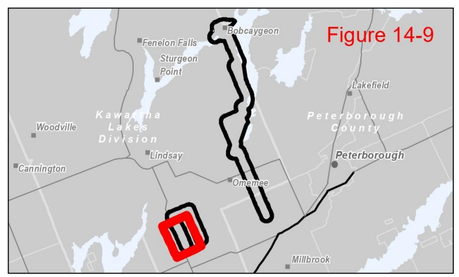

Project Location
City of Kawartha Lakes and County of Peterborough

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ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-9

Title
Stage 1-2 Methods and Results

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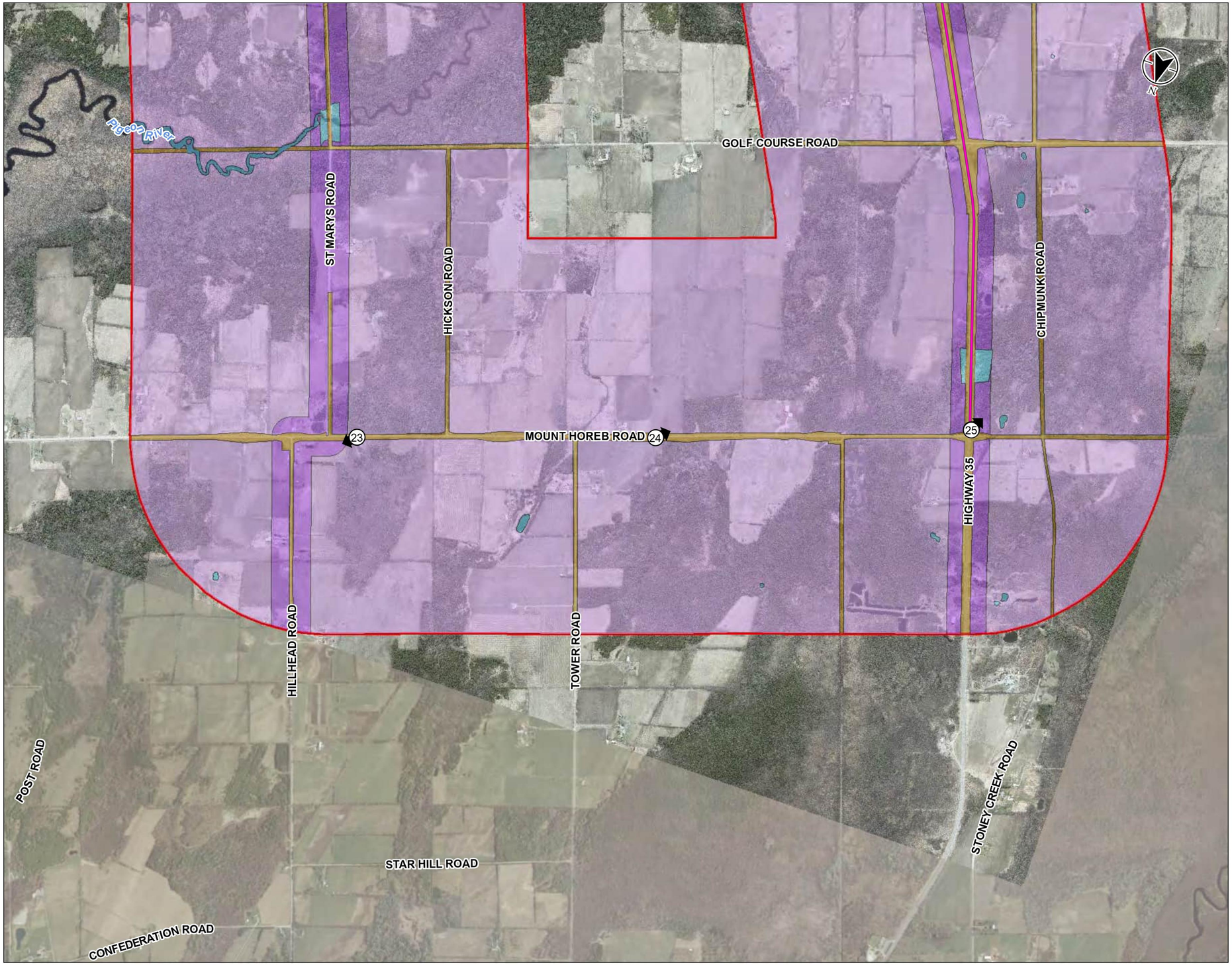

Stantec

Legend

Enbridge Gas Features

Preferred Route (Phase 4 - Part 2)

Archaeology Features

Archaeology Photo Log

Study Area

Assessment Method

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

Area of General Archaeological Potential - Stage 2 Recommended

Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment

0 250 500
Metres
1:20,000 (At original document size of 11x17)

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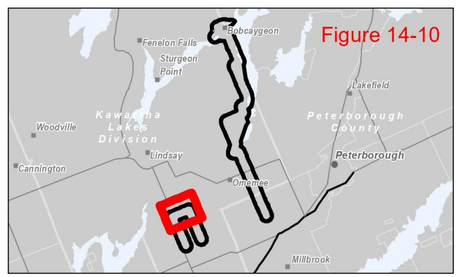

Project Location
City of Kawartha Lakes and County of Peterborough

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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-10

Title
Stage 1-2 Methods and Results

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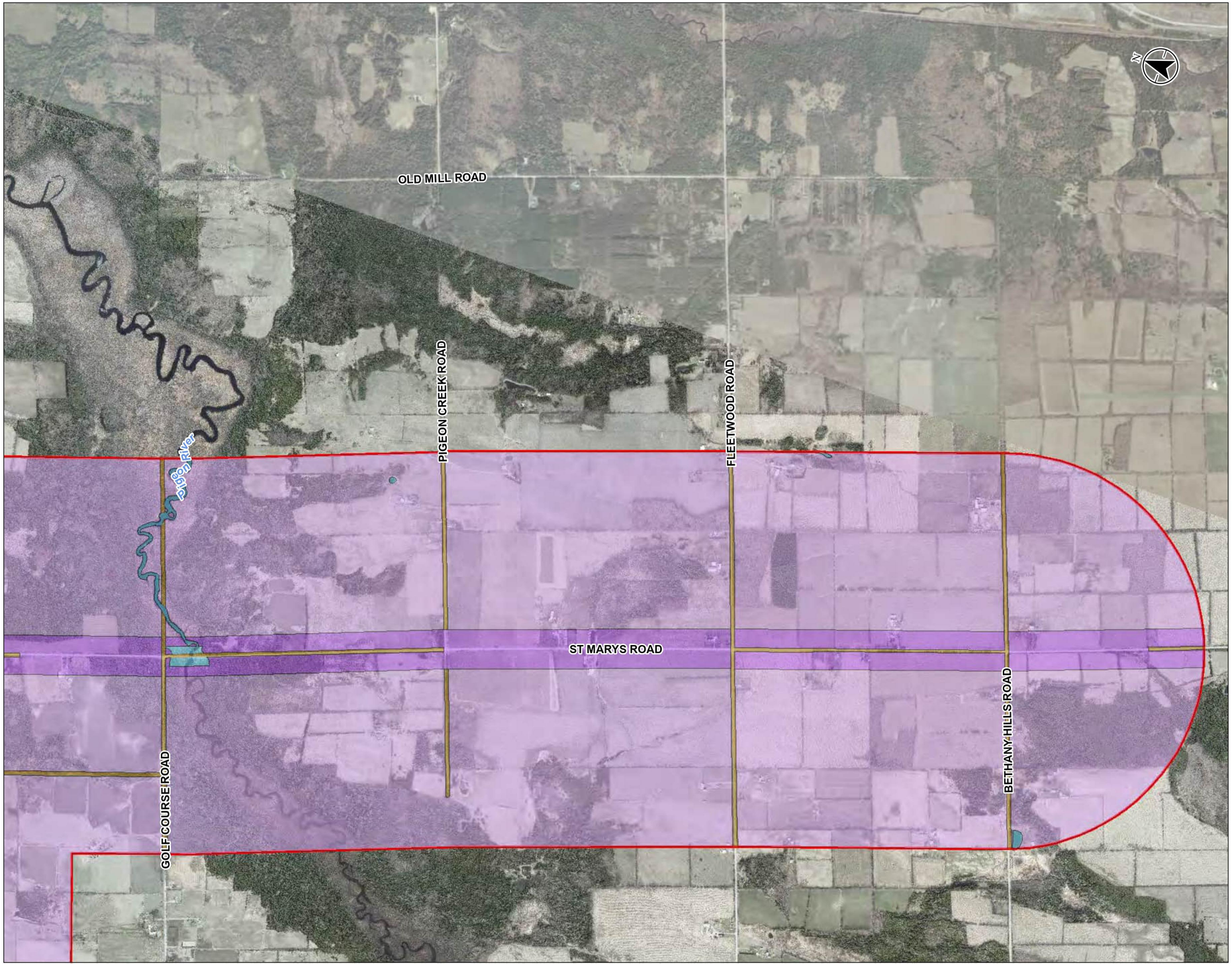

Stantec

Legend

Study Area

Assessment Method

- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment

0 250 500 Metres

1:20,000 (At original document size of 11x17)

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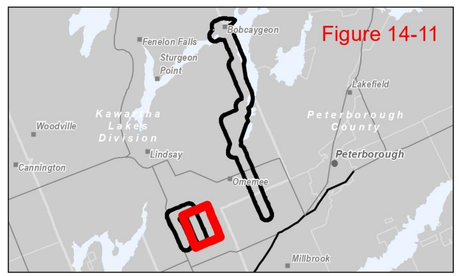

Project Location
City of Kawartha Lakes and County of Peterborough

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ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
14-11

Title
Stage 1-2 Methods and Results

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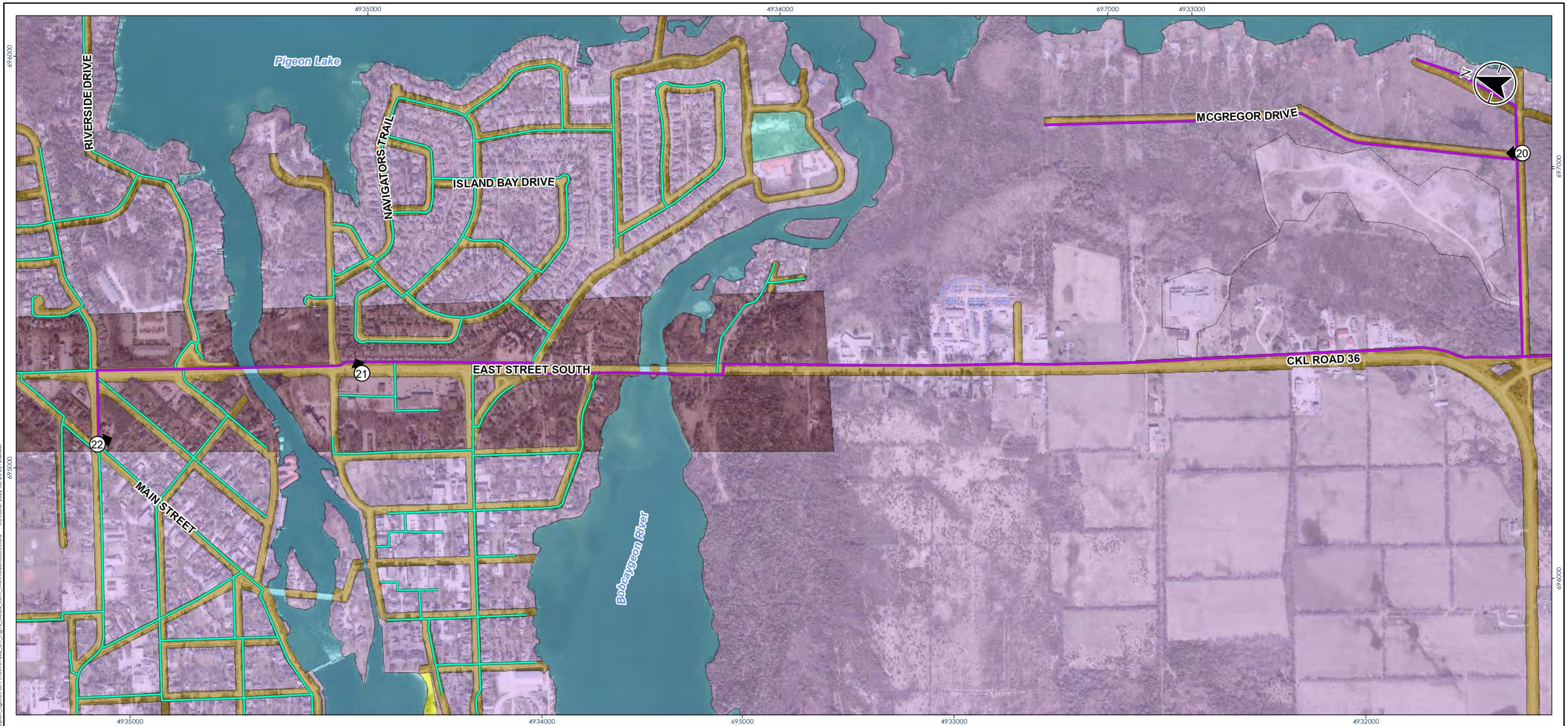

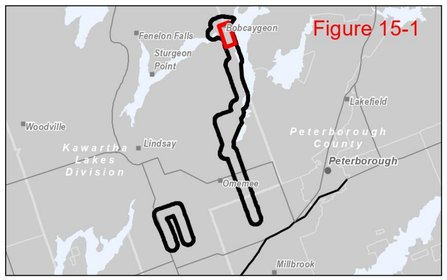

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Legend

Enbridge Gas Features

- Preferred Route (Phase 2)
- Preferred Route (Phase 3)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Possible Burying Ground
- Previously Assessed, ASI 2016 - No Further Assessment Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

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Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
	Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-1

Title

Road Right of Way Details

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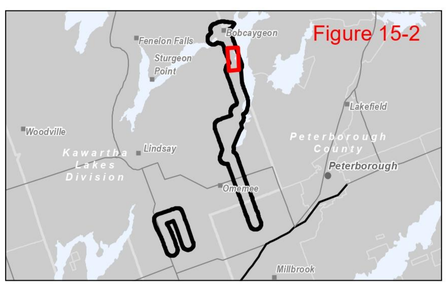

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Legend

Enbridge Gas Features

- Preferred Route (Phase 2)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
	Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-2

Title

Road Right of Way Details

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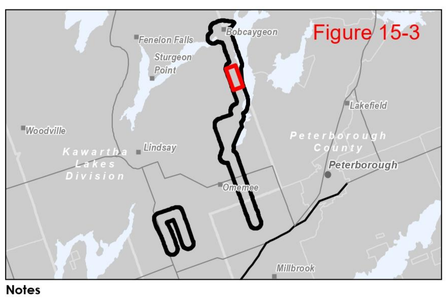

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Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 2)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2014a, 2014b- No Further Assessment Recommended
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
	Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-3

Title

Road Right of Way Details

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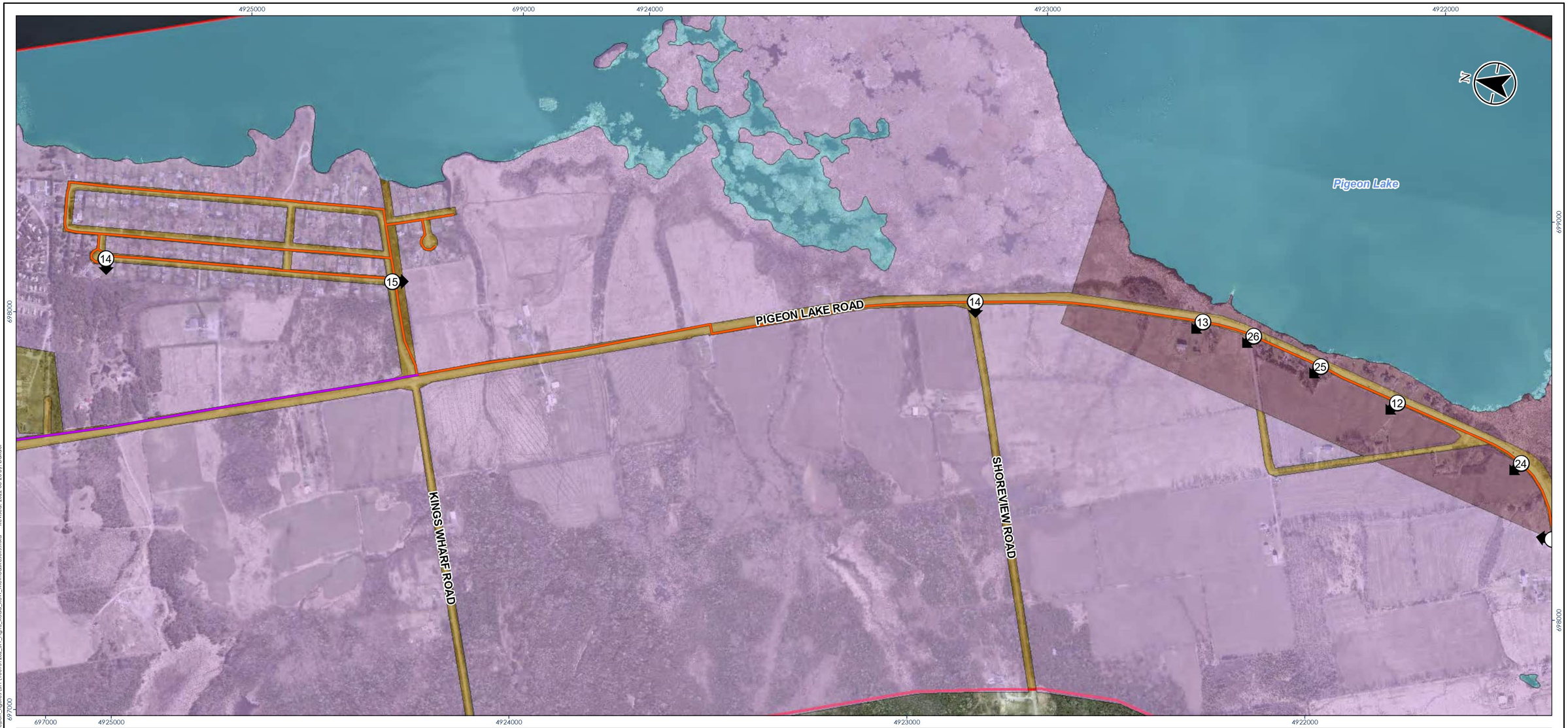

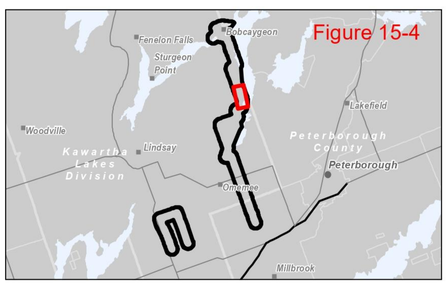

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Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 2)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2014a, 2014b- No Further Assessment Recommended
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

Stantec

Project Location
City of
Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
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Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-4

Title
Road Right of Way Details

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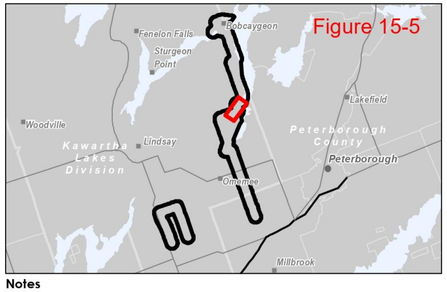

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Legend

Enbridge Gas Features

- Preferred Route (Phase 1)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2012 - No Further Assessment Recommended
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of
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160951282 REVA
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Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-5

Title
Road Right of Way Details

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4919000 4918000 4917000 4916000

697000 696000

CORK ROAD
ST. LUKES ROAD
EAGLE ROAD
TRACEYS HILL ROAD

11 10 9

Pigeon Lake

N

Legend

Enbridge Gas Features

Preferred Route (Phase 1)

Archaeology Features

Archaeology Photo Log

Assessment Method Other

Area of General Archaeological Potential - Stage 2 Recommended

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of
Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-6

Title
Road Right of Way Details

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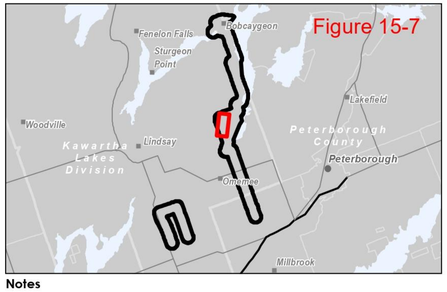

Legend

Enbridge Gas Features

Preferred Route (Phase 1)

Assessment Method Other

Area of General Archaeological Potential - Stage 2 Recommended

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

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Stantec

Project Location
City of Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-7

Title
Road Right of Way Details

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4916000 4915000 4914000 4913000

696000

Pigeon Lake

CLEARVIEW DRIVE

Pigeon River

SHAMROCK ROAD

CENTRELINE ROAD

PEACE ROAD

N

Notes

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Legend

Enbridge Gas Features

- Preferred Route (Phase 1)
- Preferred Route (Phase 4 - Part 1)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, EASI 2018 - No Further Assessment Recommended
- Previously Assessed, Jacques Whitford 2006 – Areas recommended For Stage 2 Assessment
- Previously Assessed, YNAS 2015 - Stage 2 Assessment Recommended
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
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Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-8

Title

Road Right of Way Details

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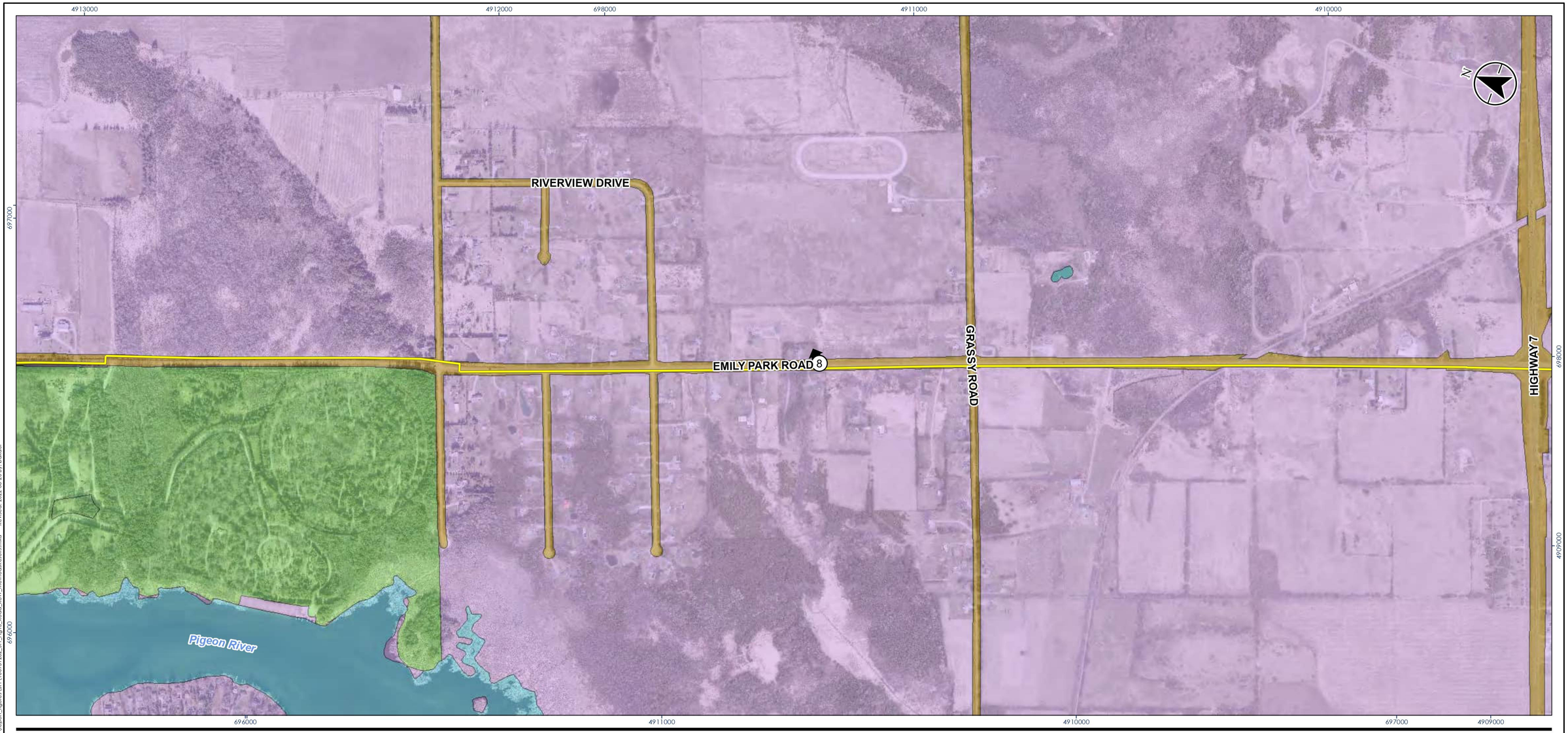

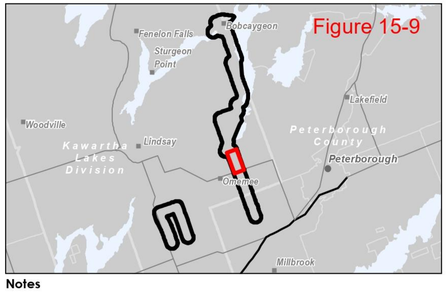

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Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 1)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, YNAS 2015 - Stage 2 Assessment Recommended
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

1:10,000 (At original document size of 11x17)

Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
	Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-9

Title

Road Right of Way Details

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699000 4908000 4907000 700000

700000

699000

698000

HIGHWAY 7

7

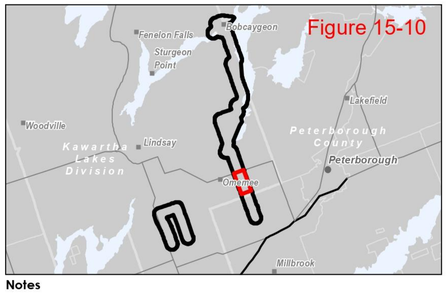
COTTINGHAM ROAD

EMILY PARK ROAD

MEADOWVIEW ROAD

N

4909000 4908000 4907000 698000 4906000



Legend

Enbridge Gas Features

Preferred Route (Phase 4 - Part 1)

Archaeology Features

Archaeology Photo Log

Assessment Method Other

Area of General Archaeological Potential - Stage 2 Recommended

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of
Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-10

Title
Road Right of Way Details

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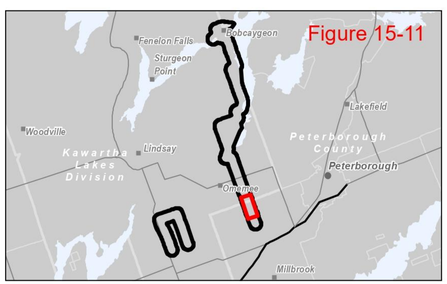

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Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 1)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Area of Steep Slope, Low to No Archaeological Potential - No Further Archaeological Work Required
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
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Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-11

Title

Road Right of Way Details

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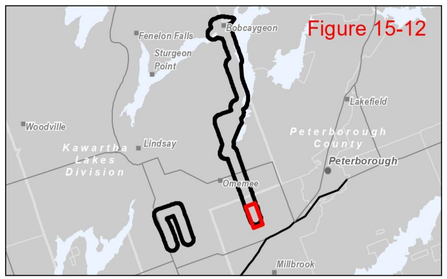

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Legend

Enbridge Gas Features

Preferred Route (Phase 4 - Part 1)

Archaeology Features

Archaeology Photo Log

Assessment Method Other

Area of General Archaeological Potential - Stage 2 Recommended

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
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Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-12

Title

Road Right of Way Details

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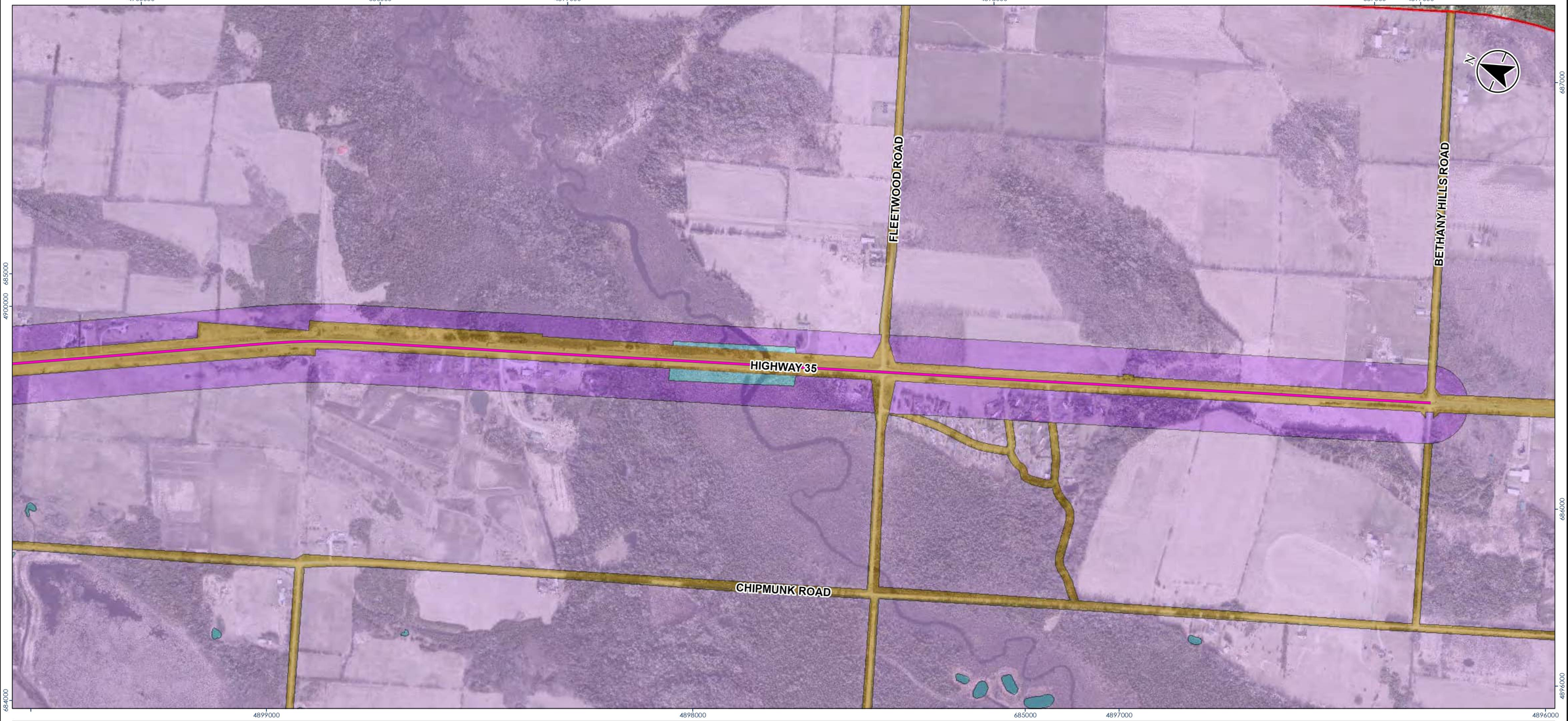

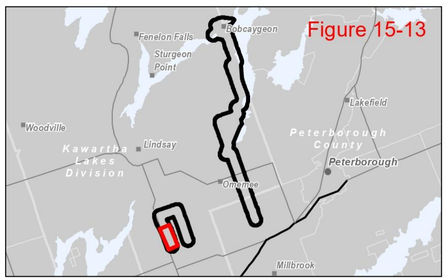

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Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 2)

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
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ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-13

Title

Road Right of Way Details

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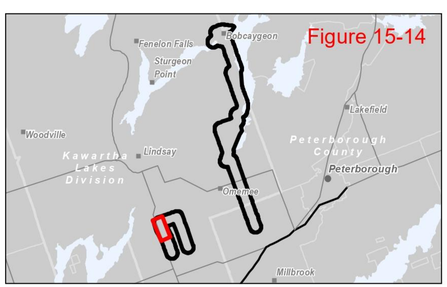

Legend

Enbridge Gas Features

- Preferred Route (Phase 4 - Part 2)

Archaeology Features

- Archaeology Photo Log

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of
Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-14

Title
Road Right of Way Details

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HIGHWAY 35

MOUNT HOREB ROAD

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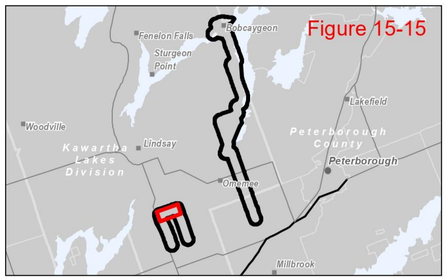

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Legend

Enbridge Gas Features

Preferred Route (Phase 4 - Part 2)

Archaeology Features

Archaeology Photo Log

Assessment Method Other

Area of General Archaeological Potential - Stage 2 Recommended

Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment

Permanently Wet – No Terrestrial Archaeological Potential

Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-15

Title
Road Right of Way Details

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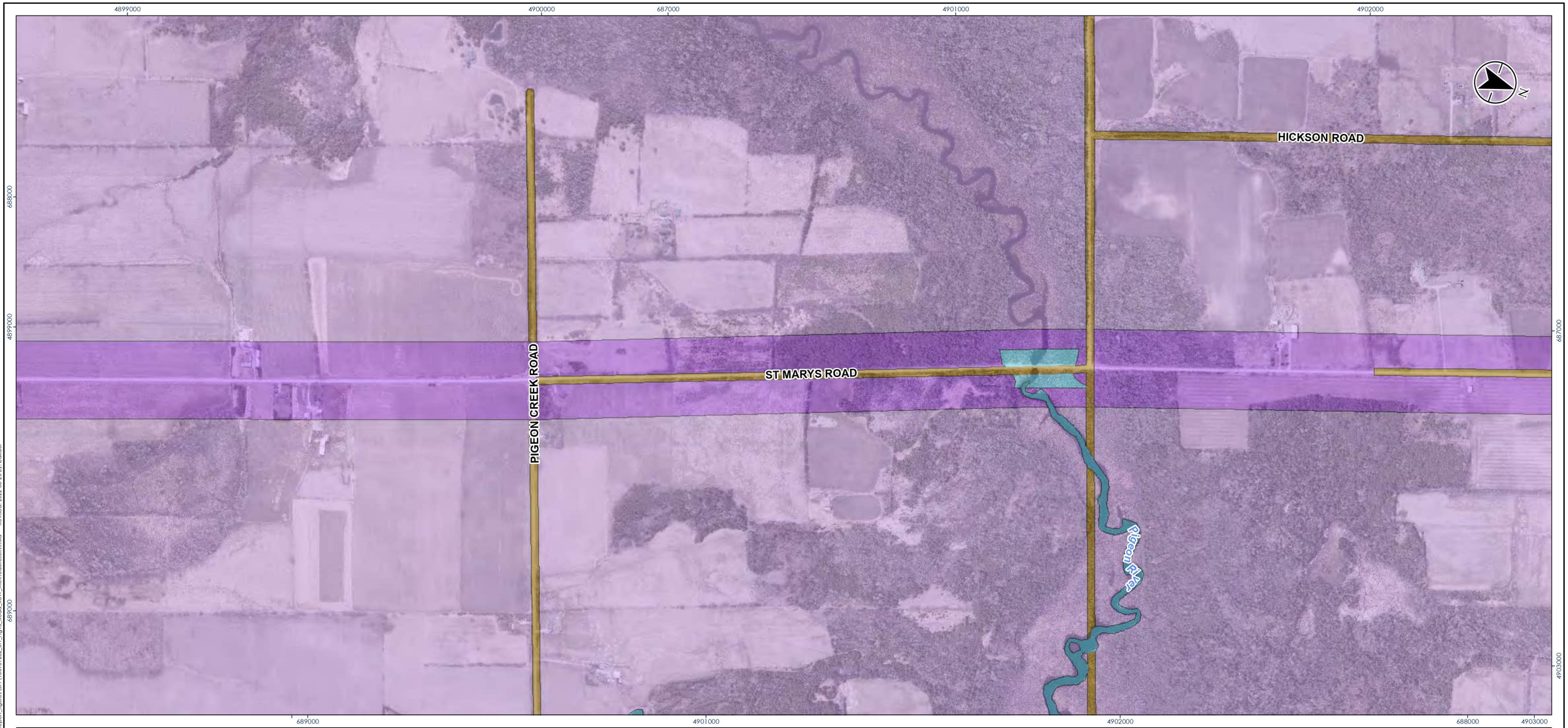

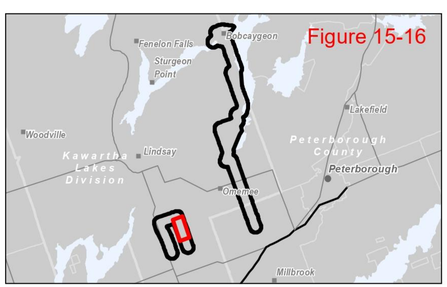

Legend

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location
City of
Kawartha Lakes

160951282 REVA
Prepared by KB on 2022-08-26
Technical Review by SE on 2021-11-05

Client/Project
ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.
15-16

Title
Road Right of Way Details

Notes

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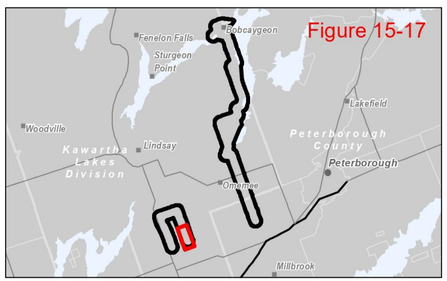

Notes

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Legend

Assessment Method Other

- Area of General Archaeological Potential - Stage 2 Recommended
- Previously Assessed, Stantec 2016 – Areas recommended For Stage 2 Assessment
- Permanently Wet – No Terrestrial Archaeological Potential
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required

0 250 500 metres

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Stantec

Project Location	160951282 REVA
City of Kawartha Lakes	Prepared by KB on 2022-08-26
	Technical Review by SE on 2021-11-05

Client/Project

ENBRIDGE GAS INC.
PROPOSED NATURAL GAS PIPELINE TO SERVE THE COMMUNITY OF BOBCAYGEON

Figure No.

15-17

Title

Road Right of Way Details

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9.0 CLOSURE

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

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Quality Review _____
(signature)

Jeffrey Muir – Senior Archaeologist

Independent Review _____
(signature)

Tracie Carmichael – Managing Principal, Environmental Services

APPENDIX A

Michi Saagiig Background - Historical Context

Michi Saagiig Historical/Background context:

The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as "the people of the big river mouths" and were also known as the "Salmon People" who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the "Peacekeepers" among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the "Old Ones" who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:
"We weren't affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.

There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.

We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.

Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis."

Often times, southern Ontario is described as being "vacant" after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

This historical context was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation.

Publication reference:

Gitiga Migizi and Julie Kapyrka

2015 Before, During, and After: Mississauga Presence in the Kawarthas. In *Peterborough Archaeology,* Dirk Verhulst, editor, pp.127-136. Peterborough, Ontario: Peterborough Chapter of the Ontario Archaeological Society.

APPENDIX B

History of the Nation Huronne-Wendat

ANNEX

History of the Nation Huronne-Wendat

As an ancient people, traditionally, the Huron-Wendat, a great Iroquoian civilization of farmers and fishermen-hunter-gatherers and also the masters of trade and diplomacy, represented several thousand individuals. They lived in a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence and up along the Saint Lawrence Valley on both sides of the Saint Lawrence River all the way to the Great Lakes. Huronia, included in Wendake South, represents a part of the ancestral territory of the Huron-Wendat Nation in Ontario. It extends from Lake Nipissing in the North to Lake Ontario in the South and Île Perrot in the East to around Owend Sound in the West. This territory is today marked by several hundred archaeological sites, listed to date, testifying to this strong occupation of the territory by the Nation. It is an invaluable heritage for the Huron-Wendat Nation and the largest archaeological heritage related to a First Nation in Canada.

According to our own traditions and customs, the Huron-Wendat are intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Huron-Wendat formed alliances and traded goods with other First Nations among the networks that stretched across the continent.

Today, the population of the Huron-Wendat Nation is composed of more than 4000 members distributed on-reserve and off-reserve.

The Huron-Wendat Nation band council (CNHW) is headquartered in Wendake, the oldest First Nations community in Canada, located on the outskirts of Quebec City (20 km north of the city) on the banks of the Saint Charles River. There is only one Huron-Wendat community, whose ancestral territory is called the Nionwentsïo, which translates to "our beautiful land" in the Wendat language.

The Huron-Wendat Nation is also the only authority that have the authority and rights to protect and take care of her ancestral sites in Wendake South.

Appendix B - Stage 1 & 2 Archaeological Assessment

Stage 1-2 Archaeological Assessment: Sanitary Pumping Station and Forcemain Improvements, 47 Anne Street and 123 Boyd Street, Bobcaygeon

Part of Lot 16, Concession 10, Geographic Township of Verulam, former County of Victoria, now City of Kawartha Lakes, and part of Lot 15, Concession 19, Geographic Township of Harvey, former Peterborough County, now City of Kawartha Lakes, Ontario

December 9, 2025

Prepared for:
Rob Flindall, P.Eng.
Concept Dash
14 York Street
Toronto, Ontario M5J 0B1

Prepared by:
Stantec Consulting Ltd.
300 – 1331 Clyde Avenue
Ottawa, Ontario K2C 3G4

Licensee: Patrick Hoskins, MA
Licensee Number: P415
Project Information Form Number: P415-0617-2025
Project/File: 160941241

ORIGINAL REPORT

Stantec

Limitations and Sign-off

The conclusions in the Report titled Stage 1-2 Archaeological Assessment: Sanitary Pumping Station and Forcemain Improvements, 47 Anne Street and 123 Boyd Street, Bobcaygeon are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Concept Dash (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: _____

Kierra Dickau, M.Sc.

Reviewed by: _____ Approved by: _____

Colin Varley, MA, RPA, Senior Associate, Senior Archaeologist

Parker Dickson, MA, Senior Associate, Senior Archaeologist

Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Concept Dash (the Client) to complete Stage 1-2 archaeological assessment for proposed sanitary pumping station (SPS) and forcemain improvements at 47 Anne Street and 123 Boyd Street, Bobcaygeon, City of Kawartha Lakes, Ontario (the Project). The Stage 1-2 archaeological assessment was undertaken in the preliminary planning and design process for an environmental assessment under the Municipal Class Environmental Assessment process (Municipal Engineers Association 2024). The study area consists of two parcels, measuring 0.57 hectares in total, one at 47 Anne Street in the Town of Bobcaygeon, part of Lot 16, Concession 10, in the Geographic Township of Verulam, former County of Victoria; and the second at 123 Boyd Street, part of Lot 15, Concession 19, in the Geographic Township of Harvey, former Peterborough County, now City of Kawartha Lakes, Ontario.

The Stage 1-2 archaeological assessment was conducted on November 26, 2025, under Project Information Form number P4154-0617-2025 issued to Patrick Hoskins, MA, RPA, by the Ministry of Citizenship and Multiculturalism (MCM). Stage 1 background research determined that the study area retained potential for the identification and documentation of archaeological resources and thus Stage 2 survey was recommended. The Stage 2 survey was completed on November 26, 2025, with Lucas Hillcoat (R1145) as the Field Director.

The Stage 1-2 archaeological assessment of the study area identified no archaeological resources and as per Section 2.2 and Section 7.8.4 Standard 3 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **no further archaeological work is recommended for the study area.**

The MCM is asked to review the results presented and enter this report into the *Ontario Public Register of Archaeological Reports*.

The Executive Summary highlights key points form the report only; for complete information and findings, the reader should examine the complete report.

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Project Personnel

Project Manager:	Colin Varley, MA, RPA (P002)
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Field Crew:	Michael Inglis
Report Writer:	Kierra Dickau, M.Sc.
Mapping:	Alessandro Tarli, B.Sc., GIS Specialist
Quality Review:	Colin Varley, MA, RPA (P002)
Independent Review:	Parker Dickson, MA

Acknowledgements

Ministry of Citizenship and Multiculturalism:	Robert von Bitter, Archaeological Data Coordinator
Concept Dash	Rob Flindall, P.Eng., Director - Municipal Engineering
City of Kawartha Lakes	Marten Leclerc, Senior Engineering Tech, Engineering & Corporate Assets
Kawartha Nishnawbe First Nation	Nodin Webb

1 Project Context

1.1 Development Context

Stantec Consulting Ltd. (Stantec) was retained by Concept Dash (the Client) to complete a Stage 1-2 archaeological assessment for proposed sanitary pumping station (SPS) and forcemain improvements (the Project) at 47 Anne Street and 123 Boyd Street, Bobcaygeon, City of Kawartha Lakes, Ontario (Figure 1). The Stage 1-2 archaeological assessment was undertaken in the preliminary planning and design process for an environmental assessment under the Municipal Class Environmental Assessment process (Municipal Engineers Association 2024). The study area consists of two parcels, measuring 0.57 hectares in total, one at 47 Anne Street in the Town of Bobcaygeon, part of Lot 16, Concession 10, in the Geographic Township of Verulam, former County of Victoria; and the second consisting of a section of Boyd Street, part of Lot 15, Concession 19, in the Geographic Township of Harvey, former Peterborough County (Figure 2).

1.1.1 Objectives

In compliance with the 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), regulated by the Ministry of Citizenship and Multiculturalism (MCM), the objectives of the Stage 1 archaeological assessment are to:

- Provide information about the study area's geography, history, previous archaeological fieldwork, and current land conditions.
- Evaluate the study area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property.
- Recommend appropriate strategies for Stage 2 survey.

To meet these objectives, Stantec archaeologists:

- Reviewed relevant archaeological, historical, and environmental literature pertaining to the study area.
- Reviewed the land use history of the study area, including historical atlases.
- Examined the *Ontario Archaeological Sites Database* to determine the presence of registered archaeological sites in and around the study area.
- Queried the *Ontario Public Register of Archaeological Reports* to identify previous archaeological assessments within 50 metres of the study area.

In compliance with the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 2 archaeological assessment are to:

- Document archaeological resources within the study area.
- Determine whether the study area contains archaeological resources requiring further assessment.
- Recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

Permission to enter the study area to conduct the archaeological assessment was arranged by the Client through the City of Kawartha Lakes.

1.2 Historical Context

"Contact" is typically used as a chronological benchmark when discussing Indigenous archaeology in Canada and describes the interaction between Indigenous and European nations. There is no definitive moment of contact and the understanding of when Indigenous and European nations first began to influence one another is evolving with new archaeological and historical studies, and from Indigenous oral tradition and history. Contact in what is now the Province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

1.2.1 Pre-Contact Indigenous Resources

It has been demonstrated that Indigenous people began occupying Ontario as the Laurentide glacier receded, as early as 11,000 years ago (Ferris 2013, 13). Much of what is understood about the lifeways of Indigenous peoples is derived from archaeological data, Indigenous oral tradition and history, and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into archaeological periods based on observed changes in material culture. These archaeological periods are largely based on observed changes in formal lithic tools. They are separated into the Early Paleo, Late Paleo, Early Archaic, Middle Archaic and Late Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, archaeological periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration.

It should be noted that these archaeological periods do not necessarily represent specific cultural identities but are a useful tool for understanding changes in Indigenous material culture through time. Table 1 provides a general outline of the study area's archaeological period chronology, summarized by Ellis and Ferris (1990). The provided periods are based on the "Before Present" (BP) calendar notation system, wherein BP stands for years before the present. The "Present Year" is set in the calendar year 1950.

Table 1: Generalized Archaeological Period Chronology for Southern Ontario

Archaeological Period	Characteristics	Time Period	Comments
Early Paleo	Fluted Projectiles	10,950 – 10,350 BP	Spruce parkland / caribou hunters
Late Paleo	Hi-Lo Projectiles	10,350 – 9950 BP	Smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	9950 – 7950 BP	Slow population growth
Middle Archaic	Brewerton-like Points	7950 – 4450 BP	Environment similar to present
Late Archaic	Narrow Points	4450 – 3750 BP	Increasing site size
	Broad Points	3750 – 3450 BP	Large chipped lithic tools
	Small Points	3450 – 3050 BP	Introduction of bow hunting

Archaeological Period	Characteristics	Time Period	Comments
Terminal Archaic	Hind Points	3050 – 2900 BP	Emergence of true cemeteries
Early Woodland	Meadowood Points	2900 – 2350 BP	Introduction of pottery
Middle Woodland	Dentate / Pseudo-Scallop Pottery	2350 – 1400 BP	Increased sedentism
	Princess Point	1400 – 1050 BP	Introduction of corn
Late Woodland	Early Late Woodland pottery	1050 – 650 BP	Emergence of agricultural villages
	Middle Late Woodland Pottery	650 – 550 BP	Long longhouses (100+ metres)
	Late Late Woodland Pottery	550 – 350 BP	Tribal warfare and displacement

Between 10,950 and 9950 BP, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively nomadic existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups. One method of maintaining social ties was through gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013, 35-40).

By approximately 9950 BP, evidence existed and became more common for producing ground-stone tools such as axes, chisels, and adzes. These tools are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increased craft production and, arguably, craft specialization. This latter statement is also supported by evidence, dating to approximately 8950 BP of ornately carved stone objects which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013, 41). This is indirectly indicative of changes in the social organization which permitted individuals to devote time and effort to craft specialization. Since approximately 9950 BP, the Great Lakes basin experienced a low-water phase, with shorelines significantly below current lake levels (Stewart 2013, Figure 1.1.C). It is presumed that most human settlements would have been focused along these former shorelines. At approximately 8450 BP, the climate had warmed considerably since the recession of the glaciers, and the environment had grown more similar to the present day. By approximately 6450 BP, evidence exists from southern Ontario for the utilization of native copper, i.e., naturally occurring pure copper metal (Ellis 2013, 42). The recorded origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 5450 BP, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reached a point that significantly affected the Great Lakes basin watershed. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French-Mattawa River valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin changed to its present course. This also prompted a significant increase in water-level to approximately current levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013, 28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013, 46). Between approximately 4850 and 4450 BP, the earliest evidence exists for the construction of fishing weirs (Ellis *et al.* 1990, Figure 4.1; Stevens 2004). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development of the social organization and communal identity. The large-scale procurement of food at a single location also

has significant implications for the permanence of settlement within the landscape. This period is also marked by further population increase; by approximately 3450 BP, evidence exists for substantial permanent structures (Ellis 2013, 45-46).

By approximately 2900 BP, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to exploit natural resources seasonally. This advent of ceramic technology correlated, however, with the intensive exploitation of seed foods, such as goosefoot and knotweed, as well as mast, such as nuts (Williamson 2013, 48). The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchange throughout the Great Lakes basin and beyond, and craft production (Williamson 2013, 48-54).

By approximately 1400 BP, evidence emerges for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous people's diet and economy (Birch and Williamson 2013, 13-14). Maize-based agriculture gradually became more important to societies. By approximately 1050 BP, permanent communities were primarily focused on agriculture and the storage of crops, with satellite locations oriented toward procuring other resources such as hunting, fishing, and foraging. By approximately 700 BP, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. The extant archaeological record demonstrates many cultural traits like historical Indigenous nations (Williamson 2013, 55).

The Middle Late Woodland period marks the point at which a fully developed horticultural system emerged, and at which point cultivars became the staple food source. By approximately 1250 CE, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. In this period villages become much larger than in the Early Late Woodland period, and longhouses also become much larger, housing multiple, though related, nuclear families. For those Indigenous peoples who began practicing cultivation, food production through horticulture resulted in the abandonment of seasonal mobility. Hunting, fishing, and gathering of wild food activities continued to occur at satellite camps. However, for the most part, most Late Woodland people inhabited large, sometimes fortified villages throughout southern Ontario.

During the Late Late Woodland period longhouses became smaller again, although villages became even larger. Several Wendat (known historically as the 'Huron' or 'Huron-Wendat" and presently identified as the Council of the Wendat Nation) village sites have been discovered in the region that contain material culture associated with both Wendat and St. Lawrence Iroquoians, suggesting that St. Lawrence Iroquoians who had abandoned their home territory along the north shore of the St. Lawrence River and found refuge in the Trent Valley and Kawartha Lakes area (Ramsden 2016). The villages were abandoned in the 16th century, and the region was used as a buffer between the Wendat and the Five Nations Iroquois.

The Late Late Woodland period in the Trent River system and along the north shore of Lake Ontario is marked by the emergence of the Wendat, one of several discrete groups that emerge out of the Middle Late Woodland period. Pre-contact Wendat villages have been documented in clusters along the north shore of Lake Ontario from just west of Toronto to Bellville, and north up through the Kawartha Lakes

region. The Wendat were like other Iroquoian societies in many ways, including material culture, semi-permanent settlement practices, and a tendency toward agricultural mixed with hunting and gathering subsistence strategy (Ramsden 1990). Wendat settlements include large villages of several longhouses and camps for specialized extractive activities such as hunting and fishing, although there is discussion that these camps may be ancestral Mississauga sites. During the Late Late Woodland period, Wendat settlements along the north shore of Lake Ontario begin to move through the Humber River, Don River, Duffins Creek/Rouge River and Trent River systems and eventually coalesce into what is now Simcoe County and the area traditionally identified as “Huronia” (Birch 2012).

These communities living within the region of the study area are believed to have possessed many cultural traits similar to historical Indigenous nations (Williamson 2013, 55). Both Wendat and Anishinaabeg traditional history indicate that the Wendat and Anishinaabeg cohabited the region (Kapyrka 2018).

1.2.2 Post-Contact Indigenous Resources

During the early post-contact period, the north shore of Lake Ontario was occupied by two distinct peoples with different cultural traditions: the Michi Saagiig Nishnaabeg (Mississauga Anishinaabeg) and the Wendat. It has long been the understanding of archaeologists that prior to the 16th century, the north shore of Lake Ontario was occupied by Iroquoian-speaking populations (Birch and Williamson 2013; Birch 2015; Dermarkar *et al.* 2016). Traditionally, the Wendat were farmers and fishermen-hunter-gatherers with a population of between 30,000 and 40,000 individuals. The Wendat traveled widely across a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence, along both sides of the Saint Lawrence River, and throughout the Great Lakes. The Wendat were, and continue to be, intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Wendat formed alliances and traded goods with Indigenous partners among the networks that stretched across the continent and later incorporated the French into that trading network.

Recently, the direct correlation in Ontario between archaeology and ethnicity, and especially regional identity, has been questioned (cf. Fox 2015, 23; Gaudreau and Lesage 2016, 9-12; Ramsden 2016, 124). Recent considerations of Indigenous sources on cultural history have led to the understanding that prior to the 16th century, the north shore of Lake Ontario was co-habited by Iroquoian and more mobile Anishinaabeg populations (Kapyrka 2018), the latter of whom have not been represented in previous analyses of the archaeological record and most likely left a more ephemeral archaeological record than that of more densely populated agricultural settlements. The apparent void of semi-permanent village settlement along the north shore of Lake Ontario continued through the first half of the 17th century; however, this does not preclude the occupation of the region by mobile Anishinaabeg peoples. Both Wendat and Mississauga traditional history indicate that the Wendat and Mississauga cohabited the region (Kapyrka 2018).

The Mississauga traditional homeland stretched along the north shore of Lake Ontario and its tributary rivers from present-day Gananoque in the east to Long Point on Lake Erie in the west. In the winter the communities dispersed into smaller groups and travelled in-land to the north, to the area around present-day Bancroft and the Haliburton Highlands. Mississauga oral history relates that their ancestors occupied

this part of southern Ontario from the time of the last deglaciation and continued to occupy it up to the start of the Contact period (Kapyrka 2018).

By the turn of the 17th century, the region of the study area appears to have been abandoned of semi-permanent village settlement. In 1649, the Seneca and the Mohawk led a campaign to the north shore of Lake Ontario and dispersed the Wendat, Tionontati (Petun), and Atawandaron (Neutral) nations (Trigger 1978, 354-356). At this time, the semi-permanent settlements associated with the ancestral Wendat (the Huron) were abandoned and the Mississauga retreated from the area along the north shore of Lake Ontario into the hinterlands of their territory, waiting until the conflicts had ended and the political situation had stabilized before returning (Heidenreich 1990; Migizi 2018, 122-123; Ramsden 1990).

After 1650, the Five Nations Iroquois established a series of villages along the north shore of Lake Ontario; the inhabitants of these villages were identified by the early French missionaries, explorers and inhabitants as the “Iroquois du Nord” (Williamson 2023, 1). These villages stretched from Napanee Bay in the east to the portage between Lake Ontario and the Grand River in the west (Williamson 2023, 1). The closest of these Iroquois du Nord settlements to the study areas was the Cayuga village of Quintio, located at the south end of Rice Lake (Menary and von Bitter 2023), approximately 50 kilometres south of the study area. Travel along the north shore of Lake Ontario and the connecting rivers occurred frequently.

In 1667, surviving Wendat warriors joined alliance with the French-allied Ojibwa and Mississauga to counterattack the Iroquois who had settled along the north shore of Lake Ontario. By 1690, Ojibwa (Anishinaabe) speaking people had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). Mississauga oral traditions, as told by Chief Robert Paudash and recorded in 1905, indicate that after the Mississauga defeat of the Mohawk, the Mohawk retreated to their homeland south of Lake Ontario and a peace treaty was negotiated between those groups around 1695 (Paudash 1905). Upon the Mississaugas’ return they began to reestablish their role as peacekeepers in the region, extending that to include the incoming Euro-Canadian settlers (Curve Lake First Nation n.d.; Migizi and Kapyrka 2015). The Wendat permanently left the region, moving to the east in Quebec and to the southwest in the present-day United States.

Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario have been included in various treaties, land claims, and land cessions. The study area is situated within lands governed by the 1818 Rice Lake Treaty (Treaty No. 20). The area of the Rice Lake Treaty, which allowed for the initial settlement of Peterborough County, begins

> …at the northwest angle of the Township of Rawdon; then north 16 degrees west, 33 miles or until it strikes the line forty-five; then along said line to a Bay at the northern entrance of Lake Simcoe; then southerly along the waters edge to the entrance of Talbot River; thence up Talbot River to the eastern boundary line of the Home District; thence along said boundary line south 16 degrees east to the south west angle of the Township of Darlington; then along the northern boundary line of the Township of Darlington, Clarke, Hope and Hamilton to Rice Lake; then along the southern shore of said lake and of the River Trent to the Western Division Line of the Midland District; then north 16 degrees west to the place of beginning…
>
> (Government of Canada 2016)

The expansion of the fur trade led to increased interaction between European and Indigenous people and ultimately intermarriage between European men and Indigenous women. During the 18th century, the progeny of these marriages began to identify as Métis and no longer identified directly with either their paternal or maternal cultures. The ethnogenesis of the Métis progressed with the establishment of distinct Métis communities along the major waterways in the Great Lakes of Ontario. Métis communities were primarily focused around the upper Great Lakes and along Georgian Bay; however, Métis people have lived throughout Ontario (Métis Nation of Ontario 2025; Stone and Chaput 1978, 607-608).

Despite the dispersal and movement of Indigenous groups throughout southern Ontario during the 17th and 18th centuries, archaeologically they can be characterized by continuity with their pre-contact Indigenous counterparts. These peoples still maintained a Terminal Woodland archaeological culture, albeit with some features of European material culture. While there was cultural and social change occurring due to contact with European colonial powers, there was equally a definite persistence of Indigenous socio-cultural practices since these groups were not so profoundly affected by European contact that they left their former lifeways behind (Ferris 2009).

Regardless of the differentiation among these groups in Euro-Canadian sources, there was a considerably different view by Indigenous groups concerning their self-identification during the first few centuries of European contact. These peoples relied upon kinship ties that cut across European notions of nation identity (Bohaker 2006, 277-283). Many of the British-imposed nation names, such as Huron, Mississauga, Chippewa, Ottawa, or Potawatomi, artificially separated how self-identified Indigenous peoples' classified themselves; these groups were culturally and socially more alike than contemporary European documentation might indicate (Bohaker 2006, 1-8).

The nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon their territory. However, despite this shift, "written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to…systems of ideology and thought" (Ferris 2009, 114). As a result, Indigenous peoples have left behind archaeological resources throughout Ontario which show continuity with past peoples, even if they have not been recorded in Euro-Canadian documentation. Moreover, contemporary Indigenous nations have expressed that their traditional governance systems remain active and that treaty relationships with the Crown are regarded as ongoing and relevant today. For many Indigenous nations, treaties are understood as ongoing agreements that continue to inform governance, stewardship responsibilities, and contemporary relationships with the land.

1.2.3 Euro-Canadian Resources

In 1791, the Provinces of Upper Canada and Lower Canada were created from the former Province of Quebec by an act of British Parliament (Craig 1963, 17). At this time, Colonel John Graves Simcoe was appointed as the Lieutenant Governor of Upper Canada and was tasked with governing the new province, directing its settlement, and establishing a constitutional government modelled after that of Britain (Coyne 1895). The change was affected at the behest of United Empire Loyalists who wished to live under the

British laws and customs they were familiar with in Great Britain and the former 13 Colonies (Craig 1963, 10-11). Simcoe had ambitious plans to create a model British society in North America, stating a desire to "inculcate British customs, manners, and principles in the most trivial, as well as most serious matters" in Upper Canada (Craig 1963, 21).

At its inception, Upper Canada was only sparsely settled by Europeans and the land had not been officially surveyed to any great extent. Thus, there was an urgency by Simcoe to survey this new province in order to establish military roads and to prevent settlers from clearing and settling land not legally belonging to them. In 1792, Simcoe divided Upper Canada into 19 counties consisting of previously settled lands, new lands opened for settlement, and lands not yet acquired by Crown. These new counties stretched from Essex in the west to Glengarry in the east.

1.2.3.1 Victoria County

1.2.3.1.1 Geographic Township of Verulam

The Township of Verulam was surveyed in 1823 by John Huston (Knox *et al.* n.d.). Verulam Township was named in honour of James Walter Grimson, Earl of Verulam (Gardiner 1899, 201). Prior to the formal survey of Verulam Township, the trader Billy McDeough resided near present-day Bobcaygeon and traded with local Indigenous peoples (Kirkconnell 1967, 52). The survey of the township was completed in 1831 and the township opened to settlement in 1832 (Knox *et al.* n.d., 2). However, early settlement of the township was impeded by land speculation (Kirkconnell 1967, 52; Knox *et al.* n.d., 2).

The first immigrant settlers in the township were John Hunter and William Bell. Hunter settled along the southeast corner of the township and Bell settled just north of present-day Bobcaygeon (Kirkconnell 1967, 52). Early settlers in Verulam Township included military veterans and immigrants from the British Isles. The military veterans primarily settled near Sturgeon Lake (Kirkconnell 1967, 52). In 1832, a mill was built at present-day Bobcaygeon by Thomas Need (Kirkconnell 1967, 53-54). A hamlet developed around the mill originally known as St. Albans (Thomas 1980, 18). In 1840, a lock was completed at Bobcaygeon to facilitate shipping. In 1844, Need sold his interests in Bobcaygeon to Mossom Boyd (Kirkconnell 1967, 54)

The harsh terrain north of Sturgeon Lake impeded the settlement of Verulam Township (Kirkconnell 1967, 51). By 1846, only 9,298 acres of land were occupied and just 956 acres were under cultivation; a total of 8,817 acres of land was available for sale in Verulam Township at eight shillings an acre (Smith 1846, 200). While Verulam Township contained sections of arable land, generally better land could be purchased for the same price in the more heavily settled southern townships of Emily and Ops. In 1857, the lock at Bobcaygeon was rebuilt (Kirkconnell 1967, 54). The population of Verulam Township reached its peak in 1871 with a population of 2,692, an increase of 2,121 since 1851 (Census of Canada 1851; Dominion Bureau of Statistics 1953).

In 1877, the hamlet of Bobcaygeon was incorporated as a village (Kirkconnell 1967, 55). The settlement at Bobcaygeon was the largest community in Verulam Township. It had grown partly due to its connection with the Boyd family. The Boyd family owned a large timber business that cut timber throughout the Trent River watershed. To support their lumber business, the Boyd family supported the completion of the Trent-Severn Waterway and operated mills in Bobcaygeon (Turner 1998). Between 1881 and 1891, the

population of Bobcaygeon increased from 750 to 1,018 (Dominion Bureau of Statistics 1953). While the population of Bobcaygeon grew in the late 19th century, the population of Verulam Township entered into a decline beginning in 1881. However, part of this decrease between 1871 and 1881 was due to the incorporation of Bobcaygeon. Between 1881 and 1891, the population of Verulam Township declined from 2,747 to 2,291 (Dominion Bureau of Statistics 1953).

Kains' (1877) map of Victoria County indicates the names of landowners and the location of houses, orchards, public buildings, and industrial buildings including the town of Bobcaygeon. Figure 3 illustrates a portion of the 1877 map (Kains 1877) as it relates to the study area. The 47 Anne Street study area in Lot 16, Concession 10, is contained entirely within the town plot of Bobcaygeon with no identified landowners for the lot (Figure 3). The East Street Bridge directly to the east of the study area is not illustrated on this map.

Belden's 1881 *Victoria Supplement in Illustrated Atlas of the Dominion of Canada* depicts a developed township with established roads (Belden 1881). Figure 4 illustrates a portion of the 1881 map (Belden 1881) as it relates to the study area. As with the 1877 map, the lot for the 47 Anne Street study area falls entirely within the town limits of Bobcaygeon, and no landowners are identified within the study area (Figure 4).

1.2.3.2 Peterborough County

The administrative history of Peterborough County began in 1798 when the Newcastle District was established as one of the original districts of Upper Canada (Cole 1975, 2). In 1841, the district was reorganized, and the Colborne District was established. Less than ten years later, the Colborne District was reorganized again, creating the United Counties of Peterborough and Victoria. In 1861, the united counties were separated into individual counties (Cole 1975, 2). Much of Peterborough County was surveyed by Provincial Land Surveyor Richard Birdsall.

1.2.3.2.1 Geographical Township of Harvey

Initial Euro-Canadian settlement in Harvey Township began around 1832, when some recent immigrants set up near the shore of Pigeon Lake in the southwest corner of the township, and near Sandy Lake, at the north end (Poole 1867, 191). However, for a variety of reasons, including poor soil, lack of general farming knowledge, poor (or nonexistent) roads, and distances to a market, the small settlement had been abandoned (Poole 1867, 191). After that, there were few new settlers in the township, and up until 1866 Harvey Township, lacking enough settlers to warrant its own municipal governance, was associated with Smith Township (Poole 1867, 192).

Harvey Township was originally surveyed in the 1820s (Mulvany 1884, 448). However, a re-survey of Harvey Township was undertaken by Theodore Clementi in 1865 (Clementi 1865; Poole 1867, 192). The 1865 survey map of Harvey Township depicts the lot layout and size, waterways, and some names of settlers at that time (Clementi 1865). Figure 5 illustrates a portion of the 1865 map (Clementi 1865) as it relates to the study area. At that time there were very few settlers noted, most of them being located along the township boundary (Bobcaygeon Road) with Verulam north of Bobcaygeon, at the north end of Pigeon Lake around Nogies Creek, and along the north shore of Buckhorn Lake (Clementi 1865).

Although there are no landowner details shown on the 1865 map for either study area, the area near the 47 Anne Street property has markings that suggest that this part of the survey line was swampy or poorly drained (Figure 5).

Although not part of Victoria County, the Kains' (1877) map does show some details of the Harvey Township lots on the west side of Pigeon Lake (Figure 3). Mossum Boyd's mill and lumber yard is shown on the far eastern end of the island portion of Bobcaygeon. The 123 Boyd Street study area is located on the north side of the east end of this island (Figure3).

The Miles & Co. (1879) *County of Peterborough* map offers very few details about the study area. No owners are listed on any properties within the township, including near the study area (Figure 6). The only structures illustrated are churches, schools, and post offices, none of which are shown near the study area (Figure 6).

When examining 19th century historical mapping, it is important to note that numerous county atlases from that era were primarily created to identify the subscribers' factories, offices, residences, and landholdings who financially supported their production through subscription fees. Consequently, landowners who chose not to subscribe were often omitted from the maps, leading to their absence in the depicted information (Caston 1997, 100). As a result, the depiction and accuracy of structures on these maps are not always reliable (Gentilcore and Head 1984). Further, historical mapping has inherent inaccuracy due to potential errors in georeferencing. Georeferencing is conducted by assigning spatial coordinates to fixed locations and using these points to reference the remainder of the map spatially. Due to changes in "fixed" locations over time (e.g., road intersections, road alignments, shorelines, etc.), errors/difficulties of scale and the relative idealism of the historical cartography, historical maps may not translate accurately into real space points. This may provide obvious inconsistencies during historical map review.

1.3 Archaeological Context

1.3.1 The Natural Environment

The study area is located within the Dummer Moraines physiographic region (Chapman and Putnam 1984, 113). The Dummer Moraines is an area of rough and stony land that borders the Canadian Shield east from the Kawartha Lakes region and covers approximately 1.550 square kilometres (Chapman and Putnam 1984, 185). The underlying bedrock of the region is composed largely of the Gull River and Bobcaygeon formations (Chapman and Putnam 1984, 185), the latter of which is a source of Bobcaygeon chert, a good tool stone found in both bedded and nodule form and used by Indigenous populations (Eley and von Bitter 1989, 25; Bittner and Jamieson 2006, 20; Fox 2009, 359). Even though the moraines in this region are quite low, their surface can be extremely rough (Chapman and Putnam 1984, 185). Many of the streams that cross the region follow preglacial valleys in trenches of bedrock up to 35 metres deep. Many of these valleys are blocked by glacial drift, which has created long narrow lakes and swamps (Chapman and Putnam 1984, 185). Despite the rough and rocky nature of the land a relatively large amount was put to agricultural use, particularly for pasturing and crops such as hay, oats and corn (Chapman and Putnam 1984, 185).

The soil type associated with the 47 Anne Street study area is Dummer loam (Gillespie and Richards 1957). A hilly and excessively drained soil with significant gravel and stone inclusions, Dummer loam was most often used for pasture. With extensive stone removal and grading this soil would support agriculture but only in plateaus as the hilly terrain created a significant barrier (Gillespie and Richards 1957, 31-32). The soil type associated with the 123 Boyd Street study area is Cramahe gravelly sandy loam (Gillespie and Acton 1981). These soils are well to excessively drained and provide a valuable source of aggregate material, but have little value for agricultural purposes, other than as pasture lands (Gillespie and Acton 1981, 16).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southwestern Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to water is one of the most used variables for predictive modeling of archaeological site location in Ontario. The town of Bobcaygeon sits on the Bobcaygeon River and on the western edge of Pigeon Lake. The 47 Anne Street study area is located approximately 25 metres northwest of the Bobcaygeon River, and the 123 Boyd Street study area is located approximately 65 metres northwest of Pigeon Lake.

1.3.2 Registered Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by uppercase letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces due to the earth's curvature as one moves north. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lowercase letters. Individual sites are assigned a unique, sequential number as they are registered (Borden 1952). The MCM issues these sequential numbers and maintains the *Ontario Archaeological Sites Database*. The study area is located within Borden block BdGp.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990a). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MCM will provide information concerning site location to the party or an agent of the party holding title to a property or a licensed archaeologist with relevant cultural resource management interests.

An examination of the MCM's *Ontario Archaeological Sites Database* identified one registered archaeological site within one kilometre of the study area, with no registered archaeological sites identified within 50 metres of the study area (Government of Ontario 2025a). The Bobcaygeon Wreck (BdGp-32) is the remains of a side-wheel steam vessel built in 1861, which lies at the bottom of the

Bobcaygeon River located west of East Street Bridge in the town of Bobcaygeon. It was identified by a civilian who contacted a local museum to aide in establishing its heritage and importance.

A query of the *Ontario Public Register of Archaeological Reports* identified three previous archaeological surveys within 50 metres of the study area (Government of Ontario 2025b), listed in Table 2 and described below

Table 2: Archaeological Reports within 50 metres of the Study Area

Company	Report Title	Project Information Form (PIF) number	Year
Stantec	*Stage 1 Archaeological Assessment: Bobcaygeon Community Expansion Project: Various Lots and Concession, Geographical Townships of Emily and Verulam, Victoria County; Geographical Township of Harvey, Peterborough County; and Geographical Townships of Manvers and Cavan, Durham County, Ontario*	P415-0323-2021	2022
Stantec	*Stage 2 Archaeological Assessment: Bobcaygeon Community Expansion Project, Phases 1-3, Various Lots and Concessions, Geographical Townships of Emily and Verulam, Victoria County, Geographical Township of Harvey, Peterborough County, Ontario*	P415-0327-2021, P415-0385-2022	2023
Stantec	*Stage 2 Archaeological Assessment: Bobcaygeon Community Expansion Project, Phases 3 and 4, Various Lots and Concessions, Geographical Townships of Emily and Verulam, Victoria County, now City of Kawartha Lakes, Geographical Township of Harvey, Peterborough County, now City of Peterborough, and Geographical Township of Cavan, Durham County, now Township of Cavan-Monaghan Ontario*	P415-0459-2023	2024

In 2022, Enbridge Gas Inc. retained Stantec to complete a Stage 1 archaeological assessment of preferred and alternative routes for the construction of new natural gas community expansion pipeline project in the town of Bobcaygeon (Stantec 2022). The project was divided into four phases. The Stage 1 assessment recommended that areas not previously assessed and cleared, or identified as previously disturbed, retained archaeological potential and Stage 2 archaeological assessment was recommended (Stantec 2022).

In 2023, Stantec completed the Stage 2 archaeological assessment for Phases 1-3 of the community expansion project for the town of Bobcaygeon (Stantec 2023). Phases 1 and 2 were not located within 50 metres of the study area for the current report (Stantec 2023). The lands associated with Phase 3 were not subject to Stage 2 field survey, but were photo documented at a more detailed level to determine which portions retained archaeological potential and which could be considered disturbed due to road construction, utility grading and residential development. The areas within Phase 3 recommended for Stage 2 archaeological survey would form part of the assessment completed in 2024 by Stantec.

In 2024, Stantec completed with Stage 2 archaeological assessment for Phases 3 and 4 of the community expansion project for the town of Bobcaygeon (Stantec 2024). The Stage 2 archaeological assessment was completed through test pit survey, and no archaeological resources were identified (Stantec 2024). No further work was recommended (Stantec 2024). However, the extent of the project was reduced between completion of the Stage 1 and Stage 2 reports; thus, any lands recommended for further work in the Stage 1 report that were not assessed during the Stage 2 survey, still require Stage 2 archaeological assessment (Stantec 2022; Stantec 2024).

1.3.3 Heritage Designations

A review of the City of Kawartha Lakes' list of heritage properties indicates that there is one designated heritage property within 300 metres of the 47 Anne Street study area (City of Kawartha Lakes 2025). The designated property is located at 28 Boyd Street, and the specific designation is for the Edgewood Dry Stone Wall. This wall is a dry-laid (i.e., no mortar is used) stone wall (City of Kawartha Lakes 2025). The wall was constructed around 1890 for W.T.C. Boyd, son of Mossum Boyd across the Bobcaygeon River. The wall is located approximately 250 metres south and across the Bobcaygeon River from the 47 Anne Street property.

No additional heritage properties within 300 metres of either study area were identified in the *Ontario Heritage Act Register*, maintained by Ontario Heritage Trust (2025).

1.4 Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the MCM (Government of Ontario 2011) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites; distance to various types of water sources; soil texture and drainage; glacial geomorphology; elevated topography; and the general topographic variability of the area. However, it is worth noting that extensive land disturbance can eradicate archaeological potential (Government of Ontario 2011).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to water is one of the most used variables for predictive modeling of archaeological site location in Ontario. Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and when considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential.

As discussed above, distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site locations and types to varying degrees. The MCM categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, and creeks.
- Secondary water sources: intermittent streams and creeks, springs, marshes and swamps.
- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes.
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

The 47 Anne Street study area is located approximately 25 metres northwest of the Bobcaygeon River, and the 123 Boyd Street study area is located approximately 65 metres northwest of Pigeon Lake.

As stated in Section 1.3.1, the soil type associated with the 47 Anne Street study area is Dummer loam, a hilly and excessively drained soil with significant gravel and stone inclusions. The soil type associated with the 123 Boyd Street study area is Cramahe gravelly sandy loam, which are well to excessively drained and provide a valuable source of aggregate material. Neither soil type has much value for agricultural use beyond pasturing.

Archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements, early transportation routes, and properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990b) or property that local histories or informants have identified with possible historical events. Historical mapping of the Bobcaygeon area offers only limited information about the study areas. The 47 Anne Street study area is noted as within the limits of the town of Bobcaygeon on both the 1877 and 1881 maps. No specific historical details are indicated for the 123 Boyd Street property on any of the reviewed historical mapping. According to the City of Kawartha Lakes Heritage Register, one designated heritage property is located within 300 metres of the 47 Anne Street study area, although the heritage property is located across the Bobcaygeon River form the study area.

When the above listed criteria are applied, the study area was determined to retain archaeological potential.

1.5 Existing Conditions

The 47 Anne Street study area includes 0.34 hectares of existing pumping station facilities and undeveloped scrubland and manicured lawn located on the south side of Anne Street and along the west side of East Street south on the north side of the Bobcaygeon River. The 123 Boyd Street study area includes 0.23 hectares of existing electrical substation infrastructure, road right-of-way, and scrubland along the east side of Boyd Street.

2 Fields Methods

Prior to the fieldwork the client provided mapping of the study area. A digital file of the study area was uploaded to ArcGIS Field Maps powered by ESRI, customized by Stantec for archaeological survey and assessment, for digital data recording in the field.

The Stage 1-2 archaeological assessment was conducted under PIF number P415-0617-2025, issued to Patrick Hoskins, MA, RPA, by the MCM. The study area, totalling approximately 0.57 hectares, comprises two parcels of existing infrastructure and buildings, scrubland, manicured lawn, and road right-of-way.

Archaeological fieldwork was conducted on November 26, 2025, under the field supervision of Lucas Hillcoat (R1145). Weather during the archaeological fieldwork was cool and overcast. During the Stage 1-2 assessment, field, weather, and lighting conditions were suitable for the identification and recovery of archaeological resources. At no time was the archaeological assessment conducted when the field, weather, or lighting conditions were detrimental to the recovery of archaeological material. Photographic documentation in Section 8.1 of this report confirms that field conditions met the requirements for a Stage 2 archaeological assessment, as per Section 7.8.6 Standard 1.a. the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Figure 7 illustrates the Stage 2 assessment methods for the study area, as well as photograph locations and directions.

Approximately 0.32 hectares, 88.9% of the 47 Anne Street study area, consists of scrubland and manicured lawn (Figure 7; Photos 1 to 3 in Section 8.1). These areas were inaccessible for ploughing and were subject to test pit survey at five-metre intervals per Section 2.1.2 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Test pits were excavated within one metre of built structures, per Section 2.1.2, Standard 4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Each test pit was excavated by hand and was at least 30 centimetres in diameter and excavated five centimetres into the sterile subsoil, per Section 2.1.2, Standards 5 and 6 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Test pits were examined for stratigraphy, cultural features, and evidence of fill. The excavated soil matrix was screened through six-millimetre mesh hardware cloth to facilitate the recovery of artifacts and then used to backfill the pit, per Section 2.1.2, Standards 6, 7, and 9 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). During the Stage 2 survey of the 47 Anne Street study area, exposed or shallowly buried bedrock were noted (Photo 4). However, the survey interval remained at five metres around these natural features. No archaeological resources were identified and thus, no further archaeological methods were required.

Approximately 0.04 hectares, 17.4% of the 123 Boyd Street study area, were test pit surveyed at 10-metre intervals (Figure 7; Photo 5). Initial test pits along the road right-of-way indicated the presence of previously disturbed soils. Test pit excavation continued at 10-metre intervals across the road right-of-way to confirm previous disturbances. All parts of the road right-of-way within the study area were determined to have been previously disturbed. Photographs illustrating the test pit survey of the study area are

provided in Section 8.1. No archaeological resources were identified and thus, no further archaeological methods were required.

The remaining portions of the study areas (0.04 hectares at 47 Anne Street and 0.17 hectares at 123 Boyd Street), consisted of existing structures or buried utilities and were determined to be previously disturbed. In accordance with Section 7.8.6 Standard 1.b of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), this portion of the study area was not subject to Stage 2 survey but was photo-documented (Photos 6 to 10).

3 Record of Finds

The Stage 1-2 archaeological assessment was conducted employing the methods described in Section 2. An inventory of the documentary record generated by fieldwork is provided in Table 3.

Table 3: Inventory of Documentary Record

Document Type	Inventory	Location
Field Notes	2 pages of field notes	Stored digitally on Stantec's network servers
Field maps	1 digital map	Stored digitally on Stantec's network servers
Photographs	34 digital photographs	Stored digitally on Stantec's network servers

No archaeological resources were identified during the Stage 2 archaeological assessment of the study area, and so no material culture was collected. As a result, no artifact storage arrangements were required.

4 Analysis and Conclusions

The Stage 1 archaeological assessment determined that the study area retained archaeological potential. As such, Stage 2 archaeological assessment was required. The Stage 2 archaeological assessment was conducted on November 26, 2025. No archaeological resources were identified during the Stage 2 survey.

5 Recommendations

No archaeological resources were identified during the Stage 1-2 archaeological assessment of the study area. Thus, in accordance with Section 2.2 and Section 7.8.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **no further archaeological work is recommended for the study area (Figure 7).**

The MCM is asked to review the results presented and enter this report into the *Ontario Public Register of Archaeological Reports*.

6 Advice on Compliance with Legislation

In accordance with Section 7.5.9 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011)*, the following standard statements are a required component of archaeological reporting and are provided from the MCM's 2011 Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

This report is submitted to the Minister of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18 (Government of Ontario 1990b). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (Government of Ontario 1990b) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the *Ontario Public Register of Archaeological Reports* referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990b).

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990b). The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990b).

The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c.33 (Government of Ontario 2002), requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Public and Business Delivery Services and Procurement.

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8 Photos

8.1 Images

Photo 1: Test pit survey at five-metre intervals, 47 Anne Street, facing south

Photo 2: Test pit survey at five-metre intervals, 47 Anne Street, facing north

Photo 3: Test pit survey at five-metre intervals, 47 Anne Street, facing north

Photo 4: Exposed bedrock along east edge of 47 Anne Street study area, facing north-northeast

Photo 5: Test pit survey at ten-metre intervals to confirm previous disturbance, 123 Boyd Street, facing north

Photo 6: Area of previous disturbance, existing structures and driveway, 47 Anne Street, facing east-southeast

Photo 7: Area of previous disturbance, existing structure and underground utilities, 47 Anne Street, facing southeast

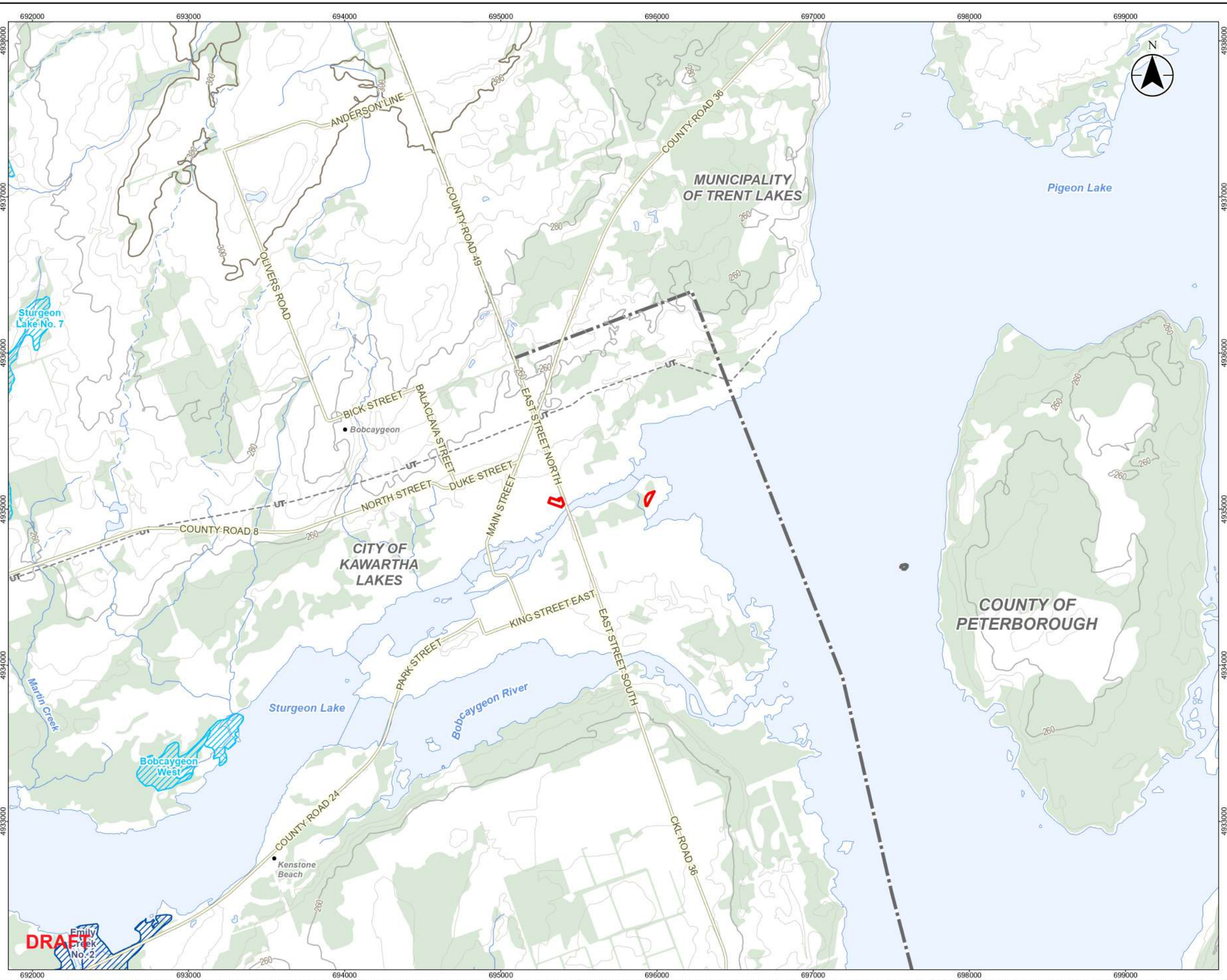
Photo 8: Area of previous disturbance, existing roadway, hydro installation and underground utilities, 123 Boyd Street, facing northeast

Photo 9: Area of previous disturbance, existing hydro installation and underground utilities, 123 Boyd Street, facing south-southwest

Photo 10: Area of previous disturbance, existing hydro installation and gravel pad, 123 Boyd Streett, facing north-northeast

9 Maps

Maps of the Stage 1-2 archaeological assessment of the study area follow on succeeding pages.



Stantec

Legend

- Study Area
- Major Road
- Unknown Transmission Line
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Wetland, Provincially Significant
- Wetland, Other Evaluated
- Municipal Boundary - Upper Tier
- Municipal Boundary - Lower Tier
- Waterbody
- Wooded Area

0

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on 2024-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
1

DRAFT

Title
Location of the Project

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Stantec

Legend

- Study Area
- Watercourse (Permanent)

0

1:3,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Microsoft, Vantor; Date of Imagery, Unknown.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
2

DRAFT

Title
Study Area in Detail

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N

Stantec

Legend

Study Area - Approximate

Figure Not to Scale

Notes

1. Kains, T., 1877. Map of the County of Victoria, Province of Ontario. Library and Archives Canada, National Map Collection, H2/420/Victoria/1877.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
3

DRAFT

Title
Study Area as Shown Over Portion of the 1877 Map of the County of Victoria

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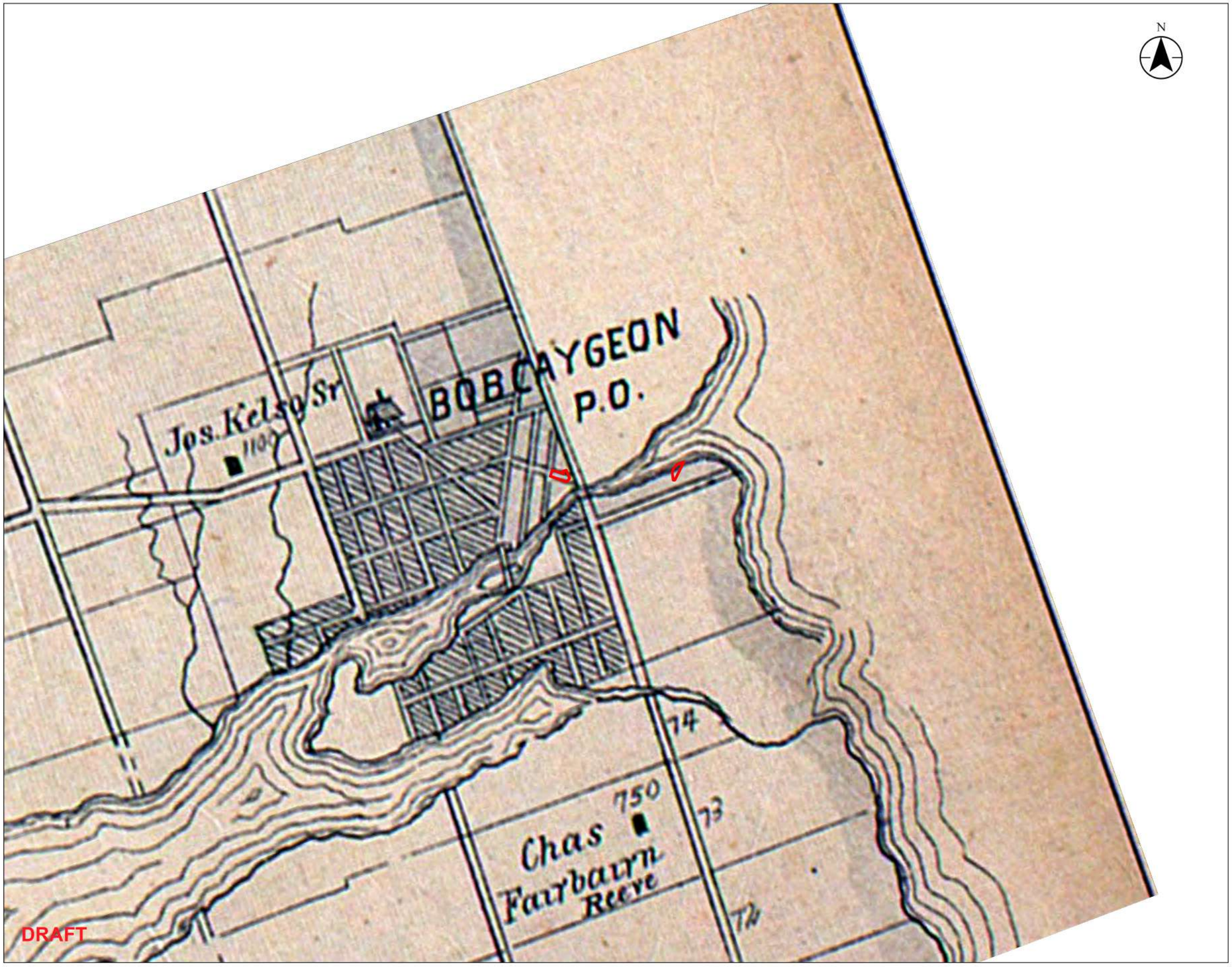

Stantec

Legend

Study Area - Approximate

Figure Not to Scale

Notes

1. Belden, H. 1881. Victoria Supplement in Illustrated atlas of the Dominion of Canada. Toronto: H. Belden & Co.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
4

DRAFT

Title
Study Area as Shown Over Portion of the 1881 Historical Atlas Map of Verulam Township

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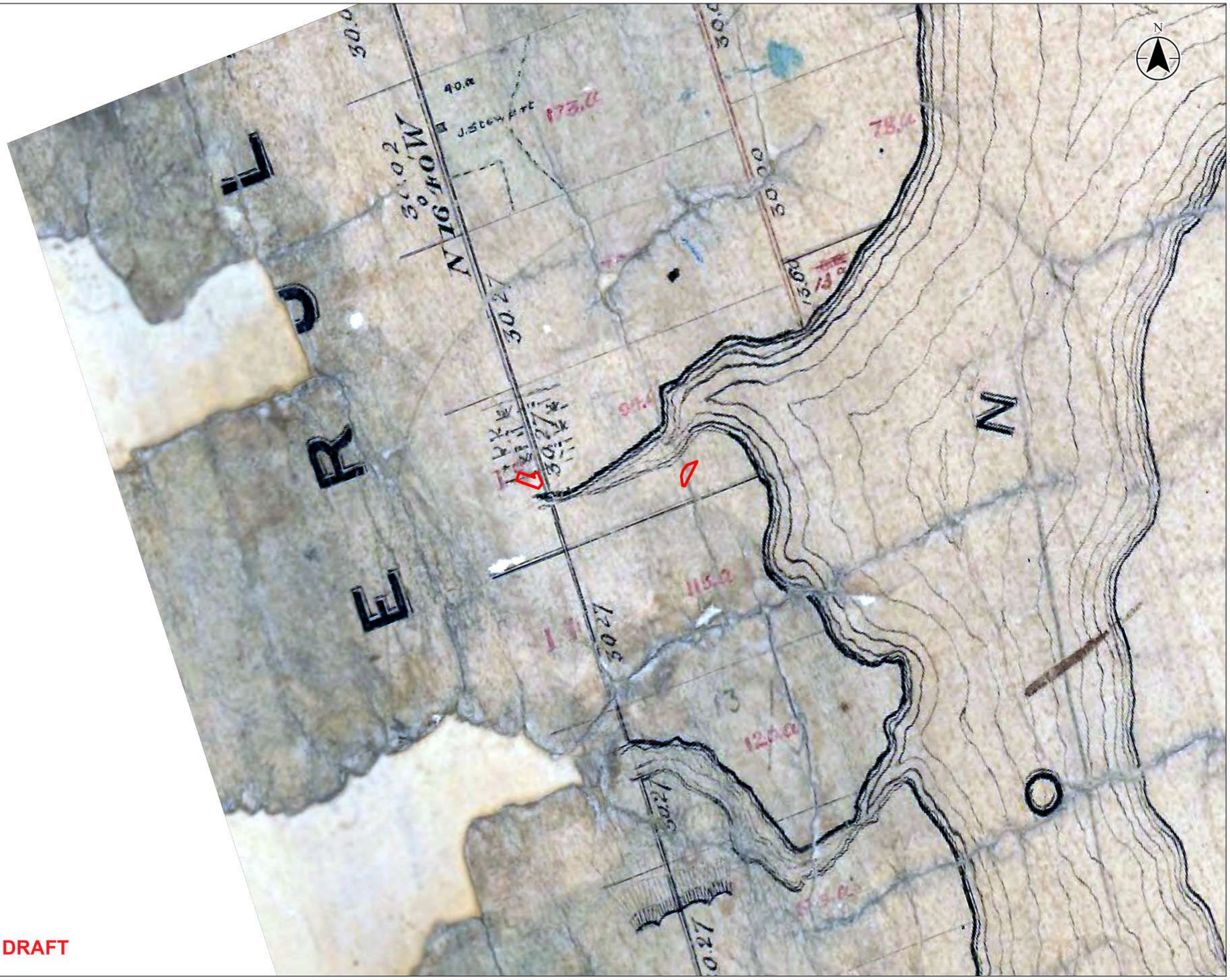

Stantec

Legend

Study Area - Approximate

Figure Not to Scale

Notes

1. Clementi, Theodore. 1865. Harvey (No.28). Map on file with the Ministry of Natural Resources and Forestry, Peterborough.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
5

DRAFT

Title
Study Area as Shown Over 1865 Map of Harvey Township

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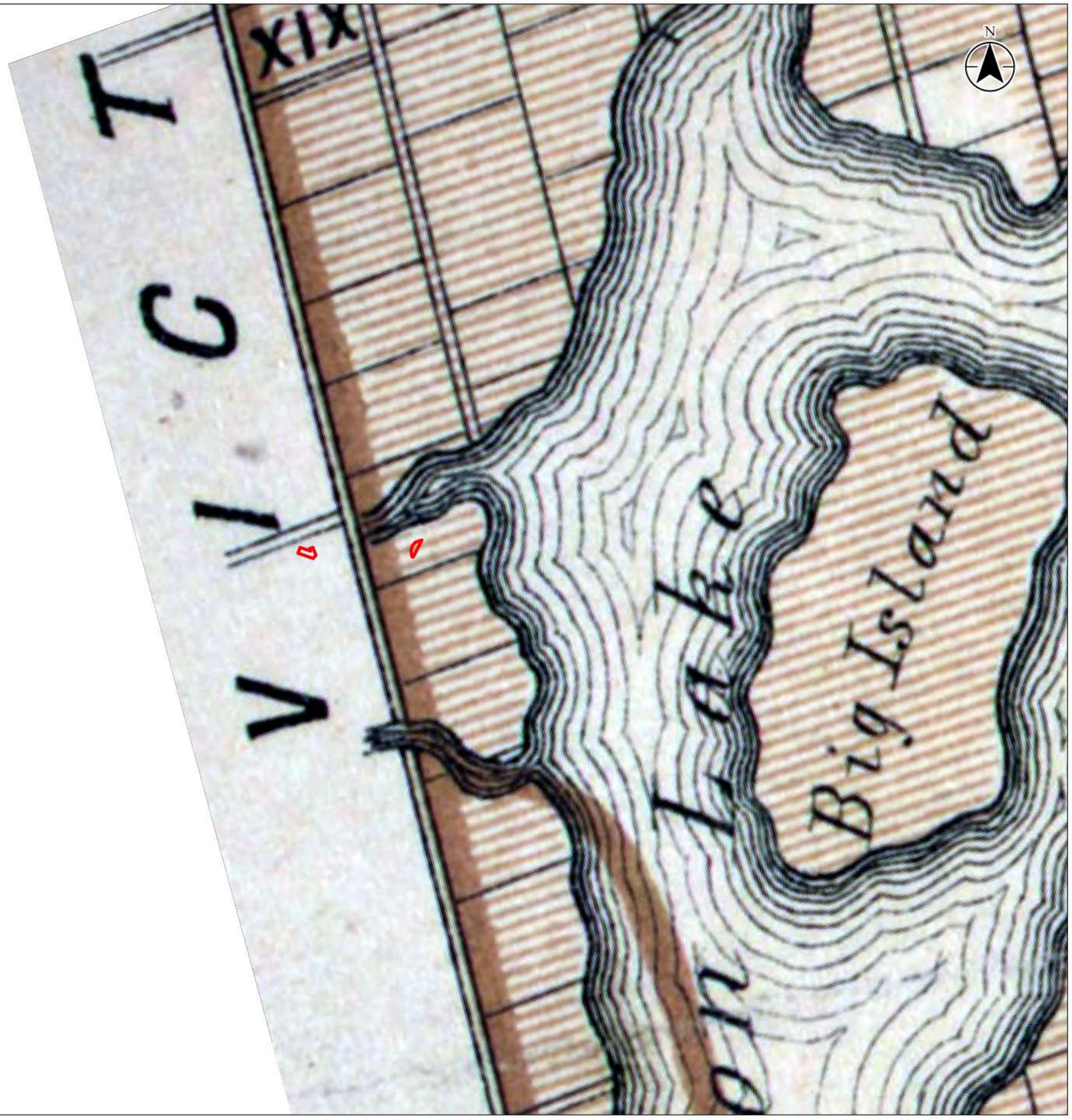

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Stantec

Legend

Study Area - Approximate

Figure Not to Scale

Notes

1. Miles & Co. 1879. County of Peterborough. Toronto: Miles & Co.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
6

DRAFT

Title
Study Area as Shown Over 1879 Map of Harvey Township

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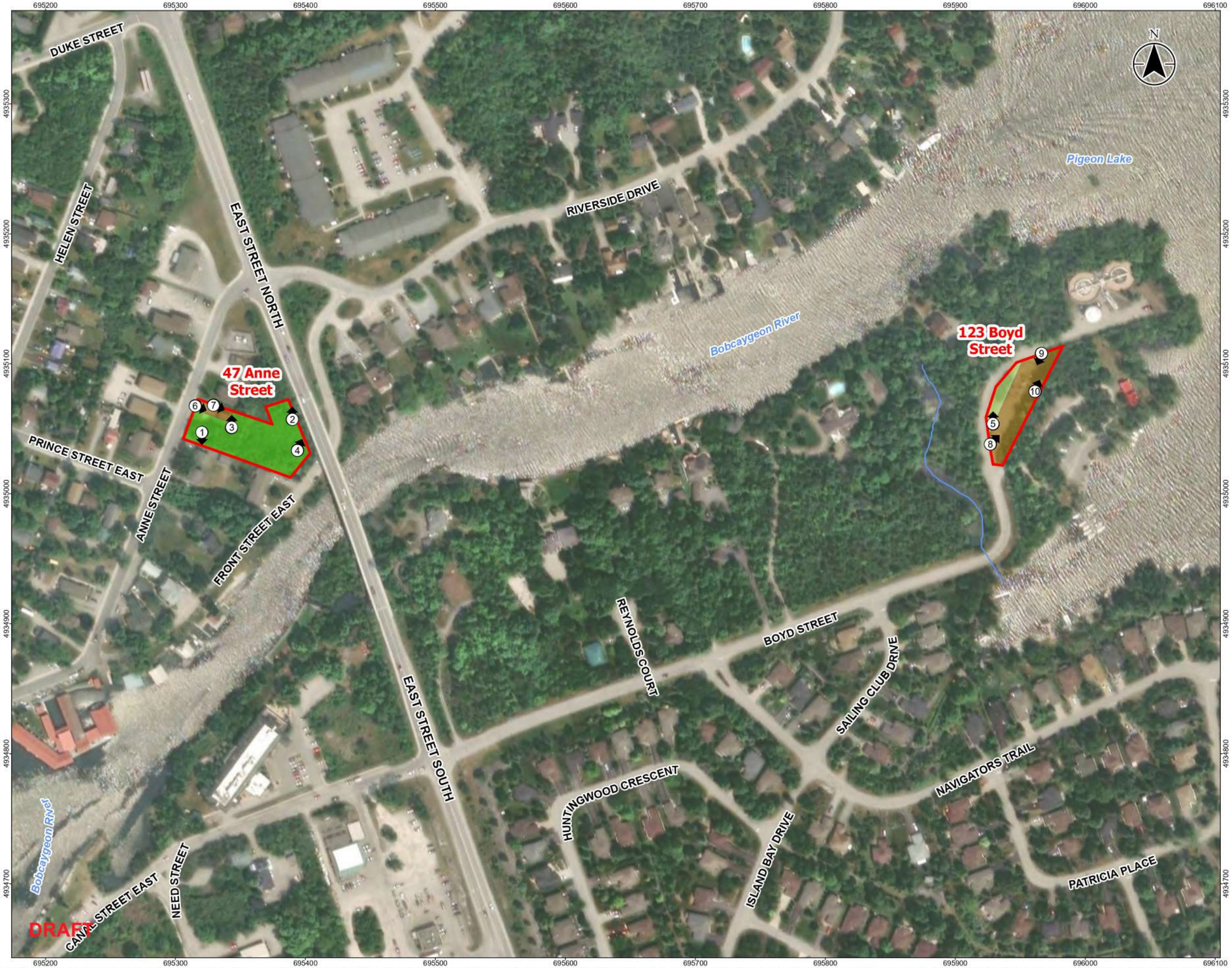

Stantec

Legend

- Study Area
- Photo Location and Direction
- Watercourse (Permanent)

Archaeological Methods

- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Test Pit Survey, 5 m Intervals
- Test Pit Survey, 10 m Intervals

0

1:3,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Microsoft, Vantor, Date of Imagery, Unknown.

Project Location
Bobcaygeon, ON

160941241
Prepared by atarli on 2025-12-08
Technical Review by ABC on yyyy-mm-dd

Client/Project
CONCEPT DASH
SANITARY PUMPING STATION AND FORCEMAIN IMPROVEMENTS
47 ANNE STREET AND 123 BOYD STREET, BOBCAYGEON
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Figure No.
7

DRAFT

Title
Stage 1-2 Archaeological Assessment Methods and Results

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10 Closure

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report. We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this report.

Appendix C - Cultural Heritage Report

ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
Anne Street and Front Street Sewage Pumping Station and Forcemain Upgrades
City of Kawartha Lakes
Part of Lots 14 and 15, Concession 19,
and Part of Lot 16, Concessions 9 and 10
Geographic Township of Verulam
Former Victoria County

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www.araheritage.ca

HR-564-2025
ARA File # 2025-0207

ORIGINAL
05/09/2025

EXECUTIVE SUMMARY

Archaeological Research Associates Ltd. (ARA) carried out a *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* for the project location associated with the Anne Street and Front Street Sewage Pumping Station (henceforth SPS) and Forcemain project in the City of Kawartha Lakes, Ontario. A Schedule B Municipal Class Environmental Assessment (MCEA) is being undertaken to evaluate options to upgrade and/or expand two SPSs in order to accommodate increased population growth and future commercial development north of the Bobcaygeon River.

The Anne Street SPS, located at 47 Anne Street, is approximately 80 metres from the Bobcaygeon River shoreline and follows to the north and south by municipally owned roadways, and to the east and west by private residential properties. 47 Anne Street is approximately 0.76 metres in size. A new SPS building is proposed for this location, and a preliminary design has been established. The Anne Street forcemain route follows the municipal road way along East St (Hwy 36), moving southerly over the bridge to Boyd St and extending eastward to the current Bobcaygeon Wastewater Treatment Plan (WWTP) at 127 Boyd Street. Overall, the Anne Street project location includes a mix of urban land uses but is predominantly located adjacent to residential and commercial property.

The Front Street SPS, located at 200 Front Street, is approximately 70 metres from the Bobcaygeon River shoreline and bordered by private residences on the south, east, and west sides. The proposed scope of work for the Front Street SPS includes the installation of a stand-by generator on pad mounting, and the replacement of existing electrical panels. The forcemain route which follows the municipal roadway easterly from 200 Front Street to approximately West Street.

This assessment was conducted in accordance with the aims of the *Environmental Assessment Act*, R.S.O. 1990, *Provincial Planning Statement* (2024), the *Ontario Heritage Act*, R.S.O. 1990, c. O.18, the Ontario Heritage Tool Kit series (MCM 2025) and the City of Kawartha Lakes' *Official Plan* (City of Kawartha Lakes 2025).

A field survey was conducted on June 26, 2025, to photograph and document each of the properties within and adjacent to the project location. The field survey was conducted from publicly accessible, non-private lands. In total, six built heritage resources (BHR) were identified within or adjacent to the proposed infrastructure upgrades

An impact analysis was completed and found that the proposed work may have some indirect impact to the identified and potential BHRs. Therefore, the following mitigation measures are recommended:

- Storage and construction staging areas should avoid all BHRs.
- Construction fencing should be erected along:
    - The property boundary of BHR-1 to ensure the stone wall is not damaged by any construction machinery or vehicles.
    - Along the property boundary of BHR-2 to ensure the stone pillars located on the property which are located at the roadway are not damaged by any construction machinery or vehicles.

- Given the adjacency (within 60 meters) of the stone wall at BHR-1, stone pillars at BHR-2, and the Davis Family Cottage at BHR-5 to the project works, the project may result in minor indirect vibration impacts. The following recommendations should be considered:
    - Consult a qualified Engineer:
        - As the Part IV designated BHR is located well within the limit of the recommended buffer suggested for vibration monitoring (i.e., 60 m from the proposed works; Carmen et al. 2012:31), consult a qualified Engineer to determine if a Zone of influence (ZOI) Study is required.
    - If required, complete a ZOI Study (conducted by a qualified Engineer) to determine if ground vibrations from the proposed work may damage the heritage attributes of the property.
    - If the ZOI Study determines the proposed works have the potential to damage the heritage attributes of the property, the study should recommend:
        - Ground vibration limits to avoid potential damage to the heritage attributes of the property.
        - Construction vibration monitoring processes and procedures be implemented to avoid vibration limit exceedances.
        - If necessary, provide mitigation measures to assist in maintaining the vibrations within the proposed limits.

The following general considerations and recommendations should also be undertaken:

- That the above mitigation measures be implemented and considered in subsequent planning and design phases.
- That if the preferred design option changes, the new design should be reviewed against the findings in this *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* and an update provided in an Impact Memo. Specifically, the memo should review all identified heritage resources and evaluate any impact of the design (or alternative design concepts), as well as outline avoidance/mitigation measures to minimize the impact. Depending on the nature of the impact (i.e., demolition, significant modification, or alteration) the review may result in additional studies being recommended (i.e., a Cultural Heritage Evaluation Report, Heritage Impact Assessment, Conservation Plan etc.). The review should be undertaken by a qualified heritage professional.
- That this *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* should be provided to staff/planners at the municipal and regional level as needed; and
- Any impacts to potential, and known, archaeological sites, are being addressed through the archaeological assessment process

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ABBREVIATIONS

AFN – Alderville First Nation
ARA – Archaeological Research Associates Ltd.
BFN – Beausoleil First Nation
BHR – Built Heritage Resource
CGIFN – Chippewas of Georgina Island First Nation
CHL – Cultural Heritage Landscape
CHVI – Cultural Heritage Value or Interest
CHR – Cultural Heritage Resource
CLFN – Curve Lake First Nation
CRFN – Chippewas of Rama First Nation
EA – Environmental Assessment
HFN – Hiawatha First Nation
HSMBC – Historic Sites and Monuments Board of Canada
HWN – Huron-Wendat Nation
KRCA – Kawartha Region Conservation Authority
MCEA – Municipal Class Environmental Assessment
MCM – Ministry of Citizenship and Multiculturalism
MNO – Métis Nation of Ontario
MSIFN – Mississaugas of Scugog Island First Nation
OHA – Ontario Heritage Act
OHT – Ontario Heritage Trust
OP – Official Plan
O. Reg. – Ontario Regulation
OSIM – Ontario Structure inspection Manual
PIC – Public Information Centre
PPS – Provincial Planning Statement
SPS – Sewage Pumping System
TSW – Trent-Severn Waterway
WWTP – Wastewater Treatment Plant

PERSONNEL

Principal: P.J. Racher, MA, CAHP, RPA
Director - Heritage Operations: K. Jonas Galvin, MA, CAHP, RPP, MCIP
Project Manager: A. Barnes, MA, CAHP
Field Surveyors: A. Barnes, L. Renee Hendricks, MA
Historical Research: R. Hendricks
Cartographer: A. Bailey (GIS), M. Johnson (GIS), K. Crotty (GIS)
Technical Writers: A. Barnes, R. Hendricks,

Biographies for key team members that demonstrate the qualifications and expertise necessary to perform cultural heritage work in Ontario are provided in Appendix A.

1.0 PROJECT CONTEXT

Archaeological Research Associates Ltd. (ARA) carried out a *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* for the project location associated with the Anne Street and Front Street Sewage Pumping Station (henceforth SPS) and Forcemain project in the City of Kawartha Lakes, Ontario. This report is being completed as part of a Schedule B MCEA process to upgrade and/or expand the two SPS and forcemains in order to accommodate increased population growth and potential future commercial development north of the Bobcaygeon River. According to the City of Kawartha Lakes,

> *The existing settlement within the North-West area is served by the Front Street SPS (also referred to as SPS #4). The Front Street SPS is a tributary SPS to the Anne Street SPS (also referred to as SPS #6). The Front Street SPS and the Anne Street SPS are located on the north side of the Bobcaygeon River. The Anne Street SPS collects flows from the entire north side of the Bobcaygeon River through various gravity mains from its own sewer shed in addition to the flows from the Front Street SPS sewer shed and the Bobcaygeon SPS numbers 3, 4, and 11 sewer sheds* (City of Kawartha Lakes 2025).

The Anne Street SPS, located at 47 Anne Street, is approximately 80 metres from the Bobcaygeon River shoreline and follows to the north and south by municipally owned roadways, and to the east and west by private residential properties (see Map 1). 47 Anne Street is approximately 0.76 metres in size. A new SPS building is proposed for this location, and a preliminary design has been established. The Anne Street forcemain route follows the municipal road way along East St (Hwy 36), moving southerly over the bridge to Boyd St and extending eastward to the current Bobcaygeon Wastewater Treatment Plant (WWTP) at 127 Boyd Street. Overall, the Anne Street project location includes a mix of urban land uses but is predominantly located adjacent to residential and commercial property.

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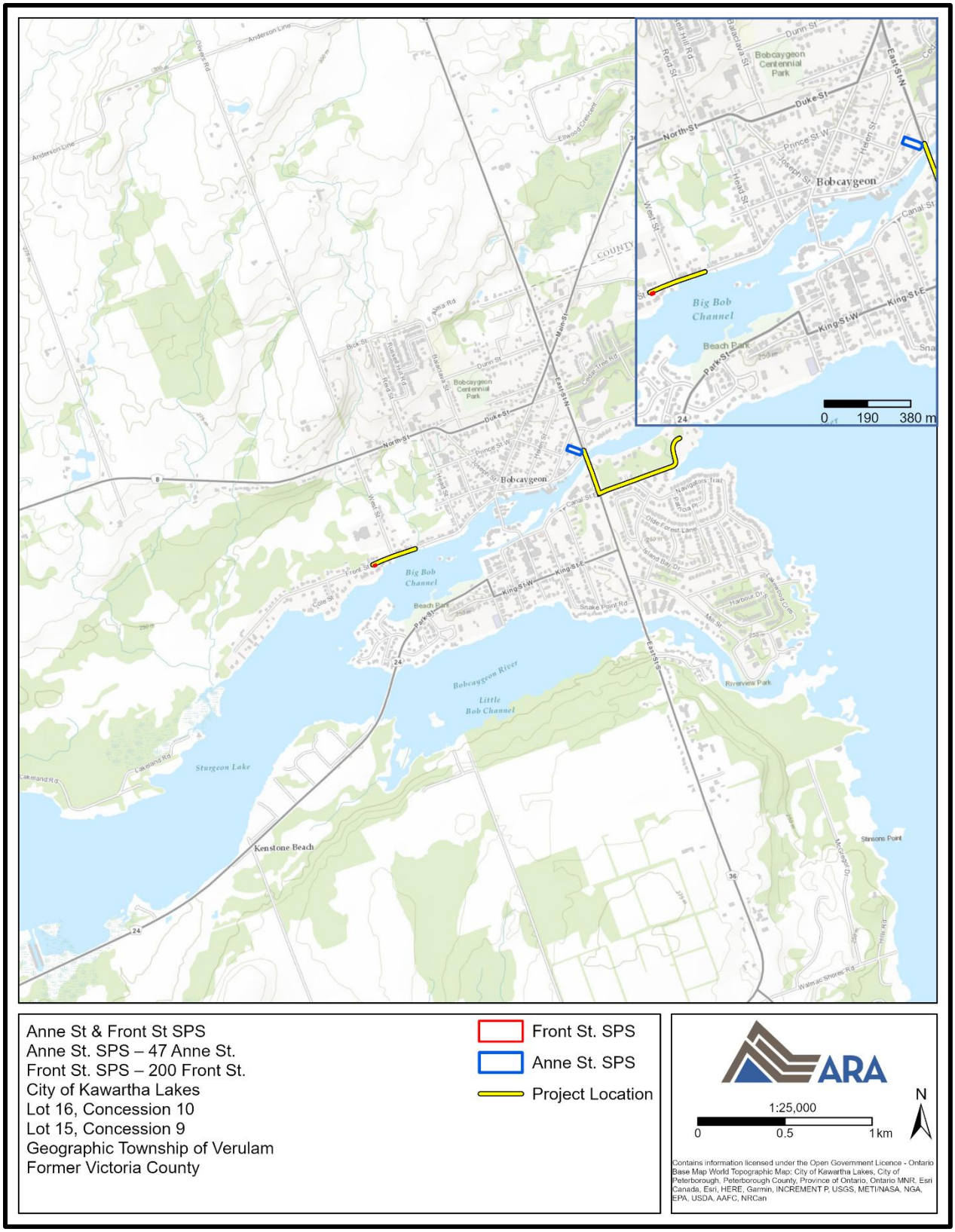
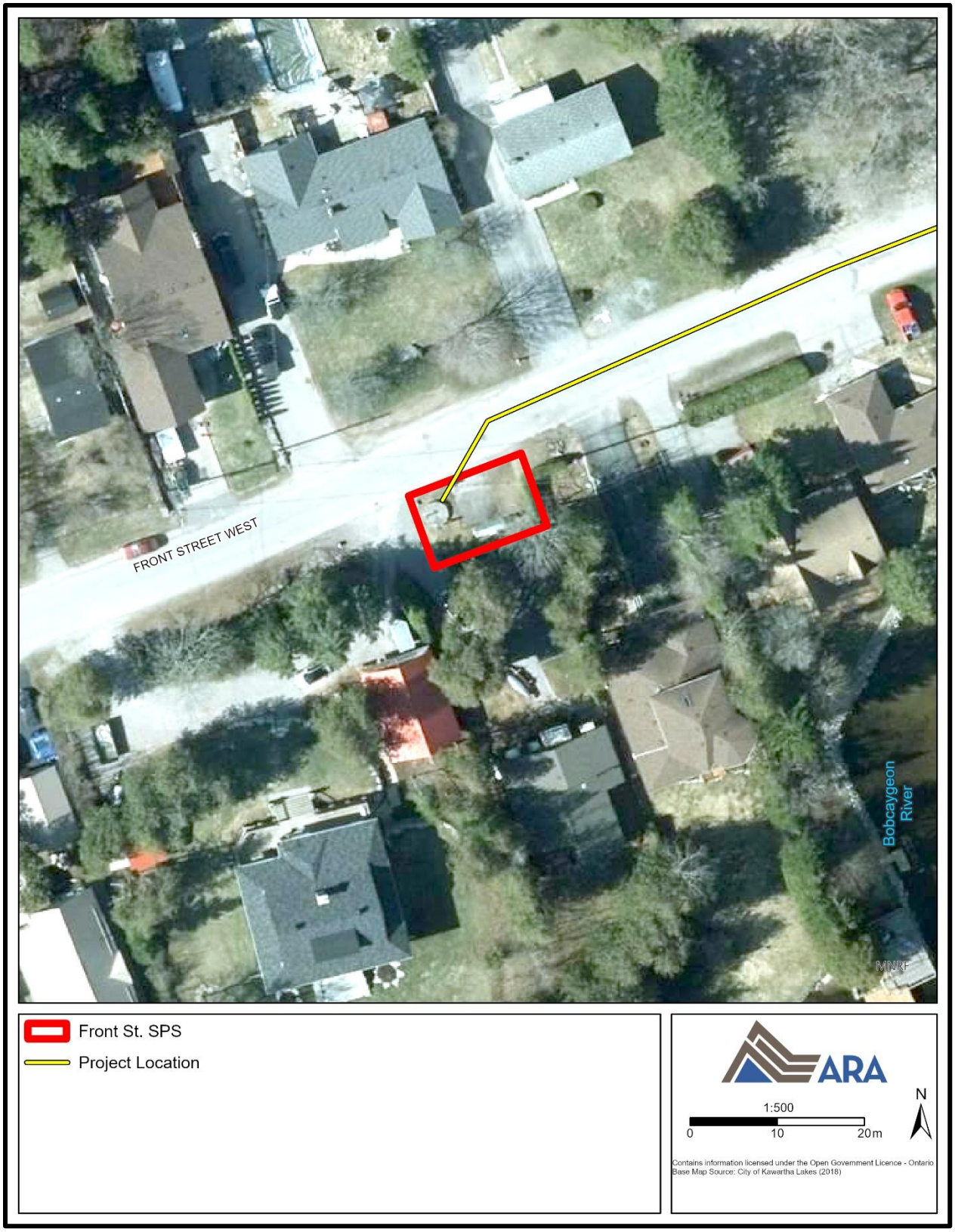
The purpose of the *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* is to identify any known or potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs) within and adjacent to the study area, determine any potential impacts that could result from the project, and recommend avoidance or mitigation measures. This assessment was conducted in accordance with the aims of the *Environmental Assessment Act*, R.S.O. 1990, *Provincial Planning Statement* (2024), the *Ontario Heritage Act*, R.S.O. 1990, c. O.18, the Ontario Heritage Tool Kit series (MCM 2025) and the City of Kawartha Lakes' *Official Plan* (City of Kawartha Lakes 2025).



Map 1: Project Location in the City of Kawartha Lakes
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

Map 2: Aerial Image of 47 Anne Street in the Village of Bobcaygeon
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)



Map 3: Aerial Image of 200 Front Street Project Location in the Village of Bobcaygeon
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

2.0 LEGISLATION AND POLICY REVIEW

The framework for this assessment report is provided by federal guidelines, provincial environmental and planning legislation and policies as well as municipal official plans and guidelines.

2.1 Federal Guidelines

At the national level, the *Standards and Guidelines for Conservation of Historic Places in Canada* (*Standards and Guidelines*; Parks Canada 2010) provides guidance for the preservation, rehabilitation, and restoration of historic places, including BHRs and CHLs. Such guidance includes the planning and implementation of heritage conservation activities. The *Standards and Guidelines* list "General Standards for Preservation, Rehabilitation and Restoration":

1. Conserve the *heritage value* of an *historic place*. Do not remove, replace, or substantially alter its intact or repairable *character defining elements*. Do not move a part of an historic place if its current location is a character-defining element.
2. Conserve changes to an *historic place* that, over time, have become *character-defining elements* in their own right.
3. Conserve *heritage value* by adopting an approach calling for *minimal intervention*.
4. Recognize each *historic place* as a physical record of its time, place, and use. Do not create a false sense of historical development by adding elements from other historic places or other properties, or by combining features of the same property that never coexisted.
5. Find a use for an *historic place* that requires minimal or no change to its *character-defining elements*.
6. Protect and, if necessary, stabilize an *historic place* until any subsequent *intervention* is undertaken.
7. Protect and preserve archaeological resources in place. Where there is potential for disturbing archaeological resources, take mitigation measures to limit damage and loss of information.
8. Evaluate the existing condition of *character-defining elements* to determine the appropriate *intervention* needed. Use the gentlest means possible for any intervention. Respect *heritage value* when undertaking an intervention.
9. Maintain *character-defining elements* on an ongoing basis. Repair character-defining elements by reinforcing their materials using recognized conservation methods. Replace in kind any extensively deteriorated or missing parts of character-defining elements, where there are surviving *prototypes*.
10. Make any *intervention* needed to preserve *character-defining elements* physically and visually compatible with the *historic place* and identifiable on close inspection. Document any intervention for future reference (Parks Canada 2010:22).

2.2 Provincial Policies and Guidelines

2.2.1 Environmental Assessment Act and Guidelines

An Environmental Assessment (EA) is a study that evaluates both the potential positive and/or negative effects of a project on the environment. Within the *Environmental Assessment Act,* the environment includes *"*any building, structure, machine or other device or thing made by humans*."* (Government of Ontario 1990). This study is conducted as part of recommendations within a streamlined EA process known as a Municipal Class EA (MCEA), which applies to

routine projects grouped into classes that range from A (minor undertakings) to C (construction of new large facilities). The MCEA applies to municipal infrastructure undertakings including roads, water and wastewater projects.

2.2.2 Planning Act

In Ontario, the *Planning Act* is legislation used by provincial and municipal governments in land use planning decisions. Section 2 of the *Planning Act* indicates that a council of a municipality have regard for matters of provincial interest such as: "(d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest" (Government of Ontario 1990). Section 3 of the *Planning Act* directs a municipal Council's decisions to be consistent with the Province's planning statements.

2.2.3 The Provincial Planning Statement (2024)

The *Provincial Planning Statement* (2024; PPS) contains a combined statement of the Province's land use planning policies. It provides the provincial government's policies on a range of land use planning issues.

The PPS 2024 promotes the conservation of heritage resources through detailed polices in Section 4.6, such as 4.6.1 that states, "Protected heritage property, which may contain built heritage resources or cultural heritage landscapes, shall be conserved" and 4.6.3 that details "Planning authorities shall not permit development and site alteration on adjacent lands to protected heritage property unless the heritage attributes of the protected heritage property will be conserved" (MMAH 2024:28).

Further, 4.6.4 notes "Planning authorities are encouraged to develop and implement: b) proactive strategies for conserving significant built heritage resources and cultural heritage landscapes" (MMAH 2024:28).

2.2.4 Ontario Heritage Act

The *Ontario Heritage Act* (OHA), R.S.O. 1990, c.018) is the guiding piece of provincial legislation for the conservation of significant cultural heritage resources in Ontario. The OHA gives provincial and municipal governments the authority and power to conserve Ontario's heritage. The OHA has policies that address individual properties (Part IV), and heritage districts (Part IV), which require municipalities to create a register of such properties and allows the municipalities to list or de-list non-designated properties that may have cultural heritage value or interest (CHVI) (Section 27).

To objectively identify cultural heritage resources, Ontario Regulation (O. Reg.) 9/06 (as amended by O. Reg. 569/22) made under the OHA sets out nine criteria for CHVI (MCM 2006b:20-27). The criteria set out in the regulation were developed to identify and evaluate properties for designation under the OHA. Best practices in evaluating properties that are not yet protected employ O. Reg. 9/06 to determine if they have CHVI. In the absence of specific CHL evaluation criteria, O. Reg 9/06 is also applied to consider the built and natural features of a property.

The O. Reg. 9/06 criteria are as follows:

1. The property has design value or physical value because it is a rare, unique, representative, or early example of a style, type, expression, material or construction method.
2. The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit.
3. The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement.
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.
5. The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture.
6. The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
7. The property has contextual value because it is important in defining, maintaining or supporting the character of an area.
8. The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings.
9. The property has contextual value because it is a landmark.

A property must meet at least two of the criteria above to have CHVI. An OHA designation provides the strongest heritage protection available for conserving cultural heritage resources.

2.3 Municipal Policies

2.3.1 City of Kawartha Lakes Official Plan (Consolidated March 2025)

Section 10- Culture and Heritage begin with the overarching goal which is to "Encourage the conservation and enhancement of cultural heritage resources." (2025:69). Section 10.2 provides several objectives of the *OP* which center around the conservation and enhancement of cultural heritage resource, the desire to raise public awareness, celebrate history, and foster community involvement and appreciate for the areas. Specifically, *OP* section 10.5 outlines several heritage policies which work to meet the goal and objectives of the *OP*. For example,

> a) Cultural heritage resources of significant cultural heritage value or interest shall be identified, protected, and conserved.
>
> e) The City shall use the tools available to it under the Municipal Act, the Planning Act, the Environmental Assessment Act, and the Ontario Heritage Act to conserve cultural heritage resources.
>
> g) The City shall not permit development and site alteration on adjacent lands to protected heritage property except where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserve
>
> m) The City shall lead the community in the management of its cultural heritage resources by providing good examples of proper heritage stewardship in the care

and management of the municipally owned heritage properties (OP: 2025: 70-71)

Section 10 also contains policies related to Archaeological Conservation (Section 10.3), the Municipal Heritage Committee (Section 10.4), and Heritage Conservation Districts (10.6). Lastly, Appendix K outlines when a Heritage Impact Assessment shall be required under the following circumstances:

a) Any property listed or designated in the municipal heritage register that is subject to land use planning applications;
b) Any property listed or designated in the municipal heritage register that is facing possible demolition; and/or
c) Any property that is subject to land use planning applications and is adjacent to a property designated in the municipal heritage register (2025:347-348).

A Heritage Impact Assessment, which must be prepared by a qualified heritage conservation professional, will include, but not be limited to:

a) Historical research, site analysis, and evaluation;
b) Identification of the significance of heritage attributes of the cultural heritage resource;
c) A description of the proposed development or site alteration;
d) An assessment of development or site alteration impacts;
e) Consideration of alternatives, mitigation and conservation methods;
f) A schedule and reporting structure for implementation and monitoring; and
g) A summary statement and conservation recommendations.
h) Additionally, modifications to the development proposal to ensure compatibility with the cultural heritage resource on adjacent lands should be considered (2025:348).

Additionally, Section 31.3 of the *City of Kawartha Lakes Official Plan* consists of the Bobcaygeon Secondary Plan, which notes in Section 31.3.2.9 that "The City shall protect, conserve, and promote culture and cultural heritage in accordance with the 2020 Provincial Policy Statement and Section 10 of the Official Plan" (City of Kawartha Lakes 2025:227).

2.4 City of Kawartha Lakes- Cultural Master Plan

Completed in 2020, the purpose of the CMP is to is to "provide a long-term vision and a strategic action plan to guide growth of the local cultural economy, to enhance quality of life and placemaking, ensuring that it reflects the unique cultural identity of Kawartha Lakes" (CMP 2020:7). Within the CMP, there are several types of heritage recognized as playing an important role in the cultural vibrancy of the larger Kawartha Lakes, including Heritage Conservation Districts, Heritage trails, Museums, Heritage Events, Heritage/Historical and Genealogical Societies, Designated Heritage Properties and more. The CMP provides specific strategic goals and actions to help ensure the continuation and positive growth of the cultural sector of Kawartha Lakes.

2.5 Heritage Master Plan for City of Kawartha Lakes

"The primary thrust of a Heritage Master Plan is to foster and promote the intrinsic value of local heritage" (2012:9). The comprehensive Master Plan is divided into several sections which covers Background and introduction (objects, scope, methodology etc.), the Historical elements and themes (history of the area), Expressing the past: Collection and Inventories (gap analysis etc.) evaluation of heritage (built, clubs, archaeology etc.), the municipal role in cultural heritage development, marketing the past, barriers to overcome, action plan (year 1-5), and policy

implementation. Overall, the plan is used as guidance for decision makers to help make short and long-term decision regarding culture heritage resources and local heritage related assets in the City of Kawartha Lakes.

2.6 Policy Conclusion

Federal guidance, provincial legislation, and policies of the City of Kawartha Lake Official Plan (Consolidated 2025) calls for the conservation of cultural heritage resources, and the promotion of heritage resources. This *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* will address these cultural heritage policies as they relate to the proposed project.

3.0 KEY CONCEPTS

The following concepts require clear definition in advance of the methodological overview and proper understanding is fundamental for any discussion pertaining to cultural heritage resources:

- **Adjacent Lands**, as defined in the PPS, means "for the purposes of policy 4.6.3, those lands contiguous to a *protected heritage property* or as otherwise defined in the municipal official plan" (MMAH 2024:38).
- **Built Heritage Resource** (BHR) can be defined in the PPS as: "a building, structure, monument, installation or any manufactured or constructed part or remnant that contributes to a property's cultural heritage value or interest as identified by a community, including Indigenous community. Built heritage resources are located on property that has been designated under Parts IV or V of the Ontario Heritage Act, or that may be included on local, provincial and/or federal and/or international registers" (MMAH 2024:40).
- **Conserved** means "the identification, protection, management and use of *built heritage resources*, *cultural heritage landscapes* and *archaeological resources* in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment, and/or heritage impact assessment that has been approved, accepted or adopted by the relevant planning authority and/or decision-maker. Mitigative measures and/or alternative development approaches should be included in these plans and assessments" (MMAH 2024:41).
- **Cultural Heritage Landscape** (CHL) is defined in the PPS as: "a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the Ontario Heritage Act or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms." (MMAH 2024:41).
- **Cultural Heritage Value or Interest** (CHVI), also referred to as Heritage Value, is identified if a property meets one of the criteria outlined in O. Reg. 9/06 namely historic or associate value, design or physical value and/or contextual value. Provincial significance is defined under Ontario Heritage Act (OHA) O. Reg. 10/06.
- **Heritage Attributes** are defined in the PPS as: "the principal features or elements that contribute to a protected heritage property's cultural heritage value or interest, and may include the property's built constructed, or manufactured elements, as well as natural landforms, vegetation, water features, and its visual setting (e.g., significant views or vistas to or from a protected heritage property)" (MMAH 2024:44).
- **Protected Heritage Property** is defined as "property designated under Parts IV, V or VI of the Ontario Heritage Act; property subject to a heritage conservation easement under Parts II or IV of the Ontario Heritage Act; property identified by the Province and prescribed public bodies as provincial heritage property under the Standards and Guidelines for Conservation of Provincial Heritage Properties; property protected under federal legislation, and UNESCO World Heritage Sites" (MMAH 2024:50).
- **Significant** in reference to cultural heritage is defined as: "resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the Ontario Heritage Act" (MMAH 2024:52).

Key heritage definitions from the City of Kawartha Official Plan (Consolidated 2025) are as follows:

- **Adjacent Lands:** means those land adjoining a property on the Heritage Register or lands that are directly across from and near to a property on the Heritage Register and separated by land used as a private or public road, highway, street, lane, trail, right-of-way, walkway, greenspace, park and/or easement, or an intersection of any of these; whose location has the potential to have an impact on a property on the heritage register; or as otherwise defined in a Heritage Conservation District Plan adopted by by-law (OP 2025:155).
- **Alteration**: is any change to a property on the Heritage Register in any manner including its restoration, renovation, repair or disturbance, or a change, demolition or removal of an adjacent property that may impact the heritage attributes of a property, district or designated feature on the Heritage Register (OP 2025:157).

4.0 HISTORICAL CONTEXT

The City of Kawartha Lakes has a long and continuing history of settlement including pre-contact and post-contact Indigenous campsites and villages. The study area has strong associations with Indigenous communities and the heritage resources considered in this report can be associated with both Pre-Contact and Post-Contact cultural developments. Accordingly, this historical context section spans the Pre-Contact Indigenous occupation history through Euro-Canadian settlement history to present. The early history of the study area can be effectively discussed in terms of major historical events.

The history of the project location was constructed using background information obtained from aerial photographs, historical maps (i.e., illustrated atlases) and published secondary sources (online and print).

4.1 Settlement History

4.1.1 A Note on the Pre-Colonial Landscape

Prior to the rise of development in the 19th and 20th centuries, the landscape of the City of Kawartha Lakes would have looked very different than what exists today. Situated on the east shore of Pigeon Lake at its confluence with Sturgeon Lake, the lush and thriving environment would have held great importance to past Indigenous peoples, who would sustain themselves on the abundant flora and fauna of the area. There is well-established Anishinaabeg and Huron-Wendat history in this area.

Colonialism and widespread development largely dispossessed Indigenous peoples of their traditional lands. Despite their intentions to "share the land," European concepts of land ownership divorced First Nations and Indigenous communities from their long-held role as stewards over the land and decision-making about environmentally significant locations were effectively removed from their control. Today, we recognize the importance the land once held for past Indigenous peoples and the advocacy of their descendants for a return to stewardship over the remaining, but diminishing, examples of natural locations, particularly in southern Ontario. Although this area has been extensively farmed, city-like urban sprawl has not yet achieved the levels of growth and impact it has elsewhere.

The City of Kawartha Lakes has a long history of Indigenous land use and settlement including Pre-Contact and Post-Contact campsites and villages. It should be noted that the written historical record regarding Indigenous use of the landscape in Eastern Ontario draws on accounts by European explorers and settlers. As such, this record only details a small period of time in the overall human presence in Ontario. Oral histories and the archaeological record show that Indigenous communities were mobile across great distances, which transcend modern understandings of geographical boundaries and transportation routes.

After decades of archaeological work in Ontario, scholarly understanding of the historic usage of the area has developed significantly. With occupation beginning in the Late Palaeo-Indian period approximately 10,000 years ago, the greater vicinity of the study area comprises a complex chronology of Indigenous and Euro-Canadian histories. The following sections summarize the region's settlement history and documents the project location's past and present land uses.

The Pre-Contact history of the region is lengthy and rich, and a variety of Indigenous peoples inhabited the landscape. This location was used and shared by many since time immemorial,

each with their own traditions as to how they arrived, how they lived, and the major events that marked their time here. There is no singular way to tell this story. Alongside the brief historical narrative as understood by heritage professionals, at the time of writing, some First Nations and Indigenous communities have provided traditional knowledge regarding their history, community, and story for inclusion in reports. It should be noted that one Nation's traditional knowledge does not necessarily reflect the views of another Nation or the consultant. These histories are outlined below in Table 1, Table 2, and Table 3.

It is probable that Ontario was first occupied almost as soon as the land was exposed by melting ice after the retreat of the glaciers and the formation of the early lakes between 11,000 and 10,500 years ago (OAS 2025). At that time, small bands of Indigenous peoples moved into the region, leading mobile lives based on communal hunting of large game and the collection of plant-based food resources. During this period, which is referred to by archaeologists as the Palaeo period, Indigenous peoples ranged over very wide territories in order to live sustainability in a post-glacial environment.

Around 7500 BC, the climate warmed and deciduous forests appeared. The Indigenous peoples adapted their hunting practices and tools to better suit the new animal and plant food sources. This change in material culture is referred to as the Archaic period. Populations increased in size and Indigenous peoples began to participate in long-distance trade.

The Woodland period is marked by the appearance of ceramic pottery, which is noted around 900 BC. The first evidence of maize (corn) horticulture in southern Ontario appears around AD 900, as small circular or square houses begin to appear. Over time, the practice of maize horticulture improved, allowing for population increases, larger settlement sizes, and increased social complexity in villages. These developments are linked to the spread of Iroquoian-speaking populations, including the ancestors of the historically documented Wendat, Attawandaron, and Haudenosaunee nations. Algonquin-speaking populations, including the Anishinaabeg, also represented a significant presence in southern Ontario and were less agriculturally oriented. As a result, archaeological evidence of their presence can be sometimes elusive. Nevertheless, this part of southern Ontario represents the ancestral territory of various Indigenous peoples, each with their own land use patterns and cultural traditions.

By the time of the arrival of the Europeans, villages were large and populous, with distinct cultures represented archaeologically. The end of the Woodland period is cited around AD 1600, with the spread of the fur trade which resulted in substantial changes to Indigenous lifeways, including the rise in use of items of European manufacture. Increased contract with Europeans resulted in the introduction of diseases to the Indigenous communities and decreases in their population.

The project location occupies the lands that fall within the treaty, traditional, and/or ancestral territories of the following Nations:

- Williams Treaty First Nations;
    - Alderville First Nation;
    - Beausoleil First Nation;
    - Chippewas of Georgina Island First Nation;
    - Chippewas of Rama First Nation;
    - Curve Lake First Nation;
    - Hiawatha First Nation;
    - Mississaugas of Scugog Island First Nation;
- Huron-Wendat Nation; and
- Métis Nation of Ontario

However, this area was used and shared by many Indigenous groups over millennia, each with their own traditions as to how they arrived, how they lived, and the major events that punctuated their time there. Alderville First Nation and Curve Lake have provided oral traditions or traditional histories which have been included in Table 1, Chippewas of Rama First Nation have provided oral traditions or traditional histories which have been included in Table 2, and the Huron-Wendat Nation have provided oral traditions or traditional histories which have been included in Table 3. Beausoliel First Nation, Chippewas of Georgina Island First Nation, Chippewas of Rama First Nation, Hiawatha First Nation, Mississaugas of Scugog Island First Nation, and the Métis Nation of Ontario have not yet shared a traditional history with ARA, but it is hoped that their accounts and others can be incorporated into studies such as this when they become available. These summaries have also been provided in ARA's archaeological report inclusive of the subject property.

Table 1: Alderville First Nation and Curve Lake First Nation
(Provided by AFN and CLFN)

Alderville First Nation
The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as "the people of the big river mouths" and were also known as the "Salmon People" who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months. The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the "Peacekeepers" among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations. Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the "Old Ones" who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today. The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie. Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig. The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people. Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them

into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

> *"We weren't affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.*
>
> *There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people; we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties, and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.*
>
> *We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.*
>
> *Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis."*

Often times, southern Ontario is described as being "vacant" after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation. The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

This historical context was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation.

Publication reference:
Gitiga Migizi and Julie Kapyrka
2015 Before, During, and After: Mississauga Presence in the Kawarthas. In *Peterborough Archaeology*, Dirk Verhulst, editor, pp.127-136. Peterborough, Ontario: Peterborough Chapter of the Ontario Archaeological Society.

Table 2: Chippewas of Rama First Nation
(Provided by CRFN)

Chippewas of Rama First Nation
The Chippewas of Rama First Nation are an Anishinaabe (Ojibway) community located at Rama First Nation, ON. Our history began with a great migration from the East Coast of Canada into the Great Lakes region. Throughout a

period of several hundred years, our direct ancestors again migrated to the north and eastern shores of Lake Huron and Georgian Bay. Our Elders say that we made room in our territory for our allies, the Huron-Wendat Nation, during their times of war with the Haudenosaunee. Following the dispersal of the Huron-Wendat Nation from the region in the mid-1600s, our stories say that we again migrated to our territories in what today is known as Muskoka and Simcoe County. Several major battles with the Haundenosaunee culminated in peace being agreed between the Anishinaabe and the Haudenosaunee, after which the Haudenosaunee agreed to leave the region and remain in southern Ontario. Thus, since the early 18th century, much of central Ontario into the lower parts of northern Ontario has been Anishinaabe territory.

The more recent history of Rama First Nation begins with the creation of the "Coldwater Narrows" reserve, one of the first reserves in Canada. The Crown intended to relocate our ancestors to the Coldwater reserve and ultimately assimilate our ancestors into Euro-Canadian culture. Underlying the attempts to assimilate our ancestors were the plans to take possession of our vast hunting and harvesting territories. Feeling the impact of increasingly widespread settlement, many of our ancestors moved to the Coldwater reserve in the early 1830s. Our ancestors built homes, mills, and farmsteads along the old portage route which ran through the reserve, connecting Lake Simcoe to Georgian Bay (this route is now called "Highway 12"). After a short period of approximately six years, the Crown had a change of plans. Frustrated at our ancestors continued exploiting of hunting territories (spanning roughly from Newmarket to the south, Kawartha Lakes to the east, Meaford to the west, and Lake Nipissing to the north), as well as unsuccessful assimilation attempts, the Crown reneged on the promise of reserve land. Three of our Chiefs, including Chief Yellowhead, went to York under the impression they were signing documents affirming their ownership of land and buildings. The Chiefs were misled, and inadvertently allegedly surrendered the Coldwater reserve back to the Crown.

Our ancestors, then known as the Chippewas of Lakes Simcoe and Huron, were left landless. Earlier treaties, such as Treaty 16 and Treaty 18, had already resulted in nearly 2,000,000 acres being allegedly surrendered to the Crown. The Chippewas made the decision to split into three groups. The first followed Chief Snake to Snake Island and Georgina Island (today known as the Chippewas of Georgina Island). The second group followed Chief Aissance to Beausoleil Island, and later to Christian Island (Beausoleil First Nation). The third group, led by Chief Yellowhead, moved to the Narrows between Lakes Simcoe and Couchiching and eventually, Rama (Chippewas of Rama First Nation).

A series of purchases, using Rama's own funds, resulted in Yellowhead purchasing approximately 1,600 acres of abandoned farmland in Rama Township. This land makes up the core of the Rama Reserve today, and we have called it home since the early 1840's. Our ancestors began developing our community, clearing fields for farming and building homes. They continued to hunt and harvest in their traditional territories, especially within the Muskoka region, up until the early 1920's. In 1923, the Williams Treaties were signed, surrendering 12,000,000 acres of previously unceded land to the Crown. Once again, our ancestors were misled, and they were informed that in surrendering the land, they gave up their right to access their seasonal traditional hunting and harvesting territories. With accessing territories difficult, our ancestors turned to other ways to survive. Many men guided tourists around their former family hunting territories in Muskoka, showing them places to fish and hunt. Others worked in lumber camps and mills. Our grandmothers made crafts such as porcupine quill baskets and black ash baskets and sold them to tourists visiting Simcoe and Muskoka. The children were forced into Indian Day School, and some were taken away to Residential Schools. Church on the reserve began to indoctrinate our ancestors. Our community, along with every other First Nation in Canada, entered a dark period of attempted genocide at the hands of Canada and the Crown. Somehow, our ancestors persevered, and they kept our culture, language, and community alive.
Today, our community has grown into a bustling place and is home to approximately 1,100 people. We are a proud and progressive First Nations community.

Table 3: Huron-Wendat Nation
(Provided by HWN)

Huron-Wendat Nation
As an ancient people, traditionally, the Huron-Wendat, a great Iroquoian civilization of farmers and fishermen-hunter-gatherers and also the masters of trade and diplomacy, represented several thousand individuals. They lived in a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence and up along the Saint Lawrence Valley on both sides of the Saint Lawrence River all the way to the Great Lakes. Huronia, included in Wendake South, represents a part of the ancestral territory of the Huron-Wendat Nation in Ontario. It extends from Lake Nipissing in the North to Lake Ontario in the South and Île Perrot in the East to around Owen Sound in the West. This territory is today marked by several hundred archaeological sites, listed to date, testifying to this strong occupation of the territory by the Nation. It is an invaluable heritage for the Huron-Wendat Nation and the largest archaeological heritage related to a First Nation in Canada.

According to our own traditions and customs, the Huron-Wendat are intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Huron-Wendat formed alliances and traded goods with other First Nations among the networks that stretched across the continent.
Today, the population of the Huron-Wendat Nation is composed of more than 4000 members distributed on-reserve and off-reserve.

The Huron-Wendat Nation band council (CNHW) is headquartered in Wendake, the oldest First Nations community in Canada, located on the outskirts of Quebec City (20 km north of the city) on the banks of the Saint Charles River. There is only one Huron-Wendat community, whose ancestral territory is called the Nionwentsïo, which translates to "our beautiful land" in the Wendat language. The Huron-Wendat Nation is also the only authority that have the authority and rights to protect and take care of her ancestral sites in Wendake South.

4.1.2 Past and Present Land Use

The arrival of European explorers and traders at the beginning of the 17th century triggered widespread shifts in Indigenous lifeways and set the stage for the ensuing Euro-Canadian settlement process. Documentation for this period is abundant, ranging from the first sketches of Upper Canada and the written accounts of early explorers to detailed township maps and lengthy histories. The Post-Contact period can be effectively discussed in terms of major historical events, and the principal characteristics associated with these events are summarized in Table 4.

Table 4: Post Contact Settlement History
(Smith 1846; Smith 1851; Belden & Co 1881; Coyne 1895, Kirkconnell 1921; Middleton 1927; Lajeunesse 1960, Ellis and Ferris 1990; Surtees 1994; AO 2025, Ontario 2025; OG 2025; Parks Canada 2025)

Historical Event	Timeframe	Characteristics
Early Contact	Early 17th century	Brûlé explores southern Ontario in 1610; Champlain travels through in 1613 and 1615/1616, encountering a variety of Indigenous groups (including both Iroquoian-speakers and Algonquian-speakers); *Les gens de Feu* (the Fire Nation, likely referring to the Mascouten/Western Basin Tradition) documented in the southwest; European goods begin to replace traditional tools
	Mid- to late 17th century	Conflicts between various First Nations during the Beaver Wars result in numerous population shifts; European explorers continue to document the area, and many Indigenous groups trade directly with the French and English; 'The Great Peace of Montreal' treaty established between roughly 39 different First Nations and New France in 1701
Fur Trade Development	Early to mid-18th century	Growth and spread of the fur trade; Peace between the French and English with the Treaty of Utrecht in 1713; Ethnogenesis of the Métis; Hostilities between French and British lead to the Seven Years' War in 1754; French surrender in 1760
British Control	Mid-18th century	*Royal Proclamation* of 1763 recognizes the title of the First Nations to the land; Numerous treaties arranged by the Crown; First acquisition is the Seneca surrender of the west side of the Niagara River in August 1764; Numerous other treaties acquired great swaths of territories from the Mississauga and other First Nations
Loyalist Influx	Late 18th century	United Empire Loyalist influx during and after the American Revolutionary War (1775–1783); British develop interior communication routes and acquire additional lands; Districts of Hesse, Nassau, Mecklenburg, and Lunenburg established in 1788; *Constitutional Act* of 1791 creates Upper and Lower Canada

Historical Event	Timeframe	Characteristics
County Development	Late 18th to early 19th century	Newcastle District created in 1802; Rice Lake Purchase of 790,155 ha of land from Mississauga and other Anishinaabeg groups negotiated in 1818; Further reorganization added townships to Northumberland and Durham Counties in 1821; Colborne District and Peterborough County created in 1838 and enlarged in 1845; By 1844 there were 15 grist mills and 20 sawmills in the County; Victoria County created in 1851 from western Peterborough County but didn't gain municipal independence until 1861; Port Hope, Lindsay, and Beaverton Railway completed in 1857; Predominate industries of the early 19th century were dominated by the lumber trade; Victoria Road and Bobcaygeon Road established as colonization routes in 1863; Major settlements at Bobcaygeon and Fenelon Falls
Township Formation and Development	Mid-19th to early 20th century	Verulam Township opened in 1823 and named for Earl of Verulam; First survey in 1831; First settlers John Hunter and William Bell arrived 1832, along with Thomas Need from England; First lock on Trent Severn Canal built at Bobcaygeon in 1833; A group of Scottish settlers and retired English military officers arrived in 1833; 956 acres under cultivation in 1846 along with one grist mill and one saw mill; Soil was poor but timber was abundant and the logging industry was an important natural resource; Sturgeon Lake, which completely bisected township, tied to lacustrine shipping system; Settlement was slow with only 500 residents by 1851; Bobcaygeon Road established by 1863; Victoria Railway arrived in 1879; Canadian Pacific Railway constructed from Lindsay to Bobcaygeon in 1904; Prominent communities located at Bobcaygeon and Dunsford, with smaller settlements at Fairbairn, Red Rock, Sandy Point, and Thurstonia

During Pre-Contact and Early Contact times, the vicinity of the project location would have comprised a mixture of coniferous trees, deciduous trees and open areas. Indigenous communities would have managed the landscape to some degree (i.e., establishing clearings for campsites, plant cultivation, etc.). Prior to the arrival of Europeans, the land was referred to as Obaabikojiwanaang, and the area was occupied by the Huron-Wendat, the Mississauga and other Ojibway and Chippewa groups. French explorer Samuel de Champlain and his party passed through the area circa 1615, on his way to Lake Ontario from Lake Couchiching (Kirkconnell 1921). There is no evidence indicating that any fur trading outposts of any significance were established in the area, although the presence of fur traders was documented in the years prior to 1831, when Verulam Township was surveyed. After the War of 1812, the British government in Ontario commenced a settlement plan of the entire area between the Ottawa River and Lake Erie to prevent further incursions by American forces. The Crown approached the Rice Lake Mississauga and Chippewa groups in order to acquire the land around Rice Lake for European settlement (Shanahan 2020).

On November 5, 1818, six Mississauga chiefs assembled at Port Hope (then known as Smith's Creek) in order to sign a new treaty, known as Treaty # 20, with the Crown. The chiefs sold 1,951,000 acres in Peterborough, Victoria, Northumberland, Durham, and Ontario Counties, along with parts of Muskoka and Haliburton, to the Crown in return for £740 or the equivalent of goods per annum, although the agreement was promptly disregarded by Deputy Superintendent General of Indian Affairs William Claus at the time (Kirkconnell 1921, Simpson 1953, Surtees 1994; Shanahan 2020). In a subsequent meeting, William Claus explained that each man, woman, and child alive at the time of the treaty's signing would receive £10 a year, and upon their deaths, payment would cease (Shanahan 2020). Additionally, the written agreement did not provide hunting and fishing rights to the Mississauga, instead stipulating that the "rivers and

forests were open to all," and any individual born after 1818 would not receive any annuity (Simpson 1953, Surtees 1994:80).

4.1.3 Bobcaygeon

Located partially on an island at the confluence of Sturgeon Lake and Pigeon Lake and partially on the mainland's north shore, Bobcaygeon was named for a corruption of the Mississauga word "*bkijjwang*' or "*obaabikojiwanaang,"* later phoneticized as "*Bobcajwin*," which refers to water flowing around rocks at the rapids where Sturgeon Lake flows into Pigeon Lake (Middleton 1927, MLM 2025). The settlement on the north shore was known as Rokeby in the early 19th century, while the island was known as Bobcaygeon. For awhile the settlement went by both names, but eventually Bobcaygeon prevailed (MLM 2025). The earliest Euro-Canadian settler in the Bobcaygeon area was fur trader Billy McKeough, although the village itself was established by Thomas Need, who built the first sawmill in 1832, and opened the first store (Middleton 1927, OG 2025). Other early settlers were Edward Attlo, Campbell Sawyer, Charles Bailey, and a man named Forrest (OG 2025).

As part of the larger Trent-Severn Canal system, the first lock on the Trent Canal was built in Bobcaygeon in 1833 and is still being used today by recreational boaters as one of the most popular locks on the waterway (Smith 1851, City of Kawartha Lakes 2023b). A plaque is located to the east of the Lock 32 swing bridge on Bobcaygeon's Main Street, which states:

> *In 1833 the Legislature of Upper Canada authorized improvements to the waterways of the Newcastle District, the first of which was a wooden lock here at Bobcaygeon. Three years later the first funds were appropriated for the opening of a waterway via the Trent River and the Kawartha Lakes to link Lake Ontario with Lake Simcoe (and later with Georgian Bay). This system was intended to open up the interior of the province, and to promote agriculture, lumbering, and commerce (Parks Canada 2025).*

By 1850, village lots had been surveyed in Bobcaygeon on both the island and north shore of the settlement, and the hamlet had several mills and a small school (OG 2025). By 1857, Bobcaygeon had a population of 150, but the construction of the Bobcaygeon Colonization Road in 1863 and the large stands of white pine contributed to growth in the population (OHT 2025a). Early settler, Mossom Boyd, opened a large lumbering business in the hamlet (OHT 2025a). The timber industry along side Bobcaygeon's location on an important lacustrine shipping network, lent itself to the establishment of a modest shipbuilding industry in the village, along with saw, shingle, and grist mills (Middleton 1927). Although agricultural production was poor, dairying also became an important local industry and the largest still-operating dairy in the area, Kawartha Dairy Company, continues to be headquartered in Bobcaygeon (Kirkconnell 1921).

The first church was Methodist in denomination and was erected in 1862. Prior to this, religious services took place in settlers' private homes or at James McConnell's tavern (Belden & Co 1881). The village was incorporated in 1877 with a population of around 1,000 people (Middleton 1927, OG 2025; OHT 2025). At the time of its incorporation, the village had several mills, a tannery, an extensive lime production industry, and a village newspaper, *The Independent* (Belden & Co 1881). The population remained around 1,000 in 1881, but by 1927 the population had fallen slightly to 913 (Middleton 1927, OG 2025). The Lindsay, Pontypool, and Bobcaygeon Railway, leased to the Canadian Pacific Railway on completion, arrived at Bobcaygeon from Lindsay in

1904, and operated until 1957 (Middleton 1927, Zadro & Delamere 2009). Bobcaygeon became part of the City of Kawartha Lakes, along with the rest of Verulam Township, in 2001, when it was amalgamated with the other 15 townships in Victoria County into a single municipal entity, (Walker 2021). Bobcaygeon's predominate industry is related to the tourism and cottage industry on the shores of Sturgeon Lake, and Kawartha Dairy is also a major economic driver in the area.

4.2 Mapping and Imagery Analysis

In order to gain a general understanding of the study area's past land uses, two historical settlement maps, one topographic map, and one aerial image were examined during the research component of the study. Specifically, the following resources were consulted:

- J. A. Paterson's *Map of the County of Victoria, Province of Ontario* from 1877 (OHCMP 2021);
- A map of Verulam Township in H. Belden & Co.'s Victoria County Supplement (1881) in the *Illustrated Atlas of the Dominion of Canada* (MU 2001);
- An aerial image from 1954 (U of T 2023), and
- A topographic map from 1997 (Canada 2025).

The limits of the Front Street project area are shown on georeferenced versions of the consulted historical resources in Map 4 - Map 7, and the limits of the Anne Street study area are shown on georeferenced versions of the consulted historical resources in Map 8 – Map 11.

4.2.1 Anne Street

T. Kains' *Map of Victoria County* (1877) illustrates that the project location on Anne Street was located to the north of the Bobcaygeon River on the west side of a major historical thoroughfare, known today as East Street (see Map 4). The study area was located to the east of Bobcaygeon's more densely settled historic core, which was denoted by a series of shaded town blocks. There were no buildings marked on the project location, nor were any nearby landowners listed. There was a school located to the northwest of the project location, but no other major landmarks are visible.

The *Illustrated Atlas of the Dominion of Canada*'s map of Verulam Township (1881) indicates that Bobcaygeon's historic core had grown to encompass the Anne Street project location, which continued to be located to the north of the Bobcaygeon River on the west side of a historical thoroughfare. Like the 1877 atlas, there are no buildings present within the project locations (see Map 5). Individual landowners were not listed. Major landmarks included the Bobcaygeon River, which was adjacent to the project location to the south, the majority of Bobcaygeon's historic core to the west of the project location, and a large body of water to the east of the project location. A sawmill and a schoolhouse were located to the south of the project location, on the opposite side of the river.

A 1954 aerial photograph confirms that the project location was located between Anne Street to the northwest, the Bobcaygeon River to the south, and East Street to the east. The resolution of the photograph is poor, and it cannot be determined if there was a building located in the project location at that time (see Map 6). The major landmarks in the area surrounding include the Bobcaygeon River, a canal or channel and a large body of water, possibly a lake, to the east, and the majority of Bobcaygeon's historic core to the west. The topography of the area appeared to be well settled land, although the land to the east of the project location appeared to be comprised of open land and/or woodlot.

A topographic map from 1994 indicates that the project location remains located between Anne Street to the northwest, the Bobcaygeon River to the south, and East Street to the east. The project location was located in an area of settlement, denoted by red shading, although individual buildings were not marked within the shaded area (see Map 7). The study area was adjacent to a bridge, located to the east, that spanned a narrow point in the Bobcaygeon River where it led to Pigeon Lake. Several churches were also located to the south. The majority of Bobcaygeon's population centre was located to the west and south of the project location, while the land to the east was comprised mostly of open land and/or woodlot.

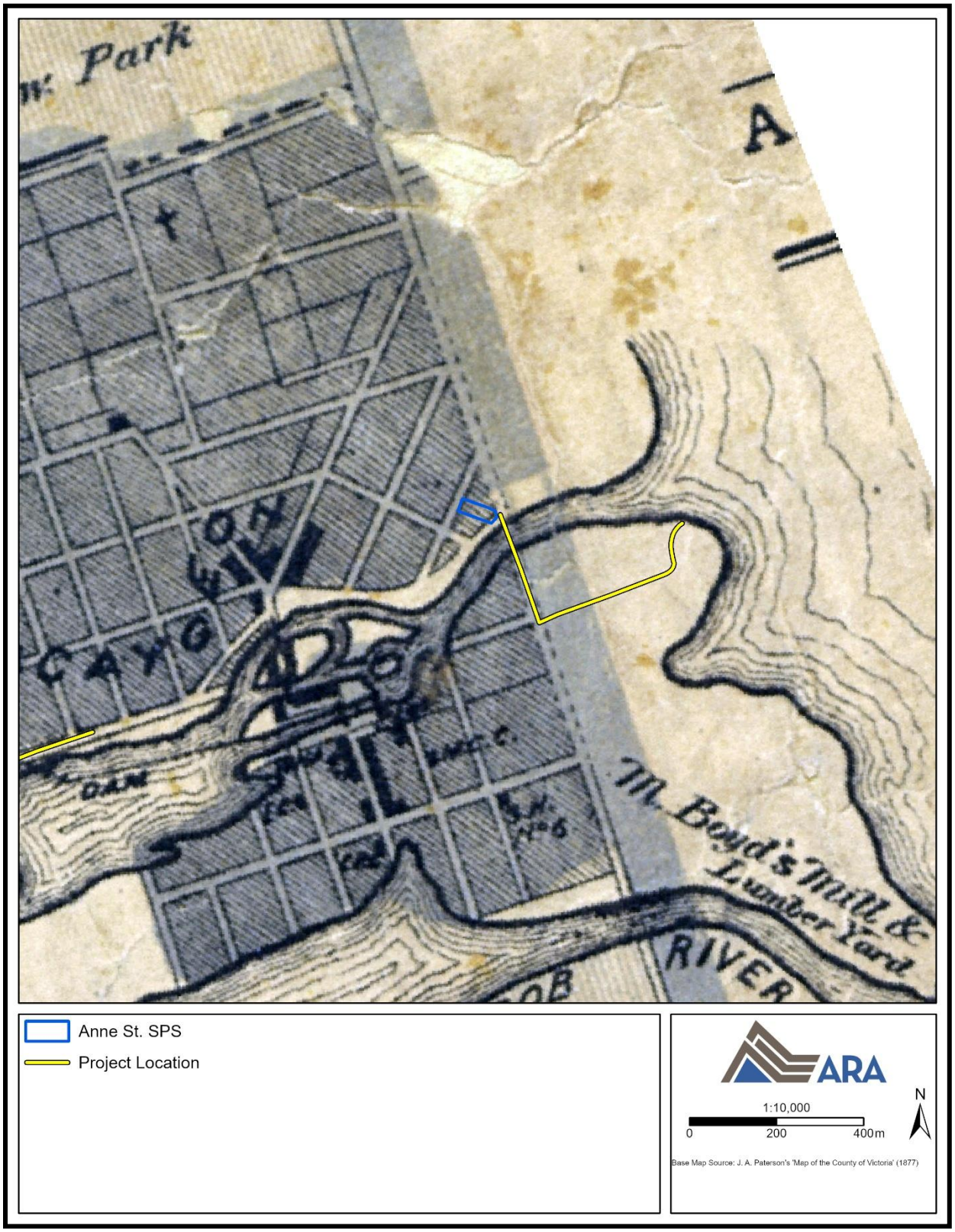
4.2.2 Front Street

T. Kains' *Map of Victoria County* (1877) illustrates that the project location on Front Street was located on the south side of Front Street between the historical thoroughfare and the Bobcaygeon River on land that belonged to M. Boyd, Esquire (see Map 8). The project location was located in Bobcaygeon's more intensively settled downtown core, which was denoted by shaded subdivided town lots. There did not appear to be a building located within the project location, although a series of mills, such as a sawmill and gristmill, were located adjacent to the subject property, on the opposite side of Front Street. Other local landmarks included a dam in the Bobcaygeon River located east of the project location, and several watercourses to the west of the project location. The other listed landowner was Joseph Kelso, Senior, who owned a parcel of land located to the north and west of the project location.

The *Illustrated Atlas of the Dominion of Canada*'s map of Verulam Township (1881) indicates that the project location continued to be in Bobcaygeon's historical core, which, like the earlier 1877 atlas, was denoted by a series of shaded town blocks. There was not a building marked on the project location, nor were other buildings marked within the shaded area (see Map 9). Unlike the previous atlas, landowners were not listed. Major landmarks included the Bobcaygeon River, which was adjacent to the project location to the south, the majority of Bobcaygeon's historic core to the east of the project location, and several watercourses to the north and west of the project location.

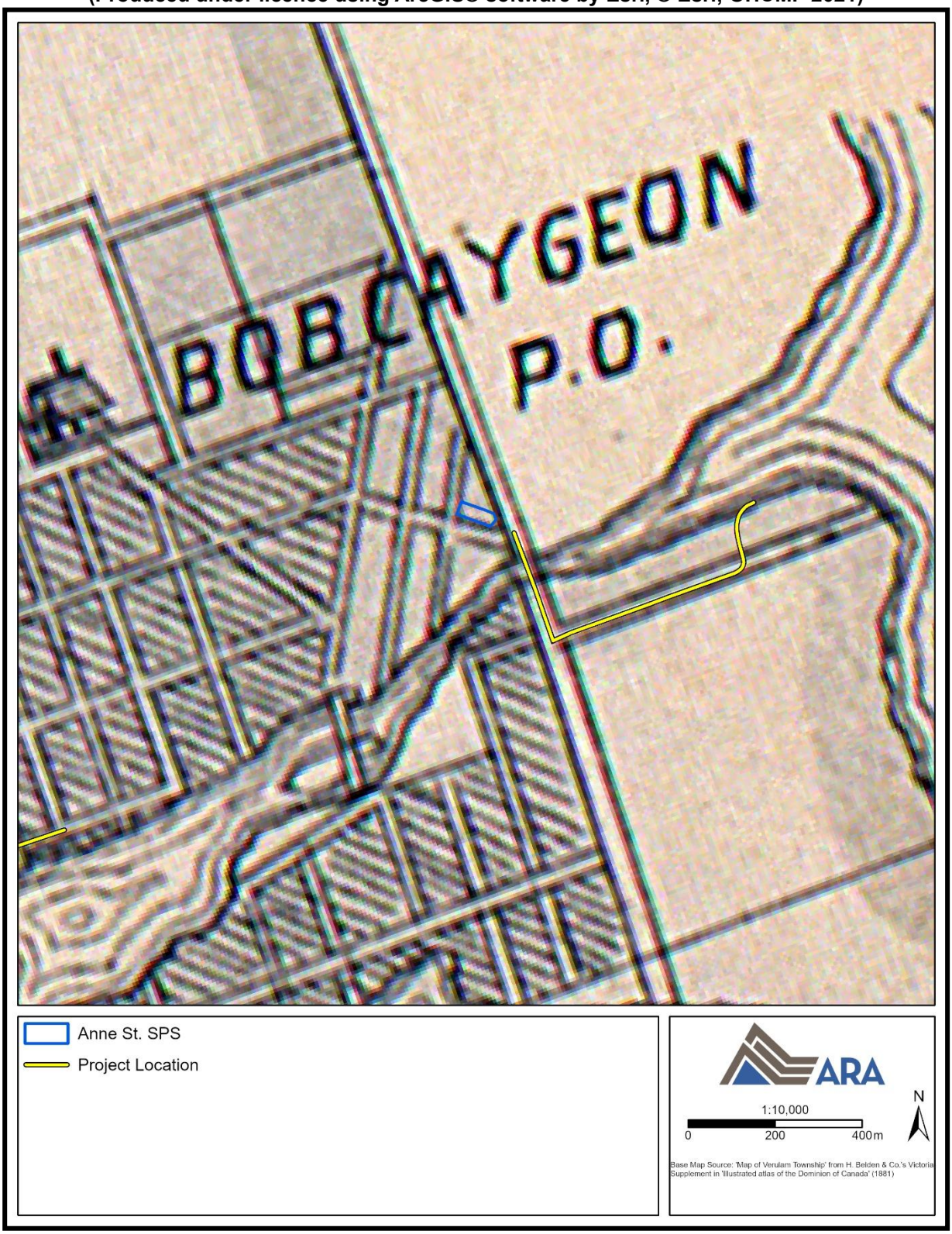
A 1954 aerial photograph confirms that the project location was located between Front Street to the north and the Bobcaygeon River to the south of the project location. The resolution of the photograph is poor, but it appears that there may have been a structure in the project location at that time, although details regarding the potential structure cannot be discerned (see Map 10). The major landmarks in the area surrounding the project location include the Bobcaygeon River directly adjacent to the south, and a rail corridor to the south and southeast of the project location. The topography of the area directly surrounding the project location appeared to be open land and/or woodlot, with the majority of Bobcaygeon's population centre located to the east of the project location.

A topographic map from 1994 indicates that the project location was still located between Front Street to the north and the Bobcaygeon River to the south. The project location was located in an area of settlement, denoted by red shading, although individual buildings were not marked within the shaded area (see Map 11). A nearby area was marked as "Cottage Point," indicating that the lots along the river may have been predominately occupied by vacation and/or cottage properties as the City of Kawartha Lakes became a popular destination for recreation. The land to the north of the project location appeared to be comprised of open field and woodlot, while the majority of Bobcaygeon's population centre was located to the east and south of the project location.



Map 4: Anne Street Project Location on T. Kains' *Map of Victoria County, Ontario* (1877)

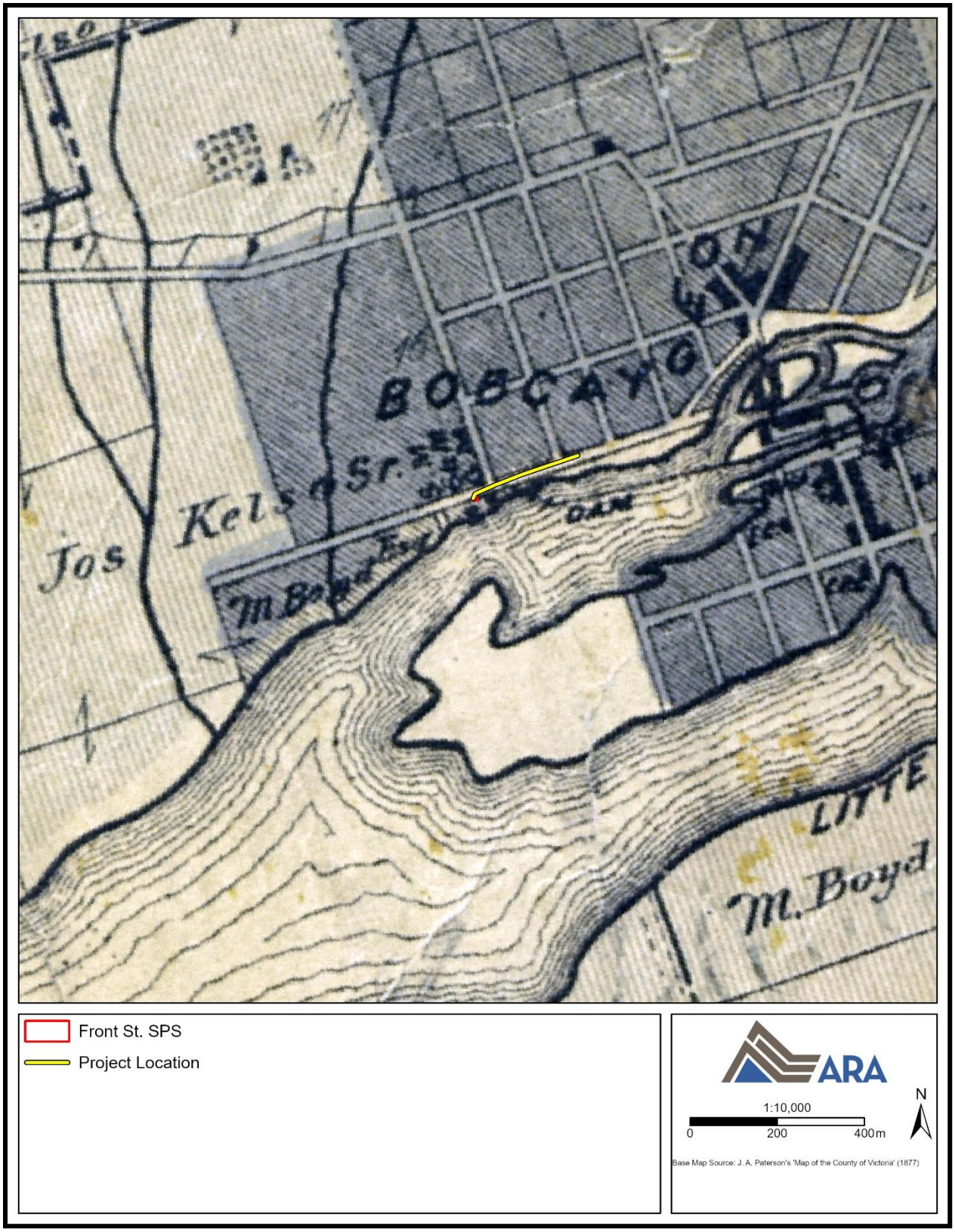
(Produced under licence using ArcGIS® software by Esri, © Esri; OHCMP 2021)



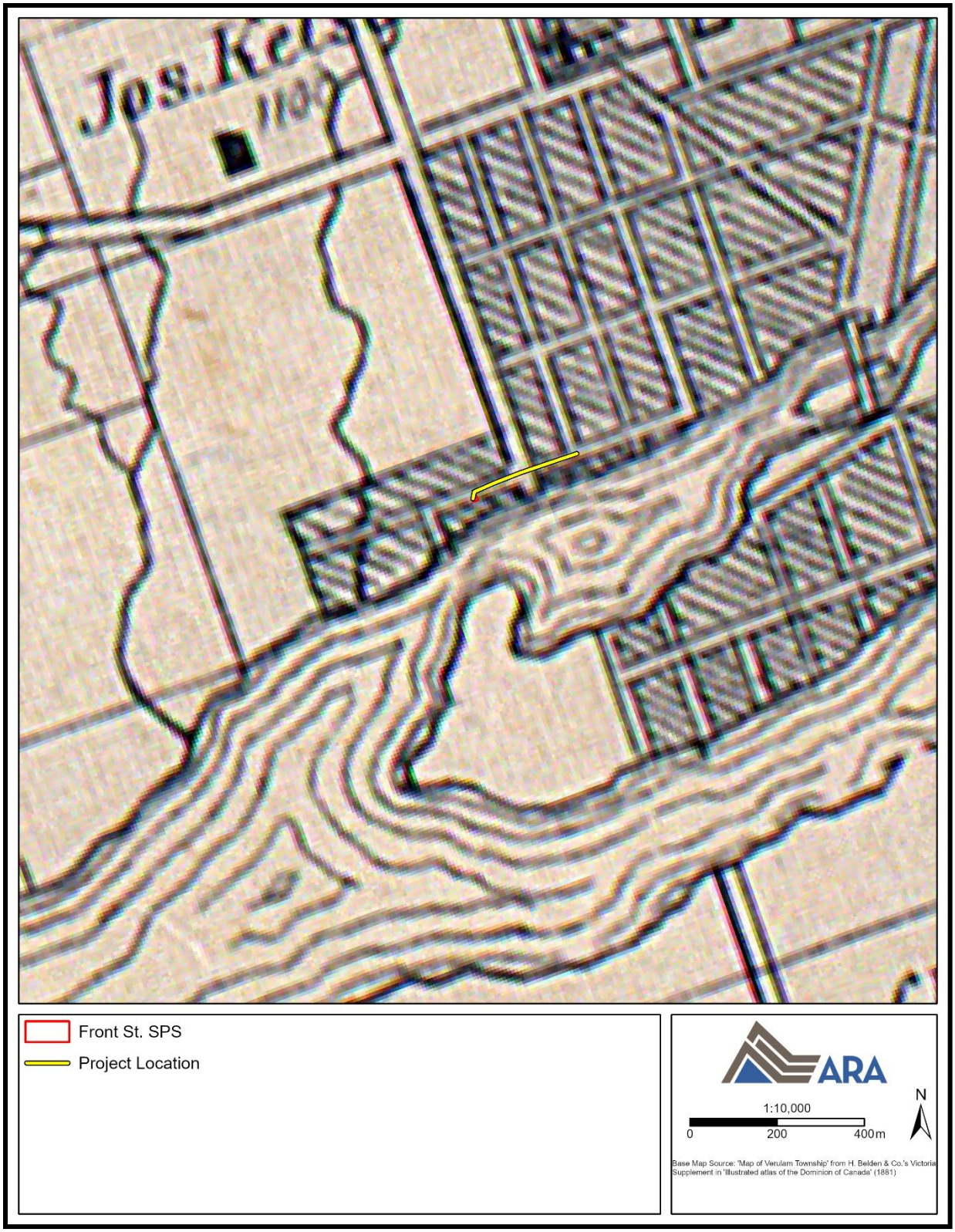
Map 5: Anne Street Project Location on Belden & Co.'s *Map of Verulam Township* (1881)
(Produced under licence using ArcGIS® software by Esri, © Esri; McGill 2001)

Map 6: Aerial Image (1954) Showing Anne Street Project Location
(Produced under licence using ArcGIS® software by Esri, © Esri, University of Toronto 2023)

Map 7: Topographic Map of the Anne Street Project Location (1994)
(Produced under licence using ArcGIS® software by Esri, © Esri; Canada 2025)

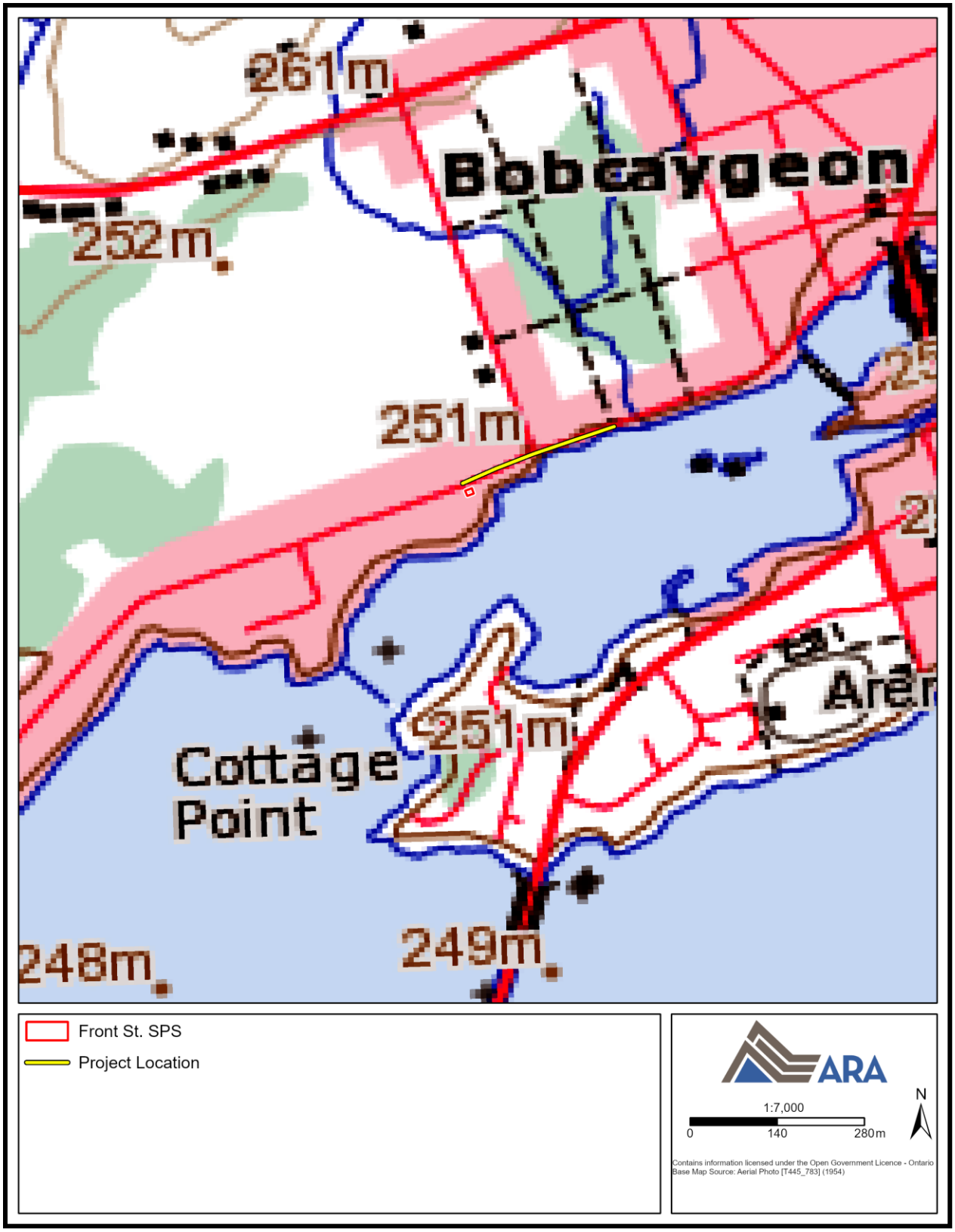


Map 8: Front Street Project Location on T. Kains' *Map of Victoria County, Ontario* (1877)
(Produced under licence using ArcGIS® software by Esri, © Esri; OHCMP 2021)



Map 9: Front Street Project Location on Belden & Co.'s *Map of Verulam Township* (1881)
(Produced under licence using ArcGIS® software by Esri, © Esri; McGill 2001)

Map 10: Aerial Image (1954) Showing Front Street Project Location
(Produced under licence using ArcGIS® software by Esri, © Esri, University of Toronto 2023)



Map 11: Topographic Map of the Front Street Project Location (1994)
(Produced under licence using ArcGIS® software by Esri, © Esri; Canada 2025)

5.0 INFORMATION GATHERING

5.1 Federal

The Minister of the Environment and Climate Change, on the advice of the Historic Sites and Monuments Board of Canada (HSMBC), makes recommendations to declare a site, event or person of national significance. The National Historic Sites program commemorates important sites that had a nationally significant effect on, or illustrates a nationally important aspect of, the history of Canada. A National Historic Event is a recognized event that evokes a moment, episode, movement or experience in the history of Canada. National Historic People are people who are recognized as those who through their words or actions, have made a unique and enduring contribution to the history of Canada. There exists Parks Canada's online *Directory of Federal Heritage Designations* which captures these national commemorations. This directory also lists Heritage Railway Stations, Federal Heritage Buildings and Heritage Lighthouses. It is important to note that these federal commemoration programs do not offer protection from alteration or destruction. The *Federal Canadian Heritage Database* was searched, and no plaques or properties were noted within or adjacent to any of the project location.

5.2 Provincial

The Ontario Heritage Trust (OHT) operates the Provincial Plaque Program that has over 1,250 provincial plaques recognizing key people, places and events that shaped the province. Additionally, properties owned by the province may be recognized as a "provincial heritage property" (MCM 2010). The OHT plaque database was searched and no provincial heritage plaques located in or adjacent to the project locations were noted (OHT 2025b).

The OHT's list of Heritage Conservation Districts was consulted. No designated districts were identified in or adjacent to the project locations (OHT 2020). Many municipal heritage committees and historical societies provide plaques for local places of interest. No commemorative plaques were found within or adjacent to the subject properties or within the project location.

5.3 Municipality

City of Kawartha Lakes Heritage Register (2025b) was searched and ARA contacted City of Kawartha Lakes Planning staff (Emily Turner on June 19, 2025) to confirm scope to work and to request any relevant heritage information be provided for consideration. As a result, two designated properties, 28 Boyd Street and 46 Boyd Street, were identified. Both properties are located adjacent to the limits of the project location. 28 Boyd Street is known as the Edgewood Dry Stone Wall and was designated by By-law 2021-003. According to the City,

> *28 Boyd Street has cultural heritage value as an excellent and unique example of a late nineteenth century dry stone wall. Dry stone wall construction, which has been identified by UNESCO as intangible cultural heritage of global value, was used in some areas of Kawartha Lakes to construct farm and retaining walls in the late nineteenth century and the wall at 28 Boyd Street is an excellent, well-known example that still survives in a significant form. Constructed around 1890 for W. T. C. Boyd, the son of lumber baron Mossom Boyd, as part of the landscaping of his Edgewood estate which once stood on this location, this property yields information about the Boyds and their influence on the village* (City of Kawartha Lakes 2025b).

46 Boyd Street, which is also located adjacent to the Anne and Boyd Street Forcemain path, was confirmed by the City of Kawartha Lakes' Heritage Planner to be a listed, Non-Designated heritage property listed on the City of Kawartha Lakes' Heritage Register (2025c). According to the City's heritage listing,

> *46 Boyd Street has cultural heritage value as a good example of an Edwardian residence in Bobcaygeon and its association with the Boyd family. The land was originally part of the W. T. C. Boyd estate and was willed to his daughter Aileen Boyd and her husband Thomas Oakley. The Oakleys constructed the current house between 1924 and 1925. The house is built of local limestone and is one of a number of local examples using this material constructed during the 1920s. It displays a number of key characteristics of the Edwardian foursquare style of home constructed on a large scale, including its hipped roof, square plan, and front verandah with large stone piers. It is a contributing feature to the historic landscape of Bobcaygeon and the Bobcaygeon River* (City of Kawartha Lakes 2025c).

A list of cemeteries on the City of Kawartha Lakes' website was consulted, and there appear to be no active or inactive cemeteries within or adjacent to the study area (City of Kawartha Lakes 2023a).

6.0 COMMUNITY ENGAGEMENT

At project commencement, ARA initiated heritage specific community engagement. ARA contacted the City of Kawartha Lakes Planning staff to inquire about: 1) protected properties within or adjacent to the study area, 2) properties with other types of recognition in or adjacent to the study area, 3) previous studies relevant to the current study, and 4) other heritage concerns regarding the study area. ARA received a response from the City of Kawartha Lakes Planning staff who confirmed that there are two listed or adjacent to the study area. No other heritage concerns regarding the study area were noted.

Comprehensive public consultation is being carried out throughout the SPS and Forcemain project as part of the larger EA process. At the time of this report, this has included a Public Information Centre (PIC) which was carried out on April 29, 2025, and provided background information and recommended alternatives to members of the public (City of Kawartha Lakes 2025d). Similarly, a project notification has also been made public. As noted in the announcement of the project on the City of Kawartha Lakes website, "*The process involves consulting the public, Indigenous groups, and external agencies"* (City of Kawartha Lakes 2025e). External agencies include the Trent-Severn Waterway (TSW) Commission and the Kawartha Region Conservation Authority (KRCA) (City of Kawartha Lakes 2024). No heritage information was provided from the public or agencies through this EA community engagement.

7.0 INDIGENOUS ENGAGMENT

As part of our consultation with Indigenous groups and First Nations for this CHR, ARA reached out to the Williams Treaty First Nations, which include Alderville First Nation (AFN), Beausoleil First Nation (BFN), Chippewas of Georgina Island First Nation (CGIFN), Chippewas of Rama First Nation (CRFN), Curve Lake First Nation (CLFN), Hiawatha First Nation (HFN), the Mississaugas of Scugog Island First Nation (MSIFN), with project notification emails that were sent on July 8, 2025. HFN responded on July 8 and expressed interest in any archaeological component that may occur as part of the project, and recommended that ARA speak to Mr. Tom Cowie, HFN's Indigenous Knowledge Lead. Mr. Cowie responded on July 8 that they were interested in reviewing the draft report, and a follow-up email sent by ARA on July 21, 2025, inquired about participation agreements that may need to be signed between HFN and the client.

Follow-up emails were sent to AFN, BFN, CGIFN, CRFN, CLFN, and MSIFN on July 21, 2025. AFN responded that they do not have the capacity or review the draft report at this time due to the volume of requests and reports they are currently experiencing, but that AFN would be interested in any archaeological work that may occur as part of the proposed development. CRFN responded on July 21, 2025, by providing their community history and expressing interest in reviewing the draft report once it is ready and providing further comments and feedback as needed. MSIFN also responded to ARA's follow-up email on July 21, 2025, and expressed interest in reviewing the draft report and providing additional comments and feedback as necessary.

BFN, CGIFN, and CLFN have not responded to the follow-up email at this time (July 23, 2025).

Additionally, ARA sent out a project notification email to the Huron-Wendat Nation (HWN) on July 8, 2025. ARA sent out a follow-up email on July 21, 2025, and the HWN has not responded at this time (August 15 2025).

ARA also sent a project notification email to the Métis Nation of Ontario (MNO) on July 8, 2025. ARA sent a follow-up email to the MNO on July 21, 2025, and the MNO has not responded at this time (August 15 2025).

8.0 IDENTIFICATION OF KNOWN AND POTENTIAL BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

The field survey component of a Cultural Heritage Report involves the collection of primary data through systematic photographic documentation of all known and potential BHRs and CHLs within and adjacent to the study area, as identified through historical research and consultation. Generally, potential BHRs and CHLs are identified by applying a 40-year rolling timeline. This timeline is considered an industry best practice as outlined in MCM's *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* screening checklist (MCM n.d.). A date of 40 years does not automatically attribute CHVI to a resource; rather, that it should be flagged as a potential resource and evaluated for CHVI. The purpose of this assessment is to identify any protected resources and identify and evaluate potential BHRs and CHLs within and adjacent to the study area that may be impacted by the proposed undertaking.

Additional heritage resources may also be identified during the survey itself. Photographs capturing all properties with potential BHRs and CHLs are taken, as are general views of the surrounding landscape. The field survey also assists in confirming the location of each potential BHR and CHL and helps to determine the relationship between resources. Given that such surveys are limited to areas of public access (i.e., roadways, intersections, non-private lands, etc.), there is always the possibility that obscured heritage resources may be missed or that heritage attributes may be refined upon closer inspection.

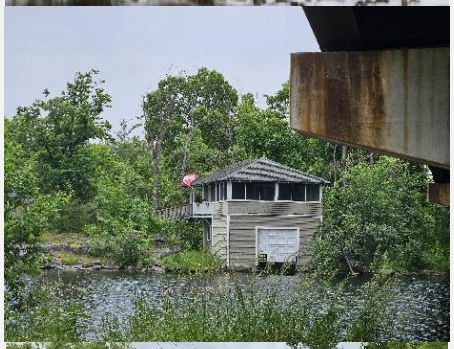
A field survey was conducted on June 26, 2025, to photograph and document each of the properties within and adjacent to the project location. The field survey was conducted from publicly accessible, non-private lands.

As a result of consultation, examination of existing recognition and research, seven BHRs that have met or have the potential to meet two or more O. Reg. 9/06 criteria within and adjacent to the project location. Their recognized or potential heritage status is summarized in Table 5 and Table 6. The locations of each BHR appear on Map 12 and Map 13. No CHLs were identified.

Table 5: Anne Street Project Location CHRs with Known or Potential CHVI

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR- 1 Edgewood Dry Stone Wall	28 Boyd Street	Designated under Part IV of the OHA, By-Law 2021-003, By-Law 2021-193	28 Boyd Street includes a dry stone wall located at the intersection of Boyd Street and County Road 36, running parallel to Boyd Street on its north side. It was constructed circa 1890. The following information was taken from the City of Kawartha Lakes Notice of Designation, (By-Law 2021-193), which repealed and replaced the original By-law (2021-003): ***Design and Physical Value*** *28 Boyd Street has design and physical value as an excellent and unique example of a late nineteenth century dry stone wall. Dry stone wall construction has been recognized by UNESCO as intangible cultural heritage of global value and was practiced primarily in agricultural areas of Kawartha Lakes in the late nineteenth century to construct farm and retaining walls. 28 Boyd Street contains an excellent, well-known example that still survives in a significant form and a rare example in a non-rural setting where it was been used as a decorative landscape feature, as opposed to a utilitarian part of the agricultural landscape. It demonstrates a high degree of technical merit though its successful use of this construction method.* ***Historical and Associative Value*** *28 Boyd Street has historical and associative value in its connection to the Boyd family in Bobcaygeon. The wall was originally constructed in 1890 for W. T. C. Boyd, the son of lumber baron Mossom Boyd, as part of the landscaping for his Bobcaygeon estate, which was known as Edgewood. It has direct historical associations with the Boyd family, specifically W. T. C. Boyd, who was a significant figure in the late nineteenth and early twenties century Bobcaygeon for his role in the Boyd family's various commercial ventures. The property also yields information regarding the evolution of landscape design, particularly with regard to estates for wealthy businesspeople in Canada during this period which often emphasized local landscape elements and the picturesque.* ***Contextual Value***	

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
			28 Boyd Street has contextual value as a local landmark. The dry stone wall is recognized throughout the community and situated in a prominent location at the intersection of Boyd Street and County Road 36 which acts as an access point to the historic core of the village. The property is also historically linked to a number of important local features, including the Edgewood estate, the adjacent Mossom Boyd estate property, and the Boyd office located nearby on Canal Street. The heritage attributes of the dry stone wall at 28 Boyd Street include: ***Design and Physical Features*** • *Nineteenth-century dry stone wall* • *Dry stone construction* • *Double wall construction* • *Limestone exterior walls* • *Cope stones* • *Interior hearting* ***Historical and Associative Features*** • *Relationship to the wall of the Edgewood/Case Manor property* ***Contextual Features*** • *Views to and from the wall along Boyd Street and from County Road 36* • *Contextual relationship to the nearby Boyd properties, including the Mossom Boyd estate property and Boyd Office* The By-Law notes that the long term care facility currently located on the property and its associated features are not included as part of the heritage attributes of the property.(City of Kawartha Lakes 2021a; 2021b)	

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR-2 Residential Property	46 Boyd Street	Listed on City of Kawartha Lakes *Heritage Register*	The subject property is an irregularly shaped, heavily wooded parcel that is adjacent to the Bobcaygeon River. The property is accessed by a single driveway near the intersection of Boyd Street and County Road 36, which is framed with stone pillars. According to the City of Kawartha Lakes' Heritage Register: *46 Boyd Street has cultural heritage value as a good example of an Edwardian residence in Bobcaygeon and in its association with the Boyd family. The land was originally part of the W. T. C. Boyd estate and was willed to his daughter Aileen Boyd and her husband Thomas Oakley. The Oakleys constructed the current house between 1924 and 1925. The house is built of local limestone and is one of a number of local examples using this material constructed during the 1920s. It displays a number of key characteristics of the Edwardian foursquare style of home constructed on a large scale, including its hipped roof, square plan, and front verandah with large stone piers. It is a contributing feature to the historic landscape of Bobcaygeon and the Bobcaygeon River.* (City of Kawartha Lakes 2025c). The property is currently known as "Stonehenge."	 

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR -3 Bridge	County Road 36 (“Bridge of Heroes”)	None Identified in the field as potential built heritage resource	King’s Highway 36 was originally a minor collector highway that served the north sections of Peterborough County and Kawartha Lakes, running from Lindsay to Bobcaygeon. The roadway was later extended to Burleigh Falls in 1937. For many years the highway was gravel but was paved in sections between 1936 and 1966. According to the OSIM report, the bridge was constructed in 1974. It is a four span, concrete slab on Steel girder structure. In 1958, the section of highway between Lindsay and Bobcaygeon was realigned. A new bypass through Bobcaygeon was completed in 1974, which included the construction of the County Road 36 bridge. The bridge was constructed in order to divert traffic from the smaller swing bridge over the Trent-Severn Waterway (Bevers 2023). The bridge is 51 years old and commemorative signage notes is it called the “Bridge of Heroes”.	

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR-4 (Pigeon Lake Yacht Club)	121 Boyd Street	None Identified in the field as potential built heritage resource	Pigeon Lake Yacht Club was founded in 1978 as a venue for competitive and recreational sailing, and to provide a space for social events associated with the sailing club. According to the Pigeon Lake Yacht Club website, their fleet consists mainly of keel boats and scows (PLYC 2023). The subject property consists of an irregularly shaped parcel adjacent to Stumpy Bay on Pigeon Lake and is accessed by a paved driveway, as well as the waterfront. The property contains a small clubhouse which is also used as the club's event space. There also appears to be a marina/docking area and a paved parking area.	 (Image from Pigeon Lake Yacht Club Facebook Page)

Table 6: Front Street CHRs with Known or Potential CHVI

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR-5 Residential/Boat House	No Marked Civic Address ("Davies Family Cottage") Opposite 123 Front Street Legal Address: PLAN 70 RD ALLOWANCE FRONT;ST W	None Identified in the field as potential built heritage resource	The subject property is a small irregularly shaped parcel on the north shore of the Bobcaygeon River, on the south side of Front Street across from its intersection with Shea Street. It is located close to the street and a portion of it is perched over waterway. The property includes a two-storey, gable roof residence. The window openings are square and appear to contain two-over-two wood windows. There is a platform at the apex of the gable roof, which may have once held a cupola. There is a wood and/or composite dock on the east elevation of the property. There is no associated driveway, but there is a concrete berm that runs in front of the property and along the Bobcaygeon River. There are two adjacent boathouses, both have gable roofs and are clad in vertical wood planks.	

Type of CHR	Location	Heritage Recognition	Description of Known or Potential CHVI	Image
BHR-6 Residential	210 Front Street "Tiverton House"	None Identified in the field as potential built heritage resource	The property is located on the north shore of the Bobcaygeon River, and on the south side of Front Street. The lot is roughly rectangular in shape and consists of manicured lawn and mature trees. The property is reached by a gravel driveway that is partially shared with the adjacent property, 200 Front Street. There is a vinyl-clad, gable roofed, garage with a single garage door, rectangular window openings with six-over-one-sash windows, and decorative diamond-shaped paned windows on the garage doors. There is main residence is behind the garage. According to current owners in 1987, *…they bought a cottage, Tiverton, on Front Street. It was full of history and character. Today they reside full time at The Lakehouse, the first cottage built on Pigeon Lake, circa 1905. Restored, renovated and landscaped*. (Sage 2025)	

9.0 DESCRIPTION OF PROPOSED UNDERTAKING AND PREFERRED ALTERNATIVE

This report is being completed as part of a Schedule B MCEA process to upgrade and/or expand two SPS in order to accommodate increased population growth and potential future commercial development north of the Bobcaygeon River. For the purpose of this report the Anne Street forcemain route follows the municipal road way along East St (Hwy 36), moving southerly over the bridge to Boyd Street and extending eastward to the current WWTP at 127 Boyd Street. A new SPS building at 47 Anne Street is proposed, and a preliminary design has been established, which can be seen in Figure 2 through Figure 4. The Front Street forcemain route follows the municipal roadway and is located easterly from 200 Front Street to approximately West Street. The Front Street SPS will not require major alterations and will include the installation of a stand-by generator on pad mounting, and the replacement of existing electrical panels.

The SPS PIC notes the following reasons for the proposed project as follows:

> *The Anne Street sewage pumping station (SPS) and the Front Street SPS require additional capacity to meet the anticipated future sanitary sewage flows. The forcemains (FM) that convey sewage to the wastewater treatment plant (WWTP) also require additional capacity. The existing SPS and FM are aging and have deficiencies that need to be addressed"* (City of Kawartha Lakes 2025d:4).

A map of the proposed project locations can be found in Figure 1.

9.1 Anne Street

Several alternatives were considered for infrastructure upgrades for the Anne Street SPS and forcemain upgrades, which included:

- Do nothing;
- Rehabilitate and upgrade the existing SPS for additional flows;
- Maintain the existing SPS and construct a new SPS for additional flows; and
- Construct a single new SPS that meets all future flow requirements (City of Kawartha Lakes 2025d:4).

The City notes that the existing Anne Street SPS has a rated capacity of 60 litres per second, and that the existing maximum daily inflows often exceed 90 litres per second, and that future flow capacity is estimated at more that 310 litres per second in order to accommodate any projected residential and commercial development. Additionally, the existing pumping equipment is old and in poor condition, and the SPS does not have an emergency overflow system. The existing forcemain is a 300mm diameter, which is noted as being inadequate to handle future flow capacity (City of Kawartha Lakes 2025d:5).

The City reviewed the possible alternatives based on a rating system from 1 to 5, with 1 being the highest impact and 5 being the lowest impact. Based on this analysis, the alternatives to construct a new single SPS in order to meet all future flow requirements and to construct a single, larger forcemain were the preferred options.

The proposed location at 47 Anne Street (the same location as the existing SPS), can be seen in Figure 2. The proposed design for the new Anne Street SPS can be found in Figure 3 and Figure

4. The proposed location for the new forcemain can be found in Figure 5. The proposed design is sympathetic and well-suited to the surrounding residential area. The design has taken architectural cues from surrounding heritage buildings and provides a design that will be compatible with the surrounding properties.

9.2 Front Street

Several alternatives were considered for the Front Street SPS and forcemain upgrades, which included:

- Do nothing;
- Rehabilitate existing forcemain and construct an additional "twin" forcemain;
- Construct new "twin" forcemains; and
- Construct a single, larger forcemain (City of Kawartha Lakes 2025d:4).

The City notes that the existing Front Street SPS, which was installed in 1982, has a rated capacity of 15.4 litres per second and that a flow capacity of at least 70 litres per second is required to accommodate planned future residential and commercial development within its catchment area. The SPS does not have back-up energy or emergency overflow systems. Additionally, the existing 150mm diameter forcemain will not meet requirements to handle future flow capacity (City of Kawartha Lakes 2025d:7). It appears that the Front Street SPS sits on a small easement at the front of the associated property, which has a current municipal address of 200 Front Street (see Figure 6).

The City reviewed the possible alternatives using the same system as the Anne Street SPS and forcemain and found that the recommended alternative is to rehabilitate and upgrade the existing Front Street SPS in order to accommodate additional flow, and to construct a single, larger forcemain (City of Kawartha Lakes 2025d:15, 17). The proposed designed anticipates the installation of an outdoor enclosed generator; however, there is a possibility that a small building for the generator and associated controls could be constructed. The proposed location for the new Front Street forcemain can be found in Figure 7.

Overall, the following summarizes the proposed work being conducted

- Construction of a new sewage pumping station (SPS) at 47 Anne Street including a new wet well and control building and removal of the existing electrical building.
- Excavation of deep foundations (14-15 metres deep) for the structures at 47 Anne St, in limestone bedrock, including rock breaking. (No blasting)
- Excavation of trenches for the forcemain (3-4 metres deep) in limestone bedrock, including rock breaking. (No blasting). There are two separate forcemain routes:
    - From the Anne St. SPS south along East Street to Boyd Street. East along Boyd Street to the Bobcaygeon wastewater treatment plant (WWTP)
    - From the Front St. SPS (200 Front St. West) easterly along Front Street to Shea Street.
- Attachment of the new sewage forcemain onto the East Street bridge using structural pipe hangers (similar to the existing forcemain pipe hangers)
- Installation of a small utility bridge over the watercourse near 121 Boyd Street (east of Sailing Club Drive) (ConceptDash, Pers. Comm).

Figure 1: Map of Proposed Forcemain and SPS Locations in the Village of Bobcaygeon
(City of Kawartha Lakes 2024)

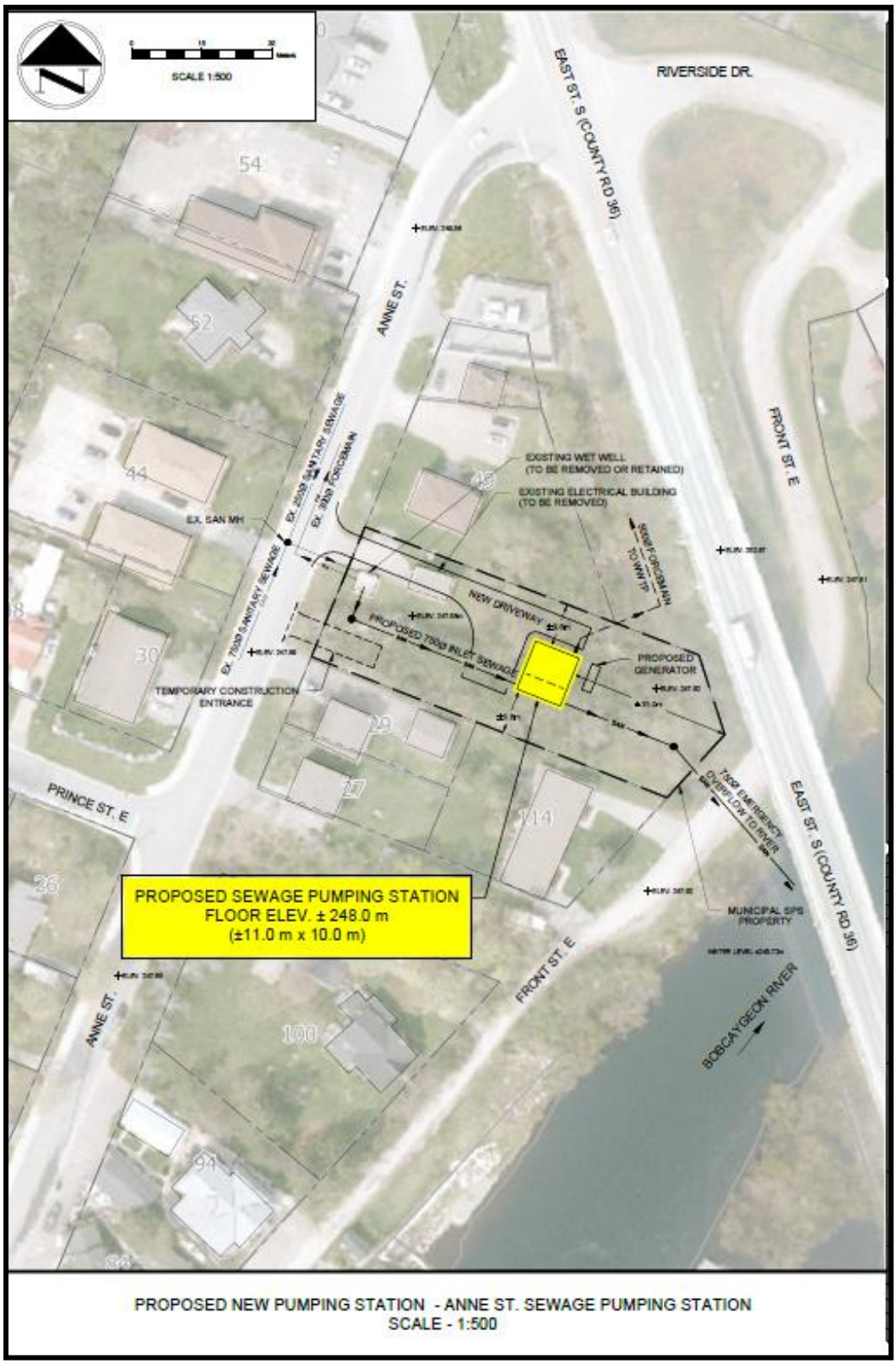


Figure 2: Proposed Site Plan of Anne Street SPS
(City of Kawartha Lakes 2024)

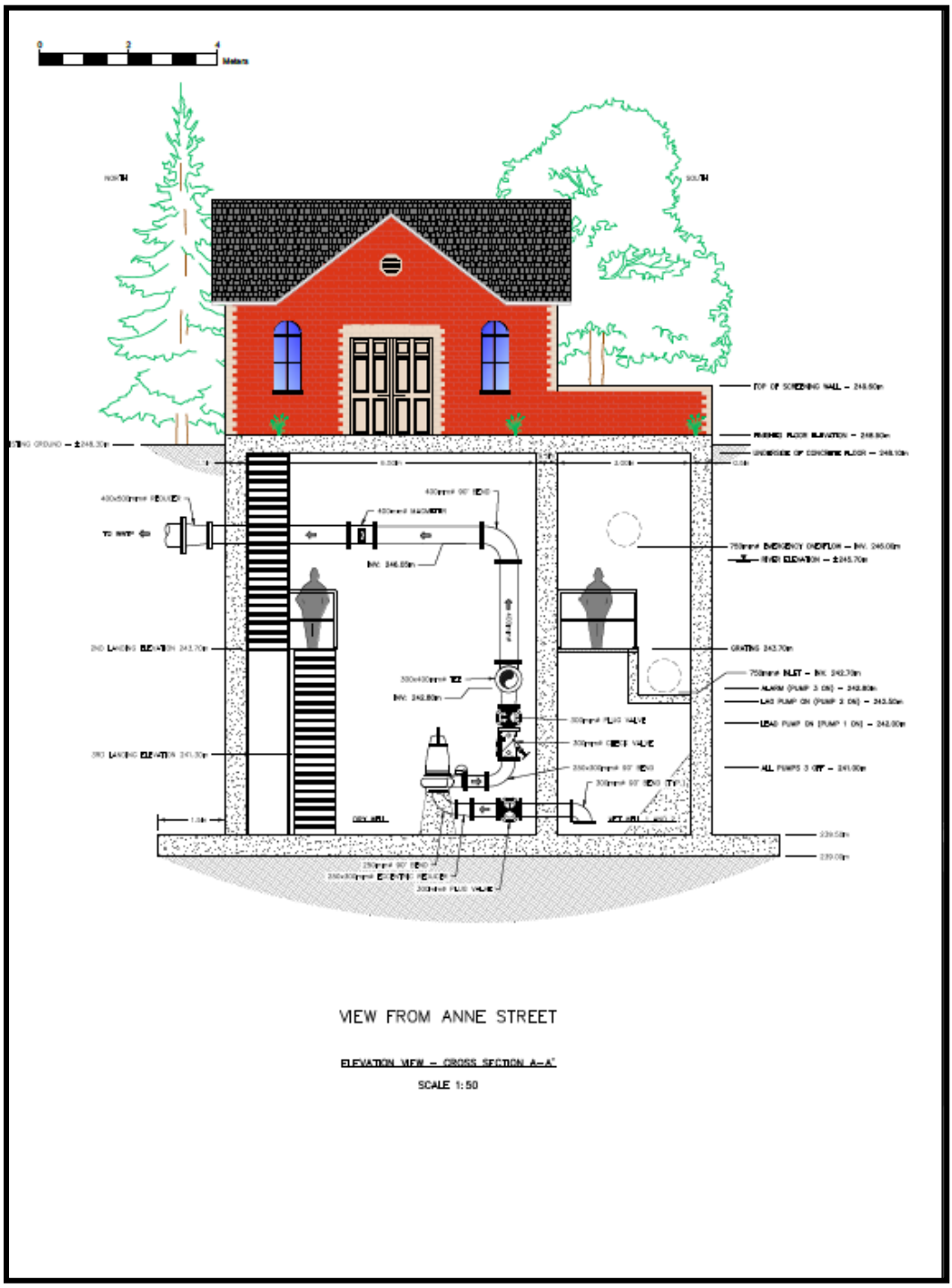


Figure 3: Proposed Design of the Anne Street SPS
(City of Kawartha Lakes 2024)

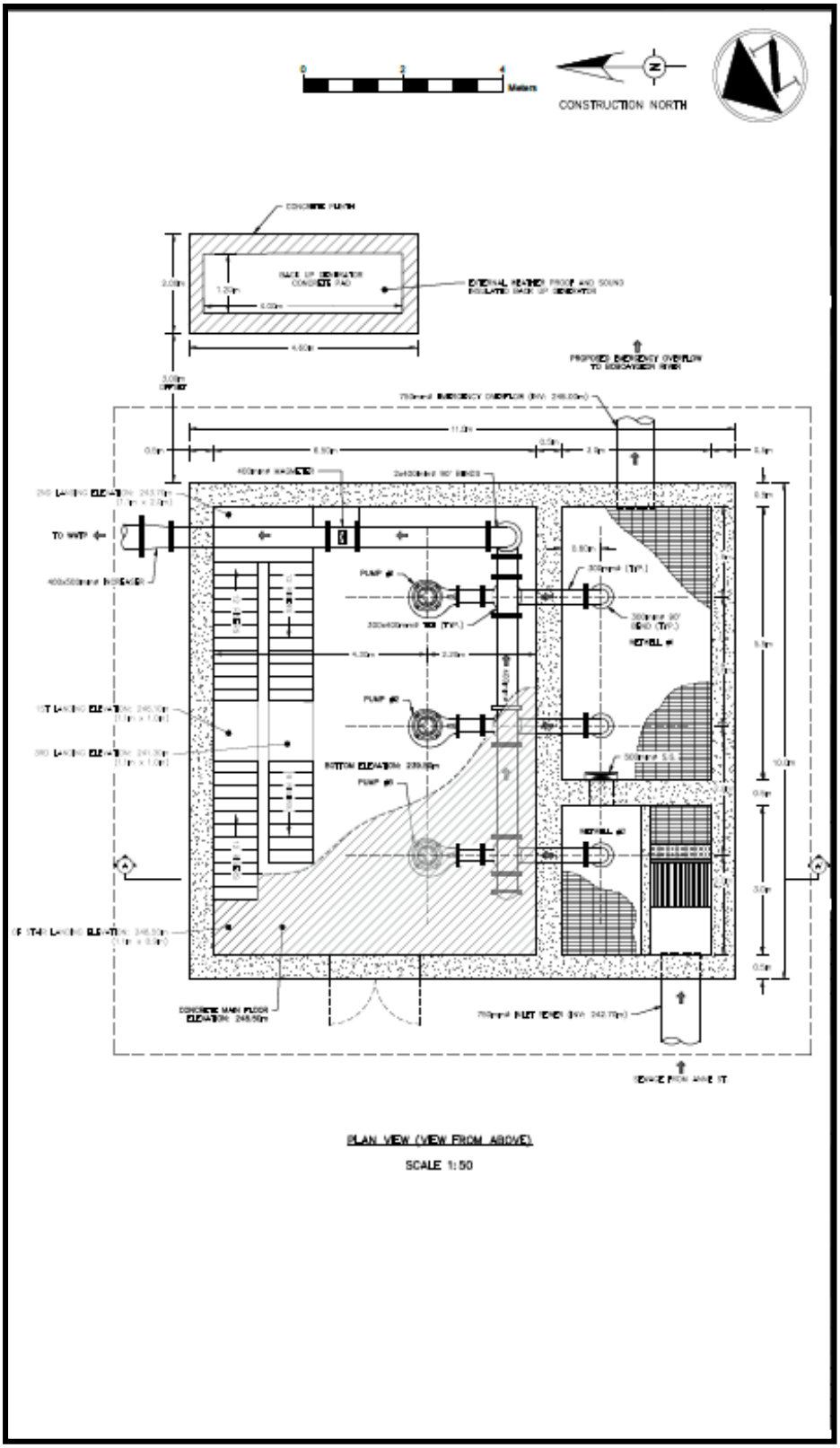


Figure 4: Proposed Design of the Anne Street SPS
(City of Kawartha Lakes 2024)

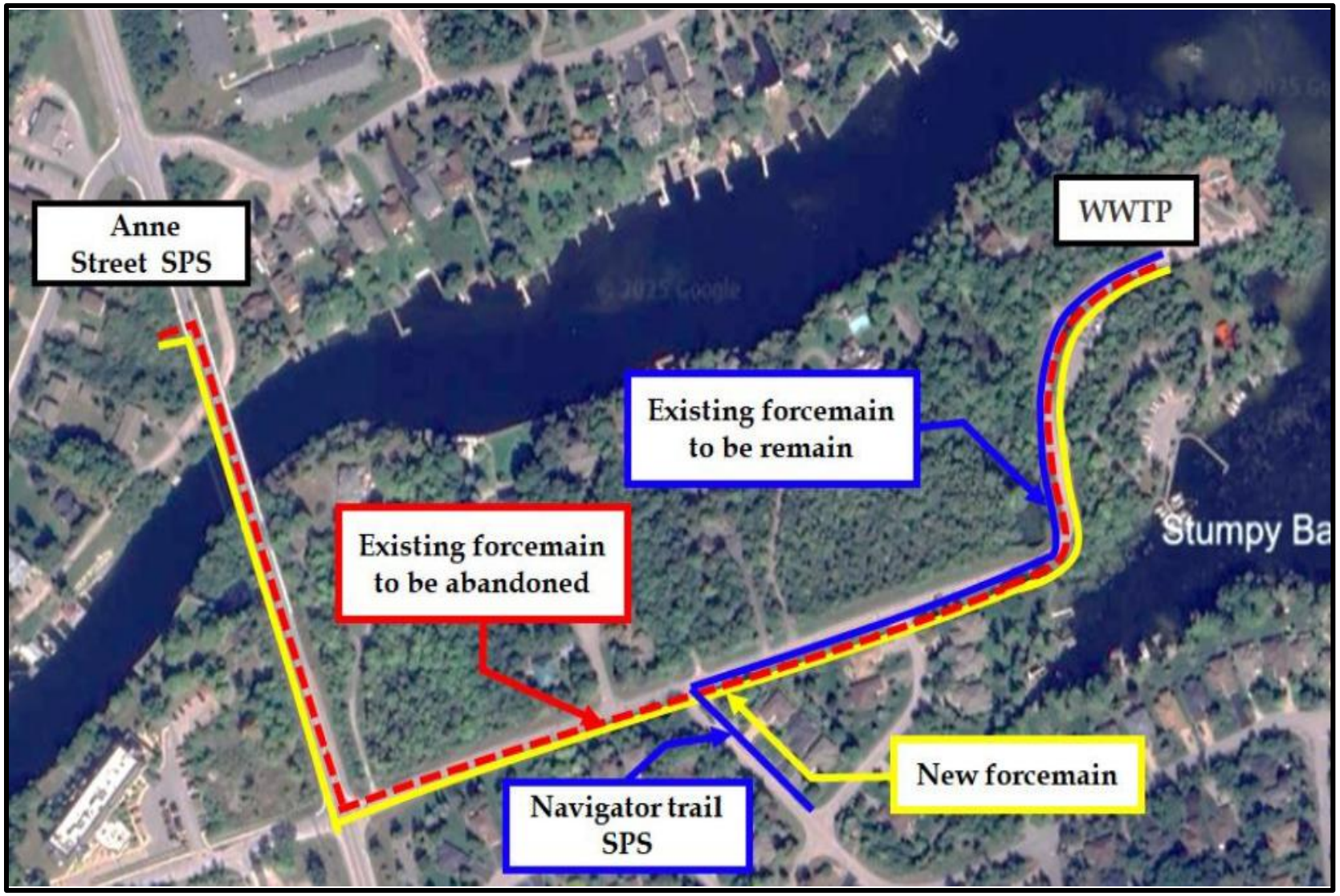


Figure 5: Proposed Location of the New Anne Street Forcemain
(City of Kawartha Lakes 2025d:14)

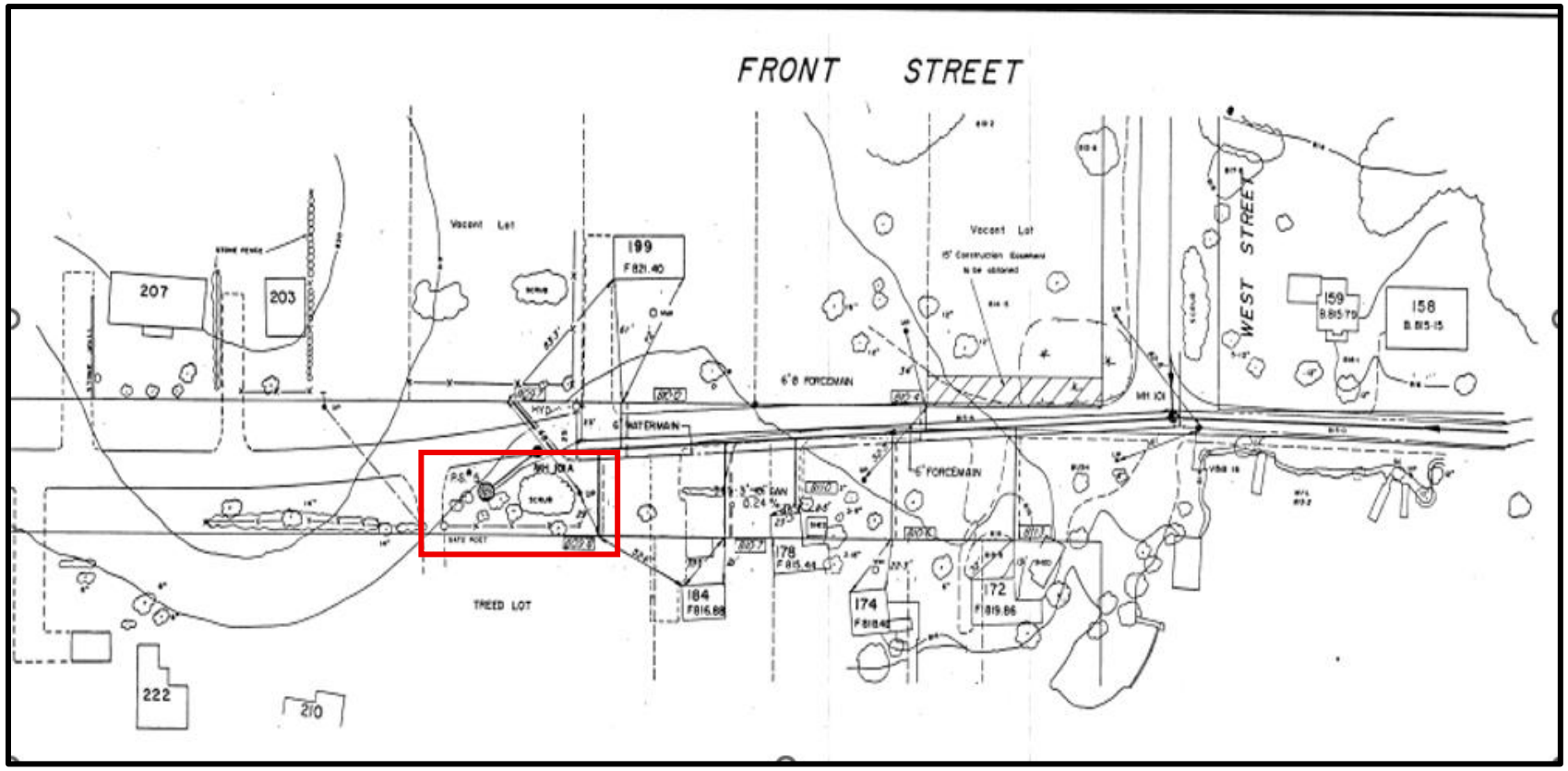


Figure 6: 1980 Front Street Forcemain As-Built Drawing Indicating Easement for SPS Marked in Red
(City of Kawartha Lakes 2025f)

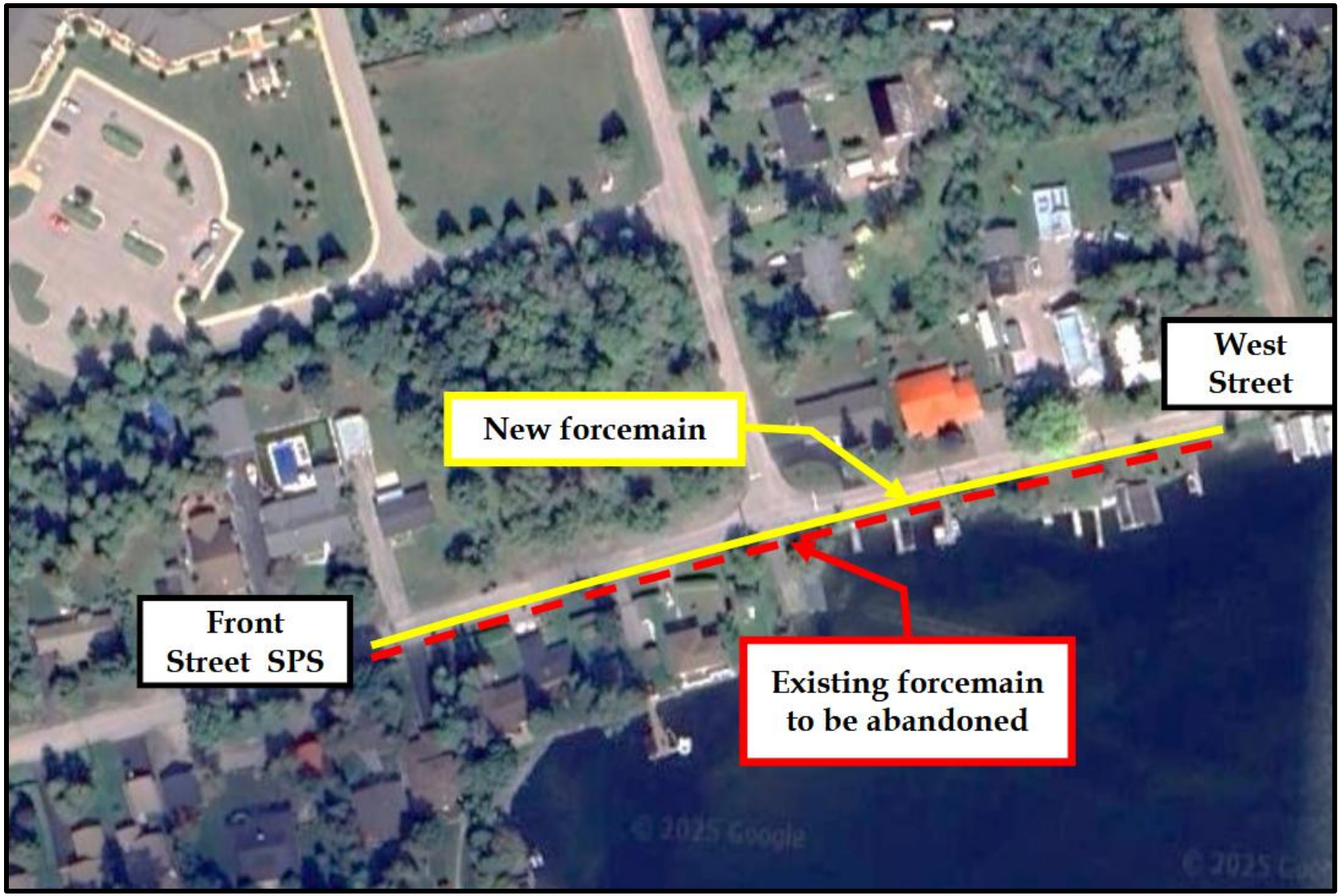


Figure 7: Proposed Location of the New Front Street Forcemain
(City of Kawartha Lakes 2025d:18)

10.0 IDENTIFICATION OF POTENTIAL (PROJECT SPECIFIC) IMPACT AND PROPOSED MITIGATION MEASURES

10.1 Analysis of Potential Impacts

The proposed project has the potential to affect BHRs. MCM InfoSheet #5: *Heritage Impact Assessments and Conservation Plans* (MCM 2006:3) provides a list of potential negative impacts for evaluating against any proposed development. Impacts can be classified as either direct or indirect.

Direct impacts (those that physically affect the heritage resources themselves) include, but are not limited to: initial project staging, excavation/levelling operations, construction of access roads and renovations or repairs over the life of the project. These direct impacts may destroy some or all significant heritage attributes or may alter soils and drainage patterns and adversely impact unknown archaeological resources.

Indirect impacts include but are not limited to: alterations that are not compatible with the historic fabric and appearance of the area, the creation of shadows that alter the appearance of an identified heritage attribute, the isolation of a heritage attribute from its surrounding environment, the obstruction of significant views and vistas, change in land use such as rezoning allowing for a reduction in open spaces and other less-tangible impacts. There may be positive environmental and cultural effects as a result of an undertaking.

Any impacts to potential and known archaeological sites are being addressed through the archaeological assessment process.

A summary of the potential impacts associated with the preferred plans as identified through the EA process are provided in Table 7.

10.2 Mitigation Measures and Recommendations

An impact analysis was completed and found that the proposed work may have some indirect impact to the identified and potential BHRs. Therefore, the following mitigation measures are recommended:

- Storage and construction staging areas should avoid all BHRs.
- Construction fencing should be erected along:
    - The property boundary of BHR-1 to ensure the stone wall is not damaged by any construction machinery or vehicles.
    - Along the property boundary of BHR-2 to ensure the stone pillars located on the property which are located at the roadway are not damaged by any construction machinery or vehicles.
- Given the adjacency (within 60 meters) of the stone wall at BHR-1, and the Davis Family Cottage at BHR-5 to the project works, the project may result in minor indirect vibration impacts. The following recommendations should be considered:
    - Consult a qualified Engineer:
        - As the Part IV designated BHR is located well within the limit of the recommended buffer suggested for vibration monitoring (i.e., 60 m from the proposed works; Carmen et al. 2012:31), consult a qualified Engineer to determine if a Zone of influence (ZOI) Study is required.

- If required, complete a ZOI Study (conducted by a qualified Engineer) to determine if ground vibrations from the proposed work may damage the heritage attributes of the property.
- If the ZOI Study determines the proposed works have the potential to damage the heritage attributes of the property, the study should recommend:
  - Ground vibration limits to avoid potential damage to the heritage attributes of the property.
  - Construction vibration monitoring processes and procedures be implemented to avoid vibration limit exceedances.
  - If necessary, provide mitigation measures to assist in maintaining the vibrations within the proposed limits.

Table 7: Impacts and Mitigation Measures

CHR #	Name/ Location	Heritage Recognition	Type and Description of Potential/Anticipated Impacts	Mitigation Measures: i. Mitigation Option ii. Mitigation Recommendation
BHR-1	28 Boyd Street Edgewood Dry Stone Wall	Designated under Part IV of the OHA, By-Law 2021-003, By-Law 2021-193	**Potential Direct Impacts:** There are no anticipated direct impacts to the BHR as a result of the proposed infrastructure upgrades. There are no proposed alterations to the property. **Potential Indirect Impacts:** As currently planned, the proposed infrastructure upgrades will be contained to the municipal owned roadway which will be directly adjacent to, but not encroach into, 28 Boyd Street. which is a property designated under Part IV on the OHA. The proposed work includes excavation of trenches including rock breaking (not blasting), main upgrades/replacement, and use of heavy machinery/traffic Because the construction of a new forcemain along County Road 36 to the existing WWTP at 127 Boyd Street will be located adjacent to the BHR on the property, vibration during construction is anticipated and may cause an indirect impact that may adversely affect the CHVI and heritage attributes linked to the structure.	**Preferred Option:** • That the preferred design should continue to avoid any direct impacts to the identified heritage resources; **Mitigation Recommendations:** The following mitigation measures reflecting best practices that will avoid any accidental adverse impacts to the BHRs are recommended: • Storage and construction staging areas should avoid 28 Boyd Street. • Construction fencing should be erected along the property boundary to ensure the stone wall is not damaged by any construction machinery or vehicles. • Given the adjacency of stone wall to the project works, the project may result in minor indirect vibration impacts. The following recommendations should be considered: o Consult a qualified Engineer: o As the Part IV designated BHR is located well within the limit of the recommended buffer suggested for vibration monitoring (i.e., 60 m from the proposed works; Carmen et al. 2012:31), consult a qualified Engineer to determine if a Zone of influence (ZOI) Study is required. o If required, complete a ZOI Study (conducted by a qualified Engineer) to determine if ground vibrations from the proposed work may damage the heritage attributes of the property. o If the ZOI Study determines the proposed works have the potential to damage the heritage attributes of the property, the study should recommend: o Ground vibration limits to avoid potential damage to the heritage attributes of the property. o Construction vibration monitoring processes and procedures be implemented to avoid vibration limit exceedances. o If necessary, provide mitigation measures to assist in maintaining the vibrations within the proposed limits. As the minor indirect impacts to the property can be fully mitigated with no permanent and negative effect (if the proposed recommendations are implemented), no further alternatives have been considered.

CHR #	Name/ Location	Heritage Recognition	Type and Description of Potential/Anticipated Impacts	Mitigation Measures: i. Mitigation Option ii. Mitigation Recommendation
BHR-2	46 Boyd Street "Stonehenge"	Listed on City of Kawartha Lakes *Heritage Register*	**Potential Direct Impacts:** There are no anticipated direct impacts to the BHR as a result of the proposed infrastructure upgrades. There are no proposed alterations to the property. **Potential Indirect Impacts:** As currently planned, the proposed infrastructure upgrades will be contained to the municipal owned roadway which will be directly adjacent to, but not encroach into, 46 Boyd Street. which is a property listed on the City of Kawartha Lakes Heritage Register. The proposed work includes excavation of trenches including rock breaking (not blasting), main upgrades/replacement, and use of heavy machinery/traffic. The house is located approximately 150 m from the municipal roadway. There are two stone pillars at the entrance of the driveway parallel to Boyd Street. Because the construction of a new forcemain along County Road 36 to the existing WWTP at 127 Boyd Street will be located adjacent to the stone pillars on the property, there is the potential for adverse impacts due to accidental damage.	**Preferred Option:** • That the preferred design should continue to avoid any direct impacts to the identified heritage resources; **Mitigation Recommendations:** The following mitigation measures reflecting best practices that will avoid any accidental adverse impacts to the stone pillars located on the property are recommended: • Storage and construction staging areas should avoid 46 Boyd Street. • If necessary, construction fencing should be erected along the property boundary to ensure the stone pillars located on the property which are located at the roadway are not damaged by any construction machinery or vehicles. As the minor indirect impacts to the property can be fully mitigated with no permanent and negative effect (if the proposed recommendations are implemented), no further alternatives have been considered.
BHR-3	County Road 36 Bridge	None Identified in the field as potential built heritage resource	**Potential Direct Impacts:** There are no anticipated direct impacts to the BHR as a result of the proposed infrastructure upgrades. The proposed infrastructure upgrades are limited to the replacement of the "Pipe Hangers" to accommodate the new pipe that aims to accommodate larger flow. Additionally, there might be a twined pipe design applied if required. Nonetheless, there is no direct or indirect impact to the bridge	**Preferred Option:** • That the preferred design should continue to avoid any direct or indirect impacts to the identified heritage resources; **Mitigation Recommendations:** No further mitigation measure recommended

CHR #	Name/ Location	Heritage Recognition	Type and Description of Potential/Anticipated Impacts	Mitigation Measures: i. Mitigation Option ii. Mitigation Recommendation
			itself in terms of alignment, materials, size height, etc.	
BHR-4	121 Boyd Street Pigeon Lake Yacht Club	None Identified in the field as potential built heritage resource	**Potential Direct and Indirect Impacts:** There are no anticipated direct or indirect impacts to the potential BHR as a result of the proposed infrastructure upgrades. There are no proposed alterations to the property, and the built features are located approximately 110 meters from the proposed works.	**Preferred Option:** • That the preferred design should continue to avoid any direct impacts to the potential heritage resources; **Mitigation Recommendations:** No further mitigation measure recommended.
BHR-5	No Civic Address Found "Davies Family Cottage"	None Identified in the field as potential built heritage resource	**Potential Direct Impacts:** There are no anticipated direct impacts to the BHR as a result of the proposed infrastructure upgrades. There are no proposed alterations to the property. **Potential Indirect Impacts:** As currently planned, the proposed infrastructure upgrades will be contained to the municipal owned roadway which will be directly adjacent to, but not encroach into, the Davies Family Cottage. which is a potential built heritage resource. The proposed work includes tunneling by boring machine, main upgrades/ replacement, and use of heavy machinery/traffic. Because the construction of a new forcemain along Front Street will be located adjacent to the BHR on the property, vibration during construction is anticipated and may cause an indirect impact that may adversely affect the potential CHVI and potential heritage attributes.	**Preferred Option:** • That the preferred design should continue to avoid any direct impacts to the potential heritage resources; **Mitigation Recommendations:** The following mitigation measures reflecting best practices that will avoid any accidental adverse impacts to the potential BHRs are recommended: • Storage and construction staging areas should avoid the property and surrounding area. • Construction fencing should be erected along the property boundary to ensure the buildings are not damaged by any construction machinery or vehicles. • Given the adjacency of buildings to the project works, the project may result in minor indirect vibration impacts. The following recommendations should be considered: o Consult a qualified Engineer: o As the Part IV designated BHR is located well within the limit of the recommended buffer suggested for vibration monitoring (i.e., 60 m from the proposed works; Carmen et al. 2012:31), consult a qualified Engineer to determine if a Zone of influence (ZOI) Study is required. o If required, complete a ZOI Study (conducted by a qualified Engineer) to determine if ground vibrations from the proposed work may damage the heritage attributes of the property. o If the ZOI Study determines the proposed works have the potential to damage the heritage attributes of the property, the study should recommend: o Ground vibration limits to avoid potential damage to the heritage attributes of the property.

CHR #	Name/ Location	Heritage Recognition	Type and Description of Potential/Anticipated Impacts	Mitigation Measures: i. Mitigation Option ii. Mitigation Recommendation
				○ Construction vibration monitoring processes and procedures be implemented to avoid vibration limit exceedances. ○ If necessary, provide mitigation measures to assist in maintaining the vibrations within the proposed limits. As the minor indirect impacts to the property can be fully mitigated with no permanent and negative effect (if the proposed recommendations are implemented), no further alternatives have been considered.
BHR-6	210 Front Street Tiverton House	None Identified in the field as potential built heritage resource	**Potential Direct and Indirect Impacts:** There are no anticipated direct or indirect impacts to the potential BHR as a result of the proposed infrastructure upgrades. There are no proposed alterations to the property, and the built features are located approximately 110 meters from the proposed works	**Preferred Option:** • That the preferred design should continue to avoid any direct impacts to the potential heritage resources; **Mitigation Recommendations:** No further mitigation measure recommended.

Map 12: Assessment Results Map- Anne Street Location
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

Map 13: Assessment Results Map- Front Street Location
(Produced by ARA under licence using ArcGIS® software by Esri, © Esri)

11.0 SUMMARY AND NEXT STEPS OR RECOMMENDATIONS

This *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* is being completed to identify and evaluate any potential impacts on known and potential BHRs and CHLs resulting from the undertakings associated with the Schedule B MCEA for the two SPS and Forcemain upgrades. The Schedule B undertakings include the upgrading and/or creation of two SPS facilities on existing SPS locations as well as the upgrading of two Forcemain locations. The Front Street SPS will not require any new construction but will include replacing existing electrical panels and the installation of a stand-by generator mounted on a concrete pad, whereas the Anne Street SPS will require the construction of a new building on the pump house site. After conducting historical research, consultation and field survey, six built heritage resources were identified within or adjacent to the project location .

This Cultural Heritage Report has assessed the impacts associated with the preferred design and found that the proposed location of the SPS and forcemain upgrades will have potential indirect impact on BHRs. Therefore, the following mitigation measures reflecting best practices that will avoid any accidental adverse impacts to BHRs are recommended:

- Storage and construction staging areas should avoid all BHRs.
- Construction fencing should be erected along:
    - The property boundary of BHR-1 to ensure the stone wall is not damaged by any construction machinery or vehicles.
    - The property boundary of BHR-2 to ensure the stone pillars located on the property which are located at the roadway are not damaged by any construction machinery or vehicles
- Given the adjacency of the stone wall at BHR-1, and the Davis Family Cottage at BHR-5 to the project works, the project may result in minor indirect vibration impacts. The following recommendations should be considered:
    - Consult a qualified Engineer:
        - As the Part IV designated BHR is located well within the limit of the recommended buffer suggested for vibration monitoring (i.e., 60 m from the proposed works; Carmen et al. 2012:31), consult a qualified Engineer to determine if a Zone of influence (ZOI) Study is required.
    - If required, complete a ZOI Study (conducted by a qualified Engineer) to determine if ground vibrations from the proposed work may damage the heritage attributes of the property.
    - If the ZOI Study determines the proposed works have the potential to damage the heritage attributes of the property, the study should recommend:
        - Ground vibration limits to avoid potential damage to the heritage attributes of the property.
        - Construction vibration monitoring processes and procedures be implemented to avoid vibration limit exceedances.
        - If necessary, provide mitigation measures to assist in maintaining the vibrations within the proposed limits.

The following considerations and recommendations should also be undertaken:

- That the above mitigation measures be implemented and considered in subsequent planning and design phases.

- That if the preferred option changes, the new design should be reviewed against the findings in this *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* and an update provided in an Impact Memo. Specifically, the memo should review all identified heritage resources and evaluate any impact of the design (or alternative design concepts), as well as outline avoidance/mitigation measures to minimize the impact. Depending on the nature of the impact (i.e., demolition, significant modification, or alteration) the review may result in additional studies being recommended (i.e., a Cultural Heritage Evaluation Report, Heritage Impact Assessment, Conservation Plan etc.). The review should be undertaken by a qualified heritage professional.
- That this *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* should be provided to staff/planners at the municipal and regional level as needed who are in turn should circulate this to the appropriate Indigenous communities for review; and
- Any impacts to potential, and known, archaeological sites, are being addressed through the archaeological assessment process.

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Appendix A: Team Member Biographies

Kayla Jonas Galvin, MA, RPP, MCIP, CAHP, Director – Heritage Operations

Kayla Jonas Galvin, Archaeological Research Associates Ltd.'s Director - Heritage Operations, has extensive experience evaluating cultural heritage resources and landscapes for private and public-sector clients to fulfil the requirements of provincial and municipal legislation such as the *Environmental Assessment Act*, the *Standards & Guidelines for the Conservation of Provincial Heritage Properties* and municipal Official Plans. She served as Team Lead on the Ministry of Tourism, Culture and Sport Historic Places Initiative, which drafted over 850 Statements of Significance and for *Heritage Districts Work!*, a study of 64 heritage conservation districts in Ontario. Kayla was an editor *of Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory* and has worked on Municipal Heritage Registers in several municipalities. Kayla has drafted over 150 designation reports and by-laws for the City of Kingston, the City of Burlington, the Town of Newmarket, Municipality of Chatham-Kent, City of Brampton and the Township of Whitchurch-Stouffville. Kayla is the Heritage Team Lead for ARA's roster assignments for Infrastructure Ontario and oversees evaluation of properties according to *Standards & Guidelines for the Conservation of Provincial Heritage Properties*. Kayla is a Registered Professional Planner (RPP), a Member of the Canadian Institute of Planners (MCIP), is a professional member of the Canadian Association of Heritage Professionals (CAHP) and sits on the board of the Ontario Association of Heritage Professionals.

Amy Barnes, MA, CAHP Heritage Project Manager

Amy Barnes, a Project Manager with ARA's Heritage team, has fifteen years of experience evaluating cultural heritage resources and landscapes and community engagement. Amy has extensive experience working with provincial and municipal legislation and guidelines, including the Ontario Heritage Act, Official Plans, the Standards and Guidelines for the Conservation of Historic Places, and the Ontario Heritage Toolkit. Ms. Barnes has completed over 200 heritage related project and 500+ cultural assessments and has been qualified as an expert witness at the Ontario Superior Court of Justice. Amy has worked in the public and private sector where her duties included project management, public consultation, facilitator, researcher, database and records management, and report author. Amy Barnes holds an M.A. in Heritage Conservation from the School of Canadian Studies at Carleton University in Ottawa, Ontario. Amy has successfully completed the International Association of Public Participation (IAP2) Foundations in Public Participation, the IAP2 Planning and Techniques for Effective Public Participation, and Indigenous Awareness Training through Indigenous Awareness Canada. Amy is a professional member of CAHP and the former Vice-Chair of the Cambridge Municipal Heritage Advisory Committee.

L. Renee Hendricks, MA, Heritage Team, Cultural Heritage Technician

Renee currently works as a Technical Writer and Researcher for the Heritage Team and assists in researching and evaluating the significance of cultural heritage resources using existing legislation. Most recently, she has worked on a number of projects for various municipalities across southern Ontario as well as for Infrastructure Ontario. She also occasionally assists Business and Development in drafting proposals for prospective clients. Her work experience includes cultural heritage evaluation reports, heritage impact assessments, cultural heritage assessments, and conservation plans. Renee obtained a Master of Arts degree in archaeology from Trent University in 2018 and has a Bachelor of Arts with a major in archaeology and a minor in history from Texas State University. Prior to working for ARA's heritage department, Renee worked in the archaeological field as both a field technician and field director, in addition to extensive work as a lab technician analyzing predominately nineteenth century historic artifacts and drafting sections of archaeological reports.

Appendix D - Natural Heritage Assesssment (NHA)

SHETH CON

NaturalHeritageAssessment

Anne Street An Front Street Sewage Pumping Stations and Forcemain Project, Bobcaygeon, City of Kawartha Lakes, Ontario

Project ID: SC2025-035

Date: June 25 2025

Prepared For:

Concept Dash

14 York Street

Toronto ON M5J 0B1

Prepared By:

SHETH CON LIMITED

1117 80 Esther Lorrie

Dr Etobicoke ON M9W 0C6

1.0 Introduction

Shethcon Inc. (Shethcon) was retained by Concept Dash to complete a Natural Heritage Assessment (NHA) for the proposed Anne Street Sewage Pumping Station (SPS) and Forcemain (FM), and the Front Street SPS and FM project. The project is located in the community of Bobcaygeon, within the City of Kawartha Lakes (CKL), Ontario.

This NHA is required as part of the Environmental Assessment (EA) and Detailed Design phases of the project. The purpose of this assessment is to document the existing natural heritage features and functions within the project area, identify potential negative impacts from the proposed development, and recommend mitigation measures to avoid or minimize these impacts.

This report has been prepared in accordance with relevant municipal, provincial, and federal policies and guidelines, including but not limited to:

- Provincial Policy Statement, 2020
- City of Kawartha Lakes Official Plan
- City of Kawartha Lakes Zoning By-Laws
- Conservation Authorities Act
- Fisheries Act
- Endangered Species Act, 2007
- Migratory Birds Convention Act, 1994

2.0 Methodology

This NHA was completed through a desktop review of available background information and a detailed field investigation.

Desktop Review A comprehensive desktop review was conducted to gather information on the natural heritage features and ecological functions of the study area. The review included an analysis of:

- **Natural Heritage Data:** Land Information Ontario (LIO), Natural Heritage Information Centre (NHIC), and Fisheries and Oceans Canada (DFO) databases were reviewed for records of significant wetlands, woodlands, Areas of Natural and Scientific Interest (ANSIs), and Species at Risk (SAR) occurrences within and adjacent to the project area.
- **Aerial and Topographic Mapping:** Recent and historical aerial imagery was reviewed to understand land use history, general topography, and identify potential natural features.
- **Planning Documents:** The City of Kawartha Lakes Official Plan and zoning by-laws were reviewed to identify land use designations and environmental policies applicable to the project sites.
- **Conservation Authority Resources:** Information from Kawartha Conservation was reviewed to identify regulated areas and sensitive features.

Site Investigation A site investigation was conducted on May 21, 2025. Shethcon personnel visited all components of the project area (Anne St, Front St, forcemain route). The investigation involved:

- Ground-truthing the results of the desktop review.
- Characterizing existing vegetation communities using the Ecological Land Classification (ELC) for Southern Ontario system.
- Documenting all incidental wildlife observations.
- Assessing the habitat conditions and potential for SAR.
- Photographing existing site conditions.

3.0 Project Description

The project involves upgrades to the municipal sewage collection system at two locations in Bobcaygeon and the installation of connecting forcemains.

- **47 Anne Street SPS:** A new building will be constructed on the existing property to replace the current SPS. The work will be confined to the existing property parcel.
- **200 Front Street West SPS:** An outdoor enclosed generator is planned for this site. A small building to house the generator and associated controls may also be constructed.
- **Forcemains and End Point:** The project includes the installation of pressurized forcemains connecting the pumping stations and terminating at the Water Treatment Plant located at 11 Bolton Street. The forcemains are anticipated to be installed primarily within the existing road Right-of-Way (ROW). Three to four small valve chambers will be constructed at grade along the route.

Construction Methods The following construction methods are anticipated:

- **Open Cut:** Traditional trenching and pipe-laying, primarily for the forcemain installation in the road ROW.
- **Jack and Bore:** A trenchless method that will be used for sections of the forcemain to avoid sensitive areas or significant infrastructure.
- **Floating Barge:** To be used for the forcemain crossing over the Bobcaygeon River.

4.0 Existing Conditions

4.1 Site Setting and Surrounding Land Use

The project is located in Bobcaygeon, a community situated on the Trent-Severn Waterway, between Sturgeon Lake and Pigeon Lake. The surrounding land use is a mix of residential, commercial, and recreational areas, with significant waterfront development. The project sites at Anne Street and Front Street are within established residential neighbourhoods. The forcemain route follows existing municipal roads.

4.2 Ecoregion and Ecodistrict

The project area is located within the Lake Simcoe-Rideau Ecoregion (6E), which is part of the Mixedwood Plains Ecozone. This ecoregion is characterized by a mix of deciduous and mixed forests on Paleozoic bedrock covered by glacial deposits. Specifically, the site falls within the

Havelock Ecodistrict (6E-9), which features a landscape of rolling topography with numerous lakes, rivers, and wetlands.

4.3 Natural Heritage Features Mapping

A Reiew of the MNRF's Natural Heritage Information Centre (NHIC) database and LIO mapping identified the following features in proximity to the project area:

- **Watercourses:** The forcemain route will cross the Bobcaygeon River. The river is a key component of the Trent-Severn Waterway and provides significant fish habitat.
- **Wetlands:** There are no Provincially Significant Wetlands (PSWs) located directly within the proposed construction footprints. However, the proximity of the project to the Bobcaygeon River and associated coastal wetlands necessitates careful mitigation.
- **Significant Woodlands/ANSIs:** No designated Significant Woodlands or ANSIs are located within the immediate construction areas.

4.4 Species at Risk Screening

A preliminary screening using the NHIC and DFO databases identified several Species at Risk with ranges that overlap the project area. The habitats for these species were specifically investigated during the May 21, 2025 site visit. A table of potential species is included in Appendix D and summarized below.

Table 1: Potential Species at Risk in the Project Vicinity

Common Name	Scientific Name	SARO Status	COSEWIC Status	General Habitat
Snapping Turtle	Chelydra			Ponds, rivers, wetlands
Midland Painted Turtle	Chrysemys picta marginata	SC	SC	Ponds, shallow lakes, slow-moving streams
Eastern Milksnake	Lampropeltis triangulum	NAR	SC	Forests, fields, rocky outcrops, barns
Blue spotted Salamander	Ambystoma laterale	END	END	Deciduous and mixed forests with vernal pools
Black Ash	Fraxinus nigra	END	THR	Swamps, floodplains, wet woods
Eastern Meadowlark	Sturnella magna	THR	THR	Grasslands, prairies, agricultural fields
Eastern Wood pewee	Contopus virens	SC	SC	Mid-canopy of deciduous/mixed forests
Canada Warbler	Cardellina canadensis	SC	SC	Moist mixed forests with dense shrub layer

5.0 Field Investigation Results

5.1 Site Visit Summary The site investigation was conducted by Shethcon personnel on **May 21, 2025**. Weather conditions were clear and 15°C. The inspection covered the proposed SPS locations at 47 Anne Street and 200 Front Street West, as well as the entire proposed route for the forcemain installation. The project areas were found to be largely consistent with the desktop review, with natural heritage features being limited due to the urban setting.

5.2 47 Anne Street SPS Site The site is currently occupied by the existing SPS and is surrounded by residential and commercial properties. Vegetation on the property is limited to manicured lawns and a few mature ornamental trees. The adjacent shoreline of the Bobcaygeon River is heavily urbanized with hard-surfacing, docks, and retaining walls.

The limited treed area on the property was classified using the Ecological Land Classification (ELC) system. The vegetation community is best described as a Fresh-Moist Mixed Forest Ecosite (FOM), characterized by a mix of coniferous and deciduous trees typical of disturbed, managed urban landscapes.

5.3 200 Front Street West SPS Site This site consists of a grassed boulevard area within a primarily residential area. There is no significant woody vegetation that would be impacted by the installation of a generator pad. The character of the surrounding area is residential with manicured lawns and gardens.

The nearby treed areas, outside the immediate construction footprint, were classified as a **Fresh-**Moist Deciduous Forest Ecosite (FOD), dominated by mature deciduous trees with minimal understory.

5.4 Forcemain Route and River Crossing The forcemain route follows the paved surface and gravel shoulder of existing roads. The river crossing location has vegetated banks consisting of grasses, shrubs, and scattered trees. The immediate riparian zone appears stable but shows signs of urban influence.

5.5 Flora and Fauna A List of all flora and fauna observed during the site investigation will be compiled. No SAR were directly observed during the site visit; however, suitable nesting habitat for Barn Swallow was noted on nearby structures, and the Bobcaygeon River provides suitable habitat for SAR turtles and fish.

6.0 Potential Impacts of the Proposed Development

6.1 Impacts from Pumping Station Construction

The construction at 47 Anne Street and 200 Front Street West will occur on lands with low ecological function (manicured lawns, boulevards). The potential impacts are limited to:

- Removal of a small number of ornamental trees.
- Temporary noise and dust disturbances during construction.
- Potential for sediment runoff from disturbed areas if not properly managed.

6.2 Impacts from Forcemain Installation

- **Open Cut:** This method will cause temporary disturbance within the road ROW. Impacts include removal of turf/shoulder gravels, soil compaction, and risk of sediment runoff into nearby catch basins.

- **Jack and Bore:** This method minimizes surface disturbance. However, entry and exit pits require excavation, and there is a low-risk potential for a "frac-out" (inadvertent return of drilling fluids to the surface), which could impact sensitive areas if it occurs near the river.

6.3 Impacts on Watercourses and Aquatic Habitat

The primary potential for impact is at the Bobcaygeon River crossing. The use of a floating barge and associated activities could potentially:

- Increase turbidity and sedimentation, affecting water quality and fish habitat.
- Disturb or damage the riverbed and riparian vegetation.
- Introduce deleterious substances (e.g., fuel, hydraulic fluid) in the event of a spill.
- Disrupt fish migration and spawning if work occurs during sensitive timing windows.

6.4 Impacts on Species at Risk

- **Turtles:** Construction activities near the river could disturb nesting turtles (typically May-July) or their nests.
- **Birds:** Removal of any trees or shrubs during the migratory bird nesting season (April 1 to August 31) could lead to the destruction of active nests. Barn Swallows could be impacted if nesting on existing structures slated for modification.
- **SAR Trees:** Any Black Ash or Butternut trees would require specific assessment and permitting from the MECP if impacted.

7.0 Mitigation and Enhancement Measures

The following mitigation measures are recommended to prevent and minimize potential environmental impacts.

7.1 General Construction Mitigation Measures

This section outlines the standard best management practices to be implemented throughout the project.

- **Erosion and Sediment Control (ESC):**
  - Silt fencing shall be installed around all construction areas and stockpiles prior to the start of work to contain sediment.
  - Stockpiles of soil or aggregate will be located at least 30 m from any watercourse and covered with tarps.
  - All disturbed areas will be stabilized and restored with topsoil and native seed mix as soon as construction is complete.
- **Vegetation Protection:**
  - Vegetation removal will be kept to the minimum required for construction.
  - No tree or vegetation clearing shall occur during the primary migratory bird nesting window of April 1 to August 31, unless a qualified biologist confirms no active nests are present.

- **Spill Prevention and Control:**
    - A spill response kit will be maintained on-site at all times.
    - Equipment will be refueled and maintained away from any watercourse, with a minimum setback of 30 m.
    - All spills will be immediately contained and reported to the MECP's Spills Action Centre.

7.2 Project-Specific Mitigation

- **River Crossing (Floating Barge):**
    - All in-water work must adhere to the timing restrictions for the Bobcaygeon River to protect fish during critical life stages. A Request for Review should be submitted to the DFO.
    - The barge must be clean and free of leaks. Spill containment materials must be present on the barge itself.
    - A turbidity monitoring plan (including background and downstream sampling) must be implemented during all in-water activities.
- **Jack and Bore:**
    - A frac-out contingency plan must be prepared, detailing monitoring procedures and containment/clean-up measures.
- **Species at Risk:**
    - If a SAR is encountered, work in the immediate area must stop and the MECP and Shethcon Inc. must be contacted.
    - A pre-construction survey for nesting turtles should be conducted by a qualified biologist if work is to occur near the riverbank during the nesting season (May to July).
- **Emergency Outflow Design:**
    - Should any new or modified emergency outflows to the Bobcaygeon River or other watercourses be required as part of the detailed design, it is recommended that these structures **incorporate vegetated riprap or other bioengineered solutions**. This approach helps to dissipate energy, prevent erosion, and provide enhanced aquatic and riparian habitat compared to traditional concrete or hard-armouring.

7.3 Environmental Monitoring

An environmental monitor should be present on-site during environmentally sensitive activities, such as the commencement of work at the river crossing, to ensure all mitigation measures are properly implemented and effective.

8.0 Summary and Conclusions

This Natural Heritage Assessment has evaluated the proposed upgrades to the Anne Street and Front Street SPS facilities and the installation of a connecting forcemain in Bobcaygeon. The primary natural heritage feature of concern is the Bobcaygeon River, which will be crossed by the forcemain. The

project footprints are largely confined to areas of low ecological sensitivity, such as existing municipal properties and road rights-of-way.

Potential impacts, including sedimentation, habitat disturbance, and effects on Species at Risk, have been identified. A comprehensive suite of mitigation measures has been recommended, including robust erosion and sediment controls, adherence to environmental timing windows for in-water work and vegetation removal, and the implementation of specific best practices for the river crossing.

Provided that the mitigation and monitoring measures outlined in this report are fully implemented, it is concluded that the project can proceed without resulting in significant, long-term adverse impacts to the natural heritage features or their ecological functions.

9.0 Limitations

This report was prepared for the exclusive use of Concept Dash. The information presented is based on a desktop review of publicly available data, information provided by the client, and a site investigation. Shethcon Inc. has assumed that all information provided by third parties is factual and accurate. The findings of this report are valid as of the date of the site investigation; changes to site conditions or project plans may require this assessment to be updated. Any use by a third party, or any reliance on or decisions made based on it, are the sole responsibility of such third parties.

Your Truly,
Sheth Con

_____

Jose Haig,
M.NRES, P.Ag, Cert. Urban Ecologies

_____

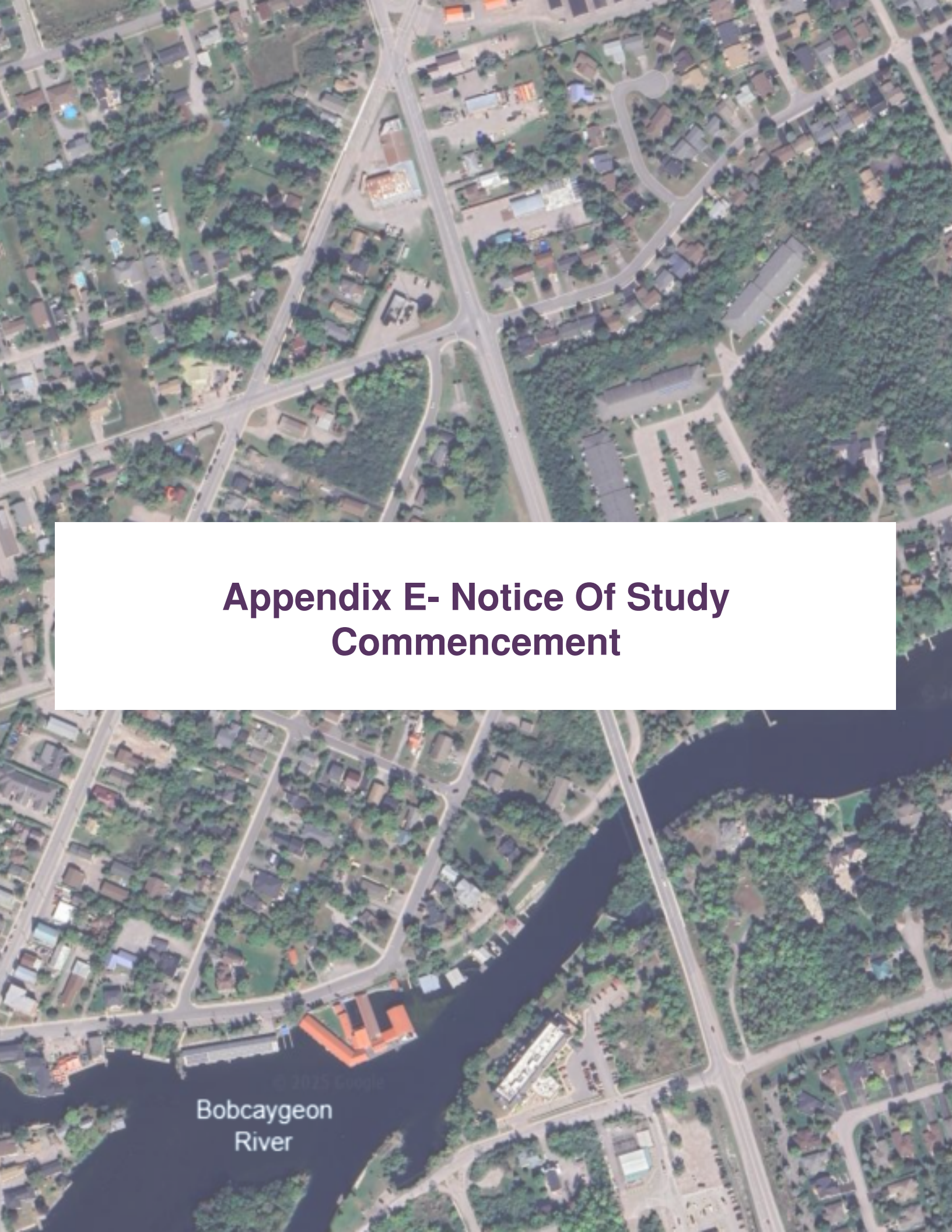
Sarth Sheth,
M.Sc, P.Eng., QP

Appendix A

Appendix B

Appendices

Appendix A: Site Location and Project Maps (To be inserted)**Appendix B:** Proposed Drawings (To be inserted)



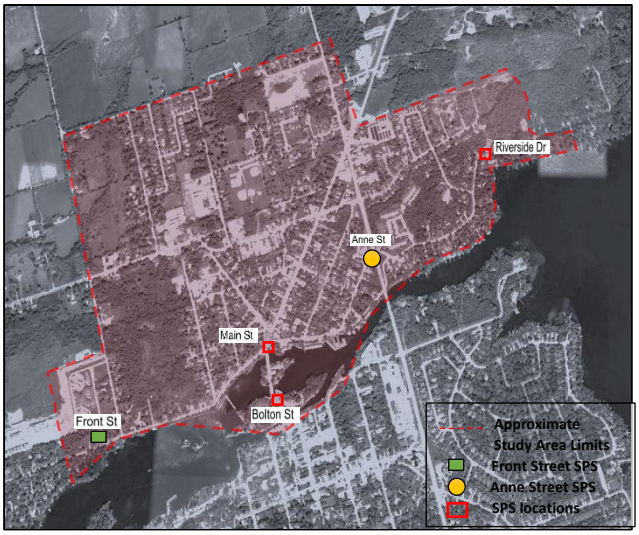
Appendix E- Notice Of Study Commencement

Municipal Class Environmental Assessment Study
Detailed Design for Anne St and Front St Sewage Pumping Station,
Bobcaygeon City of Kawartha Lakes

Notice of Study Commencement

October 10, 2024 **Public Notice**

The Corporation of the City of Kawartha Lakes (the City) is initiating a Municipal Class Environmental Assessment (Class EA) study for Detailed Design of Anne St and Front St Sewage Pumping Station (SPS) in Bobcaygeon, potential upgrade of the existing force-main connecting the SPS locations to the sewage treatment plant, identify and review alternatives and recommend preferred alternative to accommodate the increased growth within the north side of the Bobcaygeon River.



This Municipal Class EA process will follow the planning and design process as described in the Municipal Class Environmental Assessment Document. The goal of the study is to accommodate the increased growth within areas north of the Bobcaygeon River, review, recommend and design upgrades required for the two SPS or propose a new SP'S to intercept additional flows and study option for twinning/replacing some/all the existing force mains on the existing or new alignments.

Currently the existing settlement within the North-West area is serviced by the Front St SPS. The Front St SPS is a tributary SPS to the Anne St SPS. The Front St SPS and the Anne St SPS are located on the north side of the Bobcaygeon River. The area is serviced by a municipal wastewater collection system with several SPS that ultimately discharges to the Bobcaygeon Water Pollution Control Plant (WPCP).

The Process
The process involves consulting the public, Indigenous groups, and external agencies. It includes evaluating alternative solutions, assessing potential impacts, and developing measures to mitigate them. This ensures that environmental concerns are addressed, and adverse effects are alleviated.

Public Consultation
Public consultation is a vital aspect of the Municipal Class EA process, and we appreciate your contribution throughout the planning phase. A Public Information Centre (PIC) will be conducted. Once the PIC date is confirmed, announcements will be posted in local newspapers, on the City's website (City of Kawartha Lakes), and shared with all individuals and organizations expressing interest in the project.

If you wish to be placed on the Project Contact List to receive notices and information or to provide comments at any time during the process, you can do so by contacting:

Marten Leclerc
Senior Engineering Tech
Engineering & Corporate Assets, City of Kawartha Lakes
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Vivek Sharma, P.Eng., MBA
Project Manager
ConceptDash Inc.
+1 647 463 9803
vsharma@conceptdash.ca

Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and may be released, if requested, to any person.

www.facebook.com/cityofkawarthalakes

https://x.com/kawarthalakes

Appendix F - Notice Of PIC

Municipal Class Environmental Assessment Study
Detailed Design for Anne St and Front St Sewage Pumping Station, Bobcaygeon
City of Kawartha Lakes

Notice of Public Information Centre

April 29, 2025 **Public Notice**

The Corporation of the City of Kawartha Lakes (the City) has initiated a Municipal Class Environmental Assessment (Class EA) study for the Design phase of Anne St and Front St Sewage Pumping Station (SPS) in Bobcaygeon. This includes site investigation, development of a detailed engineering design, assessment of existing infrastructure, and consideration of alternative solutions to accommodate increased growth within the north side of the Bobcaygeon River.

This Municipal Class EA process will follow the planning and design process as described in the Municipal Class Environmental Assessment Document. The goal of the study is to accommodate the wastewater collection needs of the increased growth within areas north of the Bobcaygeon River, review, recommend and design upgrades required for the two SPS or propose a new SPS'S to intercept additional flows and study option for twinning/replacing some/all the existing force mains on the existing or new alignments.

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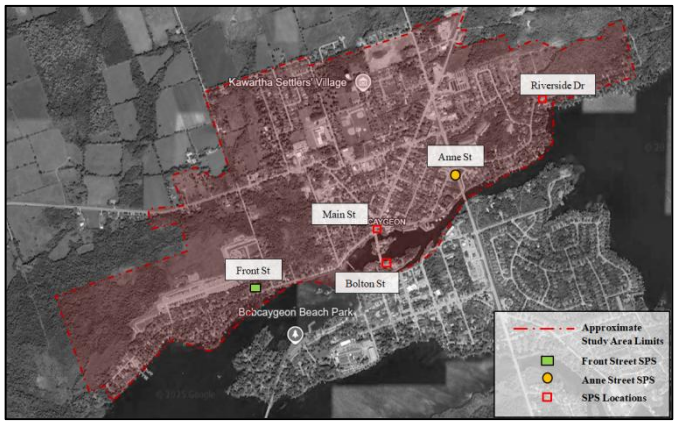

Public Consultation
Public consultation is a vital aspect of the Municipal Class EA process, and we appreciate your contribution throughout the planning phase. A Public Information Centre (PIC) will be conducted. Announcements will be posted in local newspapers, on the City's website (City of Kawartha Lakes), and shared with all individuals and organizations expressing interest in the project.

Public Information Centre Details:

- Date/Time: April 29, 2025, 5:00 PM to 7:00 PM
- Location: Bobcaygeon Community Centre 51 Mansfield St, Bobcaygeon

This notice indicates the commencement date of the **Public Information Centre**

Contacts:
If you wish to be placed on the Project Contact List to receive notices and information or to provide comments at any time during the process, you can do so by contacting:

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Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and may be released, if requested, to any person. Signatories to a Petition are deemed to have waived any expectation of privacy as a result of the record being created for review by the general public. Questions about the collection and disclosure of personal information contained in this petition should be directed to the City Clerk at 705.324.9411 ext. 1295

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Appendix G - Design Flows

SANITARY SEWER FLOW CALCULATION SHEET

Engineering & Corporate Assets Department
City of Kawartha Lakes
P.O. Box 9000, 322 Kent Street West
Lindsay ON K9V 5R8
Tel: 705-324-9411

Kawartha Lakes

Concept Dash

	Front St,. Existing	Anne St. Existing	Design Standard	
q = average per capita daily flow (BSF)	207	596	450	L/cap/d
c = unit of commercial/industrial flow	Included	Included	0.40	L/s/ha
c = unit of Institutional flow (schools)	Included	Included	0.32	L/s/ha
i = unit of peak extraneous flow	0.13		0.28	L/s/ha (Foundation Drains Not connecte
i = unit of peak extraneous flow		0.55	0.52	L/s/ha (Foundation Drains connected)
p = unit of population density	2.30	2.30	2.30	ppu

M = peaking factor (Harmon)
P = p x # units / 1000
M = 1 + 14 / (4 + P $^{1/2}$)

M_{Min} = 2.0
M_{Max} = 3.8

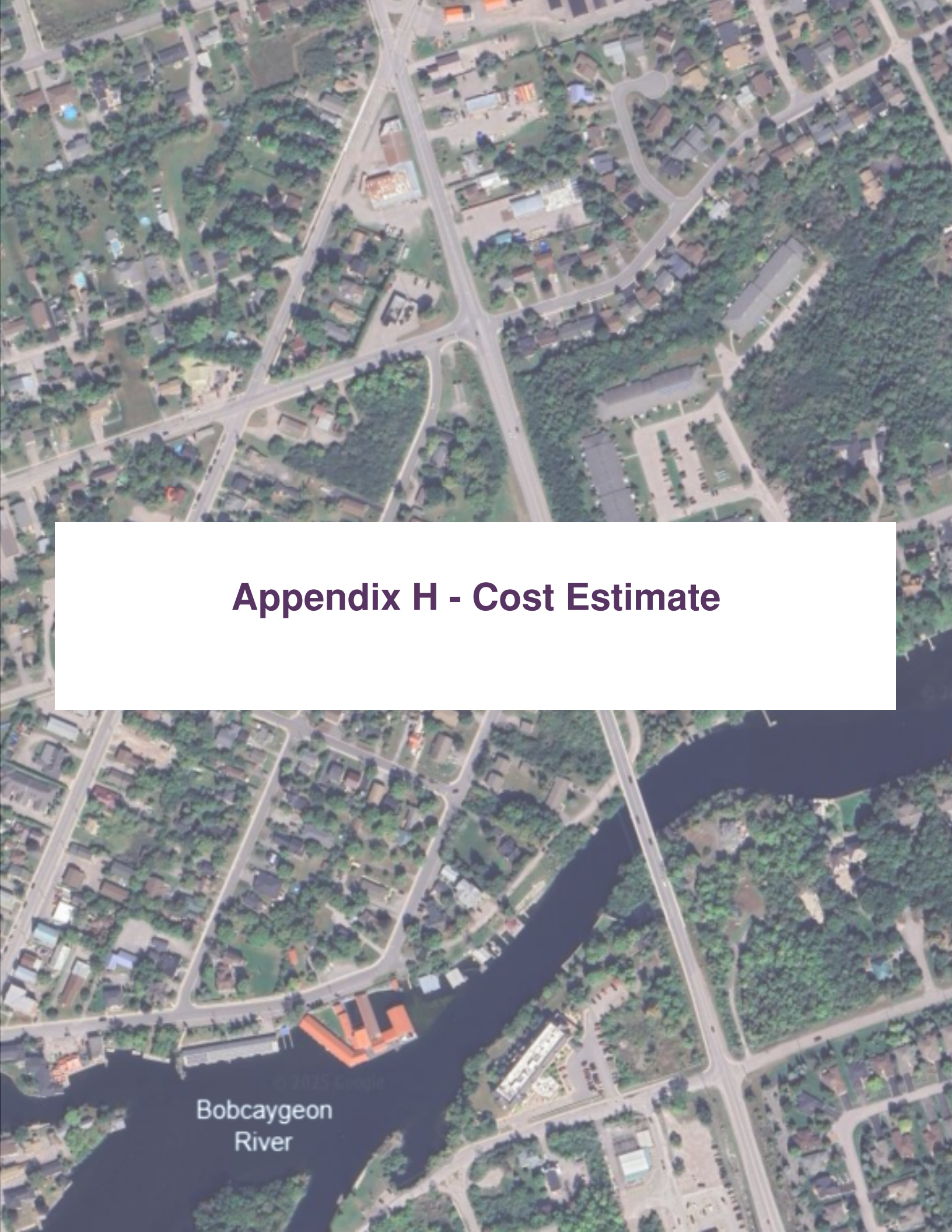
Q(p) = peak population flow (L/s)
Q(p) = M x (p x q) / 86400

Q(i) = i x A = peak extraneous flow (L/s)
Q(d) = Q(p) + Q(i) = peak design flow (L/s)

DATE: *Mar. 17, 2025*
DESIGNED: *R. Flindall*
CHECKED:
FILE No.: *24-C-1348*
PROJECT: *Anne St SPS & Front St.SPS EA & Design RFP 2024-07*

LOCATION	*INDIVIDUAL*					*CUMULATIVE*					*FLOW CALCULATION*					
STREET	*No. RESIDENTIAL UNITS*	*POP*	*RES. AREA (ha)*	*COMM / INST AREA (ha)*	*CONNECTED OPEN SPACE AREA (ha)*	*POP*	*RES. AREA (ha)*	*COMM / INST AREA (ha)*	*CONNECTED OPEN SPACE AREA (ha)*	*TOTAL AREA (ha)*	*PEAKING FACTOR (M)*	*PEAK POPULATION FLOW, Q(p) (L/s)*	*COMM / INST FLOWS (L/s)*	*1:25 Yr EXTRANEOUS FLOW, Q(i) (L/s)*	*CUMULATIVE PEAK DESIGN FLOW, Q(d) (L/s)*	**Notes**
Catchment																
Front St SPS - Existing Residential & ICI	*258*	*593*	*20.39*	*5.53*	*0.09*	*593*	*20.39*	*5.53*	*0.09*	*26.01*	*3.80*	*5.40*	*0.00* [1]	*3.38*	*8.78*	*1. Existing combined Residential and ICI generation rate 207 L/c/d (BSF)* *2. Existing 1:25 Year Extraneous Flow Rate = 0.13 L/s/ha*
Front St SPS - Growth (1124 units; 70.42 ha)	*1124*	*2585*	*70.42*	*0.00*	*0.00*	*2585*	*70.42*	*0.00*	*0.00*	*70.42*						*3. No additional future Commercial/Industrial area as per the City*
Front St. SPS Design Flow Total Existing + Future Residential	*1382*					*3178*	*90.81*	*5.53*	*0.09*	*96.43*	*3.42*	*50.92*	*0.00* [1,3]	*23.10*	**74.02**	**Front St. SPS Design Flow** *Combined Existing Area and Future Development Residential Units as per the City;* *Peaking Factor calculated on total combined population*
Anne St & Riverside Dr - Existing Residential & ICI	*964*	*2217*	*117.93*	*24.49*	*7.96*	*2217*	*117.93*	*24.49*	*7.96*	*150.38*	*3.55*	*54.30*	*0.00* [4]	*82.71*	*137.01*	*4. Combined Residential and ICI generation rate 596 L/c/d (BSF)* *5. Existing 1:25 Year Extraneous Flow Rate = 0.55 L/s/ha.* *6. The area associated with the Kawartha Lakes Dairy is included in the existing ICI Area (24.49 ha) for the Extraneous Flow calculation, and the existing peak flow of the Dairy is added separately*
Anne St & Riverside Dr - Residential Growth (630 units Res; 46.58ha)	*630*	*1449*	*46.58*	*0.00*	*0.00*	*1449*	*46.58*	*0.00* [2]	*0.00* [2]	*46.58*						*The area for the Commercial Growth associated with the Kawartha Dairy (2.19 ha) is included in the existing Connected Area totals, and indicated as 0.0 ha of new growth.* *No new ICI area is assumed.* *Net New Growth Area = 48.77ha - 2.19ha = 46.58 ha* *The Existing flow and Future flow for the Dairy are added separately.*
Anne St. & Riverside Dr Total Existing + Future Residential (Excluding Front St. SPS Flow)	*1594*					*3666*	*164.51*	*24.49*	*7.96*	*196.96*						
Anne St. & Riverside Dr Total Existing + Future Residential, + Front St. SPS Flow	*2976*	*6845*	*255.32*	*0*	*0.00*	*6845*	*255.32*	*30.02*	*8.05*	*293.39*	*3.12*	*117.55*	*0.00*	*130.03*	**247.58**	*Combined Existing Area and Future Development Residential Units as per the City;* *Peaking Factor calculated on total combined population*
Kawartha Lakes Dairy - Existing Commercial Flow													*2.63*	*Included* [6]		*The Site Plan BOB-C-KAW is for an expansion of the existing Kawartha Lakes Dairy. No additional Commercial Development Area is added.* *The Total Site Plan area is included in Existing Commercial area.*
Kawartha Lakes Dairy - Expansion Additional Future Commercial Flows													*32.79*	*Included* [6]		*Total future flows for Site Plan BOB-C-KAW = 35.42 L/s as per submitted FSR which excludes any Extraneous Flows.* *Assumed existing flow of 2.63 L/s and 32.79 L/s future as per City*

Bobcaygeon WTP - Existing Flows													*20.00*	*Included* [6]		*Bobcaygeon WTP effleunt flow as per City.*
Bobcaygeon WTP - Expansion Additional Future Flows													*10.00*	*Included* [6]		*Additional Future Bobcaygeon WTP effleunt flow as Per City*
Anne St SPS Design Flow Total (Existing + Growth) Including Front St & Riverside Dr catchments											**3.12**				**313.00**	**Anne St. SPS Ultimate Design Flow** *Combined Existing Area and Future Development Residential Units as per the City;* *Peaking Factor calculated on total combined population;* *Kawartha Dairy and Bobcaygeon WTP peak flows added separately*



Appendix H - Cost Estimate

Anne Street Sewage Pumping Station and Forcemain

Division 1 - General Requirements

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
1	SP 1, Div 01 91 13	Mobilization and Demobilization	LS	1	$60,000.00	$60,000.00
2	SP 2	Bonds and Insurance	LS	1	$50,000.00	$50,000.00
3	SP 3, Div 01 55 26	Maintenance of Traffic	LS	1	$50,000.00	$50,000.00
4	SP 4, Div 01 31 00	Construction Signage	LS	1	$4,000.00	$4,000.00
5	SP 5, Div 01 32 00	Pre-Construction Photos and Videos	LS	1	$5,000.00	$5,000.00
6	SP 6, Div 01 50 00	Site preparation including layout and Construction Staging Plan	LS	1	$20,000.00	$20,000.00
7	SP 7, Div 01 56 00	Supply and Place Silt Fence	M	210	$20.00	$4,200.00
					Subtotal:	**$193,200.00**

Division 2 - Existing Conditions

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
8	SP 8, Div 02 41 16	Demolition of Existing Control Building	LS	1	$500,000.00	$500,000.00
					Subtotal:	**$500,000.00**

Division 3 - Concrete

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
9	SP 9, Div 03 20 00	Reinforcing Steel	Tonne	0	$1,600.00	$0.00
10	SP 10, Div 03 30 00	Cast in Place Concrete	cum	320	$500.00	$160,000.00
11	SP 11, Div 03 64 00	Cement Grout Supply and Install (Dry Weight) (provisional)	m3	50	$500.00	$25,000.00
12	SP 12, Div 03 20 00	Provide Thrust Block	ea	25	$1,500.00	$37,500.00
					Subtotal:	**$222,500.00**

Division 5 - Metal

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
13	SP 13, Div 05 50 00	Metal Fabrications including but not necessarily limited to customized fittings, vents, grating for pumps, Opening for Pumps	Tonne	40	$6,600.00	$264,000.00
14	SP 14, Div 05 51 00	Manhole Lids, frames, Including but not necessarily limited to Aluminum Access Hatches including safety grate, Aluminum Rungs, Railing & Safety Bars	LS	1	$40,000.00	$40,000.00

15	SP 15, Div 05 51 00	Ladders, Vents, Supports & Other Miscellaneous Metals	LS	1	$50,000.00	$50,000.00
16	SP 16, Div 05 12 33	Fabrication, delivery & installaton for Utility bridge of 15m span	LS	1	$100,000.00	$100,000.00
					Subtotal:	**$454,000.00**

Division 20 - Mechanical

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
17	SP 17, Div 20	Mechanical General Work (provisional)	LS	1	$100,000.00	$100,000.00
					Subtotal:	**$100,000.00**

Division 22 - Plumbing

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
18	SP 18, Div 22 05 23	Supply and Install Sluice Gates (600 x 600 mm)	ea	6	$50,000.00	$300,000.00
19	SP 19. Div 22 05 23	Supply and Install Knife Gate Valve	ea	2	$2,000.00	$4,000.00
					Subtotal:	**$304,000.00**

Division 25 - Integrated Automation

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
20	SP 20, Div 25 90 00	Equipment Control Panels	LS	1	$70,000.00	$70,000.00
					Subtotal:	**$70,000.00**

Division 26 - Electrical

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
21	SP 21, Div 26 32 13	Generator	Ea	1	$160,000.00	$160,000.00
22	SP 22, Div 26 24 13	Supply and Install Float switch	ea	1	$5,000.00	$5,000.00
23	SP 23, Div 26 27 13	Supply and Install Flow meter	ea	1	$4,000.00	$4,000.00
					Subtotal:	**$169,000.00**

Division 31 - Earthwork

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
24	SP 24, Div 31 23 16.26	Rock Excavation	m3	2450	$260.00	$637,000.00
25	SP 25, Div 31 23 33.01	Backfilling	m3	1460	$20.00	$29,200.00

26	SP 25, Div 31 23 33.01	Excavation (**provisional**)	m3	20	$40.00	$800.00
27	SP 26, Div 31 25 00	Erosion and Sedimentation Control	LS	1	$10,000.00	$10,000.00
28	SP 27, Div 31 23 19	Dewatering	LS	1	$300,000.00	$300,000.00
29	SP 28, Div 31 10 00	Clearing and Grubbing	m2	1500	$20.00	$30,000.00
					Subtotal:	**$1,007,000.00**

Division 32 - Exterior Improvements

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
30	SP 29, Div 32 11 23	Supply and Install 300 mm Granular 'B' Material for Driveway Construction	Tonne	220	$40.00	$8,800.00
31	SP 30, Div 32 11 23	Supply and Install 150 mm Granular 'A' Material for Driveway Construction	Tonne	110	$40.00	$4,400.00
32	SP 30, Div 32 12 16	Supply and Install 50 mm HL8 Asphalt for Driveway	Tonne	40	$200.00	$8,000.00
33	SP 32, Div 32 12 16	Supply and Install 40 mm HL4 Asphalt for Driveway	Tonne	30	$190.00	$5,700.00
34	SP 29, Div 32 11 23	Supply and Install 300 mm Granular 'B' Material for Road Restoration	Tonne	3090	$40.00	$123,600.00
35	SP 30, Div 32 11 23	Supply and Install 150 mm Granular 'A' Material for Road Restoration	Tonne	1550	$40.00	$62,000.00
36	SP 30, Div 32 12 16	Supply and Install 50 mm HL8 Asphalt for Road Restoration	Tonne	4790	$200.00	$958,000.00
37	SP 32, Div 32 12 16	Supply and Install 40 mm HL4 Asphalt for Road Restoration	Tonne	3830	$190.00	$727,700.00
					Subtotal:	**$1,898,200.00**

Division 33 - Utilities

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
38	SP 33, Div 33 31 11	Vent Pipe - 150 mm	ea	1	$400.00	$400.00
39	SP 34, Div 33 05 16 16	Provide Manhole - 1800 mm	ea	2	$20,000.00	$40,000.00
40	SP 34, Div 33 05 16 16	Provide Doghouse Manhole - 1800 mm	ea	1	$16,000.00	$16,000.00
41	SP 35, Div 33 31 11	Supply and Install Concrete Inlet Pipe - 750 mm	m	50	$1,500.00	$75,000.00
42	SP 36, Div 33 31 23	Supply and Install DI Outflow Pipe c/w fittings - 300 mm	m	20	$1,000.00	$20,000.00
43	SP 36, Div 33 31 23	Supply and Install Bypass Pipe c/w fittings - 200 mm	m	10	$1,000.00	$10,000.00
44	SP 37, Div 33 31 11	Supply and Install PVC Drain Pipe - 100 mm Dia	m	20	$30.00	$600.00
45	SP 38, Div 33 31 23	Forcemain Pressure Testing	LS	1	$10,000.00	$10,000.00
46	SP 39, Div 33 32 00	Supply and Install N 3202 3 Phase 6p 60hz	ea	3	$370,000.00	$1,110,000.00

47	SP 40 Div 33 31 23	Supply and Install Air Release Chamber	ea	7	$8,000.00	$56,000.00
48	SP 41, Div 33 31 23	Supply and Install PVC Forecmain - 300 mm Dia	m	190	$800.00	$152,000.00
49	SP 41, Div 33 31 23	Supply and Install PVC Forecmain - 450 mm Dia	m	910	$1,000.00	$910,000.00
50	SP 42	Supply and Installation of New External Heat Trace and Insulation System	m	20	$1,000.00	$20,000.00
51	SP 43, Div 33 31 23	Provide Pipe Insulation	m	1080	$20.00	$21,600.00
					Subtotal:	**$2,441,600.00**

Division 40 - Process Interconnections

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
52	SP 44, Div 40 05 63	Ultrasonic Sensor	ea	2	$1,500.00	$3,000.00
					Subtotal:	**$3,000.00**

Division

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
53	SP 45	Control Building	m2	100	$3,000.00	$300,000.00
					Subtotal:	**$300,000.00**

Bid Form	Amount
Division 1 - General Requirements	$193,200.00
Division 2 - Existing Conditions	$500,000.00
Division 3 - Concrete	$222,500.00
Division 5 - Metal	$454,000.00
Division 20 - Mechanical	$100,000.00
Division 22 - Plumbing	$304,000.00
Division 25 - Integrated Automation	$70,000.00
Division 26 - Electrical	$169,000.00
Division 31 - Earthwork	$1,007,000.00
Division 32 - Exterior Improvements	$1,898,200.00
Division 33 - Utilities	$2,441,600.00
Division 40 - Process Interconnections	$3,000.00
Control Building	$300,000.00
Sub Total	$7,662,500.00
Contingency - 20%	$1,532,500.00
HST (1.76%)	$134,900.00
Total Contract Amount:	**$9,329,900.00**

Front Street Sewage Pumpung Station

Division 1 - General Requirements

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
1	SP 1, Div 01 91 13	Mobilization and Demobilization	LS	1	$60,000.00	$60,000.00
2	SP 2	Bonds and Insurance	LS	1	$50,000.00	$50,000.00
3	SP 3, Div 01 55 26	Maintenance of Traffic	LS	1	$50,000.00	$50,000.00
4	SP 4, Div 01 31 00	Construction Signage	LS	1	$4,000.00	$4,000.00
5	SP 5, Div 01 32 00	Pre-Construction Photos and Videos	LS	1	$5,000.00	$5,000.00
6	SP 6, Div 01 50 00	Site preparation including layout and Construction Staging Plan	LS	1	$20,000.00	$20,000.00
					Subtotal:	**$189,000.00**

Division 2 - Exisiting Conditions

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
7	SP7 Div 02 21 16	Structural demolition of Existing Pumps and Components	L.S	1.00	$50,000.00	$50,000.00
8	SP7 Div 02 21 16	Structural demolition and Replacement of Equipment Mounting Pad	L.S	1.00	$50,000.00	$50,000.00
					Subtotal:	**$100,000.00**

Division 3 - Concrete

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
9	SP 8, Div 03 20 00	Reinforcing Steel	Tonne	10.00	$1,600.00	$16,000.00
10	SP 9, Div 03 30 00	Cast in Place Concrete	m3	30.00	$500.00	$15,000.00
11	SP 10, Div 03 64 00	Cement Grout Supply and Install (Dry Weight) (provisional)	m3	50.00	$500.00	$25,000.00
12	SP 11, Div 03 20 00	Provide Thrust block	ea	3.0	$1,500.00	$4,500.00
					Subtotal:	**$60,500.00**

Division 5 - Metal

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
13	SP 11, Div 05 50 00	Metal Fabrications including but not necessarily limited to customized fittings, vents, grating for pumps	Tonne	10.00	$6,600.00	$66,000.00

14	SP 12, Div 05 51 00	Manhole Lids, frames, Including but not necessarily limited to Aluminum Access Hatches including safety grate, Aluminum Rungs, Railing & Safety Bars	LS	1.00	$40,000.00	$40,000.00
15	SP 13, Div 05 51 00	Ladders, Vents, Supports & Other Miscellaneous Metals	LS	1.00	$50,000.00	$50,000.00
16	SP 14 Div 05 73 00	Supply and Install Grating with removable handrail	LS	1.00	$100,000.00	$100,000.00
					Subtotal:	**$256,000.00**

Division 20 - Mechanical

ITEM NO.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
17	SP 15, Div 20	Mechanical General Work (provisional)	LS	1.00	$100,000.00	$100,000.00
					Subtotal:	**$100,000.00**

Division 22 - Plumbing

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
18	SP 16 Div 22 11 19	Supply and Install Gate Valve - 150 mm	ea	5.00	$2,500.00	$12,500.00
19	SP 16 Div 22 11 19	Supply and Install Check Valve - 150 mm	ea	2.00	$2,500.00	$5,000.00
					Subtotal:	**$17,500.00**

Division 31 - Earthwork

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
20	SP 18, Div 31 23 16.26	Rock Excavation	m3	280.00	$260.00	$72,800.00
21	SP 19, Div 31 23 16.26	Excavation (**provisional**)	m3	500.00	$40.00	$20,000.00
22	SP 19, Div 31 23 16.26	Backfilling	m3	160.00	$20.00	$3,200.00
23	SP 20, Div 31 25 00	Erosion and Sedimentation Control	LS	1.00	$10,000.00	$10,000.00
24	SP 21, Div 31 23 19	Dewatering	LS	1.00	$300,000.00	$300,000.00
					Subtotal:	**$406,000.00**

Division 32 - Exterior Improvements

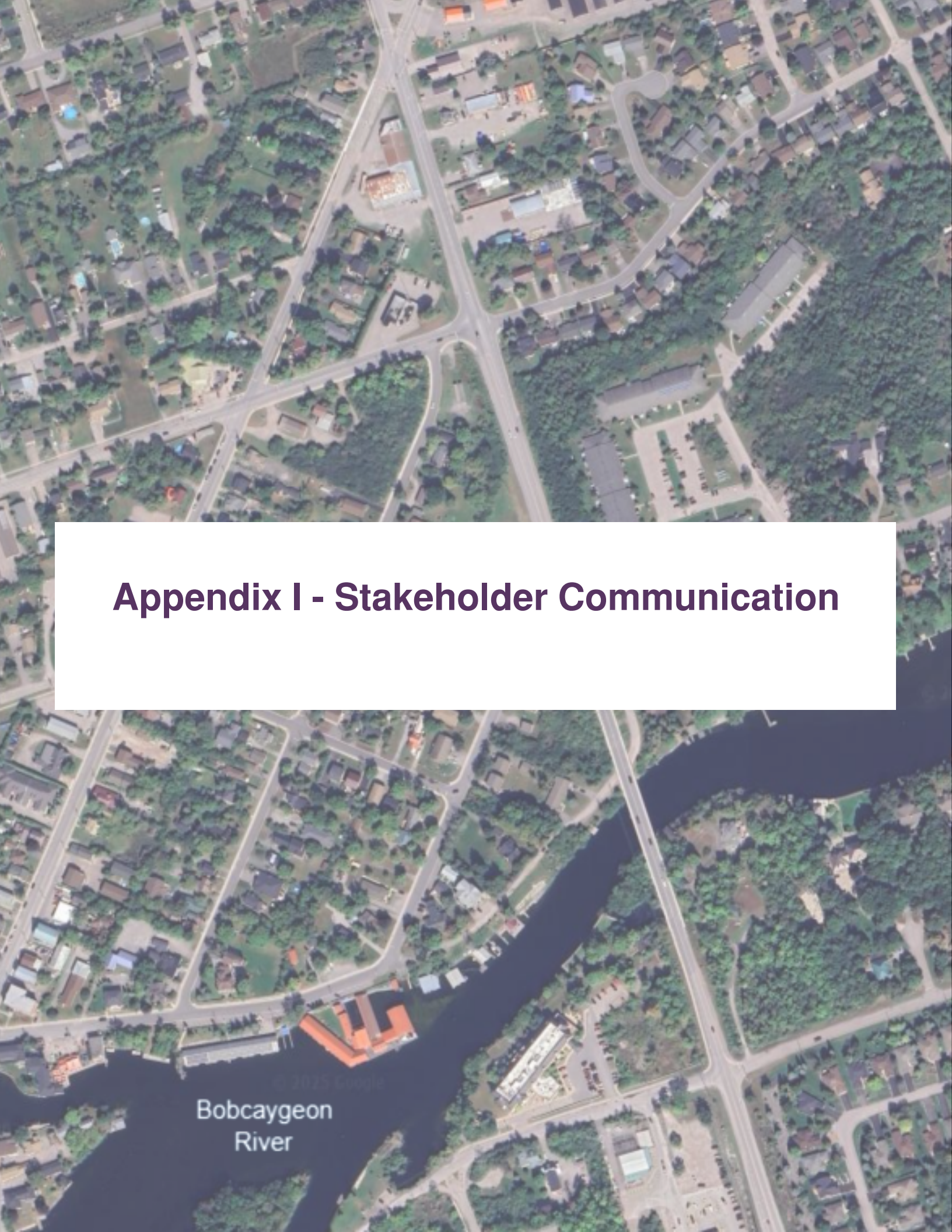
ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
25	SP 21, Div 32 11 23	Supply and Install 300 mm Granular 'B' Material for Road Restoration	Tonne	710	$40.00	$28,400.00

26	SP 22, Div 32 11 23	Supply and Install 150 mm Granular 'A' Material for Road Restoration	Tonne	360	$40.00	$14,400.00
27	SP 23, Div 32 12 16	Supply and Install 50 mm HL8 Asphalt for Road Restoration	Tonne	1090	$200.00	$218,000.00
28	SP 24, Div 32 12 16	Supply and Install 40 mm HL4 Asphalt for Road Restoration	Tonne	880	$190.00	$167,200.00
					Subtotal:	**$428,000.00**

Division 33 - Utilities

ITEM No.	SPEC No.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
29	SP 25, Div 33 31 23	Supply and Install Tee - 150 x 200 mm	ea	2.0	$300.00	$600.00
30	SP 25, Div 33 31 23	Supply and Install Riser Pipe c/w fittings - 150 mm	m	15.0	$800.00	$12,000.00
31	SP 26, Div 33 31 23	Forcemain Pressure Testing	LS	1.0	$10,000.00	$10,000.00
32	SP 27 Div 33 32 00	Supply and Install FLYGT FP 3171 MT	ea	2.0	$84,000.00	$168,000.00
33	SP 28, Div 33 31 23	Remove Existing Forcemain	m	250.0	$200.00	$50,000.00
34	SP 29, Div 33 31 23	Supply and Install PVC Forecmain - 250 mm Dia	m	250.0	$900.00	$225,000.00
35	SP 30, Div 33 31 23	Provide Insulation to Forcemain	m	250.0	$20.00	$5,000.00
					Subtotal:	**$470,600.00**

Bid Form	Amount
Division 1 - General Requirements	$189,000.00
Division 2 - Exisiting Conditions	$100,000.00
Division 3 - Concrete	$60,500.00
Division 5 - Metal	$256,000.00
Division 20 - Mechanical	$100,000.00
Division 22 - Plumbing	$17,500.00
Division 31 - Earthwork	$406,000.00
Division 32 - Exterior Improvements	$428,000.00
Division 33 - Utilities	$470,600.00
Sub Total	$2,027,600.00
Contingency - 20%	$405,600.00
HST (1.76%)	$35,700.00
Total Contract Amount:	$2,468,900.00



Appendix I - Stakeholder Communication

Outlook

RE: Request for Consultation - Anne and Front St Sewage Pumping Station

From Julie Kapyrka <jkapyrka@alderville.ca>
Date Thu 30-01-25 19:45
To Marten Leclerc <mleclerc@kawarthalakes.ca>; haranath <haranath@conceptdash.ca>
Cc Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Rob Flindall <rob.flindall@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>

Great! Thank you.

Dr. Julie Kapyrka
Consultation Manager

Alderville First Nation

Administration Office
11696 Second Line Rd.
Roseneath, ON K0K 2X0
Office: 905-352-2662
jkapyrka@alderville.ca

From: Marten Leclerc <mleclerc@kawarthalakes.ca>
Sent: January 30, 2025 9:12 AM
To: Julie Kapyrka <jkapyrka@alderville.ca>; haranath <haranath@conceptdash.ca>
Cc: Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Rob Flindall <rob.flindall@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>
Subject: RE: Request for Consultation - Anne and Front St Sewage Pumping Station

Good morning Julie,

I have submitted the filing fee to our AP department. It should be sent to you within the next couple of weeks.

Marten Leclerc
Senior Engineering Tech
Engineering & Corporate Assets, City of Kawartha Lakes
(705) 324 9411 ext. 1131
http://www.kawarthalakes.ca/

From: Julie Kapyrka <jkapyrka@alderville.ca>
Sent: Thursday, January 30, 2025 9:10 AM
To: haranath <haranath@conceptdash.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Rob Flindall <rob.flindall@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>
Subject: RE: Request for Consultation - Anne and Front St Sewage Pumping Station

Aaniin Haranath,

Thank you for this information. Can you confirm that the filing fee for this project has bee submitted?

Miigwech.
All the best,

Dr. Julie Kapyrka
Consultation Manager

Alderville First Nation

Administration Office
11696 Second Line Rd.
Roseneath, ON K0K 2X0
Office: 905-352-2662
jkapyrka@alderville.ca

From: haranath <haranath@conceptdash.ca>
Sent: January 29, 2025 12:21 PM
To: Julie Kapyrka <jkapyrka@alderville.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Rob Flindall <rob.flindall@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>
Subject: Request for Consultation - Anne and Front St Sewage Pumping Station

Good Afternoon Julie,
How are you doing?

Thank you for your correspondence on the consultation process with Alderville First Nation for Anne and Front Street SPS upgrades project.

Please find attached herewith,

- Request to consult letter from City of Kawartha Lakes and ConceptDash Inc.
- Project information as per Alderville First Nation's Consultation Protocol, for your further review and reference.

Do let us know if you would require any additional information regarding the project, and feel free to reach out to us if you have any questions or concerns.

Looking forward to a productive and collaborative consultation process.

Thanks and Best Regards,
Haranath Reddy
haranath@conceptdash.ca
This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this e-mail. If you have received this e-mail in error, please notify the sender immediately by telephone, fax, or e-mail and shred this confidential e-mail, including any attachments, without making a copy. Access to this e-mail by anyone else is unauthorized.

Outlook

RE: Kawartha Conservation Pre-Consultation for COKL Anne St & Front St SPS upgrades Meeting 6th May

From Harmanpreet Kaur <hkaur@kawarthaconservation.com>
Date Sat 31-05-25 00:47
To Prashant Kumar <prashant@conceptdash.ca>
Cc Permits <permits@kawarthaconservation.com>; Rob Flindall <rob.flindall@conceptdash.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Marten Leclerc <mleclerc@kawarthalakes.ca>; Prakruti Tandel <prakruti@conceptdash.ca>; Lyndsay Greene <lgreene@kawarthaconservation.com>

Good Afternoon Prashant,

Thank you for providing the meeting minutes. We have reviewed them and confirm that no changes are required.

Thanks,
Harman.

Harmanpreet Kaur (She/Her/Hers),
Resources Planner
KAWARTHA CONSERVATION
277 Kenrei Road
Lindsay, ON K9V 4R1

Tel: 705.328.2271 ext. 232
Fax: 705.328.2286

KawarthaConservation.com

The Kawartha Conservation Administration Centre is open Monday to Friday, 9:30 a.m. to 3:30 p.m. Visitors are encouraged to schedule an appointment in advance to ensure an appropriate member of our team is available to assist you. For more information, visit us online at www. www.kawarthaconservation.com by calling 705-328-2271

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printing, distributing or disclosing same. Opinions, conclusions or other information expressed or contained in this email are not given or endorsed by the sender unless otherwise affirmed independently by the sender.

From: Prashant Kumar <prashant@conceptdash.ca>
Sent: May 30, 2025 9:02 AM
To: Harmanpreet Kaur <hkaur@kawarthaconservation.com>
Cc: Permits <permits@kawarthaconservation.com>; Rob Flindall <rob.flindall@conceptdash.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Marten Leclerc <mleclerc@kawarthalakes.ca>; Prakruti Tandel <prakruti@conceptdash.ca>
Subject: Kawartha Conservation Pre-Consultation for COKL Anne St & Front St SPS upgrades Meeting 6th May

Good Morning Harmanpreet,

Please find the attached meeting minutes for project review meeting held on 6th May 2025, for your review and reference.
Do advise if any changes are to be made. We will consider the minutes as recorded to reflect the essence of the meeting if no response is received in 5 business days.

Please let me know if you have any questions/concerns.
Have a great Day!

Best regards,
Prashant Kumar
prashant@conceptdash.ca

Outlook

FW: Notice of Commencement - Class EA for Anne Street and Front Street Sewage Pumping Station upgrades - City of Kawartha Lakes

From Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Date Tue 22-10-24 00:22
To haranath <haranath@conceptdash.ca>
Cc Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Jeff Graham <jeffgraham@gssengineering.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>; Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>; Orpana, Jon (MECP) <Jon.Orpana@ontario.ca>; Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>

1 attachment (300 KB)
Notice of EA Commencement_COKL Anne & Front SPS Upgrades.pdf;

Hi Haranath,

Thanks for sending the Notice of Commencement for the above referenced project to the Ministry of Citizenship and Multiculturalism (MCM).

Could you please advise what is the Project Schedule under the Municipal Class EA?

Thanks in advance,
Karla

Karla Barboza, MCIP, RPP, CAHP (she/her)
Team Lead, Heritage | Heritage Operations Branch | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-660-1027 | karla.barboza@ontario.ca

Ontario

Taking pride in strengthening Ontario, its places and its people

---

From: haranath <haranath@conceptdash.ca>
Sent: Monday, October 21, 2024 2:02 PM
To: Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>
Cc: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Vivek Sharma <vsharma@conceptdash.ca>; Mark <Mark@conceptdash.ca>; Jeff Graham <jeffgraham@gssengineering.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>
Subject: Notice of Commencement - Class EA for Anne Street and Front Street Sewage Pumping Station upgrades - City of Kawartha Lakes

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Afternoon Joseph,

I hope this email finds you well.

This is Haranath from Conceptdash Inc.
ConceptDash has been selected to undertake the Municipal Class Environmental Assessment (EA) and detailed design for the upgrades of Anne Street and Front Street Sewage Pumping Stations (SPS) in the City of Kawartha Lakes.

We are currently initiating the Class EA process for the project, and I have attached the **Notice of EA Commencement** for your reference and review.
Please feel free to reach out if you would require any additional information as we move forward with the project,

We would appreciate any additional observations you have.

Thank you for your attention, and I look forward to your response. Have a great week ahead!

Thanks and Best Regards,
Haranath Reddy
Project Coordinator
ConceptDash Inc.
haranath@conceptdash.ca

Outlook

MECP Pre-Consultation for COKL Anne St & Front St SPS upgrades - Meeting 26th May

From Prashant Kumar <prashant@conceptdash.ca>
Date Fri 30-05-25 19:46
To Brad.Jackson@ontario.ca <brad.jackson@ontario.ca>
Cc Rob Flindall <rob.flindall@conceptdash.ca>; Aziz.Ahmed@ontario.ca <aziz.ahmed@ontario.ca>; Kayla.Trofimczuk@ontario.ca <kayla.trofimczuk@ontario.ca>; Rob Flindall <rob.flindall@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>

1 attachment (277 KB)
Meeting minutes_COKL - Anne & Front Street Pre-Consultation meeting with MECP _26 May 2025.pdf;

Good Morning Brad,

Please find the attached meeting minutes for project review meeting held on 26th May 2025, for your review and reference.
Do advise if any changes are to be made. We will consider the minutes as recorded to reflect the essence of the meeting if no response is received in 5 business days.

Please let me know if you have any questions/concerns.
Have a great Day!

Best regards,
Prashant Kumar
prashant@conceptdash.ca

Outlook

RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

From Rob Flindall <rob.flindall@conceptdash.ca>

Date Fri 02-05-25 00:08

To Susan Millar <susan.millar@pc.gc.ca>; Richa Dwivedi <richa@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>; Vivek Sharma <vsharma@conceptdash.ca>

Cc Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Beth McEachern <beth.mceachern@pc.gc.ca>; Justin Gerow <justin.gerow@pc.gc.ca>; Valerie Minelga <valerie.minelga@pc.gc.ca>; Randal Power <Randal.Power@pc.gc.ca>; Jeff Graham <jeffgraham@gssengineering.ca>

Hi Susan,

Monday at 11AM will work for our Team.

Please send the Teams Meeting invitation to me and I will forward it to the appropriate staff on my end.

Rob Flindall, P.Eng.
Director - Municipal Engineering
E: rob.flindall@conceptdash.ca
C: +1-647-553-9536

From: Susan Millar <susan.millar@pc.gc.ca>
Sent: May 1, 2025 11:27 AM
To: Rob Flindall <rob.flindall@conceptdash.ca>; Richa Dwivedi <richa@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>; Vivek Sharma <vsharma@conceptdash.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Beth McEachern <beth.mceachern@pc.gc.ca>; Justin Gerow <justin.gerow@pc.gc.ca>; Valerie Minelga <valerie.minelga@pc.gc.ca>; Randal Power <Randal.Power@pc.gc.ca>; Jeff Graham <jeffgraham@gssengineering.ca>
Subject: RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

Hi folks,

We are available to meet on Monday at either 11am or 2pm via Teams.

Sincerely,

Susan Millar, BComm, MSc
Planner / Planificatrice
Ontario Waterways/Voies navigables de l'Ontario

Parks Canada / Parcs Canada
Rideau Canal Office / Canal-Rideau
34 Beckwith St. S. / 34, rue Beckwith Sud
Smiths Falls, ON K7A 2A8

Email / Couriel électronique : susan.millar@pc.gc.ca
Telephone / Téléphone : 343-553-9290
www.parkscanada.gc.ca | www.parcscanada.gc.ca

From: Rob Flindall <rob.flindall@conceptdash.ca>
Sent: Wednesday, April 30, 2025 3:09 PM
To: Susan Millar <susan.millar@pc.gc.ca>; Richa Dwivedi <richa@conceptdash.ca>; Prashant Kumar <prashant@conceptdash.ca>; Prakruti Tandel <prakruti@conceptdash.ca>; Vivek Sharma <vsharma@conceptdash.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Beth McEachern <beth.mceachern@pc.gc.ca>; Justin Gerow <justin.gerow@pc.gc.ca>; Valerie Minelga <valerie.minelga@pc.gc.ca>; Randal Power <Randal.Power@pc.gc.ca>; Jeff Graham <jeffgraham@gssengineering.ca>
Subject: RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE / EXTERNAL EMAIL – USE CAUTION

Hi Susan,
Thank you for getting back to us.

Our team is available on Friday this week, any day next week for the discussion on the Bobcaygeon project.
Will the meeting be in person or remote?
We can accommodate both, but some our team at ConceptDash and GSS will have to attend remotely on Teams.
Please propose a time that works for your team.

Richa Dwivedi at ConceptDash will be your main contact for the project, but please include me on the correspondence.

Richa,
Please send the Project Information package to Susan at Parks Canada, along with all of her colleagues.

Rob Flindall, P.Eng.
Director - Municipal Engineering
E: rob.flindall@conceptdash.ca
C: +1-647-553-9536

From: Susan Millar <susan.millar@pc.gc.ca>
Sent: April 28, 2025 2:02 PM
To: Rob Flindall <rob.flindall@conceptdash.ca>; Richa Dwivedi <richa@conceptdash.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>; Beth McEachern <beth.mceachern@pc.gc.ca>; Justin Gerow <justin.gerow@pc.gc.ca>; Valerie Minelga <valerie.minelga@pc.gc.ca>; Randal Power <Randal.Power@pc.gc.ca>
Subject: RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

Thanks Rob et al,

While we review the information sent along, lets work to schedule a meeting to understand the scope of work and what permitting may be required. I have included my colleagues in Environmental Services

and Realty in this email. Please include all of us in a meeting invitation.

Sincerely,

Susan Millar, BComm, MSc
Planner / Planificatrice
Ontario Waterways/Voies navigables de l'Ontario

Parks Canada / Parcs Canada
Rideau Canal Office / Canal-Rideau
34 Beckwith St. S. / 34, rue Beckwith Sud
Smiths Falls, ON K7A 2A8

Email / Couriel électronique : susan.millar@pc.gc.ca
Telephone / Téléphone : 343-553-9290
www.parkscanada.gc.ca | www.parcscanada.gc.ca

From: Rob Flindall <rob.flindall@conceptdash.ca>
Sent: Thursday, April 24, 2025 11:11 AM
To: Susan Millar <susan.millar@pc.gc.ca>; Richa Dwivedi <richa@conceptdash.ca>
Cc: Marten Leclerc <mleclerc@kawarthalakes.ca>; Nafiur Rahman <nrahman@kawarthalakes.ca>
Subject: RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE / EXTERNAL EMAIL – USE CAUTION

Thank you Susan,

In addition to me, we have Richa Dwivedi on our Team managing the communication process and the detailed design.

Marten LeClerc is the PM at the City of Kawartha Lakes.

Rob Flindall, P.Eng.
Director - Municipal Engineering
E: rob.flindall@conceptdash.ca
C: +1-647-553-9536

From: Susan Millar <susan.millar@pc.gc.ca>
Sent: April 24, 2025 10:30 AM
To: Rob Flindall <rob.flindall@conceptdash.ca>
Subject: RE: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

Morning Rob,

Your project notification has been forwarded to me as Planner for the TSW and Rideau Canal. Please feel free to replace the general TSW email account with my email as the point of contact for this file. Today we received the PIC notification and supporting docs. I will consult with my Environmental Services and Realty teams to review the material, then reach back out to arrange a meeting to discuss.

Sincerely,

Susan Millar, BComm, MSc
Planner / Planificatrice

Ontario Waterways/Voies navigables de l'Ontario

Parks Canada / Parcs Canada
Rideau Canal Office / Canal-Rideau
34 Beckwith St. S. / 34, rue Beckwith Sud
Smiths Falls, ON K7A 2A8

Email / Couriel électronique : susan.millar@pc.gc.ca
Telephone / Téléphone : 343-553-9290
www.parkscanada.gc.ca | www.parcscanada.gc.ca

From: Rob Flindall <rob.flindall@conceptdash.ca>
Sent: April 22, 2025 3:34 PM
To: Trentsevern (PC) <trentsevern@pc.gc.ca>
Cc: Richa Dwivedi <richa@conceptdash.ca>
Subject: City of Kawartha Lakes - Bobcaygeon Sewage Pumping Station Environmental Assessment

COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE / EXTERNAL EMAIL – USE CAUTION

Good afternoon,

ConceptDash Inc. in in the process of undertaking a Schedule B Municipal Class EA for the City of Kawartha Lakes for Sewage Pumping Station (SPS) replacement/upgrades in **Bobcaygeon**.
The project is evaluating the existing Front St. SPS and the Anne St. SPS for capacity upgrades.

We have sent the Notice of Commencement for the Schedule “B” EA to the address above along with the Notice of the Public Information Centre (PIC #1).
Can you confirm that we have sent the information to the correct email address?

Also, we would like to discuss your requirements for Shoreline Works and permits.
The project may require emergency overflow structures such outfalls or on-site storage facilities for the sewage in the event of emergencies. We are currently in the pre-consultation phase with the Ontario Ministry of Environment Parks and Conservation (MECP) to better understand their requirements in this regard.

Please advise who we should contact at the Trent- Severn Waterway to initiate this this detailed discussion before we move into the Preliminary Design Phase.

Thank you.

Rob Flindall, P.Eng.
Director - Municipal Engineering

Concept Dash

14 York Street,
Toronto, Ontario - M5J 0B1
ConceptDash
E: rob.flindall@conceptdash.ca
C: +1-647-553-9536

Appendix J - Notice of Completion

Concept Dash

Engineers,
Architects and
Planner

14 York St. Toronto, ON, M5J 0B1