Peel Region

Bolton Water and Wastewater Capacity Improvements Schedule 'C' Class Environmental Assessment

Environmental Study Report

Prepared by GEI Consultants Canada Ltd. (Formerly GM BluePlan Engineering)

GEI Project No. 2402167

Public Review – August 2026

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List of Abbreviations and Acronyms

Term	Definition
AA	Archaeological Assessment
AIA	Agricultural Impact Assessment
ANSI	Areas of Natural and Scientific Interest
ASP	Archaeological Screening Process
BHR	Built Heritage Resource
BPS	Booster Pumping Station
BRES	Bolton Residential Expansion Study
CCME	Canadian Council of Ministers of the Environment
CCMP	Climate Change Master Plan
CHL	Cultural Heritage Landscape
CHR	Cultural Heritage Report
CHVI	Cultural Heritage Value or Interest
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COSSARO	Committee on the Status of Species at Risk in Ontario
CVC	Credit Valley Conservation
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAA	Environmental Assessment Act
EBA	Event Based Area
ECA	Environmental Compliance Approval
ESC	Erosion and Sediment Control
ESR	Environmental Study Report
GHG	Greenhouse Gas
HADD	Harmful Alteration, Disruption or Destruction
HDD	Horizontal Directional Drilling
HDF	Headwater Drainage Feature
HVA	Highly Vulnerable Aquifer
I&I	Inflow and Infiltration
IPZ	Intake Protection Zone
MBCA	Migratory Birds Convention Act
MCEA	Municipal Class Environmental Assessment
MCFN	Mississaugas of the Credit First Nation
MCM	Ministry of Citizenship and Multiculturalism
MEA	Municipal Engineers Association
MECP	Ministry of the Environment, Conservation and Parks
MMAH	Ministry of Municipal Affairs and Housing
MNR	Ministry of Natural Resources
MTSAs	Major Transit Station Areas

Term	Definition
NEP	Niagara Escarpment Plan
OCWA	Ontario Clean Water Agency
OPCA	Ontario Provincial Conservation Agency
ORM	Oak Ridges Moraine
ORMCP	Oak Ridges Moraine Conservation Plan
OSAP	Ontario Stream Assessment Protocol
OWES	Ontario Wetland Evaluation System
PIC	Public Information Centre
PPS	Provincial Planning Statement
PRV	Pressure Reducing Valve
PSW	Provincially Significant Wetland
PTE	Permission to Enter
ROP	Regional Official Plan
ROPA	Regional Official Plan Amendment
ROW	Right-of-Way
SAR	Species at Risk
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
SCA	Species Conservation Act
SGRA	Significant Groundwater Recharge Area
SPS	Sanitary Pumping Station
SWP	Source Water Protection
TBM	Tunnel Boring Machine
TIA	Traffic Impact Assessment
TRCA	Toronto and Region Conservation Authority
WHPA	Wellhead Protection Area
WM	Watermain
WRRF	Water Resource Recovery Facility
WTP	Water Treatment Plant
WW	Wastewater

1 Introduction and Background

1.1 Introduction

Peel Region (the Region) initiated the **Bolton Water and Wastewater Capacity Improvements Schedule 'C' Class Environmental Assessment (Bolton Class EA)** in June 2023 following the Bolton Water and Wastewater Feasibility Study. The feasibility study outlined conceptual projects to support additional development proposed within both the intensification and greenfield growth areas in the community of Bolton. The Bolton Class EA was undertaken as a Schedule 'C' in accordance with the requirements of the Municipal Class EA process, prepared by the Municipal Engineers Association (MEA). This study has further developed, reviewed, evaluated and selected the preferred servicing strategy outlined in the feasibility study and has been integrated with the ongoing 2026 Water and Wastewater Master Plan for the Lake-based Systems.

The study area is located largely within the Town of Caledon and a portion of the City of Brampton. It is generally bounded by Albion-Vaughan Road to the east, Countryside Drive to the south, Centreville Creek Road to the west and Castlederg Side Road to the north (**Figure 1-1**).

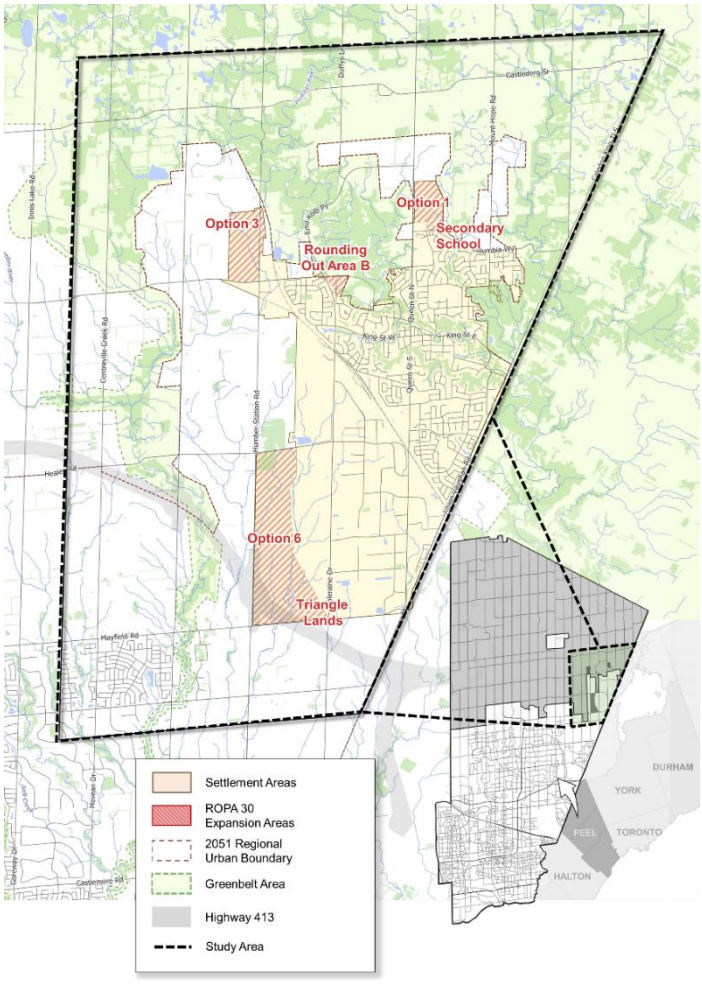


Figure 1-1: Study Area Extent

Most of the study area falls within the Town of Caledon Ward 5 and Ward 6, with portions within Ward 4 (north) and City of Brampton Ward 10 (south). The study area is located within the Humber River watershed.

As the Region continues to grow, the level of service expectations for the existing and future water and wastewater infrastructure systems will continue to be a top priority. New water and wastewater linear distribution and collection pipes and pumping facilities are needed to service future planned population growth as well as employment targets in the community of Bolton.

The EA study fulfills the Class EA requirements for a specific set of projects but also follows a master plan approach that considers and supports integration with the long-term servicing strategy for the broader service area and long-term planning horizon. Through this Class EA process, the EA study developed, evaluated, and identified the optimal water and wastewater servicing solutions to meet existing needs and growth.

1.2 Focus Areas

This Class EA used a structured process to evaluate alternative water and wastewater servicing strategies. Building on the findings of the feasibility study, specific infrastructure locations were identified and organized into focus areas to distinguish long-term strategies, projects requiring no further study, and those advancing through this Class EA (**Figure 1-2**). The Bolton study area has two key focus areas:

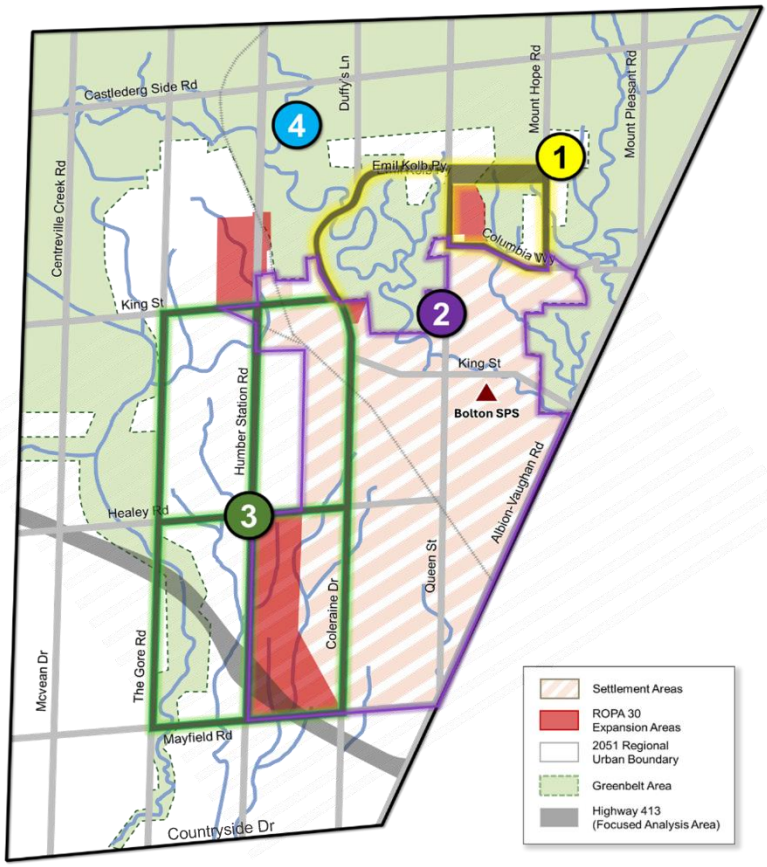


Figure 1-2: Focus Area Extent

1. **Focus Area 1 –** New sanitary pumping station (SPS), force mains, sanitary sewers and watermains to service new growth. Extends from Emil Kolb Parkway to King Street, portions of Highway 50, Mount Hope Road, and Columbia Way.

2. **Focus Area 2 –** Optimization of the existing serviced areas of the community of Bolton, including inflow and infiltration reduction, decommissioning and replacing sanitary force mains, water pressure zone optimization.

3. **Area 3 –** Projects previously fulfilled and under design include the New Zone 7 water booster pumping station and watermains and new sanitary sewers. Area 3 highlights the section of King Street, The Gore Road, Coleraine Drive, and Mayfield Road.

4. **Area 4 –** Future water storage facilities and transmission requiring study fulfillment outside of this Class EA, north of Emil Kolb Parkway.

The Bolton Class EA study evaluated alternative water and wastewater servicing strategies within Focus Areas 1 and 2, as shown in **Figure 1-2**. The recommended strategy is integrated with previously approved projects that are currently under design or construction, as well as future projects that fall outside the scope of this Class EA but form part of the overall Bolton servicing strategy (Areas 3 and 4).

1.3 Purpose and Objectives

The primary purpose of this project was to complete a Class EA study for the area that:

- Satisfies the Schedule 'C' Municipal Class Environmental Assessment Process.
- Provides meaningful engagement with Indigenous Nations, Métis organizations and rights holders in accordance with community-specific protocols, where applicable.
- Provides effective communication and engagement with public agencies and stakeholders throughout the Class EA study process.
- Supports a balanced and informed decision-making process.
- Defines the water and wastewater projects needed to service the Regional Official Plan Amendment (ROPA) 30 expansion lands, further greenfield growth areas within the 2051 urban boundary and intensification within the community of Bolton that were not included in the 2020 Water and Wastewater Master Plan.
- Endeavor to minimize environmental impacts and crossings.
- Reviews previous study recommendations and provides an integrated servicing solution that supports previously planned servicing strategies and concurrent design and construction.
- Delivers comprehensive documentation of the strategies, evaluation, and recommendations.
- Provides sufficient preliminary design to demonstrate infrastructure location, cost estimate, and implementation requirements.
- Considers unique opportunities and challenges for water and wastewater servicing.
- Ensures the solution supports a long-term servicing strategy while providing continued servicing to the existing community.
- Supports a long-term holistic servicing strategy.

1.4 Background

The Region and the Town of Caledon have undertaken several planning studies related to the water and wastewater infrastructure within the Bolton service area. These studies reviewed existing conditions and identified servicing requirements to support growth and long-term system planning. The findings from these studies form the basis for the current Bolton Water and Wastewater Capacity Improvements Class Environmental Assessment, as depicted below.

Figure 1-3: Study Background and Timeline

The following studies have led to the current Bolton Water and Wastewater Capacity Improvements study (additional information on the relevant studies is provided in Section 3.4):

June 2014 – Bolton Residential Expansion Study (BRES): Town of Caledon led study that recommended water and wastewater servicing solutions to meet existing and future needs in Bolton.

June 2020 – Water and Wastewater Master Plan for the Lake-Based Systems: Peel Region led study that recommended high-level water and wastewater servicing solutions within Peel Region's lake-based systems, including Bolton, to support growth forecasts to 2041.

October 2020 – Town of Caledon submitted through BRES a Regional Official Plan Amendment application for the expanded settlement boundary of the Bolton Rural Service Centre (known as ROPA 30 Expansion Lands).

November 2020 – ROPA 30 for BRES: proposed increased growth to the Bolton settlement areas (245 ha) to accommodate short-term growth within those areas were approved.

February 2023 – Bolton Water and Wastewater Feasibility Study outlined conceptual water and wastewater projects needed to service the ROPA 30 expansion lands and intensification within the community of Bolton (Link to Report).

The Feasibility Study identified the following needs which established the foundation for servicing strategies to be developed and evaluated through this Bolton Class EA.

- New watermain to service existing Bolton study area and future growth.
- New water booster pumping station in new pressure zone 7.
- New water storage to service future growth in new pressure zone 7.
- New sanitary pumping station and associated force mains.
- New wastewater pipes to convey flow from future growth west along Emil Kolb Parkway, and to convey flow from future growth from north to south of King Street.

1.5 Report Outline

The purpose of this Environmental Study Report (ESR) is to document the planning and decision-making process for this project while demonstrating that environmental, social, technical and economic impacts have been properly considered. It identifies the problem/opportunity statement, expands on the inventory of features and analysis of the existing conditions of the area, it identifies and evaluates the alternative solutions and selects the preliminary preferred solution to address the study's problem and opportunity statement.

The ESR is organized into the following sections:

- **Section 1 – Introduction:** This section introduces the Bolton Water and Wastewater Capacity Improvements Schedule 'C' Class EA study purpose and objectives, study area and background.
- **Section 2 – Municipal Class EA Process and Consultation:** This section explains the mandated steps under the MCEA process and the principles of environmental planning, as well as the selection of Schedule 'C' for the Class EA study. It also summarizes the communication and consultation process undertaken, including engagement with Indigenous Nations, Métis organizations and rights holders and public information centres.

- **Section 3 – Baseline Features and Servicing Conditions:** This section describes the federal, provincial, and municipal legislation and policies that are relevant to the Class EA study, an environmental baseline review of the study area, and the existing infrastructure servicing the Region.
- **Section 4 – Phase 1: Problem and Opportunity Statement:** This section summarizes the Phase 1 - Problem and Opportunity Statement for the Class EA study and identifies some of the key opportunities and constraints.
- **Section 5 – Phase 2: Alternative Solutions:** This section outlines the evaluation process undertaken within Phase 2 of the Class EA study to determine the preferred alternative solution/strategies.
- **Section 6 – Phase 3: Alternative Design Concepts for Preferred Solution:** This section outlines the process undertaken within Phase 3 of the Class EA study to evaluate alternative methods of implementing the preferred solution/strategies to determine the preferred alternative design concept.
- **Section 7 – Impacts and Mitigation Measures:** This section provides an overview of the preferred design concept impacts on the physical and built environment as well as natural features. A detailed summary of the potential impacts and associated mitigation measures associated with the construction of the proposed works is provided.
- **Section 8 – Design Commitments:** This section summarizes the design commitments for the next phases of the projects.
- **Section 9 – Implementation:** This section outlines the various permits and approvals required by the relevant review agencies as part of the design, construction, and implementation process as well as the project cost and schedule.
- **Section 10 – Conclusion and Recommendations:** This section provides a summary of the study process and lists the recommendations and commitments following approval of the Class EA study.

1.6 Public Review Period

This ESR meets the requirements of a Schedule 'C' Municipal Class EA study. Peel Region will file the ESR for the 30-calendar day public review period from August 31 to September 30, 2026. All comments received and revisions to the ESR will be tracked and included in the notice of comments received. The final ESR will be available on the Region's project website.

2 Municipal Class EA Process and Objectives

The Bolton Water and Wastewater Capacity Improvements Class EA was undertaken as a Schedule 'C' in accordance with the requirements of the MCEA process (October 2000, as amended in 2007, 2011, 2015, 2023, and 2024). The requirements to satisfy the selected schedule are outlined below.

2.1 Environmental Assessment Act

Ontario's *Environmental Assessment Act* (EAA) was passed in 1975 and was proclaimed in 1976. The EAA requires proponents to examine and document the environmental effects that could result from major projects or activities and their alternatives. Municipal undertakings became subject to the EAA in 1981.

The EAA's comprehensive definition of the environment is:

- Air, land or water,
- Plant and animal life, including human life,
- The social, economic and cultural conditions that influence the life of humans or a community,
- Any building, structure, machine or other device or thing made by humans,
- Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities, and,
- Any part of combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.

The purpose of the EAA is the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management of the environment in Ontario (*R.S.O. 1990, c.18, s.2*). An EAA must also ensure that decisions result from a rational, objective, transparent, replicable, and impartial planning process.

As set out in *Section 17.6 (2)* of the EAA, an EA document must include a description of the following:

- The purpose of the undertaking;
- The alternative methods of carrying out the undertaking; and,
- Alternatives to the undertaking.

The EA document must also include a description of:

- The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking or alternatives to the undertaking;
- The effects that will be caused or that might reasonably be expected to be caused to the environment by the undertaking or alternatives to the undertaking;
- The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking or alternatives to the undertaking; and,
- An evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
- A description of any consultation about the undertaking and the results of the consultation (*EAA, R.S.O. 1990, c. E.18, s.17.6(2)).*

2.2 Principles of Environmental Planning

The EAA sets a framework for a rational, objective, transparent, replicable and impartial planning process based on the following five key principles:

1. **Consultation with affected parties. Consultation with the public and government review agencies is an integral part of the planning process.** Consultation allows the proponent to identify and address concerns cooperatively before final decisions are made. Consultation should begin as early as possible in the planning process.

2. **Consideration of a reasonable range of alternatives.** Alternatives include functionally different solutions, "alternatives to" the proposed undertaking and "alternative methods" of implementing the preferred strategy. The "do nothing" alternative must also be considered.

3. **Identification and consideration of the effects of each alternative on all aspects of the environment.** This includes the natural, social, cultural, technical, and economic environments.

4. **Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects.** The evaluation shall increase in the level of detail as the study moves from the evaluation of "alternatives to" to the evaluation of "alternative methods".

5. **Provision of clean and complete documentation of the planning process followed, to allow "traceability" of decision-making with respect to the project.** The planning process must be documented in such a way that it may be repeated with similar results.

2.3 Class Environmental Assessment Process

Class Environmental Assessments (Class EAs) were approved by the Minister of the Environment in 1987 for municipal projects having predictable and mitigable impacts. The Municipal Class EA process was revised and updated in 1993, 2000, 2007, 2011, 2015, 2023 and 2024. As the project commenced in 2023, this Class EA will follow the 2023 Class EA process with consideration for the latest 2024 amendment. The Class EA approach streamlines the planning and approvals process for municipal projects that are:

- Recurring,
- Similar in nature,
- Usually limited in scale,
- Predictable in the range of environmental impacts, and,
- Responsive to mitigation.

The Municipal Class EA outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater, stormwater management and road projects. The process includes five phases:

Phase 1: Problem or Opportunity Definition.
Phase 2: Identification and Evaluation of Alternative Solutions to Determine a Preferred Solution while taking input from the public and other stakeholders into consideration.
Phase 3: Examination of Alternative Methods of Implementation of the Preferred Solution while taking input from the public and other stakeholders into consideration.
Phase 4: Documentation of the Class EA process in the form of an ESR for public review.
Phase 5: Implementation and Monitoring.

Public and agency consultation are integral to the Class EA planning process. Projects subject to the Class EA process are classified depending on the degree of the expected impacts as listed below. The Class EA Phases 1 to 4 support Phase 5 which includes implementation of the preferred solution pre-consultation, the construction of the solution and any monitoring required during and post-construction. **Figure 2-1** illustrates the Municipal Class EA planning and design process with the phases required for each schedule.

At the end of the Class EA process, a Class EA document is prepared and filed for a minimum 30-day public review period. During that time, a section 16 Order can be requested if a person believes that this request may prevent, mitigate or solve an outstanding concern that the preferred solution may have a potential negative impact on constitutionally protected Indigenous lands and treaty rights.

Through the 2024 amendment, updates were made to water and wastewater project schedules. The amendment also identifies projects that may be exempt from the Schedule 'B' Class EA process if an Archaeological Screening Process (ASP) is completed, and the site is cleared of any archaeological potential.

Projects Eligible to be Screened are select projects that may be exempt from the Schedule 'B' Class EA process if they successfully undergo an Archaeological Screening Process. The ASP includes Indigenous community engagement, consultation with Ministries and completing a checklist related to archaeological potential of the proposed locations. If the screening is conducted fully and properly, the project will be able to proceed without compliance with the EAA. If, through the screening, the project is not exempt, then the applicable Schedule 'B' or 'C' process is required.

Schedule 'B' Projects require a screening of alternatives for their environmental impacts, and Phases 1 and 2 of the planning process must be completed, including mandatory contact with the public and relevant review agencies, and preparation of a Project File.

Schedule 'C' Projects must satisfy all Phases 1 through 5 of the Class EA process. These projects have the potential for greater environmental impacts and involve the assessment of alternative methods of carrying out the project, as well as public consultation on the preferred conceptual design. Phase 4 normally includes the preparation of an ESR that is filed for public review. Provided no significant impacts are identified and no requests for a Section 16 Order are received, the project may proceed to implementation.

In accordance with Section A.4.3 of the Municipal Class Environmental Assessment (2024), if construction does not commence within ten years of the Notice of Completion (or the resolution of any Section 16 Order request), the proponent is required to review the planning and design process and the current environmental setting to confirm that the project, environmental conditions, and proposed mitigation measures remain valid. Where necessary, the findings of this review are documented through an addendum to the Project File or Environmental Study Report prior to implementation.

2.3.1 SELECTION OF THE CLASS EA SCHEDULE

Based on the Class Guidance, the complexity of this project, the interconnectivity of the strategies and facilities to the community, and stakeholder sensitivity for this project, the Region completed the Bolton Class EA as a Schedule 'C'. This project satisfies Phases 1 to 4 of the Class EA process with the completion of the ESR which will support Phase 5 (Implementation) with completion of Preliminary Design, Costing, Phasing and Implementation Plan.

As part of the application of the 2024 Municipal Class EA amendment, the Region completed an Archaeological Screening Process for project components identified as potentially eligible for screening. The ASP included completion of the required screening checklist and supporting documentation, engagement with Indigenous Nations, Métis organizations and rights holders, and an assessment of archaeological potential in accordance with the Municipal Class EA requirements. The completed ASP checklist, together with the supporting documentation, was submitted to the MECP on March 7, 2024, and is included in **Appendix 3A** of this report. At the time of writing, no requests for additional information or comments had been received following the submission. The screening process supported the determination that the identified facilities were eligible for the Archaeological Screening Process.

Figure 2-1 illustrates the Municipal Class EA planning and design process with the phases required for each schedule.

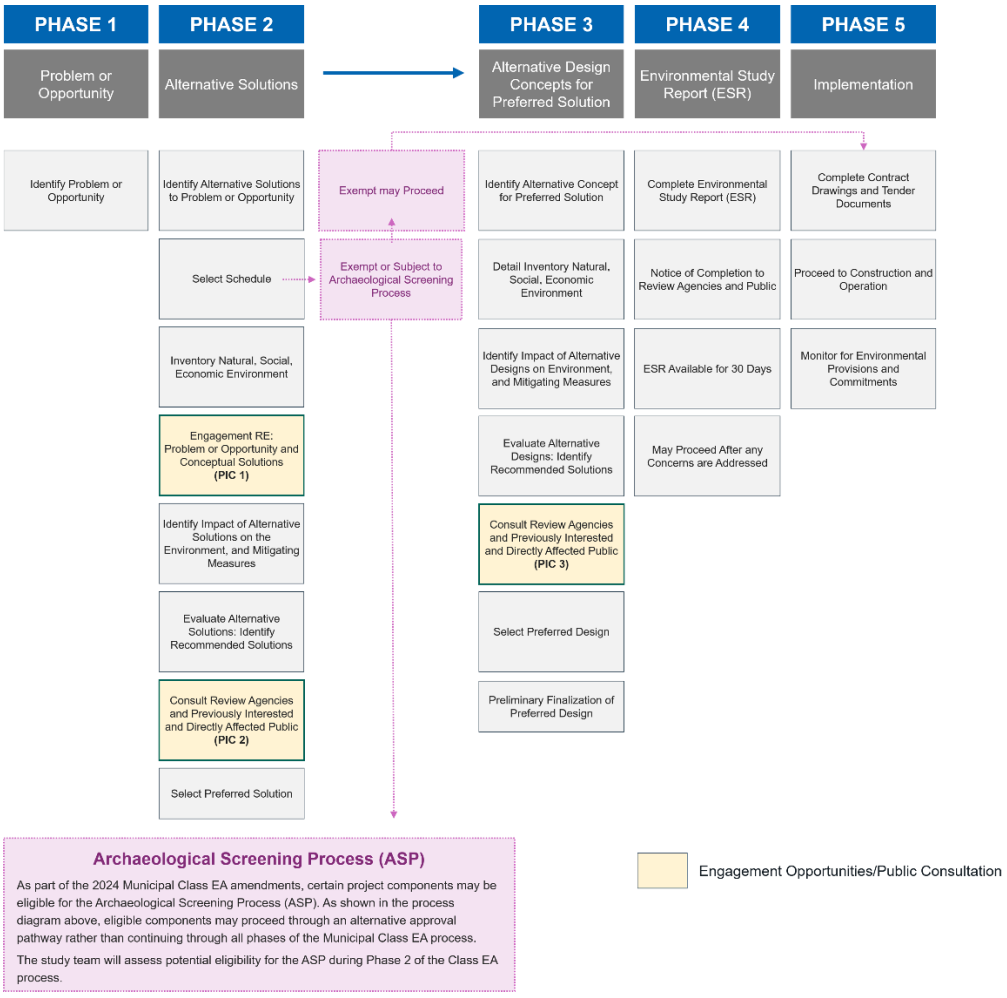


Figure 2-1: Municipal Class Environmental Assessment Process

2.4 Engagement and Consultation

Meaningful engagement and consultation were fundamental components of the Bolton Water and Wastewater Capacity Improvements Class EA. Consistent with the requirements of the Municipal Class Environmental Assessment process, Peel Region undertook a comprehensive program of Indigenous community engagement, public consultation, and agency coordination throughout the study. The engagement process was designed to facilitate two-way communication, provide transparent and timely information, identify potential concerns and opportunities, and incorporate feedback into the evaluation and refinement of servicing alternatives and the preferred solution.

The overarching strategy for engagement and consultation included several goals and objectives that go beyond simply meeting legislative requirements.

The primary goals and objectives of the consultation and engagement process were to:

- Present clear and concise information at key stages of the study process;
- Solicit community, regulatory, Regional and local municipal staff input;

- Identify concerns that might arise from the undertaking;
- Undertake a comprehensive Indigenous engagement and consultation to fulfill the Region's duty to consult and engage with Indigenous Nations, Métis organizations and rights holders;
- Consider stakeholder comments when developing the preferred strategy; and,
- Meet and exceed Municipal Class EA consultation requirements.

Engagement and consultation for the study was driven by five key principles:

1. **Respect:** for all parties engaged in the process;
2. **Clear, consistent communication:** to ensure broad understanding, and that all communicators on behalf of the Class EAs are using consistent messages;
3. **Demonstrated organizational and community values:** to ensure all communications reflect the values of the Region as an organization and as a community;
4. **Transparency**: to communicate the EA process and its results openly;
5. **Flexibility:** changeable to adapt to different stakeholders, concerns and opportunities that may arise throughout the EA process.

2.4.1 PUBLIC AND AGENCY CONSULTATION

Agency and public consultation and participation are important components to the success of this study and is mandated as part of the Class EA Process. An important task at the outset of the public consultation process was to develop a *Communication and Consultation Plan*. The primary objective of the Plan was to encourage two-way communication with the community, regulatory agencies, Regional and Local municipalities staff. The Plan was designed to:

- Build on past communication protocols and consultation plans from previous Class EA and municipal planning initiatives, to ensure consistency and continuity,
- Ensure the public, local and regional Councillors, stakeholders, external agencies (including federal and provincial) and special interest groups had an opportunity to participate in the study process,
- Ensure that information was provided to interested and affected stakeholders as soon as reasonably possible, and,
- Contact with external agencies to obtain legislative or regulatory approvals, or to collect pertinent technical information.

The communication and consultation plan outlines that the study will engage Regional staff and select external stakeholders to gather early input and assess the feasibility of alternative servicing strategies. Key study stakeholders include Toronto and Region Conservation Authority (TRCA), local municipalities, and the Ministry of the Environment, Conservation and Parks (MECP). Extensive communications and engagement were completed with TRCA and MECP throughout the study process. The study contact list was continuously updated throughout the study process to include any and all relevant agencies, stakeholders and interested parties. The communication and consultation plan is provided in **Appendix 1A.**

A broad range of communication methods were used through the Class EA process to advise the public and stakeholders of the study and solicit input. Methods included notices, newsletters, a project website, comment forms and public information centres (PIC), either in-person, phone or virtual. The Bolton Class EA held 3 PICs.

All input received can be found in the consultation tracking table in **Appendix 1G.**

2.4.2 STUDY COMMENCEMENT

The notice of study commencement was first distributed on June 22, 2023, to introduce the study. The notice was distributed to Indigenous Rights Holders, Indigenous Nations and communities, approval agencies, the public, interest groups and stakeholders. The notice was also published in the Caledon Citizen Newspaper on June 22, 2023, and June 29, 2023. All comments received were documented and were considered during the Class EA process.

Records of all study commencement notifications can be found in **Appendix 1B**.

2.4.3 INDIGENOUS NATIONS, INDIGENOUS RIGHTS HOLDERS AND MÉTIS ORGANIZATIONS ENGAGEMENT

Indigenous Nations, Indigenous rights holders, Métis organizations and communities have a unique understanding of the natural environment given their long-standing relationship with their lands, practices, and way of life. As such, they can provide valuable information to help identify solutions and measures to mitigate impacts to natural and cultural resources. Sometimes, Indigenous Nations, Métis organizations and rights holders will be engaged based on interests; other times, a study might impact established or asserted Indigenous rights or Métis communities.

Proponents are required to follow protocols set by Indigenous Nations, Indigenous rights holders and Métis organizations and contact MECP directly to confirm the appropriate list of Indigenous Nations, Métis organizations and rights holders for engagement. For this project, the Region ensured that engagement was as comprehensive and was implemented in a responsible, meaningful and respectful manner. A summary of engagement with Indigenous Nations, Métis organizations and rights holders can be found in **Appendix 1C**.

The following Indigenous Nations, Métis organizations and rights holders were engaged through the Class EA process:

- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River (Six Nations)
- Haudenosaunee Confederacy Chiefs Council represented by Haudenosaunee Development Institute
- Council of the Wendat Nation

Throughout the Class EA process, the Region reviewed feedback received from Indigenous Nations, Métis organizations and rights holders through written comments provided during the review of technical reports and other project documentation, as well as through meetings and ongoing engagement activities. This feedback helped inform project planning, the evaluation of alternatives and the development of mitigation measures documented in the Environmental Study Report. In particular, the Region has maintained ongoing

engagement with Six Nations of the Grand River throughout the Class EA process. Feedback and recommendations shared during these discussions informed refinements to the ESR and will continue to inform detailed design and project implementation. The Region remains committed to ongoing engagement with Indigenous Nations, Métis organizations and rights holders to ensure their perspectives continue to inform project decisions as the project advances.

2.4.4 PUBLIC INFORMATION CENTRE NO. 1

Prior to PIC No. 1, a Pre-PIC meeting was held on November 21, 2023, between the project team, Peel Region staff, and the Town of Caledon Technical Advisory Committee to review study progress and materials in advance of public circulation.

The Notice of PIC No. 1 was issued on November 2, 2023. Stakeholders and members of the public were notified through direct mail and/or email, newspaper advertisements, and online postings via the Region's social media platforms and project webpage.

PIC No. 1 was held in person on November 27, 2023, at the Albion Bolton Community Centre (150 Queen Street South, Bolton, ON). Study materials were made available on the Region's project webpage and remained accessible for review and comment until December 11, 2023.

The purpose of the PIC No. 1 was to:

1. Present the study area and objectives;
2. Present the environmental assessment process;
3. Present environmental and technical background relevant to the development of servicing alternatives; and
4. Obtain feedback on the study process and servicing opportunities and constraints.

Details regarding attendance, comments received, and materials presented are provided in **Appendix 1D.**

2.4.5 PUBLIC INFORMATION CENTRE NO. 2

Prior to PIC No. 2, Pre-PIC meetings were held with key stakeholder groups to present study updates and obtain early feedback. Meetings were conducted with:

- Toronto and Region Conservation Authority – March 6, 2024
- Regional Technical Advisory Committee – April 15, 2024
- Town of Caledon Technical Advisory Committee – May 13, 2024

The Notice of PIC No. 2 was issued on May 29, 2024. Stakeholders and the public were notified via email, newspaper advertisements, and online postings through the Region's social media platforms and project webpage.

PIC No. 2 was held in person on June 12, 2024, at the Albion Bolton Community Centre (150 Queen Street South, Bolton, ON). Study materials were made available on the Region's project webpage and remained available for review and comment until July 24, 2024. The purpose of PIC No. 2 was to:

1. Provide a study update and outline next steps in the EA process;
2. Present the evaluation process and the preliminary preferred water and wastewater servicing strategy, including infrastructure siting and alignments; and
3. Obtain feedback on the preliminary preferred servicing strategy.

Details regarding attendance, comments received, and materials presented are provided in **Appendix 1E**.

2.4.6 PUBLIC INFORMATION CENTRE NO. 3

Prior to PIC No. 3, Pre-PIC meetings were held with key stakeholder groups to present updated findings and obtain feedback on the emerging preferred design concept. Meetings were conducted with:

- Toronto and Region Conservation Authority – December 3, 2024
- Regional Technical Advisory Committee – December 5, 2024
- Town of Caledon Technical Advisory Committee – December 10, 2024

The Notice of PIC No. 3 was issued on November 28, 2024. Stakeholders and the public were notified through direct mail and/or email, newspaper advertisements, and online postings via the Region's social media platforms and project webpage.

PIC No. 3 was conducted virtually via ArcGIS StoryMaps from December 12, 2024, to January 31, 2025, through the project study webpage. Study materials were available online throughout this period, and comments were accepted until January 31, 2025.

The purpose of PIC No. 3 was to:

1. Provide a study update and outline next steps in the EA process;
2. Present updated investigation results, impacts, and mitigation strategies;
3. Outline the evaluation of design options and alternatives;
4. Present the preliminary preferred design concept, including shaft locations; and
5. Obtain feedback on the preferred solution.

Details regarding attendance, comments received, and materials presented are provided in **Appendix 1F.**

2.4.7 STUDY COMPLETION

Upon completion of the Class EA process, a notice of completion was published on August 31, 2026, and distributed to all stakeholders with information regarding the 30-day public review period. Copies of the distributed notice are provided in **Appendix 1H.**

2.4.8 REVIEW PERIOD CONSULTATION AND ENGAGEMENT

During the public review period, comments received will be documented in the filed copy of the ESR. This section, as well as supporting **Appendix 1I**, will be updated following the 30-day public review period to include all comments received and note any revisions made to the ESR.

3 Baseline Features and Servicing Conditions

This section summarizes the planning and policy context, existing environmental conditions, current servicing infrastructure, and previously identified infrastructure initiatives relevant to the Bolton Water and Wastewater Capacity Improvements Class EA (Focus Areas 1 and 2). The information presented establishes the baseline conditions that informed the identification, evaluation, and refinement of servicing alternatives.

3.1 Planning and Policy Overview

This section presents a summary of Federal, Provincial and local municipality legislation and policies relevant to the study area.

3.1.1 FEDERAL

3.1.1.1 SPECIES AT RISK ACT

The *Species at Risk* Act *(SARA)* focuses on restoring and maintaining populations of species that are at risk of extinction or extirpation due to human activity such as habitat destruction, hunting, introduction of competing species, or other anthropogenic causes.

The SARA incorporates several prohibitions to protect individuals of listed threatened (THR), endangered (END), or extirpated species at risk (SAR), as designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) by using biological information on a species deemed to be in danger. The COSEWIC reviews research information on population and habitat status, trends, and threats, and applies assessment criteria based on international standards. Species listed on *Schedule 1 – List of Wildlife Species at Risk* are protected under the provisions of SARA, benefitting from the legal protection afforded and the mandatory recovery planning required under the Act. Section 34, Section 58, and Section 61 outline prohibitions that apply to aquatic species and migratory birds protected by the *Migratory Birds Convention Act (MBCA)* on all lands, and to any other listed wildlife species when located on federal lands.

Relevance to this study: The requirements of the *SARA* must be considered in the planning and implementation of infrastructure works where there is potential for effects on listed species or their habitat.

3.1.1.2 FISHERIES ACT

The *Fisheries Act, last amended in 2024,* outlines the framework for the management and regulation of fisheries and the conservation and protection of fish and fish habitat (including by the prevention of pollution) within the fishing zones of Canada, all waters in the territorial sea of Canada, and all internal waters of Canada. The *Act* restricts activities that cause "death of fish, other than by fishing", as well as the "harmful alteration, disruption, or destruction (HADD) of fish habitat"[1], and the release of substances that are known or suspected to be deleterious to fish or fish habitat. A Department of Fisheries and Oceans (DFO) request for review will be

[1] *Fisheries and Oceans Canada (2024, November 27). Fisheries Act (RSC 1985 c F-14). Retrieved February 14, 2025, from https://laws-lois.justice.gc.ca/eng/acts/f-14/*

required for activities that harm, disrupt, or destroy fish habitat, or cause the death of fish. Any activities impacting watercourses with known SAR will also require a request for review from the DFO.

Relevance to this study: The *Fisheries Act* must be considered where proposed works have the potential to affect fish or fish habitat, including activities within or adjacent to watercourses.

3.1.1.3 MIGRATORY BIRDS CONVENTION ACT

The Migratory Birds Convention Act *(MBCA)* was established in 1917, and last amended in 2024, to protect migratory birds, their eggs, their nests, and to prohibit the deposit of harmful substances in waters and areas frequented by them. The *MBCA* lists protected families and subfamilies of migratory birds and lays out legislation surrounding activities that may impact migratory birds or their nests, including when and where activities may occur.

Relevance to this study: The requirements of the *MBCA* must be considered where project activities have the potential to affect migratory birds or their nests including vegetation or tree removal.

3.1.1.4 CCME STRATEGIC VISION FOR WATER

The Canadian Council of Ministers of the Environment (CCME) facilitates forward-thinking research and integrated policy, standards and guideline development, that contribute to the sustainable management, protection, restoration, and conservation of Canada's water.

In recognition of the importance of water to Canadians, the CCME endorsed a framework in 2009 for future actions and activities related to water, known as the Strategic Vision for Water. The vision is for Canadians to have access to clean, safe, and sufficient water to meet their needs in ways that also maintain the integrity of ecosystems[2]. The goals of the vision include the following:

1. Aquatic ecosystems are protected on a sustainable watershed basis;
2. Conservation and wise use of water is promoted;
3. Water quality and water quantity management is improved, benefiting human and ecosystem health;
4. Climate change impacts are reduced through adaptive strategies; and,
5. Knowledge about the state of Canada's water is developed and shared.

Relevance to this study: This study supports CCME's vision to provide access to clean, safe, and sufficient water through the development of water infrastructure.

3.1.2 PROVINCIAL

3.1.2.1 THE PLANNING ACT

The *Planning Act, last amended in 2025,* establishes the rules for land use planning in Ontario and describes how land uses may be controlled in communities. The primary provincial contact for advice and information on land use planning is through the Ontario Ministry of Municipal Affairs and Housing (MMAH). The *Planning Act* also defines the respective roles and responsibilities of the province and municipalities, as follows:

[2] *Canadian Council of Ministers of the Environment (2009, October 29). CCME Setting Strategic Directions for Water. Retrieved February 14, 2025, from https://scics.ca/wp-content/uploads/CMFiles/830973004_a1e1OUA-9152010-257.pdf*

Provincial Responsibility

- Issuance of the Provincial Policy/Planning Statement;
- Promotion of provincial interests;
- Preparation of provincial plans, such as the Greenbelt Plan;
- Provides one-window planning service to municipalities through the MMAH;
- Provision of advice to municipalities and the public on land use planning issues;
- Administration of local planning controls and approvals where required; and,
- Through the MMAH, makes minister's zoning orders at the request of a municipality.

Municipal Responsibility

- Make local planning decisions for future communities;
- Preparation of planning documents such as Official Plans and Zoning By-laws; and,
- Ensure that planning decisions and documents are consistent with the Provincial Policy/Planning Statement and conform or do not conflict with provincial plans.

It should be noted that the Region is no longer responsible to act as the approval authority for their local lower-tier municipalities' Official Plans in place of the MMAH.

Relevance to this study: This study considered the land use planning policies within the *Planning Act* in the development of the preferred solutions.

3.1.2.2 PROVINCIAL PLANNING STATEMENT

The Provincial Policy Statement provides policy directions on matters of provincial interest related to land use planning and development. As a key part of Ontario's policy-led planning system, the Provincial Policy Statement sets the policy foundation for regulating the development and use of land while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment.

In 2020, the Provincial Policy Statement received a revision to better integrate economic, social, and environmental considerations; respond to rural and northern challenges; clarify policies to better support implementation; and provide direction for emerging issues. The update introduced a streamlined framework for land-use planning, leveraging the housing supportive policies from the 2020 version and the intensification goals of the A Place to Grow: Growth Plan for the Greater Golden Horseshoe. The 2024 update reflects the Province's focus on accelerating housing development, particularly its goal of building 1.5 million homes by 2031. The proposed Provincial Planning Statement (PPS) came into effect October 2024, replacing both the 2020 Provincial Policy Statement and the Growth Plan. The 2024 PPS marks a shift towards local autonomy in planning while incentivizing infrastructure projects that enable rapid housing and economic growth. Where applicable, the 2024 PPS provides opportunities for infrastructure projects supporting transit, utilities, and settlement expansion that align with the growth goals.

The following provides a summary of the key objectives of the 2024 PPS:

1. **Building Homes, Sustaining Strong and Competitive Communities** through efficient land use, affordable housing, investment for infrastructure, active transportation and transit-oriented

development, protects employment lands, preparing for the impacts of climate change, and minimizes risks from natural and anthropogenic hazards.

2. **Wise use and Management of Resources** through protection of natural heritage features (wetlands, woodlands, valleylands, wildlife habitat, areas of natural and scientific interest, and biodiversity), safeguarding water resources and their quality, preserving prime agricultural lands, sustainable resource extraction, and protecting archaeological sites and heritage properties of cultural significance.
3. **Protecting Public Health and Safety** through restricting development in floodplains, hazardous lands, and hazardous sites, and regulating land uses near contaminated sites, and other natural or humane-made hazards.

The 2024 PPS includes both general and infrastructure-related policies relevant to water/wastewater services that have been considered as part of this Class EA.

Relevance to this study: The 2024 PPS supports the need for this project, as well as defines the parameters under which it should be implemented in a sustainable manner. The preferred water and wastewater solutions comply with the overall goals of the PPS.

3.1.2.3 SPECIES CONSERVATION ACT (SCA)

Ontario's Endangered Species Act, *2007* was enacted in 2008 and established a framework for identifying, protecting, and supporting the recovery of species at risk and their habitats in Ontario. In June 2025, the Province introduced legislative amendments through the Protect Ontario by Unleashing our Economy Act, 2025, which included the introduction of the Species Conservation Act, 2025 (SCA). The *Species Conservation Act, 2025* replaced the *Endangered Species Act, 2007* effective March 30, 2026.

The *Species Conservation Act, 2025* aims to identify species at risk and provide protection and conservation measures for species while considering social, economic, and sustainable growth considerations. Similar to the former *Endangered Species Act* and the *federal Species at Risk Act (SARA),* the *SCA* establishes requirements related to the protection and management of species at risk in Ontario. The *SCA* also establishes a registration-first approach and permits regulation of activities that cannot proceed under a registration.

Species considered to be at risk in Ontario are initially identified by the Committee on the Status of Species at Risk in Ontario (COSSARO). If approved by the Ontario Ministry of the Environment, Conservation and Parks, species are added to the Protected Species in Ontario List under the Act. The *SCA* provides protections for species identified under the legislation and establishes requirements for assessing and managing potential impacts to regulated species and habitats.

The *SCA* provides guidance on determining whether anthropogenic activities, such as construction, could impact regulated species and considers factors such as the biology and behaviour of the species, details of the activity, and how the activity may affect the species' ability to carry out its life processes.

Where applicable, lands with the potential to support plant and animal species at risk are to be considered in accordance with applicable *SCA* policies and regulations.

Relevance to this study: Given the characteristics of the area, there is potential for terrestrial and aquatic provincial species at risk. The preferred water and wastewater solutions aimed to minimize potential impacts to species at risk habitat.

3.1.2.4 ONTARIO HERITAGE ACT

The Ministry of Citizenship and Multiculturalism (MCM)—previously the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI, 2019-2022) – and municipalities are enabled to designate properties or areas of cultural heritage value or interest to conserve their significance through the *Ontario Heritage* Act.

Relevance to this study: There are several built heritage resources and cultural heritage features present within the study area. The preferred water and wastewater solutions aim to minimize potential impacts to identified features with Cultural Heritage Value and Interest (CHVI).

3.1.2.5 GREENBELT PLAN

The Greenbelt Plan (2017) builds upon the existing policy framework established in the Provincial Policy Statement and was amended in 2024. Policies of the 2020 Provincial Policy Statement and the Growth Plan will continue to apply where the Greenbelt Plan refers to them to maintain existing protections for the Greenbelt following their replacement by the Provincial Planning Statement (2024). The purpose of the plan is to inform the decision-making process to protect agricultural lands, natural heritage, and water resource systems, and to provide for a diverse range of economic and social activities related to rural communities, agriculture, tourism, recreation, and resource uses, and to build resilience to and mitigate climate change.

The Greenbelt Plan includes lands within, and builds upon, the ecological protections provided by the Niagara Escarpment Plan (NEP) and the Oak Ridges Moraine Conservation Plan (ORMCP). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands covered by the NEP and the ORMCP while improving linkages between these areas and the surrounding major lake systems and watersheds.

Figure 3-1 shows the Bolton Class EA Focus Area 1 that falls within the Greenbelt boundary.

Relevance to this study: The study area is located within the Greenbelt lands. The Greenbelt Plan defines the parameters under which it should be implemented, including the protection of the natural heritage, water resources, and agricultural lands. The preferred water and wastewater solutions comply with the overall goals of the Greenbelt Plan.

3.1.2.6 OAK RIDGES MORAINE CONSERVATION PLAN

The Oak Ridges Moraine (ORM) is a provincially significant area that runs east to west through south central Ontario. The western portion of the Moraine occurs in the Town of Caledon, where the ORM intersects the Niagara Escarpment. It performs essential ecological functions, including the provision of significant natural habitat, the protection and maintenance of surface and groundwater resources and, it has distinctive topographical and scenic values.

As of November 2022, amendments have been made to the ORM Conservation Plan including boundary changes to allow for greater development and growth. The 2022 amendments do not have an impact on the ORM area that runs through the Bolton study area.

Figure 3-1 shows the Bolton Class EA Focus Area 1 and the ORMCP boundary.

Relevance to this study: The study area is located within the ORMCP, which defines the parameters under which it should be implemented including the protection of ecological and hydrological features and functions within the study area. The preferred water and wastewater solutions comply with the overall goals of the ORMCP.

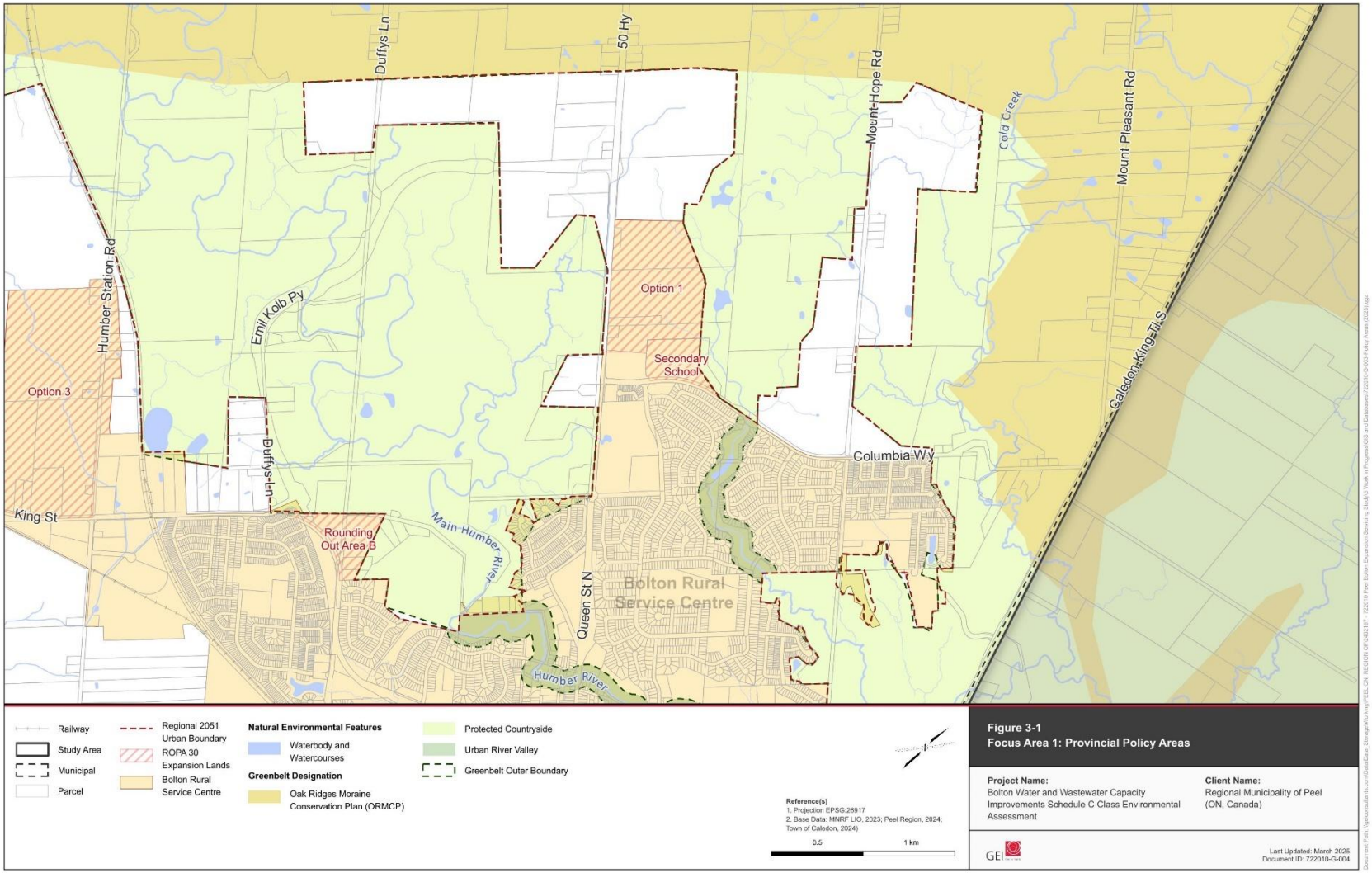


Figure 3-1: Provincial Policy Areas

3.1.2.7 CONSERVATION AUTHORITIES

Conservation authorities are local agencies that play a crucial role in managing natural resources, hazardous lands, and ensuring sustainable development within their jurisdictions. These agencies have several responsibilities and functions in the land use planning and development process.

In April 2024, *Ontario Regulation (O. Reg.) 41/24* consolidated previously separate conservation authority regulations into a single regulation. Key changes include:

- Shifting the authority of conservation authorities over lands within their jurisdiction to the Minister of Natural Resources, except for lands owned by the conservation authority.
- Changes to the list of prohibited activities requiring a permit and the introduction of permit exemptions for low-risk development activities.
- Adjustment of development setbacks from Provincially Significant Wetlands (PSWs) (120 metres to 30 metres).
- Changes to the permit application process and request for review process.

In 2025, the Province passed Bill 68, Plan to *Protect Ontario Act (Budget Measures), 2025 (No. 2)*, which amends the *Conservation Authorities Act* and further clarifies the roles and responsibilities of conservation authorities related to development review, natural hazard management, and permitting. The legislation also establishes the proposed Ontario Provincial Conservation Agency (OPCA) to oversee conservation authorities and support the transition to a regional watershed-based framework through the consolidation and renaming of existing conservation authorities. These changes are anticipated to take effect on February 1, 2027, with implementation details continuing to be refined by the Province.[3]

Relevance to this study: The Bolton Class EA Focus Area 1 is located within the West Humber River and Main Humber River Subwatersheds, which form part of the Humber River Watershed and fall under the jurisdiction of TRCA. This study considered input from TRCA where the preferred servicing strategy is located within TRCA-regulated areas.

3.1.2.8 WATER OPPORTUNITIES AND CONSERVATION ACT

The purpose of the *Water Opportunities and Conservation Act (2010)* is to encourage water conservation and strengthen sustainable municipal water planning. The purposes of *the Act* are as follows:

- To foster innovative water, wastewater, and stormwater technologies, services, and practices.
- To create opportunities for economic development and clean-technology jobs in Ontario.
- To conserve and sustain water resources for present and future generations.

To further the purposes of *the Act*, the MECP may establish aspirational targets related to the conservation of water and other matters. *The Act* authorizes the making of regulations requiring public agencies to prepare water conservation plans, achieve water conservation targets, and consider technologies, services, and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources.

[3] *Bill 68, Plan to Protect Ontario Act (Budget Measures), 2025 (No. 2). Retrieved February 4, 2026, from https://www.ola.org/en/legislative-business/bills/parliament-44/session-1/bill-68*

Relevance to this study: This study incorporated sustainable municipal water planning into the development and selection of the preferred solution.

3.1.2.9 SAFE DRINKING WATER ACT AND CLEAN WATER ACT

The *Safe Drinking Water Act* was developed in response to the Walkerton E. coli outbreak and was adopted in 2002. This *Act* provides for the protection of human health and the prevention of drinking water hazards through the control and regulation of drinking water systems and drinking water testing.

The *Clean Water Act* (*O. Reg. 287/07*) was adopted with the objective of protecting existing and future sources of drinking water, including rivers, lakes, and underground aquifers. Under this *Act*, the Source Water Protection (SWP) plans identify the following vulnerable areas:

- **Wellhead Protection Areas (WHPA):** areas of land around a municipal well, the size of which is determined by how quickly water travels underground to the well, measured in years.
- **Intake Protection Zones (IPZ):** areas of water and land surrounding a municipal surface water intake.
- **Significant Groundwater Recharge Areas (SGRA):** areas characterized by porous soils that allow water to seep easily into the ground and flow to an aquifer.
- **Highly Vulnerable Aquifers (HVA):** aquifers that can be easily changed or affected by contamination from both human activities and natural processes because of (a) their intrinsic susceptibility or (b) preferential pathways to the aquifer.
- **Event Based Areas (EBA)**: areas where spills from a specific activity within an EBA would cause a significant risk to the drinking water source.

Based on the identified vulnerable areas and the nature of the proposed works, the applicable Source Protection Plan policies are summarized in **Table 3-1**. These policies provide the framework for assessing potential risks to drinking water sources and identify the requirements that must be incorporated into the Project, where applicable.

Table 3-1: Applicable Drinking Water Source Protection Policies

Policy Subject	Policy	Policy Statement
Sanitary Sewers and Related Pipes	SWG-13	Where sanitary sewers and related pipes are in an area where the activity is, or would be, a significant drinking water threat, the Environmental Compliance Approval that governs the activity shall be reviewed or established to ensure appropriate terms and conditions are included so that the activity ceases to be, or does not become, a significant drinking water threat in any of the following areas: • WHPA-A (existing, future); or • WHPA-B (VS = 10) (existing, future); or • the remainder of an Issue Contributing Area for Nitrates or Pathogens (existing, future).

Policy Subject	Policy	Policy Statement
		Not limiting any other conditions to be included in the Environmental Compliance Approval, the Issuing Director should include the following conditions, where possible: • requiring higher construction standards; and • inspections by the owner for leaks.
Sanitary Sewers and Related Pipes	SWG-14	New development dependent on sanitary sewers and related pipes, in an area where the activity would be a significant drinking water threat, shall only be permitted where it has been demonstrated by the proponent through an approved Environmental Assessment or similar planning process that the location for the sanitary sewer and related pipes is the preferred alternative and the safety of the drinking water system has been assured in any of the following areas: • WHPA-A (future); or • WHPA-B (VS = 10) (future); or • the remainder of an Issue Contributing Area for Nitrates or Pathogens (future).
General Policies	GEN-3	Where an activity requires approval using a Prescribed Instrument, the regulatory authority shall undertake compliance/verification inspections to confirm that any new or amended conditions of approval are, or have been, implemented by the facility owner within 3 years of the date of the new or amended approval to ensure that the activity ceases to be, or does not become, a significant drinking water threat. Ongoing inspections should be conducted at least once every 5 years or on a basis deemed appropriate by the Issuing Director.

Source: Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region. (2025). Source Protection Plan (Version 7.0).

Relevance to this study: The Bolton Class EA study area does not contain any IPZs or WHPAs (**Figure 3-2**); however, it does contain HVAs and SGRAs. The preferred design was evaluated with consideration of source water protection and the identified HVAs and SGRAs. Measures to avoid or minimize potential impacts to vulnerable groundwater resources have been incorporated into the preferred design, and additional hydrogeological investigations and mitigation measures will be undertaken during detailed design, as appropriate.

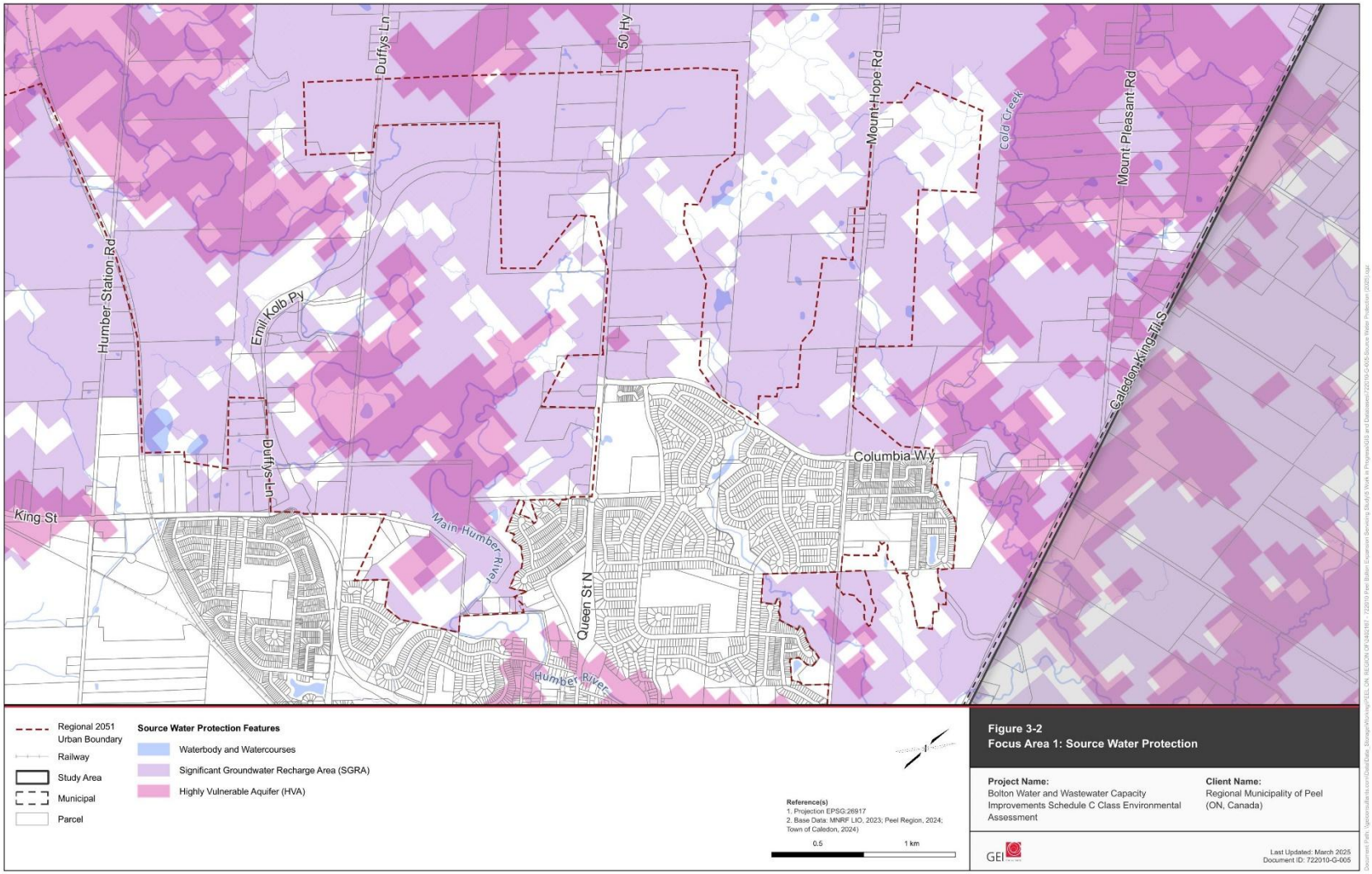


Figure 3-2: Source Water Protection Information

3.1.2.10 RECENT PROVINCIAL HOUSING AND INFRASTRUCTURE LEGISLATION

The Province of Ontario has introduced several legislative changes intended to accelerate housing development and streamline municipal planning and infrastructure delivery. These include the *More Homes, More Choice Act, 2019* (Bill 108), the *More Homes for Everyone Act, 2022* (Bill 109), and the *More Homes Built Faster Act, 2022* (Bill 23). Collectively, these initiatives amended several provincial statutes relevant to municipal infrastructure planning, including the *Planning Act*, the *Development Charges Act*, the *Ontario Heritage Act*, the *Conservation Authorities Act*, the *Endangered Species Act*, and the *Environmental Assessment Act*. The changes focus on improving the efficiency of land use planning approvals, modifying development charge frameworks, introducing timelines for municipal planning decisions, and streamlining environmental assessment processes to support increased housing supply across Ontario.

In parallel, the *Sustainable Water and Wastewater Systems Improvement and Maintenance Act, 2010* (Bill 13) established a framework intended to promote financially sustainable municipal water and wastewater services and transparency in the provision of those services. The *Act* repealed the *Sustainable Water and Sewage Systems Act, 2002* and introduced provisions related to long-term planning, financial sustainability, and governance of municipal water and wastewater systems.

Relevance to this study: These legislative changes influence municipal infrastructure planning by affecting development approvals, growth-related infrastructure funding (including development charges), and environmental assessment requirements. The Bolton Class EA has been undertaken in consideration of the current provincial planning framework and supports the delivery of municipal infrastructure required to accommodate planned growth in the Town of Caledon.

3.1.3 LOCAL

3.1.3.1 PEEL REGION OFFICIAL PLAN

The Regional Official Plan (ROP) is Regional Council's long-term policy framework to assist the Region in decision-making. It sets the regional context for detailed planning by protecting the environment, managing resources, directing growth, and setting the basis for providing Regional services in an efficient and effective manner. The ROP provides direction for future planning activities and for public and private initiatives aimed at improving the existing physical environment.

The purpose of the ROP is to:

- Provide Regional Council with the long-term regional strategic policy framework for guiding growth and development while having regard for protecting the environment, managing renewable and non-renewable resources, and outlining a Regional structure that manages this growth in the most effective and efficient manner;
- Interpret and apply the intent of provincial legislation and policies within a Regional context using the authority delegated or assigned to the Region from the Province;
- Provide a long-term regional strategic policy framework for the more specific objectives and land use policies contained in the local municipal official plans, which must conform to this Plan;
- Recognize the duality in the Region between the urban nature of the Cities of Brampton and Mississauga and southern Caledon, and the primarily rural nature of northern Caledon;

- Recognize the need for effective environmental protection and management measures to ensure environmental sustainability;
- Integrate climate change considerations in planning and managing growth to reduce greenhouse gas emissions and improve the resilience of the Region to respond and adapt to a changing climate;
- Recognize the importance of protecting and enriching the natural and cultural heritage, and the importance of planning for equity and inclusion in consideration of the population diversity in the Region;
- Provide for the health and safety of those living and working in the Region; and
- Maintain and enhance the fiscal sustainability of the Region.

The ROP includes objectives and policies around the natural environment, water resources, and cultural heritage. These will be considered when assessing servicing alternatives.

Section 6.5 of the ROP discusses water and wastewater services. The objective of the Region is to provide water supply and sanitary sewer services to appropriate areas of the Region in an adequate, efficient, planned, and cost-effective manner consistent with public needs and financial realities. Policies under Section 6.5 will be considered in the development, evaluation, and selection of the preferred water and wastewater solutions.

On July 1, 2024, under the *Planning Act*, the Region was designated an "upper-tier municipality without planning responsibilities." The Town of Caledon and the City of Brampton are now the respective land use planning authorities responsible for local and regional official plans and development applications.

Relevance to this study: This study aligns with the ROP objectives and policies around water servicing to accommodate future growth and additional development to 2051.

3.1.3.2 PEEL REGION CLIMATE CHANGE MASTER PLAN

The *Peel Region Climate Change Master Plan* (CCMP) was issued in 2020 and is in effect through 2030. The CCMP outlines strategies to manage Regional assets, infrastructure, and services in a changing climate. Two primary outcomes of the CCMP are:

- Reduce corporate emissions by 45% by 2030 relative to 2010 levels; and,
- Be prepared for changing climates and extreme weather events by ensuring Regional services and assets are resilient.

Supporting outcomes are intended to enable success by providing direction to build capacity, reduce greenhouse gas (GHG) emissions, be prepared, invest, and monitor and report. The pursuit of these outcomes is guided by four principles: balance, transparency, collaboration, and innovation. For example, an outcome identified to reduce GHG emissions is to maximize energy efficiency in water systems by implementing, where feasible, the recommendations of the 2013 Water Efficiency Strategy to optimize the supply and demand of water. Progress on these outcomes will be measured by the Region's Climate Change Resiliency Scorecard, which assesses key factors of a climate resilient community.

Relevance to this study: The Peel Region CCMP provides policy direction related to climate resilience, greenhouse gas reduction, and sustainable infrastructure planning. These objectives provide context for the planning and implementation of Regional infrastructure projects, including water and wastewater servicing improvement.

3.1.3.3 FUTURE CALEDON – OUR OFFICIAL PLAN

The Town's 1978 Official Plan is being replaced in phases through the ongoing Official Plan Review. The Town's new official plan, Future Caledon: Our Official Plan, was adopted by Council on March 26, 2024. On October 22, 2025, the Minister of Municipal Affairs and Housing issued a decision to approve the Future Caledon Plan with modifications. The October 2025 Future Caledon Plan is the product of the first phase of the Official Plan Review.

Phase 1 of the Plan includes:

- Vision and Guiding Principles
- Town Structure
- Growth Management Policies
- Natural Environment System and Open Space Policies
- Rural System Policies
- Urban System Policies
- Implementation Policies

The Town of Caledon Official Plan is a statement of principles, goals, objectives, and policies intended to guide future land use, physical development, and change. It considers the social, economic, and environmental impact of growth and development in Caledon. The plan contains policies that govern land use in the Town and provides direction for the next stage of the Town's growth to the year 2051, as required by provincial legislation. It also provides the basis for preparing zoning and other by-laws.

On July 1, 2024, the Town became responsible for the interpretation and implementation of the ROP as it applies to Caledon, including the 2051 New Urban Area in south Caledon where most of the Town's residential and employment growth will be located. The Future Caledon Plan conforms with the 2022 ROP.

Key policies relevant to municipal servicing infrastructure were considered in the development of the servicing alternatives, including ensuring co-operation with other level of governments, appropriate agencies, and the private sector.

Relevance to this study: The Future Caledon Plan establishes the long-term land use and growth framework for the Town to 2051. The policies of the Plan provide guidance for infrastructure planning and servicing strategies required to support planned growth within the Bolton area.

3.2 Environmental Baseline Review

The study area contains several policy areas (Section 3.1), including the Greenbelt Plan Area (Protected Countryside Area), Niagara Escarpment Plan, and Oak Ridges Moraines Conservation Plan (Natural Linkage and Countryside Area) designated areas to the north. Much of the study area is located within the West Humber Watershed, which falls under the jurisdiction of the TRCA and includes various stream corridors. The natural, physical, and built environments of Focus Area 1 of the Bolton Class EA are summarized below.

3.2.1 NATURAL ENVIRONMENT

The following subsections summarize the review of Areas of Natural and Scientific Interest (ANSI), Environmentally Significant Areas, species at risk, aquatic systems, significant wetlands, and other natural heritage features in and around Focus Area 1 of the Bolton Class EA that are critical to inform the development of mitigation strategies, detailed in Section 7. A copy of the Natural Heritage Impact Assessment is provided in **Appendix 2A**.

3.2.1.1 AREAS OF NATURAL AND SCIENTIFIC INTEREST

Areas of Natural and Scientific Interest (ANSIs) are areas of land or water that contain features identified as having life science or earth science values related to protection, scientific study, or education.

Although there are ANSIs north of the overall study area, there are no ANSIs within the limits of Focus Area 1.

3.2.1.2 ENVIRONMENTALLY SIGNIFICANT AREAS

Environmentally Significant Areas are landscape features identified as warranting special protection. Designation of these areas is generally determined through criteria established by conservation authorities and municipalities.

A number of Environmentally Significant Areas have been identified to the northern limits of Focus Area 1 (**Figure 3-3**). If the preferred solution is adjacent to an Environmentally Significant Area, coordination with TRCA, the Region, and the Town is required to gain further understanding of the potential impacts resulting from the preferred strategy.

3.2.1.3 SIGNIFICANT WETLANDS

A wetland is determined to be a provincially significant wetland (PSW) by the Ministry of Natural Resources (MNR) using the Ontario Wetland Evaluation System (OWES), a science-based methodology used to evaluate and rank the relative value of wetlands. Wetlands are evaluated for significance based on a range of criteria, including biology, hydrology, societal value, and special features.

Development is not permitted within a PSW as outlined under the PPS Policy 2.1 (Section 3.1.2.2). There are several PSWs and several unevaluated wetlands identified throughout the study area. **Figure 3-3** shows that there are two PSWs within the limits of Focus Area 1: Bolton Wetland Complex (east of Highway 50) and Castlederg Wetland Complex (west of Highway 50). Permits are required from TRCA if development is proposed within 30 metres of a PSW.

3.2.1.4 SPECIES AT RISK

The *Species Conservation Act*, 2025 (SCA) provides for the identification, protection and conservation of species at risk in Ontario. Species are assessed and classified by the COSSARO, and protected species are prescribed under O. Reg. 60/26 (Protected Species in Ontario List). The SCA generally does not apply to federally listed Extirpated, Endangered or Threatened aquatic species or certain migratory birds, subject to the provisions of the Act and its regulations.

Where species at risk have the potential to occur within the Study Area, additional studies may be required to confirm presence or absence, characterize habitat use, and determine applicable requirements under provincial and/or federal legislation.

Species at risk with candidate or confirmed habitat within Focus Area 1 are summarized in **Table 3-2**.

Table 3-2: SARs within the Study Area

Taxon	Species (Common Name)	COSSARO Classification	SCA/PSO List Status
Aquatic (1)	Redside Dace	Endangered	Not on PSO List*
Bird (3)	Bank Swallow	Threatened	Not on PSO List*
	Barn Swallow	Special Concern	Not on PSO List*
	Wood Thrush	Special Concern	Not on PSO List*
Mammal (6)	Little Brown Myotis	Endangered	Endangered
	Northern Myotis	Endangered	Endangered
	Tri-colored Bat	Endangered	Endangered
	Silver-haired Bat	Endangered*	Endangered**
	Eastern Red Bat	Endangered*	Endangered**
	Hoary Bat	Endangered*	Endangered**
Insects (1)	Rapids Clubtail (Dragonfly)	Threatened	Threatened

** Certain aquatic species and migratory birds listed under the federal Species at Risk Act are excluded from application of the SCA, as specified by the Act. Federal species-at-risk requirements may continue to apply.*

***Note: The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) reviews and designates the conservation status of species and has received an assessment of endangered (END) according to the 2023 status report.*

3.2.1.5 AQUATIC SYSTEMS

The study area is located within the Humber River watershed, with the eastern lands within the Main Humber subwatershed, and the western lands within the West Humber subwatershed. The western lands drain to Lindsay Creek and eventually the West Humber River. The eastern lands drain to Cold Creek and eventually the Humber River. The study area falls under the jurisdiction of the TRCA and includes both Provincially Significant Wetlands and unevaluated wetlands.

A Headwater Drainage Feature (HDF) is a non-permanent drainage element that contributes to the hydrologic and biotic habitat function. Within the Utility Corridor of Focus Area 1 (area west of Highway 50), there are three (3) HDFs which bisect the corridor from north to south. Additional field investigations during the

appropriate time of year will be necessary to determine if tunnelling below these features is recommended to preserve important hydrological and ecological functions.

No records of Redside Dace or their critical habitat are noted within Cold Creek or its tributaries. However, the Humber River and three unnamed tributaries to the Humber River have been identified as having confirmed or potential habitat for Redside Dace, a SAR as indicated in Section 3.2.1.4.

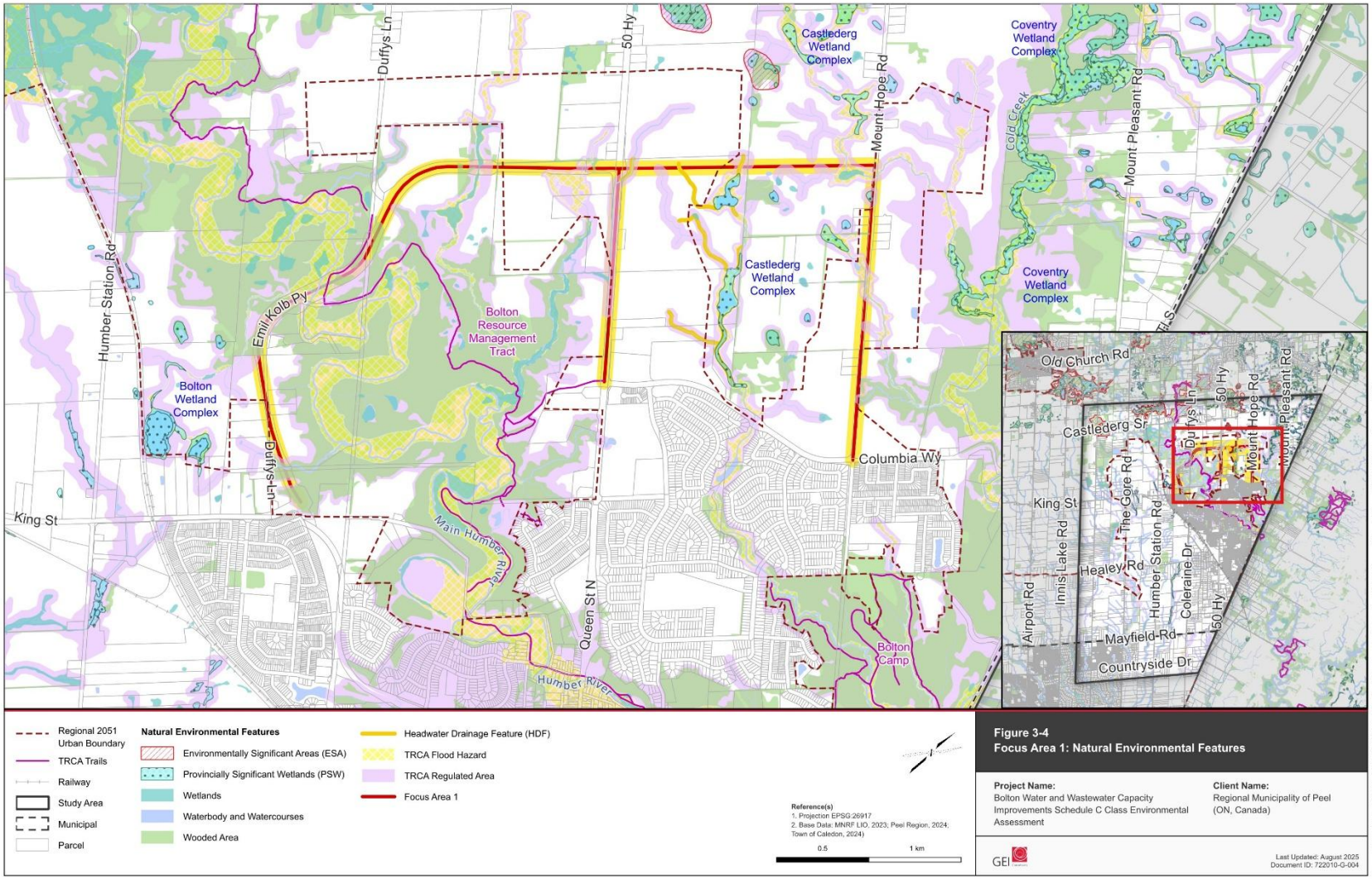


Figure 3-3: Focus Area 1 Natural Environmental Features

3.2.2 PHYSICAL ENVIRONMENT

The following subsections summarize the geotechnical and hydrogeological description of the physical environment, including the local hydrostratigraphy, local geology, and anticipated subsurface conditions along the following segments (**Figure 3-4**):

Segment A along The Gore Road from Mayfield Road to King Street, to Emil Kolb Parkway, along the future utility corridor, and south along Mount Hope Road. **Segment B** is located along Humber Station Road from Mayfield Road to King Street. **Segment C** is located from Coleraine Drive from Mayfield Road to King Street.

Detailed information is provided in **Appendix 2B and 2C**.

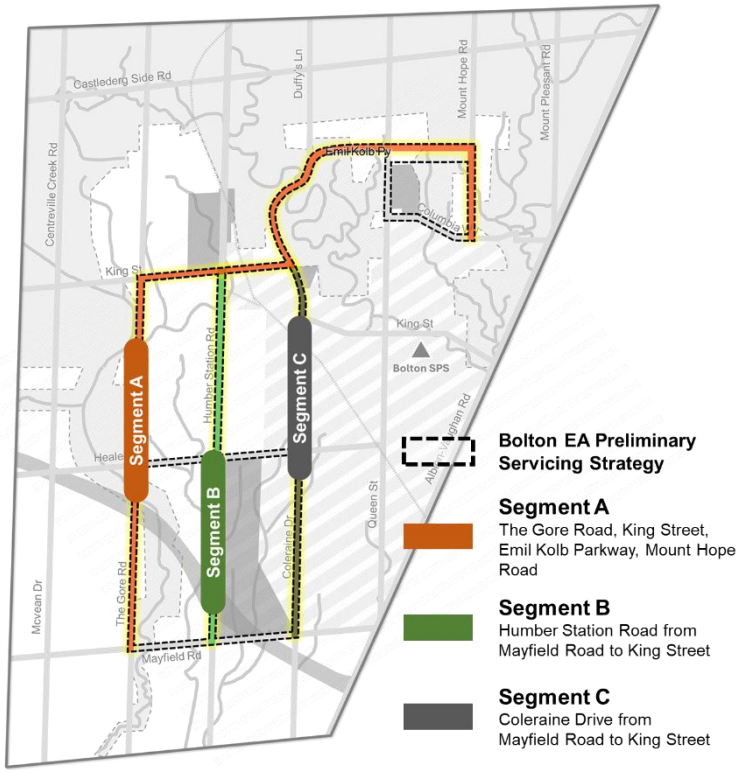


Figure 3-4: Geotech and Hydrogeological Study Extents

3.2.2.1 TOPOGRAPHY AND DRAINAGE

The topography of the study area slopes in a southwesterly direction, and locally towards surrounding watercourses. Ground surface elevations within the study area range from approximately 220 to 280 metres. Regional overland flow in the study area is interpreted to follow the existing topography in a general southwesterly direction, and local overland flow is interpreted to flow towards the watercourses, including Lindsay Creek, the West Humber River, and the Humber River.

3.2.2.2 PHYSIOGRAPHY

The study area is located within the physiographic regions of Southern Ontario known as the South Slope and the Peel Plain, with the majority located within the South Slope (which consist of drumlinized till plains) and a small area at the southern end of the study area located within the Bevelled Till Plains.

3.2.2.3 REGIONAL GEOLOGY AND HYDROGEOLOGY

The surficial geology of the study area consists primarily of clay to silt-textured till, derived from glaciolacustrine deposits or shale. A smaller area located in the southeast corner of the study area consists of fine-textured glaciolacustrine deposits, consisting of silt and clay with minor sand and gravel with interbedded silt and clay. The surficial geology in areas bordering major watercourses consists of modern alluvial deposits and older alluvial deposits, comprised of clay, silt, sand, and gravel, with organic remains.

3.2.2.4 SUBSURFACE CONDITIONS

The predominant bedrock of the study area consists of shale and limestone of the Georgian Bay Formation, and a relatively small portion in the northwest corner of the study area is composed of shale, siltstone,

sandstone, and limestone of the Queenston Formation. **Table 3-3** outlines the different layers overlying the bedrock within the study area and their geotechnical descriptions. **Table 3-4** provides a summary of the anticipated thickness and elevation of each subsurface layer for each segment (**Figure 3-4**).

Table 3-3: Subsurface Geotechnical Description

Layer (from youngest to oldest)	Geotechnical Description
Undifferentiated Upper Sediments	Thin deposits composed of fine sands, silts, and clays, or modern alluvial or organic deposits. Locally, these deposits can reach several metres thick.
Halton Till	Comprises of sandy silt to clayey silt till.
Oak Ridges Moraine	Consists of fine sands and silt materials, with coarse sand and gravel.
Newmarket Till	Mainly sandy silt to silty sand with limestone clasts. Discontinuous sand units up to 2 metres thick may be present.
Thorncliffe Formation	Glaciofluvial deposits of sand and silty sand.
Sunnybrook Drift	Clast-poor mud (silt and clay) deposited on the floor of a glacially dammed lake.
Scarborough Formation	Organic-rich (peat) sands over silts and clays.

Table 3-4: Subsurface Condition Summary

Layer	Segment A	Segment B	Segment C
Halton Till	Between 4m and 60m thick, encountered at ~264m	Between 3m and 32m thick, encountered at ~263m	Between 13m and 63m thick, encountered at ~261m
Oak Ridges Moraine	Intermittent with a maximum thickness of 80m, encountered at ~260m	Intermittent with a maximum thickness of 50m, encountered at ~260m	Intermittent with a maximum thickness of 52m, encountered at ~240m
Newmarket Till	Intermittent with a maximum thickness of 18m, encountered at ~215m	Intermittent with a maximum thickness of 39m, encountered at ~220m	Intermittent with a maximum thickness of 12m, encountered at ~217m
Thorncliffe Formation	Intermittent with a maximum thickness of 47m, encountered at ~200m	Intermittent with a maximum thickness of 46m, encountered at ~223m	Intermittent with a maximum thickness of 26m, encountered at ~210m
Sunnybrook Drift	Intermittent with a maximum thickness of 22m, encountered at ~187m	Intermittent with a maximum thickness of 10m, encountered at ~180m	Intermittent with a maximum thickness of 16m, encountered at ~185m

Layer	Segment A	Segment B	Segment C
Scarborough Formation	Centralized around the proximity of the Humber River with a maximum thickness of 27m, encountered at ~145m	Intermittent with a maximum thickness of 10m, encountered at ~180m	Intermittent with a maximum thickness of 24m, encountered at ~181m
Bedrock	Bedrock surface expected at ~103m to 229m (15m to 143m BGS)	Bedrock surface expected at ~160m to 232m (4m to 94m BGS)	Bedrock surface expected at ~137m to 212m (16m to 120m BGS)
Groundwater	Water table anticipated between ~205m and 263m (2m to 29m BGS)	Water table anticipated between ~216m and 263m (1m to 12m BGS)	Water table anticipated between ~213m and 242m (5m to 25m BGS)

BGS – below ground surface

3.2.2.5 GROUNDWATER AND BEDROCK CONDITIONS

Records obtained from the MECP Water Well Records database in the study area indicate that the shallowest water supply well is 4.3 metres deep, while the deepest is 144.8 metres, with an average depth of 34 metres. Depth to bedrock ranges from 2.1 metres to 149.4 metres, averaging 36 metres. The static water level varies from 2.1 m above grade to 52.7 metres, with an average of 13 metres.

Within the study area, there are 275 wells recorded as water supply wells, 284 wells are recorded as monitoring, observation, or test holes. It is noted that dewatering activities have the potential to affect the amount or quality of water available to nearby well users. It is recommended to conduct a private well survey during the final design phase for both trenchless and open-cut construction options to properly assess the potential impacts on well users.

3.2.2.6 SOURCE WATER CONDITIONS

The Bolton study area is situated within the Humber River watershed, which has a network of stream corridors and linkages that run through its landscapes. It is located within Significant Groundwater Recharge Areas (SGRAs) and Highly Vulnerable Aquifers (HVAs). Provincially Significant Wetlands (PSWs) are also located throughout the study area. There are no Wellhead Protection Area (WHPAs) within the study area.

Source water conditions are depicted in **Figure 3-2**.

3.2.3 BUILT ENVIRONMENT

3.2.3.1 EXISTING AND FUTURE LAND USE

Bolton is a Rural Service Centre with various land uses. The northern section of the study area includes mainly environmental policy areas, medium and low density residential, agricultural, and open space areas, with some institutional and commercial uses. The northern section of the study area also includes portions of land within the Greenbelt Plan. The southern section of the study area includes mainly industrial and agricultural areas, with some commercial and environmental policy areas.

Future growth in Bolton is anticipated with the approval of the ROPA 30 Expansion Lands (245 ha), shown in **Figure 3-5**. Projected population and employment growth for the Bolton service area is noted in **Table 3-5**.

Figure 3-5: Growth Areas for Bolton Service Area

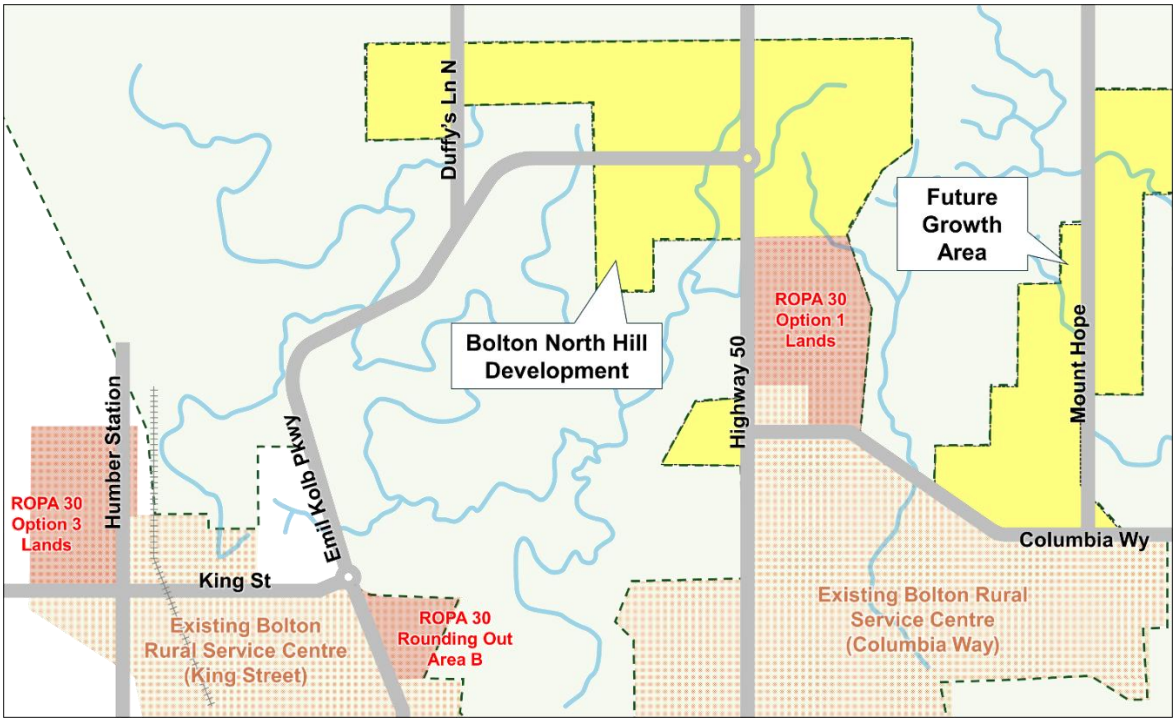


Table 3-5: Projected Residential Population and Employment for Bolton Service Area

Forecast*	2021	2031	2041	2051
Residential	28,070	38,530	72,140	92,080
Employment	24,150	28,580	35,830	44,560
			Bolton North Hill Development Forecast**	24,495
Total	**52,220**	**67,110**	**107,970**	**161,135**

Note: Values are rounded to the closest ten.
Source Peel Region Small Geographic Unity (SGUs) July 3, 2024, Scenario 1*
*Source** Bolton North Landowners Group, December 11, 2023*

3.2.3.2 ARCHAEOLOGICAL RESOURCES

Stage 1 Archaeological Assessment (AA) was undertaken to determine the potential to encounter archaeological resources within the study area. The assessment included a review of historic maps, aerial photographs, and relevant archaeological, historical, and environmental documentation. A review of previous archaeological assessments was also completed to identify areas of avoidance, areas where further studies are required, and areas where no further assessments are required. A Stage 2 AA was recommended on lands found to have archaeological potential, including grassed and natural (undisturbed) areas. Stage 2 AA were completed within identified areas, including areas under TRCA jurisdiction and at the proposed SPS location. Further Stage 3 AA were recommended and subsequently completed by TRCA. Results of the Stage 2 AA and Stage 3 AA can be found in Section 7.4.1.

The Stage 1 AA Report and mapping of areas with potential archaeological resources can be found in **Appendix 2D**.

3.2.3.3 BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE

A Cultural Heritage Report (CHR) is a requirement of the MCEA process and was completed to identify existing and potential built heritage resources (BHR) and cultural heritage landscapes (CHL), review the historical context of the focus area, undertake a site visit to confirm existing conditions and to provide a preliminary impact assessment.

The CHR was completed within the limits of Focus Area 1 in accordance with the *Ontario Heritage Act*, the Provincial Planning Statement (PPS), the *Environmental Assessment Act (EAA)*, the Peel Region Official Plan, and the Town of Caledon Official Plan. The CHR Report and mapping of areas with identified built heritage and cultural heritage resources can be found in **Appendix 2E**.

3.3 Existing Infrastructure

3.3.1 REGIONAL SYSTEM

3.3.1.1 WATER

Peel Region operates and maintains a lake-based water system servicing the City of Mississauga, the City of Brampton, and parts of the Town of Caledon and York Region. Water is supplied from Lake Ontario by two large water treatment plants (WTP), the A.P. Kennedy WTP and the Lorne Park WTP, which are operated by the Ontario Clean Water Agency (OCWA) on behalf of the Region. Water is then conveyed through the transmission and distribution systems across the Region.

The transmission system consists of transmission mains, water pumping stations, reservoirs, and elevated tanks. The Region's lake-based transmission and distribution systems deliver water to users through pressure zones that are separated by 100-foot elevation intervals, as shown in **Figure 3-6**. The community of Bolton is serviced through the Region's lake-based water transmission system, specifically through the East Transmission System.

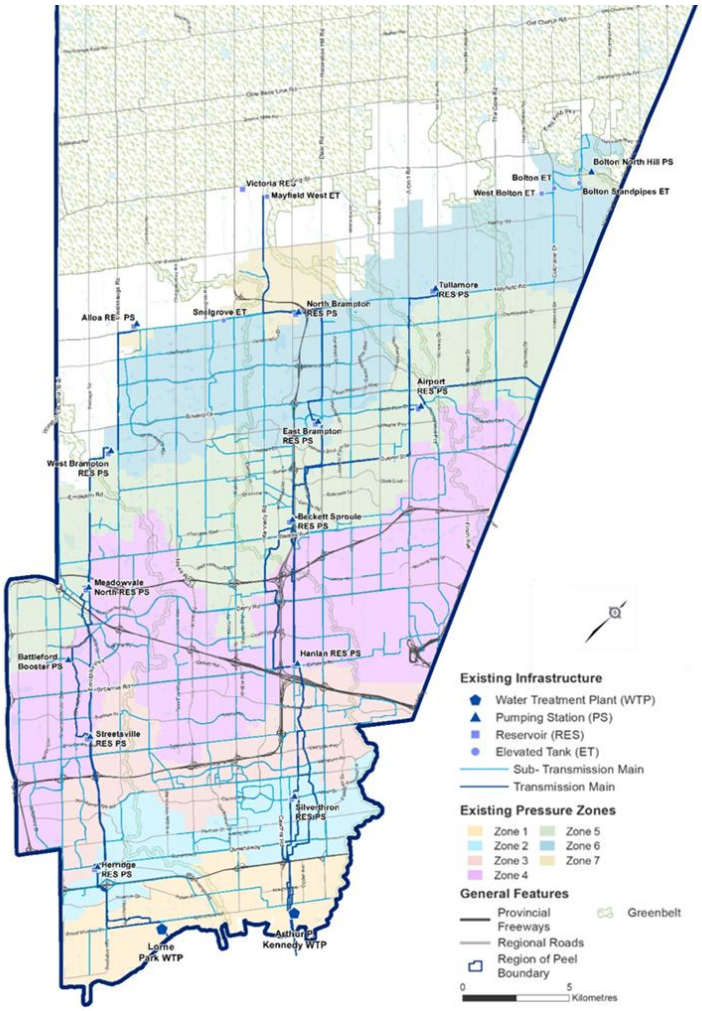


Figure 3-6: Existing Regional Lake-Based Water System

3.3.1.2 WASTEWATER

Peel Region operates and maintains a lake-based wastewater system that services the City of Mississauga, the City of Brampton, and parts of the Town of Caledon. The system consists of two water resource recovery facilities (WRRF), the G.E. Booth WRRF and the Clarkson WRRF, and three main trunk sewer systems (McVean, East, and West) which convey flows through pumping stations, force mains, trunk and local gravity sewers to the WRRFs for final treatment and discharge to Lake Ontario.

The East and West trunk sewer systems service areas are roughly divided by the watershed boundary between the Etobicoke Creek and the Credit River. Flows from the community of Bolton are primarily serviced by trunk sewers on Coleraine Drive and Albion-Vaughan Road, which is part of the McVean trunk sewer system that drains east to the G.E. Booth WRRF, as shown in **Figure 3-7**.

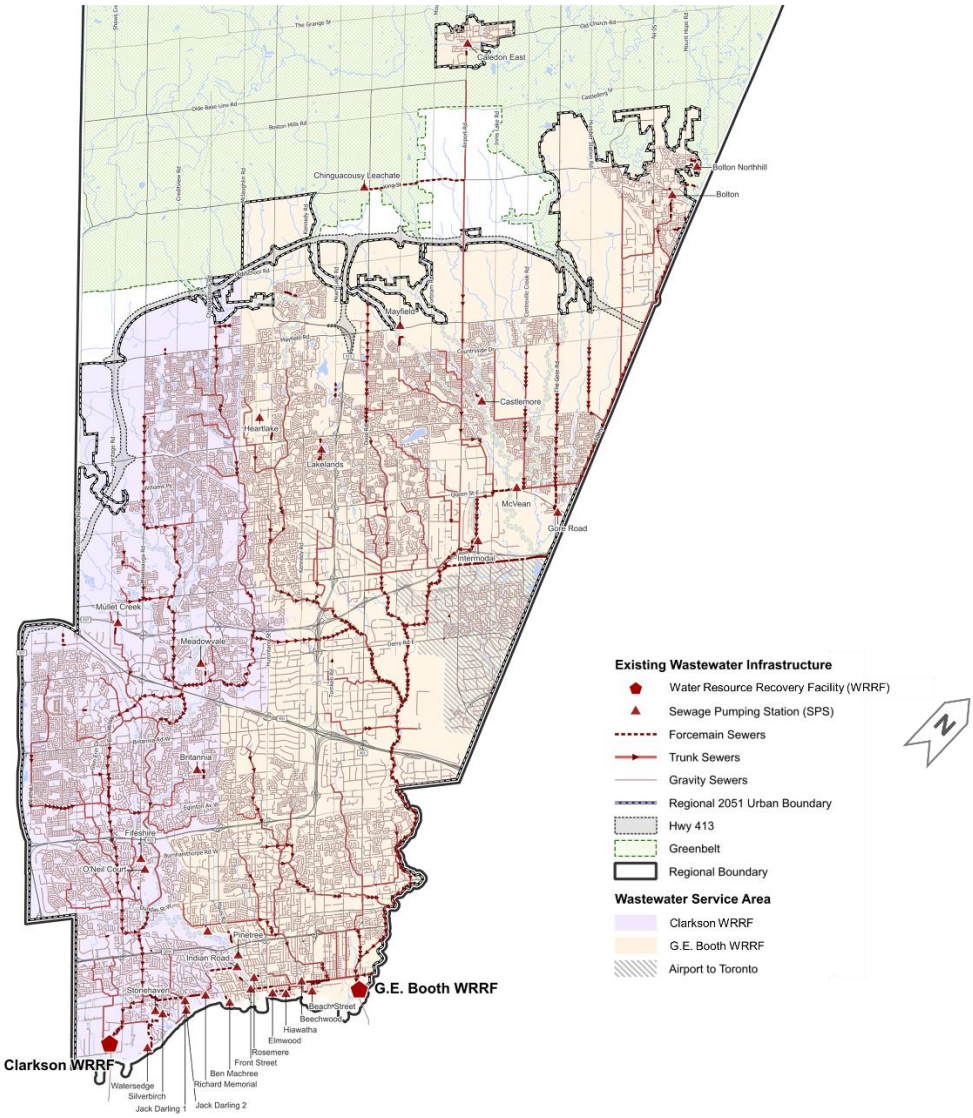


Figure 3-7: Existing Regional Lake-Based Wastewater System

3.3.2 BOLTON LOCAL SYSTEM

3.3.2.1 WATER

The existing water infrastructure within the Bolton study area, including its water pumping stations, transmission, and distribution mains, is owned, operated, and maintained by Peel Region. The existing Bolton Rural Service Centre is located within the existing pressure zones 5 and 6 and is supplied through the Central and Eastern Transmission systems.

The existing Bolton Rural Service Centre, located south of Columbia Way and King Street, is situated at a lower elevation and is supplied from pressure zone 6 through pressure reducing valves (PRVs), which are devices used to lower water pressure to appropriate levels. Pressure zone 5 is also supplied by the Bolton Standpipes. The existing Bolton North Hill Booster Pumping Station (BPS) and Bolton BPS are not typically in operation but can draw some flow from the pressure zone 5 standpipes back to the pressure zone 6 system, if necessary.

Currently, there is no pressure zone 7 in the community of Bolton.

Figure 3-8 provides a map of the existing water infrastructure within the Bolton study area.

3.3.2.2 WASTEWATER

The existing wastewater infrastructure within the Bolton study area, including its sanitary pumping stations, trunk, and gravity mains, is owned, operated, and maintained by Peel Region. The existing Bolton Rural Service Centre is part of the Region's McVean trunk system, which connects to the East trunk system via the McVean SPS.

Wastewater flows from the existing Bolton Rural Service Centre south of Columbia Way and King Street are conveyed south via two trunk sewers on Coleraine Drive and Albion-Vaughan Road. Flows are collected at Bolton SPS that is then pumped to a discharge point near the junction of Strawberry Hill Court and Allan Drive. The pumped flows, together with additional flows south of the SPS, as well as flows from the north, west, and south Bolton areas (drained by gravity), are then conveyed south along Highway 50 and McEwan Drive, eventually connecting to the trunk sewer on Coleraine Drive.

There is a flow split between the Coleraine Drive and Albion-Vaughan Road trunk sewers. The Coleraine trunk sewer currently conveys the majority of Bolton's wastewater flows to the lake-based system. Ultimately, all wastewater flows generated in Bolton are conveyed to the McVean SPS and then through the East trunk system to the G.E. Booth WRRF.

Figure 3-9 provides a map of the existing wastewater infrastructure within the Bolton study area.

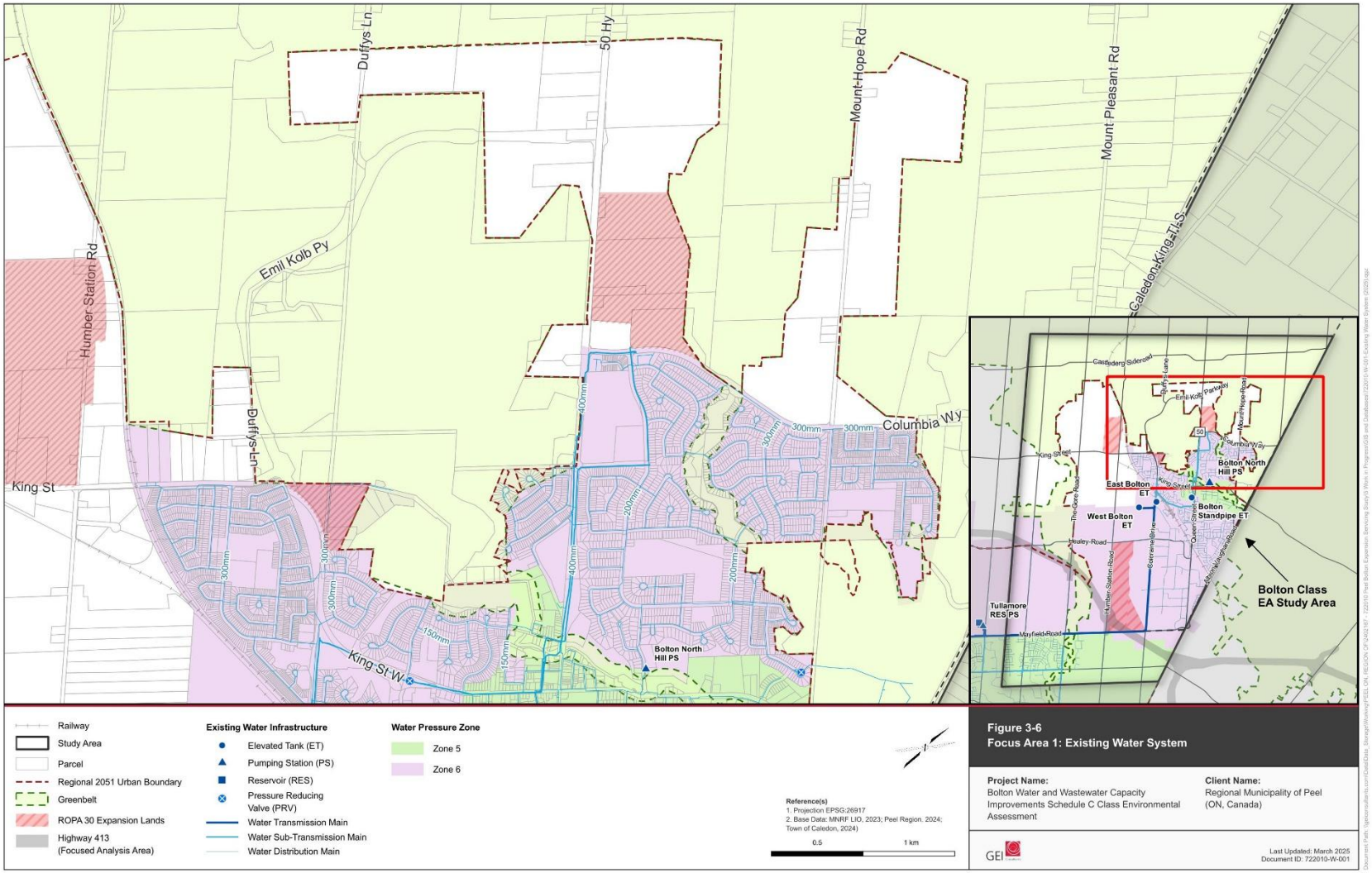


Figure 3-8: Existing Bolton Water Infrastructure

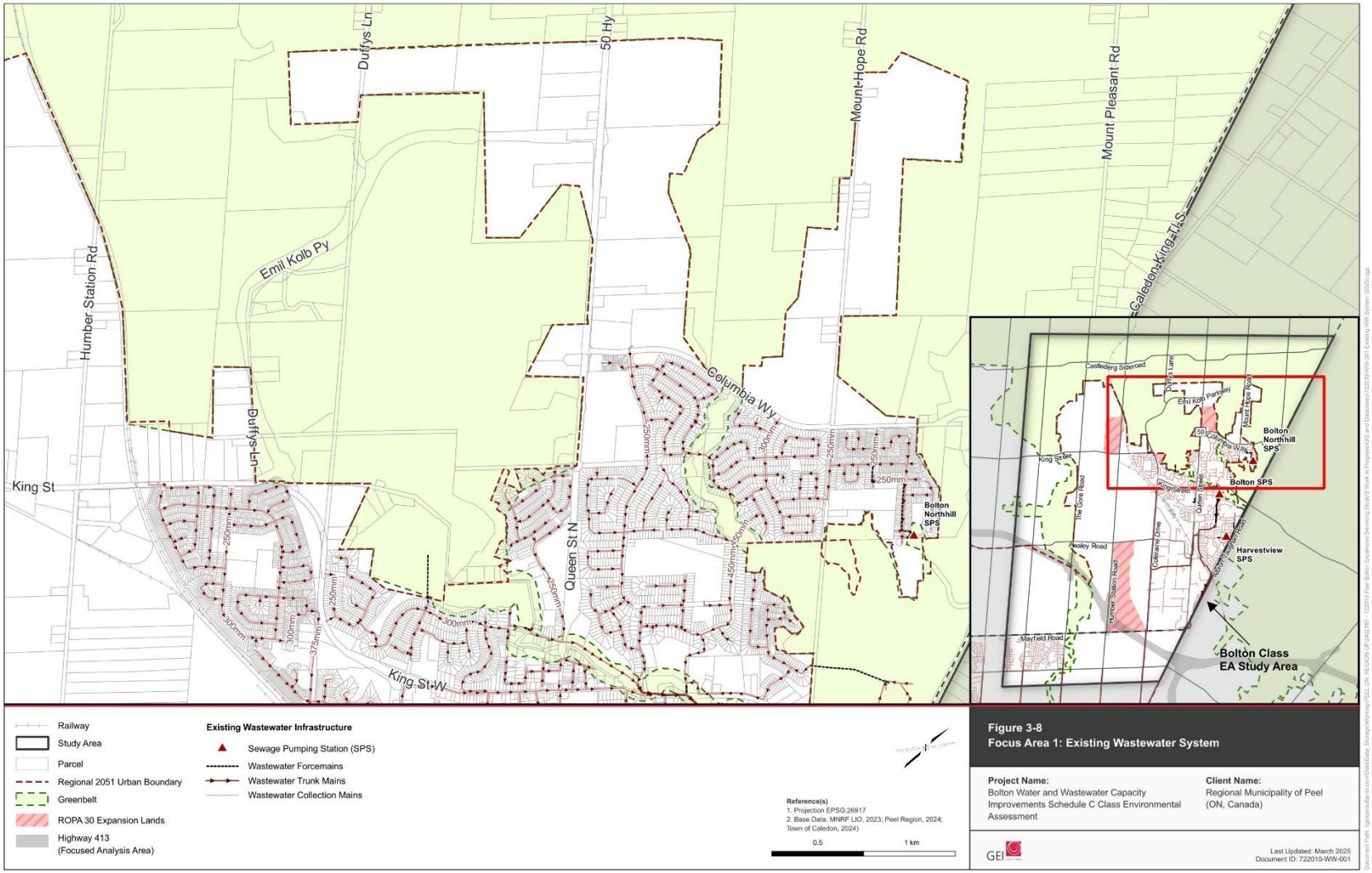


Figure 3-9: Existing Bolton Wastewater Infrastructure

3.3.3 EXISTING STORMWATER SYSTEM

The existing storm sewers within regional road rights-of-way (ROW) are owned, operated, and maintained by the Region. Storm sewers located within local municipal boundaries (e.g., along local roads) are owned, operated, and maintained by the Town of Caledon. **Figure 3-10** provides a map of the existing stormwater infrastructure located within the study area.

3.3.4 EXISTING UTILITIES

Several utilities are present within the study area. The following utility companies were included in the consultation process:

- Alectra Utilities
- Enbridge Gas Inc.
- Hydro One Networks
- TC Energy
- Rogers Cable
- Bell Canada

Coordination and consultation with utility companies have occurred throughout the study process and were considered during the optioneering, alignment selection and evaluation of design alternatives.

3.3.5 EXISTING TRANSPORTATION NETWORK

The following existing major roadways are located within the Bolton study area:

- Emil Kolb Parkway: Regional road, predominantly north-south, two-lane arterial. It increases to four lanes south of the King Street intersection. Includes active transportation multi-use trails.
- King Street (Regional road 9): Regional road, east-west, two-lane arterial.
- Duffy's Lane: Town of Caledon road, north-south, two-lane collector road.
- Mount Hope Road: Town of Caledon road, north-south, two-lane arterial road.
- Columbia Way: Town of Caledon road, east-west, two-lane collector road. Includes active transportation multi-use pathways.
- Highway 50: Regional road, north-south, four-lane arterial road.
- Mayfield Road (Regional road 14): Regional road, east-west, two-lane arterial road.
- Coleraine Drive (Regional road 150): Regional road, north-south, four-lane arterial road.
- The Gore Road (Regional road 8): Regional road, north-south, two-lane arterial road.

One railway line (freight) is located within the study area. It is owned by the Canadian Pacific Railway and passes through the study area in an east-west direction.

Brampton Transit and GO Transit currently have routes operating in the study area that provide local and inter-regional travel.

More details on the existing traffic conditions for Focus Area 1 are provided in **Appendix 2F**.

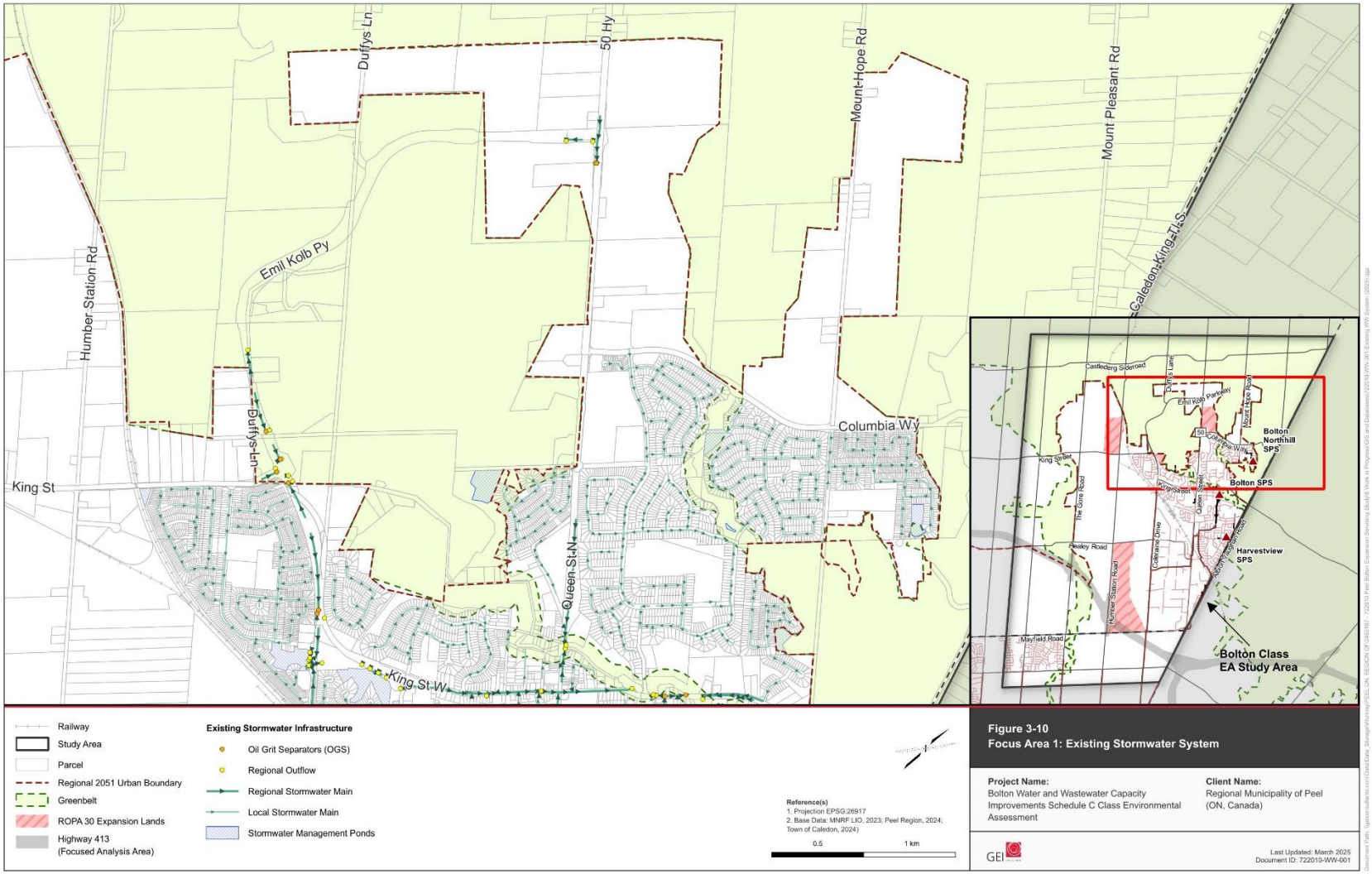


Figure 3-10: Existing Bolton Stormwater Infrastructure

3.4 Relevant Infrastructure Projects

3.4.1 WATER AND WASTEWATER MASTER PLAN FOR THE LAKE-BASED SYSTEMS (2026)

The Region's 2020 Water and Wastewater Master Plan for the Lake-Based Systems (2020 Master Plan) addressed increasing demands on water and wastewater infrastructure due to growth through to 2041. The 2020 Master Plan reviewed and developed servicing strategies for the lake-based systems in the City of Mississauga, the City of Brampton, and parts of the Town of Caledon. The preferred water and wastewater servicing strategies were developed to ensure that:

- Extensions of the existing lake-based water and wastewater system is aligned with existing regional and local planning policies.
- The use of the existing lake-based systems is maximized for new infrastructure to meet the planned 2041 needs.
- Strategic oversizing of infrastructure, where justified, is planned to support growth beyond 2041.
- The 2020 Master Plan recommendations were developed by, and provided feedback to, the Region's Growth Management Strategy through an integrated process.

The 2020 Master Plan, completed in June 2020, included the approved ROPA 30 Option 6 and Triangle Lands but excluded infrastructure for unapproved lands under ROPA 30. A detailed capital program was developed to support both current and future growth.

Peel Region is now in the process of updating its Water and Wastewater Master Plan to support existing servicing needs and future growth to 2051. The objective of the 2026 Water and Wastewater Master Plan for the Lake-Based Systems is to identify long-term servicing strategies for the Region's lake-based water and wastewater systems to support existing needs and projected growth to 2051 and to consider post-2051 growth.

The updated master plan is anticipated to be completed in 2026 and will:

- Align with the latest Regional Official Plan population and employment forecasts to 2051.
- Consider the accelerated growth implications of the Province's Bill 23.
- Include collaboration with local municipalities to identify priority growth areas such as Major Transit Station Areas (MTSAs).
- Assess potential growth beyond the 2051 planning horizon for long-term infrastructure planning purposes.

3.4.2 BOLTON WATER AND WASTEWATER FEASIBILITY STUDY (2023)

Peel Region initiated the Bolton Water and Wastewater Feasibility Study as part of the Bolton Class EA study. The objective of the feasibility study was to assess and propose optimal water and wastewater servicing solutions for the ROPA 30 lands, to support both short-term and long-term growth. The study prioritized long-term infrastructure solutions, focusing on sustainable servicing strategies that can accommodate future intensification and development.

The needs identified in the feasibility study provided the basis for developing and evaluating servicing strategies through the Bolton Class EA, including:

- New watermain to service the existing area and future growth.
- New water booster pumping station in new pressure zone 7.
- New water storage to service future growth in new pressure zone 7.
- New sanitary pumping station and associated force mains.
- New sanitary sewers to convey flow from future growth west along Emil Kolb Parkway and to convey flow from future growth from north to south of King Street.

The feasibility study aimed to ensure that water and wastewater infrastructure is appropriately planned to meet both immediate demands and future growth, aligning with Peel Region's Official Plan and the Peel 2051 Comprehensive Review.

3.4.3 PEEL REGION BLOCK INFLOW AND INFILTRATION PROGRAM – BOLTON BLOCK 35 (2020)

Peel Region has implemented a Block Inflow and Infiltration (I&I) Program, which involves a multi-step approach to finding, categorizing, and solving I&I issues within the Region's wastewater system. The first step involves the analysis of flow monitoring data to isolate I&I sources and then identify strategies to stop I&I from entering the wastewater system. This can include downspout disconnections and cross-connection remediation (e.g., catch basins, floor drains, sump pumps, etc.).

The second step involves the acceptance of the I&I balance and assessment of the condition of the wastewater system to identify the best solution alternative. This process includes a Class EA, Preliminary Design, Detailed Design, and Construction phases.

Block 35 is located within the Bolton study area. Flow monitor data were analyzed in 2020, and recommendations were made for field investigations. Additional strategies to resolve or manage the remaining I&I after completing the reduction work were considered in this Class EA.

3.4.4 PEEL REGION COLERAINE DRIVE GRADE SEPARATION EA TRANSPORTATION AND TRAFFIC STUDY (2017)

Peel Region completed a Coleraine Drive Grade Separation Class EA to assess improvements for the Canadian Pacific rail line crossing at Coleraine Drive, near Old Ellwood Drive, aiming to reduce traffic delays and enhance safety. A Transportation Traffic study evaluated current and future traffic conditions, safety, active transportation, and access management with and without the grade separation.

Coleraine Drive is a key route connecting the community of Bolton, Highway 50, and the City of Brampton. The study identified potential issues and recommended improvements to address future traffic growth.

Expected benefits of a grade separation on Coleraine Drive include:

- Elimination of queuing issues originating at the railway crossing;
- Reduced exposure to collisions with trains;
- Elimination of certain motor vehicle conflicts with the closing of the intersections of Coleraine Drive with Elwood Drive West and Old Ellwood Drive;
- Improved truck network and, consequently, increased reliability for the goods movement corridor; and
- The associated reconstruction of Coleraine Drive provides an opportunity to provide bicycle facilities and to upgrade pedestrian facilities to meet current accessibility standards.

Upon completion, the Coleraine Drive grade separation EA concluded with two main recommendations:

- Grade separation: 'Road-over-rail" grade separation of Coleraine Drive and the Canadian Pacific Railway line, south of Old Ellwood Drive.
- Roundabout: A roundabout at the intersection of Coleraine Drive, King Street West and Harvest Moon Drive.

The Coleraine Drive Grade Separation EA for south of Old Ellwood Drive has now proceeded to detailed design and construction.

3.4.5 TOWN OF CALEDON TRANSPORTATION MASTER PLAN (2015)

The Bolton Transportation Master Plan (2015) was developed through a collaborative effort between the Town of Caledon and Peel Region. The study followed a comprehensive and consultative master planning approach consistent with the Class EA process. It identified transportation deficiencies and road network issues, while supporting municipal planning goals.

Short-term road improvements recommended for implementation:

1. New road construction (0-2 Lanes) for Emil Kolb Parkway from King Street to Highway 50
2. Narrowing (4-2 Lanes) Queen Street (Highway 50) from south of King Street to Hickman Street
3. Extending (0-2 lanes) Simpson Road from Mayfield Road to George Bolton Parkway
4. Widening (2-4 lanes) Mayfield Road
5. Widening (2-4 lanes) Coleraine Drive from Albion Vaughan Road to The Gore Road
6. New Road Construction (0-6 lanes) for Arterial Corridor A2 from Mayfield Road to Highway 50

Road improvements recommended for the 2031 horizon year:

1. Widening (2-4 lanes) Albion Vaughan Road from Mayfield Road to King Street
2. Widening (5-7 lanes) Highway 50 from Mayfield Road to Castlemore Road
3. Widening (4-6 lanes) Mayfield Road from Humber Station Road to Airport Road
4. Extending (0-2 lanes) George Bolton Parkway Extension from Highway 50 to Industrial Road
5. New road construction (0-2 lanes) for King Street Realignment from King Street to Emil Kolb Parkway
6. New road construction for Highway 427 from Highway 427 to Highway 413
7. New road construction for Highway 413
8. New road construction for Highway 413/Highway 427 Extension Interchange
9. New road construction for Highway 413/Coleraine Drive Interchange

4 Phase 1 – Problem and Opportunity Statement

4.1 Problem and Opportunity Statement

As part of Phase 1 of the Municipal Class EA process, the problem and opportunity statement provides a clear statement identifying the opportunities and challenges to be addressed through the study. The problem and opportunity statement for Water and Wastewater Capacity improvements for Bolton Class EA is as follows:

"To develop optimal water and wastewater servicing solutions to improve linear and pumping infrastructure to meet both existing needs and approved growth within the Region Official Plan Amendment (ROPA) 30 lands in the community of Bolton."

The Bolton Water and Wastewater Capacity Improvements Class EA problem and opportunity statement considered the following strategy goals:

- Support the Region's long-term plan for providing water and wastewater services within the Bolton service area.
- Provide system capacity to meet existing and approved growth needs to 2051 within the Council-approved ROPA 30 areas and 2051 Urban Boundary.
- Provide operational flexibility for infrastructure maintenance, inspection, and emergency operations.
- Provide infrastructure capacity and flexibility to adapt to climate change (e.g., extreme wet weather events).
- Minimize natural environmental, social, and cultural impacts.
- Minimize total capital, operations and maintenance, and lifecycle costs.

4.2 Opportunity and Constraints

The following section outlines opportunities and constraints for the water and wastewater systems, which were identified through discussions with Region staff, in addition to a baseline review and preliminary hydraulic analysis related to the existing Bolton Rural Service Centre and anticipated future growth (Section 3.2.3.1**).**

4.2.1 WATER SYSTEM

The existing Bolton Rural Service Centre is situated between the serviceable range of the existing pressure zones 5 and 6 (**Figure 3-8**). As noted in Section 3.3.2, the existing serviced area south of Columbia Way and King Street has a lower elevation, with two existing pumping stations, Bolton North Hill BPS and Bolton BPS, which are not typically in operation but can draw some flow from pressure zone 5 standpipes back to the pressure zone 6 system.

Extension of the existing pressure zone 6 watermains northward to service future development beyond Columbia Way and King Street (**Figure 3-5; Table 3-5**) would increase the frequency and magnitude of low-pressure events (<40 psi) occurring. The low-pressure challenges are primarily located in the high elevation areas of the existing pressure zone 6 and in the future development areas north of Columbia Way

and King Street. Pressure limitations are driven by a combination of high elevations and limitations in the linear capacity of watermains from the Zone 6 Bolton Elevated Tanks toward the northeast side of Bolton.

Currently, there is no pressure zone 7 in the community of Bolton. Extending servicing and creating a new pressure zone to service future development also presents an opportunity to improve water pressure within the existing community. Additionally, there is an opportunity to loop the Columbia Way watermain, which would improve system reliability by increasing fire flow availability for current and future demands.

4.2.2 WASTEWATER SYSTEM

The existing Bolton Rural Service Centre is primarily serviced by two trunk sewers on Coleraine Drive and Albion-Vaughan Road (**Figure 3-9**), forming part of the Region's McVean system that connects to the East trunk and ultimately to the G.E. Booth WRRF. As noted in Section 3.3.2, flows are collected at the existing Bolton SPS and are then conveyed south along Highway 50 and McEwan Drive, eventually connecting to the trunk sewer on Coleraine Drive.

To service future development north of Columbia Way and King Street (**Figure 3-6**; **Table 3-4**), there is an opportunity to extend or integrate with planned works from the Region's 2020 Master Plan, strategically oversizing infrastructure where needed. Currently, the Coleraine Drive trunk sewer conveys most of Bolton's wastewater flows, and additional capacity will be required to support forecasted growth.

Planned works in the study area include the extension of the existing Albion-Vaughan trunk sewer, and the decommissioning of Harvestview SPS by 2051, with its flows diverted to the extended trunk sewer. Given the existing flow split between the Coleraine Drive and Albion-Vaughan Road trunk sewers, there is also an opportunity to implement real-time controls to balance flows between the two trunk sewers.

5 Phase 2 – Alternative Servicing Strategy

Phase 2 of the Class EA process was undertaken to identify, develop, and evaluate servicing strategies to address the problem/opportunity statement from Phase 1 of the Class EA process.

5.1 Guiding Principles

The development and evaluation of alternative servicing strategies was guided by a set of overarching principles established at the outset of the Municipal Class EA. These principles provided a consistent framework for identifying and assessing alternatives and ensuring that the recommended servicing strategy supports long-term growth while balancing environmental, technical, social, cultural, jurisdictional, and economic considerations. Throughout the evaluation process, particular emphasis was placed on avoiding impacts to environmental features and sensitive areas wherever feasible. Where impacts could not be avoided, alternatives were designed to minimize disturbances and incorporate appropriate mitigation measures to reduce potential effects. The following guiding principles were applied collectively to identify servicing solutions that best address the project's needs and objectives:

- **Support Long-Term Growth** by identifying infrastructure solutions that accommodate the Region's planned growth while maintaining reliable servicing for existing communities.
- **Protect the Environment** by prioritizing the avoidance of impacts to natural, cultural and built environment features wherever feasible. Where impacts cannot be avoided minimize the extent of disturbance and implement appropriate mitigation measures to reduce potential effects and support the protection of environmental functions and values.
- **Develop Technically Viable Solutions** by identifying strategies that address the project need, support the long-term reliability and security of the systems, minimize construction complexity, and maximize the use of existing infrastructure, road rights-of-way, and easements where feasible.
- **Build Upon Previous Planning** by integrating recommendations from previous planning initiatives with current servicing needs, updated technical information, and ongoing design and planning activities.
- **Consider Local Opportunities and Constraints** by recognizing existing infrastructure, land use, topography, environmental features, access limitations, utility conflicts, and future development objectives in the selection of preferred solutions.
- **Promote Efficient and Cost-Effective Infrastructure** by maximizing the use of existing infrastructure capacity, minimizing unnecessary capital upgrades, and identifying practical solutions that can be reasonably constructed, operated, and maintained.
- **Support Community and Cultural Values** by considering potential effects on Indigenous Nations, Métis organizations and rights holders, residents, businesses, transportation, archaeological and cultural heritage resources, as well as air quality, noise, dust, and odour.

5.2 Evaluation Process

Following the baseline inventory of natural, social, economic, legal and jurisdictional, and environmental factors described in Section 3, conceptual water and wastewater servicing solutions resulting from the Bolton Feasibility Study were evaluated. **Table 5-1** provides a summary of the recommended projects from the Bolton Feasibility Study requiring fulfillment under the Class EA process.

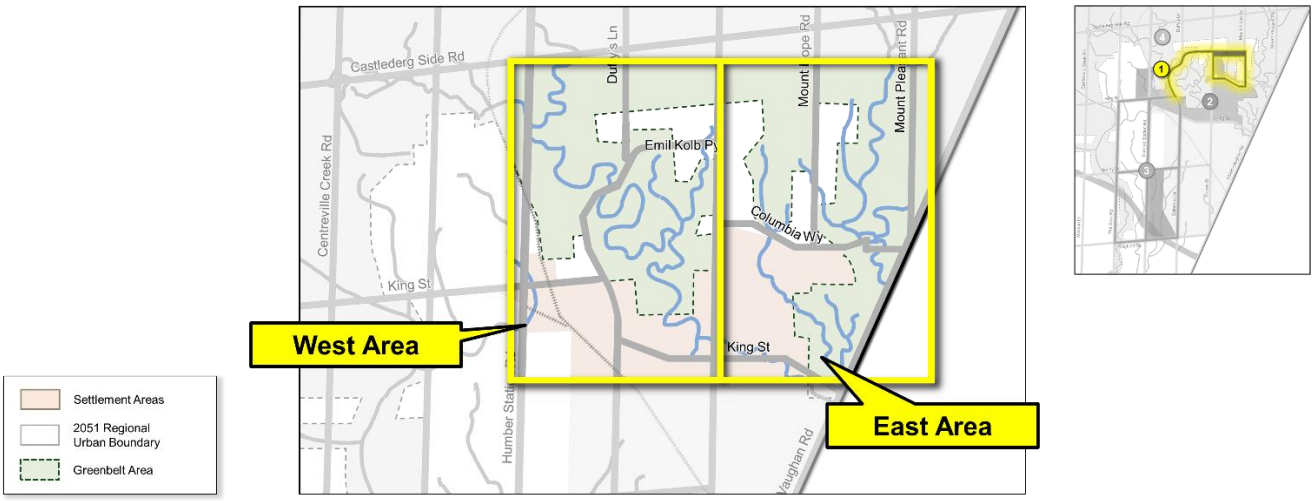


Figure 5-1: Focus Area 1 – East and West Areas

The Bolton Class EA evaluation process follows a structured, multi-step approach to assess water and wastewater servicing strategies. The process involved establishing evaluation criteria, collecting environmental, social, and economic data of the study area, and developing alternative servicing concepts. Preferred strategies were selected and refined through **Focus Areas**.

Focus Area 1, as described in Section 1.2, was split into East and West areas (**Figure 5-1**) to develop, evaluate, and select the preliminary preferred strategies. The evaluation process was undertaken in sequential steps, starting with the East area to inform the selection of the West. Supporting investigations and studies were completed, including natural environment inventory, archaeological assessment, Indigenous Nations, Métis organizations and rights holders engagement, hydrogeological and geotechnical studies, and cultural heritage screening. The evaluation process for Focus Area 1 is illustrated schematically below in **Figure 5-2**. For detailed evaluation of the water and wastewater alternatives for the East and West lands of Focus Area 1, please refer to **Appendix 3B**.

Focus Area 2 centered on identifying and addressing localized issues related to I&I in the vicinity of the Bolton SPS. The primary goal was to explore opportunities to reduce the volume of I&I. This is beneficial as excessive I&I can impact the system, leading to operational inefficiencies, increased treatment costs, and potential environmental risks. Unlike Focus Area 1, which involved a detailed evaluation of the existing infrastructure's capacity to handle current and future flows, Focus Area 2 took a strategic, high-level approach. It did not investigate the technical capacity or performance of individual assets within the area. Instead, it emphasized system-wide improvements that could enhance the operational flexibility of the Bolton SPS.

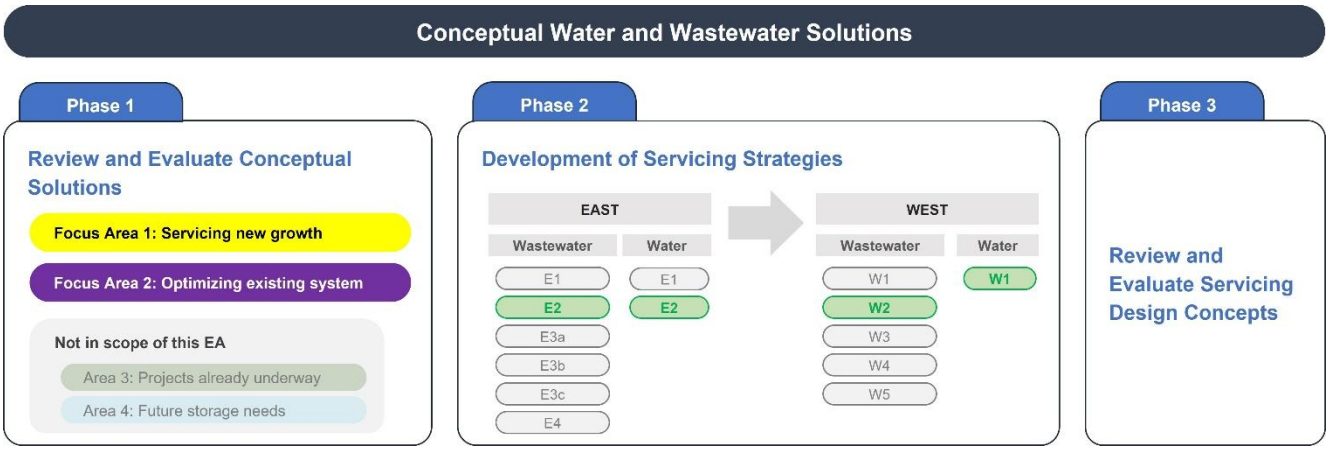


Figure 5-2: Schematic Overview of the Bolton Class EA Evaluation Process for Focus Area 1

The following table provides an overview of the recommendations from the Bolton Feasibility Study and identifies which solutions were further assessed in this Class EA study.

Table 5-1: Recommendations from the Bolton Feasibility Study Requiring Class EA Process

System	Conceptual Servicing Solutions	Further Evaluated in current Bolton Class EA
Water	Identified need for new Booster Pumping Station in Zone 7 for the community of Bolton.	Review and refine location for the proposed new Booster Pumping Station. The BPS location was identified as eligible for exemption based on the results of the Archaeological Screening Process. The completed ASP checklist, together with the supporting documentation, was submitted to the Ministry on March 7, 2024, and is included in **Appendix 3A** of this report.
	Identified need for new watermains to service existing area and future growth.	Review and refine location for watermain alignments (including construction methodologies and shaft compound locations).
	Identified need for new storage facility to service future growth for Zone 7.	To be evaluated through a separate Class EA - not evaluated as part of this Bolton Class EA.
Wastewater	Identified need for new Sanitary Pumping Station and associated force main to service new growth areas where ground elevations and hydraulic constraints limit gravity servicing to connect to the existing sanitary system.	Review and refine location for the new SPS and associated force main alignment.
	Identified conceptual flow strategies west along Emil Kolb Parkway.	Review and refine the location of new sewer alignments (including construction methodologies and shaft compound locations) west along Emil Kolb Parkway.

System	Conceptual Servicing Solutions	Further Evaluated in current Bolton Class EA
	Identified conceptual north-south flow strategies to the existing Bolton SPS located south of King Street.	Review and refine sewer alignments and flow strategies north of King Street.

5.3 Evaluation Criteria

Each water and wastewater servicing alternative was evaluated based on a set of criteria (**Table 5-2**).

Table 5-2: Conceptual Servicing Solutions Evaluation Criteria

Evaluation Criteria	Description
Technical Considerations	Ease of construction. Compatibility with existing and planned infrastructure. Minimize environmental and infrastructure crossings. Minimize conflicts with existing utilities. Ability to meet existing and future servicing standards. Available servicing capacity to support future growth. Ease of access for maintenance. Operation and maintenance considerations. Flexibility of system operations and operational security.
Environmental Impacts	Climate change. Environmental crossing considerations. Minimize impacts to environmental features, protected areas, species at risks, water features and resources, air quality, natural features, and trees. Geology, hydrogeology, and contamination considerations.
Social and Cultural Impacts	Community (residents and local businesses) and traffic considerations. Public accessibility during construction and operation. Noise, vibration, dust, and odour considerations. Cultural heritage resources. Archaeological resources.
Site Suitability	Land use, land size, availability, and location. Permit requirements. Ownership, legal, and jurisdictional considerations. Compliance with applicable planning and special land use policies.
Economic Considerations	Capital needs costs. Operation and maintenance costs. Lifecycle cost considerations. Consideration of potential financial risk during construction.

5.4 Water Strategy Alternatives

5.4.1 FOCUS AREA 1 - EAST LANDS

Several water servicing alternatives were developed for the east side of Focus Area 1 to provide servicing to the planned growth areas. The alternatives evaluated transmission main alignments and associated infrastructure required to deliver water to the eastern lands while maintaining reliable service and supporting future growth. **Table 5-3** and **Figure 5-3** provide a description and map for each of the evaluated alternatives, respectively.

Table 5-3: Long List of Water Alternatives (East Lands)

Option ID	Option Name	Description	Result
Option E1	Single Feed via Road ROW	Water quality challenges associated with providing a single feed to the new service area. Increased servicing risk due to single feed strategy. Option E1 runs south along Highway 50 to Columbia Way and north along Mount Hope Road.	Screened Out
Option E2	Looped System via Road ROW and future utility corridor	Enhances system resiliency, supports existing watermain connections, and offers opportunities to minimize impacts through tunnelling, bundling construction with wastewater works, and align with future road projects. Option E2 runs south along Highway 50 to Columbia Way and north along Mount Hope, with a proposed crossing to Highway 50 and Emil Kolb Parkway.	**Carried Forward**

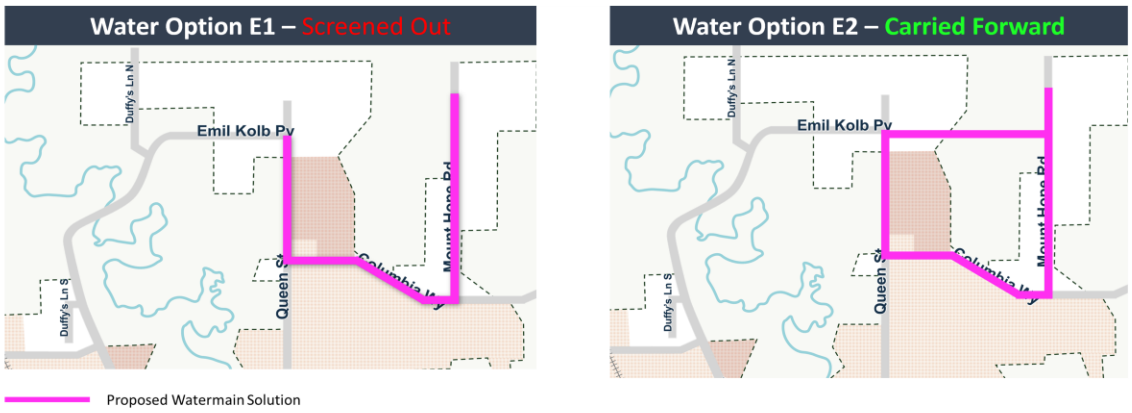


Figure 5-3: Long List of Water Alternatives (East Lands)

Option E2 was selected as the preliminary preferred strategy due to the following:

- Looped feed required for supply security, water quality, water pressure, and emergency fire flow;
- Opportunity to connect to existing watermains on Columbia Way;

- Opportunity to bundle water and wastewater construction within the future utility corridor;
- Opportunity to align with future roads;

The preferred construction methodology is a combination of open-cut and tunnelling to reduce impacts to the surrounding community and environment, reduce local traffic disruption, and minimize potential surface disturbances. The construction methodology is reviewed in detail in Phase 3 of the Class EA process (Section 6). Portions of the proposed alignment traverse the Greenbelt Protected Countryside; however, the infrastructure is required to support provincially approved growth within the Regional 2051 Urban Boundary and is permitted under the Greenbelt Plan through the *Environmental Assessment Act*. Through the Class EA process, the alignment and construction approach have been refined to minimize encroachment and potential impacts, including the use of tunnelling where appropriate. The works are located adjacent to settlement areas and connect existing and planned communities, consistent with Greenbelt policies. Consultation with MECP was undertaken to support alignment with applicable provincial requirements and can be further found in **Appendix 3B**.

5.4.2 FOCUS AREA 1 - WEST LANDS

The water strategy in the west lands of Focus Area 1 was developed in coordination with the wastewater strategy to minimize construction impacts and reduce environmental and surrounding disturbances. As a result, no additional alternatives were considered.

Table 5-4: Long List of Water Alternatives (West Lands)

Option ID	Description	Result
Option W1	Open-cut and partial tunnelling via Emil Kolb Parkway ROW	**Carried Forward**

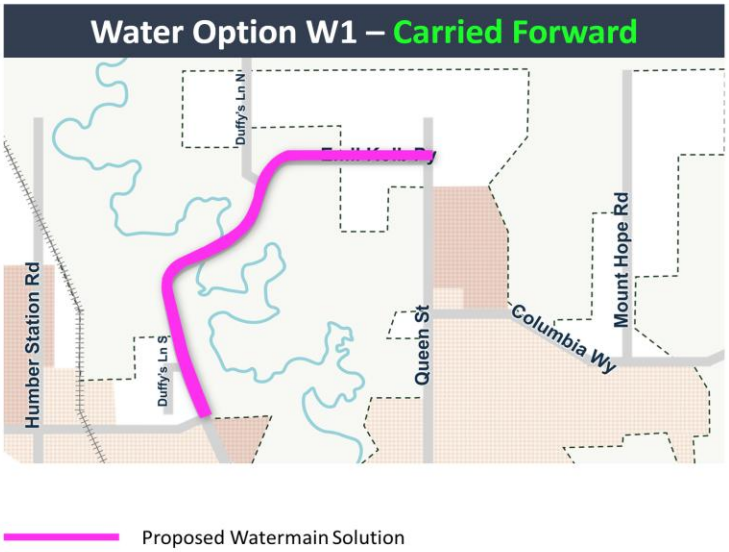


Figure 5-4: Water Strategy (West Lands)

The water strategy was selected as the preliminary preferred strategy due to the following:

- Optimal technical, construction, and operational option;
- Long-term access for operations and maintenance activities, limited to a small area east of the Humber River;
- Opportunity to bundle water and wastewater construction within the future utility corridor;
- Opportunity to align with future roads;

The preferred construction methodology is primarily open-cut, with environmental features to be tunnelled to avoid impacts to fish and fish habitat and other key structures. The construction methodology is reviewed in detail in Phase 3 of the Class EA process (Section 6).

5.4.3 FOCUS AREA 2

The preferred water strategy for Focus Area 2 aims to optimize the existing system by promoting (changing) portions of pressure zone 6 into the future pressure zone 7.

The realignment selected was identified as the preferred option based on the following considerations:

- Elevation suitability: a 260-metre elevation boundary provides an optimal division between pressure zone 6 and pressure zone 7, ensuring efficient servicing, improving pressure in high elevation areas, and aligning with elevation ranges identified in the MacVille BPS & Bolton Watermain study.
- System resiliency: the revised boundary maintains proper looping within the water network to support pressures and fire flows across both pressure zone 6 and pressure zone 7.
- Operational efficiency and water quality: implementing the realignment following the commissioning of the MacVille BPS allows moderate demand immediately from existing customers, which helps regulate pump operations and promote turnover. This enhances water quality and enables pumps to operate within their target operating range.
- Distribution capacity improvements: the proposed design includes a 400 mm diameter watermain along Columbia Way extending from the existing 400-mm stub to Mount Hope Road, providing greater distribution capacity. The larger diameter main allows for increased west-east conveyance within the northern portion of Columbia Way.

Additional to the promotion area, the strategy relies on the design and construction of a new pressure zone 7 BPS at Coleraine Drive and King Street. The site selection was completed through a separate Class EA archaeological screening process.

5.5 Wastewater Strategy Alternatives

5.5.1 FOCUS AREA 1 - EAST LANDS

Several wastewater servicing alternatives were developed for the eastern portion of Focus Area 1 to provide servicing to the planned growth areas. Due to the local topography, ground elevations, and the depth of the existing wastewater infrastructure, both gravity servicing and sanitary pumping station solutions were evaluated to identify the most appropriate long-term servicing strategy. The gravity servicing alternatives considered conveying wastewater through either the road-right-of way or the Mount Hope Road/Highway 50

road-right-of-way and future utility corridor. The SPS alternatives evaluated several potential pumping station locations to service the eastern lands and convey flows to the existing wastewater system in areas where gravity servicing was not feasible. **Table 5-5** and **Figure 5-5** provide a description and map for each of the evaluated alternatives.

Table 5-5: Long List of Wastewater Alternatives (East Lands)

Option ID	Option	Description	Result
Option E1	All gravity solution via Road ROW	Gravity solution eliminating need for a new SPS, reduces operational and environmental risks. Increased construction complexity due to deep sewer within the road ROW to minimize surface and jurisdictional impacts.	Screened Out
Option E2	All gravity solution via Mount Hope Road ROW, Highway 50 ROW and future utility corridor	Gravity solution eliminating need for a new SPS, lowering operational and environmental risks. Opportunities to coordinate with future road and utility works and to minimize community disruption through tunnelled sewer construction.	**Carried Forward**
Option E3a	New SPS at Mount Hope Road and Columbia Way	Land acquisition required for a new SPS. Increased construction challenges, higher operational and maintenance costs, and greater potential environmental impact from the required overflow facility. More open-cut construction leading to increased community and traffic disruption (similar to E3b and E3c).	Screened Out
Option E3b	New SPS at Humber River tributary along Columbia Way	Land acquisition required for a new SPS. Increased construction challenges, higher operational and maintenance costs, and greater potential environmental impact from the required overflow facility. More open-cut construction leading to increased community and traffic disruption (similar to E3a and E3c).	Screened Out
Option E3c	New SPS at Highway 50 and Columbia Way	Land acquisition required for a new SPS. Increased construction challenges, higher operational and maintenance costs, and greater potential environmental impact from the required overflow facility. More open-cut construction leading to increased community and traffic disruption (similar to E3a and E3b).	Screened Out

Option ID	Option	Description	Result
Option E4	New SPS at Mount Hope Road and future utility corridor	Land acquisition required for a new SPS. Increased construction challenges, higher operational and maintenance costs, and greater potential environmental impact from the required overflow facility. Potential to bundle construction with a watermain along a new easement and service low elevation lands.	Screened Out

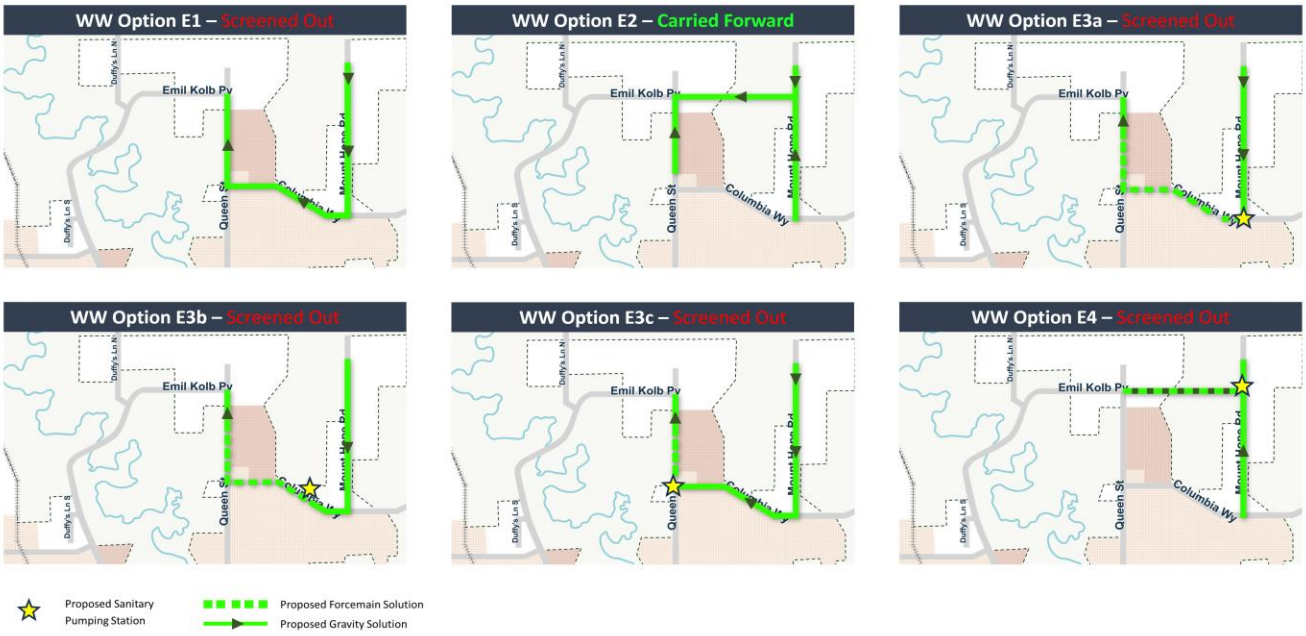


Figure 5-5: Long List of Wastewater Alternatives (East Lands)

Option E2 was selected as the preliminary preferred strategy due to the following:

- Reduced environmental risks and operational and maintenance costs;
- Opportunity to bundle water and wastewater construction within the future utility corridor;
- Opportunity to align with future planned road(s);

The preferred construction methodology is tunnelling to reduce impacts to the surrounding community, reduce environmental impacts, reduce local traffic disruption, and minimize potential surface disturbances. The construction methodology is reviewed in more detail in Phase 3 of the Class EA process (Section 6).

5.5.2 FOCUS AREA 1 - WEST LANDS

Several wastewater alternatives were developed on the west side of Focus Area 1. **Table 5-6** and **Figure 5-6** provide a description and map for each of the evaluated alternatives, respectively. The location of the sanitary pumping station was a key factor driving the selection of the preferred strategy for the West Lands, with preference given to a site that allows for ease of construction access, minimizes environmental impacts, provides sufficient available land, limits disturbance to existing trails and natural features, and accommodates appropriate sewer depth, ideally within previously disturbed areas.

Table 5-6: Long List of Wastewater Alternatives (West Lands)

Option ID	Option Name	Description	Result
Option W1	New SPS at Duffy's Lane North	Requires a separate, very deep SPS and additional infrastructure at the Humber River crossing. Multiple sites, additional access and shaft requirements, and longer emergency overflow routing increase construction complexity, operational requirements, and environmental risk.	Screened Out
Option W2	New SPS Southeast of the Humber River	Provides a shared SPS and supporting infrastructure at a combined site, with sufficient land for the SPS, shaft compounds, and tunnelling. Optimized sewer and forcemain lengths, shorter emergency overflow routing, and consolidated construction and long-term access provide the best overall balance of constructability, environmental impact, and operational efficiency. The site is also largely within a previously disturbed former road allowance, reducing the potential for impacts to intact archaeological resources relative to undisturbed areas.	**Carried Forward**
Option W3	New SPS Southwest of the Humber River	Requires a deep SPS within a more constrained area west of the Humber River. Additional access and construction within sensitive valleylands increase potential impacts to natural features and trails and create greater long-term maintenance access challenges.	Screened Out

Option ID	Option Name	Description	Result
Option W4	New SPS at Highway 50 and Emil Kolb Parkway	Requires a very deep SPS at a site with limited land availability, together with additional access and infrastructure at the Humber River crossing. Greater depth, longer forcemain and emergency overflow routing, and a multi-site configuration increase technical complexity, environmental footprint, and operational requirements.	Screened Out
Option W5	New SPS at Emil Kolb Parkway and King Street	Requires a separate, very deep SPS at a constrained site with limited land availability. Greater sewer and SPS depth, multiple site requirements, and interaction with surrounding land uses increase construction complexity and long-term operation and maintenance requirements.	Screened Out

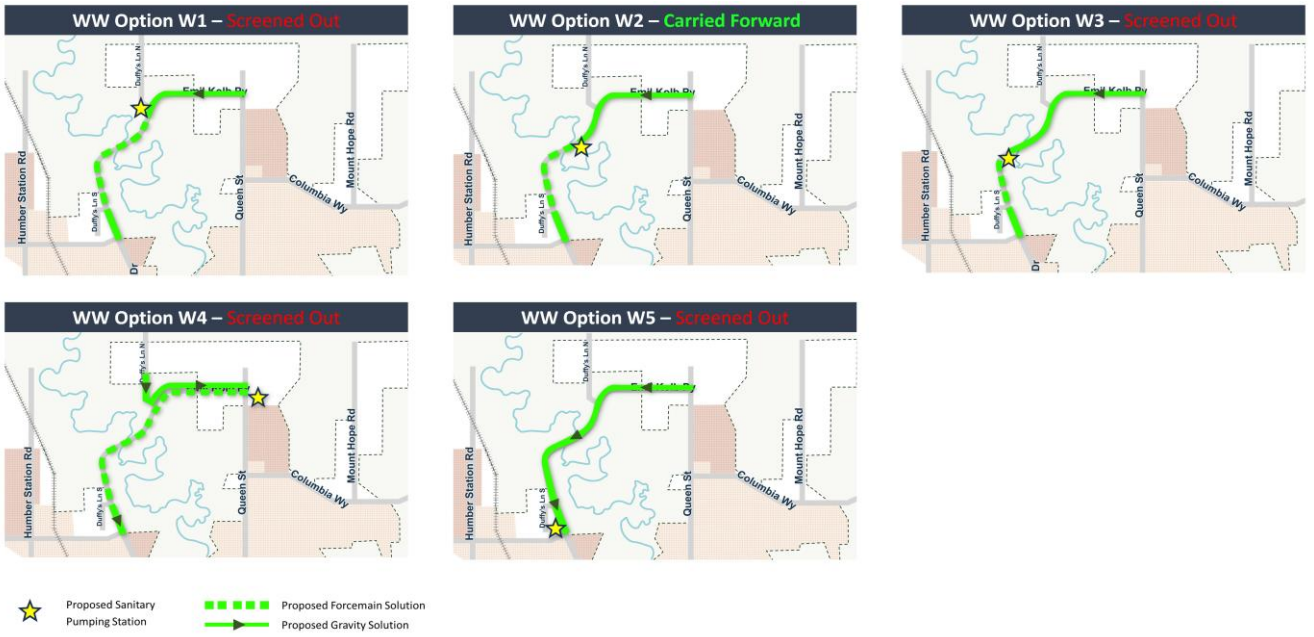


Figure 5-6: Long List of Wastewater Alternatives (West Lands)

Option W2 was selected as the preliminary preferred strategy due to the following:

- Optimal technical, construction, and operational option;
- Sufficient land availability for SPS construction;
- Long-term access for operations and maintenance activities, limited to a small area east of the Humber River;

- Opportunity to bundle water and wastewater construction within the future utility corridor;
- Opportunity to align with future / planned road(s);

The preferred construction methodology is tunnelling to reduce impacts to the surrounding community, reduce local traffic disruption, and minimize potential surface disturbances. The construction methodology is reviewed in detail in Phase 3 of the Class EA process (Section 6).

5.5.3 FOCUS AREA 2

A technical memorandum was completed to evaluate the Bolton SPS; specifically, the associated force main infrastructure and its operation to support wastewater servicing needs in Bolton to 2051. The memo compared various servicing scenarios to optimize flow distribution between the Coleraine and Albion-Vaughan trunk sewers. The recommendations focused on leveraging available downstream capacity, minimizing capital costs, and enhancing operational flexibility. The recommendations are as follows:

- Construct a force main (approximate length of 1,030 metres) along Old King Road from the Bolton SPS to the 900-mm trunk sewer on Nunnville Road.
- Bolton SPS to be modified, as required, to accommodate the additional force main (piping modifications, etc.). Pump operations to be modified to discharge solely to the Albion-Vaughan trunk sewer.
- Maintain the existing triple force main system on Strawberry Hill Court after commissioning the new force main. An opportunity may exist in the future to decommission the triple force main system in the future to free up space within the existing servicing easements and along Old School Road, Bond Street, and Strawberry Hill Court.
- Maintain the existing servicing strategy for Area 2 (which outlet flows directed to either Coleraine or Albion-Vaughan trunk sewer via flow-splitting manhole #309358), with the Region continuing to monitor flows to maximize use of existing infrastructure.

Refer to **Appendix 3C** (Strawberry Hill Report and Hydratek Report).

5.6 Preferred Water and Wastewater Strategy

Through the evaluation, the preferred strategy, as depicted in **Figure 5-7**, was selected for each of the following Bolton Class EA focus areas.

1 Focus Area 1 Servicing New Growth

- New watermain on Emil Kolb Parkway, Highway 50, Mount Hope Road, along a new infrastructure corridor, and a new section of watermain on Columbia Way to connect to the existing and future pressure zone 7.
- New SPS and access road northeast of the Humber River adjacent to Emil Kolb Parkway.
- New deep gravity sanitary sewer on Emil Kolb Parkway from the Highway 50 and Emil Kolb Parkway intersection to the new SPS.

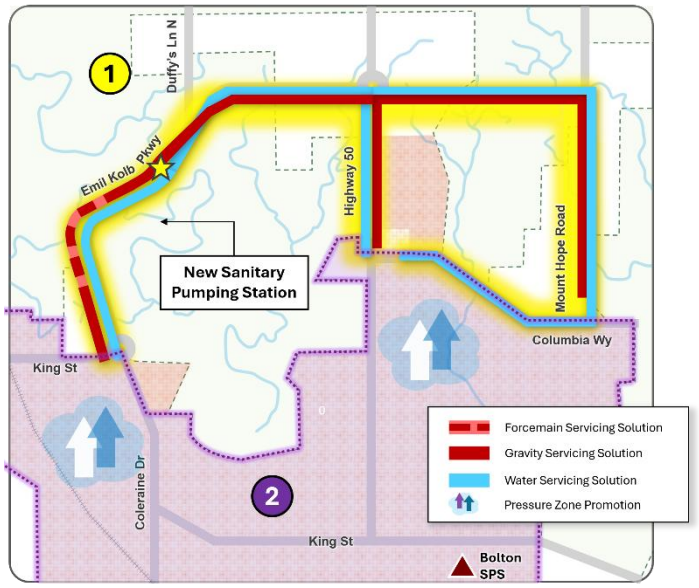


Figure 5-7: Preferred Water and Wastewater Servicing

- New gravity sanitary sewers on Highway 50, Mount Hope Road, and along the new infrastructure corridor to connect to the Emil Kolb Parkway sewer.
- New twinned sanitary force mains extending from the new SPS south along Emil Kolb Parkway to north of King Street.

The preferred servicing strategy rationale is as follows:

- A deep gravity sanitary sewer, watermain, and sanitary pumping station along Emil Kolb Parkway to facilitate broader regional servicing solutions, supporting growth to 2051; and,
- Enhanced reliability through the construction of a looped watermain, ensuring security of supply and strengthening the resiliency of the new pressure zone 7 water system.

2 Focus Area 2 Optimizing the Existing System

- New sanitary force main from the Bolton SPS along Old King Road to the existing trunk sewer on Nunnville Road, ultimately conveying flow to the Albion-Vaughan trunk sewer.
- Maintain the existing sanitary force main system on Strawberry Hill Court to ensure the pumping station can continue to operate reliably.
- Some pressure zone 6 areas promoted to new pressure zone 7 to optimize level of service.

The Focus Area 2 evaluation drew on the existing water and wastewater system analysis, including the Bolton SPS and force main assessment report. This evaluation considered localized opportunities to reduce I&I while improving operational flexibility.

The preferred wastewater strategy considered the Block 35 study recommendations (e.g., downspout disconnection, maintenance hole rehabilitation), while the preferred water strategy included the realignment of portions of pressure zone 6, supported by the MacVille BPS and other technical findings to determine the most effective servicing solution.

6 Phase 3 – Conceptual Design Alternatives

Phase 3 of the Class EA process examines the alternative methods of implementing the preferred water and wastewater strategy while considering input from the public, stakeholders and right holders. The objective is to determine what infrastructure is required, where it will be constructed and how. Phase 3 of the Bolton EA includes the following:

- Preparation of detailed inventory,
- Identification of design concept alternatives for the preferred servicing strategy selected through completion of Phase 2 of the Class EA process,
- Evaluation of design concept alternatives using comprehensive evaluation criteria,
- Selection of preliminary preferred conceptual design and technologies,
- Identification of impacts and mitigation measures,
- Public Information Centre No. 3, and,
- Confirmation of preferred conceptual design and technologies.

Phase 3 activities primarily focused on refinement of infrastructure required to service planned growth areas within Bolton (Focus Area 1). Additional servicing improvements associated with optimization of the existing system (Focus Area 2) draw on previous system assessments and targeted refinements rather than the full conceptual design evaluation process described in this section.

6.1 Site Investigations and Detailed Inventory

Following the selection of the preferred servicing strategy in Phase 2 of the Class EA process, further site-specific reviews and investigations were undertaken to inform the evaluation of the design concept alternatives and to identify mitigation measures, including:

6.1.1 NATURAL ENVIRONMENT

Natural environment investigations were undertaken to document existing natural environmental features within the study area and to identify potential impacts and associated mitigation measures related to implementation of the preferred servicing solution.

A desktop Natural Environment Assessment and site-specific field investigations were completed to characterize environmental conditions within the study area. The investigations identified environmental constraints that have been considered through design refinement and the development of appropriate avoidance and mitigation measures. Additional surveys, including headwater drainage feature assessments and wetland delineation verification, will be completed to further inform detailed design and permitting requirements.

Suitable bat habitat trees were identified at the proposed Sanitary Pumping Station site. While potential tree removal may be required at this location, no Species at Risk were identified during field investigations. Compensation and replanting measures will be confirmed during detailed design, including implementation of a 1:10 replacement tree planting ratio. Where on-site space is limited, alternative suitable planting locations will be explored in coordination with TRCA. Additional mitigation measures will also be refined during detailed

design to support permitting, approvals, and construction timing. All relevant reports can be found in **Appendix 2A**.

Figure 6-1: Humber River Bridge Crossing at Emil Kolb Parkway

6.1.2 GEOTECHNICAL AND HYDROGEOLOGICAL

Geotechnical and hydrogeological investigations were undertaken to establish existing groundwater, soil, and bedrock conditions within the study area, assess potential impacts to groundwater and surface water resources, and identify mitigation measures required to support implementation of the preliminary preferred route.

A desktop geotechnical and hydrogeological assessment was completed to characterize subsurface and groundwater conditions along the proposed alignments. The assessment indicates that hydrogeological conditions are generally suitable for proposed shaft site and tunnel construction. However, groundwater management and dewatering considerations will be required during construction. A copy of the reports can be found in **Appendix 2B** and **2C**.

Further hydrogeological and geotechnical investigations will be undertaken during detailed design to refine construction approaches and confirm mitigation requirements.

6.1.3 ARCHAEOLOGICAL

Archaeological assessments were undertaken to determine whether areas of archaeological significance are present within the study area that could potentially be impacted by construction of the proposed servicing solution. The primary objective of these assessments is to avoid impacts to areas of archaeological significance through informed alignment and site selection.

Stage 1 and Stage 2 Archaeological Assessments have been completed within the study area in accordance with provincial requirements. These investigations identified areas of potential archaeological importance,

which have been incorporated into the evaluation of design alternatives and will continue to be considered in the selection and refinement of the preferred infrastructure alignment to avoid or minimize impacts.

A Stage 3 Archaeological Assessment has also been completed around the SPS. As the lands fall within TRCA jurisdiction, the Stage 2 and Stage 3 assessments were undertaken by TRCA. Both the Stage 2 and 3 reports have been completed. Based on completion and findings of Stage 2 and Stage 3 studies no further investigations are required within the area of the proposed SPS.

A copy of the Archaeological Assessment reports can be found in **Appendix 2D**.

6.1.4 CULTURAL HERITAGE

A Cultural heritage assessment was undertaken to identify cultural heritage resources within the study area and to evaluate potential impacts associated with the preferred servicing solution. The purpose of this work was to ensure that cultural heritage resources are appropriately considered during infrastructure planning and that mitigation measures can be incorporated where required.

A Cultural Heritage Screening and a Cultural Heritage Preliminary Impact Assessment were completed for the study area. These studies identified properties, landscapes, and other cultural heritage resources that may be present within or adjacent to the study area. The results indicate that no direct or indirect impacts are anticipated that cannot be appropriately mitigated through design refinement and implementation of recommended mitigation measures. A copy of the reports can be found in **Appendix 2E**.

6.1.5 TRAFFIC INVESTIGATIONS

Traffic investigations were undertaken to identify potential traffic impacts that may arise during and following construction of the proposed servicing works, and to assess measures required to mitigate or address potential issues or concerns.

A Traffic Impact Assessment was completed to evaluate anticipated traffic conditions associated with implementation of the preferred design concept. Based on current findings, no lane reductions are anticipated during construction. However, temporary lane closures and roadway reinstatement within the road right-of-way (ROW) may be required to facilitate construction activities.

Appropriate signage, traffic control, and safety measures will be implemented during construction to accommodate vehicle, pedestrian, and cyclist movements and to maintain safe and efficient traffic operations. A copy of the report can be found in **Appendix 2F**.

6.1.6 ENVIRONMENTAL SITE ASSESSMENT

Environmental Site Assessments were undertaken to identify potential environmental risks associated with properties within the study area and to determine whether further investigations or remediation measures may be required to support implementation of the preferred servicing solution.

Phase One Environmental Site Assessments were completed as part of site reviews within the study area. The results indicate that further Phase II Environmental Site Assessments will be required along the utility corridor and at the proposed SPS location to support implementation and confirm site conditions prior to construction. A copy of the reports can be found in **Appendix 2G**.

6.1.7 AGRICULTURAL

Agricultural investigations were undertaken to document existing agricultural features within the study area and to identify potential impacts and mitigation measures associated with implementation of the preferred servicing solution.

A baseline Agricultural Impact Assessment was completed to evaluate existing agricultural operations and land use conditions within the study area. The results of this assessment will be considered in the selection and refinement of the preferred infrastructure alignment to minimize impacts to agricultural lands and operations. A copy of the report can be found in **Appendix 2H**.

Figure 6-2: Agricultural Lands East of Highway 50

6.2 Evaluation Criteria

The assessment and selection of the preliminary preferred design concepts considered a range of technical, environmental, property, and construction-related factors to refine infrastructure locations, construction approaches, and site requirements identified through earlier phases of the study. These considerations were applied to support development of feasible and practical conceptual designs while seeking to minimize impacts to the community and the natural environment.

Unlike the formal evaluation of alternatives completed during Phase 2 of the Class EA process, this phase focused on refining and confirming preferred design concepts rather than comparing multiple servicing strategies.

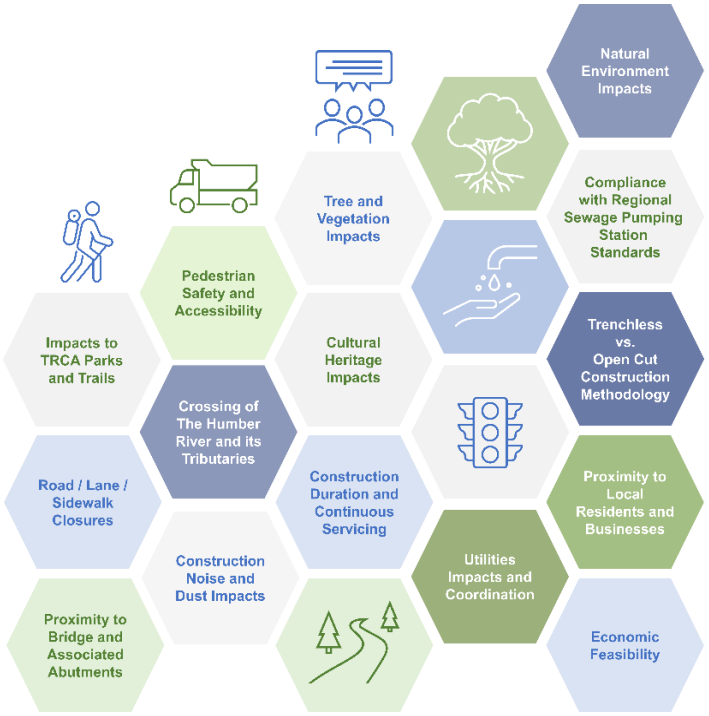


Figure 6-3: Phase 3 Evaluation Criteria

The following sections summarize the key considerations that informed the development and confirmation of the preliminary preferred conceptual designs. The considerations summarized below were primarily applied to infrastructure components supporting new growth areas, while improvements associated with optimization of the existing system relied on prior system studies and targeted operational refinements.

- **Compliance with Regional Sewage Pumping Station Standards** – The preliminary preferred conceptual design for the SPS and associated wastewater infrastructure was developed to align with Peel Region's sewage pumping station design standards, including requirements related to operational reliability, redundancy, maintenance access, and long-term serviceability. Concepts that could not reasonably meet these standards or would require significant deviations were screened out, ensuring the preferred design supports consistent operation and future system integration.
- **Construction Duration and Continuous Servicing** – Construction staging and duration were key considerations to support efficient implementation and the timely extension of water and wastewater infrastructure into currently unserviced areas. This approach supports the continuous provisions of servicing to existing users and facilitates the reliable extension of services to future development areas. The consultant team and the Region worked collaboratively to confirm that the selected concept met these objectives.
- **Construction Noise and Dust Impacts** – Noise and dust impacts were considered in the selection and confirmation of the preliminary preferred design to reduce effects on nearby sensitive receptors. Construction approaches that allowed for shorter durations, reduced surface disruption and greater

ability to implement standard mitigation measures were favoured to minimize temporary construction-related impacts to the surrounding area.

- **Crossing of The Humber River and its Tributaries –** Crossings of the Humber River and its associated tributaries were a key consideration in the evaluation of alternative servicing concepts. Particular consideration was given to minimizing potential impacts to the watercourse, aquatic habitat, and adjacent natural features. Crossing locations and construction approaches were evaluated to maintain adequate burial depth beneath the riverbed while avoiding disturbance to sensitive natural areas, including riverbanks and regulated floodplain lands. The evaluation process focused on identifying technically feasible solutions that minimize environmental impacts while maintaining the functional requirements of the proposed infrastructure. Further engagement with TRCA was undertaken to identify key requirements related to setbacks and installation depth, including a minimum burial depth below the riverbed. Supporting natural environment impact assessment studies were completed to confirm consistency with applicable regulatory requirements. The preliminary preferred design was developed to satisfy TRCA requirements while limiting disturbance to riverbanks and adjacent natural features and supporting the future permitting and regulatory approval process through appropriate setbacks and construction methods.
- **Cultural Heritage Impacts –** Cultural heritage considerations were incorporated into the evaluation of alternatives through the completion of a cultural heritage assessment, which identified known and potential cultural heritage resources within and adjacent to the study area. These resources, including built heritage features and potential cultural heritage landscapes, were reviewed to understand potential constraints associated with the proposed infrastructure and to inform the development of feasible servicing concepts and alignments.

  The evaluation of alternatives considered opportunities to avoid or minimize potential impacts to identified or potential cultural heritage resources where feasible. This included assessing infrastructure locations and construction approaches that would limit disturbance to areas of cultural heritage interest while maintaining the functional requirements of the proposed works.

  Findings from the cultural heritage assessment informed the development of the preliminary preferred design, which seeks to minimize potential impacts to cultural heritage resources. Commitments have also been identified to undertake further investigation, as required, and to implement appropriate mitigation measures during subsequent stages of the project, including detailed design.
- **Economic Feasibility –** Economic feasibility played a key role in confirming the preliminary preferred conceptual designs. Coordination between the consultant team and the Region considered capital costs, constructability, long-term operation and maintenance requirements, and lifecycle considerations to ensure the preferred concept represents a cost-effective solution while meeting servicing and environmental objectives.
- **Impacts to TRCA Parks and Trail** – Potential impacts to parks, trails, and recreational features within lands managed by the TRCA were also considered in the evaluation of alternatives. Portions of the study area are located in proximity to the Humber River valley corridor, which includes TRCA-managed parks, trails, and associated natural heritage features. As a result, servicing concepts and alignments

were assessed with consideration for minimizing potential impacts to these recreational assets and maintaining public access where feasible.

Through ongoing consultation with TRCA, setbacks associated with the Humber River, tributaries, and the meander belt were applied to guide the evaluation of alternatives and inform the location of proposed infrastructure. These considerations helped identify alignments that minimize encroachment into regulated lands and reduce potential disruption to existing parks and trail networks during construction and long-term operation.

- **Natural Environment Impacts –** Natural environment considerations played an important role in the evaluation of servicing alternatives, as portions of the study area fall within regulated areas under the jurisdiction of TRCA, as well as areas identified as agricultural lands and natural heritage features. The evaluation prioritized servicing concepts and alignments that avoid or minimize potential impacts to natural features during both construction and long-term operation.

  Through natural environment impact assessment studies and consultation with TRCA, environmental constraints and setbacks were applied to guide the evaluation of alternatives. These included a minimum 10 metres setback applied from the top of bank, stable slope, or meander belt, whichever was greater, consistent with TRCA guidance. In environmentally sensitive areas, including locations where species-specific habitat protections applied, an additional 30 m buffer beyond the meander belt was incorporated, where required, to protect the ecological function and long-term stability of watercourses and adjacent natural areas.

  These constraints informed the screening and refinement of servicing concepts by identifying feasible alignments that maintain appropriate separation from regulated features and sensitive natural areas. This approach supported the selection of alternatives that avoid or minimize disturbance to natural environments during construction and limit long-term impacts following implementation of the proposed infrastructure.

- **Pedestrian Safety and Accessibility** – Pedestrian safety and accessibility were considered to ensure construction and long-term operation do not compromise safe movement along sidewalks, trails and crossings. The preliminary preferred design supports clear separation between construction activities and pedestrian areas and allows for appropriate temporary and permanent safety measures. No direct impacts on pedestrian walkways were assessed.

- **Proximity to Bridge and Associated Abutments** – Proximity to existing bridge infrastructure and associated abutments was considered in the evaluation of alternatives. Within the study area, the Emil Kolb Parkway bridge crossing over the Humber River, as well as smaller bridge structures along the proposed alignment, were reviewed to understand potential constraints related to infrastructure placement and construction feasibility. The potential for installing infrastructure adjacent to, or supported from, bridge structures (e.g., hanging the pipe from the bridge) was also assessed; however, this approach presented potential structural and maintenance considerations.

  The proximity of proposed works to bridges and abutments was further assessed through natural environment, construction, and cultural heritage studies to identify structural risks and construction constraints. Engagement with the TRCA was also undertaken regarding bridge infrastructure within

their jurisdiction, including the structure adjacent to the proposed SPS location, to better understand existing conditions and anticipated service life.

The preliminary preferred design maintains appropriate clearances from bridge structures and abutments, reducing potential risks to existing infrastructure and avoiding the need for complex structural protection or attachment measures.

- **Proximity to Local Residents and Businesses** – Proximity to local residents and businesses was also considered in the evaluation of alternatives, particularly in relation to potential construction-related impacts and long-term operational considerations. While the study area includes a limited number of nearby residences and businesses, the location of proposed infrastructure and associated alignments was assessed with consideration for minimizing potential disruptions where feasible. Factors such as temporary construction impacts, access restrictions, and overall feasibility of the alignment within the surrounding area were considered as part of the evaluation process.

  Engagement with local residents was undertaken to provide information on the study and obtain feedback on the proposed works. The Region circulated notices to nearby property owners by mail, providing opportunities for residents to learn more about the project and participate in the consultation process. Input received through this engagement helped inform the assessment of potential community impacts.

  The preliminary preferred design reflects a balance between meeting servicing and infrastructure requirements while seeking to minimize potential disturbances to nearby residents and businesses during construction and future operation.

- **Road/Lane/Sidewalk Closures –** Temporary Road, lane, and sidewalk closures were a key consideration in confirming the preliminary preferred design. A Traffic Impact Assessment, along with an evaluation of site-specific traffic conditions (i.e., the roundabout at Emil Kolb Parkway and Highway 50) was undertaken to ensure that traffic movements could be maintained during construction and that access would not be fully restricted where feasible through the implementation of trenchless construction.

  In consultation with the Region's transportation team, further assessment confirmed that construction staging has the potential to allow for the maintenance of one-way traffic through the proposed preliminary alignment. As majority of the shaft locations are situated within the ROW, additional consideration was given to minimizing temporary lane closures, short-duration traffic rerouting, and roadway reinstatement required to facilitate construction activities. Concepts that minimized traffic disruption, maintained access where possible, and allowed for manageable construction staging were therefore favoured to reduce impacts to the surrounding transportation network.

- **Tree and Vegetation Impacts –** Tree and vegetation impacts were an important consideration in the evaluation of alternatives, particularly in relation to the siting of the proposed sewage pumping station and associated infrastructure. An arborist assessment was completed to characterize existing tree resources within the study area and identify areas of higher tree density and ecological value. This information helped inform the assessment of SPS locations, access requirements, and servicing alignments to reduce potential tree removal and vegetation disturbance where feasible.

The preliminary preferred design was selected in part due to its ability to limit impacts to existing trees and vegetation while meeting the operational requirements of the SPS and associated infrastructure. Findings from the arborist assessment will also inform mitigation measures and restoration strategies to be further refined during detailed design.

In addition, the Region engaged with Six Nations of the Grand River to discuss potential tree impacts and opportunities for mitigation. Input received through this engagement will help inform approaches to vegetation restoration and planting during subsequent stages of the project.

- **Trenchless vs. Open-cut Construction Methodology –** the feasibility of trenchless versus open-cut construction methods was a significant factor in the evaluation process. Completed environmental, social, cultural and traffic studies contributed to the evaluation of construction method, as setbacks and requirements had to be upheld. Setbacks, including a 70-metre buffer from areas of archaeological significance, were used to avoid potential impacts and to assess appropriate construction methods and locations. The preliminary preferred design incorporates construction approaches that reduce surface disruption, environmental impacts, and traffic effects where feasible, while maintaining constructability and cost effectiveness. Additionally, topographic surveys were completed to further assess the impacts of construction methods, ensuring that trenchless methodology will be used to avoid impact where appropriate, and where open-cut methodology is appropriate.
- **Impacts to Existing Utilities –** Existing utility infrastructure was a key consideration in confirming the preliminary preferred alignment. Utility information and field observations identified a single-phase hydro line along Mount Hope Road and three-phase hydro infrastructure along King Street and Emil Kolb Parkway, as well as along Highway 50 extending south from Emil Kolb Parkway. These existing corridors informed the placement of the alignment, including the side-of-road selection, to avoid conflicts and maintain appropriate separation from utility infrastructure. Consultation with utility providers was undertaken to confirm existing and planned infrastructure. Notification letters were issued during Phase 2 of the study (July 2024) to surrounding utility companies. Respondents confirmed that no existing or planned utilities, with exception of Hydro One infrastructure located in the eastern portion of the study area, would be impacted by the preferred alignment.

  As Hydro One infrastructure is present east of Highway 50, a meeting was held with Hydro One in July 2024 to confirm conditions within the study area. Hydro One confirmed that no existing or planned infrastructure is located west of Highway 50 at the time of the meeting. This information supported the preferred alignment, which avoids existing hydro corridors and minimizes potential utility conflict.

6.3 Evaluation Process

The evaluation and selection of the preliminary preferred design concept for Focus Area 1 consisted of the following steps:

1. **Construction Methodology: How will the solution be constructed?**
   The first step will take into consideration the required depth of the watermain, sewer and force main as well as the presence of environmental crossings. Descriptions of different construction methodologies are detailed in Section 6.3.1.

2. **Shaft Site Location: Where will the shafts be constructed?**
   Shaft compounds are required and were assessed to identify the most suitable location. Shafts are temporary vertical excavations constructed from the ground surface to allow access for tunnelling equipment and installation of underground infrastructure. Details of shaft site location requirements are provided in Section 6.3.1.2.
3. **Linear Alignment Location: Where will the routes be constructed?**
   Routes were selected to minimize overall impacts to the community including traffic, natural environment, archaeological and cultural heritage resources. Section 6.4 (water) and Section 6.5 (wastewater) detail the preferred methods, alignment location, and key rationale for selection.
4. **Sanitary Pumping Station: Where will the station be located and how will it be accessed?**
   The location of the SPS was refined to identify the access road. Overall impacts to the community such as traffic, natural environment, and other socio-economic considerations resulting from the construction of the SPS are detailed in Section 6.5.5.

6.3.1 CONSTRUCTION METHODOLOGY (STEP 1)

6.3.1.1 CONSTRUCTION – LINEAR INFRASTRUCTURE

A key consideration in the evaluation and selection of the preliminary preferred design concept is the construction methodology for each section of the watermain, gravity sanitary sewer, and sanitary force main alignments.

When evaluating servicing solutions for the Bolton Water and Wastewater Capacity Improvements Study, the following construction methodologies were considered:

1. **Open-Cut Construction** involves digging a trench to facilitate the installation of linear infrastructure (e.g., watermains). Because construction occurs on the surface over a stretch of time, open-cut construction has the potential to increase traffic, socio-economic and environmental impacts.

Figure 6-4: Open-Cut Construction Methodology

2. **Trenchless (Tunnelled) Construction** involves digging shafts and using special equipment to tunnel underground between shafts. It is less intrusive than open-cutting minimizing traffic disruptions, impacts to residents and businesses, and can avoid environmental features such as watercourses by going underneath them. The surface works for tunnelled construction are the entry and exit shafts

located between tunnel drive lengths that could vary between 0.2 km and 2.1 km apart depending on the technology used.

Trenchless installation requires both an entry and exit shaft(s) between the drive lengths. Tunnel shaft compounds are further detailed in Section 6.3.1.2.

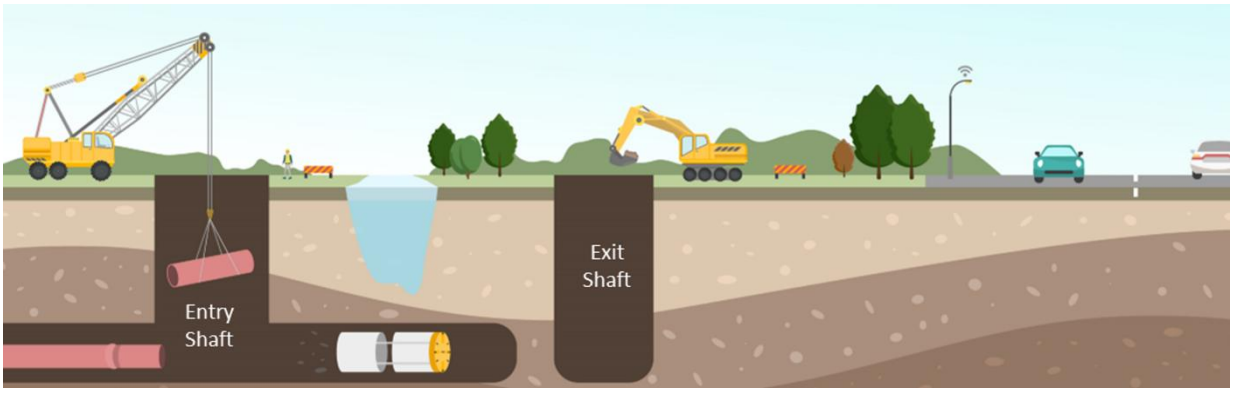


Figure 6-5: Tunnelling Construction Methodology under a Watercourse

3. **Suspended Construction** involves hanging linear infrastructure from existing or new bridge structures. This methodology requires linear infrastructure to be exposed and hung from a bridge that is crossing an environmental or constraint area. This methodology can avoid the need for trenchless construction to cross the feature.

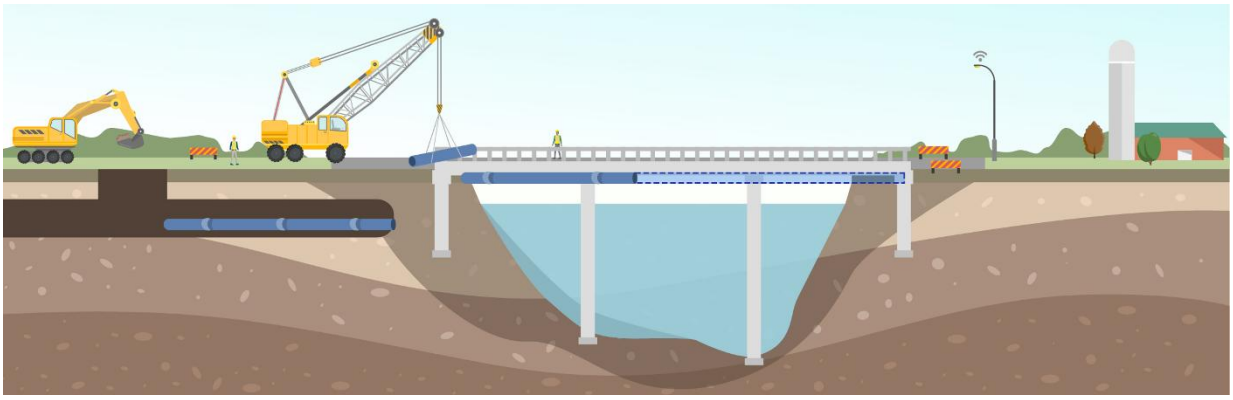


Figure 6-6: Suspended Construction Methodology from a Bridge

Where technically possible and outside of environmental features and established setback areas, open-cut will be the preferred construction methodology for its cost-effectiveness. Where the proposed infrastructure requires a watercourse crossing or where the proposed infrastructure will be deeper than 5 metres, trenchless will be the preferred construction methodology for the proposed works.

6.3.1.2 SHAFT CONSTRUCTION

Tunnelling shafts are required to support trenchless construction, with both entry and exit shafts located between tunnel drive lengths to facilitate installation of watermains, force mains and sanitary sewers. These shafts provide access for tunnelling equipment and support construction activities required to install underground infrastructure where open-cut construction is not feasible or desirable.

Each tunnel shaft compound site requires a staging area where construction equipment can be stored, and excavated material can be brought to the surface and hauled away. The layouts of each compound are optimized to safeguard natural environmental features, underground utilities, and other site constraints in accordance with design requirements. Once tunnelling activities are complete, the staging areas are restored to their previous condition, or better, following construction.

Figure 6-7: Inside a Tunnel Shaft (left) and Typical Shaft Compound Layout (right)

6.3.2 SHAFT SITE LOCATION (STEP 2)

Shaft locations were assessed as part of the evaluation process to determine where shafts required for trenchless construction could be appropriately located. Shafts are necessary to support tunnel construction activities, including tunnel boring operations and installation of underground infrastructure between entry and exit points.

Each shaft compound requires sufficient surface area to accommodate construction staging, equipment, and temporary storage of excavated material. As part of the evaluation process, potential shaft locations were reviewed to ensure adequate space was available while minimizing impacts to surrounding land uses and community features.

Key shaft compound sites were identified with the objective of optimizing and integrating water and wastewater shaft locations wherever feasible, thereby reducing the number of surface construction sites and minimizing overall disturbance. Sites were selected to minimize impacts to traffic operations, the natural environment, and archaeological and cultural heritage resources. In addition, potential conflicts with existing infrastructure and underground utilities were avoided or minimized where possible during the selection process.

Figure 6-8 illustrates an example of how shaft site locations were determined as part of the evaluation process for the preliminary preferred water design concept. As shown, trenchless installation was selected at locations where surface constraints, environmental sensitivities, or infrastructure considerations warranted minimization of surface disturbance.

In this example, trenchless installation was selected to cross the Humber River Tributary in order to avoid direct impacts to the watercourse. Two shaft locations (W04 and W05) were identified to support the trenchless crossing and were sited outside of the river's sensitive meander belt and floodplain. The watermain is proposed to be installed at an approximate depth of 3.0 metres below the Humber River Tributary.

Trenchless installation was also selected to cross an existing storm culvert concrete box to avoid impacts to the structure and maintain its function. Two shaft locations (W02 and W03) were identified to support this crossing, with the watermain proposed at an approximate depth of 3.0 metres below the culvert.

In addition, trenchless installation was selected in the vicinity of the Highway 50 roundabout to minimize traffic disruption. Shaft locations (W01 and W08) were positioned outside of the roundabout limits to reduce surface works and associated impacts within the roundabout area.

This example illustrates how environmental, infrastructure, and traffic considerations were collectively used to determine appropriate shaft locations while minimizing impacts to surrounding features and community activities. **Appendix 3D** includes the full set of preliminary design drawings, based on the proposed SPS and associated alignment determined through the EA, illustrating shaft locations, easement requirements and construction methods.

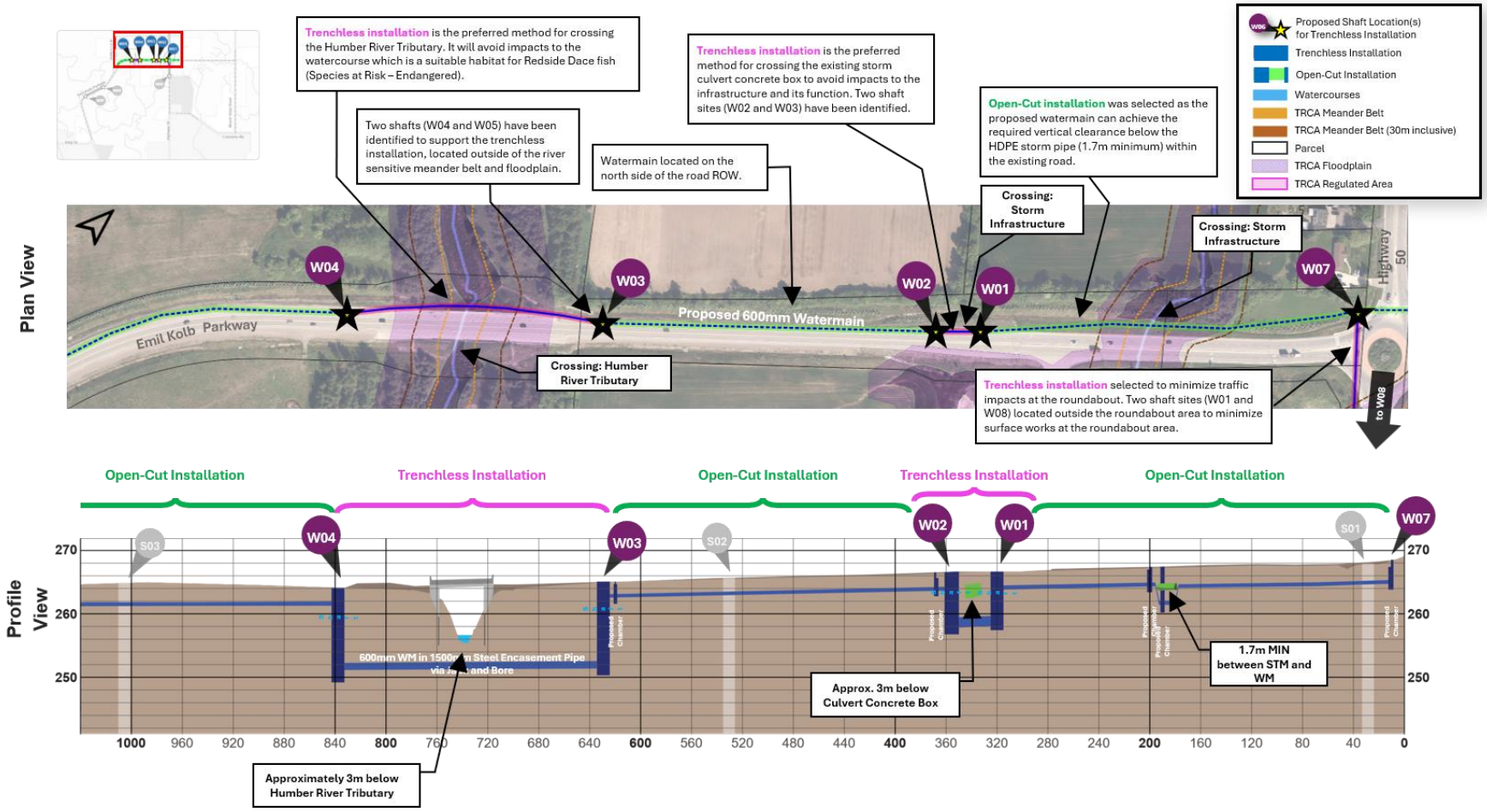


Figure 6-8: Shaft Location Process Example

6.3.3 LINEAR ALIGNMENT LOCATION (STEP 3)

The third step in the evaluation process involved identifying the preferred locations for the linear infrastructure routes required to convey water and wastewater within the study area. This step considered the routing of both watermain and wastewater infrastructure, including gravity sanitary sewers and force mains, to establish alignments that are technically feasible and minimize potential impacts. Where feasible, alignments were coordinated within existing or planned transportation and utility corridors to reduce the need for new disturbance areas and simplify long-term infrastructure access and maintenance.

In selecting preferred alignments, consideration was given to the previously selected construction methodologies, existing physical and environmental constraints, and opportunities to avoid conflicts with existing infrastructure and underground utilities. Routes were also selected to minimize overall impacts to the community, including potential effects on traffic operations, the natural environment, and archaeological and cultural heritage resources. Consideration was also given to maintaining construction feasibility while providing flexibility for future system expansion or connection opportunities where possible.

Further details of the preferred design concepts, including alignment locations and key rationale for route selection, are provided in Sections 6.4 (Preferred Water Design Concept) and 6.5 (Preferred Wastewater Design Concept).

6.3.4 SANITARY PUMPING STATION (STEP 4)

The final step in the evaluation process involved confirming and refining the preferred location of the Sanitary Pumping Station, associated access road, and force main routing required to convey wastewater flows within the study area. The SPS location was initially validated during Phase 2 of the Class EA process and further refined during Phase 3 as part of the development of the preliminary preferred wastewater design concept. Refinement activities included review of site access, construction staging requirements, and long-term operational considerations associated with facility maintenance and servicing needs.

Selection of the SPS site was undertaken in coordination with the routing of gravity sanitary sewers, force mains, and associated shaft locations to ensure an integrated servicing solution. Site evaluation considered construction methodology requirements, existing physical and environmental constraints, and potential impacts to the surrounding community, including traffic, natural environment, archaeological, and cultural heritage considerations.

Additional site investigations were completed to inform refinement of the SPS location and to identify mitigation measures required to support construction and future operation of the facility. Further details regarding the preferred SPS site, access arrangements, and associated infrastructure are provided in Section 6.5.

6.4 Focus Area 1 – Preferred Water Design Concept

The preferred water servicing strategy includes a new watermain on Emil Kolb Parkway, Highway 50, Mount Hope Road, along a new infrastructure corridor, and a new section of watermain on Columbia Way to connect to existing and future water infrastructure. This preferred concept reflects the outcome of the evaluation process described in Section 6.3, where construction methodologies, shaft requirements, and alignment considerations were assessed to minimize community and environmental impacts while maintaining technical feasibility.

Phase 3 identified the preferred construction methods for the water alignment, including the proposed shaft compound locations as illustrated below in **Figure 6-9**.

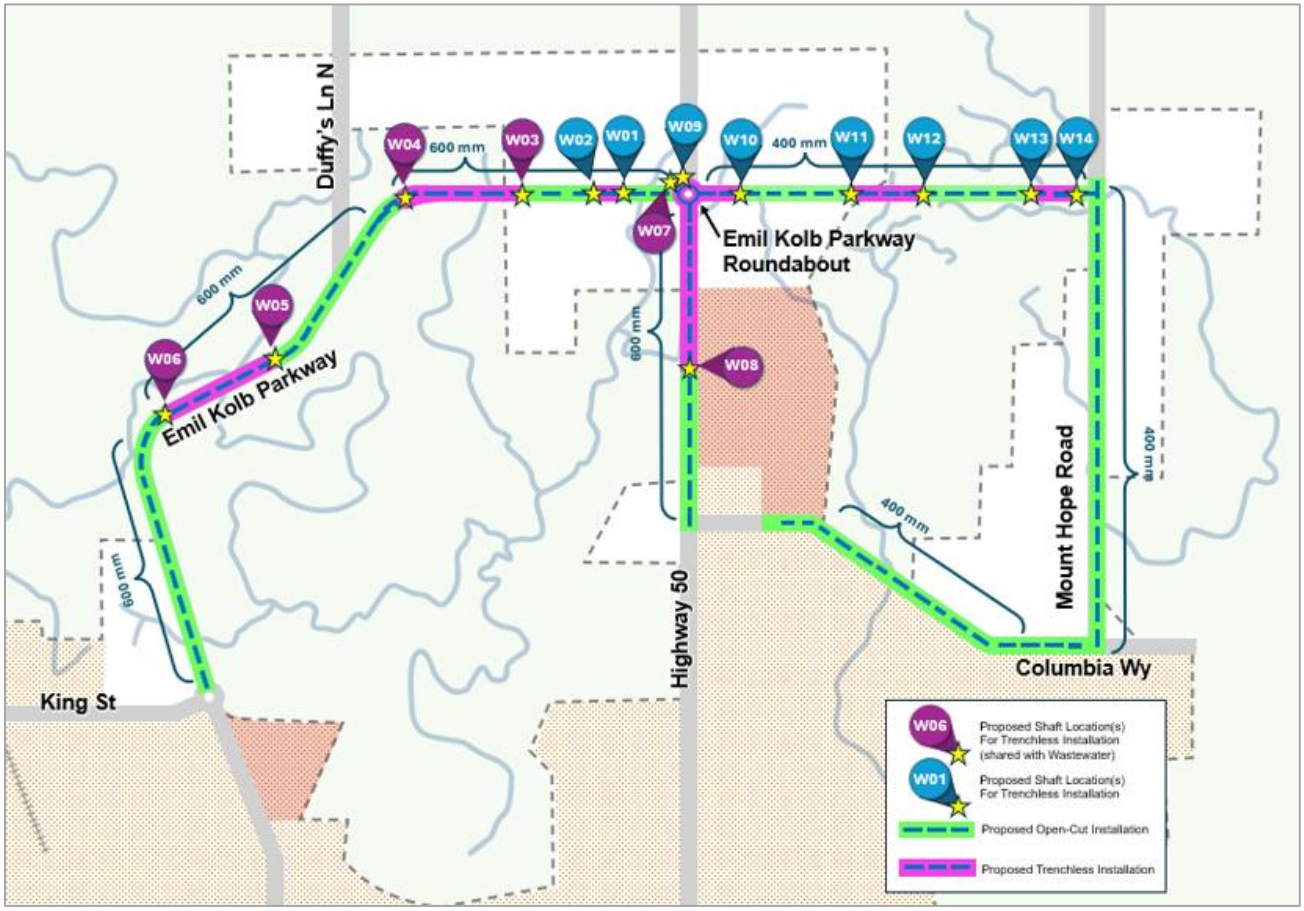


Figure 6-9: Preliminary Preferred Water Design Concept

The preliminary preferred water design concept will mainly be constructed by open-cut methodology, as watermains are pressurized, not dependent on gravity, therefore can be constructed at shallow depths (less than 5 metres). To avoid impacts to watercourses, all crossings will be constructed using tunnelling methodology. For the tunnelled sections, shafts will be required to support the construction of the watermain at each side of the watercourse crossing. A total of 14 shaft compound locations are proposed.

After determining where shafts are required based on the selected construction methodology, the siting of shaft construction compounds was completed.

Table 6-1 provides an overview of the crossing methodology proposed for the water alignment, including crossing method and description.

Table 6-1: Proposed Water Infrastructure Crossing Methodology Overview

From ID	To ID	Location	Crossing	Method	Description
Emil Kolb Roundabout	**W01**	Emil Kolb Parkway	Yes	Open-cut	Open-cut installation beneath existing culvert
W01	**W02**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath existing culvert
W02	**W03**	Emil Kolb Parkway	No	Open-cut	Standard open-cut installation
W03	**W04**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath creek
W04	**W05**	Emil Kolb Parkway	No	Open-cut	Standard open-cut installation
W05	**W06**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath Humber River
W06	**King St.**	Emil Kolb Parkway	Yes	Open-cut	Open-cut installation above existing culvert and beneath stormwater mains and culverts
W07	**W08**	Emil Kolb Parkway to Highway 50	Yes	Trenchless	Trenchless installation beneath existing stormwater mains and culverts
W08	**Columbia Way**	Highway 50	No	Open-cut	Standard open-cut installation
W09	**W10**	Infrastructure Corridor	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
W10	**W11**	Infrastructure Corridor	No	Open-cut	Standard open-cut installation
W11	**W12**	Infrastructure Corridor	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
W12	**W13**	Infrastructure Corridor	No	Open-cut	Standard open-cut installation
W13	**W14**	Infrastructure Corridor	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
W14	**Mount Hope Rd**	Infrastructure Corridor	No	Open-cut	Standard open-cut installation
Infrastructure Corridor	**Columbia Way**	Mount Hope	Yes	Open-cut	Open-cut installation beneath existing culverts
East of Kingsview Drive	**Mount Hope Rd**	Columbia Way	Yes	Open-cut	Open-cut installation beneath existing culvert

The following sections describe the preferred alignment segments and associated shaft locations forming the preferred water design concept.

6.4.1 EMIL KOLB PARKWAY

The majority of the watermain alignment along Emil Kolb Parkway will be open-cut, with key crossings to be tunneled to avoid impacts to fish habitat and other key structures. The watermain will be located on the north side of the road ROW. **Figure 6-10** depicts the approximate construction compound locations along Emil Kolb Parkway.

Water shafts W03 and W04 are also proposed to be shared with S02 and S03 for the preferred wastewater design. As well as water shafts W05 and W06, with S07 and S08. The construction compound for W07 will also be shared with S01.

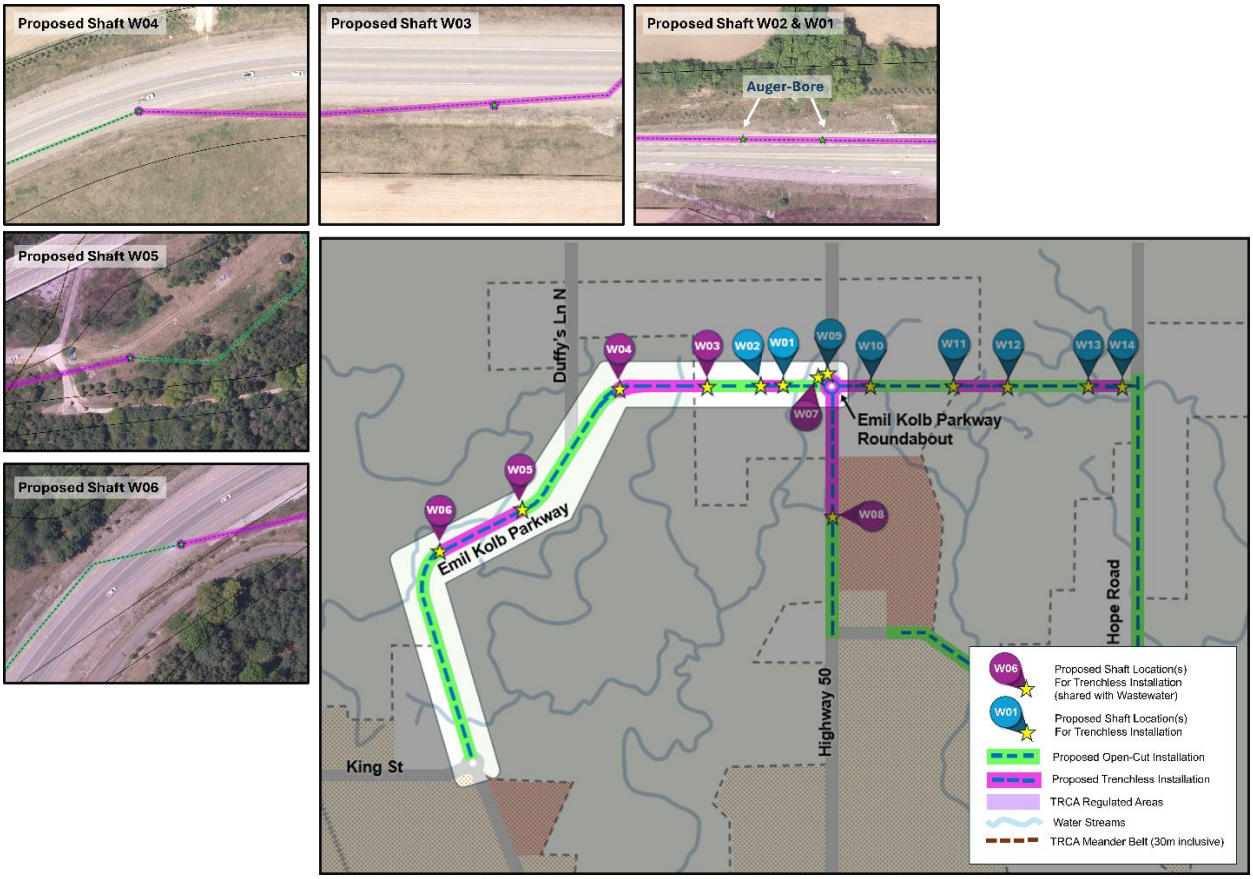


Figure 6-10: Preferred Water Design along Emil Kolb Parkway

Key rationale for selection:

- No conflicts within existing infrastructure.
- Available space for open-cut construction within road shoulder.
- Minimal impacts to traffic with no reduction in number of traffic lanes.
- Provides setback from cultural heritage property, north of King Street.
- No archaeological potential within the road ROW.

6.4.2 HIGHWAY 50

The preferred watermain design will be tunneled from the roundabout at the intersection of Highway 50 (also referred to as Regional Road 50) and Emil Kolb Parkway, to approximately 200 metres south of the roundabout along Highway 50. The remaining of the design is proposed for open-cut until the intersection at Highway and Columbia Way. **Figure 6-11 d**epicts the approximate construction compound locations along Highway 50.

Water shaft W08 will be shared with S09 for the preferred wastewater design. The construction compound for W07 will also be shared with S01.

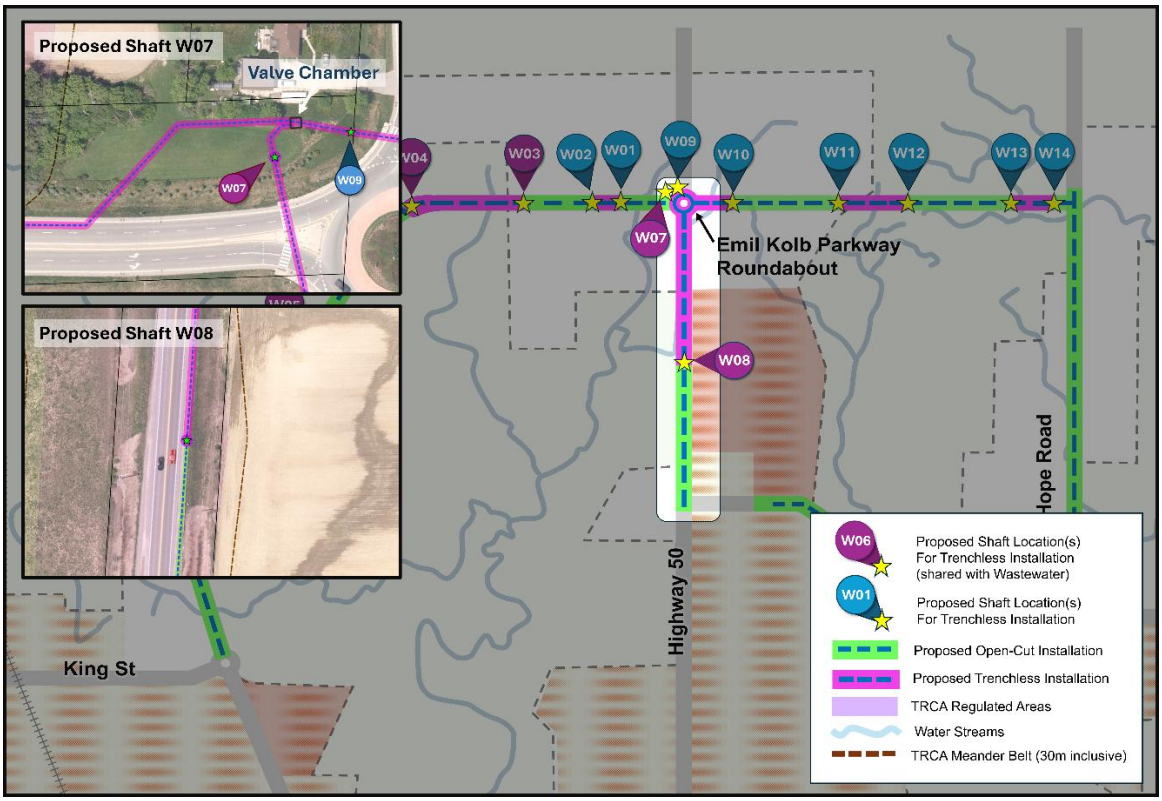


Figure 6-11: Preferred Water Design along Highway 50

Key rationale for selection:

- No conflicts with existing infrastructure
- Available space for open-cut construction on the west side of the road ROW.
- No watercourse crossings.
- Minimal impacts to traffic with no reduction in number of traffic lanes.
- No archaeological potential within the road ROW.
- West side of the road ROW along Highway 50 has less entry and exit access to residents and commercial businesses reducing overall impact.

6.4.3 UTILITY CORRIDOR

Much of the watermain alignment along the future utility corridor will be open-cut, with key crossings to be tunneled to avoid impacts to the fish habitat and other sensitive environmental features. The watermain alignment follows the approximate future road ROW as part of the Bolton North Hill Secondary Plan. The preferred watermain design will be tunneled from the roundabout at the intersection of Highway 50 and Emil Kolb Parkway, to approximately 195 metres east. **Figure 6-12** depicts the approximate construction compound locations along the future utility corridor.

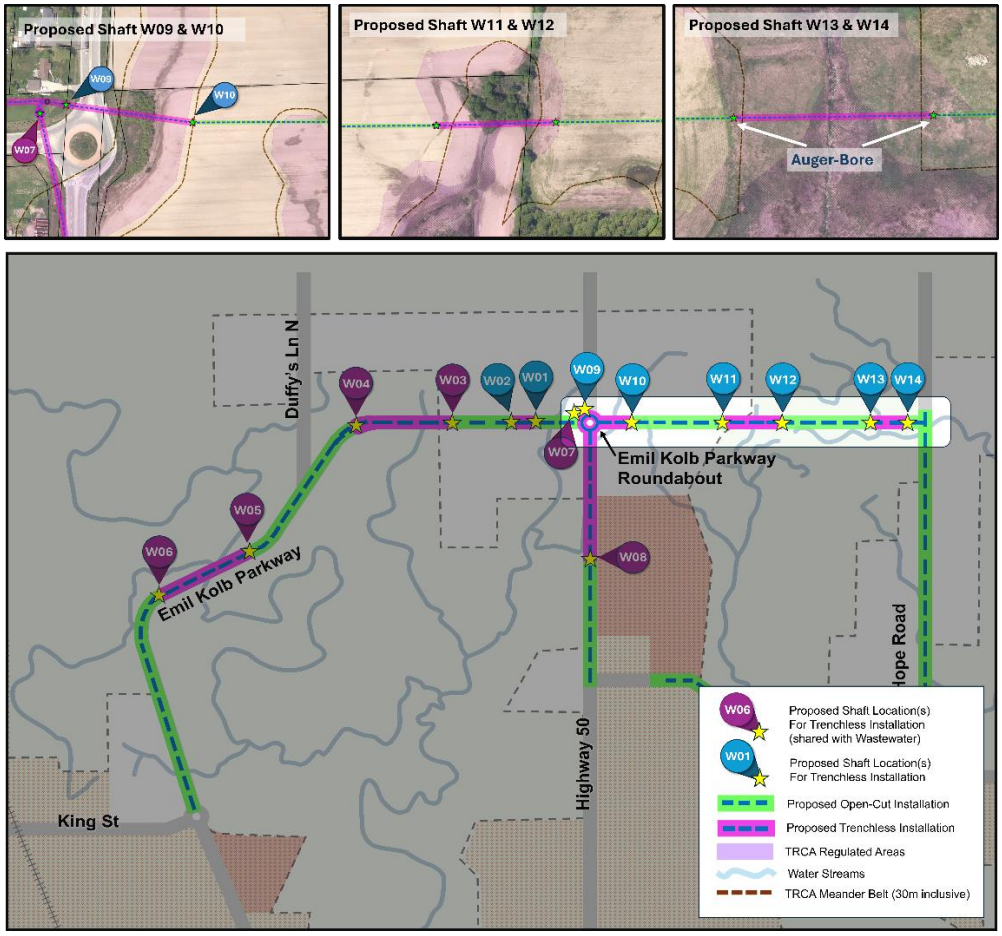


Figure 6-12: Preferred Water Design along Future Utility Corridor

Key rationale for selection:

- No conflicts with existing infrastructure.
- Alignment provides a critical looped water system minimizing water quality issues, reducing service risk, and increasing system resiliency.
- Corridor is within the Regional 2051 urban boundary.
- Natural features and areas of potential archaeological importance have been identified and have been considered in the selection of the preferred infrastructure alignment, construction methodology and mitigation measures.

6.4.4 MOUNT HOPE ROAD

The preferred watermain design will be open-cut, from approximately north from the intersection of Columbia Way and Mount Hope Road. The watermain is proposed to be located on the east side of the road ROW, as seen in **Figure 6-13**.

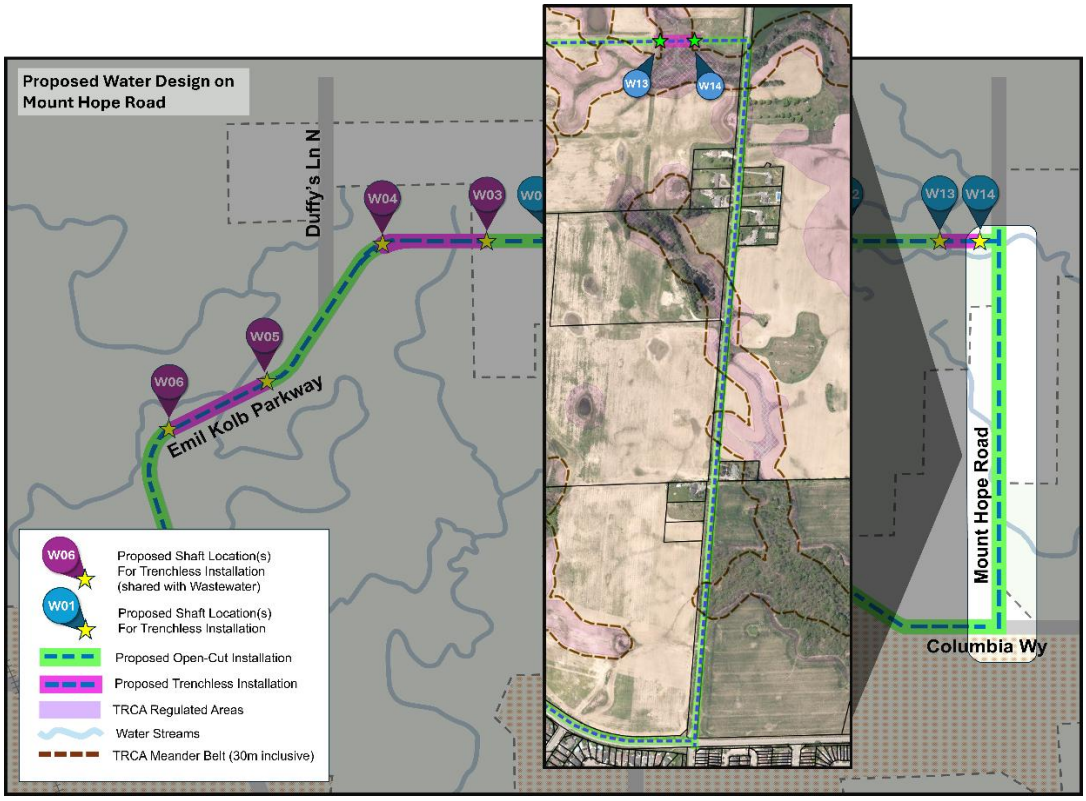


Figure 6-13: Preferred Water Design along Mount Hope Road

Key rationale for selection:

- No conflicts with existing infrastructure.
- Available space for open-cut construction within the east side of the road shoulder.
- Minimal impact to traffic with no reduction to number of traffic lanes.
- No archaeological potential within the road ROW.

6.4.5 COLUMBIA WAY

The preferred watermain design will be open-cut along Columbia Way for approximately 570 metres east of the intersection of Kingsview Drive and Columbia Way, extending to Mount Hope Road, crossing the environmental feature beneath the existing culvert with adequate cover maintained. The watermain is proposed to be located on the north side of the road. The key rationale for selection is to enhance the system's resilience by connecting into and supporting a looped water system. **Figure 6-14** depicts the preferred water design along Columbia Way.

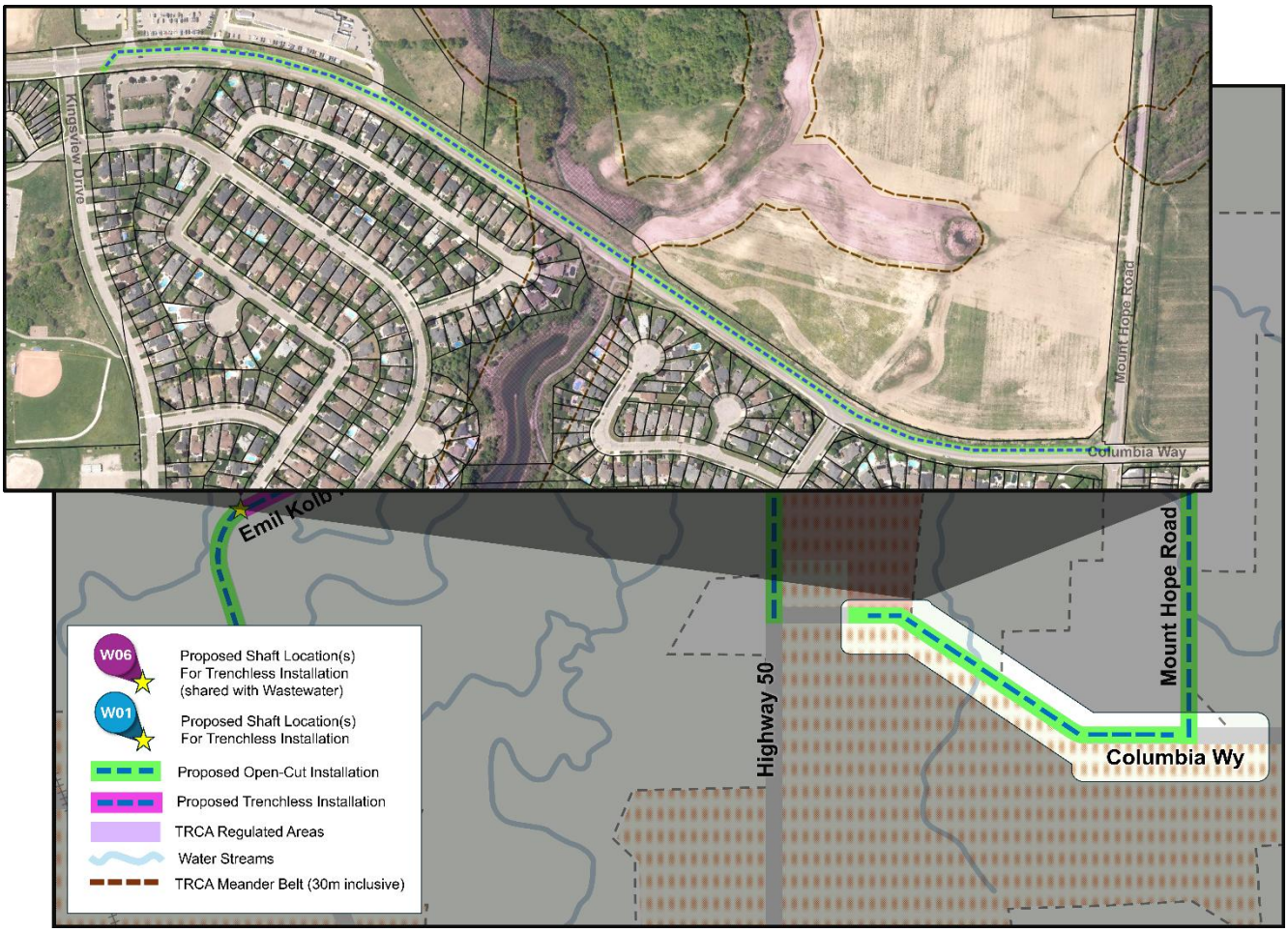


Figure 6-14: Preferred Water Design along Columbia Way

6.5 Focus Area 1 – Preferred Wastewater Design Concept

The preferred wastewater servicing strategy (**Figure 6-15**) includes the following components:

- New sanitary pumping station and access road north-east of the Humber River adjacent to the Emil Kolb Parkway.
- New deep gravity sanitary sewer on Emil Kolb Parkway from the Highway 50 and Emil Kolb Parkway intersection to the new SPS.
- New gravity sanitary sewers on Highway 50, Mount Hope Road, and along new infrastructure corridor to connect to the Emil Kolb Parkway sewer.

This preferred concept reflects the outcome of the evaluation process described in Section 6.3, where construction methodologies, shaft requirements, and alignment considerations were assessed to minimize community and environmental impacts while maintaining technical feasibility.

Phase 3 identified the preferred construction methods for the wastewater alignment, including the proposed shaft compound locations as illustrated below in **Figure 6-15**.

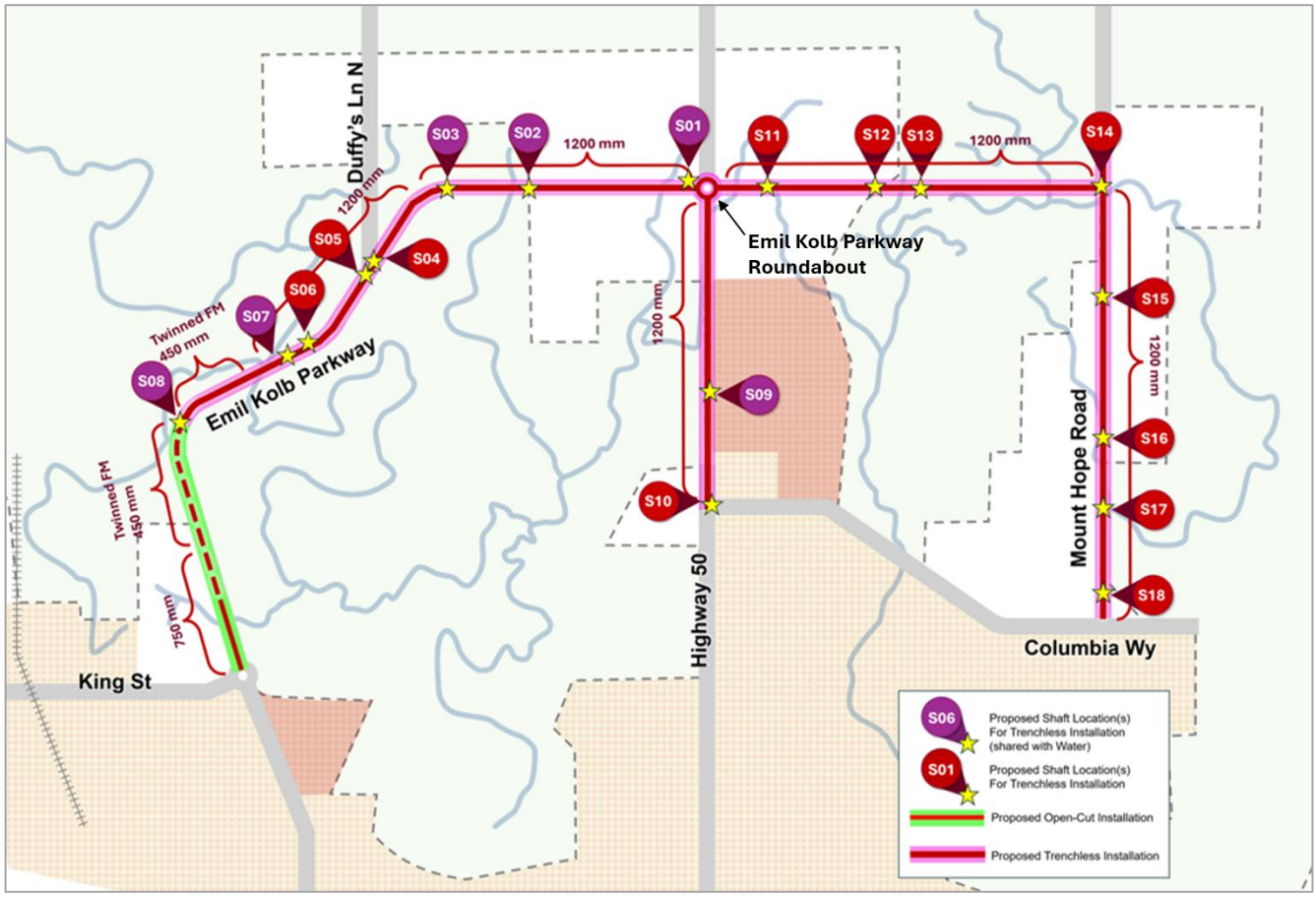


Figure 6-15: Preliminary Preferred Wastewater Design Concept

The preliminary preferred wastewater design concept will mainly be constructed by trenchless methodology, as the system relies on gravity and requires depth greater than 5 metres. A total of 18 shaft compound locations are proposed.

The preferred strategy includes two types of wastewater pipes, gravity sewers and force mains.

For the tunnelled sections, shafts will be required to support the construction of the sewer.

After determining where shafts are needed based on the selected methodology, the siting of the shaft construction compounds followed. It is noted that during detailed design, the locations of shafts, pipe alignments, and depths may be refined based on existing site conditions and the results of more detailed investigations. **Table 6-2** below provides an overview of the crossing methodology proposed for the wastewater alignment, including crossing method and description.

Table 6-2: Proposed Wastewater Infrastructure Crossing Methodology Overview

From ID	To ID	Location	Crossing	Method	Description
S01	**S02**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath existing creek, stormwater mains and culverts
S02	**S03**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath existing creek
S03	**S04**	Emil Kolb Parkway	No	Trenchless	Standard trenchless installation
S04	**S05**	Emil Kolb Parkway	No	Trenchless	Standard trenchless installation
S05	**S06**	Emil Kolb Parkway	No	Trenchless	Standard trenchless installation
S06	**S07**	Emil Kolb Parkway	No	Trenchless	Standard trenchless installation
S07	**S08**	Emil Kolb Parkway	Yes	Trenchless	Trenchless installation beneath Humber River
S08	**King St**	Emil Kolb Parkway	Yes	Open-Cut	Open-cut installation above and beneath existing stormwater mains and culverts
S01	**S09**	Highway 50	Yes	Trenchless	Trenchless installation beneath existing stormwater mains and culverts
S09	**S10**	Highway 50	Yes	Trenchless	Trenchless installation beneath existing culverts
S01	**S11**	Emil Kolb Parkway to Easement	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
S11	**S12**	Easement	No	Trenchless	Standard trenchless installation
S12	**S13**	Easement	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
S13	**S14**	Easement	Yes	Trenchless	Trenchless installation beneath proposed temporary culvert for access road
S14	**S15**	Mount Hope Road	Yes	Trenchless	Trenchless installation beneath existing culvert
S15	**S16**	Mount Hope Road	No	Trenchless	Standard trenchless installation
S16	**S17**	Mount Hope Road	Yes	Trenchless	Trenchless installation beneath existing culvert
S17	**S18**	Mount Hope Road	No	Trenchless	Standard trenchless installation

The following sections describe the preferred alignment segments and associated shaft locations forming the preferred wastewater design concept.

6.5.1 EMIL KOLB PARKWAY – KING STREET TO PROPOSED SPS

The gravity sanitary sewer alignment along Emil Kolb Parkway from Highway 50 to the Humber River (shaft locations S01 to S06) will be constructed using trenchless methodology due to the depth required to achieve minimum slope for gravity flow. The sewer alignment is located on the south side of the road ROW where sufficient space is available to accommodate required shaft compounds while minimizing impacts to surrounding infrastructure and road operations. **Figure 6-16** depicts the approximate shaft compound locations along Emil Kolb Parkway.

The sanitary force main alignment from the Humber River to north of King Street will be constructed using open-cut methodology within the road right-of-way, where adequate cover can be maintained above or below existing culverts. Open-cut construction is preferred due to the shallow pipe depth, as minimum slope requirements do not apply to pressurized systems.

Wastewater shafts S02 and S03 are proposed to be shared with water shafts W03 and W04, while wastewater shafts S07 and S08 are proposed to be shared with water shafts W05 and W06, respectively, to minimize the number of surface construction sites and associated community impacts.

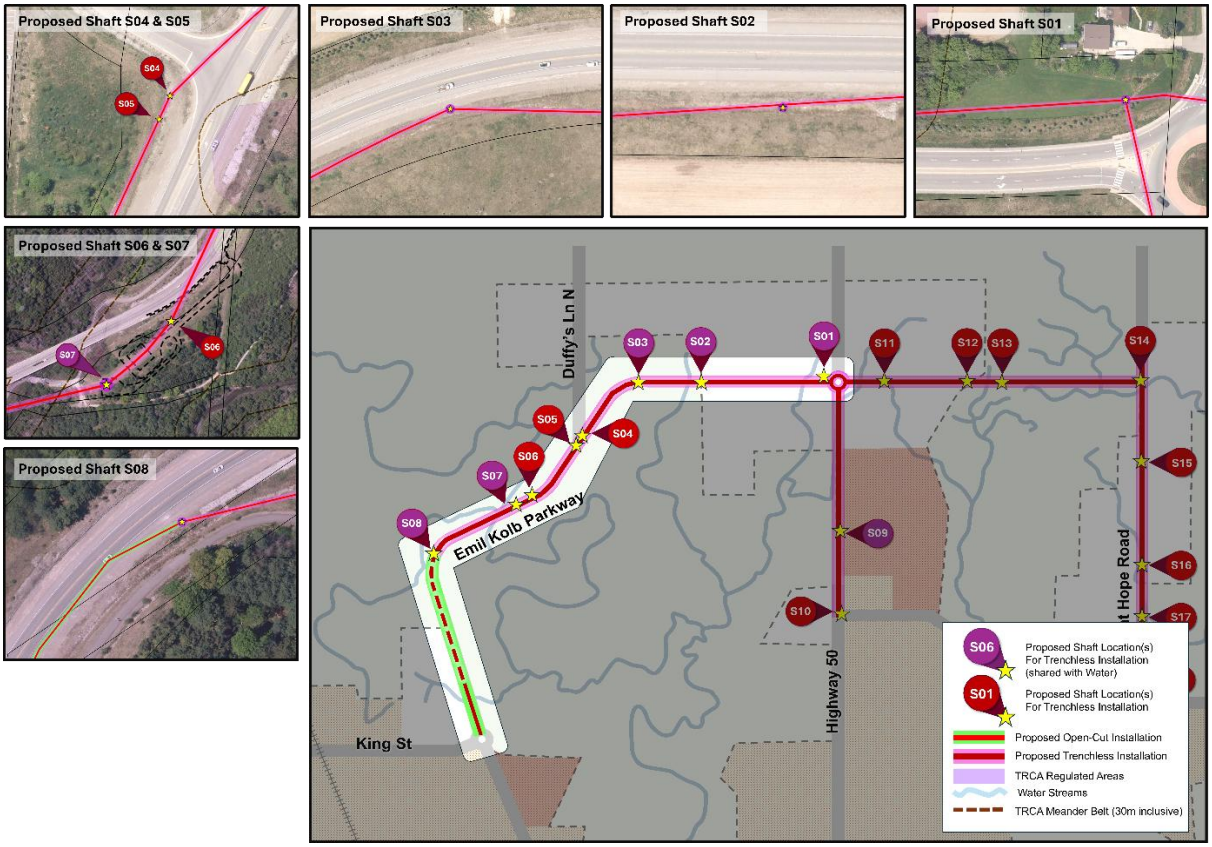


Figure 6-16: Preferred Wastewater Design along Emil Kolb Parkway

Key rationale for selection:

- No conflicts within existing infrastructure
- Available space for proposed shaft compounds
- Minimal impacts to traffic with no reduction in the number of traffic lanes
- No archaeological potential within the road ROW

6.5.2 HIGHWAY 50

The gravity sanitary sewer alignment along Highway 50 (Regional Road 50) (shaft locations S09 and S10) will be constructed using trenchless methodology from the roundabout at the intersection of Emil Kolb Parkway and Highway 50 south to Columbia Way due to the depth required to achieve minimum slope for gravity flow. The sewer alignment is located on the east side of the road ROW where sufficient space is available to accommodate construction activities while minimizing impacts to surrounding infrastructure and road operations. **Figure 6-17** depicts the approximate shaft compound locations along Highway 50.

Wastewater shaft S09 will be shared with water shaft W08 for the preferred wastewater design. The construction compound for wastewater shaft S01 will also be shared with water shaft W07.

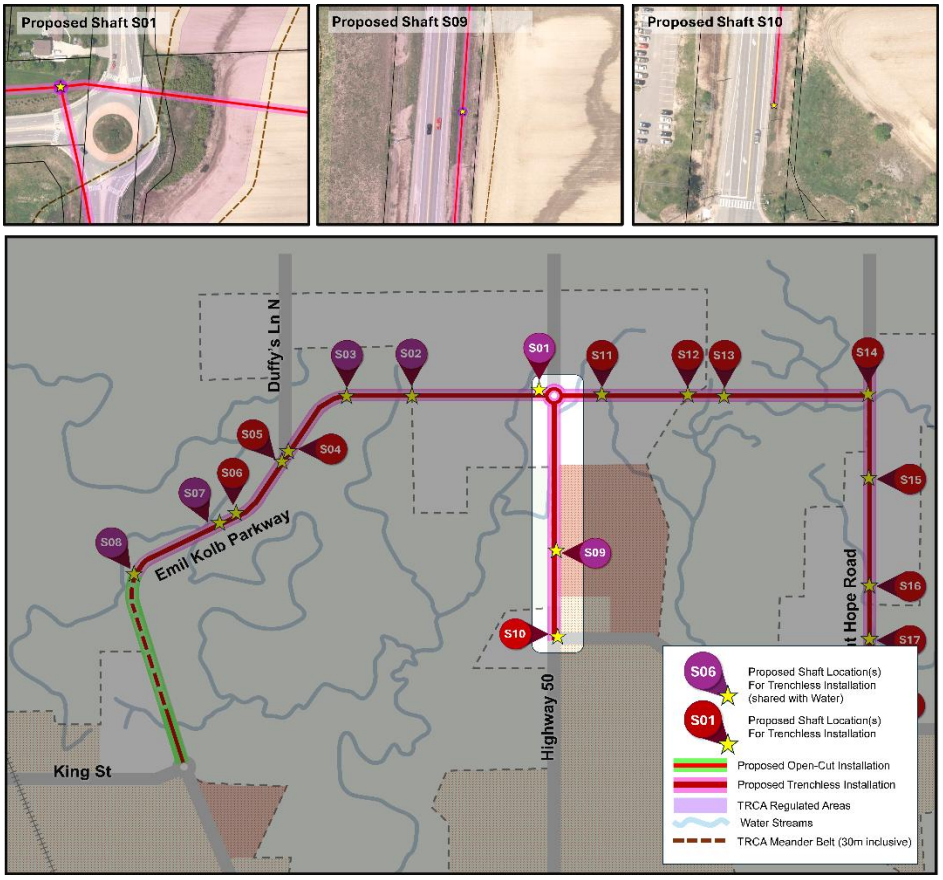


Figure 6-17: Preferred Wastewater Design along Highway 50

Key rationale for selection:

- No conflicts within existing infrastructure
- Available space for open-cut construction within the road shoulder
- Reduced impacts to trees and no watercourse crossings
- Minimal impacts to traffic with no reduction in the number of traffic lanes
- No archaeological potential within the road ROW

6.5.3 UTILITY CORRIDOR

The gravity sanitary sewer alignment will be constructed using trenchless methodology from the roundabout at Emil Kolb Parkway and Highway 50 to Mount Hope Road. The methodology is mainly driven by the depth required to service the planned service areas via gravity but also has the benefit (shaft locations S01, S11 to S14) to avoid impacts to fish habitat, natural features, and other key infrastructure constraints. **Figure 6-18** depicts the approximate shaft compound locations within the utility corridor.

Stage 2 Archaeological Study field investigations completed within this corridor confirmed that no additional archaeological studies are required along the alignment. Completed natural environment, cultural heritage, and agricultural investigations informed the refinement of the wastewater alignment and construction shaft and operation and maintenance structures in order to minimize impacts to natural features and surrounding land uses. Natural environment field investigations, including headwater drainage feature surveys, wetland verification, and site reconnaissance, were completed to validate existing conditions and identify mitigation measures, with results informing final selection of shaft locations and infrastructure alignment.

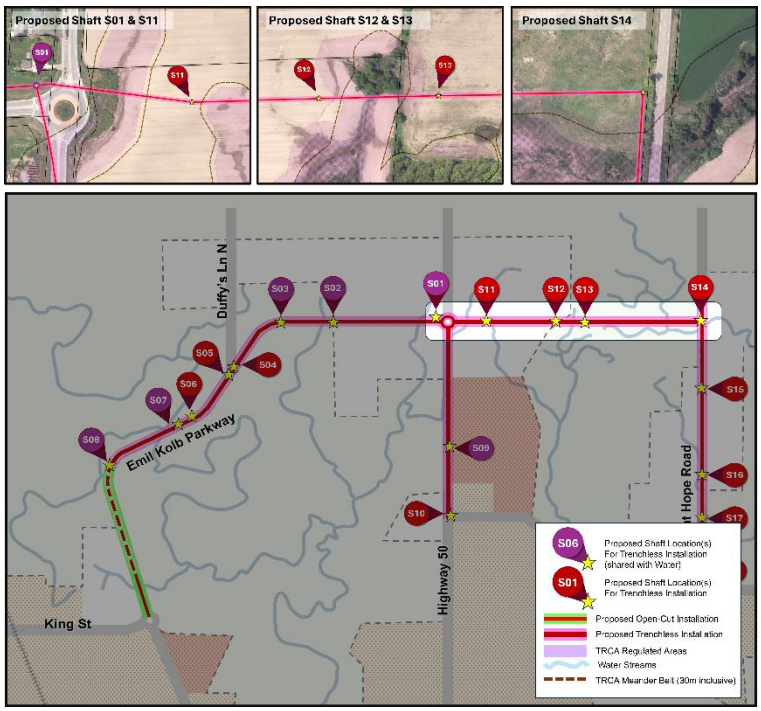


Figure 6-18: Preferred Wastewater Design along Utility Corridor

Key rationale for selection:

- No conflicts with existing infrastructure
- Alignment coordinated within a planned utility and transportation corridor
- Reduced impacts to natural features and avoidance of watercourse crossings through trenchless construction
- No archaeological impacts identified along the alignment
- Landowners are willing to work with the Region

6.5.4 MOUNT HOPE

The gravity sanitary sewer alignment along Mount Hope Road will be constructed using trenchless methodology from the intersection of Columbia Way to the new utility corridor located along the planned Town of Caledon local road (5 shaft locations S14 to S18) due to the depth required to achieve minimum slope for gravity flow. The sewer alignment is located on the west side of the road ROW where sufficient space is available to accommodate construction activities while minimizing impacts to surrounding infrastructure and road operations. Watercourse crossing sections along this alignment will also be constructed using trenchless methodology to avoid impacts to fish habitat and associated environmental features. **Figure 6-19** depicts the approximate shaft compound locations along Mount Hope Road.

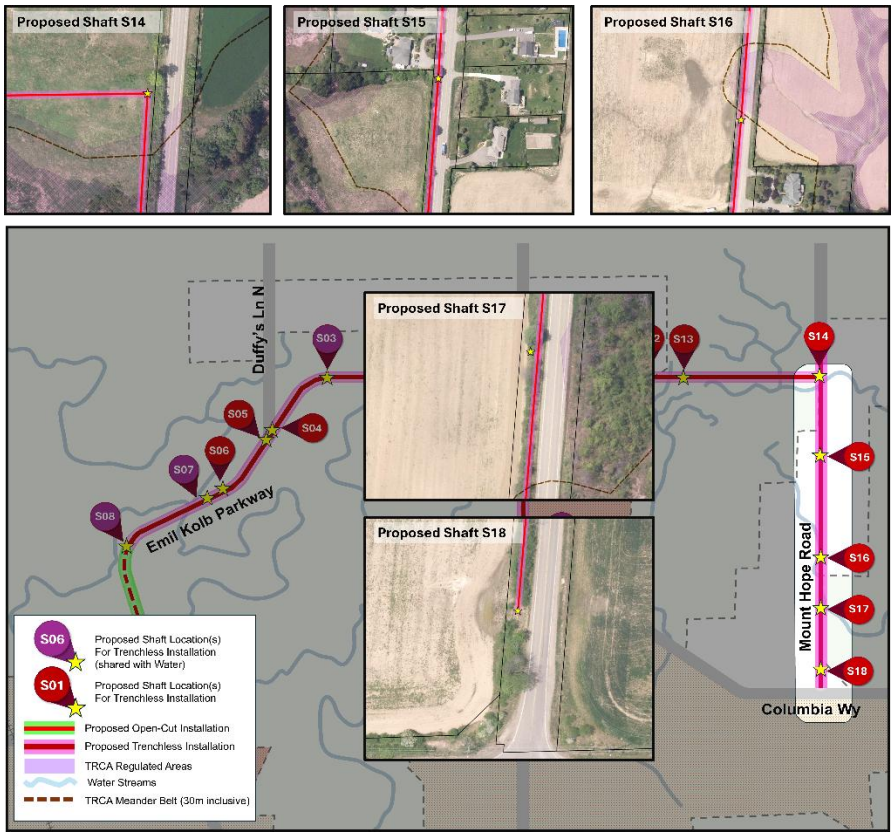


Figure 6-19: Preferred Wastewater Design along Mount Hope Road

Key rationale for selection:

- No conflicts within existing infrastructure
- Available space for trenchless construction within the road shoulder
- Watercourse crossings avoided through trenchless construction
- Minimal impacts to traffic with no reduction in the number of traffic lanes
- No archaeological potential within the road ROW

6.5.5 SANITARY PUMPING STATION

The preferred SPS site and associated access road were initially validated during Phase 2 of the Class EA process and further refined during Phase 3 as part of the development of the preferred wastewater servicing solution. The selected SPS location aligns with the preferred watermain strategy and associated infrastructure, gravity sanitary sewer, and force main alignments, as well as associated shaft locations, to provide an integrated and coordinated servicing solution. **Figure 6-20** illustrates the location of the preferred SPS site and access road.

The proposed SPS site is located on lands owned by the TRCA, and property acquisition will be required to support implementation. The site and access road are situated within TRCA regulated lands but are located outside the floodplain and river meander belt limits, including the 30-metre buffer. Portions of the site are located on previously disturbed lands associated with a former road alignment, which minimizes the potential for impacts to undisturbed areas. The proposed private access road includes an entrance and exit connection on the east side of Emil Kolb Parkway to support construction and permanent facility access and operations.

Site-specific natural environment investigations were completed at the proposed SPS location, including headwater drainage feature surveys, wetland delineation, tree habitat surveys, and bat cavity assessments. These investigations identified mitigation measures to support construction and operation, including timing restrictions to avoid sensitive ecological periods and tree protection or replacement where removal is required. No Species at Risk trees were identified at the site. Cultural heritage, archaeological, and Phase One Environmental Site Assessments have also been completed to inform site selection and identify appropriate mitigation measures to support implementation of the preferred SPS location. Engagement with Six Nations of the Grand River recommended that additional investigation be undertaken, which will be carried out as part of the next phase of the project with support and guidance from TRCA.

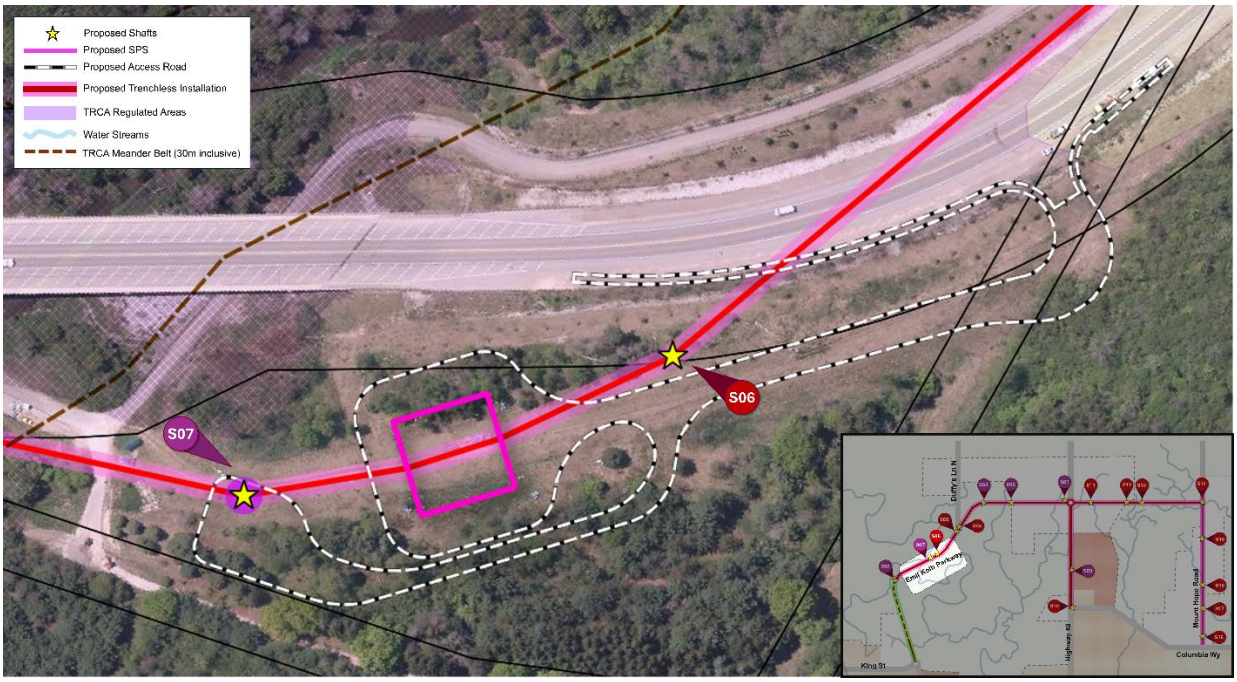


Figure 6-20: Preferred Sanitary Pumping Station Site and Access Road.

6.6 Focus Area 2 – Optimization of Existing Infrastructure

In addition to infrastructure required to support future growth, the study also considered opportunities to optimize the performance and reliability of the existing Bolton water and wastewater systems. This component of the study focused on operational and system improvements that build upon previous servicing analyses (see **Appendix 3C** for supporting analysis) and ongoing Regional programs rather than applying the conceptual design evaluation process used for new infrastructure components.

For the water system, the preferred solution includes promotion of portions of the existing pressure zone 6 system to the new pressure zone 7 to improve levels of service and enhance operational flexibility within the Bolton servicing area.

For the wastewater system, preferred improvements include the construction of a new sanitary force main from the Bolton SPS along Old King Road to the exiting trunk sewer on Nunnville Road, ultimately conveying flows to the Albion-Vaughan Trunk Sewer. Modifications to the Bolton SPS will be undertaken, as required, to accommodate the additional force main and support future system capacity. The existing sanitary force main system on Strawberry Hill Court will be maintained to provide operational flexibility and system resiliency, while the current servicing strategy for downstream conveyance will continue to be monitored to optimize the use of existing infrastructure.

The study also recognizes the importance of ongoing inflow and infiltration reduction initiatives within the wastewater system. The Region continues to implement wastewater flow monitoring and I&I reduction programs aimed at reducing extraneous flows entering the sewer system and improving overall system performance.

These improvements enhance system reliability while supporting long-term servicing objectives for Bolton.

7 Impacts and Mitigation Measures

Additional studies were completed during Phase 3 of the Class EA process to support the selection of the preferred design concept and determine the potential impacts and required mitigation during and after construction. The following section provides a summary of recommendations, potential impacts, and associated mitigation/monitoring measures required during detailed design and construction.

7.1 Climate Change

Peel Region has identified climate resiliency as a priority across all Regional services, as reflected in related corporate and asset management initiatives. Climate change may affect water and wastewater infrastructure through more frequent and intense extreme weather events, changes in precipitation patterns, and temperature variability, which may influence system performance, reliability and lifecycle requirements.

Consistent with the MECP guidance document, Considering Climate Change in the Environmental Assessment Process, climate change impacts were considered as part of the evaluation of alternatives. This section summarizes potential climate-related impacts and identifies considerations to support climate change mitigation and long-term system resilience as the project advances, consistent with the Region's policies and infrastructure planning objectives.

7.1.1 POTENTIAL IMPACTS TO THE WATER AND WASTEWATER SYSTEMS

Climate change may affect the performance and operation of water and wastewater servicing and infrastructure. Changes in temperature, precipitation patterns and extreme weather events can influence system capacity, infrastructure conditions and operational reliability. Key climate-related factors and their potential implications for the water and wastewater systems are summarized below:

- **High temperatures**: increased temperatures may affect water quality, increase water demand, and influence treatment processes and operational requirements.
- **Drought**: extended dry periods may reduce surface water and groundwater availability, which can affect water supply reliability and source water conditions.
- **Freeze-Thaw Cycles**: repeated freeze-thaw conditions may affect buried pipes and associated infrastructure, which may contribute to deterioration, leakage, or reduced service life.
- **Precipitation and Intense Rainfall**: increased rainfall intensity and volume can increase inflow and infiltration within wastewater systems and may increase the potential for surcharging, overflows and spills.
- **Wind**: high wind events may result in power outages, which can adversely influence the operation of water and wastewater pumping stations and control facilities.
- **Elevated Water Levels and Flooding:** increased surface water levels and flooding may affect water and wastewater facilities, including pumping stations and underground infrastructure.

- **Storm Events**: severe storm events may affect system operations through increased hydraulic loading, power interruptions and potential damage to infrastructure.

Based on the potential impacts noted above, further high-level adaptation considerations are advised to be carried forward through the subsequence stages of the project:

- Supporting the long-term resiliency and reliability of water distribution system under projected future climate conditions;
- Providing standby power capability at the SPS to maintain system operation during power outages;
- Locating infrastructure within existing transportation corridors and disturbed areas where feasible, reducing exposure to sensitive or vulnerable natural features and cultural heritage resources;
- Minimizing the number of watercourse crossings to reduce susceptibility to changing climate conditions; and,
- Developing solutions that are flexible and adaptable to support growth to 2051 and beyond.

Additional climate resilience considerations will be evaluated and incorporated, as appropriate, during detailed design.

7.2 Natural Features and Wildlife Habitat

A Natural Environment Report was completed to support development of the preferred design concept. The study included an initial desktop assessment followed by targeted field investigations within the study area. The assessment identified existing natural heritage features, evaluated potential impacts associated with implementation of the preferred design concept described in Section 6, and recommended mitigation measures to avoid or minimize potential effects.

Detailed, site-specific mitigation measures and environmental protection requirements will be further refined during detailed design to support permitting, approvals, and construction.

The Natural Environment Report and supporting materials are provided in **Appendix 2A**.

7.2.1 AQUATIC HABITAT PROTECTION

Implementation of the preferred design concept requires crossings of watercourse and drainage features, including the Humber River at the proposed SPS location and additional crossings along Emil Kolb Parkway and within the proposed utility corridor. At major watercourse crossings, including the Humber River, water and wastewater infrastructure will be installed using trenchless construction methods, thereby avoiding direct disturbance of the watercourse channel and associated fish habitat.

Although direct impacts to aquatic habitat are expected to be avoided through trenchless construction at major crossings, construction activities occurring in proximity to watercourses have the potential to result in indirect impacts to fish and fish habitat. Potential indirect impacts and associated mitigation measures are summarized in **Table 7-1**. Site-specific mitigation and monitoring requirements will be further refined during detailed design and permitting to support construction implementation.

Table 7-1: Aquatic Habitat Impacts and Mitigations

Potential Impacts	Associated Mitigation Measures
Runoff containing sediment or contaminants from active construction areas entering watercourses	Implement erosion and sediment control measures, including the installation, inspection, and maintenance of controls throughout construction, in accordance with TRCA's Erosion and Sediment Control Guidelines.
Accidental spills or equipment leaks affecting watercourses or habitat	Develop and implement spill prevention and response procedures and maintain spill kits on site.
Accidental encroachment of construction equipment into aquatic habitat or sensitive areas	Construction zones shall be clearly delineated in the field prior to the commencement of site disturbance.
Storage and operation of equipment near watercourses	Maintain setbacks for fueling and maintenance activities and store materials to prevent contaminant release.
Potential frac-out during trenchless installation methods	Prepare and implement a Frac-out Contingency Plan where trenchless methods are used.
Disturbance associated with construction near hydrologically sensitive drainage features	Tunnelling is required to avoid hydrologically or ecologically sensitive HDFs.

7.2.2 VEGETATION PROTECTION

Field investigations were conducted along the preferred design concept to document existing terrestrial ecosystem conditions within the study area. Investigations included identification of Ecological Land Classification communities, invasive species presence, incidental wildlife observations, high-level bat roost tree screening, and wetland vegetation and boundary confirmation. Investigations were completed within road ROW segments as well as at locations outside the ROW, including the proposed SPS site and selected shaft compound locations along Mount Hope Road, Columbia Way, and the utility corridor.

Most of the proposed infrastructure is located within existing road ROWs where naturalized vegetation communities are generally limited. However, vegetation removal will be required at select locations, particularly at the proposed SPS site and shaft compound locations. Impacts include localized removal of vegetation communities, temporary disturbance to roadside vegetation, and potential introduction or spread of invasive species during construction. Vegetation removal requirements and restoration opportunities will be further refined during detailed design to minimize impacts and support post-construction restoration, including consideration of a 1:10 tree replacement ratio. Where on-site space is limited, alternative suitable planting locations will be explored in coordination with TRCA.

The Agricultural Impact Assessment concluded that for areas within or adjacent to agricultural land use, the proposed works will result in minimal agricultural and crop impacts as majority of the alignment is within the road ROW. The proposed works may result in minor loss of prime agricultural land, temporary cultivation disruption, and limited impacts to field access during sewer and watermain construction. A rehabilitation plan should be implemented during detailed design to restore cultivation areas outside of the Sanitary Pumping Station and shaft footprints.

Table 7-2 summarizes potential vegetation-related impacts and associated mitigation measures applicable to construction of the preferred design concept.

Table 7-2: Vegetation Impacts and Mitigation Measures

Potential Impacts	Associated Mitigation Measures
Displacement or disturbance of vegetation communities due to construction activities	Limit construction vehicle access to designated work areas to prevent unnecessary soil compaction and disturbance outside construction limits.
Removal of trees and vegetation required for infrastructure installation	Conduct tree removals under the supervision of a certified arborist using proper arboricultural techniques, outside breeding bird and bat roosting windows, and in accordance with applicable guidelines. Tree compensation will be implemented at a 1:10 replacement ratio.
Damage to vegetation and trees adjacent to construction areas	Install protective fencing and erosion and sediment control fencing adjacent to vegetation communities being protected and around trees not identified for removal, with Tree Protection Zones established and maintained in accordance with applicable arboricultural standards.
Damage to retained trees through improper pruning or root disturbance	Conduct pruning activities by a certified arborist in accordance with standards and minimize root pruning to protect tree stability and health.
Soil exposure leading to erosion or vegetation loss following construction	Stabilize exposed soils as soon as possible following grading using approved seed mixes or erosion control blankets where required.
Introduction or spread of invasive species during construction	Implement the Clean Equipment Protocol and remove invasive species within construction limits in accordance with accepted disposal practices.
Loss or disturbance of vegetation within construction areas	Restore disturbed areas to pre-disturbance conditions, where appropriate, using native species consistent with local restoration objectives including Seed Mix as recommended by Six Nations of the Grand River.

Potential Impacts	Associated Mitigation Measures
Loss of prime agricultural land	Continue farming lands until they are to be developed. Prepare rehabilitation plan to ensure farming lands can be successfully cultivated following construction activities.

7.2.3 WILDLIFE, SPECIES AT RISK AND SIGNIFICANT WILDLIFE HABITAT

Field investigations identified wildlife habitat within portions of the study area, including Significant Wildlife Habitat associated with species such as Wood Thrush, Bank Swallow, and Barn Swallow. Construction activities associated with the preferred design concept have the potential to temporarily disturb wildlife and habitat, particularly in areas where vegetation removal or ground disturbance is required outside existing road ROW.

The Natural Environment assessment concluded that most linear infrastructure works occur within road corridors where wildlife are generally acclimatized to human activity, and therefore, significant long-term impacts are not anticipated. Potential temporary disturbances during construction can be effectively mitigated through implementation of standard construction controls and timing restrictions. **Table 7-3** summarizes potential impacts to wildlife, Species at Risk, and associated habitats, along with mitigation measures to be implemented during construction and refined at the detailed design stage.

Table 7-3: Wildlife, Species at Risk and Significant Wildlife Habitat Impacts and Mitigation Measures

Potential Impacts	Associated Mitigation Measures
Disturbance to wildlife and wildlife habitat from construction activities, including noise, lighting, and human presence	Restrict construction activities to daylight hours where feasible and conduct vegetation clearing outside the breeding bird period (April 1 to August 31) and bat roosting period (April 1 to September 30) to reduce impacts to wildlife
Disturbance or destruction of active migratory bird nests during vegetation clearing	Where active nests are identified, establish a minimum 15 m no-work buffer and monitor the nest by a qualified biologist until inactive before resuming work
Wildlife or Species at Risk encountered within construction areas	Retain a qualified biologist on-call to provide direction for identification, relocation, or other management measures where wildlife are encountered
Wildlife present within work areas prior to construction activities	Conduct daily inspections of construction areas prior to commencing work and contact the on-call qualified biologist if wildlife are encountered

Potential Impacts	Associated Mitigation Measures
Wildlife entering active construction zones resulting in disturbance or injury risk	Install and maintain protective fencing adjacent to construction zones to prevent wildlife entry into active work areas
Wildlife or sensitive species encounters during construction activities	Implement a Wildlife Management Plan outlining procedures to be followed during wildlife encounters, including establishment of setbacks and consultation with appropriate specialists and agencies where required

7.3 Physical Environment

Studies of subsurface soil, bedrock, and groundwater conditions were completed to support development of the preferred design concept. These studies reviewed available background information and existing investigation data within the study area to identify potential physical environment considerations associated with implementation of the preferred infrastructure described in Section 6.

The assessments considered potential construction-related impacts associated with open-cut and trenchless construction methods and identified mitigation measures and investigation requirements to manage subsurface and groundwater conditions during future design and construction stages. Site-specific investigation requirements and mitigation measures will be further refined during future design to support construction planning, permitting, and implementation.

Supporting geotechnical and hydrogeological study reports are provided in **Appendix 2B and 2C**.

7.3.1 GEOTECHNICAL CONSIDERATIONS

A Geotechnical Desktop Study was completed to review available subsurface information and identify geotechnical considerations relevant to construction of the proposed water and wastewater infrastructure.

Construction activities associated with both open-cut and trenchless installation methods may encounter variable soil and groundwater conditions along portions of the alignments. These conditions may influence excavation stability, groundwater control requirements, and construction methodology selection.

To mitigate potential construction risks and confirm subsurface conditions, additional geotechnical investigations are recommended during future design stages, including:

- Completion of detailed geotechnical investigations along the preferred alignments to confirm soil, bedrock, and groundwater conditions.
- Boreholes for open-cut sections spaced at approximately 200-metre intervals along alignments, extending to depths sufficient to characterize soils below pipe invert and confirm bedrock conditions.
- Boreholes for trenchless sections spaced at approximately 100-metre intervals, with additional boreholes at shaft locations extending below shaft base to confirm ground conditions.

- Installation of groundwater monitoring wells along open-cut and trenchless sections to characterize groundwater levels and inform dewatering requirements.
- Selection of trenchless construction methods based on confirmed ground conditions, cover depth, drive length, and anticipated soil and groundwater conditions.
- Coordination of geotechnical investigations with hydrogeological and environmental subsurface investigations to support integrated design and permitting requirements.

These investigations will support refinement of construction methods and development of mitigation measures to minimize construction risks and potential environmental impacts during implementation.

7.3.2 HYDROGEOLOGICAL CONSIDERATIONS

A hydrogeological desktop study was completed to establish baseline groundwater conditions within the study area and to identify potential hydrogeological considerations associated with construction of the proposed water and wastewater infrastructure.

The desktop assessment indicates that groundwater conditions vary across the study area depending on local geology, topography, and proximity to watercourses. Construction activities associated with both open-cut and trenchless installation methods may interact with groundwater, particularly where excavations extend below the water table or where shafts are constructed. These interactions may influence groundwater control requirements, construction sequencing, and discharge management during construction.

To manage potential hydrogeological effects and to confirm site-specific conditions, further hydrogeological investigations are recommended during future design stages, including:

- Installation of groundwater monitoring wells along open-cut and trenchless sections at appropriate spacing to characterize groundwater levels and hydraulic conditions within excavation and shaft footprints.
- Use of multilevel monitoring wells, where required, to assess groundwater conditions in the multiple aquifers present within the study area.
- Completion of groundwater level monitoring and field testing (e.g., slug tests) to support assessment of groundwater inflow rates and dewatering requirements.
- Collection of groundwater quality samples, as required, to inform potential discharge options during construction.
- Coordination of hydrogeological investigations with geotechnical and environmental subsurface investigations to support integrated design, permitting, and construction planning.

These investigations will support refinement of groundwater management strategies, confirmation of construction feasibility, and development of appropriate mitigation measures to minimize potential impacts to groundwater resources and surrounding features during implementation.

7.3.3 SOURCE WATER PROTECTION

The study area is located within the Toronto and Region Source Protection Area and contains identified Highly Vulnerable Aquifers (HVAs) and Significant Groundwater Recharge Areas (SGRAs), as described in Section 3.1.2.9. No Wellhead Protection Areas (WHPAs) or Intake Protection Zones (IPZs) have been identified within the study area. The proposed works consist of municipal water and wastewater infrastructure, including watermains, sanitary sewers, sanitary forcemains, and a sanitary pumping station. Source water protection considerations were incorporated throughout the Municipal Class EA process to support the development and evaluation of the preferred servicing strategy and to avoid or minimize potential impacts to vulnerable groundwater resources wherever feasible.

The preferred servicing strategy was developed with consideration of the identified HVAs and SGRAs and is considered consistent with the intent of protecting vulnerable groundwater resources within the study area. Throughout the alternatives evaluation, particular consideration was given to protecting groundwater resources and maintaining groundwater recharge functions associated with identified HVAs and SGRAs. Alternatives were developed and assessed with the objective of avoiding sensitive groundwater features wherever feasible and reducing the extent and duration of disturbance where avoidance was not possible. This approach supported the selection of a preferred servicing strategy that minimizes potential risks to groundwater quality, groundwater quantity and groundwater recharge functions while meeting the project's servicing objectives.

Throughout the alternatives evaluation, consideration was given to reducing the extent of disturbance through alignment selection, maximizing the use of existing road rights-of-way where practical, applying trenchless construction methods where appropriate, and incorporating environmental protection measures into the conceptual design. In addition, Environmental Site Assessments, hydrogeological investigations, erosion and sediment control measures, spill prevention and response measures, and excess soil management measures have informed the preferred servicing strategy and will continue to support the protection of groundwater quality during subsequent phases of the Project, where appropriate. Collectively, these measures support implementation of the preferred servicing strategy in a manner that is consistent with the intent of the applicable Source Protection Plan policies identified in Section 3.1.2.9, while also supporting the long-term protection of groundwater resources and recharge functions within the study area.

Consistent with the commitments identified throughout this ESR, additional hydrogeological investigations and site-specific assessments will be undertaken during detailed design to further characterize groundwater conditions and refine the design, construction methodologies, groundwater management measures, and environmental protection requirements. Where groundwater taking or dewatering is required, additional hydrogeological investigations, monitoring programs, and permitting requirements will be completed in accordance with applicable regulatory requirements. The findings of these investigations will support detailed design, permitting, and implementation of the preferred servicing strategy while continuing to avoid or minimize potential impacts to groundwater resources. Detailed design will continue to prioritize the avoidance of impacts to natural groundwater recharge and groundwater flow regimes wherever feasible. Where impacts cannot be avoided, construction methods, groundwater management measures, and restoration requirements will be refined to minimize and mitigate potential effects.

7.4 Built Environment

This section summarizes potential impacts to built environment components associated with implementation of the preferred design concept described in Section 6 and identifies mitigation measures to manage these impacts during construction and future operation. Considerations include archaeological and cultural heritage resources, contamination and excess soil management, traffic operations, utilities, property requirements, and air quality.

7.4.1 ARCHAEOLOGICAL IMPACTS

Two Stage 2 Archaeological Assessments (AA) were completed for the preferred design concept. All field investigations, including test pit surveys, were undertaken in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists* issued by the Ministry of Citizenship and Multiculturalism.

Archeoworks Inc. completed a Stage 2 AA for shaft locations within the road ROW where Stage 1 assessments indicated archaeological potential, as well as for agricultural lands between Highway 50 and Mount Hope Road. Artifacts were identified at two locations adjacent to, but outside, the preferred alignment and shaft locations.

- **H1 Site (AIGw-229):** A Stage 3 AA is required should construction activities impact the site. To allow development to proceed, partial clearance measures include implementation of a 20-metre protective buffer and a 50-metre monitoring zone around the site.
- **Harper (AIGw-172):** Construction activities occur immediately adjacent to this site; therefore, avoidance and protection measures are required to prevent impacts.

A Stage 2 AA was completed by TRCA within the proposed SPS site, in accordance with Section 2.1.2 of the *2011 Standards and Guidelines for Consultant Archaeologist* by the Ministry of Citizenship and Multiculturalism, and all Stage 2 objectives were satisfied. The assessment resulted in the identification and recovery of five lithic artifacts, representing PreContact lithic scatter that was registered with MCM. Based on these findings, the site was determined to retain cultural heritage value or interest, and further mitigation in the form of avoidance, protective buffering, archaeological monitoring, or a Stage 3 excavation was recommended to appropriately manage and mitigate potential impacts associated with the project.

A Stage 3 AA was later completed by TRCA in late Fall 2025 within the proposed SPS site, focusing on the previously identified lithic artifacts discovered through the Stage 2 AA. The assessment was undertaken in accordance with Section 3 of the *2011 Standards and Guidelines for Consultant Archaeologists*, and all Stage 3 objectives were satisfied, including confirmation of the site's cultural heritage value and delineation of its limits. Test unit excavation on a five-metre grid resulted in the recovery of 25 lithic artifacts, in addition to the five lithics identified in the previous AA, for a total of 30 lithic artifacts. Based on the artifact distribution and findings, the site was determined to be sufficiently documented and does not retain further cultural heritage value or interest; therefore, Stage 4 mitigation is not required.

The archaeological assessment reports and TRCA letters of Property Assessment Results are provided in **Appendix 2D.**

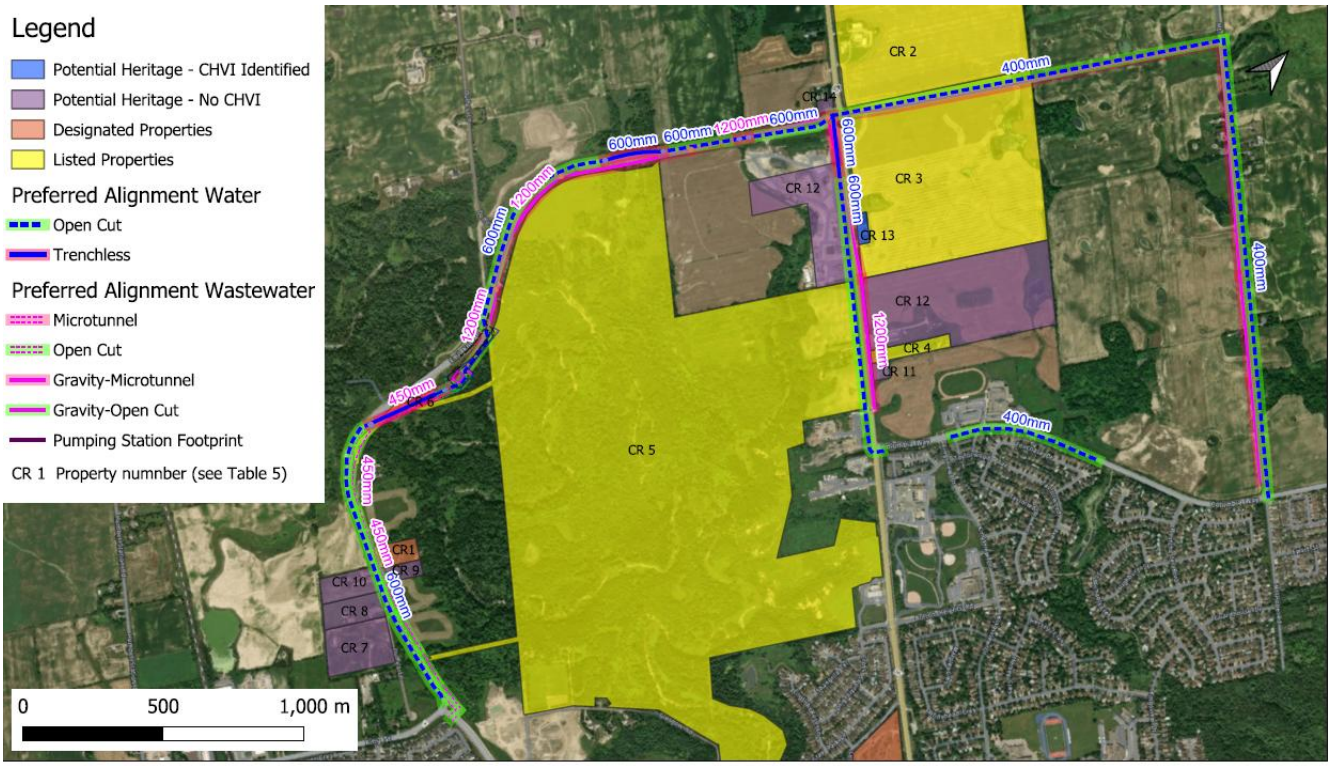
7.4.2 BUILT/CULTURAL HERITAGE IMPACTS

A Cultural Heritage Existing Condition and Preliminary Impact Assessment was completed on the cultural heritage resources that may be affected by the preferred shaft sites and open-cut sections of the preferred alignment. A total of 14 cultural heritage resources were assessed, including designated, listed, and properties of potential cultural heritage value or interest (CHVI).

Based on the assessment findings, the following mitigation measures are recommended:

- **Designated and Listed properties**: No direct or indirect impacts are anticipated; therefore, no mitigation measures are recommended.
- **Properties of potential CHVI, where no CHVI was identified:** no mitigation measures are recommended.
- **14445 Regional Road 50:** CHVI was determined to be present, no direct or indirect impacts are anticipated, and no mitigation measures are recommended.
- **Concrete bridge abutment (along former Duffy's Lane Road):** no direct or indirect impacts are anticipated; however, the following mitigation measures are recommended:
    - Vibration assessment be undertaken by qualified personnel to confirm proposed construction methods will not result in damage from vibration to bridge abutments.
    - On-site monitor by project team be conducted to ensure construction techniques do not inadvertently result in impacts to the bridge abutments.
- Design the preferred water and wastewater solution to avoid direct and indirect impacts to BHRs and CHLs.
- Plan and locate storage and construction staging areas to avoid impacts to the identified BHRs and CHLs.
- Should the preferred water and wastewater solution be expanded, retain a qualified heritage consultant to identify the impacts of the proposed new work on known or potential BHRs and CHLs and recommend appropriate mitigation or conservation measures.

Based on the findings, no further cultural heritage assessment is required for the proposed shaft locations for the preferred watermain and wastewater sewers. The Cultural Heritage Report is provided in **Appendix 2E.**



Cultural Heritage Report - Bolton Water and Wastewater Capacity Improvements Schedule C MCEA
Map 8 - Cultural Heritage Assessment Results

Peninsula Heritage Ltd.
Archaeology & Built Heritage

Figure 7-1: Cultural Heritage Resource Map, Peninsula Heritage (2025)

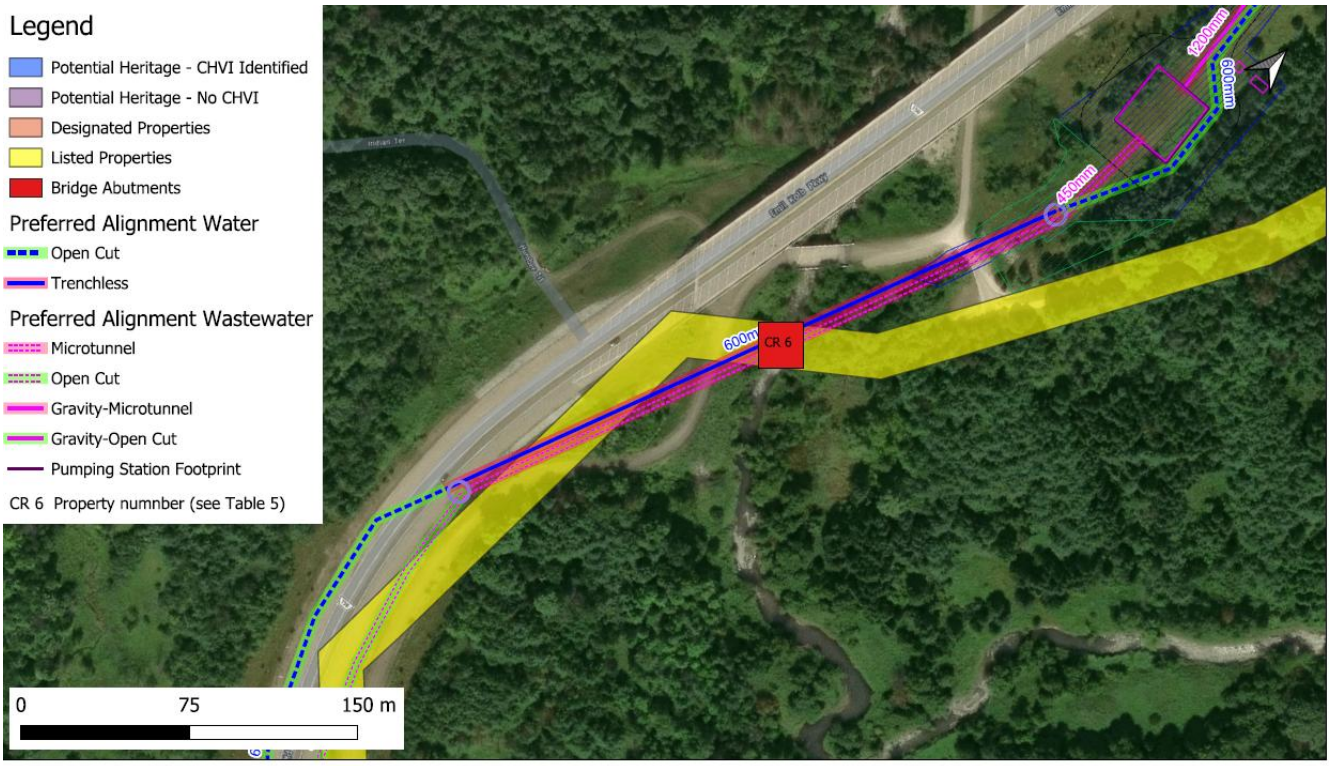


Figure 7-2: Cultural Heritage Resource Map for SPS Location, Peninsula Heritage (2025)

7.4.3 TRAFFIC IMPACTS

A Traffic Impact Assessment (TIA) was completed on the preferred design concept to summarize existing and future traffic conditions at the impacted sites with and without construction. This study also assessed traffic impacts on the adjacent roadways associated with the proposed construction plans and recommends necessary improvements to maintain acceptable traffic operations during construction.

The study found several future (post-construction) traffic conditions, including:

- The planned works related to this study are not expected to impact future transportation conditions to any significant extent.
- The construction of a sanitary pumping station, scheduled to be completed by 2029, will have site access via a private driveway connection to Emil Kolb Parkway. This access is not expected to impact transportation conditions to any significant extent.

The study found several potential construction conditions, including:

- Additional temporary truck traffic, with a maximum of 34 trucks per hour, particularly in off-peak hours between 1:00 AM and 3:00 AM.

- Approximately 27 trucks per hour are anticipated during the AM peak hour (between 7:00 AM and 9:00 AM). In the PM peak hour (between 4:00 PM and 6:00 PM), truck volumes are expected to range between 11 and 16 trucks per hour.
- Temporary traffic disruptions are not expected to be significant relative to typical construction works.
- No lane closures are anticipated for the majority of the proposed works.
- Detailed traffic management plans will be developed to ensure safe and appropriate traffic flow during construction.

A line-of-sight analysis was completed to review the location of the access at the SPS site. To confirm the access is safe and operationally feasible, the access location at the SPS site was reviewed. The assessment concluded that:

- The SPS access has adequate corner clearance, access spacing, throat length, access alignment and sight distance at the intersection of the proposed driveway and Emil Kolb Parkway.
- No auxiliary turn lanes are warranted due to the low traffic volumes generated by the site.
- A northbound acceleration lane is not required based on forecast traffic volumes. However, this lane can be considered given the grade of Emil Kolb Parkway at the site access.
- Signage and pavement markings are recommended as they relate to the new site access for the pumping station.

Based on the findings of this study, it is recommended that the following measures be implemented to support traffic operations:

- No traffic capacity upgrades on the public road network be pursued based on the infrastructure upgrades planned through the EA.
- Full vehicle access in both directions be maintained during construction works.
- A raised concrete centre median island be installed on Emil Kolb Parkway at the site access. The purpose of the island is to eliminate left-turn vehicle conflicts and dwelling of southbound vehicles in the single through lane along the curve at Emil Kolb Parkway. It will also reduce the likelihood of head-on and sideswipe collisions, as per Transportation Association of Canada Geometric Design Guide for Canadian Roads guidelines, by clearly delineating lanes and preventing vehicles from straying into opposing lanes.
- The need for an acceleration lane at the SPS should be considered.
- A Wa-113A intersection warning sign and a Wa-118t hidden intersection tab sign should be considered for Emil Kolb Parkway, 265 metres south of the planned sanitary pumping station driveway.
- Traffic management plans should be developed in collaboration with local traffic authorities and municipal stakeholders.

The Traffic Impact Assessment can be found in **Appendix 2F.**

7.4.4 CONTAMINATION

An Assessment of Past Uses was completed for the entire Focus Area 1 study area to identify historical and current activities that could result in soil or groundwater contamination within areas affected by the proposed works. The assessment identified 21 potentially contaminating activities at eight locations. Each activity was evaluated to determine whether it represented an Area of Potential Environmental Concern within the study area. Two Areas of Potential Environmental Concern were identified, with several contaminants of potential concern potentially present in soil.

- **Area of Potential Environmental Concern 1 – Focus Area 1:** Potential contaminating activities include the historic importation of fill materials of unknown quality associated with roadway construction, potential pesticide use on surrounding agricultural lands, and historical use of fuel oil furnaces for residential and agricultural heating. Records and site observations also indicate the presence of fuel oil storage tanks on nearby properties, with documented spill incidents associated with leaking tanks.
- **Area of Potential Environmental Concern 2 – Highway 50 south of Emil Kolb Parkway:** Potential contaminating activities include operation of a public works yard, presence of multiple fuel storage tanks, documented fuel and oil spills, automotive repair facilities, a gas station, waste generator operations, an aggregate pit or storage yard, contractor yard activities, and importation of fill materials of unknown quality.

Contaminants potentially associated with these activities include metals and inorganic parameters, petroleum hydrocarbons, benzene, toluene, ethylbenzene and xylenes, organochlorine pesticides, volatile organic compounds, and polycyclic aromatic hydrocarbons.

Based on these findings, a subsurface investigation involving preparation of a Sampling and Analysis Plan and completion of soil characterization in accordance with Ontario Regulation 406/19 (as amended) is recommended to confirm or refute the presence of contamination within planned excavation areas in the identified Areas of Potential Environmental Concern.

In addition, three Phase I Environmental Site Assessments (ESAs) were completed for properties affected by the alignment outside of the road ROW, including two private properties within the infrastructure corridor between Highway 50 and Mount Hope Road, and the TRCA property where the SPS will be located. These assessments identified potential sources of contamination at each property, and recommend completion of Phase II Environmental Site Assessments involving soil and groundwater sampling to confirm or refute the presence of contamination within anticipated excavation depths.

The Assessment of Past Uses and Phase 1 ESA reports are provided in **Appendix 2G**.

7.4.5 UTILITIES

As part of this Class EA study, consultation with utilities was completed to identify infrastructure within the study area and confirm any potential impacts during construction. Based on this review, no impacts to utilities within or surrounding the study area are anticipated. Further assessment of utility conflicts, relocations, and connection requirements will be completed during detailed design.

7.4.6 PROPERTY IMPACTS

Implementation of the preferred design concept will require access to and use of lands both within and outside existing road ROWs, including areas required for permanent infrastructure, temporary construction access, and staging associated with shaft compounds and the proposed SPS. Property requirements may include permanent easements, temporary construction easements, and, where necessary, property acquisition to accommodate long-term infrastructure and access needs.

As part of the Class EA process, property owners were contacted to obtain access to lands required to complete field investigations and supporting technical studies. Permission to Enter (PTE) agreements were arranged with applicable property owners to allow completion of these investigations, and property owners were notified in accordance with the terms of those agreements prior to site access. These PTE agreements were solely for investigation purposes and do not represent the full extent of property requirements needed for construction and operation of the preferred design concept.

A summary of anticipated permanent and temporary property requirements associated with implementation of the preferred solution is provided in Section 8.8, with final property needs to be confirmed during detailed design in consultation with affected property owners.

7.4.7 AIR QUALITY AND ODOUR CONTROL

The potential for air quality and odour effects associated with the preferred servicing strategy was evaluated through a qualitative screening-level assessment completed as part of the Class EA process. The preferred servicing strategy includes new water and wastewater infrastructure, including watermains, sanitary sewers, sanitary forcemains, a sanitary pumping station, and associated appurtenances. While operational odour effects are primarily associated with wastewater infrastructure, temporary air quality effects may occur during the construction of both the proposed water and wastewater infrastructure.

Consistent with the level of detail appropriate for the Municipal Class EA process, the assessment was completed qualitatively and focused on identifying potential emission sources, sensitive receptors, potential effects, and mitigation measures. Detailed baseline air quality characterization, quantitative air quality assessment, and air dispersion modelling, where warranted, will be completed during subsequent phases of design.

Potential air emission and odour sources associated with the preferred undertaking include:

- construction equipment and vehicle emissions;
- excavation and handling of soil during construction;
- sanitary sewer infrastructure, including maintenance structures, sewer connections, and drop structures;
- the proposed Humber Sewage Pumping Station, including the wet wells, grinder chamber, ventilation systems, odour control unit, and associated mechanical equipment.

The primary contaminants of concern associated with municipal wastewater infrastructure include hydrogen sulphide (H_2S), reduced sulphur compounds, ammonia, volatile organic compounds, and nuisance odours.

A qualitative screening-level assessment of potential air quality and odour considerations associated with the preferred servicing strategy is provided in **Table 7-4**.

Table 7-4: Qualitative Air Quality and Odour Assessment

Component	Details	Assessment/Rationale	Potential Mitigation Measures/Controls
Operational air quality and odour sources	Proposed SPS, drop structures, sanitary sewer maintenance holes, discharge chamber, and locations where hydraulic turbulence or pressure changes may occur within the wastewater system.	The wastewater system will operate as a predominantly enclosed conveyance system consisting of deep gravity sanitary sewers, sanitary forcemains, and a pumping station. Potential odour releases are expected to be localized to discrete infrastructure components rather than occurring continuously along the sewer alignment. The proposed wastewater infrastructure will primarily service future growth areas, with limited connections to the existing sanitary system.	Identify locations requiring further evaluation during detailed design. Refine hydraulic design to minimize turbulence where practical and evaluate ventilation, odour control systems, and other engineering controls where appropriate.
Sensitive receptors	Existing and planned residential areas, recreational users of the Bolton Resource Management Tract, adjacent public spaces, and other nearby sensitive land uses.	The preferred servicing strategy was developed to minimize potential effects on existing communities by locating infrastructure within existing road rights-of-way, future planned infrastructure corridors, or easements where feasible. The enclosed nature of the wastewater system further limits the potential for widespread operational air quality or odour effects.	Confirm sensitive receptor locations during detailed design and evaluate whether additional air quality or odour mitigation measures are warranted for specific facilities or locations, such as the SPS, discharge chamber, drop structures, and other potential odour-generating infrastructure.
Existing and future conditions	Existing conditions within the future servicing area compared with the operation of the proposed water and wastewater infrastructure.	Existing air quality and odour conditions within the study area are characteristic of a predominantly rural and undeveloped landscape, with no municipal water and wastewater infrastructure present within much of the future servicing area. Under future conditions, the project will introduce new watermains, sanitary sewers, sanitary forcemains, and a SPS to service planned growth. Water infrastructure is not anticipated to generate operational air	Refine hydraulic design during detailed design to minimize turbulence where practical, identify locations requiring additional assessment, and evaluate ventilation, odour control systems, and other engineering controls, where appropriate.

Component	Details	Assessment/Rationale	Potential Mitigation Measures/Controls
		quality or odour effects. Potential operational air quality and odour effects associated with the wastewater infrastructure are expected to remain localized to discrete facilities and appurtenances, such as the SPS, drop structures, and maintenance holes, rather than resulting in widespread impacts.	
Construction-related air quality	Temporary air emissions associated with construction of the proposed water and wastewater infrastructure, including excavation, tunnelling compounds, open-cut installation, vehicle movements, construction equipment, dust generation, and the potential disturbance of contaminated soils.	Construction-related air quality effects are expected to be temporary, localized, and typical of municipal infrastructure projects. The preferred servicing strategy utilizes a combination of trenchless and open-cut construction methods. The use of trenchless construction for watermains and sanitary sewer sections reduces the extent of surface disturbance where appropriate, while open-cut construction will be employed where technically suitable based on site-specific conditions.	Implement standard construction best management practices, including dust suppression, equipment maintenance, erosion and sediment control, traffic management, appropriate handling of excess soils and any contaminated materials encountered during construction, and compliance with applicable environmental specifications and regulatory requirements.
Detailed design and regulatory approvals	Site-specific engineering refinement and regulatory approvals.	The Municipal Class EA establishes the preferred servicing strategy and identifies locations where additional engineering assessment will be completed during detailed design, as required. The level of detail necessary to complete quantitative air quality or odour modelling is not available at the EA stage, as final facility layouts, hydraulic design, equipment selection, and operating conditions will be confirmed during detailed design.	Complete additional engineering assessments, including quantitative air quality and/or odour assessments and air dispersion modelling, as required to support detailed design, Environmental Compliance Approval (ECA) applications, and final facility design. Any future assessment will be undertaken in accordance with applicable regulatory requirements, guidelines, and approval requirements in effect at the time of design.

The qualitative screening assessment completed as part of the Municipal Class EA process did not identify any anticipated air quality or odour concerns that would preclude implementation of the preferred servicing strategy. As the Project advances, additional air quality and odour assessments will be completed during

detailed design, as required, to support final facility design, regulatory approvals, and the identification of any facility-specific mitigation measures. Potential operational air quality and odour effects are anticipated to be localized and associated primarily with discrete wastewater infrastructure components, including the proposed sanitary pumping station and locations where hydraulic transitions, such as drop structures, may occur.

Construction-related air quality effects associated with both the proposed water and wastewater infrastructure are expected to be temporary and can be effectively managed through standard construction best management practices and environmental protection measures. Standard construction best management practices, including dust suppression, minimizing equipment idling, controlling exposed soils and stockpiles, and implementing appropriate excess soil management procedures, will be employed to minimize potential air quality impacts during construction. The use of trenchless construction for significant portions of the proposed watermain and sanitary sewer infrastructure, together with the placement of infrastructure within existing road rights-of-way, planned infrastructure corridors, and municipal easements, where feasible, will further reduce the extent of surface disturbance and the potential for temporary air quality effects during construction.

Where contaminated soils are encountered, site-specific environmental investigations, appropriate soil handling, dust suppression, health and safety, and excess soil management measures will be implemented based on the findings of the investigations and in accordance with applicable regulatory requirements.

Potential odour impacts during operation are expected to be minimized through facility design, operational controls, and maintenance practices. The detailed design of the wastewater conveyance system, including the sanitary pumping station, drop structures, connection points, and other hydraulic transition locations, will incorporate odour management considerations to minimize the potential for nuisance odour impacts at nearby sensitive receptors.

Design measures will seek to minimize turbulence, air entrainment, and sewer air flow through refinement of hydraulic conditions and evaluation of specialized hydraulic structures, including vortex drop structures and other engineered solutions, where appropriate. The detailed design of the SPS will include evaluation of ventilation systems, odour control units such as activated carbon treatment, vent stacks, and other engineering controls, where warranted. Operational measures, including flushing during low-flow conditions, may also be considered, where appropriate.

Temporary greenhouse gas emissions associated with construction equipment, material transportation, and vehicle movements are anticipated during construction and are typical of municipal infrastructure projects of this nature. Operational greenhouse gas emissions associated with the preferred servicing strategy are anticipated to be limited. Detailed design will incorporate energy-efficient equipment, operations optimization measures and other sustainable design practices where feasible to support reduction in energy consumption and associated greenhouse gas emissions. At the Municipal Class EA stage, a quantitative greenhouse gas assessment has not been undertaken. Opportunities to improve energy efficiency, optimize construction practices, and reduce greenhouse gas emissions will continue to be considered during subsequent phases of the Project, where appropriate.

As the Project advances through detailed design, site-specific engineering assessments, including detailed air quality and odour assessments and air dispersion modelling, as required, will be completed to further evaluate air quality and odour considerations associated with the proposed infrastructure. These assessments will be undertaken in accordance with applicable provincial regulatory requirements and approval processes and will help determine the need for specific odour control measures for wastewater facilities, evaluate construction-related air quality considerations, and support applicable Environmental Compliance Approval (ECA) and other permitting requirements. The findings will inform the final design and ensure that appropriate air quality and odour mitigation measures are incorporated, as required, to satisfy applicable regulatory requirements and industry best practices.

8 Design Commitments

The Region is committed to undertaking additional studies, investigations, and coordination activities during detailed design to support implementation of the preferred design concept and to ensure that environmental, technical, and community considerations identified through the Class EA process are appropriately addressed prior to construction. These commitments build upon the findings of Phase 3 studies and are intended to confirm site conditions, refine design details, obtain required approvals and permits, and develop appropriate mitigation and monitoring measures for construction and operation of the proposed infrastructure. Should the detailed design extend beyond the alignment boundaries identified and assessed through the EA, additional preliminary investigations and supporting studies consistent with those completed for the approved alignment will be required.

8.1 Overview of Future Study Commitments

As the project advances to detailed design, further site-specific investigations and studies will be completed to refine infrastructure layouts, confirm construction approaches, and support permitting and approval requirements. The following table provides an overview of anticipated future studies and investigations required at or near each shaft location, open-cut segments and associated infrastructure sites during detailed design.

Table 8-1: Summary of Future Study Commitments

	Component
	Entire Study Area
Study Commitments	• Geotechnical and Hydrogeological Field Investigations • Traffic Management Plan • Sampling and Analysis Plan (SAP) • Soil Characterization Report (SCR) • Construction Zone Delineation • Frac-Out Contingency Plan • Erosion and Sediment Control (ESC) and Spill Response Plan • Phase I Ecological Surveys (Vegetation, Wetlands, Wildlife and Aquatic Habitat) • Tree Inventory and Assessment • Species of Indigenous Interest Review • Breeding Bird Surveys • Fluvial Geomorphological Assessment • Environmental Construction Monitoring (Aquatic Protection, Dewatering and Wildlife) • Post-Construction Environmental Monitoring (Aquatic Habitat, Vegetation and Replacement Trees)

	Component
	Emil Kolb Parkway
Study Commitments	• Phase II ESA • Tree removal, protection and tree compensation (Coordination with an on-site Arborist and completed through non-nesting bat seasons)
	New Sanitary Pumping Station
	• Phase II ESA • Vibration Assessment and On-site monitoring • Grading Plan • Tree removal, protection and tree compensation (Coordination with an on-site Arborist and completed through non-nesting bat seasons) • Sediment erosion control measures (including fencing)
	Highway 50
	• Vibration Assessment
	Utility Corridor
	• Rehabilitation Plan • Phase II ESA • Headwater Drainage Feature Assessment (for water crossings)
	Mount Hope Road
	• Aquatic Habitat Investigations (for water crossings)
	Columbia Way
	• Headwater Drainage Feature Assessment (for water crossings)

Upon approval of this Class EA study, the commitments outlined in the following sections will be carried forward and implemented during Detailed Design.

8.2 Air Quality and Odour

Detailed design will further evaluate potential air quality and odour considerations associated with the proposed wastewater infrastructure, including the proposed SPS, wastewater conveyance infrastructure, drop structures, and connection points. Appropriate odour mitigation measures and operational controls will be incorporated, where warranted, to support applicable Environmental Compliance Approval requirements and satisfy applicable MECP air quality and odour requirements.

8.3 Geotechnical and Hydrogeological

As infrastructure depth will depend on the final design, where cover is 3.0 metres or less, the hydrogeological and geotechnical reports recommend additional assessments during detailed design to confirm that infrastructure will not become exposed over time due to natural riverine processes.

Detailed geotechnical and hydrogeological investigations will be undertaken to characterize subsurface conditions along the preferred alignments and at key infrastructure locations, including tunnelling sections and shaft sites. Investigations will be tailored to the proposed alignment and construction methodology (i.e., open-cut and trenchless installation) and may include borehole drilling, monitoring well installation, and in-situ testing.

For open-cut and trenchless works, investigations will assess soil stratigraphy, groundwater conditions, and the presence of multiple aquifers. Monitoring wells will be installed along the alignment and at shaft locations, and hydraulic testing (e.g., slug tests) and groundwater quality sampling will be completed to characterize groundwater conditions and potential discharge requirements. Additional investigations will consider methane generation associated with shale bedrock, peat deposits where encountered, artesian groundwater conditions, seasonal groundwater fluctuations, and potential effects on nearby private wells. Findings will inform final design, monitoring requirements, and mitigation measures.

Where applicable, a private well survey will be completed to establish baseline groundwater conditions and assess potential construction-related impacts to nearby well users. Geotechnical and hydrogeological investigations will also be coordinated with environmental subsurface investigations to support soil management planning and identify potential contamination concerns.

Where temporary or permanent dewatering, groundwater taking, or diversion of groundwater or surface water is required, investigations will assess anticipated inflow rates, excavation stability, discharge water quality, and potential effects on the natural and built environments. The Region will undertake the necessary technical investigations and monitoring to support permitting requirements, including groundwater quality assessments, groundwater monitoring, assessment of potential impacts to private wells and surrounding environmental features, and development of appropriate mitigation or treatment measures.

The investigations will also confirm applicable permitting requirements (e.g., Permit to Take Water) and requirements for water discharge or disposal.

8.4 Natural Environment

The Region will continue to coordinate with the TRCA, MECP, and other applicable regulatory agencies to confirm permitting requirements and refine the design of works within and adjacent to regulated features.

Natural Environment field investigations informed the refinement of the preliminary preferred solution. Furthermore, at the detailed design stage, the following investigations and design refinements will be undertaken to support finalization of the preferred design:

- Complete a Headwater Drainage Features (HDF) assessment within the appropriate seasons (spring and summer), following the protocols outlined in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (TRCA and CVC 2014) and the provincial standard OSAP

Section 4 Module 11 (Gorenc and Stanfield 2017). This study will document the existing form and function of each HDF, which will then be used to inform the need to tunnel below any of the HDFs located within the Utility Corridor.

- Undertake investigations targeting aquatic crossings to determine if tunnelling below these features will be required to avoid the existing culvert and minimize impacts. From the ecological perspective, no minimum clearance above the existing culvert is defined, and therefore engineering requirements are anticipated to drive the determination of the approach to infrastructure installation.
- Confirm vegetation clearing limits and tree removal requirements during detailed design based on final infrastructure layout, grading, and construction access needs.
- Development of the Erosion and Sediments Control (ESC) plan and the Contaminant and Spill Response Plan is recommended to occur once the detailed design has been finalized.
- Undertake additional hydrogeological and geotechnical investigations, as described in Section 8.3, to inform design of construction methods, groundwater management, and dewatering requirements.
- Complete relevant geomorphological studies (as required) to confirm that the proposed drilling depth below water crossings and the Humber River is adequate. The requirement for these studies should be determined at detailed design in consultation with TRCA.

8.5 Archaeological Assessment

A Stage 2 AA identified two archaeological resources of cultural heritage value and interest: the H1 Site (AlGw-229) within the study area and the Harper Site (AlGw-172) located immediately adjacent to the study area. Based on the findings of the Stage 2 AA, the majority of the study area has been cleared of further archaeological concern and requires no additional assessment, provided that construction remains within the assessed limits.

The following design commitments will be implemented to address identified archaeological resources:

- A 20-metre protective buffer and 50-metre monitoring zone will be maintained around the H1 Site (AlGw-229). Construction activities within the 20-metre buffer will be prohibited. Construction within the 50-metre monitoring zone will be undertaken under the supervision of a licensed archaeologist.
- Should construction activities be proposed within the 20-metre protective buffer of the H1 Site (AlGw-229), a Stage 3 Archaeological Assessment will be required in advance of construction.
- Avoidance and protection measures will be implemented for the Harper Site (AlGw-172), located immediately adjacent to the study area. No direct impacts to this site are currently anticipated based on the preliminary design.
- If future design changes result in construction impacts extending into the Harper Site (AlGw-172), additional archaeological assessment, as required, should be undertaken in accordance with provincial standards.
- The limits of archaeological resources and associated protection measures will be confirmed during detailed design and incorporated into the contract drawings, as appropriate.

In addition, the following requirement will be addressed at subsequent stages of the project:

- A marine archaeological assessment will be completed for works associated with the Humber River, should in-water construction activities be proposed.

In the event that previously unidentified archaeological resources are encountered during construction, all work in the vicinity will be halted immediately and the Ministry of Citizenship and Multiculturalism and appropriate Indigenous Nations, Métis organizations and rights holders will be notified in accordance with provincial requirements.

The Region worked alongside TRCA to complete a Stage 3 AA on the proposed TRCA SPS lands. All archaeological investigation requirements have been satisfied, and no further archaeological assessments are required. The Region will continue to coordinate with the Ministry, TRCA, and Indigenous Nations, Métis organizations and rights holders, as appropriate, through detailed design and construction.

8.6 Cultural Heritage

For construction activities occurring adjacent to built heritage resources, cultural heritage landscapes, or properties with potential cultural heritage value or interest that cannot reasonably be avoided, vibration impacts should be monitored as appropriate to confirm that construction activities do not result in damage to heritage features. Where monitoring indicates potential risk to heritage resources, construction methods shall be reviewed and modified as necessary to avoid impacts.

In particular, on-site monitoring by the project team is recommended during construction activities adjacent to the former Duffy's Lane bridge abutments to ensure that construction techniques do not inadvertently result in impacts to these heritage features.

8.7 Community and Traffic

A detailed Traffic Management Plan will be undertaken during detailed design, in coordination with the Region's Transportation Department and the Town of Caledon. Mitigation measures and construction staging requirements will be further refined, as necessary, to manage traffic operations and minimize community impacts during construction.

During detailed design, the Region will seek to design shaft compound sites and alignment construction within the road ROW to minimize or avoid lane closures along Emil Kolb Parkway, Highway 50, Columbia Way, and Mount Hope Road where feasible. Roadway modifications may be implemented, where required, to maintain two-way access or provide alternate routes during construction.

Construction activities, lane restrictions, or temporary closures will be planned and managed to maintain access to residential and commercial properties to the extent feasible, with temporary disruptions minimized through staging and traffic management measures. Appropriate signage and pavement markings will also be incorporated to manage traffic and mitigate potential impacts during construction.

8.8 Property Requirements

Implementation of the preferred design concept will require temporary and permanent use of lands both within and outside existing road rights-of-way, to accommodate infrastructure construction, shaft compounds, staging areas, and long-term access requirements associated with the proposed works. Property requirements include the fee simple property acquisition of lands for the SPS site, as well as temporary construction easements and permanent easements, where necessary, to support construction, operation, and maintenance of the proposed water and wastewater infrastructure.

During detailed design, the Region will work with affected property owners to confirm property requirements and access arrangements. Efforts will be made to minimize the extent and duration of impacts to private and public lands where feasible. Where temporary disturbances are required, lands will be reinstated following construction, consistent with applicable standards and project requirements, and in consultation with property owners, where appropriate.

Ongoing communication with affected property owners will continue during detailed design and construction to coordinate access, construction timing, and restoration activities. Final property requirements, including the extent of fee simple acquisitions, temporary construction easements, and permanent easements, will be confirmed as the design progresses.

Table 8-2 provides a summary of the proposed fee property acquisitions, temporary construction easements, and permanent easements associated with implementation of the preferred solution. This summary reflects current planning assumptions and will be refined during detailed design.

Figure 8-1 illustrates the proposed water and wastewater alignments, shaft locations and identifiers, and anticipated open-cut and tunnelled construction sections for the preferred solution. The figure is provided to support the review of the property requirements summarized in **Table 8-2.**

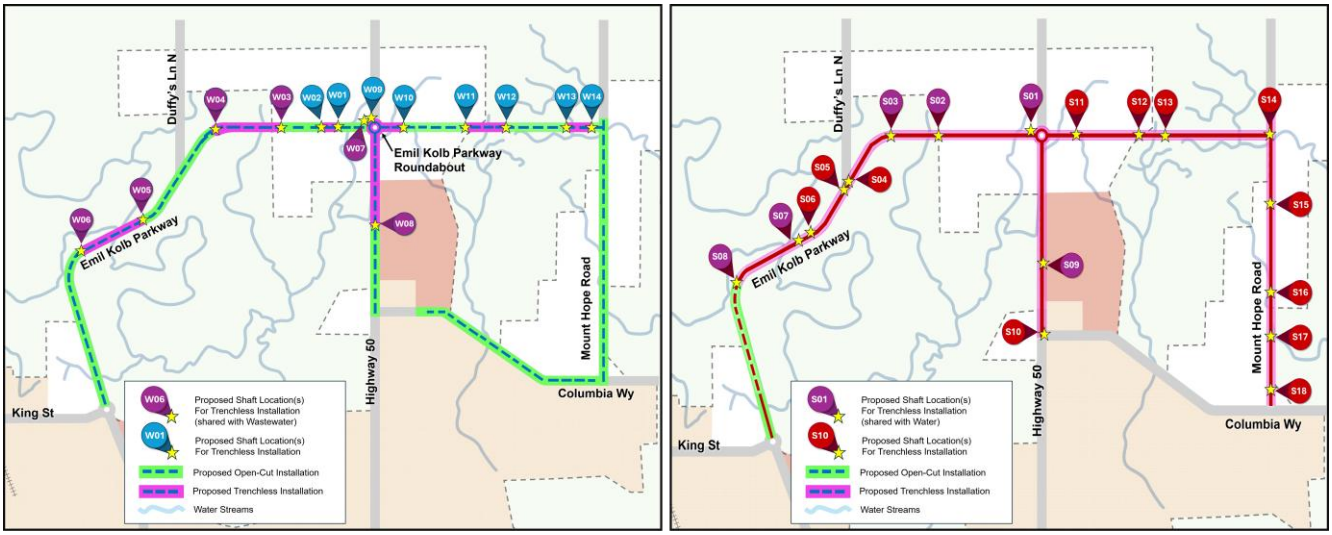


Figure 8-1: Preferred Water and Wastewater Alignments and Shaft Locations

Table 8-2: Property Requirements Summary

Shaft #	Location	Property Ownership	Fee Property Acquisition	Temporary Easements	Permanent Easements
S01-W07 Shared	Hwy 50 & Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
W01	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
W02	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
S02-W03 Shared	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
S03-W04 Shared	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
S04	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
S05	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
SPS S06 S07-W05 Shared	TRCA Lands	TRCA	Required	Required	Required
S08-W06 Shared	Emil Kolb Pkwy	Town	Not Required	Not Required	Not Required
S09-W08 Shared	Hwy 50	Private	Not Required	Required	Not Required
S10	Hwy 50 & Columbia Way	Private	Not Required	Required	Not Required
Infrastructure Corridor W09, W10, W11, W12, W13, W14 S11, S12, S13, S14	Utility Corridor	Private	Not Required	Required	Required
S15	Mount Hope Rd	Private	Not Required	Required	Not Required
S16	Mount Hope Rd	Private	Not Required	Required	Not Required
S17	Mount Hope Rd	Private	Not Required	Required	Not Required
S18	Mount Hope Rd	Private	Not Required	Required	Not Required
	Columbia Way	Town	Not Required	Not Required	Not Required

8.9 Corporate Communications

The Region's Corporate Communications department will continue to inform the study contact list, residents, and the broader public as the project proceeds to detailed design through website updates, online notices, direct notifications by email or mail, and existing social media channels.

The Region will also continue to provide updates to local and regional Councillors through briefing notes during detailed design and will maintain coordination and consultation with TRCA as the project advances.

9 Implementation

This section outlines considerations associated with implementation of the preferred design concept, including anticipated construction costs, funding considerations, implementation timing and phasing, and required permits and approvals. These elements provide a framework for advancing the project from environmental assessment into detailed design and construction.

9.1 Construction Costs and Funding

The total estimated project cost shown in **Table 9-1** for the Bolton EA is approximately 378 million dollars, which includes the following key elements:

Table 9-1: Total Project Cost

Description	2026$
Installation Cost WM	$44,400,000
Installation Cost WW	$149,700,000
Installation Cost SPS	$15,800,000
General	$18,800,000
Provisional	$12,800,000
Construction Contingency	$21,400,000
Construction Costs (Hard)	$262,900,000
Design Costs (Soft)	$53,600,000
Project Contingency	$62,700,000
Total Project Costs WM	$82,700,000
Total Project Costs WW	$267,000,000
Total Project Costs SPS	$29,200,000
Total Project Cost	$378,900,000
Total Base Construction	$209,600,000

Note: All costs are rounded estimates subject to change.

Table 9-2: Cost Estimate for Mount Hope Projects and Easements

Description	Base 2026$	Add-on % (% is Back Calculated from Detailed Costing Sheets)	Add-on $ (Calculated within Detailed Costing Sheets)
Installation Cost WM	$14,500,000		
Installation Cost WW	$63,600,000		
General		9%	$7,000,000
Provisional		6%	$4,700,000
Construction Contingency		10%	$7,800,000
Construction Costs (Hard)	$97,600,000		
Design Costs (Soft)		19%	$18,900,000
Project Contingency		20%	$23,300,000
Total Project Costs WM	$26,800,000		
Total Project Costs WW	$113,000,000		
Total Project Cost	$139,800,000	**64%**	**$61,700,000**
Total Base Construction	$78,100,000		

Note: All costs are rounded estimates subject to change.

Table 9-3: Cost Estimate for Emil Kolb Parkway Projects (Capital Project #4/#5)

Description	Base 2026$	Add-on % (% is Back Calculated from Detailed Costing Sheets)	Add-on $ (Calculated within Detailed Costing Sheets)
Installation Cost WM	$19,400,000		
Installation Cost WW	$71,800,000		
General		9%	$8,200,000
Provisional		6%	$5,500,000
Construction Contingency		10%	$9,100,000
Construction Costs (Hard)	$114,000,000		
Design Costs (Soft)		19%	$22,200,000
Project Contingency		20%	$27,200,000
Total Project Costs WM	$35,700,000		
Total Project Costs WW	$127,600,000		
Total Project Cost	$163,300,000	**64%**	**$72,200,000**
Total Base Construction	$91,100,000		

Note: All costs are rounded estimates subject to change.

Table 9-4: Cost Estimate for Highway 50 Watermain and Sanitary Tunneling (Capital Project #6)

Description	Base 2026$	Add-on % (% is Back Calculated from Detailed Costing Sheets)	Add-on $ (Calculated within Detailed Costing Sheets)
Installation Cost WM	$7,200,000		
Installation Cost WW	$14,300,000		
General		8%	$1,700,000
Provisional		6%	$1,400,000
Construction Contingency		11%	$2,400,000
Construction Costs (Hard)	$27,000,000		
Design Costs (Soft)		25%	$6,700,000
Project Contingency		20%	$6,700,000
Total Project Costs WM	$13,900,000		
Total Project Costs WW	$26,400,000		
Total Project Cost	$40,300,000	**70%**	**$18,900,000**
Total Base Construction	$21,400,000		

Note: All costs are rounded estimates subject to change.

Table 9-5: Cost Estimate for Columbia Way 400-mm Watermain (Capital Project #7)

Description	Base 2026$	Add-on % (% is Back Calculated from Detailed Costing Sheets)	Add-on $ (Calculated within Detailed Costing Sheets)
Installation Cost WM	$3,300,000		
Installation Cost WW			
General		14%	$500,000
Provisional		9%	$300,000
Construction Contingency		15%	$500,000
Construction Costs (Hard)	$4,600,000		
Design Costs (Soft)		26%	$1,200,000
Project Contingency		10%	$600,000
Total Project Costs WM	$6,300,000		
Total Project Costs WW	$-		
Total Project Cost	$6,300,000	**76%**	**$3,100,000**
Total Base Construction	$3,200,000		

Note: All costs are rounded estimates subject to change.

Table 9-6: Cost Estimate for SPS

Description	Base 2026$	Add-on % (% is Back Calculated from Detailed Costing Sheets)	Add-on $ (Calculated within Detailed Costing Sheets)
Installation Cost SPS	$15,800,000		
General		9%	$1,400,000
Provisional		6%	$900,000
Construction Contingency		10%	$1,600,000
Construction Costs (Hard)	$19,700,000		
Design Costs (Soft)		23%	$4,600,000
Project Contingency		20%	$4,900,000
Total Project Costs SPS	$29,200,000		
Total Project Cost	$29,200,000	**68%**	$13,400,000
Total Minus Additional Costs	$15,800,000		

Note: The SPS costs were developed using the Peel Master Plan Methodology. Estimates for CP4, CP5, CP6, CP7, and Mount Hope are costed with far more detail. While SPS estimates may be on the low side, the Master Plan Methodology is a high-level estimate and does not account for all divisions and unique site works. All costs are rounded estimates, subject to change.

The cost of the preferred design concept is primarily influenced by the length and depth of the proposed sewer and watermain alignments, the number and size of required shafts, associated appurtenances, and additional works such as utility relocations, connections to existing infrastructure, and restoration of lands following construction. Property-related costs, including potential acquisition and permanent or temporary easements, will be further reviewed and refined during detailed design.

The selection of construction technologies, such as tunnel boring machines (TBM), microtunnelling, or horizontal directional drilling (HDD), also affects overall project costs. Final construction methodologies, pipe materials, and installation approaches will be confirmed during detailed design and procurement, which may further refine project cost estimates.

As design progresses, construction costs will continue to be refined and estimated with greater accuracy prior to tendering. Preliminary cost estimates are further provided in **Appendix 3E.**

The water and wastewater infrastructure identified through this Class EA is primarily required to support planned growth within the Bolton area. As such, it is anticipated that the majority of project costs will be funded through the Region's Development Charges program, consistent with infrastructure required to service new growth areas. Final funding allocations, including any portions attributable to servicing existing communities or long-term system needs beyond the current planning horizon, will be confirmed through future capital planning and Development Charges updates.

9.2 Implementation Schedule

The Region's current anticipated implementation timeline for the Bolton Water and Wastewater Strategy preferred design concept is illustrated in **Figure 9-1**, with the intent of placing the infrastructure into service by approximately 2031. The schedule assumes successful completion of the Bolton Class EA and initiation of detailed design in mid-2026.

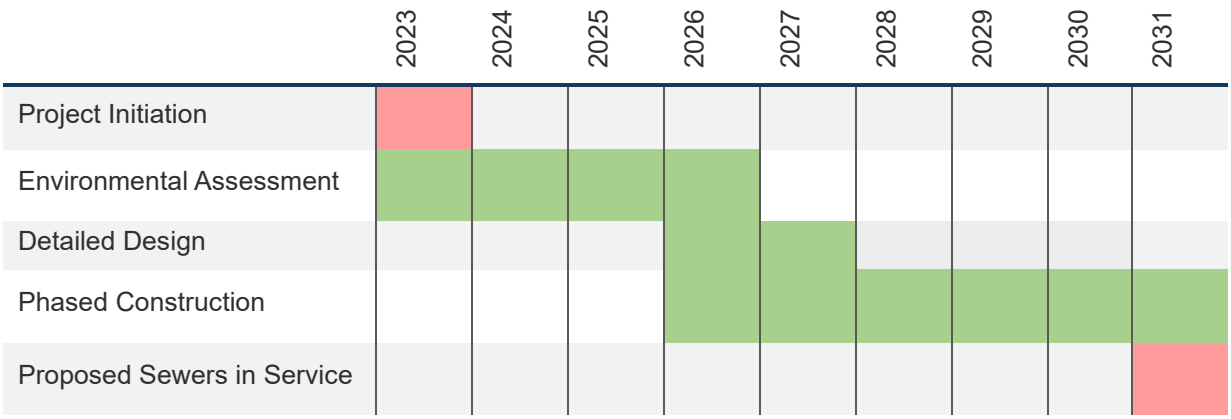


Figure 9-1: Implementation Schedule

Implementation of the preferred solution involves several major infrastructure components, including deep gravity sewers, transmission watermains, shaft compounds, and a new sanitary pumping station. Detailed design of these components represents significant engineering assignments requiring multiple years to complete, including coordination with utility agencies, property owners, and regulatory authorities.

The implementation timeline must also accommodate completion of additional field investigations, confirmation of property requirements, and acquisition of required permits and approvals prior to construction. Construction staging, procurement timelines, and seasonal construction constraints will also influence overall delivery timing. As a result, the schedule will continue to be refined as projects progress through detailed design, approvals, and tendering prior to construction.

9.3 Timing and Phasing

As outlined in Section 6, implementation of the preferred design concept for the Bolton area includes several major infrastructure components that will be constructed in phases over multiple years to manage

construction impacts, coordinate permitting and property requirements, and maintain system operations during implementation.

The anticipated phasing of works is summarized below and may be refined as projects advance through detailed design and approvals:

- Detailed design for the project is expected to commence in Fall 2026.
- Construction activities are anticipated to begin in mid-2027 with installation of gravity sewers and watermain infrastructure between the Highway 50 and Emil Kolb Parkway intersection and Columbia Way, with an estimated construction duration of approximately 12 months.
- Construction is expected to continue between 2027 and 2028 along Emil Kolb Parkway south toward Highway 50, with work in this area anticipated to require approximately 14 to 18 months.
- Construction of the new Emil Kolb Parkway Sanitary Pumping Station is expected to occur concurrently between approximately 2027 and 2029, with an anticipated duration of approximately 14 to 24 months.
- Subsequent phases, anticipated following completion of the above works, include installation of gravity sewers and watermain infrastructure within the proposed development easement and along Mount Hope Road, subject to final development timing and coordination requirements.

The sequencing and timing of these phases will continue to be refined during detailed design to align with property availability, permitting requirements, and coordination with other planned infrastructure and development activities within the Bolton area.

9.4 Potential Permits and Approvals

Implementation of the preferred design concept will require coordination with federal, provincial, and local regulatory agencies, as well as engagement with property owners and stakeholders, to obtain the permits and approvals necessary to proceed to construction. Requirements identified through the Class EA process will be further refined during detailed design as construction methods, footprints, and staging requirements are confirmed. The following sections summarize anticipated permits, approvals, and coordination requirements associated with implementation of the preferred solution.

9.4.1 DEPARTMENT OF FISHERIES AND OCEANS CANADA (DFO)

The need for a DFO Request for Review is recommended to be considered once the project has reached the detailed design stage and additional information on the construction methodology and footprint is available.

9.4.2 MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

For this Class EA study, subject to finalizing the Notice of Completion and 30-day review period consultation with the MECP has been completed. Further engagement with MECP will be determined through the detailed design process.

9.4.3 MINISTRY OF NATURAL RESOURCES (MNR)

Should handling or relocation of wildlife be required at any stage of the project, a WSCA permit issued by the MNR under the *Fish and Wildlife Conservation Act* will be required.

9.4.4 CONSERVATION AUTHORITIES

A permit under Section 28.1 of the Conservation Authorities Act will be required due to the proposed tunnelling below wetlands and watercourses that are regulated by TRCA under O. Reg. 41/24.

9.4.5 TORONTO AND REGION CONSERVATION AUTHORITY

Consultation with TRCA will continue throughout the detailed design stage to ensure all setbacks and mitigation measures are met.

9.4.6 PROPERTY OWNERS / BUSINESSES

Early notification and engagement with adjacent residents and businesses is recommended during detailed design and prior to construction. Notification is recommended to include hours of operation, project contact, and duration of construction activities.

9.4.7 SITE SPECIFIC PERMITS AND APPROVALS

In addition to the permits and approvals listed above, the following table provides site-specific permits and approvals that may be required during detailed design and/or construction.

10 Conclusion and Recommendations

As Peel Region continues to grow, the existing and future water and wastewater systems serving the Bolton area are facing increasing operational demands and service expectations. The preferred design concept identified through this Class EA addresses servicing needs to the year 2051 while balancing technical feasibility, environmental considerations, and community impacts.

Key benefits of the preferred solution include:

- Short-term construction efforts that deliver long-term community servicing benefits;
- Reduced surface disruption through strategic use of trenchless construction methods at key crossings;
- Optimization and sharing of shaft compound locations to minimize surface disturbance;
- A servicing solution that supports both the existing community and planned future growth;
- Coordination with the Town of Caledon and regulatory agencies to minimize impacts to residents, businesses, and surrounding activities during construction; and
- Commitment to restoration and mitigation measures during detailed design to address vegetation loss and temporary construction impacts.

The Bolton Class EA study presents an integrated servicing solution that enhances water and wastewater capacity within the study area and aligns with the Region's long-term servicing strategy for existing and future communities.

The preferred solution includes the following Focus Area 1 components:

- New watermain on Emil Kolb Parkway, Highway 50, Mount Hope Road, along a new infrastructure corridor, and along Columbia Way to connect to the existing and future pressure zone 7 system;
- A new sanitary pumping station and access road north-east of the Humber River adjacent to Emil Kolb Parkway;
- A new deep gravity sanitary sewer on Emil Kolb Parkway from the Highway 50 and Emil Kolb Parkway intersection to the SPS;
- New gravity sanitary sewers along Highway 50, Mount Hope Road, and within a new infrastructure corridor to connect to the Emil Kolb Parkway sewer; and
- A new sanitary force main extending from the SPS south along Emil Kolb Parkway to King Street.

In addition, the study supports optimization of the existing system through Focus Area 2 improvements, including:

- Promotion of portions of pressure zone 6 to pressure zone 7 to improve levels of service and operational flexibility;
- Construction of a new sanitary force main from the Bolton SPS along Old King Road to the existing trunk sewer on Nunnville Road, ultimately conveying flows to the Albion-Vaughan Trunk Sewer;

- Retention of the existing Strawberry Hill Court force main to maintain operational redundancy and resiliency; and
- Continued implementation of inflow and infiltration reduction programs to improve overall wastewater system performance.

A total of 26 shaft compound locations are proposed and were evaluated as part of the Class EA process, including six locations where water and wastewater shaft compounds are shared to minimize the number of surface construction sites and associated disturbance. The strategy enables wastewater flows to be redirected toward Highway 50 and Emil Kolb Parkway while extending water servicing toward Mount Hope Road and Columbia Way, providing a long-term servicing solution and relieving existing and future capacity constraints within the Bolton study area.

Potential impacts associated with implementation of the preferred solution are primarily limited to temporary surface disturbances at shaft compound locations and along construction corridors. These impacts can be effectively managed through the mitigation measures identified in this study and further refined during detailed design.

Through the Class EA process, public and agency consultations were undertaken, and feedback received has either been addressed or will be incorporated during detailed design.

Following approval of this Municipal Class EA study, it is recommended that:

- Mitigation measures outlined in Section 7 be refined during detailed design and implemented during construction;
- Detailed design proceed, including completion of additional investigations and securing required permits and approvals prior to construction;
- Ongoing coordination continue with key agencies including the Town of Caledon, MECP, TRCA, MCM, DFO, and utility providers;
- Engagement with Indigenous Nations, Métis organizations and rights holders continue as the project advances; and,
- Coordination with the Town of Caledon and TRCA continue regarding potential trail or infrastructure adjustments and alignment of construction timing with related initiatives.