GEI Consultants

Peel Region

Schedule 'C' Municipal Class EA Environmental Assessment

West Caledon Storage Facility and Transmission Main

Environmental Study Report

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2	January 2026	Draft Phase 3, and updated Phase 1 and 2 as per Region's comments
3	March 2026	Draft ESR, and updated Phase 3 as per Region's comments
4	March 2026	Updated Draft ESR for pre-filing, updated as per Region's comments
5	June 2026	Updated ESR for filing, updated as per Region and Stakeholder comments

GEI CONSULTANTS SIGNATURES

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LIST OF ABBREVIATIONS

Term or Acronym	Definition
AA	Archaeological Assessment
ANSI	Area of Natural and Scientific Interest
APEC	Areas of Potential Environmental Concern
CCME	Canadian Council of Ministers of the Environment
CCMP	Climate Change Master Plan
CHER	Cultural Heritage Evaluation Report
CHVI	Cultural Heritage Value or Interest
CNHW	Conseil de la Nation Huronne-Wendat
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 Authority
DFO	Department of Fisheries and Oceans Canada
EBA	Event Based Area
EA(A)	Environmental Assessment (Act)
END	Endangered
EPA	Environmental Protection Act
ESA	Endangered Species Act
ESR	Environmental Study Report
FAA	Focused Analysis Area
GHG	Greenhouse Gas
HCCC	Haudenosaunee Confederacy Chiefs Council
HDI	Haudenosaunee Development Institute
HFN	Hiawatha First Nation
HL	High Lift Pump
HVA	Highly Vulnerable Aquifer
HWN	Huron Wendat Nation
IFA	Infrastructure Focus Area
LL	Low Lift Pump
2020 Master Plan	2020 Peel Water and Wastewater Master Plan for the Lake-based Systems
MBCA	Migratory Birds Convention Act
MCEA	Municipal Class Environmental Assessment
MCFN	Mississaugas of the Credit First Nation
MCM	Ministry of Citizenship and Multiculturalism
MECP	Ministry of the Environment, Conservation and Parks
ML	Megalitre
MMAH	Ministry of Municipal Affairs and Housing
MNO	Metis Nation of Ontario
MNR	Ministry of Natural Resources
MOEE	Ministry of Energy and Electrification
MTO	Ministry of Transportation
NAI	Narrowed Area of Interest

Term or Acronym	Definition
NEP	Niagara Escarpment Plan
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual
OHA	Ontario Heritage Act
ORMCP	Oak Ridges Moraine Conservation Plan
PARC	Pre-Application Review Committee
PIC	Public Information Centre
PPS	Provincial Planning Statement
PSW	Provincially Significant Wetland
PTTW	Permit-To-Take-Water
PZ	Pressure Zone
Region	Peel Region
ROW	Right-Of-Way
RPCA	Region of Peel Capital Acquisitions
RPOP	Region of Peel Official Plan
SAR	Species at Risk
SARA	Species at Risk Act
SCC	Species of Special Concern
SGRA	Significant Groundwater Recharge Area
SNGR	Six Nations of the Grand River
SWH	Significant Wildlife Habitat
SWP	Source Water Protection
TBM	Tunnel Boring Machine
THR	Threatened
TRCA	Toronto and Region Conservation Authority
TWL	Top Water Level
W	West
WHPA	Wellhead Protection Area
WTP	Water Treatment Plant

1.0 INTRODUCTION

1.1 Study Introduction

Peel Region (Region) retained GEI Consultants Canada (formerly GM BluePlan Engineering) to complete the **West Caledon Storage Facility and Transmission Main Schedule 'C' Class Environmental Assessment** (EA). The purpose of this Class EA was to identify, develop, and recommend an implementation plan to deliver a water storage and transmission main strategy for Pressure Zone 7 West (W) to support existing servicing needs and projected growth in the West Caledon area. This Class EA supports the Region's proactive approach to ensure as growth continues into the northwest reaches of the Region, the water pressure and level of service expectations on existing and future infrastructure systems continue to be top priority.

This study followed the Schedule 'C' Municipal Class Environmental Assessment (MCEA) process in accordance with the requirements set out by the MCEA as prepared by the Municipal Engineers Association. The MCEA process included engagement with Indigenous Communities, public and review agencies, identification and evaluation of servicing strategy alternatives, an assessment of the preferred alternative, identification and evaluation of design alternatives and a comprehensive identification of measures to mitigate potential adverse effects.

1.2 Report Outline

This document focuses on the Municipal Class EA process, Phase 1 to 4. The purpose of this document is to identify the problem/opportunity statement, expand on the inventory of features and analysis of the existing conditions of the area, identify and evaluate the alternative solutions and select the preliminary preferred solution and design concept to address the study's Problem/ Opportunity Statement.

The Environmental Study Report (ESR) for the **West Caledon Storage Facility and Transmission Main** study documents its comprehensive process, and is organized into the following sections:

Section 1 – Introduction

This section introduces the **West Caledon Storage Facility and Transmission Main Class EA** study and outlines the report sections.

Section 2 – Background and Study Objectives

This section provides the background and study objectives, including an overview of the study area and a description of the *2020 Peel Water and Wastewater Master Plan for the Lake-based Systems* (2020 Master Plan), which provides the foundational purpose for the Class EA study.

Section 3 – Municipal Class EA Process and Consultation

This section explains the mandated steps under the Municipal Class EA 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 as part of this Class EA study, including engagement with Indigenous Communities and Public Information Centres (PIC).

Section 4 – 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 5 – 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 6 – Phase 2 – Alternative Solutions

This section outlines the evaluation process undertaken within Phase 2 of the Class EA study to determine alternative solutions for the storage concept, location of storage site, and the transmission main alignment.

Section 7 – Phase 3 – Alternative Design Concepts for Preferred Solution

This section outlines the evaluation process undertaken within Phase 3 of the Class EA study to determine alternative design concepts for the preferred storage site, and preferred transmission main alignment.

Section 8 – Impacts and Mitigation Measures

This section provides an overview of the preferred design concept impacts on the built and natural environment including ecological features, wildlife habitat, groundwater, watercourses, contamination, geotechnical, archaeology, cultural heritage, traffic and climate change. A summary of the potential impacts and associated mitigation measures associated with the construction of the proposed works is provided.

Section 9 – Design Commitments

This section summarizes the design commitments for the next phase of this project including detailed design and construction.

Section 10 – 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 preliminary project cost and schedule.

Section 11 – 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.

1.3 Public Review Period

This ESR meets the requirements of a Schedule 'C' Municipal Class EA study. Peel Region filed the ESR for the 30-calendar day public review period from June 11 to July 10, 2026. All comments received and revisions to the ESR were tracked and included in the Notice of Comments Received. The final ESR is available on the Peel Region project website: https://peelregion.ca/construction/environmental-assessments/west-caledon-storage-facility-transmission-main

2.0 BACKGROUND AND STUDY OBJECTIVES

2.1 Study Background

The Region has reviewed the existing and future water infrastructure needs within this study area to assess the operational status, ability to accommodate future growth, create redundancy, assess the impact of climate change, and maximize efficiencies in the system.

The Region completed the 2020 Master Plan which identified the need to construct a new elevated water tank to service future planned population growth in the southwestern boundary of the Town of Caledon. **Figure 2-1** shows the project study area located within the 2020 Master Plan study area.

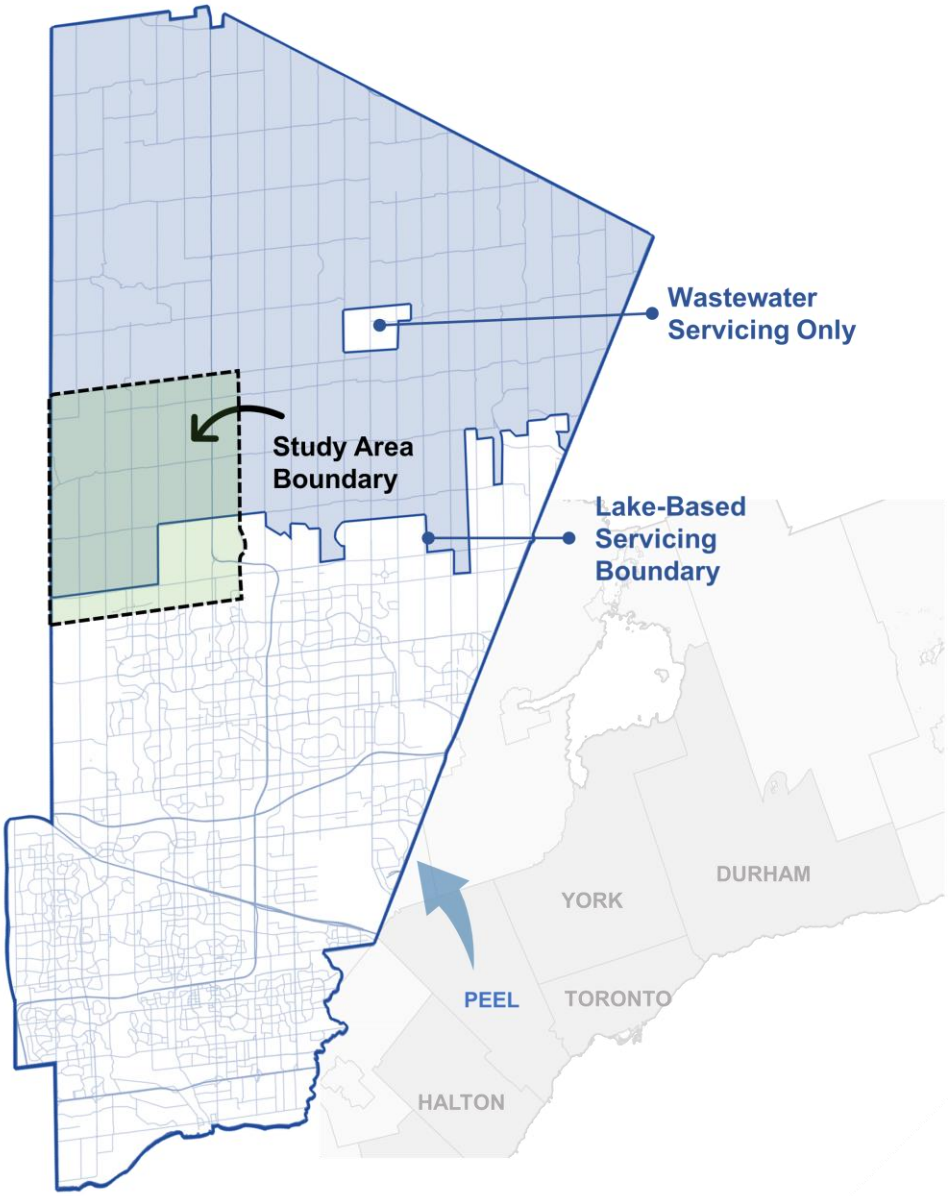

Figure 2-1: 2020 Peel Water and Wastewater Master Plan for the Lake-based System Study Area

The 2020 Master Plan was based on anticipated projected growth of 542,000 residents and 275,000 jobs in the Region by 2041. The anticipated growth places demand on the current infrastructure within the Region and as such, the Region plans to take proactive steps to maintain level of service throughout its jurisdiction including future development areas within Pressure Zone 7W.

The 2020 Master Plan noted that residential and employment forecasts for the Town of Caledon will increase significantly. To continue servicing current demands and future growth in the North Brampton and West Caledon regions of Pressure Zone 7W, the 2020 Master Plan generated a Water Capital Plan that recommended the construction of a 750 mm transmission main from the Alloa Reservoir and Pumping Station to a new 10 Megalitre (ML) elevated tank in South-West Caledon. The 2020 Master Plan set the foundational strategy which would be further refined through the completion of a separate Class EA study. The **West Caledon Storage Facility and Transmission Main Class EA** therefore has looked at alternative water storage facility opportunities driven by supporting ground elevations, and water servicing needs to meet long-term forecasts in line with the 2020 Master Plan's overarching strategy. Subsequent to the 2020 Master Plan, population and employment growth projections have been updated to the 2051 horizon. **Table 2-1** provides the updated growth projections and respective total storage needs. The growth service areas are provided in **Figure 2-2**.

Since the filing of the 2020 Master Plan, population and employment growth projections have been updated to a 2051 horizon. The new 2051 growth projections drove the storage needs in Pressure Zone 7W for this Class EA study. The following analysis was completed using 2051 Small Geographic Units forecasted by Pressure Zone for 2031, 2041, and 2051 (as per the Peel Region *2026 Water and Wastewater Master Plan*, Growth Scenario 1, Version 0, updated November 4, 2024).

The storage needs were calculated using the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems[1]. The storage requirements for Pressure Zone 7W were calculated based on population estimates, which are outlined in **Table 2-1**. Additional information on the storage calculation methodology is provided in **Volume 1, Appendix 1A**.

Table 2-1: Pressure Zone 7W Equivalent Population Growth and Total Storage Needs

	Pressure Zone 7W Equivalent Population	Pressure Zone 7W Total Storage Needs
2021	8,010	3 ML
2031	21,788	7 ML
2041	32,729	12 ML
2051	59,904	18 ML

[1] Ministry of Environment, Conservation and Parks (2016, January 12). *Design Guidelines for Drinking-Water Systems*. Retrieved January 29, 2025, from https://www.ontario.ca/document/design-guidelines-drinking-water-systems-0

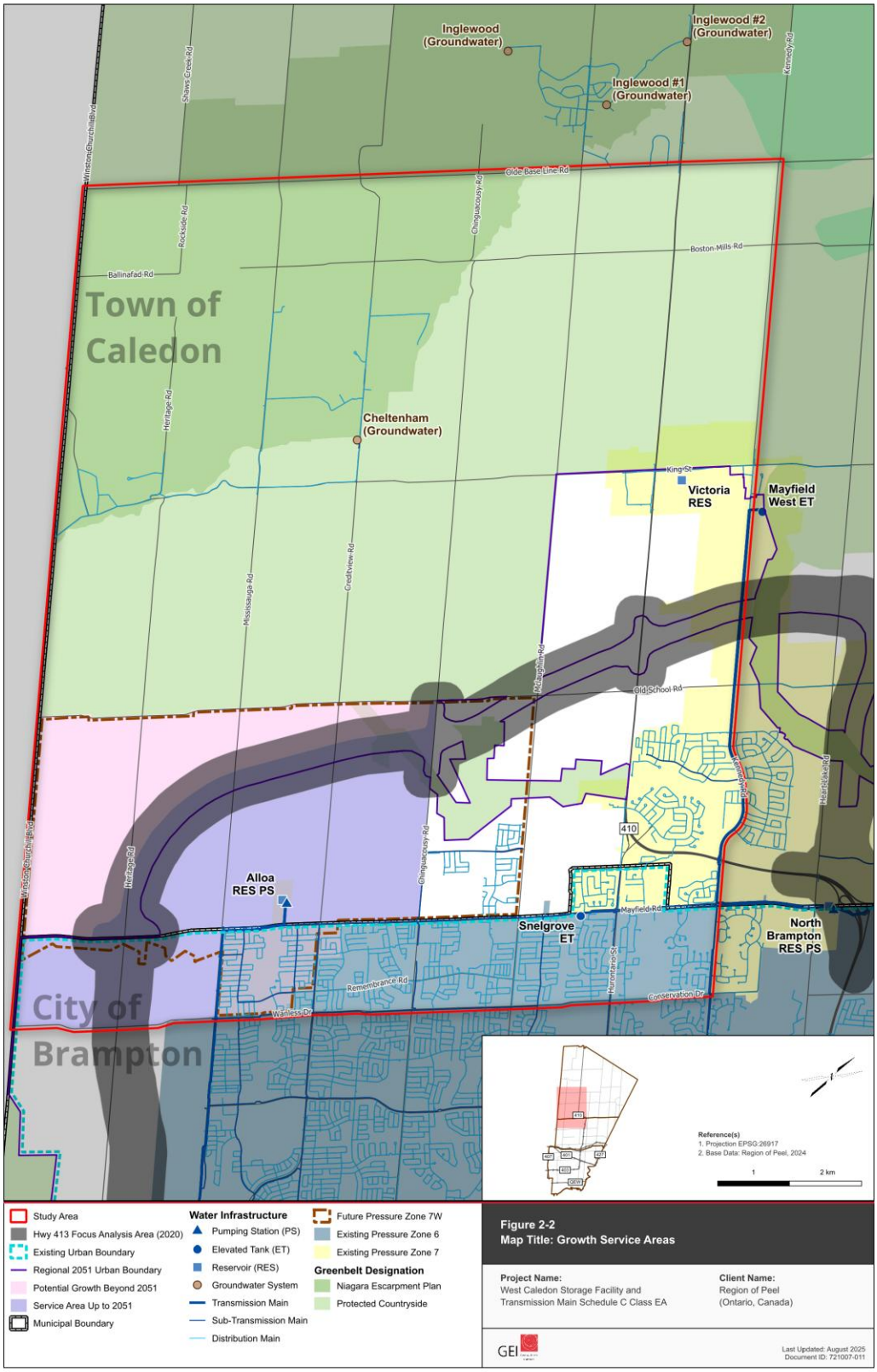

Figure 2-2: Growth Service Areas with Future Pressure Zone 7 West

2.2 Study Area

The West Caledon Class EA study area was bounded by Olde Baseline Road to the north, Winston Churchill Boulevard to the west, Kennedy Road to the east, and Wanless Drive to the south, see **Figure 2-3**. The study covered a widespread area within the Town of Caledon and a portion of City of Brampton to support the range of servicing elevations required for the water storage alternatives.

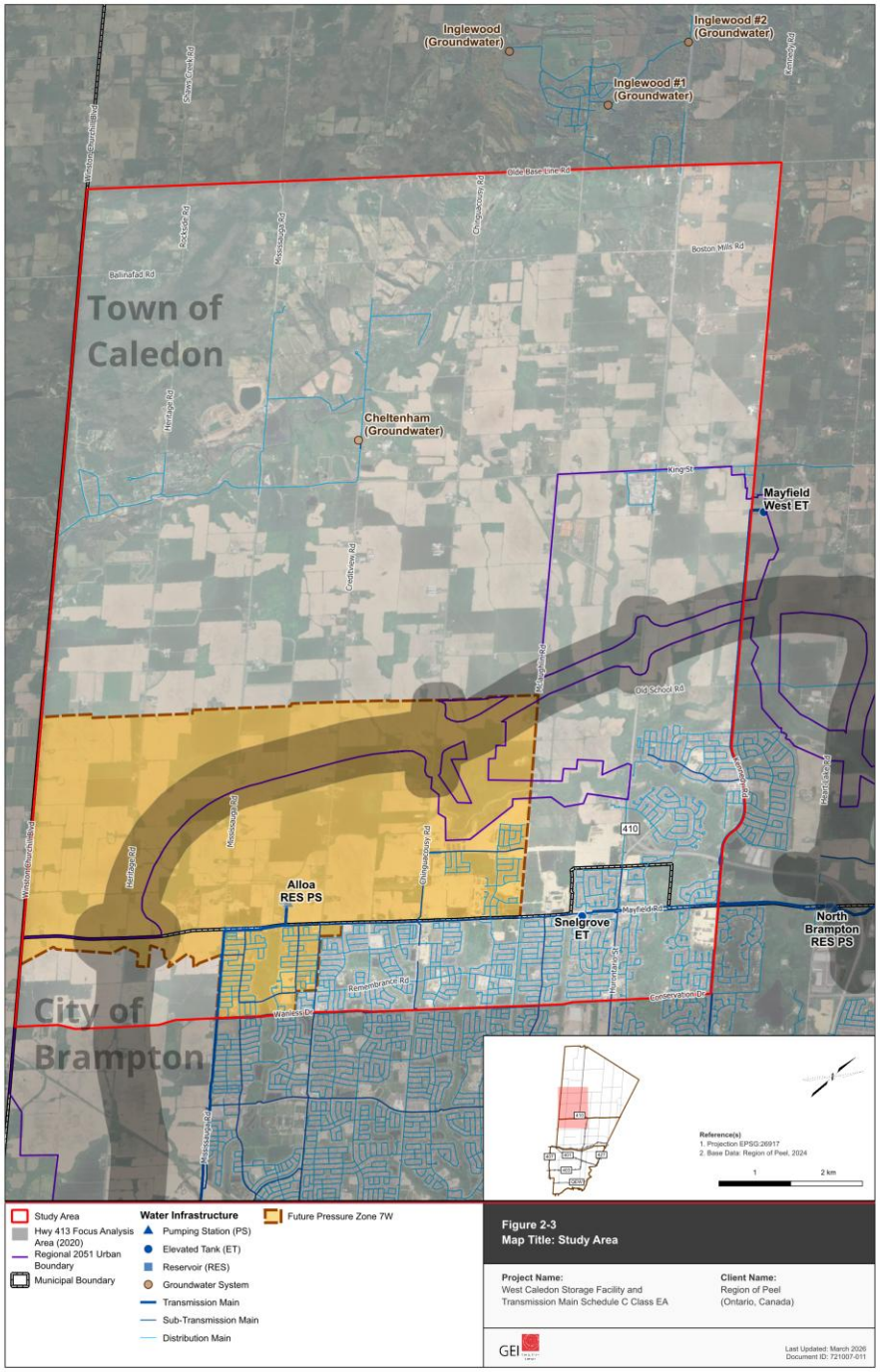

Figure 2-3: Study Area with Future Pressure Zone 7 West

2.3 Study Need and Objectives

The 2020 Master Plan was completed under the MEA Master Plan Class EA Approach 1 process. The 2020 Master Plan was prepared at a broad level stating that further detailed assessments would be required through separate studies to satisfy fulfillment of the MEA Class EA requirements for the individual Schedule 'B' and 'C' projects identified within the 2020 Master Plan. The 2020 Master Plan made a recommendation for a new elevated tank; however, the location and size were, at that time, preliminary. As such, a Schedule 'C' Class EA was recommended in order to fully investigate all potential options and develop the optimal water storage and transmission solution for the area.

This Class EA study for the **West Caledon Storage Facility and Transmission Main** investigated servicing options and developed alternatives, evaluated, and selected the optimal water storage type, location, and design (i.e., in-ground, partially in-ground, elevated, pumped) and water transmission and feedermain main routes for Pressure Zone 7W. The study also considered aspects of future construction impacts through the planning process to minimize potential disruption to the existing community and natural environment.

The objectives of this project were to complete a Class EA study for the study area that:

- Satisfied the Municipal Class EA Schedule 'C' requirements.
- Ensured a balanced and informed decision-making process.
- Reviewed the recommended proposed solution in previous 2020 Master Plan.
- Considered unique opportunities and challenges for water servicing in the study area.
- Assessed impacts of the proposed alternatives and select the best strategy to ensure successful implementation of the infrastructure components while providing continued servicing to the existing community.
- Minimized impacts to the environment.
- Ensured solution supports a long-term servicing strategy.
- Delivered comprehensive documentation of the strategies, evaluation, and recommendations.
- Provided sufficient level of preliminary design to demonstrate the location and extents of the infrastructure, preliminary cost estimate and provide implementation requirements.
- Provided meaningful engagement informed by specific protocols established by individual Indigenous Communities.
- Provided effective communication and engagement with public agencies and stakeholders throughout the Class EA study process.

The following components were included in this study:

1. New storage facility;
2. New transmission main from Alloa Reservoir and Pumping Station to the new storage facility (the transmission main will supply water to the storage facility); and,
3. New feedermain from the new storage facility to the existing water distribution system on Mayfield Road (the feedermain will supply water from the storage facility to the distribution system where it will be delivered to residents/businesses).

3.0 MUNICIPAL CLASS EA AND CONSULTATION

The **West Caledon Storage Facility and Transmission Main** study has been 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). This study was initiated prior to the 2023 and 2024 MCEA amendments, and therefore followed the 2015 MCEA process.

The 2023 MCEA amendment introduced a major re-write of Part A and Appendix 1 to better align assessment requirements with environmental impacts and modernize consultation and exemption provisions. The 2024 MCEA amendment was a minor update intended to align the MCEA with new Environmental Assessment Act regulatory changes, specifically reflecting the shift toward a project-list approach, and clarifying project applicability. Although updates have been made to the MCEA, this had no effect on the study and the existing Schedule 'C' process.

The 2015 MCEA process continues to ensure adherence to planning guidelines, environmental policies, and open dialogue with the various levels of government, Indigenous Communities, approval agencies, and the public. The requirements to satisfy the selected Schedule 'C' are outlined below.

3.1 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 in Ontario of the environment (EAA, *R.S.O.1990, c. E.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 reasonable 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)).*

3.2 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 any 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 solution. The "do nothing" alternative must also be considered.

3. **Identification and consideration of the effects of each alternative on all aspects of the environment.** These aspects include 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.

3.3 Class Environmental Assessment (EA) Process

Municipal 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. Since this project started in 2022, this Class EA will follow the 2015 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:

1. **Phase 1:** Problem or Opportunity Definition;
2. **Phase 2:** Identification and Evaluation of Alternative Solutions to Determine a Preferred Solution while taking input from the public and other stakeholders into consideration;
3. **Phase 3:** Examination of Alternative Methods of Implementation of the Preferred Solution while taking input from the public and other stakeholders into consideration;
4. **Phase 4:** Documentation of the Class EA process in the form of an ESR for public review; and
5. **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 into the following four "schedules" depending on the extent of the expected impacts. The Class EA Phases 1 to 4 support Phase 5 which includes the implementation of the preferred solution pre-construction, the construction of the solution and any monitoring required during and post-construction. **Figure 3-1** 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.

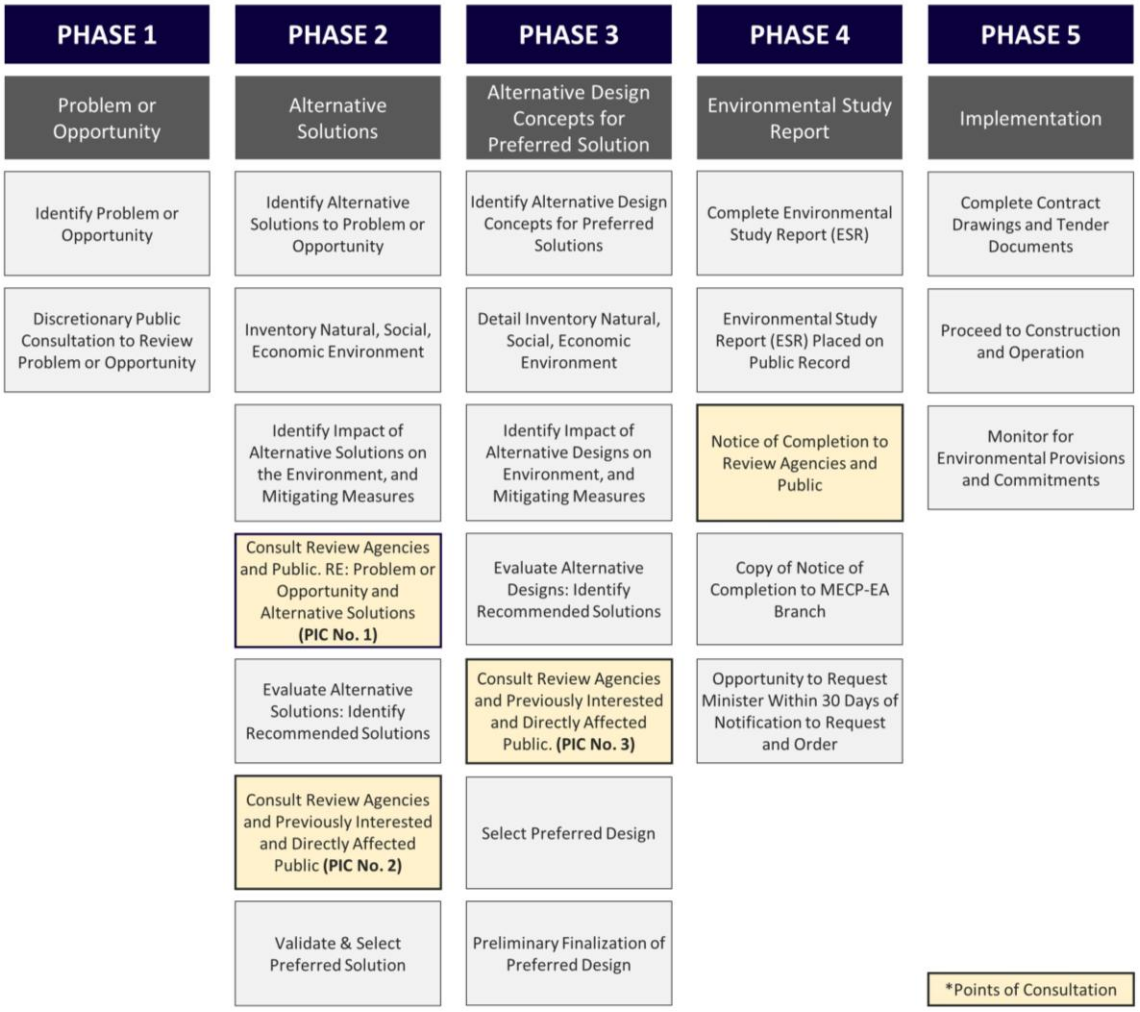

Figure 3-1: Municipal Class Environmental Assessment Process (2015 Amendment)

Schedule 'A' projects are minor or emergency operational and maintenance activities and are approved without the need for further assessment. These projects are typically smaller in scale and do not have a significant environmental effect. Examples: Repairing watermain breaks, cleaning sanitary sewers.

Schedule 'A+' projects are also pre-approved; however, the public is to be advised prior to the project implementation. Although projects of this class do not usually have the potential for adverse environmental impacts, they tend to be broader in scale in comparison to Schedule 'A' projects. Examples: Restoring a water treatment plant, installing a sanitary sewer in an existing road allowance.

Schedule 'B' projects require a screening of alternatives for their environmental impacts and Phases 1 and 2 of the planning process must be completed (refer to **Figure 3-1**). The proponent is required to consult with the affected public and relevant review agencies. If there are still outstanding issues after the public review period, requests may be made to the Minister of the Environment, Conservation and Parks for a Section 16 Order. A Section 16 Order request involves requesting a higher level of assessment be undertaken; either to a Schedule 'C' Class EA or an Individual EA. Provided that no significant impacts are identified and no requests for a Section 16 Order are received, Schedule 'B' projects are approved,

and work may proceed directly to implementation. Example: Increasing the depth of a municipal well, retiring a wastewater treatment plant.

Schedule 'C' projects must satisfy phases 1 through 4 of the Class EA process, prior to proceeding to Phase 5 – Implementation (refer to **Figure 3-1**). These projects have the potential for greater environmental impacts. Phase 3 involves 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 that no significant impacts are identified, and no requests for Section 16 Order are received, Schedule 'C' projects are approved, and work can proceed to implementation. Example: Building a new water treatment plant, expanding an existing wastewater treatment plant beyond its rated capacity.

3.4 Selection of Class EA Schedule

Based on the Class EA guidance, the anticipated complexity of this project, the interconnectivity of the strategies and facilities to the community, and stakeholder sensitivity for this project, the Region completed this project as a Schedule 'C' Class EA.

The **West Caledon Storage Facility and Transmission Main Class EA** satisfied Phases 1 to 4 of the Class EA process with the completion of the ESR and supported Phase 5 (Implementation) with completion of Preliminary Design, Costing, and a Phasing and Implementation Plan.

3.5 Consultation and Engagement

Indigenous, public and stakeholder (including municipal and provincial agencies) engagement and consultation were important components to the success of this study and is mandated as part of the Class EA Process. Given the complexity and potentially sensitive nature of this study, it was imperative that the EA ensured meaningful engagement and two-way communication with all Indigenous Communities, stakeholders and landowners to provide information, listen to, and work to address issues and concerns. Effective engagement was used to obtain valuable comments and feedback on the overall study process, and better understand potential sensitivities and issues related to the Class EA. 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 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 Indigenous consultation and engagement to fulfill the Region's Duty to Consult with Indigenous communities;
- Consider stakeholder comments when developing the preferred strategy; and,
- Meet and exceed Municipal Class EA consultation requirements.

Consultation and engagement 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.

A range of methods were used throughout the Class EA process to advise Indigenous Communities, stakeholders, landowners and the broader public of the study and solicit input. Methods included notices, newsletters, a project website, comment forms, meetings (either physical or virtual), and PICs. The following sections provide a summary of key consultation and engagement.

3.5.1 Communication and Consultation Plan

An important component at the outset of the public consultation process was to develop a Communication and Consultation Plan. The primary objective was to encourage two-way communication with Indigenous Communities and stakeholder groups. The plan was designed to:

- Build on past communication protocols and consultation plans from previous Class EA's and municipal planning initiatives, to ensure consistency and continuity;
- Ensure the general public, Councillors, stakeholders, landowners, external agencies (including federal and provincial) and special interest groups have an opportunity to participate in the study process;
- Ensure that accurate information is provided to interested and affected stakeholders in a timely manner; and,
- Make contact with external agencies to obtain legislative or regulatory approvals, or to collect pertinent technical information.

The Communication and Consultation Plan outlines the consultation process completed the study with Regional staff and external stakeholders in order to solicit input and to explore feasibility/viability of alternative servicing strategies. Key stakeholders included, Toronto and Region Conservation Authority (TRCA), Credit Valley Conservation (CVC) Authority, Town of Caledon, Ministry of Transportation, and the MECP. The plan also outlines the timelines for public notifications based on key study milestones such as study commencement, three rounds of PICs, and study completion. All comments received during the MCEA process were documented in a master tracking sheet, according to the Communication and Consultation Plan.

The **Communications and Consultation Plan** is provided in Volume 2, Appendix 2A.

3.5.2 Indigenous Communities Engagement

Indigenous Communities, including both Indigenous rights-holders and Indigenous interest-holders, have a unique understanding of the natural environment given their relationship with traditional 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 Communities 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 consultation protocols set by the Indigenous Communities and to contact MECP directly to confirm the appropriate list of Indigenous Communities for engagement. The Region engaged with Indigenous Communities in a responsible and respectful manner, with the understanding that each Indigenous Community is unique and has their own culture, heritage, traditions, and engagement processes. Some key aspects of Indigenous Community engagement included:

- The need for early and meaningful engagement with all Indigenous Communities affected by or interested in the project;
- Individual engagement protocols for each individual Indigenous Community;
- Creating a respectful environment where Indigenous information and knowledge holds the same weight as non-Indigenous information;
- Learn, understand and act toward reconciliation;
- Ensuring ethical space for contribution and knowledge sharing;
- Develop a protocol for follow up with individual Indigenous Communities and Organizations to initiate the dialogue of engagement and confirm project notification;
- Obtain comments and reviews from Indigenous Communities and groups;
- Identify the best methods for further engagement activities with interested Communities;
- Adherence to commitments to build trust and relationships in a meaningful way.

At the onset of the Class EA, a Project Notification Letter was sent to the Indigenous Communities to provide information on the study and gather feedback regarding participation interest in the study. The following Indigenous Communities were consulted:

- Mississaugas of the Credit First Nation (MCFN);
- Six Nations of the Grand River (SNGR);
- Hiawatha First Nation (HFN);
- Haudenosaunee Confederacy Chiefs Council (HCCC) and Haudenosaunee Development Institute (HDI);
- Huron Wendat Nation (HWN) now known as the Conseil de la Nation Huronne-Wendat (CNHW); and,
- Metis Nation of Ontario (MNO).

Table 3-1: Indigenous Engagement Summary

Engagement Item	Date (Initial)	Indigenous Communities
Project Notification Letter	January 13, 2022	MCFN, SNGR, HFN, HCCC and HDI, HWN, MNO
PIC No. 1 Notification	October 24, 2022	MCFN, SNGR, HFN, HCCC and HDI, HWN, MNO
Initial Meeting	October 28, 2022	HDI
Follow-up Meeting	July 5, 2023	HDI
PIC No. 2 Notification	August 30, 2023	MCFN, SNGR, HFN, HCCC and HDI, HWN, MNO
Discipline Studies Review Request	November 14, 2023	MCFN, SNGR, HFN, HCCC and HDI, HWN, MNO
Follow-up Meeting	July 22, 2024	HDI
Follow-up Meeting	August 9, 2024	HDI
PIC No. 3 Notification	September 26, 2025	MCFN, SNGR, HCCC and HDI, CNHW, MNO
Follow-up Meeting	December 18 and 19, 2025	HDI
Follow-up Meeting	February 9, 2026	HDI
Project Completion Letter and ESR Review Request	March 30, 2026	MCFN, SNGR, HCCC and HDI, CNHW, MNO
Follow-up Meeting	April 27, 2026	HDI
ESR Review Request Extension	May 1, 2026	MCFN, SNGR, HCCC and HDI, CNHW, MNO

The Region engaged the identified Indigenous Communities throughout the study to keep each group informed, ensured their feedback was received and considered through the process and invited them to participate in key document review. More details are provided in the Communication and Consultation Plan in **Volume 2, Appendix 2A**, while all points of engagement and consultation were documented in the consultation tracking table in **Volume 2, Appendix 2B.**

3.5.3 Consultation Summary

3.5.3.1 Study Contact List and Study Commencement

The Study Contact List was initially developed based on the project team's knowledge of the study area and information provided by Region staff. The Study Contact List was compiled of key stakeholders including government review agencies, local municipalities, conservation authorities, Indigenous Communities, utilities, and special interest groups. Additionally, property owners were contacted early in the decision-making process once potential property and easement requirements were identified. This contact list was used for correspondence and notifications and was updated throughout the course of the study as comments were received. The full Study Contact List is provided in **Volume 2, Appendix 2C.**

3.5.3.2 Phase 1 Consultation

The Notice of Commencement was first distributed on January 13, 2022 via direct mailing and/or e-mailing to the public and stakeholders to introduce the study. Advertisements were also issued via the local newspapers (Caledon Citizen, Caledon Enterprise and Brampton Guardian), via the Region's various social media platforms and via the Region's Project Website (https://www.peelregion.ca/public-works/environmental-assessments/caledon/west-caledon-storage-facility.asp). A Project Notification letter was distributed to the Indigenous Communities via registered mailing and e-mailing.

Records of the study commencement notifications can be found in **Volume 2, Appendix 2D.**

3.5.3.3 Phase 2 Consultation

The project team consulted with key stakeholder groups during Phase 2, as outlined in **Table 3-2**, to solicit feedback on the evaluation and selection of the preliminary preferred solution.

Table 3-2: Phase 2 Stakeholder Meetings

Stakeholder Group	Date
Regional Councillor for the Town of Caledon (Wards 1, 2, 3) – Christina Early	December 9th, 2022
Ministry of Transportation (MTO)	January 23rd, 2023

Records of the stakeholder meetings can be found in **Volume 2, Appendix 2E**.

3.5.3.3.1 Public Information Centre No. 1

Pre-PIC No. 1 meetings were held between the project team and the stakeholder groups outlined in the **Table 3-3.**

Table 3-3: Pre-PIC No. 1 Stakeholder Meetings

Stakeholder Group	Date
CVC	September 19th, 2022
TRCA	September 19th, 2022
Town of Caledon	October 27th, 2022

The purpose of the Pre-PIC No. 1 meetings was to:

1. Provide update on the Schedule 'C' Class EA process;
2. Present PIC No. 1 materials;
3. Receive input and confirmation on public materials, and,
4. Confirm study timing and next steps.

The Notice of PIC No. 1 was issued on October 20, 2022. Stakeholders and the public were informed of the PIC by direct mailing and/or email, by newspaper advertisements and by online advertisement through the Region's various social media platforms and project website.

The PIC No. 1 was held in-person at the Margaret Dunn Valleywood Library and Community Room on November 9th, 2022, between 6:00 P.M. to 8:00 P.M. The intent was to introduce the project and present the following:

- Study background;
- Problem and Opportunity Statement;
- Existing study area conditions, including the Region's existing water system;
- Preferred storage concept;
- Evaluation process for the long list of property alternatives, and,
- Study next steps and opportunities for public involvement.

Details on the PIC No. 1 attendance, comments received, and materials presented are provided in *Public Information Centre No. 1 Summary Report* in **Volume 2, Appendix 2F.**

3.5.3.3.2 Public Information Centre No. 2

Pre-PIC No. 2 meetings were held between the project team and the stakeholder groups outlined in the **Table 3-4.**

Table 3-4: Pre-PIC No. 2 Stakeholder Meetings

Stakeholder Group	Date
CVC	September 6th, 2023
TRCA	September 6th, 2023
Town of Caledon	September 6th, 2023

The purpose of the Pre-PIC No. 2 meetings was to:

1. Provide update on the refined study area and evaluation process;
2. Present key preliminary preferred strategies for the study components including the elevated tank and the transmission main, and,
3. Obtain feedback on preliminary preferred strategies.

The Notice of PIC No. 2 was first issued on August 31st, 2023. Stakeholders and the public were informed of the PIC by direct mailing and/or email, by newspaper advertisements and by online advertisement through the Region's various social media platforms and project website.

The PIC No. 2 was held in-person at the Margaret Dunn Valleywood Library and Community Room on September 20th, 2023, between 5:00 P.M. to 7:00 P.M. The intent was to provide a project status update since PIC No. 1 and present the following:

- Alternative sites and alignment evaluated;
- Preliminary preferred servicing strategies for the selected parcel to site the elevated tank and the transmission main route alignment to connect to the Alloa Reservoir and Pumping Station;
- Study next steps and opportunities for public involvement.

Details on the PIC No. 2 attendance, comments received, and materials presented are provided in *Public Information Centre No. 2 Summary Report* in **Volume 2, Appendix 2G**.

3.5.3.4 Phase 3 Consultation

The project team consulted with key stakeholder groups during Phase 3, as outlined in **Table 3-5**, to solicit feedback on the design and implementation of the preliminary preferred design concept.

Table 3-5: Phase 3 Stakeholder Meetings

Stakeholder Group	Date
MTO	November 22nd, 2023
Ministry of Energy and Electrification (MOEE)	January 18th, 2024
Town of Caledon	March 1, 2024
MTO	April 22, 2024
TRCA	July 9, 2024
TRCA	August 19, 2024
Preferred Elevated Tank Site Property Owner (Parcel 4)	February 21, 2025
MTO	April 3, 2025
Short-listed Elevated Tank Site Property Owner (Parcel 3)	October 7, 2025
R.V. Anderson	October 9, 2025
R.V. Anderson	January 13, 2026
Short-listed Elevated Tank Site Property Owner (Parcel 2)	January 22, 2026
R.V. Anderson	February 23, 2026
TRCA	March 5, 2026

Records of the stakeholder meetings can be found in **Volume 2, Appendix 2E**.

3.5.3.4.1 Public Information Centre No. 3

Pre-PIC No. 3 meetings were held between the project team and the stakeholder groups outlined in the **Table 3-6.**

Table 3-6: Pre-PIC No. 3 Stakeholder Meetings

Stakeholder Group	Date
Town of Caledon	October 1, 2025
MTO	October 2, 2025
TRCA	October 3, 2025

The purpose of the Pre-PIC No. 3 meetings was to:

1. Provide update on the preferred elevated tank site selection and evaluation process;
2. Review the preliminary preferred design concept for the elevated tank and transmission/ feedermain alignment; and,
3. Obtain feedback on preliminary preferred design concepts.

The Notice of PIC No. 3 was issued on September 23, 2025. Stakeholders and the public were informed of the PIC by direct mailing and/or email, by newspaper advertisements and by online advertisement through the Region's various social media platforms and project website.

The PIC No. 3 was held in-person at the Margaret Dunn Valleywood Library and Community Room on Tuesday, October 7, 2025. The intent was to provide a project status update since PIC No. 2 and present the following:

- The evaluation and selection of preliminary preferred design concept for the siting of the elevated tank site, transmission main route and feedermain route;
- Potential impacts and mitigation measures, as well as the construction methodology; and,
- Study next steps and opportunities for public involvement.

Details on the PIC No. 3 attendance, comments received, and materials presented are provided in *Public Information Centre No. 3 Summary Report* in **Volume 2, Appendix 2H.**

3.5.3.5 Study Completion

Upon completion of the Class EA study, a Notice of Completion was published and issued to all stakeholders with information on the 30-day Public Review Period. Copies of the distributed notice is provided in **Volume 2, Appendix 2I**.

3.5.3.5.1 Review Period Consultation

During the public review period, comments received will be documented in the filed copy of the ESR. This section, as well as supporting **Volume 2, Appendix 2J,** will be updated following the 30-day public review period to include all comments received and/or not any revisions made to the ESR.

4.0 BASELINE FEATURES AND SERVICING CONDITIONS

The following section presents a review of policies, regulations, and legislations (at the federal, provincial, and local/municipal levels), as well as a review of baseline environmental features and servicing conditions that are relevant within the West Caledon study area.

4.1 Planning and Policy Overview

This section presents a summary of Federal, Provincial, and Local legislation and policies relevant to the West Caledon study area.

4.1.1 Federal Legislation and Policy

4.1.1.1 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. Once a species is added to *Schedule 1 – List of Wildlife Species at Risk*, it benefits from legal protection afforded and the mandatory recovery planning required under the Act. Per Section 34, Section 58, and Section 61, these prohibitions apply to aquatic species and migratory birds protected by the *Migratory Birds Convention Act* (MBCA) on all lands, and any other listed wildlife species when on federal lands.

Relevance to this study: The West Caledon study aimed to avoid threatened, endangered, or extirpated species at risk habitat, as mandated by the SARA.

4.1.1.2 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 within the fishing zones of Canada, all waters in the territorial sea of Canada, and all internal waters of Canada. The most recent revision to the *Fisheries Act* restricts activities that cause "death of fish, other than by fishing" as well as the "harmful alteration, disruption, or destruction of fish habitat"[2] and the release of substances that are known or suspected to be deleterious to fish or fish habitat.

There are several watercourses within the study area with known fish and fish habitat. If an alignment is chosen that crosses any watercourse the Fisheries Act will apply to this project. A Department of Fisheries and Oceans (DFO) request for review will be required for activities that harm, disrupt, or cause the

[2] 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/

destruction of fish habitat, as well as cause death to fish. Any activities impacting watercourses with known SAR will also require a request for review from DFO.

Relevance to this study: The West Caledon study aimed to avoid crossing or impacting major watercourses that may harm or disrupt any fish habitat.

4.1.1.3 Migratory Birds Convention Act

The MBCA was established in 1917, and last amended in 2024, to protect migratory birds, their eggs, their nests and 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 nests, including when and where activities may occur.

Relevance to this study: The MBCA applies to the entire study area. Any tree removals required for construction of the preferred solution will be completed outside of the breeding bird season (April 1 to August 30) to avoid disturbing active nests of migratory birds protected under the MBCA.

4.1.2 Provincial Legislation and Policy

4.1.2.1 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, listed below:

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 solution.

4.1.2.2 Provincial Planning Statement

The *Provincial Policy Statement* provides policy direction 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, protecting employment lands, preparing for the impacts of climate change, and minimizing risks from natural and/or 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 & Safety** through restricting development in floodplains, hazardous lands, and hazardous sites, and regulating land uses near contaminated sites, and other natural or human-made hazards.

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

Relevance to this study: The 2024 PPS supports the need for the West Caledon study, in which new infrastructure should be developed to accommodate growth.

4.1.2.3 Niagara Escarpment Plan

The purpose of the *Niagara Escarpment Plan* (NEP) (2017) is to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment. Development criteria have been created and must be applied to all development within the plan's boundary. As per the NEP, development is not permitted in key natural heritage features (Section 2.7) or key hydrologic features (Section 2.6), with exception of infrastructure where the project has been deemed necessary to the public interest after all other alternatives have been considered. Development within 120 metres of a key natural heritage feature that will result in a negative impact will require additional criteria be met as stated in Section 2.7**.**

Relevance to this study: The portion of the northwest corner of the study area is within the boundary of the NEP, as shown in **Figure 4-1**. All servicing strategies within this area must comply with criteria relating to infrastructure as set out in the NEP.

4.1.2.4 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 revocations. 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 build resilience to and mitigate climate change.

The *Greenbelt Plan* includes lands within and builds upon the ecological protections provided by the 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.

Relevance to this study: Much of the mid and northeast portion of the study area has been designated as Protected Countryside, as shown in **Figure 4-1**. All servicing strategies within this area must comply with criteria relating to infrastructure as set out in the *Greenbelt Plan*.

Figure 4-1: Provincial Policy Features

4.1.2.5 Ontario Heritage Act

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

Relevance to this study: The West Caledon study aimed to avoid impacting designated or listed properties with Cultural Heritage Value or Interest (CHVI). A cultural heritage screening was completed to identify all known and potential CHVI within the study area.

4.1.2.6 Species Conservation Act (Endangered Species Act)

The *Species Conservation Act* (2025) has replaced the *Endangered Species Act* (ESA, 2007) as of March 30, 2026. The *Species Conservation Act* aims to identify species at risk and provide protection and conservation for species while taking into account social, economic, and sustainable growth considerations.

Species at risk in Ontario are initially identified by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the Ontario MECP, the species will be added to the Protected Species in Ontario List under the Act. The transition to the *Species Conservation Act* is expected to streamline approvals where impacts are low to moderate by shifting greater responsibility to the design team to identify impacts, apply mitigation measures, and ensure compliance. The *Species Conservation Act* takes a registration-first approach and permits regulation for activities that cannot proceed under a registration.

Relevance to this study: Similar to the SARA, the West Caledon study aimed to protect species at risk as mandated by the Species Conservation Act (previously the ESA).

4.1.2.7 Environmental Protection Act and Ontario Water Resources Act

The *Environmental Protection Act* (EPA) is the primary pollution control legislation in Ontario and is used with the *Water Resources Act* to protect air and water quality in Ontario. The EPA prohibits the discharge of contaminants into the environment that are likely to cause adverse effects, by establishing limits for air emissions and wastewater effluent that must not be exceeded. *Environmental Compliance Approvals* are issued under the Act. In addition, the Act controls the removal, transport, and disposal of excess soils, if they are deemed to be contaminated.

The purpose of the *Water Resources Act* is to provide for the conservation, protection, and management of Ontario's waters and for their efficient and sustainable use, to promote Ontario's long-term environmental, social, and economic well-being. It focuses on the protection of groundwater and surface water in Ontario. Permits-To-Take-Water (PTTW) from the ground or surface water sources of more than 50,000 liters of water per day are also regulated under this act.

Relevance to this study: When developing the proposed water servicing strategy for the West Caledon Study, impacts to groundwater and surface water sources shall be mitigated to ensure the sustainability of water resources for future generations.

4.1.2.8 Sustainable Water and Sewage Systems Improvement and Maintenance Act

The *Sustainable Water and Sewage Systems Act* (2002) legislates financial planning and sustainability of municipal water and wastewater systems and specifies reporting requirements. In 2010, *Bill 13 Sustainable Water and Wastewater Systems Improvement and Maintenance Act* repealed the *Sustainable Water and Sewage Systems Act* (2002).

Key points of *Bill 13* for water services are as follows:

- Sets out the purposes of the Act, which include ensuring that public ownership of water services is maintained and improving transparency in the provision of water services;
- Establishes the Ontario Water Board as an agent of the Crown and sets out the Board's objectives, powers and duties which relate to the regulation of water services including protecting the interests of consumers with respect to prices, adequacy, reliability, and quality;
- Sets out the responsibilities of municipalities or groups of municipalities that are designated as regulated entities by regulation; and,
- Regulated entities must prepare business plans for the provision of water services. The plan must contain, among other things, an assessment of the full cost of providing water services to the public and a description of how the regulated entity intends to pay this full cost.

Relevance to this study: The West Caledon study ensured the proposed water servicing strategy conform to Bill 13.

4.1.2.9 Water Opportunities and Conservation Act

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

- To foster innovative water, wastewater and storm water 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 in respect of 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.

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

4.1.2.10 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 to protect 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 on the 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: areas on the water and land surrounding a municipal surface water intake.
- Significant Groundwater Recharge Areas (SGRA): areas characterized by porous soils that allow the 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 as a result of (a) its intrinsic susceptibility, or (b) by 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.

Relevance to this study: The study area falls within the CTC Source Protection Plan and contains WHPAs, SGRAs, and HVAs scattered throughout the area (**Figure 4-2**). Impacts to these resources were considered when developing the preferred water servicing strategy and establishing relevant mitigation measures.

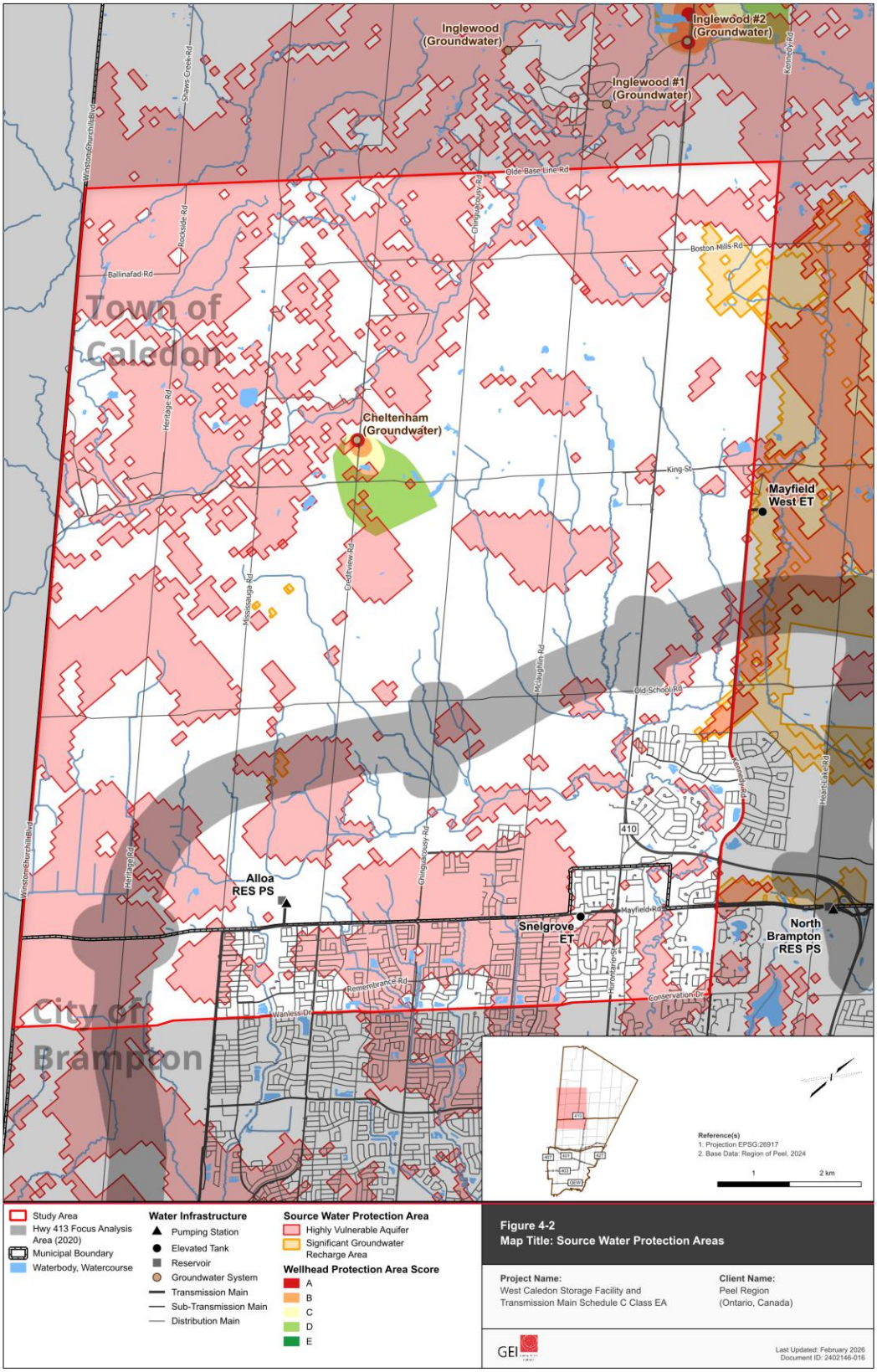

Figure 4-2. Source Water Protection Areas

4.1.2.11 CCME Strategic Vision for Water

The Canadian Council of Ministers of the Environment (CCME) facilitates forward-thinking research and integrated policy, standard and/or 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 was for Canadians to have access to clean, safe and sufficient water to meet their needs in ways that also maintain the integrity of ecosystems[3]. The goals as part of the vision includes 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 Canada's water is developed and shared.

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

4.1.2.12 Conservation Authorities Act

Conservation Authorities are local agencies that have a crucial role in managing natural resources, hazardous land management, 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, *O. Reg. 41/24* consolidated previously individual conservation authority regulations into a single regulation. Key changes include:

- Shift of the authority of conservation authorities over lands within their jurisdiction to the Minister of Natural Resources, except for lands owned by the conservation authority;
- Change to the list of prohibited activities requiring a permit and introduction of permit exemptions for low-risk development activities;
- Adjustment of development setbacks from Provincially Significant Wetlands (PSWs) (120 metres to 30 metres); and,
- Change to the permit application and request for review.
- In 2025, the Province passed *Bill 68, Plan to Protect Ontario Act* (Budget Measures) which amends the *Conservation Authorities Act*. The Ontario Provincial Conservation Agency is to be established to oversee conservation authorities and the transition to a regional watershed-based framework for conservation authorities in Ontario.[4]

[3] 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

[4] 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: The study area falls under the jurisdiction of TRCA and CVC (**Figure 4-1**). This study considered TRCA/ CVC regulation limits as well as input from TRCA and CVC throughout the EA process.

4.1.3 Regional and Local Municipal Legislation and Policy

4.1.3.1 Region of Peel Official Plan

The *Regional Official Plan* (RPOP) 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 RPOP provides direction for future planning activities and for public and private initiatives aimed at improving the existing physical environment.

The purpose of the RPOP is to:

- Provide a holistic approach to planning through an overarching sustainable development framework that integrates environmental, social, economic and cultural imperatives;
- Provide Regional Council with the long-term regional strategic policy framework for guiding growth and development while having regard for protecting the environment, managing the 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 the RPOP;
- 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 of the Region;
- Recognize 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 RPOP 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 RPOP discusses water services. The objective of the Region is to provide water supply 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 solution.

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: The West Caledon study aligns with the RPOP objectives and policies around water servicing to accommodate future growth and additional development to 2051.

4.1.3.2 Region of Peel Climate Change Master Plan

The *Region of Peel Climate Change Master Plan* (CCMP) was issued in 2020 and in effect until 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 will 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[5]. 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: These objectives, including the recommendations of the 2013 *Water Efficiency Strategy,* were considered in the development and evaluation of water servicing for the West Caledon study.

4.1.3.3 Town of Caledon 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*, was adopted by the 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.[6]

Phase 1 of the Plan includes:

- Vision and Guiding Principles

[5] Just Sayin' Caledon (2015). *Project Update: Peel Water Efficiency Strategy*. Retrieved February 14, 2025, from https://justsayincaledon.com/project-update-peel-water-efficiency-strategy/
[6] *Future Caledon Official Plan*. Retrieved February 4, 2026 from https://www.caledon.ca/en/town-services/resources/Business-Planning--Development/Policy/Future-Caledon/Future-Caledon-Official-Plan---Consolidation-2025-ACCESSIBLE.pdf

- 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 RPOP as it applies to Caledon, including the 2051 New Urban Area in south Caledon where the majority of the Town's residential and employment growth will be located. The *Future Caledon* Plan conforms with the 2022 RPOP.

Key policies relevant to the water network will be considered in the development of the servicing alternatives, including ensuring co-operation with other level of governments, appropriate agencies, and the private sector.

4.1.3.3.1 Mayfield West Secondary Plan

A portion of the study area is located within the Mayfield West Settlement Area. This is a new community area with residential development, employment lands, parks, schools, public open spaces and recreational facilities. Its development is guided by the Mayfield West land use plan (Town of Caledon), which currently includes Snell's Hollow Secondary Plan and Mayfield West Secondary Plan – Phase 2.

4.1.3.3.2 Future Secondary Plans

The latest *Future Caledon* Plan includes four proposed Secondary Plan areas within the study area. These areas will be implemented into the Town's Official Plan in phases as per the Town's *Growth Management and Phasing Plan Report*[7]. The proposed areas include both new community and new employment areas.

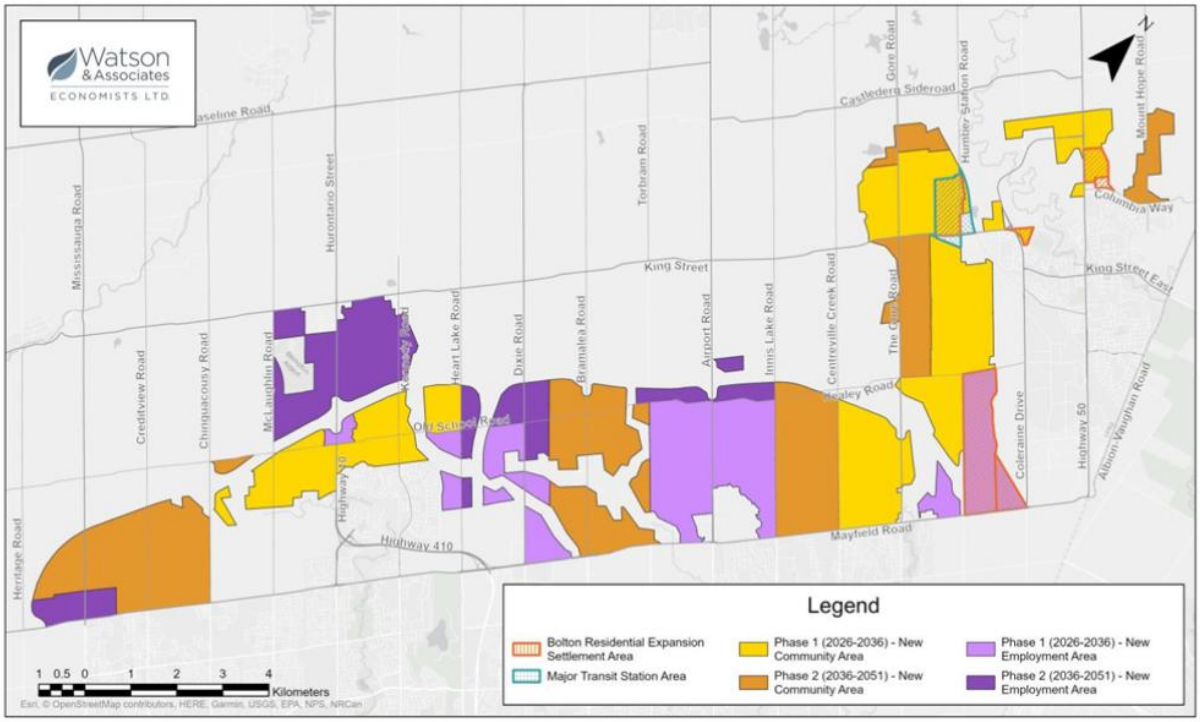

Figure 4-3: Future Growth Areas and Phasing Plan[7]

Relevance to this study: The study area is located within the Town of Caledon. The latest *Future Caledon* Plan was reviewed to ensure study recommendations follow local guiding policies. Future land uses were considered during the servicing strategy evaluation process.

[7] Town of Caledon (2024, November 12). *Growth Management and Phasing Plan Report*. Retrieved February 3, 2025, from https://www.caledon.ca/en/news/caledon-completes-growth-management-and-phasing-plan.aspx

4.1.3.4 City of Brampton Official Plan

The *Brampton 2040 Vision* was endorsed by Council on May 7, 2018 and depicts a more sustainable, urban, and vibrant future for the City.

On July 1, 2024 the City became responsible for the interpretation and implementation of the RPOP as it applies to Brampton. The City's new official plan, *Brampton Plan*, was adopted by the Council on November 1, 2023 and on May 16, 2024, the Region formally issued a notice of approval with modifications. The updated August 2024 Office Consolidation incorporates the Region's decision and modifications. The *Brampton Plan* provides critical direction to ensure all City planning, projects and development are working together efficiently to achieve the aspirations of the *Brampton 2040 Visio*n and will help shape how Brampton will grow and develop to the year 2051.

Key policies relevant to the water network will be considered in the development of the servicing alternatives, including ensuring co-operation with other levels of government, appropriate agencies, and the private sector.

Relevance to this study: The southern portion of the study area borders the City of Brampton, along Mayfield Road. Brampton's previous and new official plans were reviewed to ensure study recommendations follow local guiding policies.

4.2 Environmental Baseline Review

Several baseline assessments were undertaken within the study area. The baseline studies identified existing conditions and potential opportunities and constraints for the natural environment, the physical environment, and the built environment.

4.2.1 Natural Environment Baseline

The following subsections summarize the existing natural features within the West Caledon study area. The *Natural Heritage Existing Conditions Report* is provided in **Volume 3, Appendix 3A** and was prepared by Montrose Environmental (formerly Matrix Solutions). The first stage was a desktop review of the study area.

4.2.1.1 Areas of Natural and Scientific Interest

Areas of Natural and Scientific Interest (ANSIs) are determined by the Ministry of Natural Resources (MNR) using evaluation procedures developed by the province for areas of land and/or water containing natural landscapes or features which have been identified as having life science or earth science (or both) values related to natural heritage protection, scientific study, or education. ANSIs are ranked by the MNR as being either provincially or regionally significant.

Based on the background review, the study area contains two ANSIs shown on **Figure 4-4** and **Figure 4-5.** Both features are located within the Niagara Escarpment area:

- The Badland Topography of Queenston Shales Provincially Significant Earth Science ANSI located North of Olde Base Line Road and East of Creditview Road; and,
- The Caledon Mountain Slope Forest Provincially Significant Life Science ANSI located from the corner of Olde Base Line Road and Highway 1 to the west edge of the study site at Winston Churchill Boulevard, north of Terra Cotta.

Development may be permitted within or adjacent (i.e., within 50 metres or 120 metres for wetlands) to a provincially significant ANSI where an assessment demonstrates that development will not adversely affect the feature of its ecological function.

4.2.1.2 Watercourses and Watersheds

There are multiple watercourses located within the study area. The larger watercourses within the study area predominantly consist of tributaries of the Credit River or Etobicoke Creek. These watercourse features are associated with the watersheds and subwatersheds listed in **Table 4-1**, under the jurisdiction of either the CVC or the TRCA. **Figure 4-1** shows the TRCA and CVC regulation limits within the Study Area.

Table 4-1: Study Area Watersheds and Subwatersheds

CVC Jurisdiction	TRCA Jurisdiction
Credit River Watershed • Fletcher's Creek • Credit River – Glenn Williams to Norval • Credit River – Cheltenham to Glen Williams • Credit River – Forks of the Credit to Cheltenham	**Etobicoke Creek Watershed** • Etobicoke Headwaters • Greenbelt **Humber River Watershed** • West Humber – West Branch

The conservation authorities regulate the watercourses, waterbodies, and wetlands within their respective watersheds. Therefore, any development proposed within the TRCA or the CVC regulation limits will require authorization or a permit from the associated authority.

4.2.1.3 Fish and Fish Habitat

All major watercourses within the study area are considered warmwater features. Warmwater aquatic features are generally considered to be more robust and tolerant to external effects.

According to Aquatic Area Resource mapping prepared by DFO, one aquatic ESA and SARA species (*Redside Dace [Clinostomus elongatus]*) is noted to be endangered and known to occur within the study area.

An assessment will be required if development is proposed within or adjacent (within 30 metres) to a fish habitat. This assessment must demonstrate that the development will not adversely affect the feature or its ecological function. Development should be designed to avoid or minimize adverse impacts to fish and fish habitat.

4.2.1.4 Significant Wetlands

A wetland is determined to be a PSW by the MNR using the Ontario Wetland Evaluation System – 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.

In addition to several unevaluated wetlands, the overall EA study area contains five PSW and one Locally Significant Wetland:

- Etobicoke Creek Headwaters PSW Complex;
- Caledon Mountain PSW Complex;
- Huttonsville Creek and Area PSW Complex;
- Upper Fletchers Creek PSW Complex;
- Heart Lake PSW Wetland Complex; and,
- Etobicoke Creek Headwaters II Locally Significant Wetland Complex.

Figure 4-5 provides a map of the Natural Environment System (which includes the natural heritage system and water resource system) from the *Future Caledon* Plan showing the significant (evaluated) and unevaluated wetlands.

Development is not permitted within a PSW as outlined under the PPS under Policy 2.1.

4.2.1.5 Significant Woodlands

The Natural Heritage System outlined in the *Future Caledon* and *Brampton Plan* corresponds to the Core Areas of the Greenlands System as identified and protected in the RPOP. This includes woodlands meeting one or more of the criteria for Core Area woodland on Table 1 of the RPOP. Significant woodlands are further defined as per guidelines prepared for the areas of Peel-Caledon[8].

The study area contains relatively patchy areas of woodland, though lands associated with the Niagara Escarpment feature larger forested land with less fragmentation. Woodlands within 100 metres of wetlands are to be considered significant. It is therefore conservatively assumed that any woodlands within 100 metres of wetlands as mapped by the Natural Heritage Information Centre (NHIC) is significant. **Figure 4-5** provides a map of the Natural Environment System (which includes the natural heritage system and water resource system) from the *Future Caledon* Plan showing the woodlands and potentially significant woodlands.

Where development is proposed in or adjacent to a significant woodland, an assessment must be completed to demonstrate that all reasonable alternatives have been considered, and development will not adversely affect the feature or its ecological function. Vegetated setbacks may be required from the woodland dripline of significant woodlands and are determined on a case-by-case basis.

4.2.1.6 Significant Valley lands

Valley lands are natural areas that occur in the valley or other landform depression that may or may not have water flowing through or standing for some period of the year, and includes rivers, streams, other watercourses, and ravines. General guidelines for determining the significance of valley lands are available in the MNR's *Natural Heritage Reference Manual* (NHRM). The overall EA study area contains valley lands associated with the riparian areas for the Credit River and Etobicoke Creek.

An assessment that all reasonable alternatives have been considered, and that development will not adversely affect the feature, or its ecological function will be required if development is proposed within or adjacent to a significant valley land. A permit may be required if any proposed work is located within or adjacent to valley lands in accordance with *O.Reg. 41/24*.

[8] North-South Environmental Inc., Dougan & Associates, and Sorensen Gravely Lowes (2009). *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study*. Retrieved February 14, 2025, from https://www.peelregion.ca/planning/officialplan/pdfs/Peel-CaledonSW-SWH-Study-Report-Part4.pdf

4.2.1.7 Species at Risk

An assessment was conducted to determine which SAR occurred and/or had potential habitat within the West Caledon study area. Based on the desktop assessment, 21 SAR and 13 Species of Special Concern (SCC) were assessed to have potential to occur within the study area under the ESA and SARA.

Permitting will be required if development is proposed that would otherwise violate SARA's prohibitions, which includes the safeguarding of critical habitat which is defined as "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or action plan for the species". Note that SARA prohibitions don't apply to SCC.

4.2.1.8 Significant Wildlife Habitat

A significant wildlife habitat (SWH) is evaluated and designated based on the criteria and guidelines in the NHRM, *Significant Wildlife Habitat Technical Guide* and *Significant Wildlife Habitat Mitigation Support Tool*. SWH of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. There are four general types of SWH: seasonal concentration areas, migration corridors, rare or specialized habitats and habitats for species of conservation concern. There is significant wildlife habitat within the study area.

An assessment will be required if development is proposed within or adjacent to a SWH (within 120 metres). This assessment must demonstrate that the development will not adversely affect the feature or its ecological function.

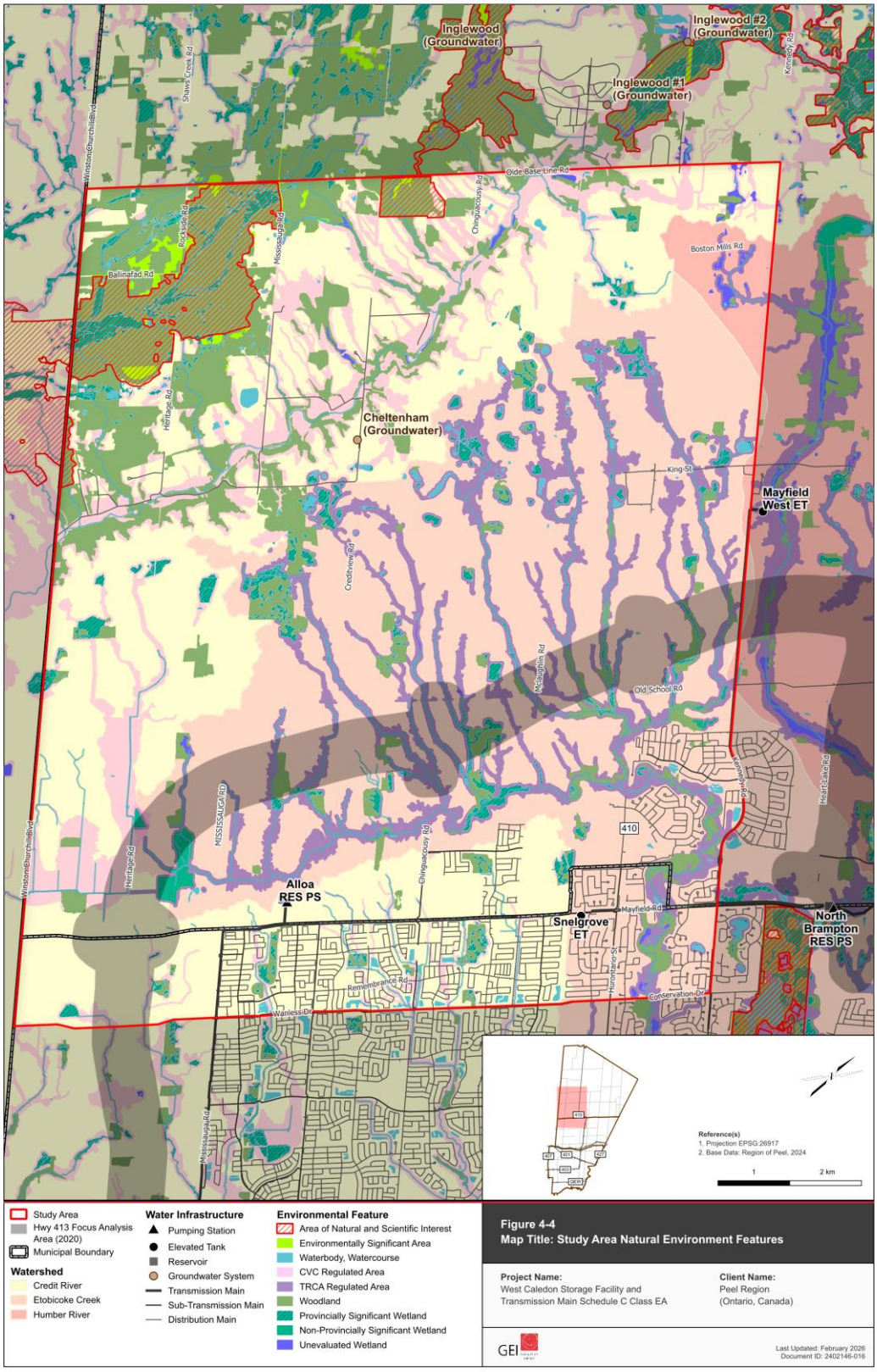

Figure 4-4: Study Area Natural Environment Features

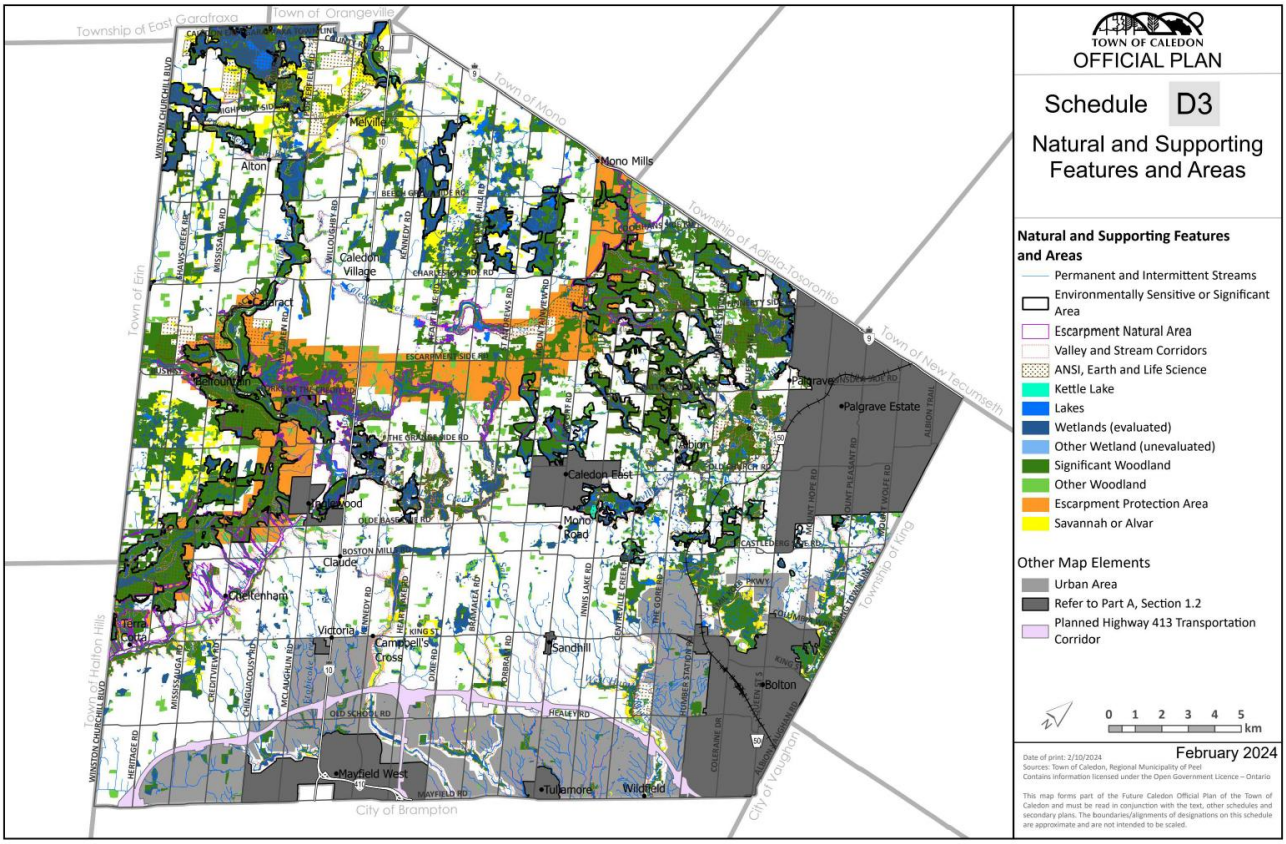

Figure 4-5: Natural Environment System (*Future Caledon* Official Plan)

4.2.2 Physical Environment Baseline

The following subsections summarize the review of the existing physical environment. The *Geotechnical and Hydrogeological Desktop Study* is provided in **Volume 3, Appendix 3B** and was prepared by Thurber Engineering Ltd.

4.2.2.1 Geotechnical and Hydrogeological Conditions

The regional topography slopes generally in a southerly direction. Ground surface within the study area undulates gently and elevations range from about 280 m to approximately 255 m. Overland flow in the study area is interpreted to follow the existing topography, as per the watersheds described above.

The study area is situated within the physiographic region of Southern Ontario known as the South Slope. The South Slope is typically a drumlinized area consisting of areas of thin (<1 m) aeolian sand deposits underlain by glacial deposits, primarily till.

The surficial geology of the study area consists primarily of clay to silt-textured till, derived from glaciolacustrine deposits or shale. Smaller areas of fine-textured glaciolacustrine deposits composed of silt and clay, minor sand and gravel, interbedded with silt and clay and gritty, pebbly flow till and rainout deposits, and modern alluvial deposits composed of clay, silt, sand, gravel, and may contain organic remains, are found within the study area.

The predominant bedrock of the study area consists of shale, limestone, dolostone, and siltstone of the Queenston Formation. Based on a review of the regional geological cross sections, the following units overlie the bedrock in the study area, from youngest to oldest:

- Undifferentiated Upper Sediments;
- Halton Till;
- Oak Ridges Moraine;
- Upper Newmarket Till;
- Inter-Newmarket Sediment;
- Lower Newmarket Till; and,
- Thorncliffe Formation.

4.2.3 Built Environment Baseline

The following subsections summarize the Built Environment within the study area, including land use, intensification, archaeology and cultural heritage. The following reports are provided in **Volume 3, Appendix 3C, 3D, and 3E,** respectively: the *Agricultural Impact Assessment Report* prepared by Colville Consulting Inc. for the short list of alternative sites; the *Stage 1 Archaeological Assessment (AA) Report* prepared by Archeoworks Inc. for the study area; and the *Cultural Heritage Screening Report* prepared by MHBC for the study area.

4.2.3.1 Socio-Economics and Land Use

The West Caledon study area encompasses land which has been designated for various purposes. The land use includes environmental policy areas and rural lands primarily in the northwest, a few extractive industrial areas, two main settlement areas (Cheltenham and Terra Cotta), and prime agricultural lands in the south and northeast. However, the recent adoption of the *Future Caledon* Plan has introduced significant changes to the designation and protection of prime agricultural lands in the Town of Caledon, specifically the expansion of urban areas and the rezoning of agricultural lands for development, south of King Street.

The agri-food network plays a key role in the economy of the Region, and particularly, the Town of Caledon. According to the 2021 Census of Agriculture data, the Town of Caledon has 308 total farms, accounting for approximately 81.7% of farms in the Region.

4.2.3.2 Intensification

As per the *A Place to Grow Act*, the local municipalities have assigned areas of growth. Some areas will undergo intensification, where there will be an increase of the people per area, while other areas will experience greenfield growth. As per the *Future Caledon* Plan, the new urban boundary follows the proposed Highway 413 and the area south of this will be considered the "new urban area and settlement area". Therefore, the future land use for the new urban area and settlement area will change from prime agricultural to a new community area and a new employment area, as shown in **Figure 4-6**. The future land use was considered in the development of the servicing strategies.

Table 4-2 provides the equivalent growth projections (population and employment) for 2021 and 2051 for the Town of Caledon, as noted in the *Future Caledon* Official Plan.

Table 4-2: Town of Caledon Growth Projections[9]

	Population	Employment
2021	80,000	32,000
2051	300,000	125,000

[9] Town of Caledon (2024). *Future Caledon Official Plan*. Retrieved April 30, 2025, from https://haveyoursaycaledon.ca/official-plan-review

As noted in **Section 2.1**, the Region is anticipating growth within the Town of Caledon and City of Brampton from 8,010 in 2021 to 59,904 equivalent population (population and employment) by 2051 for the Pressure Zone 7W area. The equivalent population will be concentrated within the new urban boundary, and aligns with the Town of Caledon growth projections.

As more intensification occurs, a new transmission main from the Alloa Reservoir and Pumping Station to the proposed West Caledon storage facility will enhance water supply to the existing and planned growth areas within south Caledon and northwest Brampton.

4.2.3.3 Cultural Heritage Resources

Cultural heritage resources include archaeological resources and built heritage resources.

4.2.3.3.1 Archaeological Resources

A Stage 1 AA was undertaken to determine the potential to encounter archaeological resources within the study area. The assessment included an overview of the archaeological policies, development context, historical context, and archaeological context to confirm archaeological potential. The background research identified elevated potential for the recovery of archaeologically significant materials within the study area due to the presence of water sources, 1900 Euro-Canadian settlements and historic settlement roads, and numerous designated and listed cultural heritage resources. The majority of the study area requires a Stage 2 AA, except previously disturbed areas (e.g., roads, parking lots, etc.).

Any proposed impacts within or in proximity to known and potential areas of archaeological resources will require further archaeological investigation, unless otherwise indicated in a previously MHSTCI accepted assessment report.

The Stage 1 AA was entered into the registry by the MCM on June 20, 2022 (*PIF# P029-1038-2022*).

4.2.3.3.2 Built Heritage Resources

A desktop analyses was conducted to identify known and/or potential areas of CHVI within or crossed by the study area and is based on the MCM *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes*. The purpose of the screening is to determine if subsequent cultural heritage studies such as Cultural Heritage Existing Conditions and Preliminary Impact Assessment, site-specific Cultural Heritage Evaluation Reports (CHER), or Heritage Impact Assessments, will be required. The report determined the following:

- Total of 13 protected heritage properties designated under Part IV of the OHA in the Town of Caledon and City of Brampton;
- Total of four (4) listed properties on the Town of Caledon's municipal heritage register and City of Brampton Municipal Register of Cultural Heritage Resources;
- A portion of the study area is identified on the *Town of Caledon's Cultural Heritage Landscapes Inventory* (2009) as "Cheltenham and the Brickworks" cultural heritage landscape (as part of the Credit River Valley: Settlements of the Niagara Escarpment) which includes two (2) identified streetscapes and one (1) viewscape;

- Cheltenham Badlands designated as a provincially significant Earth Science ANSIs operating under the Ontario Heritage Trust;
- 5 registered cemeteries; and,
- 7 trails (includes The Bruce Trail and the Caledon Trailway).

There are over 16,000 parcels located in the study area many of which include buildings and/or structures that were constructed prior to 1982 and therefore, would be identified as having potential CHVI (based on the 40-year threshold).

If a potential cultural heritage resource under Ontario Regulation 9/06 is identified and cannot be avoided, it is recommended to conduct a CHER. If the evaluation identifies a cultural heritage value or interest, a Heritage Impacts Assessment may be required to confirm potential impacts and provide appropriate mitigative and conservation measures.

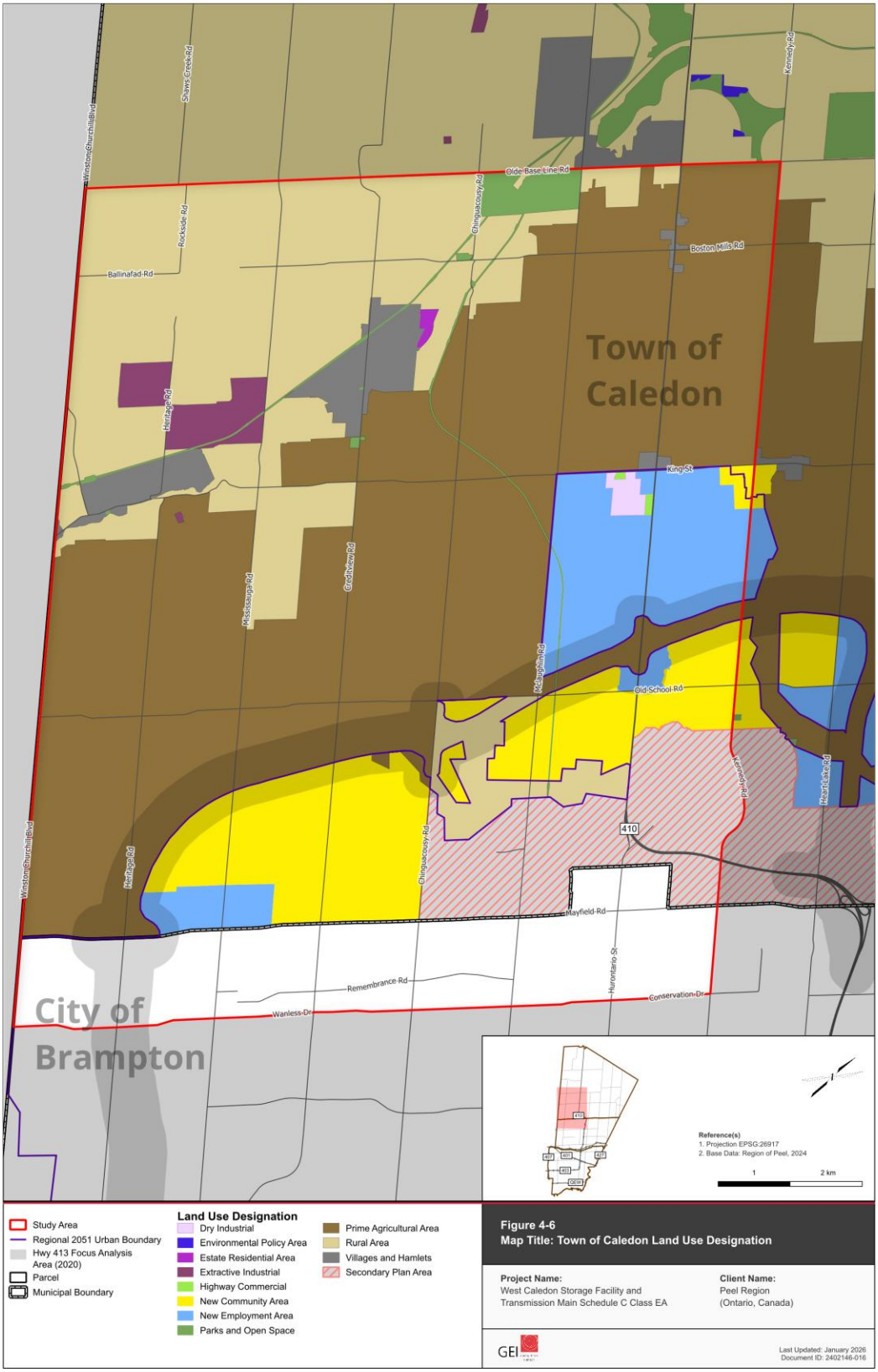

Figure 4-6: Town of Caledon Land Use Designation

4.3 Existing Infrastructure

The following sections provide a summary of the existing infrastructure within the study area.

4.3.1 Existing Water System

4.3.1.1 Regional Water System

The Region's lake-based water system services the City of Mississauga, the City of Brampton, and parts of the Town of Caledon. Water is supplied from Lake Ontario by the A.P. Kennedy Water Treatment Plant and the Lorne Park Water Treatment Plant and conveyed by the transmission systems including pumping stations, reservoirs and elevated storage tanks. There are seven pressure zones within the system, designed to operate within a specific pressure range, based on increasing elevation. Due to the width of the Region's lake-based service area, the transmission system is divided into three main trunk systems: west, central, and east. **Table 4-3** and **Figure 4-7** provides an overview of the Region's existing lake-based transmission and storage facilities across the different pressure zones.

Table 4-3: Existing Lake-based Water Transmission and Storage Facilities

Pressure Zone	West Trunk System	Central Trunk System	East Trunk System
7		Mayfield West Elevated Tank	
6	Snelgrove Elevated Tank		West Bolton Elevated Tank Bolton Elevated Tank and Standpipes
5	Alloa Reservoir and Pumping Station (LL PZ6 & HL PZ7)	North Brampton Reservoir and Pumping Station (LL PZ6 & HL PZ7)	
4	West Brampton Reservoir and Pumping Station (LL PZ5 & HL PZ6)	East Brampton Reservoir and Pumping Station (LL PZ5 & HL PZ6)	Tullamore Reservoir and Pumping Station (LL PZ5 & HL PZ6)
3	Meadowvale North Reservoir and Pumping Station (LL PZ4 & HL PZ5)	Beckett Sproule Reservoir and Pumping Station (LL PZ4 & HL PZ5)	Airport Road Reservoir and Pumping Station (LL PZ4, HL PZ5, York Transfer) Beckett Sproule Transfer Pumping Station
2	Streetsville Reservoir and Pumping Station (LL PZ3 & HL PZ4)	Hanlan Reservoir and Pumping Station (LL PZ3 & HL PZ4)	
1	Herridge Reservoir and Pumping Station (LL PZ2 & HL PZ3)	Silverthorn Reservoir and Pumping Station (LL PZ2 & HL PZ3)	
Water Treatment Plant (WTP)	Lorne Park WTP and Pumping Station (HL PZ1 & HL PZ2)	A.P. Kennedy WTP and Pumping Station (HL PZ1 & HL PZ2)	

Note: Nomenclature for transmission facilities: (PZ) pressure zone, (LL) low lift pump, (HL) high lift pump

The transmission system provides direct supply to the local water distribution system which consists of watermains extending down to the water service level for each customer. Combined, all the components of the transmission and distribution systems deliver water to users through seven pressure zones separated by approximately 30-metre intervals of elevation. **Table 4-4** presents a summary of the lake-based water system pressure zones.

Table 4-4: Lake-based Water System Pressure Zones

Pressure Zone	Top Water Level	Hydraulic Grade Line	Serviceable Elevation
1	143.7 m	151.3 m	74.8 – 106.5 m
2	175.2 m	182.8 m	97.8 – 137.2 m
3	205.7 m	213.3 m	135.9 – 167.6 m
4	236.2 m	243.8 m	166.4 – 198.1 m
5	266.7 m	274.3 m	193.0 – 228.6 m
6	297.2 m	304.8 m	226.0 – 259.1 m
7	327.7 m	335.3 m	255.0 – 289.6 m

Figure 4-7 provides an overview of the Region's Lake based transmission system.

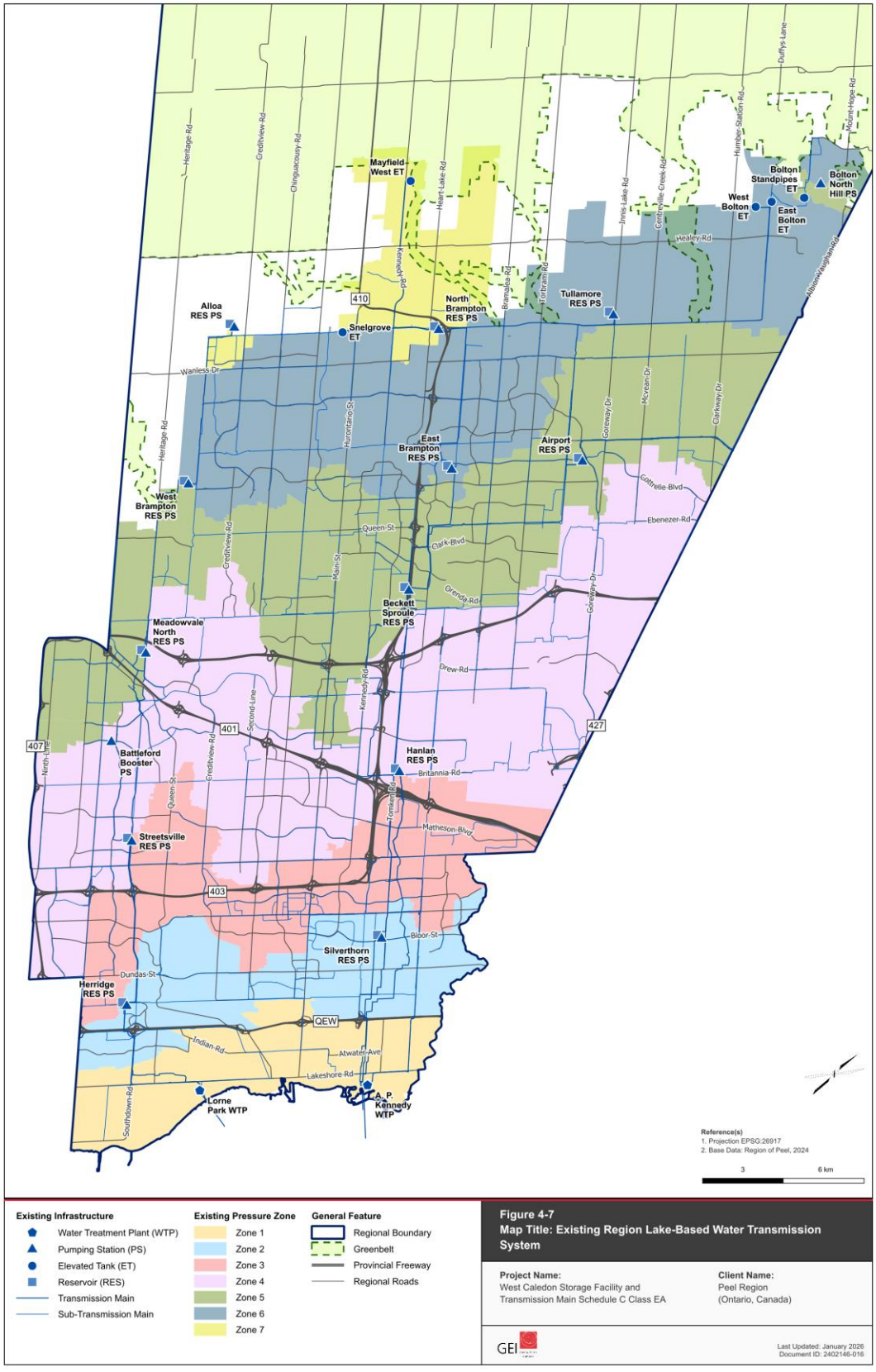

Figure 4-7: Existing Region Lake-Based Water Transmission System

4.3.1.2 Local Water System

The Region currently maintains four municipal groundwater systems servicing rural communities in the Town of Caledon. As growth continues to progress further north within the Region, greater focus is placed on the municipal water infrastructure servicing the higher elevation zones. Through analysis undertaken as part of the 2020 Master Plan and particularly during emergency operating conditions, it was determined that floating equalization, fire, and emergency storage are required to service future growth in the northwest part of the lake-based system.

The West Caledon study area is located within the Region's Water Pressure Zone 7W and the proposed storage facility and transmission main will be a part of the West Trunk System, connecting to the Alloa Reservoir and Pumping Station and fed by the Lorne Park Water Treatment Plant. **Figure 4-8** shows the study area within the existing Region lake-based water transmission system.

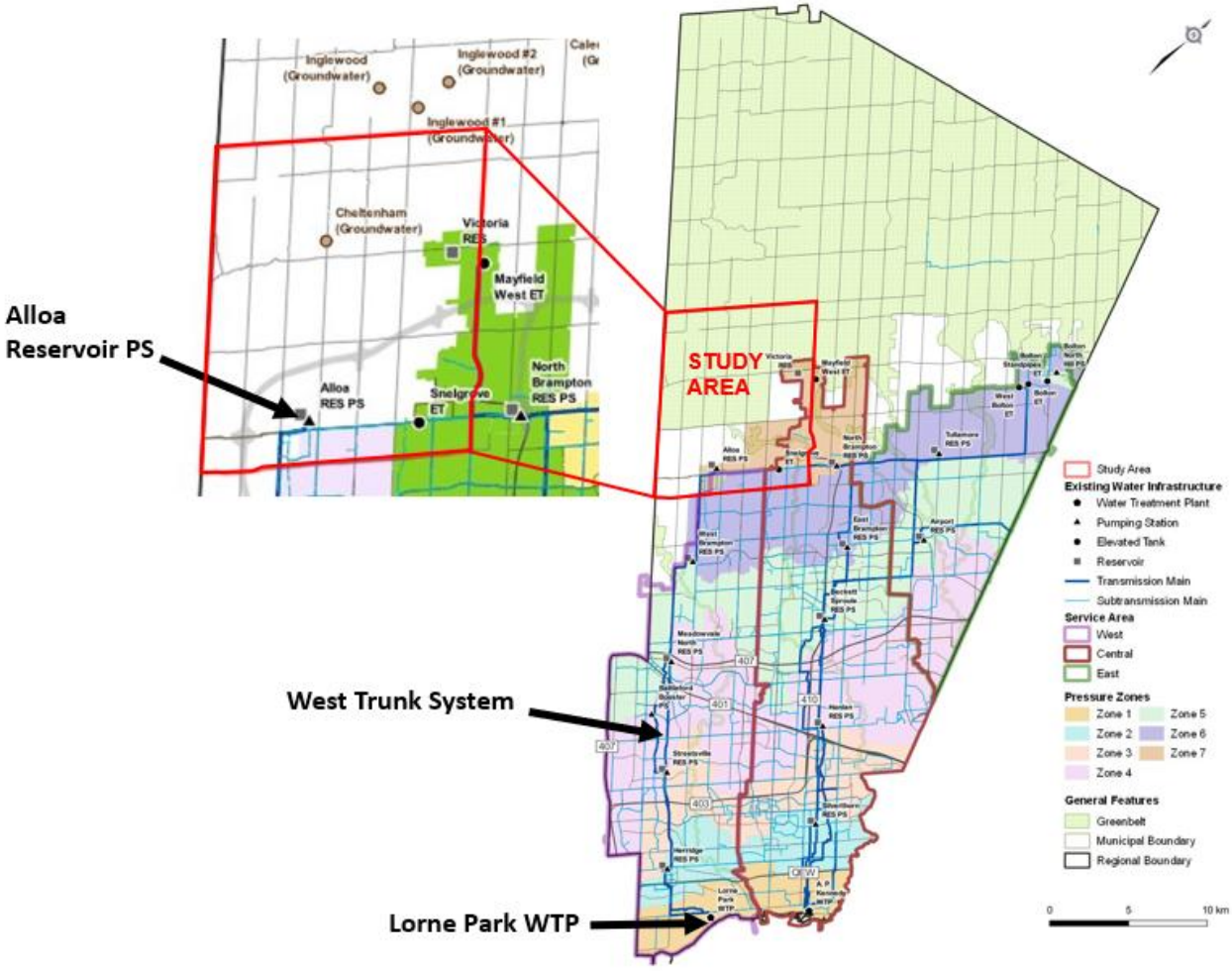

Figure 4-8: Study Area Within Existing Region Lake-Based Water Transmission System

4.3.1.2.1 Alloa Reservoir and Pumping Station

The Alloa Reservoir and Pumping Station is located at 1278 Mayfield Road in the Town of Caledon, north of the existing subdivisions south of Mayfield Road. To the west of the facility is Pioneer Hi-Bred Production Limited, an agricultural research and product development company.

Figure 4-9: Alloa Reservoir and Pumping Station Facility

As per the Region's detailed design, the Alloa facility included the design and construction of a pumping station with an ultimate capacity of 165 ML/d, and the design and construction of a 35 ML, two-celled water reservoir with design provisions for a future expansion to 70ML. The feedermains for Zone 6 and Zone 7 were connected from the facility to transmission mains located on Mayfield Road. The facility was successfully completed in October 2019.

The facility is provided with two independent overhead electrical power feeds to secure uninterrupted power supply, one from Hydro One Networks, the other from Brampton Hydro. In the event that both feeds are disrupted, the facility is equipped with a 2,000 kW generator set and approximately 52,000 L of fuel storage to run the facility for 48 hours to provide for top-up chlorination, emergency reservoir overflow pond, and a dedicated administration area with a boardroom and offices. As required by the Region, the facility was designed to run in a completely automated mode that could be controlled remotely. The facility was also equipped with a stormwater management pond and emergency overflow to the north to Etobicoke Creek to receive excess water from the pumping station. The overflow pond was designed to handle the entire flow of 172 ML/d for a two-hour duration, as well as the contribution from a coinciding 100-year storm controlled from post to pre-development flows.

4.3.2 Existing Local Wastewater System

The existing municipal wastewater infrastructure is owned, operated, and maintained by the Region. The majority of the study area's current land use is rural and undeveloped therefore the majority of the lands are not serviced. The ongoing Peel Region *2026 Water and Wastewater Master Plan* will identify wastewater infrastructure required to service existing and future growth within the West Caledon area as well as the whole Region.

Figure 4-10 provides a map of the wastewater infrastructure located within the study area.

4.3.3 Existing Local Stormwater System

The existing stormwater infrastructure within the Regional road right-of-way (ROW) boundaries are owned, operated, and maintained by the Region. The storm sewers located within the municipal boundaries (e.g., along local roads) are owned, operated and maintained by the Town of Caledon and the City of Brampton respectively.

Figure 4-11 provides a map of the regional-owned and local stormwater infrastructure located within the study area.

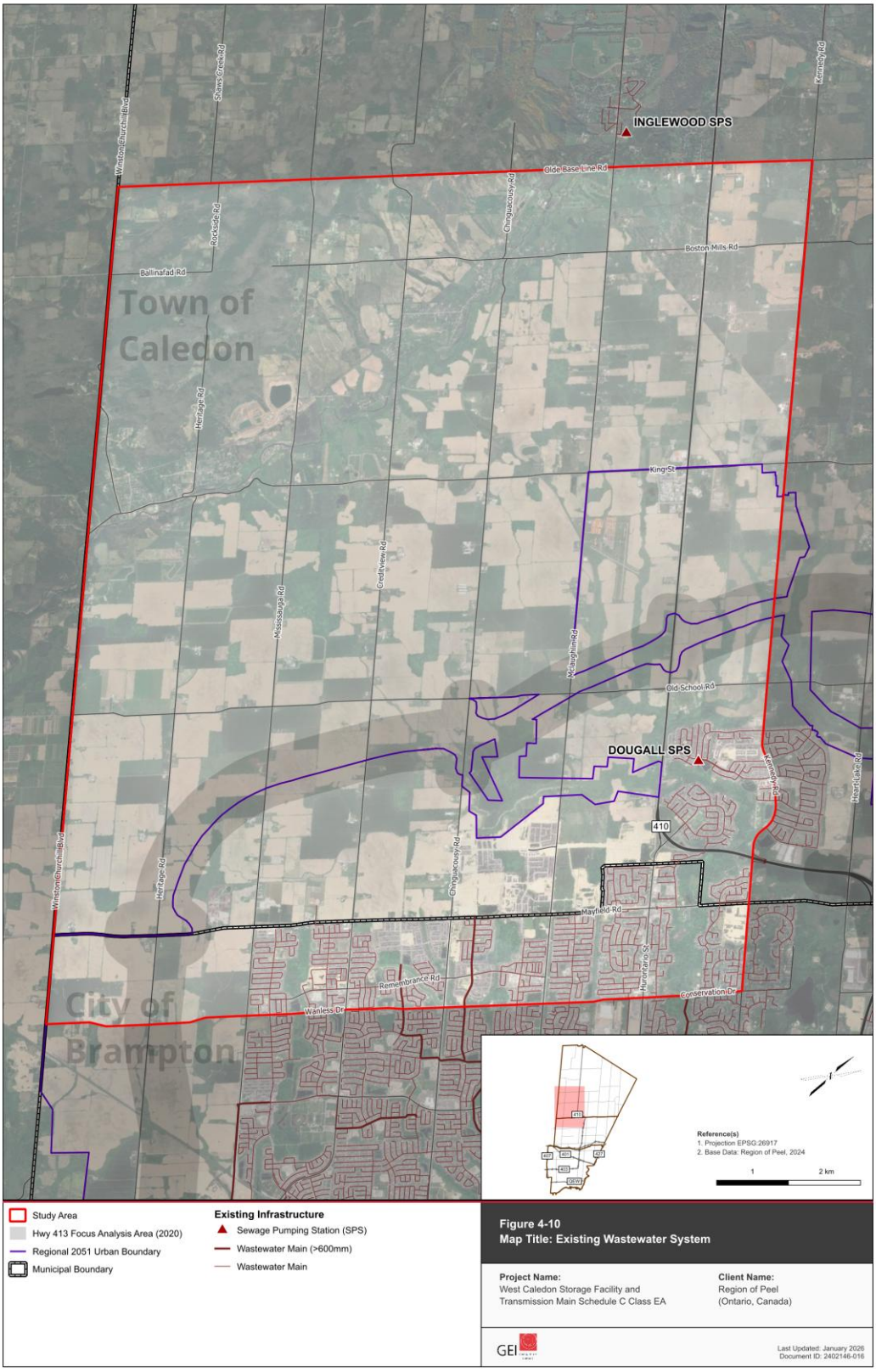

Figure 4-10: Existing Wastewater System

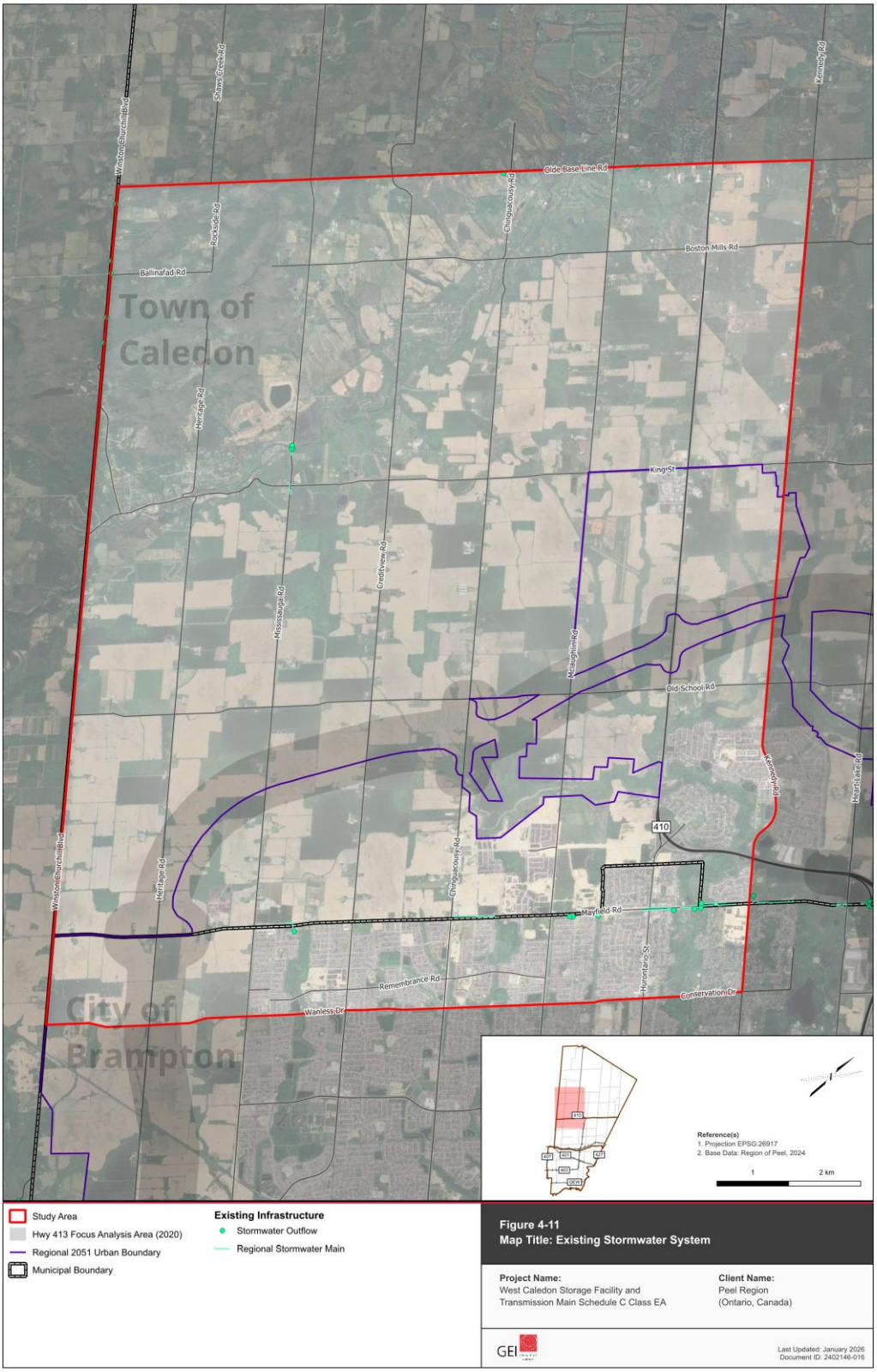

Figure 4-11: Existing Stormwater System

4.3.4 Existing Transportation Network

4.3.4.1 Road Network

The study area is in a mainly rural area, with the only urban area located south of Mayfield Road where there is light to moderate vehicle traffic. **Table 4-5** provides a list of some the major local roads and local roads situated within the study area.

Implementation of the preferred strategies may have potential impact to the flow of traffic within the area. A traffic impact assessment will be completed during detailed design to identify potential impacts of the project to residents, farmers, and businesses in the study and surrounding area.

Table 4-5: Road Classification

Ownership	Road Classification	Road
Town of Caledon	• Arterial Local Road (Major)	• Heritage Road (N-S) • Creditview Road (N-S) • Chinguacousy Road (N-S) • McLaughlin Road (N-S) • Kennedy Road (N-S) • Old School Road (E-W) • Boston Mills Road (E-W)
City of Brampton	• Arterial Local Road (Major)	• Remembrance Road (E-W) • Wanless Drive (E-W) • Conservation Drive (E-W)
Peel Region	• Regional Road	• Winston Churchill Boulevard (N-S) • Mississauga Road (N-S) • Mayfield Road (E-W) • King Street (E-W) • Olde Baseline Road (E-W)
Province of Ontario	• Provincial Highway	• Hurontario Street/ Highway 10 (N-S)

4.3.4.2 Proposed Highway 413

Highway 413, previously known as the GTA West Corridor or GTA West, is a planned 400-series provincial highway and bus transitway that would extend from Highway 400, between King Road and Kirby Road, to the 401 / 407 ETR interchange near Mississauga, Milton and Halton Hills. Within the study area, between Heritage Road and Mississauga Road, the Highway 413 would make a broad curve to the northeast into Caledon, with three interchanges: at Mayfield Road and Heritage Road, south of Old School Road and Chinguacousy Road, and north of Old School Road and Hurontario Street.

As part of the route planning study, the Focused Analysis Area (FAA) was identified in 2020 as the zone surrounding the preferred route, which is being reserved for potential refinements to the preferred route and ancillary uses. Although the preferred route initially required an EA by the MTO, the Highway 413 project is now exempt from the EAA due to the provisions of the Highway 413 Act, introduced as part of *Bill 212*, which establishes an alternative environmental assessment framework for the project. Under this new process, an Environmental Impact Assessment Report will be completed.[10]

Additionally, the Governments of Canada and Ontario have signed a Memorandum of Understanding and established a joint federal-provincial working group governed by a Terms of Reference[11]. Until the Highway 413 project has confirmed the preferred route at 100% submission, the MTO continues to protect the FAA and remained a constraint to the West Caledon study. **Figure 4-12** shows a map of the preferred route. Throughout the study, any updates from MTO regarding the Highway 413 design were considered in the evaluation and selection of the preferred solution.

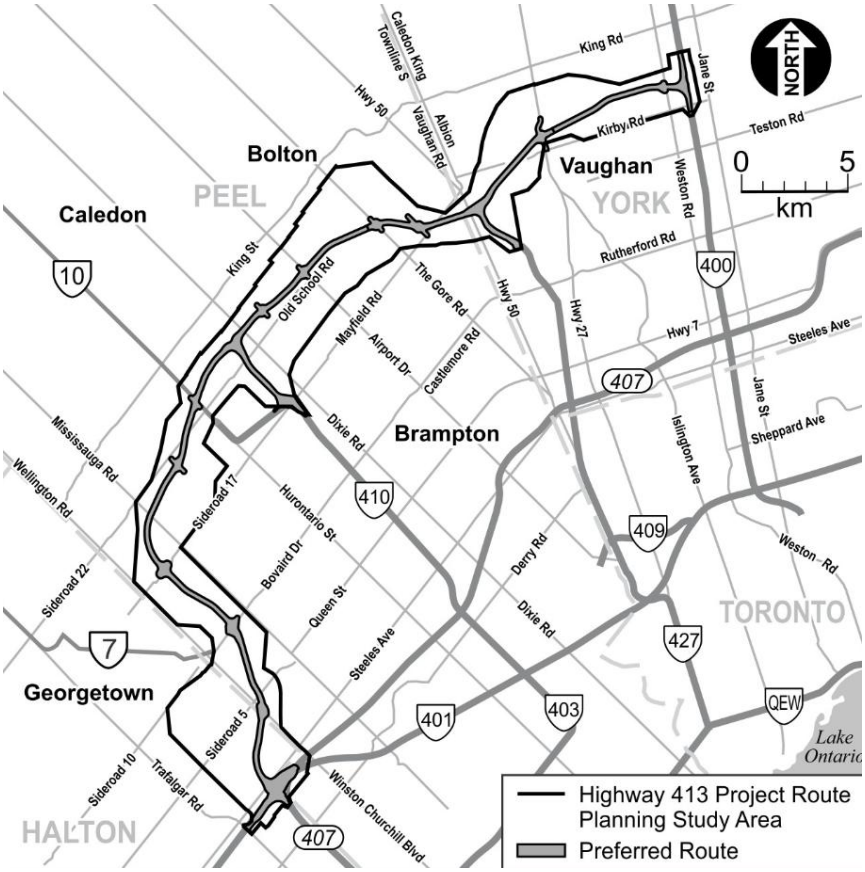

Figure 4-12: Highway 413 Preferred Route[12]

10 Government of Ontario (2024, November 25). Bill 212 – Reducing Gridlock, Saving You Time Act. Retrieved February 14, 2025, from https://highway413.ca/en/bill-212/
11 Government of Canada (2024, April 15). Terms of Reference Bilateral Federal–Provincial Working Group for Ontario's Highway 413. Retrieved February 14, 2025, from https://iaac-aeic.gc.ca/050/evaluations/document/157202
12 AECOM (2025). Highway 413. Retrieved February 14, 2025, from https://highway413.ca/en/

4.3.4.3 Brampton Flying Club

The Brampton Flying Club is located in Caledon, within Peel Region. It is a non-profit aviation organization and training centre for pilots. Due to its operations, this project has implemented a 4 km buffer around the Brampton Caledon Airport to avoid any potential conflicts. This is known as the Outer Surface, as shown in **Figure 4-13**, which is intended to protect airplanes circling to find the airport in poor visibility, and those that fly a circuit around the Airport before they land.[13]

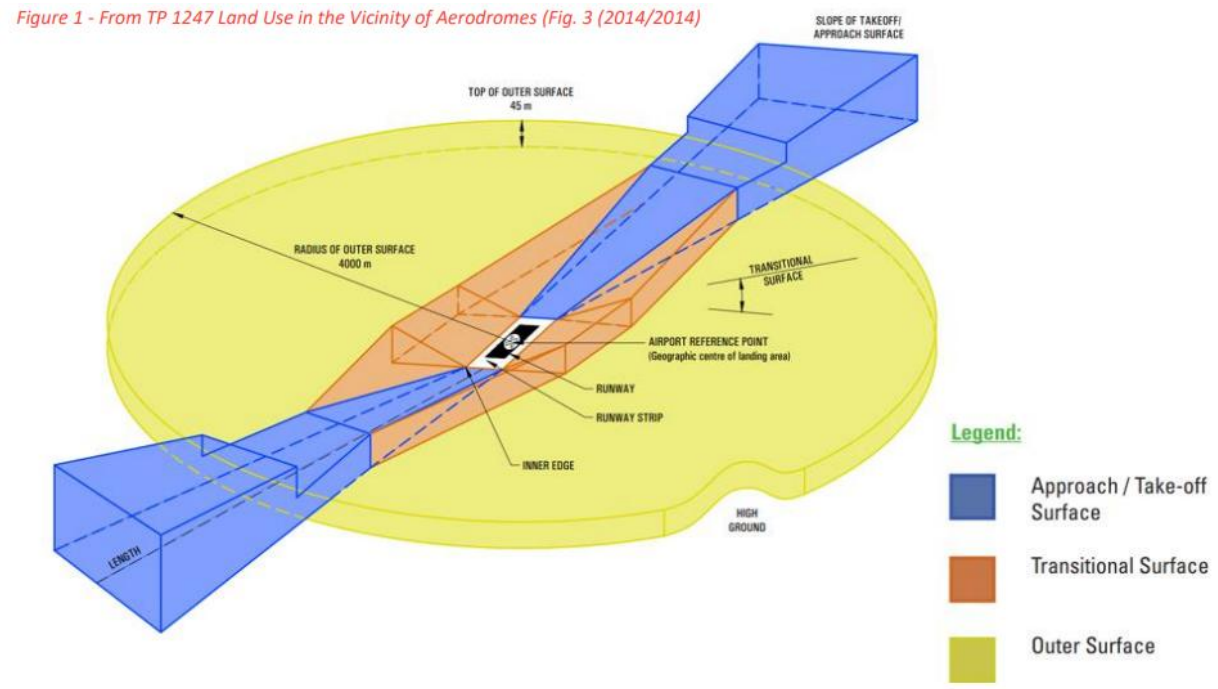

Figure 4-13: Brampton Flying Club 4km Buffer

4.3.5 Existing Utilities

A number of utilities are located within the Region. The following utility companies were included in the preliminary consultation process:

- Gas: Enbridge Gas Distribution, TC Energy Corp., Ontario Power Generation;
- Hydro: Hydro One Networks, Alectra Utilities (formerly known as Enersource);
- Cable & Telecommunications: Rogers Cable, Bell Canada; and,
- Other Pipelines: Trans-Northern Pipelines Inc.

Through the preliminary review, one freight and tourist railway line was identified within the study area. This line is known as the Orange-Brampton Railway and operated by Cando Ltd. As well, no pipelines or hydro transmission towers were identified crossing the study area.

13 WSP Planning Inc. (2024, November). Brampton Airport Zoning Regulations Planning Justification Report. Retrieved on February 17, 2026, from https://www.caledon.ca/en/town-services/resources/Business-Planning--Development/Zoning/AZR/3.-Planning-Justification-Report---Brampton-Airport.pdf

4.3.5.1 Proposed Transmission Corridor

The Northwest GTA Transmission Corridor study is being completed by the MOEE along with Ontario's electricity system planner, the Independent Electricity System Operator, to identify an appropriate corridor of land for use by future power lines if and when the need arises[14]. The Narrowed Area of Interest (NAI) was refined in 2024 which corresponds with the FAA alignment on the northern side of the Highway 413, as shown in **Figure 4-14.** However, because the hydro transmission lines can only be straight and angular, the corridor may not follow the Highway 413 exactly. The MOEE study aims to be in close coordination with MTO in regard to timing. For the West Caledon Class EA, the NAI was considered a constraint.

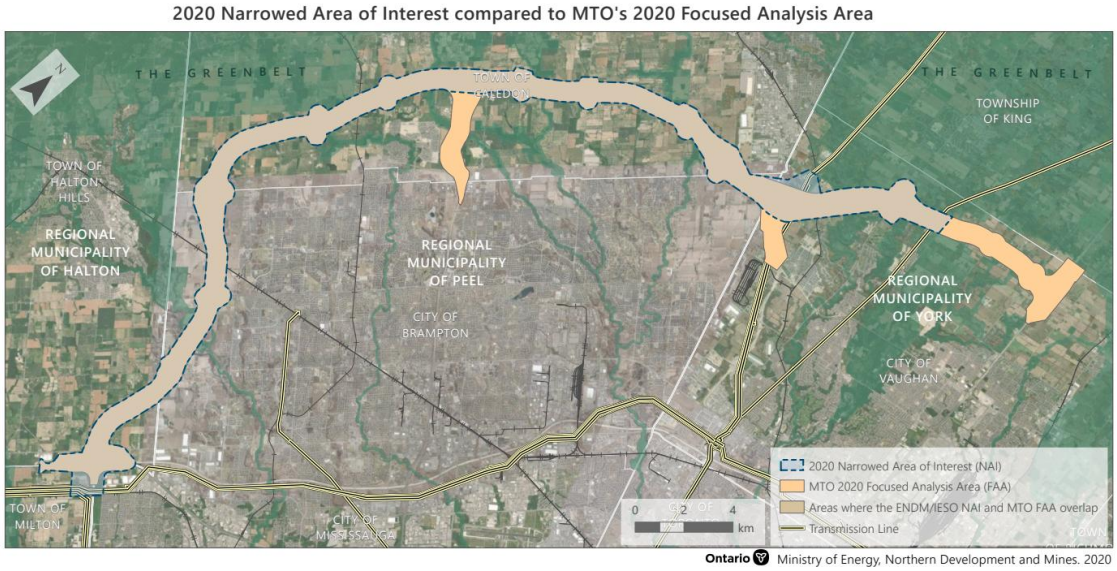

Figure 4-14: MOEE Narrowed Area of Interest15

[14] Government of Ontario (2020, November 18). *Proposal to identify and protect a corridor of land for future electricity infrastructure in the Greater Toronto Area.* Retrieved on February 14, 2025, from https://ero.ontario.ca/notice/019-1503
[15] Government of Ontario (2024, December 9). *Data Catalogue, Northwest Greater Toronto Area transmission corridor study area.* Retrieved February 14, 2025, from https://data.ontario.ca/dataset/northwest-greater-toronto-area-transmission-corridor-study-area

5.0 PHASE 1 – PROBLEM AND OPPORTUNITY STATEMENT

5.1 Opportunities and Constraints

In order to inform the generation of the study's problem and opportunity statement, and to provide guiding principles, opportunities and constraints have been identified and featured on **Figure 5-1**.

The following opportunities were identified:

- Class EA study supports future anticipated growth and looks to improve overall system efficiency;
- Large study area to review water storage combination alternatives such as: in-ground, partial in-ground, elevated, and/or pumped based on ground elevations;
- Ability to establish and confirm capacity needs for short and long-term growth within the study area; and,
- Consideration for future land use designations, ahead of development, to minimize potential impacts to the surrounding socio-economic environment.

The following constraints and special considerations were identified:

- **Siting/Alignment Locations:** considering both existing and future land use designations, farmlands, residential neighbourhoods, park lands, traffic impacts, visual impact, aesthetics, sight lines/views, shadows, etc.
- **Natural Environment:** significant environmental features and policy areas (NEP, Greenbelt areas, proximity to Credit River and major tributaries) in the northern portions of the study area within proximity to alternative servicing elevations, groundwater levels, natural public space, proximity to mature trees, etc. As there are several sensitive features within the study area, the project team completed early consultation with agency stakeholders, local interest groups, residents, and businesses and continued to engage at key milestones as the study progressed.
- **Property:** site access, easements, multiple jurisdictions (e.g., Peel Region, Town of Caledon, City of Brampton, CVC, TRCA), utility corridors (e.g., MTO, MOEE, Hydro One, Enbridge).

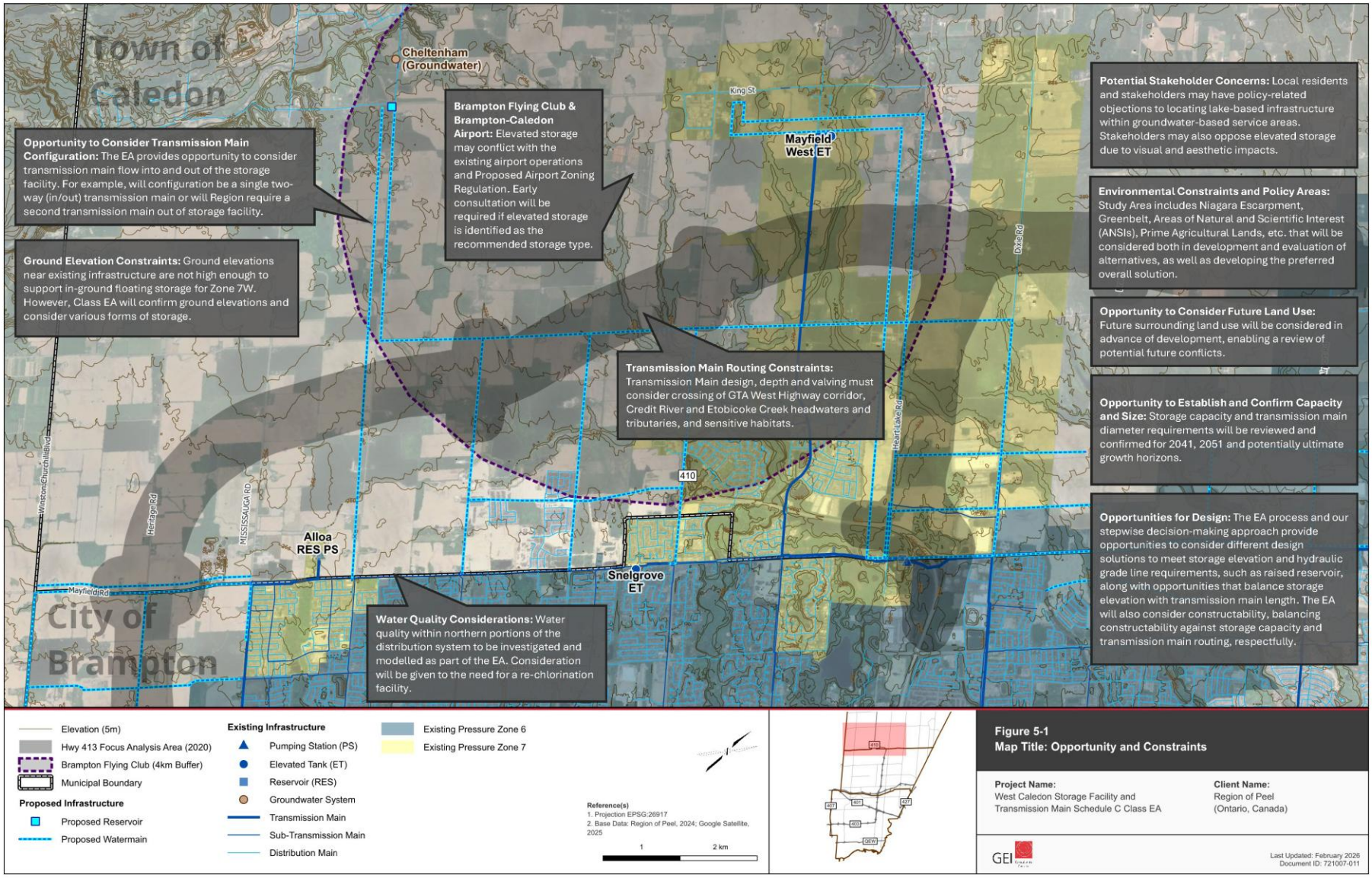

Figure 5-1: Opportunities and Constraints

5.2 Problem and Opportunity Statement

As part of Phase 1 of the Municipal Class EA process, a problem and opportunity statement was developed to clearly define the key opportunities and challenges to be addressed. The **West Caledon Storage Facility and Transmission Main Class EA** problem and opportunity statement is as follows:

"Peel Region completed the *2020 Peel Water and Wastewater Master Plan for the Lake-based Systems* which identified the need to construct a new elevated water tank for Pressure Zone 7 West. The goal of this Schedule 'C' Class EA study is to develop, evaluate, and select a preferred water storage facility and transmission main alignment to service projected growth to 2051 and beyond."

This Class EA reviewed and selected the location and conceptual design for the following components:

1. New storage facility (the type of storage facility and location);
2. New transmission main from Alloa Reservoir and Pumping Station to the new storage facility (the transmission main will supply water from the Alloa facility to the storage facility); and,
3. New feedermain from the new storage facility to the existing water distribution system along Mayfield Road (the feedermain will supply water from the storage facility to the distribution system where it will be delivered to residents/businesses).

The following strategy goals were identified from the problem and opportunity statement:

- Support the Region's long-term plan for providing water services within the Pressure Zone 7W area;
- Provide system capacity to meet existing and projected growth needs to 2051 with consideration for beyond;
- 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 total capital, operation and maintenance, and lifecycle costs; and,
- Minimize natural environmental, social, and cultural impacts.

6.0 PHASE 2 – ALTERNATIVE SOLUTIONS

Following the baseline inventory of natural, social, economic, legal / jurisdictional, and environmental factors described in **Section 4.0**, a long list of alternative strategies was identified, evaluated, and short listed through an extensive process to identify the preferred strategies.

6.1 Evaluation Framework

This Class EA study followed a comprehensive step by step approach in developing an overall solution to meet the problem and opportunity statement – to construct new water storage infrastructure for Pressure Zone 7W to service future growth. The evaluation methodology in this Class EA study required a tailored process to analyze and evaluate the broad study area, servicing strategies and ultimately select a specific storage facility location, in coordination with the development and selection of the preferred transmission main alignment. Each step in this process provided an enhanced level of detail starting from a high-level approach to more detailed infrastructure locations.

Figure 6-1 shows the full Phase 2 stepped approach, in line with the Class EA process. The development of the methodology and decision-making process is further described in the sections below. Throughout Phase 2, consultations with the public, government agencies, Indigenous Communities and landowners were also undertaken and documented, as shown in **Section 3.5**. The methodology and decision-making process was also presented at two PICs to solicit feedback and additional factors to be considered.

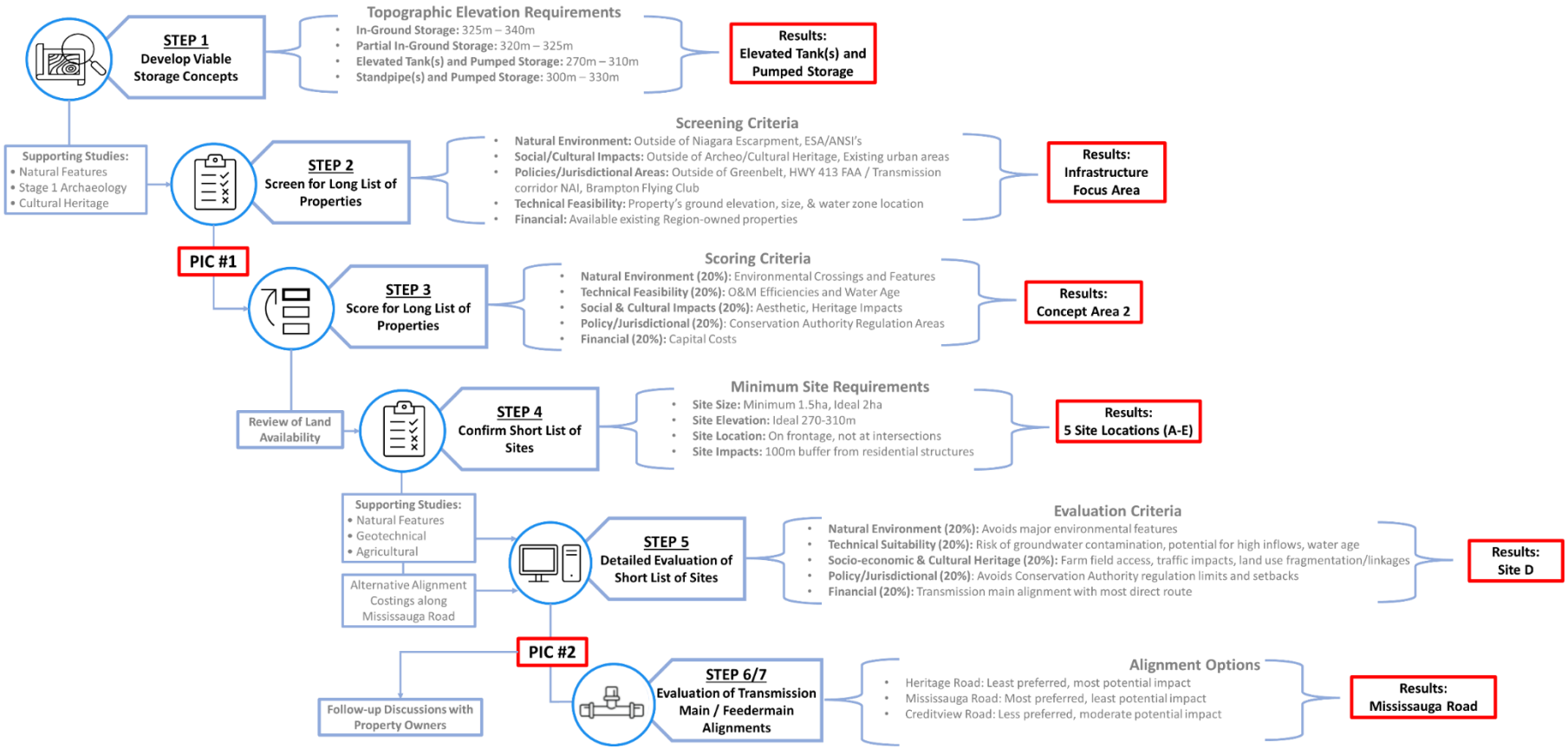

Figure 6-1: Phase 2 Stepped Approach Overview

6.2 Storage Concept Alternatives

The Region currently provides a combination of pumped and floating storage to each pressure zone from multiple facilities. Pumped storage refers to water that must be actively pumped into and out of the system to supply pressure, while floating storage refers to reservoirs, elevated tanks or standpipes which naturally provide pressure by gravity.

As the population grows, more water storage will be needed to service Pressure Zone 7W. Although the 2020 Master Plan identified the need for a new elevated tank, the following Step 1 will reconfirm whether it is the preferred water storage infrastructure within the study area to meet the Pressure Zone 7W needs for 2051.

The following First Principles Methodology is based on the MECP design guidelines for treated water storage found in Section 8. The full calculations to determine total storage needs is outlined in *Technical Memorandum 1: Storage Needs*, and provided in **Volume 1, Appendix 1A**.

MECP Storage Need Calculations Methodology (A+B+C):

A = Fire Storage;

B = Equalization Storage (25% of Max Day Demand);
C = Emergency Storage (25% of A+B).

Table 6-1 below provides a summary of each component in MECP's total treated water storage requirement methodology.

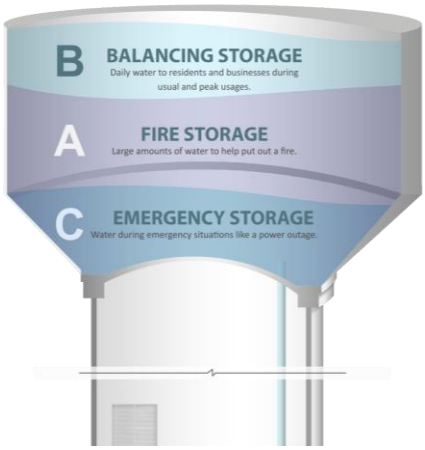

Table 6-1: Summary of Storage Needs for Pressure Zone 7W

Storage Needs	2021	2031	2041	2051
Equivalent Population	8,010	21,788	32,729	59,904
A: Fire Storage (ML)	1.72	3.60	5.72	8.16
B: Equalization Storage (ML)	0.7	2.3	3.5	6.3
C: Emergency Storage (ML)	0.6	1.5	2.3	3.6
7W Total Storage Needs	3.1	7.3	11.5	**18.0**

The year 2051 was used as the baseline target for storage needs within this Class EA, however, the storage concept alternatives also consider the need to provide additional long-term storage beyond 2051.

6.2.1 Step 1: Develop Viable Storage Concepts

This Class EA is focused on servicing Pressure Zone 7W needs. Pressure Zone 7W supplies water to areas that sit between about 259 and 290 metres above sea level, with the system designed to operate up to a top water level (TWL) of 327.7 metres.

To support the selection of technically viable water storage alternatives, other Region zones and Greater Golden Horseshoe facilities were benchmarked to generate typical parameters for operational continuity. The review summary is outlined in *Technical Memorandum 2: Design Basis*, and provided in **Volume 1, Appendix 1B**. For this Class EA study, four (4) water storage types were considered including: In-ground Reservoir, Partial In-Ground Reservoir, Elevated Tank(s), and/or Standpipe(s).

All reasonable and feasible alternative storage concepts are described in **Table 6-2** and further discussion can be found in **Volume 1, Appendix 1B**.

Table 6-2: Storage Concept Alternatives

Concept	TWL Height Above Ex. Grade:	Supporting Ground Elevation	Capacity Range	Site Area	Needs for 2051
1: Do Nothing	N/A	N/A	N/A	N/A	N/A
2: Limit Growth	N/A	N/A	N/A	N/A	N/A
3: In Ground Reservoir *Underground structure*	0 m – 6 m	324 m – 335 m	10 ML – 40 ML+	Varies	20 ML Reservoir
4: Partial In-Ground Reservoir *Above-grade buried structure*	~12 m (Victoria Res Reference)	318 m – 324 m	10 ML – 40 ML+	Varies	20 ML Reservoir
5: Elevated Tank(s) + Pumped Storage *Above-ground tower with storage at top*	20 m – 60 m	270 m – 310 m	1 ML – 10 ML	~100 m x 100 m ideal	• 2 x 10 ML Tanks, or • 1 Tank + Pumped (Alloa/Victoria)
6: Standpipe(s) + Pumped Storage *Above-ground cylindrical storage volume*	0 m – 30 m+	300 m – 330 m	1 ML – 30 ML	~100 m x 100 m ideal	• 1 x 20 ML Standpipe, or • 2 x 10 ML Standpipes, or • 1 Tank + Pumped (Alloa/Victoria)
7: Pumped Storage Only	N/A	N/A	N/A	N/A	• 20 ML Pumped (Alloa/Victoria)

A list of criteria was established to support the evaluation of the storage concept alternatives including natural environment, social and cultural impacts, policies and jurisdictional areas, technical feasibility, and economic considerations. The balanced criteria were applied equally (were not weighted) and **Table 6-3** describes the criteria components.

Table 6-3. Evaluation Criteria for Storage Concept Alternatives

Criteria	Criteria Component
Natural Environmental	• Ability to avoid/minimize impact to sensitive environmental features (wetlands, terrestrial habitat/features, vegetation, wood lots, and steep slopes identified by Conservation Authorities, Municipalities, or the Province of Ontario). • Flexibility to avoid storage siting within environmental features or protected areas. • Protects groundwater and well supplies.
Social and Cultural Impacts	• Ability to minimize impact to existing/future residents/businesses related to the storage concepts aesthetics/proximity to conflicting land use areas. • Ability to protect cultural heritage features or areas of scenic value. • Minimizes impact to Indigenous Communities with flexibility for storage facility siting. • Minimizes impact to protected countryside and prime agricultural areas with flexibility for storage facility siting.
Policy and Jurisdictional Areas	• Aligns with respective City of Brampton/Town of Caledon and Peel Region municipal policies. • Aligns with respective Federal legislation and policy. • Aligns with respective Provincial legislation and policy. • Minimizes impact/complies with Conservation Authority (TRCA/ CVC) regulated areas. • Minimizes impact/compiles with Niagara Escapement Commission (NEC) regulated areas. • Minimizes impact/compiles with Greenbelt and Provincial planning policies. • Avoids impact to future Highway 413 (MTO) and future Hydro Corridor (MOEE). • Avoids impact to Brampton Flying Club and meets all requirements with respect to height restrictions/conflicts related to the Obstacle Limitation Surfaces.
Technical Feasibility	• Ability to satisfy the Problem and Opportunity Statement. • Meets existing and future servicing needs. • Ability to align with future growth (phasing) for 2031, 2041, and 2051 water demands and system storage needs (and post-2051). • Provides suitable land elevation to support storage type. • Will provide a reliable water supply. • Minimizes and manages construction risk. • Aligns with existing and future land use. • Ability to adapt to climate change with storage facility resiliency due to increased system demands, reduction in supply capacity, and/or vulnerability to climate related failures such as flooding.
Economic Consideration	• Consideration of length of watermain required to support storage elevations related to each concept and the impact to capital cost and operations. • Impact of tunnelling construction costs for environmental crossings. • Potential for additional cost for investigations and remediation (i.e., archaeological, natural environment, etc.) related to impacted features.

The detailed evaluation of alternative storage concepts is provided in **Volume 1, Appendix 1C**, while a summary of the results is shown below:

1. **Do Nothing:** Does not satisfy the study's Problem and Opportunity Statement.
2. **Limit Growth:** Does not satisfy the study's Problem and Opportunity Statement.
3. **In-Ground Reservoir:** Good technical solution but has limited site availability outside of sensitive environmental features and is far from the service area. Alternative has increased costs due to required watermain length.
4. **Partial In-Ground Reservoir:** Good technical solution but limited site availability outside of sensitive environmental features and is far from the service area. Alternative has increased costs compared to in-ground reservoir due to additional structural requirements of the storage facility. There are no tangible benefits for partial in-ground over in-ground reservoir.
5. **Elevated Tank(s) and Pumped Storage:** Greatest flexibility for siting within the service area. Provides opportunity for phased construction to meet growth demands and provides improved connectivity. The alternative requires a shorter watermain(s) compared to reservoir alternatives thereby minimizing environmental impact and is more cost-effective.
6. **Standpipe(s) and Pumped Storage:** Provides similar benefits as an elevated tank, but the standpipe does not have the same design options, siting flexibility, and storage benefits. There is also limited site availability outside of the service area that would avoid environmental features.
7. **Pumped Storage Only:** The alternative does not provide floating storage, redundancy, or emergency back-up, which does not meet Regional operations and servicing practices.

The storage concept alternative providing the greatest benefit and least impact was evaluated to be the **Elevated Tank(s) and Pumped Storage**. A key benefit of the preferred storage concept was the flexibility to site within an acceptable supporting ground elevation such that the storage facility is not located too far from the service area. **Figure 6-2** highlights technical locations within the study area, grouped by the ideal ground elevations between 270 metres to 310metres, that could technically support the siting of an elevated tank.

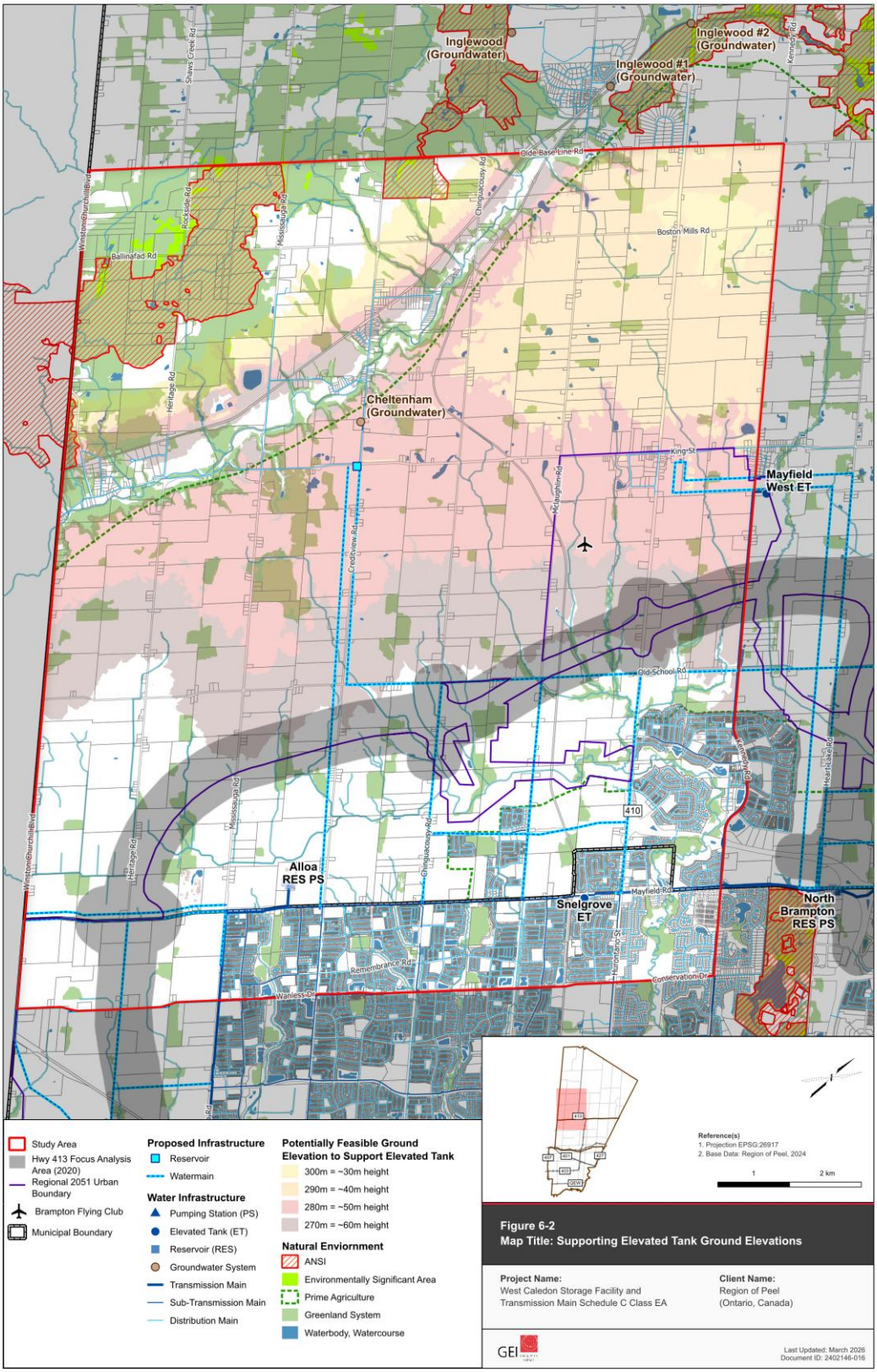

Figure 6-2: Supporting Elevated Tank Ground Elevations

6.3 Long List of Property Alternatives

Having selected the Elevated Tank(s) and Pumped Storage as the preferred storage facility to the meet Pressure Zone 7W servicing and storage needs, Steps 2 and 3 are focused on reducing the study area to determine a more refined area to site the elevated tank. The long list of property alternatives utilizes the five-point evaluation criteria to screen the study area and further score concept areas based on the geographic location of properties.

6.3.1 Step 2: Screen for Long List of Properties

The development of the long list of properties to site the elevated tank firstly requires the screening of the study area using pass/ fail criteria to reduce the area for further evaluation. Based on the review of baseline reports for the study area, specific areas identified within these reports were screened out to avoid potential impacts and design restrictions.

There are several sensitive features and guiding policies within the study area that were considered when evaluating the water storage site(s) and transmission main alternatives. These considerations included a balanced review of environmental, social/cultural, legal/jurisdictional, technical, and financial criteria. As part of this study, the natural environment screening criteria was considered fundamental when determining the long list of properties, by either avoiding or minimizing potential impacts. In alignment with the five-point evaluation criteria, **Table 6-4** outlines the specific screening criteria components.

Figure 6-3 shows the consolidated map of the study area once layering on all the long list screening criteria. The resulting map shows that the south-west quadrant of the study area generally passes all screening criteria, which shall be the ideal refined area for selecting a suitable and appropriate property to site the elevated tank. The identified area is henceforth known as the Infrastructure Focus Area (IFA) and is bounded by Old School Road to the North, Winston Churchill Boulevard to the West, Chinguacousy Road to the East, and Mayfield Road to the South. Additionally, this area does not encompass the Highway 413 FAA, as well as the Brampton Flying Club setback buffer.

This evaluation, in addition to the study background and purpose and the problem/ opportunity statement, were presented at PIC No. 1, which was held on November 9, 2022 at the Margaret Dunn Valleywood Library and Community Room.

Table 6-4: Long List Screened Out ("Fail") Evaluation Criteria

Screening Criteria	Description	Screening Criteria Component	Reasoning
Natural Environment	Niagara Escarpment Area	If property is located within areas designated as 'Escarpment Natural Area', 'Escarpment Protection Area', 'Mineral Resource Extraction Area', and/or 'Escarpment Rural Area.	Potential impacts to natural features within the Niagara Escarpment are to be avoided.
	Environmentally Sensitive Area & ANSI	If property is located within an area designated as an Environmentally Sensitive Area or ANSI.	Impacts to sensitive natural areas are to be avoided.
Social and Cultural Impacts	Archaeological & Cultural Heritage	If property is located within an area of potential archaeological and/or cultural heritage significance.	Impacts to archaeological and/or cultural heritage resources are to be avoided.
	Existing urban areas	If property is located within an existing urban area.	Negative impacts to existing residents are to be avoided.
Policies and Jurisdictional Areas	Greenbelt Plan Area	If property is located within the Greenbelt Plan area.	Increased jurisdictional restrictions associated with constructing in the Greenbelt.
	Ontario Ministry of Transportation's Highway 413	If property is located within the setback FAA.	Substantial jurisdictional complications if conflicting with the Highway 413 FAA.
	Ontario Ministry of Energy and Electrification's Northwest Greater Toronto Area Transmission Corridor	If property is located within the held NAI.	Substantial jurisdictional complications if conflicting with the NAI.

Screening Criteria	Description	Screening Criteria Component	Reasoning
	Brampton Flying Club's Brampton Airport	If property is located adjacent to the Brampton Airport within the 4,000 m radius of the outer surface, as per Brampton Airport Zoning Regulations for Obstacle Limitation Surfaces.	Negative impacts and/or additional design restrictions based on adjacent property uses are to be minimized.
Technical Feasibility	Ground Elevation	The ideal property ground elevation is between 270 m and 310 m above sea level.	The property must have an acceptable elevation such that the siting of the elevated tank is technical feasible.
	Size	If property is less than 1.5 ha in size.	The property is required to be a minimum size of 2 hectares to adequately site the required infrastructure to achieve the preferred storage solution.
	Pressure Zone 7W Servicing	If the property is located in Zone 6 or Zone 7 Central of the Region's 2051 water pressure zone system.	The property should avoid being located in Pressure Zone 6 or Zone 7 Central as it will not achieve the property and opportunity statement objective of providing water servicing for Zone 7W.
Economic Consideration	Real Estate	If property has been identified by the Region of Peel Capital Acquisitions (RPCA) team as being owned by the Region.	Use of the Region's existing property holdings is advantageous in order to minimize property acquisition costs and associated complications, if possible.

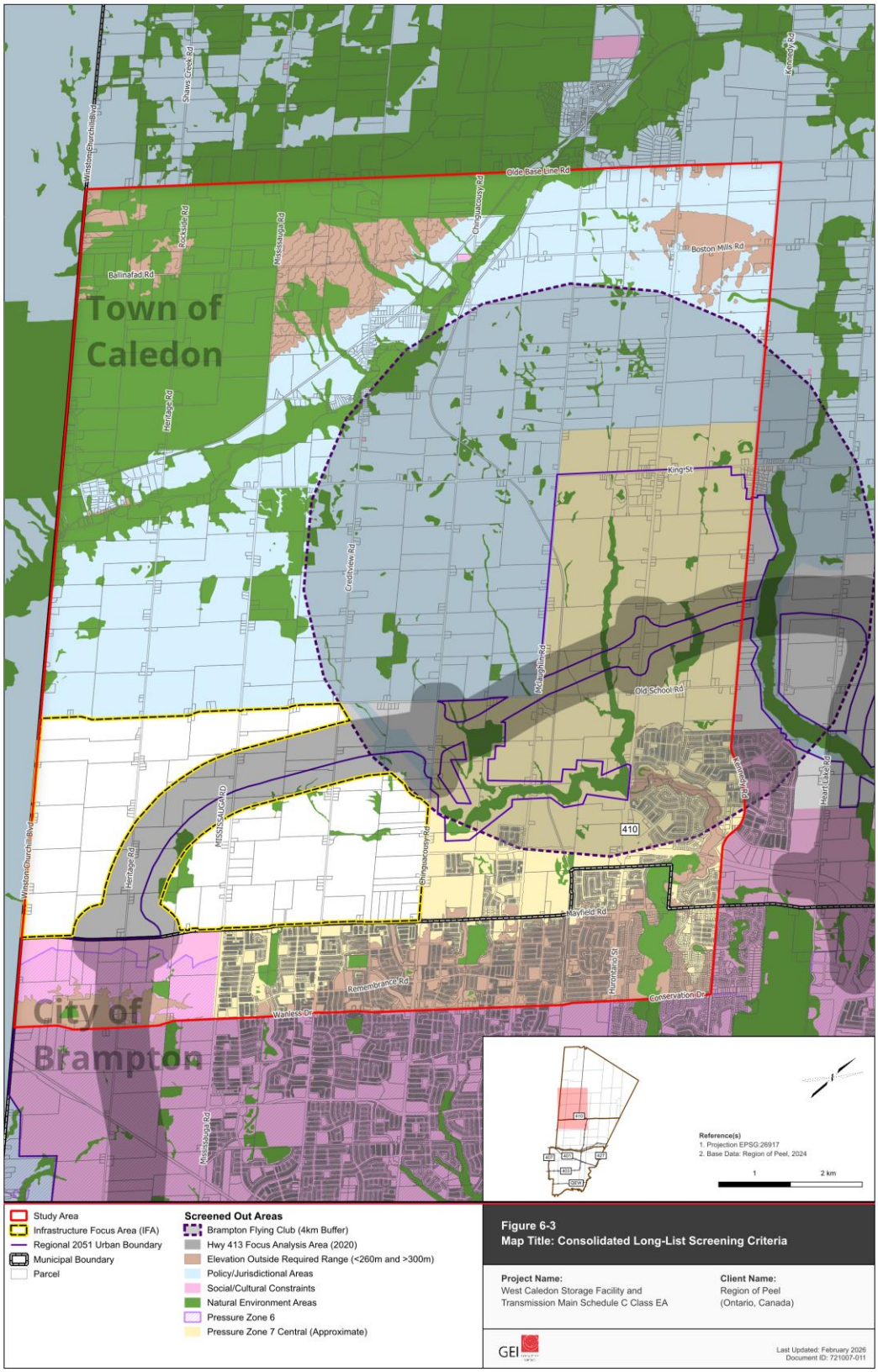

Figure 6-3: Consolidated Long-List Screening Criteria

6.3.1.1 Additional Review of Existing Conditions within IFA

Once the study area was further refined to the IFA, an additional review of the existing conditions was completed. The following details supplement the information provided in **Section 4.2.1**.

6.3.1.1.1 Natural Environment

The following table provides a summary of the natural features located within the IFA, also provided in **Figure 6-4**.

Table 6-5: Summary of Natural Features within IFA

Features	Existing Features within IFA
Areas of Natural and Scientific Interest	There are no ANSI located within the IFA.
Watercourses and Watersheds	Surface water within the IFA either flows westerly towards the tributaries of the Credit River or easterly towards the tributaries of the Etobicoke Headwaters. There are multiple watercourses located within the IFA. The watercourses are under the jurisdiction of either the CVC or the TRCA.
Fish and Fish Habitat	There are no endangered aquatic species known to occur within the IFA according to Aquatic Area Resource mapping prepared by DFO. However, several headwater drainage features within the IFA, as part of unevaluated and evaluated wetlands, are anticipated to represent contributing fish habitat.
Significant Wetlands	Within the IFA, the area contains the Etobicoke Creek Headwaters II Locally Significant Wetland Complex between Heritage Road and Mississauga Road, and portions of the Etobicoke Creek Headwaters Provincially Significant Wetland Complex east and west of Creditview Road.
Significant Woodlands	The woodlands within the IFA are associated with wetlands, and woodlands within 100 metres of wetlands are to be considered significant. It is therefore conservatively assumed that any woodlands within 100 metres of wetlands as mapped by the NHIC is significant.
Significant Valley Lands	The overall EA study area contains valley lands associated with the riparian areas for the Credit River and Etobicoke Creek, however further investigation is required to confirm if significant valley lands are present within the IFA.

Features	Existing Features within IFA

Species at Risk	There are 11 potential Species at Risk that have regulatory protection under the ESA (THR = threatened or END = endangered) located within the IFA, provided below.
	• Birds (6)
	  ○ Bobolink (THR)
	  ○ Chimney Swift (THR)
	  ○ Eastern Meadowlark (THR)
	  ○ Eastern Whip-poor-will (THR)
	  ○ Red-headed Woodpecker (END)
	  ○ Yellow-Breasted Chat (END)
	• Flora (1)
	  ○ Butternut (END)
	• Mammal (4)
	  ○ Eastern Small-footed Myotis (END)
	  ○ Little Brown Myotis (END)
	  ○ Northern Myotis (END)
	  ○ Tri-coloured Bat (END)
	The majority of potential suitable habitat for these SAR within the IFA is concentrated in open meadows, unevaluated wetland, and associated riparian habitat and woodlands. There are also two species, Chimney Swift and Little Brown Myotis, which may also use anthropogenic structures for habitat.

Significant Wildlife Habitat	Based on the background review and windshield survey, there is potential for the presence of 14 SWH within the IFA.

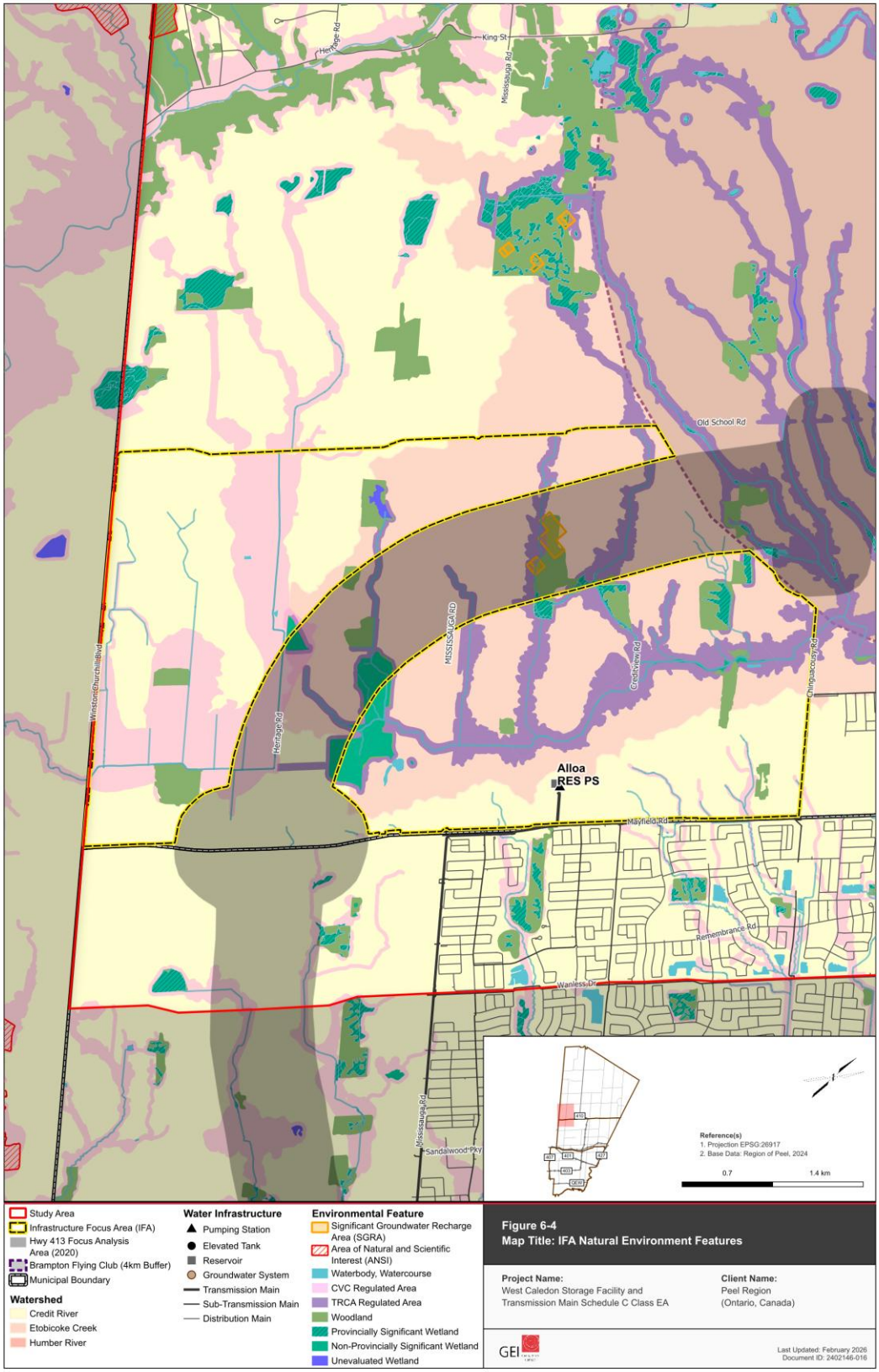

Figure 6-4: IFA Natural Environment Features

6.3.1.1.2 Hydrogeological Conditions

According to the MECP well records in the study area, a total of 295 records were found. Of the available 295 well records, 182 of the wells are recorded as water supply wells, 21 wells are listed as either test hole, monitoring and test hole, or observation well, 67 wells are listed as abandoned, one record is listed as an alteration, one record is listed as 'other status', and 23 well records have an unknown status (**Figure 6-5**). **Table 6-6** provides a summary from the well records:

Table 6-6: Summary of MECP Well Records in Study Area

Well Records	Shallowest	Deepest	Average
Water Supply Well Depth	3.7 m	55.2 m	18.0 m
Bedrock Depth	1.0 m	36.0 m	15.0 m
Static Water Level	0.3 m	18.3 m	4.0 m

No PTTWs exist within the study area, while one Environmental Activity and Sector Registry water taking is registered for construction dewatering.

As previously mentioned in **Section 4.2.1.2**, the study area is located within the Credit Valley Source Protection Area and Toronto Source Protection Area. According to the CTC Source Protection Plan, several PSWs, HVAs, and SGRAs are located throughout the study area, shown in **Figure 4-2**. There is also one WHPA associated with Cheltenham-Terra Cotta Well (1 and 2) Supply.

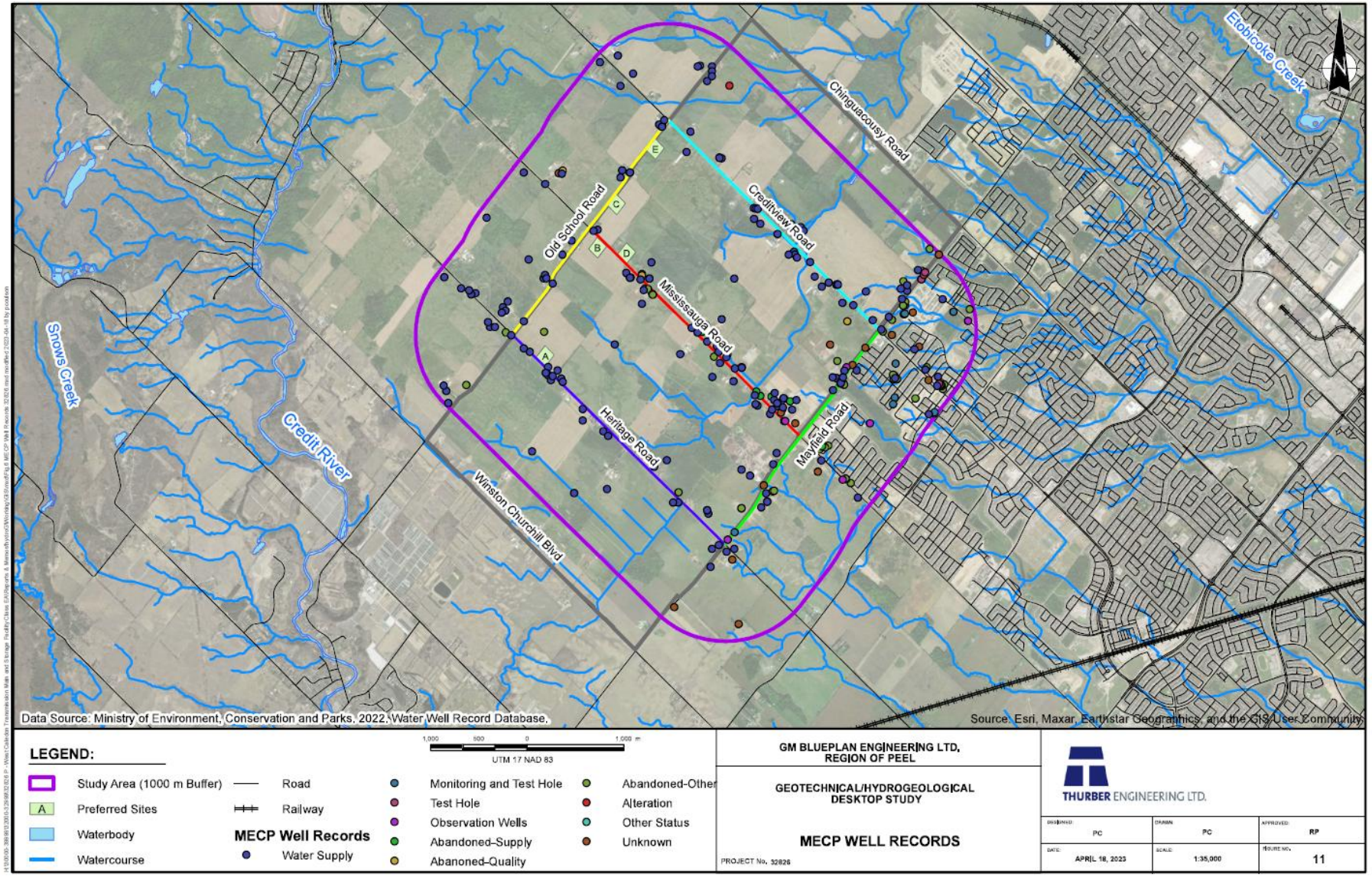

Figure 6-5: MECP Well Records

6.3.1.1.3 Socio-economic and Land use

The identified IFA was evaluated to be predominantly within the Town of Caledon's prime agricultural area, new community area, and new employment area, as per the *Future Caledon* Plan, shown in **Figure 4-6**. *Policy 3.3.14* in the 2022 RPOP states that the Region must "Permit non-agricultural uses in the Prime Agricultural Area without the requirement for an amendment to the RPOP". Any proposed infrastructure development within the non-prime agricultural areas of the IFA will no longer be required to be consistent with the agricultural policies of the 2022 RPOP.

Farm types within the IFA were identified as either active or retired farm operations (e.g., empty livestock facilities), livestock, cash crop or hobby farms with predominantly common field crops such as hay, pasture, wheat, corn, and soybean. With the implementation of the *Future Caledon* for 2051, all of the existing agricultural lands south of the proposed Highway 413 will be transitioned to new land uses.

6.3.1.1.4 Archaeological Resources

The majority of the IFA has archaeological potential. A Stage 2 AA will be required, except for previously disturbed areas (e.g., roads, parking lots, etc.) as noted in the Stage 1 AA study (refer to **Section 4.2.3.3**).

6.3.1.1.5 Built Heritage Resources

As part of the cultural heritage screening, no heritage properties designated or listed under Part IV of the *Ontario Heritage Act* were identified within the IFA. However, there are two heritage properties (one designated and one listed) located adjacent to the IFA, on Mississauga Road, just south of Mayfield Road.

Further screening investigation is required, including site visits, to confirm whether there are potential Built Heritage Resources with CHVI within the IFA.

6.3.2 Step 3: Score for Long List of Properties

To streamline the selection of a long list of properties to site the elevated tank, the IFA was separated into four concept areas which grouped similar properties based on geographic location, to be further scored together. Using the five-point evaluation criteria with reasoned professional judgement, the project team assessed each concept area based on the same existing conditions and mapped constraints. The concept areas were individually scored to determine preference for the group of properties with the most positive outcome and lesser overall impact.

Figure 6-6 shows the boundaries of each concept area, which are largely dictated by the Highway 413 FAA setback and the Brampton Flying Club buffer area.

Table 6-7 shows the differentiators and qualitative evaluation between the four concept areas. The scoring of the concept areas using the five-point evaluation criteria were considered equally weighted (20% weighting each) and therefore no emphasis was placed on a specific scoring criterion. The concept area providing the greatest benefit and least impact across all criteria was evaluated to be the **Concept Area 2**.

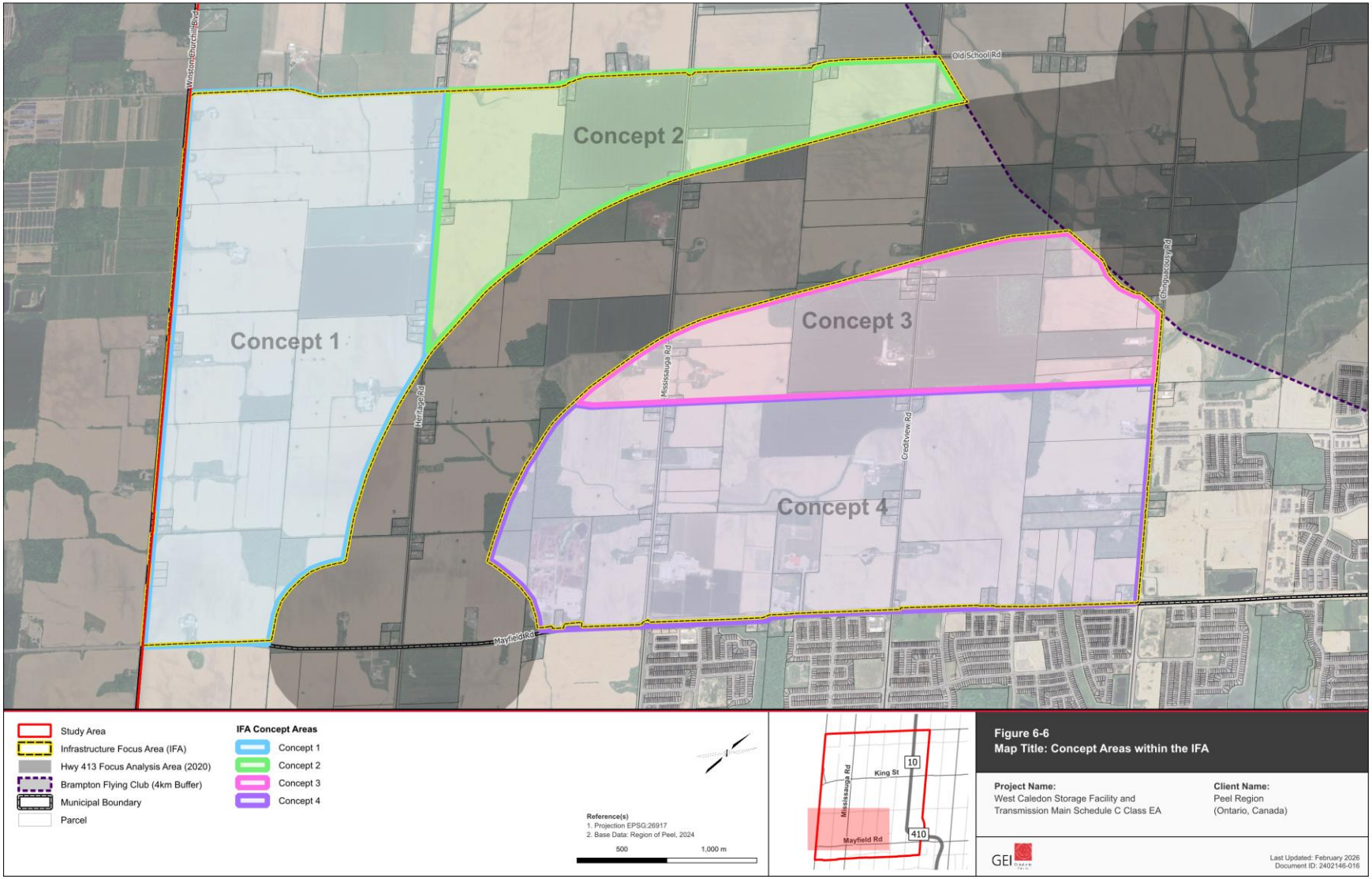

Figure 6-6: Concept Areas within the IFA

Table 6-7: Concept Area Evaluation

Criteria	Concept Area 1	Concept Area 2	Concept Area 3	Concept Area 4
Natural Environment	Minimal natural environmental features and crossings required from the Alloa Reservoir	Minimal natural environmental features and crossings required from the Alloa Reservoir	Several natural environmental features and crossings required from the Alloa Reservoir	Some natural environmental features and crossings required from the Alloa Reservoir
Social and Cultural Impacts	Similar social and cultural impacts anticipated, sufficient land options to minimize impact	Similar social and cultural impacts anticipated, sufficient land options to minimize impact	Similar social and cultural impacts anticipated, sufficient land options to minimize impact	Similar social and cultural impacts anticipated, sufficient land options to minimize impact
Policies and Jurisdictional Areas	Additional permits and approvals required from CVC or TRCA	Minimal permits and approvals required from CVC or TRCA	Most additional permits and approvals required from CVC or TRCA	Additional permits and approvals required from CVC or TRCA
Technical Feasibility	Less centrally located within the future service area, potential water quality impacts Less opportunity to utilize either N-S or E-W frontages for O&M efficiencies	Centrally located within the future service area, minimal water age concerns More opportunity to utilize either N-S or E-W frontages for O&M efficiencies	Less centrally located within the future service area, potential water quality impacts Can only utilize N-S frontages for O&M efficiencies	Less centrally located within the future service area, potential water quality impacts More opportunity to utilize either N-S or E-W frontages for O&M efficiencies
Economic Considerations	Mixed elevation, shorter elevated tank height may be possible Highest capital cost due to longer feedermain alignment options	Higher elevation, shorter elevated tank height possible Higher capital cost due to longer feedermain alignment options	Low elevation, taller elevated tank height required Lower capital cost due to shorter feedermain alignment options	Low elevation, taller elevated tank height required Lowest capital cost due to shorter feedermain alignment options
OVERALL EVALUATION	Less Preferred	**Most Preferred**	Least Preferred	Less Preferred
LEGEND:	○ Negative Outcome or Greater Overall → ◔ ◑ ◕ → ● Positive Outcome or Lesser Overall			

6.4 Short List of Site Alternatives

Having selected Concept Area 2 as the preferred area within the IFA to site the elevated tank, Steps 4, and 5 focused on confirming the short list of sites and utilizing the information gathered from technical discipline studies to support the evaluation of the site alternatives. Engagement with the property owners of the short list of sites was also undertaken during the evaluation process.

6.4.1 Step 4: Confirm Short List of Sites

To confirm the short list of sites, filter criteria were established for the long list of properties within Concept Area 2 to ensure that minimum site requirements can be satisfied in relation to the elevated tank's construction and long-term operation. Properties that are not able to meet the minimum criteria were excluded from further consideration as being part of the short list. These minimum site requirements are listed in **Table 6-8** and include site size, site elevation, site location, and site impacts.

Table 6-8: Filter Criteria for Minimum Site Requirements

Filter Criteria	Site Requirements
Site Size	• Minimum site area of 1.5 hectares to adequately space the required on-site equipment and infrastructure. • Ideal site area of 2 hectares.
Site Elevation	• Minimum site elevation of 260 metres to allow a reasonable constructable elevated tank height. • Optimal site elevation of 270 metres or greater to support an elevated tank height of less than 60 metres.
Site Location	• Avoid being at intersections. • Have north-south or east-west facing road frontage. • Not within Highway 413 FAA or NAI or the Brampton Flying Club 4-kilometre buffer. • Avoid areas of environmental significance.
Site Impacts	• Buffer of 100 metres from existing residential properties to avoid shadow, noise, and other aesthetic impacts on adjacent parcels.

6.4.1.1 Short List of Sites

As shown in **Figure 6-7**, Parcels 1-5 were determined to satisfy the minimum site requirements, as well as considered the feedback from stakeholders and the public as noted in **Section 6.4.1.3**.

Although there can be multiple different shape configurations and location options within each of these parcels, five unique sites were selected that were most ideally suited for an elevated tank. The shape configurations were chosen as a 2-hectare square (approximately 141m by 141m) and are consistent for each short-listed site. Sites A-E are further detailed and evaluated in Step 5; however, a brief description is provided below:

- **Site A:** Located south-east of the intersection of Heritage Road and Old School Road, with frontage on Heritage Road;
- **Site B:** Located south-west of the intersection of Mississauga Road and Old School Road, with frontage on Mississauga Road;
- **Site C:** Located south-east of the intersection of Mississauga Road and Old School Road, with frontage on Mississauga Road;
- **Site D:** Located south-east of the intersection of Mississauga Road and Old School Road, with frontage on Mississauga Road; and,
- **Site E:** Located south-west of the intersection of Creditview Road and Old School Road, with frontage on Old School Road.

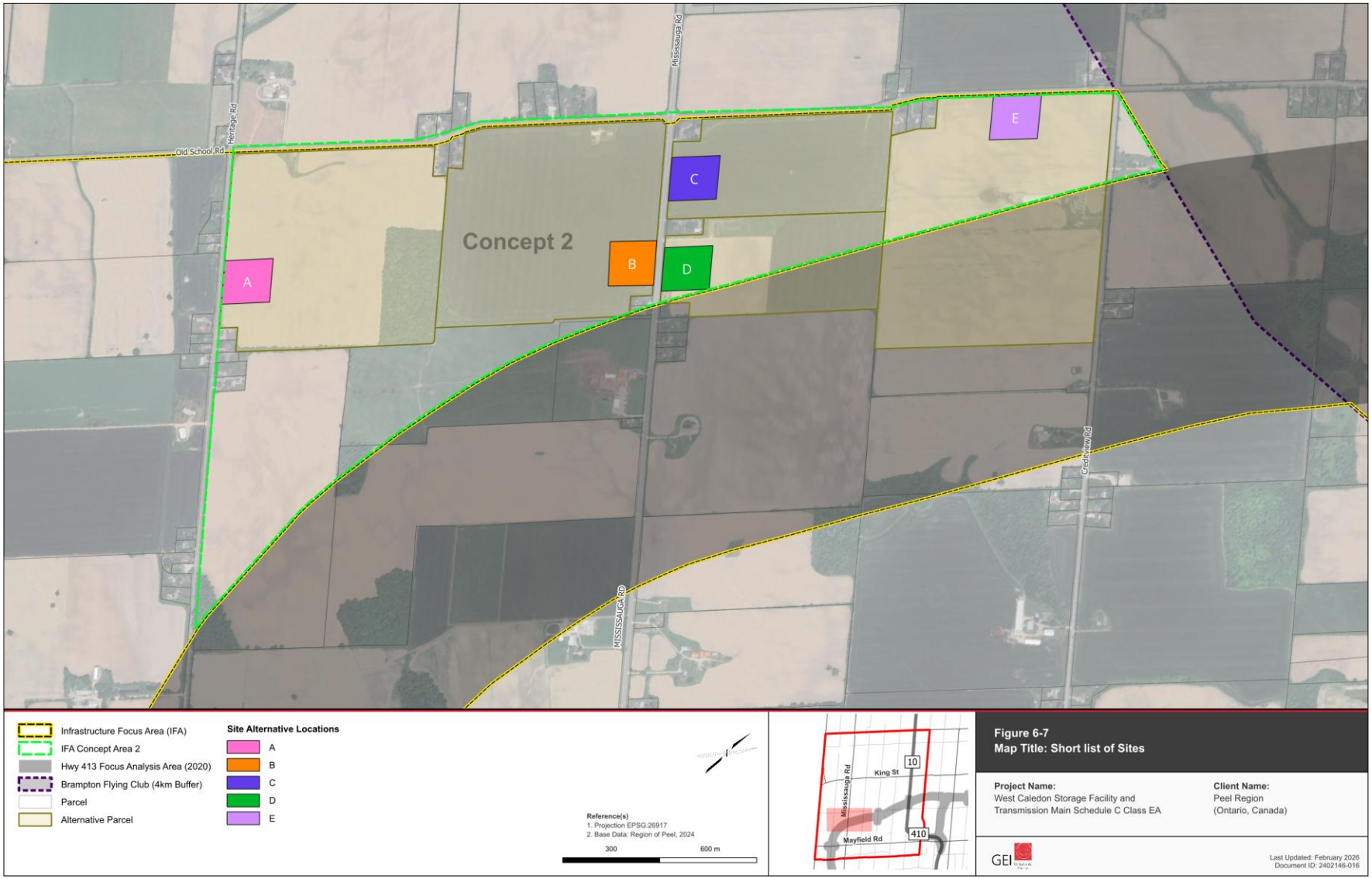

Figure 6-7: Short list of Sites

6.4.1.2 Review of Land Availability

Although the siting of the elevated tank was preferred to be located within one of the short listed sites, during the completion of the Phase 2 Class EA process the Region contacted all property owners within the IFA and were given further opportunity to contact the Project Team to review viability and discuss interest in selling a portion of their property to the Region for the purpose of a new elevated tank site. Since land availability was identified as a high priority for this study, should any property become available within the IFA that also meets the minimum site requirements as described in Step 4, the property will be assessed and considered in addition to the short list.

Letters of Interest were sent out to all property owners within the IFA on January 13th, 2023, to obtain feedback on any interest or disinterest in selling. During this initial scan for land availability, a total of seven property owners requested not be considered in this study (one of which was Parcel 2 (Site B) owner).

6.4.2 Step 5: Detailed Evaluation of Short List of Sites

The results from the confirmation of short list of sites identified five properties requiring further investigations including a Natural Heritage Windshield Survey, a Geotechnical and Hydrogeological Existing Conditions Assessment, and an Agricultural Impact Assessment. Using the information from these investigations and the guiding principles of the five-point evaluation criteria, as shown in **Table 6-9,** each site was scored to determine the preliminary preferred elevated tank location. Note that the criteria were considered equally weighted.

Table 6-9: Five-Point Evaluation Criteria for the Short List of Sites

Criteria	Criteria Component
Natural Environment	• Flexibility to avoid sensitive environmental features such as wetlands, terrestrial habitat/features, vegetation, wood lots, and valleylands. • Ability to minimize impact to species at risk and protected areas as identified by Conservation Authorities, Municipalities, or the Province of Ontario. • Ability to protect groundwater and well supplies.
Technical Suitability	• Ability to satisfy the Problem and Opportunity Statement and meet the existing and future servicing needs. • Ability to align with future growth (phasing) for 2031, 2041, and 2051 water demands and system storage needs. • Ability to adapt to climate change with storage facility resiliency due to increased system demands, reduction in supply capacity, and/or vulnerability to climate related failures such as flooding. • Ability to provide minimum land elevation and minimum site area. • Ability to minimize and manage construction risk. • Flexibility to coordinate with other large infrastructure projects in the area. • Ability to minimize length of watermain as it relates to water age and water quality impacts if further from service area.

Criteria	Criteria Component
Socio-economic and Cultural Heritage	• Aligns with existing and future land use. • Flexibility to avoid existing/future residents/businesses and proximity to conflicting land use areas. • Ability to protect cultural heritage features, archaeological features, and areas of scenic value. • Ability to minimize impact to Indigenous Communities and traditional treaty lands. • Ability to minimize impact to protected countryside and prime agricultural areas.
Policies and Jurisdictional Areas	• Aligns with respective Town of Caledon and Region municipal legislation and policies. • Aligns with respective Federal and Provincial legislation and policies. • Flexibility to avoid the Highway 413 FAA and the NAI. • Ability to comply with the TRCA and the CVC regulated areas.
Financial	• Consideration of the length of transmission main required to reach the site from the Alloa Reservoir and Pumping Station along Mississauga Road, or the length of feedermain from the site along Mississauga Road connecting to the distributing system on Mayfield Road, and the impact to capital cost and operations. • Impact of tunnelling construction costs for environmental crossings. • Potential for additional cost for investigations and remediation (i.e., archaeological, natural environment, etc.) related to impacted features. • Consideration for willing property owners, in alignment with minimum site requirements. • Aligns with financially sustainable practices for construction and long-term operations.

A map of the short list of site alternatives with policy and environmental constraints is shown in **Figure 6-8**. A map of the short list of site alternatives with the agricultural tile drainage locations is shown in **Figure 6-9**.

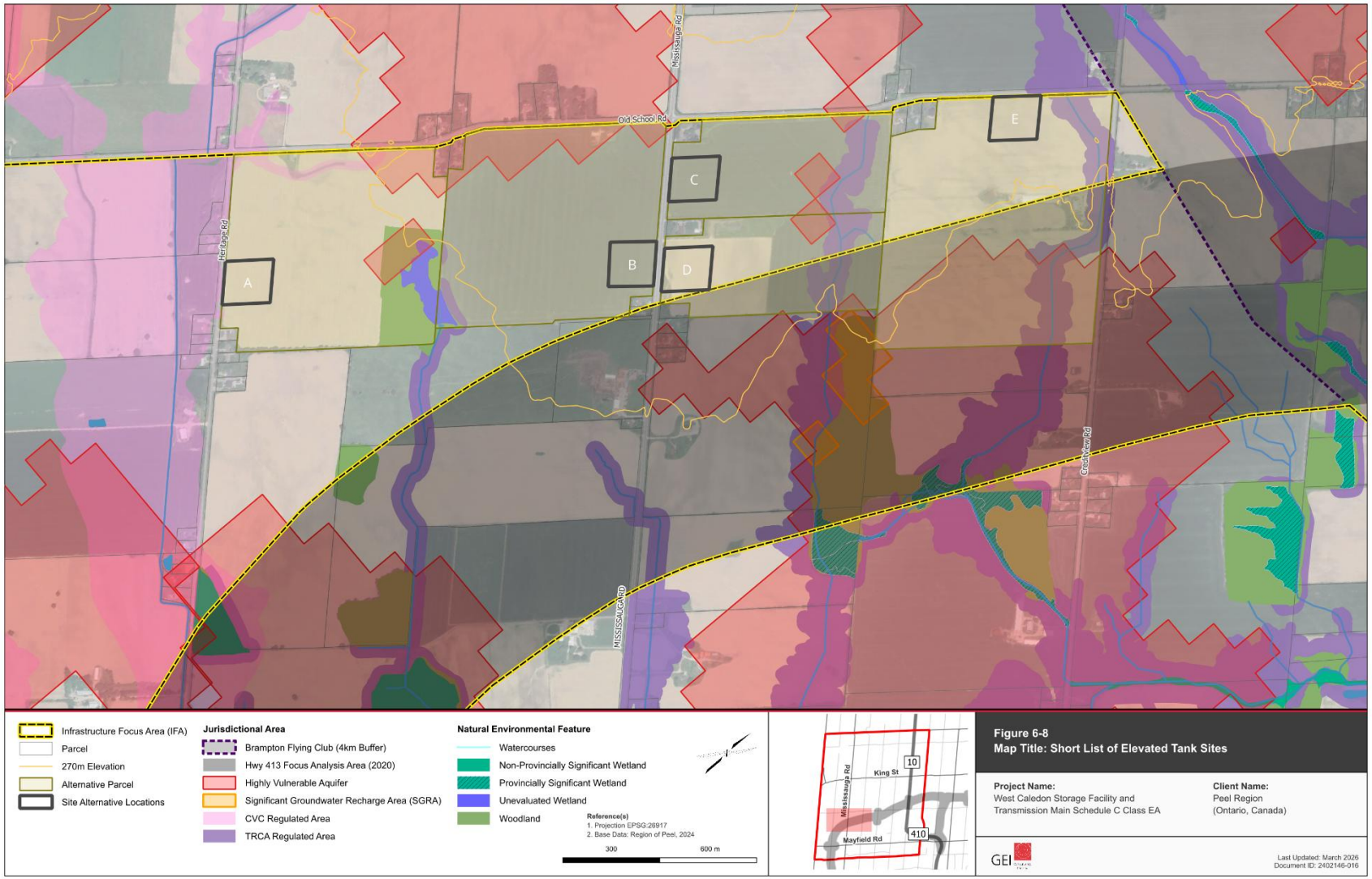

Figure 6-8: Short List of Elevated Tank Sites Against Constraint

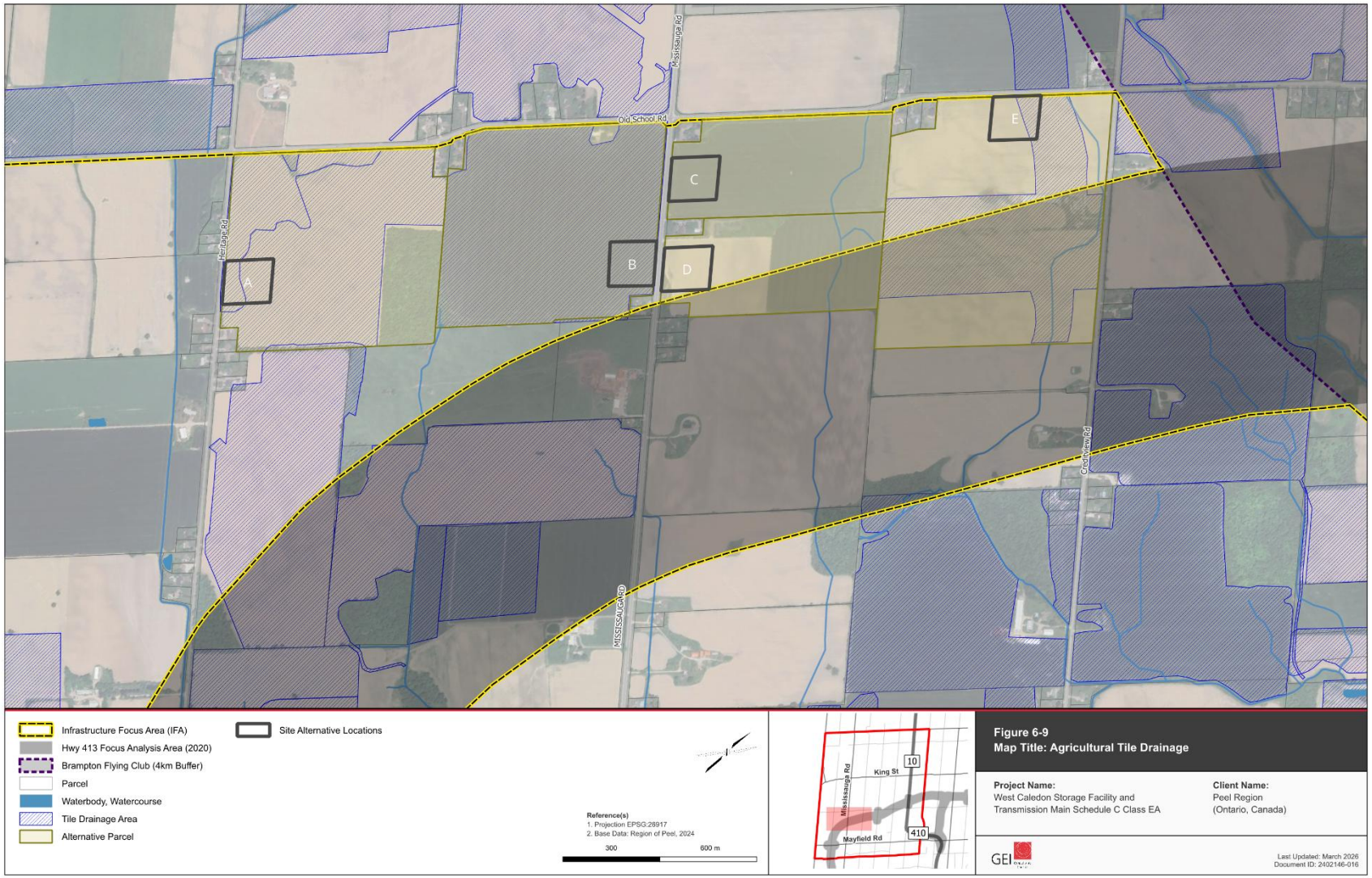

Figure 6-9: Agricultural Tile Drainage

To support the evaluation of sites, high level costs were calculated for the potential transmission main alignments from the Alloa Reservoir and Pumping Station to each site alternative, as well as for the potential feedermain alignments from the site alternatives connecting to the existing distribution system at Mayfield Road. The alignments used Mississauga Road along the road ROW as the preferred route as it is central between the five short-listed sites, while having the least number of constraints and disruptions compared to Heritage Road or Creditview Road, which reduces complexity and construction risk. A map of the short list of sites with each transmission main and feedermain alignment is shown in and **Figure 6-10** and **Figure 6-11** respectively.

For construction costs, assumptions include open-cut construction, the number of isolation valve chambers, property land needs, and the preliminary unit rates provided from the ongoing Peel Region *2026 Water and Wastewater Master Plan*. As well, common to all site alternatives is the minor trenchless crossing of the Alloa Municipal Drain on Mississauga Road, which is a tributary of the Etobicoke Creek within the TRCA regulated area.

The high-level cost estimates are shown in **Table 6-10**. Since the *2026 Water and Wastewater Master Plan* has not yet been finalized, the preliminary unit rates were only used as reference for this study.

Table 6-10: High-Level Cost Estimates for Alignments To/From Site Alternatives (2025 Dollars)

	Site A	Site B	Site C	Site D	Site E
Transmission Main Length (m)	5,375m	3,170m	3,425m	3,115m	4,645m
Transmission Main Cost	$48,550,158	$32,179,818	$33,749,853	$31,841,183	$42,658,471
Feedermain Length (m)	4,920m	2,635m	2,910m	2,600m	4,190m
Feedermain Cost	$42,842,895	$25,479,833	$26,980,006	$25,288,902	$35,187,126
Total Cost	**$91,393,053**	**$57,659,651**	**$60,729,859**	**$57,130,085**	**$77,845,597**

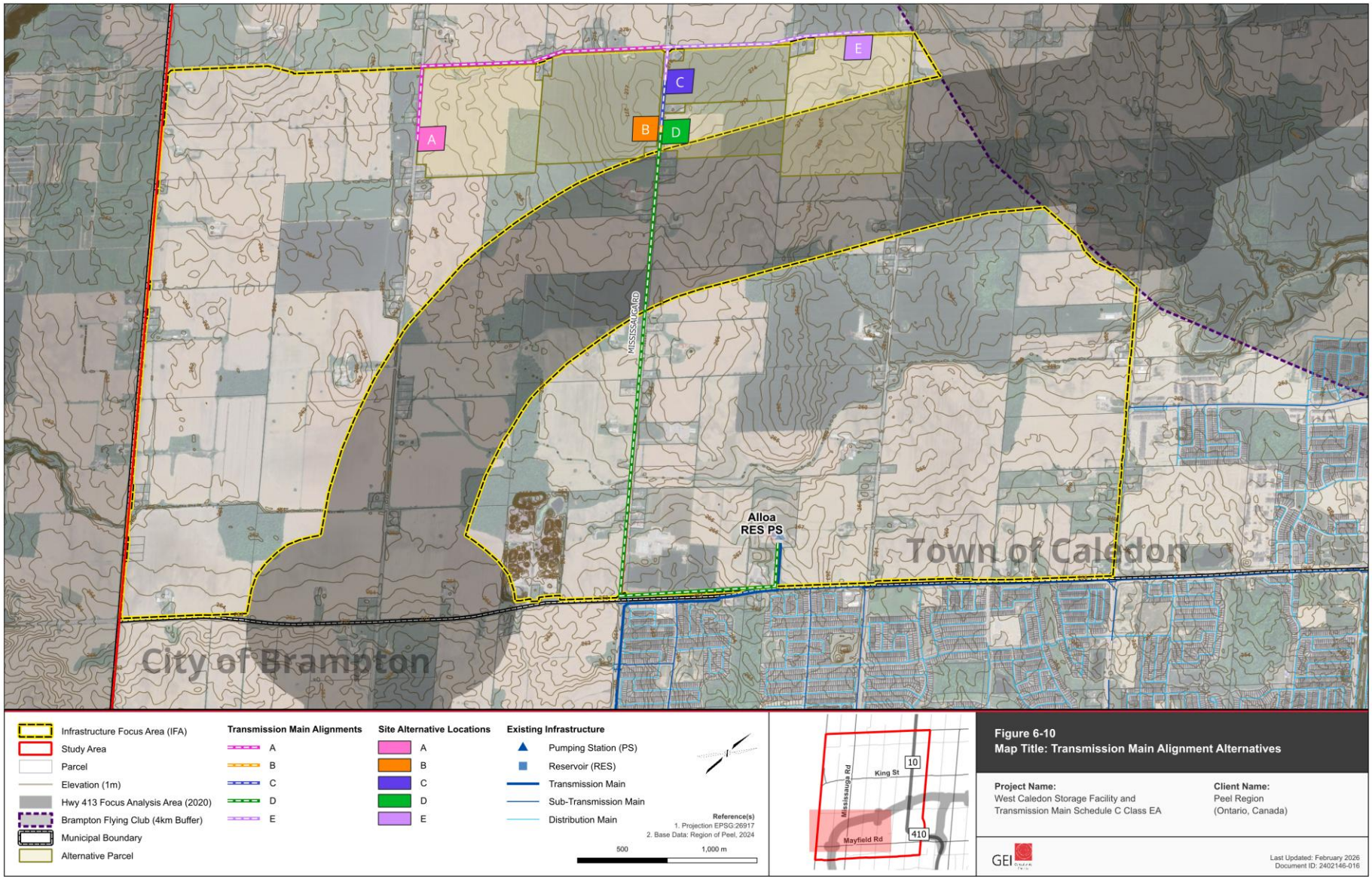

Figure 6-10: Transmission Main Alignment Alternatives

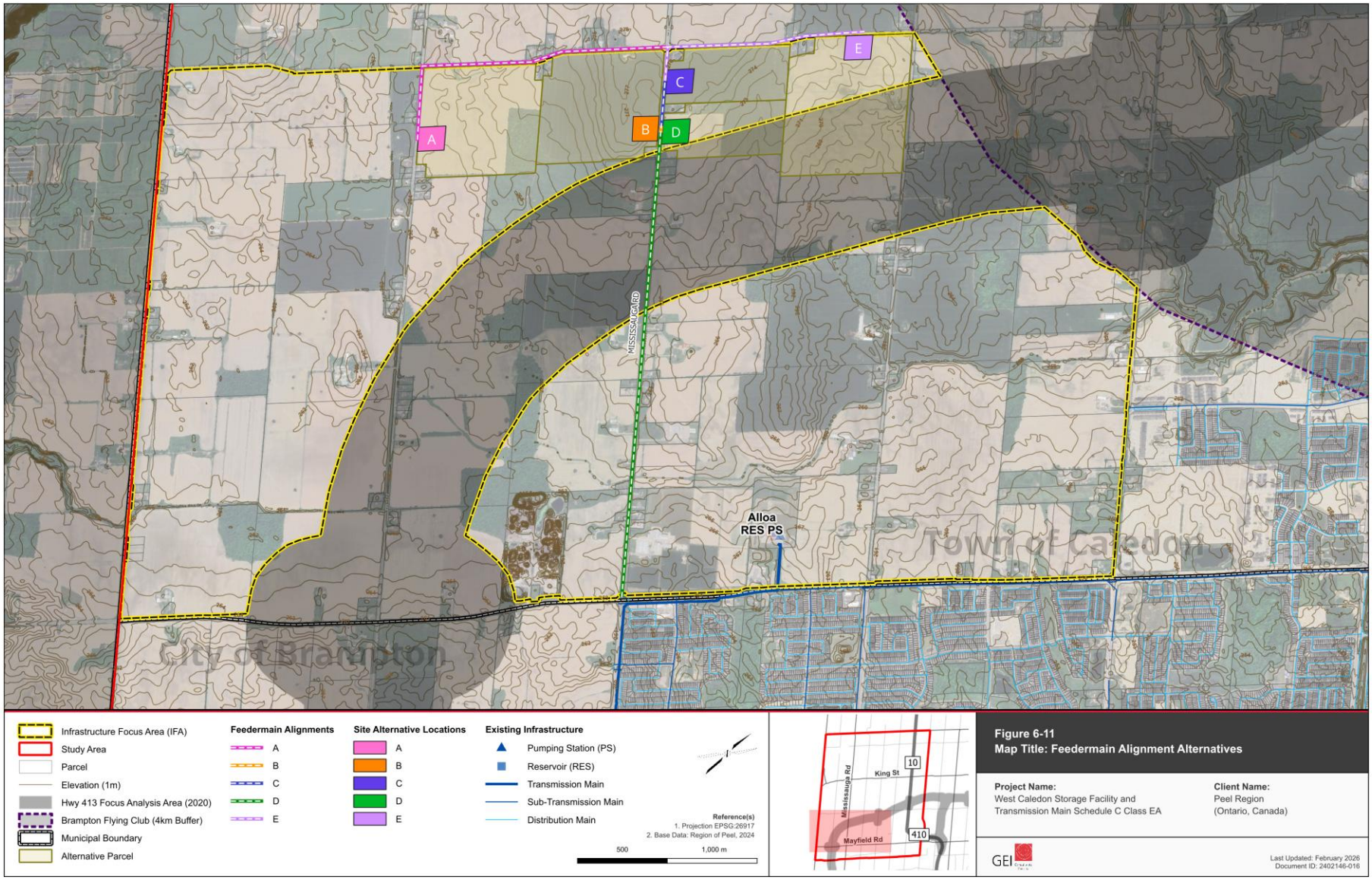

Figure 6-11: Feedermain Alignment Alternatives

It should be noted that all sites can avoid major environmental features but would require further field validation to assess potential impacts due to proximity. As well, all sites would require a Stage 2 AA and may require a Cultural Heritage Evaluation as identified in the baseline reports. All sites are privately owned, and the land uses are compatible for an elevated tank. The ground elevations for all sites are adequate and there would be marginal height differences for the elevated tank.

A summary of the evaluation for each site is described below. The detailed evaluation table is provided in **Volume 1, Appendix 1C.**

- **Site A** is located on the east side of Heritage Road, approximately 385m south of Old School Road. The site does not cross any farm field access points, however there are two adjacent farm operations. While the FAA and NAI will have little impact on the future agricultural viability of the lot, the elevated tank would require the loss of 2-ha of systematic tile drainage for the property. The site is not located within a vulnerable area; therefore, the risk of groundwater contamination is low, however there is potential for high inflows if deep open-cut excavations are required below the groundwater table that encounter aquifers. The site is further from the service area and the Alloa Reservoir and Pumping Station which may impact water quality mitigation needs and operations, and the construction of the transmission main/feedermain alignments will require the highest capital cost.
- **Site B** is located on the west side of Mississauga Road, approximately 435m south of Old School Road. The site does not cross any farm field access points, however there is one adjacent farm operation. Similar to Site A, the FAA and NAI will have little impact on the future agricultural viability of the lot, but the siting of the elevated tank would require the loss of 2-ha of systematic tile drainage for the property. The site is not located within a vulnerable area; therefore, the risk of groundwater contamination is low, however there is potential for high inflows if deep open-cut excavations are required below the groundwater table that encounter aquifers. However, this site is one of the closest to the service area and the Alloa Reservoir and Pumping Station which will benefit water quality operations and will require less capital cost to construct the transmission main/feedermain alignments.
- **Site C** is located on the east side of Mississauga Road, approximately 135m south of Old School Road. The site crosses a farm field access point on Mississauga Road. Although the proposed FAA and NAI will have little impact on the future agricultural viability of the lot, the configuration and location of the site may cause the remaining lot to be managed less efficiently for agricultural uses due to the smaller size of the property. The site is not located within a vulnerable area; therefore, the risk of groundwater contamination is low, however there is potential for high inflows if deep open-cut excavations are required below the groundwater table that encounter aquifers. The site is further from the service area and the Alloa Reservoir and Pumping Station compared to Site B and Site D therefore the construction of the transmission main/feedermain alignments will require higher capital cost.

- **Site D** is located on the east side of Mississauga Road, approximately 470m south of Old School Road. The site does not cross any farm field access points. The site is adjacent to the proposed FAA and NAI (located within property) which may decrease existing agricultural land/future land use fragmentation and support siting of similar infrastructure/utilities land uses. The siting of the elevated tank would not require any loss of systematic tile drainage for the property. The site is not located within a vulnerable area; therefore, the risk of groundwater contamination is low, however there is potential for high inflows if deep open-cut excavations are required below the groundwater table that encounter aquifers. This site is the closest to the service area and the Alloa Reservoir and Pumping Station which will benefit water quality operations and will require the least capital cost to construct the transmission main/feedermain alignments.
- **Site E** is located on the south side of Old School Road, approximately 275m west of Creditview Road. The site does not cross any farm field access points, however there are two adjacent farm operations. The site is located just north of proposed FAA and NAI (crossing a small portion of the property at the southeast corner), but the siting of the elevated tank would require the loss of 1-ha of systematic tile drainage for the property. The site is not located within a vulnerable area; therefore, the risk of groundwater contamination is low, and there is a lower potential for high inflows if deep open-cut excavations are required below the groundwater table. Similar to Site A, the site is further from the service area which may impact water quality mitigation needs and operations, the transmission main/feedermain alignments are longer and will require higher capital cost.

Using the systematic approach outlined in this section, the detailed evaluation of the five short-listed sites determined that all sites are technically viable alternatives as they meet the minimum site requirements. However, following consideration of the varying criteria and differing factors based on merit, **Site D** was selected as the recommended site for the elevated tank. Key benefits include:

- The site avoids major natural environment features, setbacks and SWP areas;
- There are no road ROW farm field access points to the parcel;
- The site is adjacent to the proposed Highway 413 FAA and transmission hydro corridor NAI, and therefore there is an opportunity to decrease existing agricultural land/future land use fragmentation and support siting of similar infrastructure/utilities together;
- There is no loss of systematic tile drainage;
- The site is closest to the service area which will benefit water quality operations; and,
- The transmission main alignment is the most direct route and will require the least capital cost.

6.4.2.1 Discussions with Property Owners

Further to earlier attempts of contact with property owners outlined in **Section 6.4.1.2**, prior to PIC No. 2, Letters of Interest were sent out to all property owners within the IFA on August 31st, 2023. The property owners of the five short-listed sites were individually notified to request a meeting to initiate discussions and were invited to attend the PIC No. 2 event. Property owners of Parcel 1 (Site A), Parcel 3 (Site C), and Parcel 4 (Site D) attended PIC No. 2. The RPCA team also contacted the property owners of the five short-listed sites to initiate discussions.

PIC No. 2 was held on September 20, 2023, at the Margaret Dunn Valleywood Library and Community Room. PIC No. 2 presented the study progress, the long list of properties (concept areas) and evaluation, the short list of parcel alternatives and evaluation, and the preliminary preferred parcel as Parcel 4. The location of the site alternatives was not shown during PIC No. 2.

6.4.2.2 Post-PIC Sensitivity Analysis

Following PIC No. 2, the site alternatives were re-examined based on the feedback received from stakeholders and the public. In response to the comments, two site alternatives (Site B and Site C) were refined within their respective parcels to better account for newly identified opportunities and constraints, including environmental, technical, and socio-economic considerations. These refined alternatives were then subjected to a comprehensive evaluation. This included a comparative analysis based on the set of established criteria. Existing desktop studies and background reports were used to support the re-evaluation of the refined site alternatives, ensuring that the assessment was consistent and considered the existing conditions of the study area.

The identification of the short list of sites in Step 4 and the evaluation of the short list of sites in Step 5 is the final outcome following the post-PIC sensitivity analysis. The re-evaluation confirmed that Parcel 4 (Site D) is the preliminary preferred location to site the elevated tank.

6.5 Transmission Main and Feedermain Alignment Alternatives

Based on the evaluation presented in **Section 6.4.2**, the preliminary preferred site for the elevated tank resulted in the selection of Parcel 4 (Site D). This site will be connected via.one of several transmission main alternatives to integrate with the existing Alloa Reservoir and Pumping Station at 1278 Mayfield Road, Caledon. The transmission main will supply water from the Alloa facility to the elevated tank at Site D, where it will store the water prior to being distributed. A feedermain will also be required to supply water from the elevated tank at Site D to the existing water distribution system along Mayfield Road, where it will be delivered to residents/businesses. To minimize impacts to the environment and community, both the transmission main and feedermain alignments will use the same corridor. Therefore, the evaluation and selection of the transmission main will support the selection of the alignment of the feedermain. The alignments may require an easement and will utilize a combination of road ROW of the following road options:

- Mayfield Road (E-W), between Heritage Road and Creditview Road;
- Old School Road (E-W), between Heritage Road and Creditview Road;
- Heritage Road (N-S), between Mayfield Road and Old School Road;
- Mississauga Road (N-S), between Mayfield Road and Old School Road; and,
- Creditview Road (N-S), between Mayfield and Old School Road.

6.5.1 Step 6: Evaluation of Transmission Main Alignments

Three different routes were conceptually considered for the preferred alignment of the transmission main.

- **Alignment 1 – Heritage Road:** West along Mayfield Road, north along Heritage Road, east along Old School Road, then south along Mississauga Road.
- **Alignment 2 – Mississauga Road:** West along Mayfield Road, then north along Mississauga Road.
- **Alignment 3 – Creditview Road:** East along Mayfield Road, north along Creditview Road, west along Old School Road, then south along Mississauga Road.

These alignment options are visually shown in **Figure 6-12** and described above. **Table 6-11** provides the evaluation of the transmission main alignment alternatives using an equally weighted five-point criteria including the natural environment, socio-economic and cultural heritage, policies and jurisdictional areas, technical suitability, and economic consideration.

Alignment 2 (Mississauga Road) was ultimately selected as the preferred alignment from the Alloa Reservoir and Pumping Station to Site D due to having the least number of constraints and disruptions.

Table 6-11: Evaluation of Transmission Main Alternatives

	Alignment 1 – Heritage Road	Alignment 2 – Mississauga Road	Alignment 3 – Creditview Road
Natural Environment	✗ A locally significant wetland is located directly adjacent to the alignment. ✓ A watercourse is located adjacent to the alignment (N-S), no crossing required.	✓ Two minor watercourse crossings require tunnelled construction.	✓ Two minor watercourse crossings require tunnelled construction. ✗ Two provincially significant wetlands are located directly adjacent to the alignment (crossing may be required). ✗ Woodlands are located adjacent to this alignment.
Socio and Cultural Heritage	✗ Potential for disruption along Heritage Road is anticipated to be moderate.	✓ Potential for disruption along Mississauga Road is anticipated to be low.	✗ Potential for disruption along Creditview Road is anticipated to be high.
Policies and Jurisdictional Areas	✗ The alignment transects CVC regulated area; a permit may be required for works near watercourse/ wetland.	✗ The alignment transects TRCA regulated area; permit may be required for watercourse crossings.	✗ The alignment transects TRCA regulated area; permit may be required for watercourse crossings.
Technical Suitability	✗ Longest alignment option to Site D. ✓ Alignment may require tunnelled construction adjacent to wetland (setbacks may be required).	✓ Shortest alignment option to Site D. ✗ Alignment requires tunnelled construction to cross watercourses; increase in complexity and risk of construction.	✗ Shorter alignment option to Site D compared to Alignment 1. ✗ Alignment requires tunnelled construction to cross watercourses and potentially the PSW; significantly increases complexity and risk of construction.
Economic Consideration	✗ Longest alignment option to Site D; highest costs compared to Alignment 1 and 2.	✓ Shortest alignment option to Site D; lowest costs compared to Alignment 1 and 3.	✗ Shorter alignment option to Site D compared to Alignment 1; lower costs compared to Alignment 1, however higher costs compared to Alignment 2.
Score	Less Preferred	**Preferred**	Least Preferred

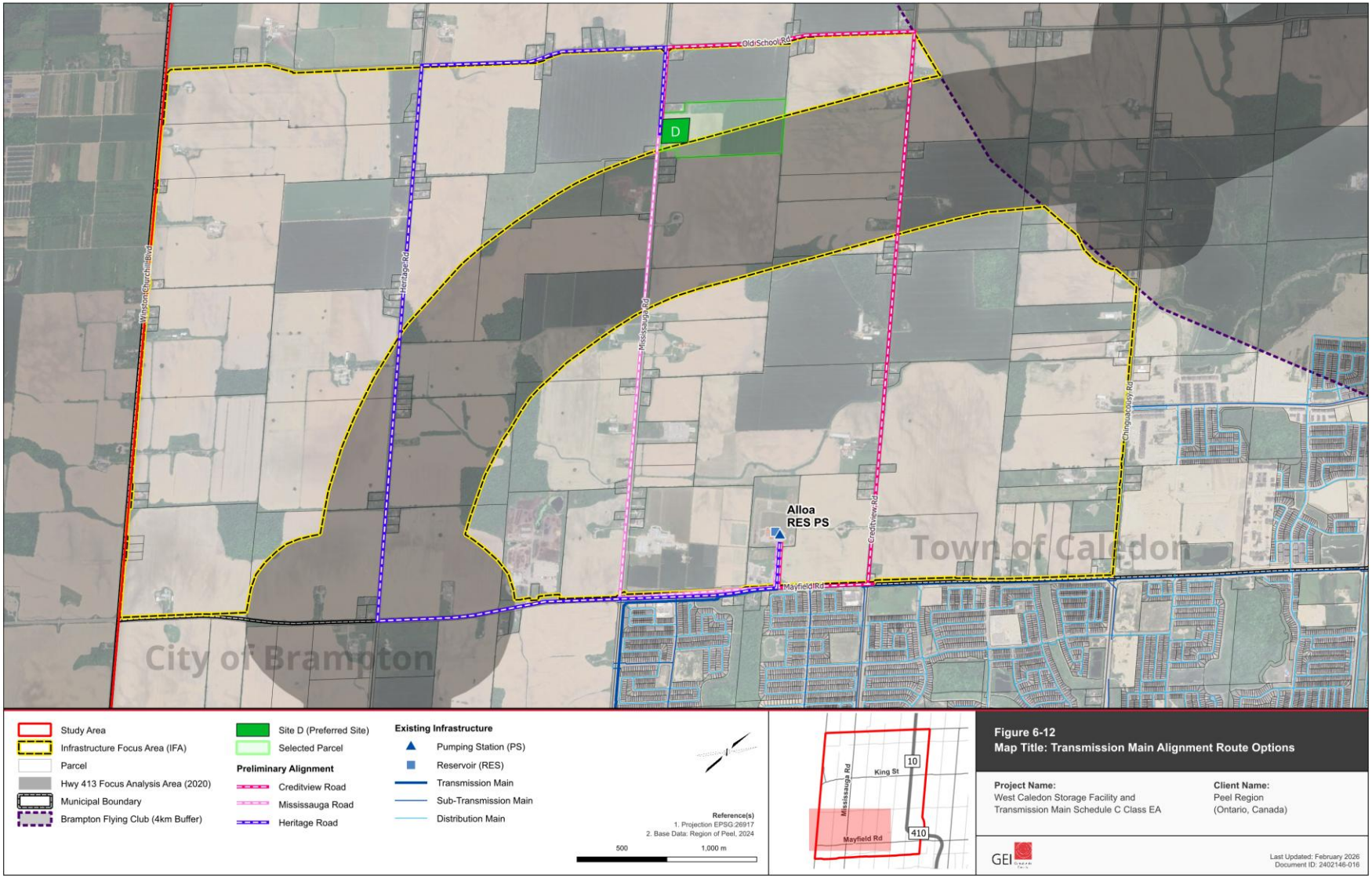

Figure 6-12: Transmission Main Alignment Route Options

PIC No. 2 was held at the conclusion of Step 7 on September 20th, 2023. Additional details outlining the notification and consultation of PIC No. 2 are discussed in **Section 3.5.3.3.1.** Responses and comments from the PIC No. 2 were reviewed and incorporated into the final preliminary preferred solutions.

6.5.2 Step 7: Select the Feedermain Alignment

The selection of the preferred feedermain alignment was dependent on the evaluation and selection of the transmission main alignment as both alignments would follow the same route to minimize impacts and streamline construction. Similar to the transmission main alignment, the feedermain alignment will use Mississauga Road. The preferred feedermain alignment will start at the elevated tank site (Site D), then extend south along Mississauga Road, where it will connect to the existing distribution system at Mississauga Road and Mayfield Road.

6.6 Preferred Solution

The preferred solution, shown in **Figure 6-13**, includes the following components:

- New elevated tank located on a 2 hectare site fronting Mississauga Road, south of Old School Road.
- New transmission main west along Mayfield Road and north along Mississauga Road to the elevated tank site.
- New feedermain from the elevated tank site south on Mississauga Road and connect into the water distribution system at Mississauga Road and Mayfield Road.

This solution was further refined during Phase 3 of the Class EA process to select the preferred design concept to implement the solution (see **Section 7.0**).

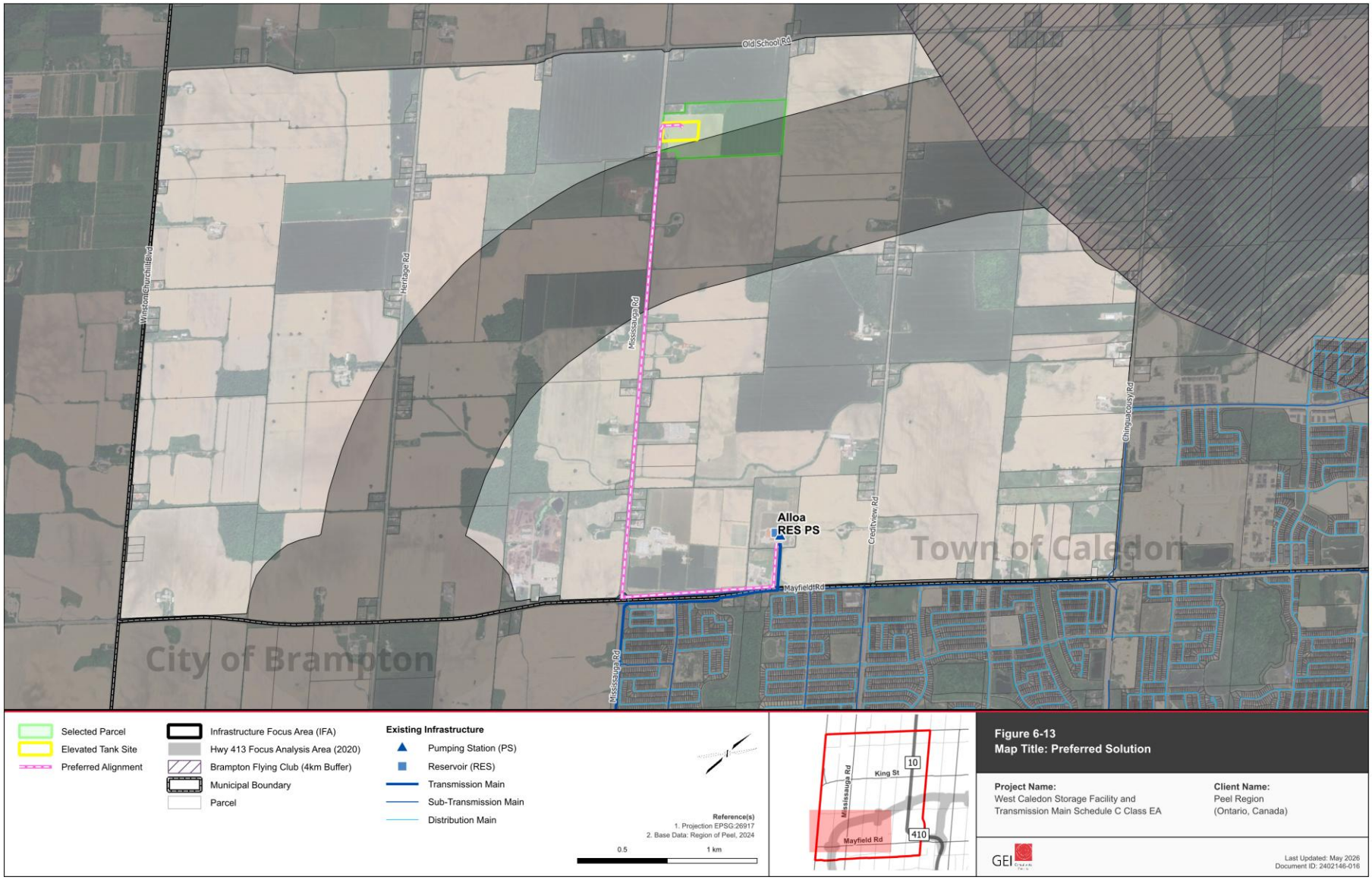

Figure 6-13: Preferred Solution

7.0 PHASE 3 – DESIGN CONCEPT ALTERNATIVES

Phase 3 of the Class EA process examines the various ways of designing and implementing the preferred solution. Phase 3 generally answers the questions:

> What will the solution look like? What are the potential impacts?

This phase of the Class EA process reviews the alternative methods of implementing the preferred strategy while considering input from the public and other stakeholders. The objective is to determine what infrastructure is required, where it will be constructed, and how. This phase includes the following:

- Identification of design concept alternatives;
- Evaluation of design concept alternatives using comprehensive evaluation criteria;
- Selection of preliminary preferred conceptual design and technologies;
- Identification of impacts and mitigation measures;
- Consultation through Public Information Centre No. 3; and,
- Confirmation of the preferred conceptual design and technologies.

The alternative design concepts for the West Caledon Class EA consist of three major components of the proposed solution, including: the elevated tank location and layout, transmission main alignment location and construction methodology, and feedermain alignment location and construction methodology.

The methodology used to evaluate the alternatives of each of the three components was founded on the key decision-making principles of the Class EA process, considering natural environment, social and cultural impacts, policies and jurisdictional areas, technical feasibility, and economic considerations.

The evaluation was carried out as a coordinated assessment, whereby the elevated tank site requirements were considered in conjunction with the transmission main and feedermain alignment requirements.

7.1 Elevated Tank

The preferred strategy for the elevated tank was selected through the completion of Phase 2 of the Class EA process. This option included the selection of Site D (located on Parcel 4) as the preferred site for the elevated tank and ancillary components. Through Phase 2, it was determined that the ideal size of the facility site would be 2 hectares to accommodate for the elevated tank, access, emergency and stormwater infrastructure, and ancillary components.

The 10 ML elevated water storage tank is proposed to be approximately 54.2 metres tall at a base elevation of 275.5 metres and top water level (TWL) of 327.7 metres, with a shaft diameter of 18.3 metres and a tank bulb diameter of 35.6 metres, as conceptually shown in **Figure 7-1**. Further details related to the structural, mechanical, and electrical work will be completed during detailed design.

7.1.1 Elevated Tank Site Plan

The preferred location for the elevated tank in West Caledon Zone 7W is a parallelogram site (20,004 sq m) located at PIN 14255-0289 (LT), with frontage on Mississauga Road. The legal description for the site is *Part of Lot 22 Concession 4 West of Hurontario Street, as per Reference Plan 43R-41603*. The site is currently active for agricultural purposes and privately owned.

The existing site is generally flat with a gentle slope to the east, and the land uses are compatible for an elevated tank. There is a separate existing farmhouse outside of the site along the northwest property boundary, and an unnamed watercourse runs through the back end of the property, requiring a minimum 30 m setback, as per TRCA requirements.

There were two key criteria that determined the layout of the elevated tank:

- The location of the elevated tank within the site includes a 100 metre buffer, as per industry guiding principles, from existing residential properties to support mitigation of shadow or aesthetic impacts; and,
- It is generally preferrable for the elevated tank to be constructed towards the middle of the site, at the highest elevation point to marginally minimize the elevated tank height.

In addition, based on the elevations at the site, the required stormwater management pond can technically drain into the unnamed watercourse to the east of the site (TRCA regulated area) or drain into the roadside ditch on Mississauga Road. To avoid further land requirements the roadside ditch was the preferred drainage location. Therefore, the stormwater management pond, with a minimum volume of 2,500 m^3, must be located adjacent to Mississauga Road to ensure proper drainage into the roadside ditch.

With the location for the elevated tank and stormwater management pond selected, the next step is to determine the optimal ancillary components configuration. Additional ancillary components within the elevated tank site include:

- Bulk water station, a 6 m x 4 m facility providing vehicles with direct access to potable water;
- Emergency overflow channel with a 5 m overflow weir, connecting the elevated tank to the stormwater management pond;
- Driveway from Mississauga Road, an 8 m paved road along the southern boundary connecting to the parking lot;
- Roundabout driveway, a 6 m paved road surrounding the stormwater management pond and providing access to the bulk water station;
- Parking lot, located behind the elevated tank, for operations and maintenance vehicles; and,
- Landscaping and appropriate grading, sloping away from the elevated tank towards the site boundaries and the stormwater management pond, ultimately draining to the roadside ditch.

7.1.2 Preferred Design Concept

Based on the above elevated tank and stormwater management criteria, as well as the additional ancillary components, **Figure 7-1** provides the preferred design concept for the site plan.

The site plan also shows the transmission main and feedermain connections to/from the elevated tank as 750 mm and 900 mm, respectively. The sizing of these pipes was confirmed through hydraulic modelling.

The feedermain requires first a 900 mm x 750 mm reducer, followed by a 750 mm x 600 mm reducer in order to transition from a 900 mm pipe to the proposed 600 mm pipe on Mississauga Road. Additionally, the pipes share an interconnection chamber on Mississauga Road prior to entering/leaving the elevated tank site.

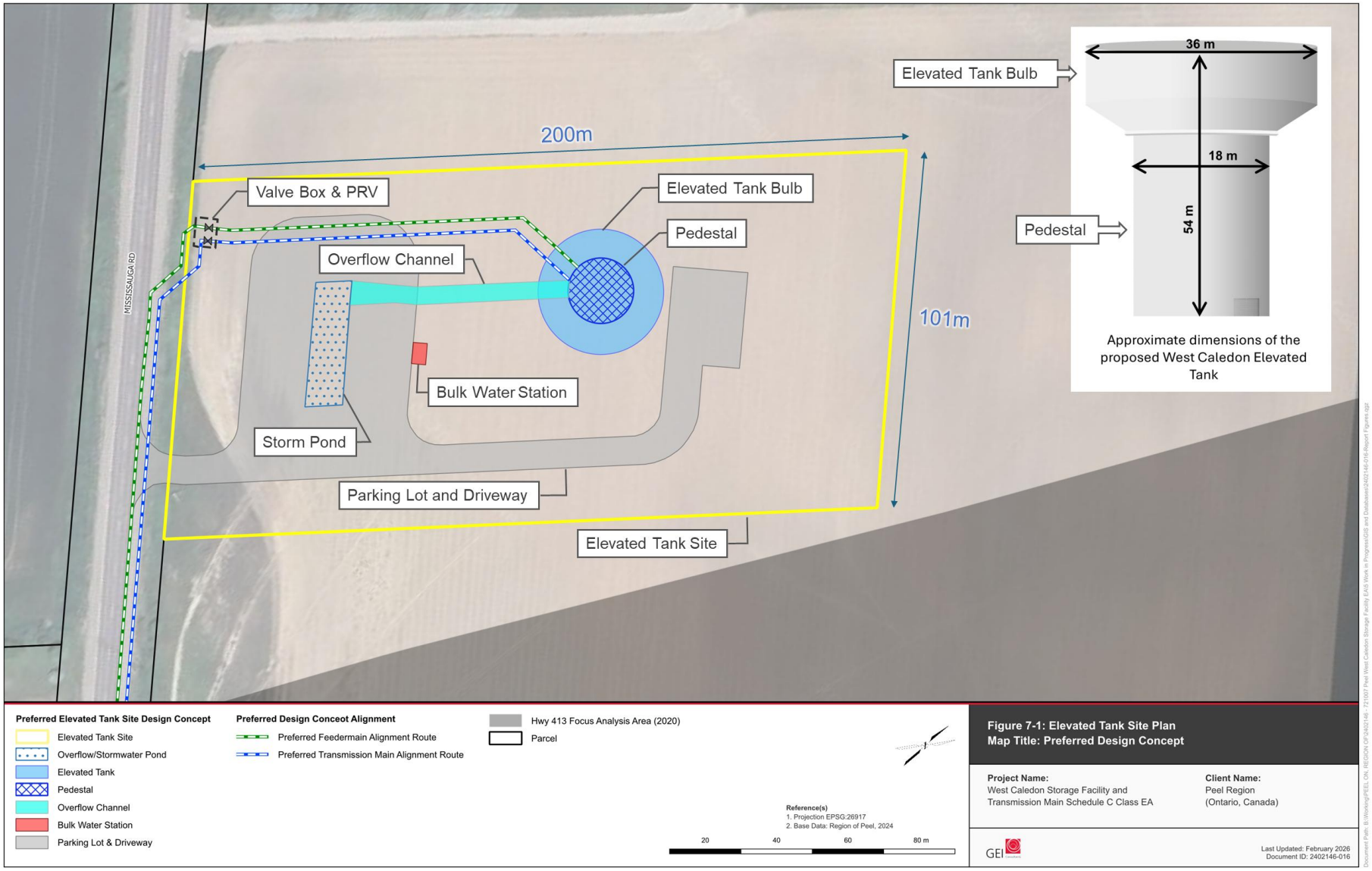

Figure 7-1: Elevated Tank Site Plan Preferred Design Concept

7.2 Transmission Main and Feedermain Alignments

The preferred linear watermain servicing strategy along Mississauga Road was selected through the completion of Phase 2 of the Class EA process. The following provides additional detail on the alignment location within Mississauga Road, construction methodology, and connection points for the transmission main at Alloa Reservoir and Pumping Station, as well as the connection point for the feedermain to the existing water distribution system on Mayfield Road.

7.2.1 Construction Methodology

There were a number of alternative construction methodologies identified for the preferred design concept. The project team considered a range of technical variables such as pipe length, pipe diameter, depth, crossings, and local network connection points. The project team considered three construction methodologies to construct the transmission main and feedermain alignments:

Trenching Technology

- Open-cut construction requires a trench to be dug and the transmission main pipe installed in the trench. Unlike Tunnel Boring Machines (TBMs) and micro-tunnelling, which operate underground, open-cut construction can potentially result in significant community and traffic impacts, as it causes increased surface disruption.

Trenchless Technology (Tunnelling)

- TBM uses specialized boring equipment to excavate beneath the surface to install the transmission main pipe. In contrast to micro-tunnelling, use of a TBM produces a larger tunnel diameter, operates at greater depths, and can accommodate longer tunnel driving lengths (resulting in fewer shafts required). A TBM is suited for boring in various soil and rock strata, favouring straight alignments which minimize turns.
- Micro-tunnelling uses drilling technology to install underground transmission main pipes. In comparison to TBMs, micro-tunnelling accommodates smaller diameter tunnels, operates at shallower depths, and requires an increased number of access shafts.
- Jack and bore uses hydraulic jacks to push a steel casing through soil. In comparison to micro-tunneling, jack and bore is simpler and cheaper for shorter distances (typically <100 metres).

A graphical illustration of open-cut versus trenchless construction methodology is shown in **Figure 7-2.**

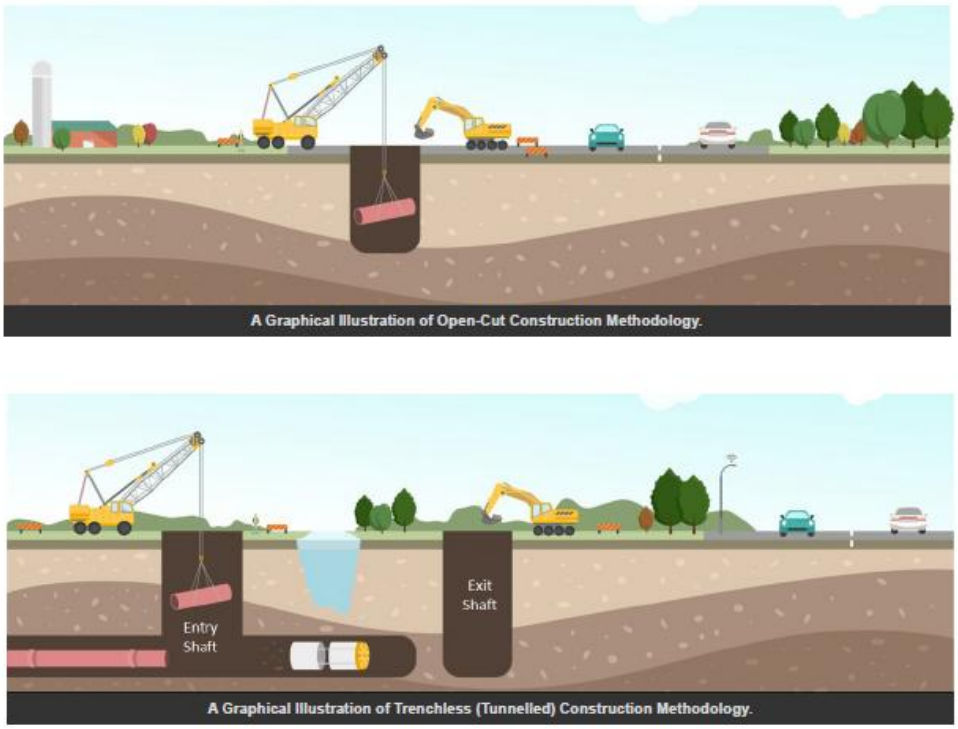

Figure 7-2: Graphical Illustration of Open-Cut vs. Trenchless Construction Methodology

As a guiding principle, open-cut construction method was considered when the depth of the pipe was less than 10 metres and there was sufficient space adjacent to the pipes so that disruption to traffic and surface activities would be acceptable. Trenchless construction was considered for the section of the alignment where traditional open-cut methodology would result in significant traffic disruption, adverse environmental or socio-cultural impacts.

The construction methodologies were evaluated with consideration for simplicity in design, with regard to watermain length, depth of cover, crossings, connection points, and required diameter of the pipe. It was determined that open-cut construction was the preferred option for the majority of the alignment due to the shallow depth of the pipe. However, there are also two crossings on Mississauga Road that will need to be tunnelled to avoid potential impacts: the Alloa Municipal Drain watercourse crossing and the future Highway 413 crossing.

It should be noted that construction of the crossing and installation of the pipeline is anticipated to have little impact on the Alloa Municipal Drain watercourse itself. During the project planning phase, discussions regarding the watercourse crossing were conducted with TRCA. As per TRCA requirements, a minimum 2.3 metres clearance will be provided between the invert of the watercourse and the obvert of the watermain pipes.

Additionally, the following alignment construction criteria were considered to develop the preferred transmission main and feedermain design concepts:

- Connection points to the existing Alloa Reservoir and Pumping Station supply and the existing water distribution system on Mayfield Road must be maintained;

- Alignments along the Regional road ROW are preferred as compared to those on private lands;
- Sufficient space should be provided for any necessary temporary working easements;
- Sufficient room should be provided to allow for construction and installation using conventional methods;
- Alignments should have land available for shaft construction staging for trenchless installations, and minimize purchase of additional land;
- Alignments should minimize construction challenges;
- Alignments should allow easy access to valves and chambers for subsequent maintenance purposes;
- Alignments should have sufficient available underground corridors to allow for the placement of the pipes using conventional construction techniques with minimum relocation of existing utilities; and,
- Alignments should consider or take advantage of other construction work occurring in the same area.

7.2.2 Mississauga Road Transmission Main Design Concept Alternatives

Based on the preferred servicing strategy for Mississauga Road, there were two design concept alternatives for the transmission main:

1. **Route Option 1:** Route from the Alloa Reservoir and Pumping Station, north towards a proposed easement, west across the easement, and north along Mississauga Road to the preferred elevated tank location. Note that this was a general strategy and further sub-route options would be assessed within the Alloa facility property should this route option be selected.
2. **Route Option 2:** Route from the Alloa Reservoir and Pumping Station, south along the driveway to Mayfield Road, west along Mayfield Road, and north along Mississauga Road to the preferred elevated tank location.

The proposed 20 m subsurface utility easement is located between the existing Alloa Municipal Drain (north) and the existing Pioneer Hi-Bred Production Limited property (south) and would need to cross two agricultural properties in order to connect the Alloa Reservoir and Pumping Station to Mississauga Road.

The Alloa Municipal Drain is a naturalized man-made municipal infrastructure constructed to improve drainage and reduce flooding of agricultural lands. It is owned and maintained by the Town of Caledon and located within the TRCA regulated area.

These route options are visually shown in **Figure 7-3** and **Table 7-1** provides the evaluation of the design concept alternatives using an equally weighted five-point evaluation criteria, including the natural environment, social and cultural heritage, policies and jurisdictional areas, technical suitability, and economic considerations.

Based on the evaluation of the design concept alternatives, **Route Option 1 (Easement)** was ultimately selected as the preferred design concept based on the shorter pipe length, lower cost, and overall fewer impacts, along with the ability to avoid Mayfield Road and the Alloa Reservoir and Pumping Station driveway, both congested infrastructure corridors.

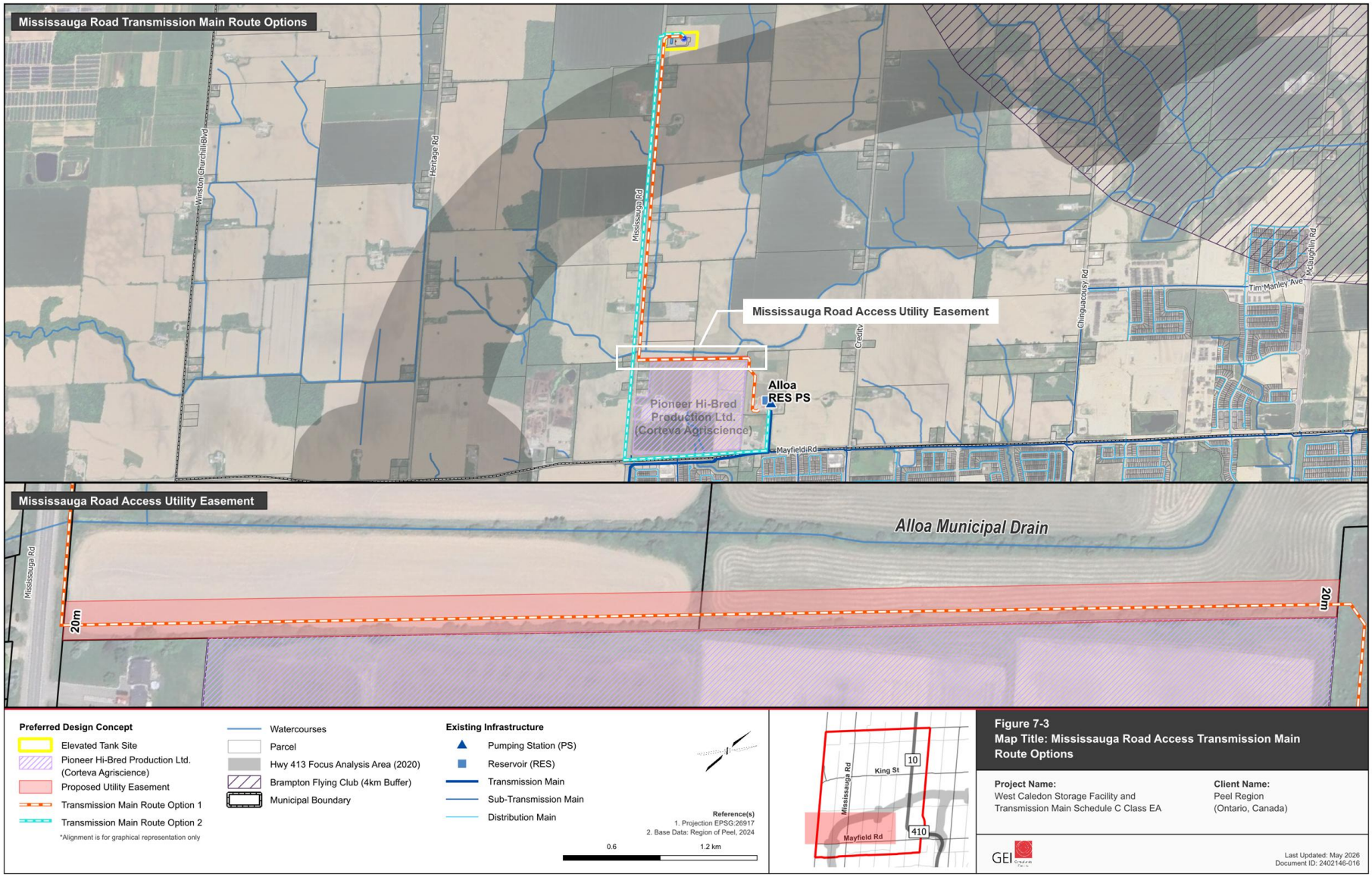

Figure 7-3: Mississauga Road Access Transmission Main Route Options

Table 7-1: Mississauga Road Access Transmission Main Route Options Evaluation

Criteria	Route Option 1	Route Option 2
Natural Environment	✓ Located adjacent to the Alloa Municipal Drain, however there is adequate area to provide a sufficient setback to the feature to avoid potential impacts	✓ Located within the road ROW, minimal impacts to natural features anticipated
Social and Cultural Heritage	✓ Avoids the heavily constrained Alloa facility driveway and Mayfield Road alignment ✓ Route Option 1 compared to 2 avoids high construction impacts to socio-economic features, including the adjacent school, and to traffic on Mayfield Road	✗ Significant traffic impacts anticipated for construction along Mayfield Road ✗ Requires alternative access road to the adjacent school, as well as to the Alloa Reservoir and Pumping Station for regular operations and maintenance
Policies and Jurisdictional Areas	✗ Requires subsurface utility easement agreement with property owners ✗ Portion of easement within the TRCA floodplain will require permitting and approvals	✗ Requires easement agreement with property owners to facilitate Alloa facility driveway widening to accommodate new pipe
Technical Suitability	✓ Easement has no existing infrastructure and thus is not constrained ✓ Easement can be wide enough to future-proof, allowing space for any future piping that may be required to accommodate growth	✗ Existing Alloa facility driveway is constrained with existing infrastructure ✗ Mayfield Road is also more constrained compared to Route Option 1 with existing and planned infrastructure ✗ Difficult to future-proof due to existing congested corridors ✗ Property required to facilitate construction and avoid both limited space in the Alloa facility driveway and constraints associated with adjacent land uses (e.g., school access)
Economic Consideration	✓ Lower capital cost due to shorter pipe length	✗ Higher capital cost due to longer pipe length
Score	**Preferred**	Least preferred

7.2.3 Alloa Property Transmission Main Design Concept Alternatives

Having selected Route Option 1 outlined above, three design concept sub-options were evaluated for the portion of the transmission main within the Alloa Reservoir and Pumping Station property, see **Figure 7-4**. These sub-options are an extension of the above selected preferred Mississauga Road transmission main design concept, which follows a 20 m subsurface utility easement connecting to the Alloa facility property boundary.

The sub-options are described below, and **Table 7-2** provides the evaluation using an equally weighted five-point evaluation criteria, including the natural environment, social and cultural heritage, policies and jurisdictional areas, technical suitability, and economic considerations.

1. **Sub-Option 1-1:** Moderately direct route following a north-south alignment close to the western side of the property boundary, then turning east to connect to the Alloa facility.
2. **Sub-Option 1-2:** Shortest, most direct route following a north-south alignment, similar to Route Option 1 but closer to the central operational areas, then curving east to connect to the Alloa facility.
3. **Sub-Option 1-3:** Longest route following an easterly then southerly alignment around the eastern side of the property boundary, then looping west to connect to the Alloa facility.

Sub-Option 1-2 was selected as the preferred route as it presents the lowest overall implementation risk; it avoids the congested Alloa Reservoir and Pumping Station driveway/parking lot, is the shortest pipe length, and allows for adequate space for simpler open-cut construction.

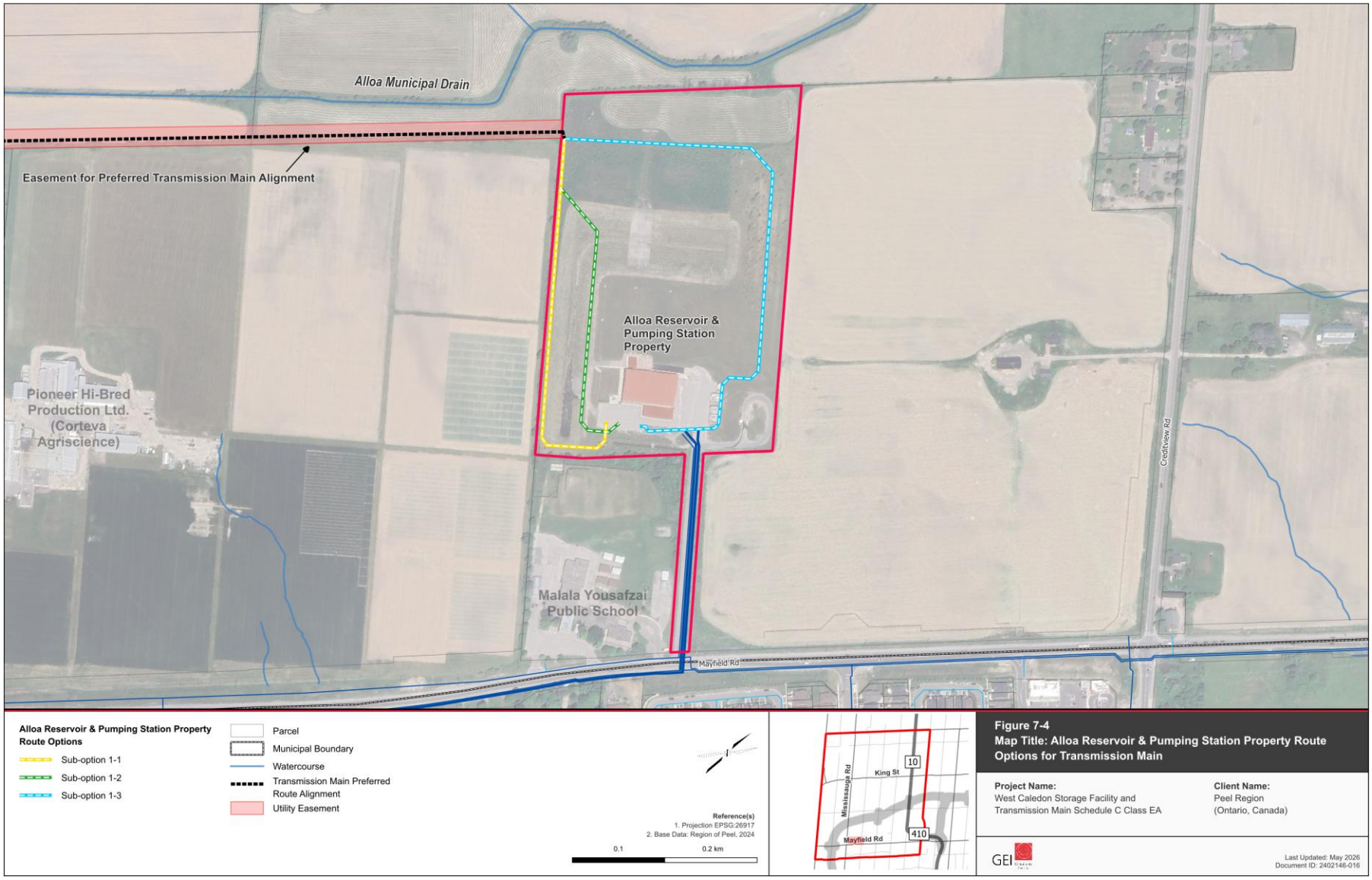

Figure 7-4: Alloa Reservoir & Pumping Station Property Sub-Options for Transmission Main

Table 7-2: Alloa Reservoir & Pumping Station Property Sub-Options for Transmission Main Evaluation

Criteria	Sub-Option 1-1	Sub-Option 1-2	Sub-Option 1-3
Natural Environment	✘ One crossing of on-site stormwater management pond	✘ One crossing of on-site stormwater management pond	✘ One crossing of on-site emergency overflow channel
Social and Cultural Heritage	✓ Avoids potential impacts to existing site operations related to driveway access	✓ Avoids potential impacts to existing site operations related to driveway access	✘ Deep crossing underneath driveway and parking lot may impact existing site operations by requiring a separate access road ✘ May have temporary interruption of access to bulk water station
Policies and Jurisdictional Areas	✘ On-site crossing may require TRCA consultation	✘ On-site crossing may require TRCA consultation	✘ On-site crossing may require TRCA consultation
Technical Suitability	✓ Avoids crossing of congested driveway/parking lot ✘ Moderate pipe length (shorter than Sub-Option 1-3; longer than Sub-Option 1-2) ✘ Transmission main constructed within berm slope ✘ Limited construction envelope at the southern limits of the stormwater infrastructure compared to Sub-Option 1-2, resulting in increased construction complexity and impact	✓ Avoids crossing of congested driveway/parking lot ✓ Shortest pipe length ✘ Transmission main constructed within berm slope ✘ More construction space is available (compared to Sub-Option 1-1)	✘ Requires deep tunnelled crossing under existing infrastructure within the congested driveway/parking lot ✘ Relocation of existing pipes may be required ✘ Longest pipe length with numerous elbows, resulting in more complex construction ✘ Transmission main requires protection from potential washout at overflow crossing ✓ Allows for the widest construction corridor and avoids potential space constraints on the west side of the property
Economic Consideration	✘ Moderate construction cost due to pipe length and site constraints	✓ Lowest construction cost due to shortest pipe length and simpler construction	✘ Highest construction cost due to longer pipe length, deep crossings, and complex construction
Score	Less Preferred	**Preferred**	Least Preferred

7.2.4 Feedermain Design Concept

To align with the preferred design concept for the transmission main, Mississauga Road was selected as the preferred feedermain alignment. The feedermain will connect from the elevated tank site and connect into the existing 600 mm watermain at the intersection of Mississauga Road and Mayfield Road, where it will be distributed to residents/businesses via local watermain networks. This alignment is shown in **Figure 7-5,** which minimizes impacts to the community**.** No other viable design concept alternatives were considered.

7.2.5 Preferred Design Concept

As part of the preferred design concept, the locations of the transmission main and feedermain routes were determined and outlined in **Table 7-3** and shown in **Figure 7-5**, including which side of the road is most optimal and whether it is within or outside of the existing road ROW.

Table 7-3: Transmission and Feedermain Route Selected Construction Methodology

Location	Road / Property Details	Construction Methodology
Transmission Main: Alloa Reservoir and Pumping Station connection to Alloa Municipal Drain watercourse crossing	• Within Region-owned property • Within private property easement	Open-cut
Transmission Main: Alloa Municipal Drain watercourse crossing	• Eastern side of Mississauga Road, within road ROW	Jack and bore tunnelling
Transmission Main: Alloa Municipal Drain watercourse crossing to the Highway 413 crossing	• Eastern side of Mississauga Road, within road ROW	Open-cut
Transmission Main: Highway 413 crossing	• Eastern side of Mississauga Road, outside of road ROW but within future Highway 413 road ROW	Micro-tunnelling
Transmission Main: Highway 413 crossing to elevated tank connection	• Eastern side of Mississauga Road, within road ROW • Within Region-acquired parcel of a private property	Open-cut
Feedermain Main: Elevated tank connection to Highway 413 crossing	• Within Region-acquired parcel of a private property • Eastern side of Mississauga Road, within road ROW	Open-cut
Feedermain Main: Highway 413 crossing	• Eastern side of Mississauga Road, outside of road ROW but within future Highway 413 road ROW	Micro-tunnelling

Location	Road / Property Details	Construction Methodology
Feedermain Main: Highway 413 crossing to the Alloa Municipal Drain watercourse crossing	• Western side of Mississauga Road, within road ROW	Open-cut
Feedermain Main: Alloa Municipal Drain watercourse crossing	• Western side of Mississauga Road, within road ROW	Jack and bore tunnelling
Feedermain Main: Alloa Municipal Drain watercourse crossing to approximately 325 m north of Mayfield Road	• Western side of Mississauga Road, within road ROW	Open-cut
Feedermain Main: Approximately 325 m north of Mayfield Road to existing watermain connection on Mayfield Road	• Western side of Mississauga Road, outside of road ROW but within future Mississauga Road widening ROW	Open-cut

Note that for the section that crosses the future Highway 413, the transmission main and feedermain will both be constructed using a tunnelled methodology and located on the eastern side of Mississauga Road within the future Highway 413 road ROW. This will limit the number of shafts required to support the construction of the tunnelled section. It is assumed that MTO will have acquired property related to the Highway 413 crossing prior to the construction of the transmission main and feedermain.

As well, near the intersection of Mississauga Road and Mayfield Road, the feedermain will be located outside of the existing Regional road ROW, but within the future Regional road ROW, allowing for the lane to be open during construction. The Region has acquired lands related to the Mississauga Road widening, however further review will be required prior to construction of the feedermain to determine the future ROW limits.

It should be noted that any further changes in property acquisition related to Highway 413 crossing or the future Mississauga Road widening can be addressed and looked at the design stage.

Figure 7-6, **Figure 7-7**, **Figure 7-8**, and **Figure 7-9** show the conceptual plan and profile of the preferred design for the 750 mm transmission main and 600 mm feedermain alignments, including invert elevations and shaft locations. The full package of conceptual design drawings can be found in **Volume 1, Appendix 1D**.

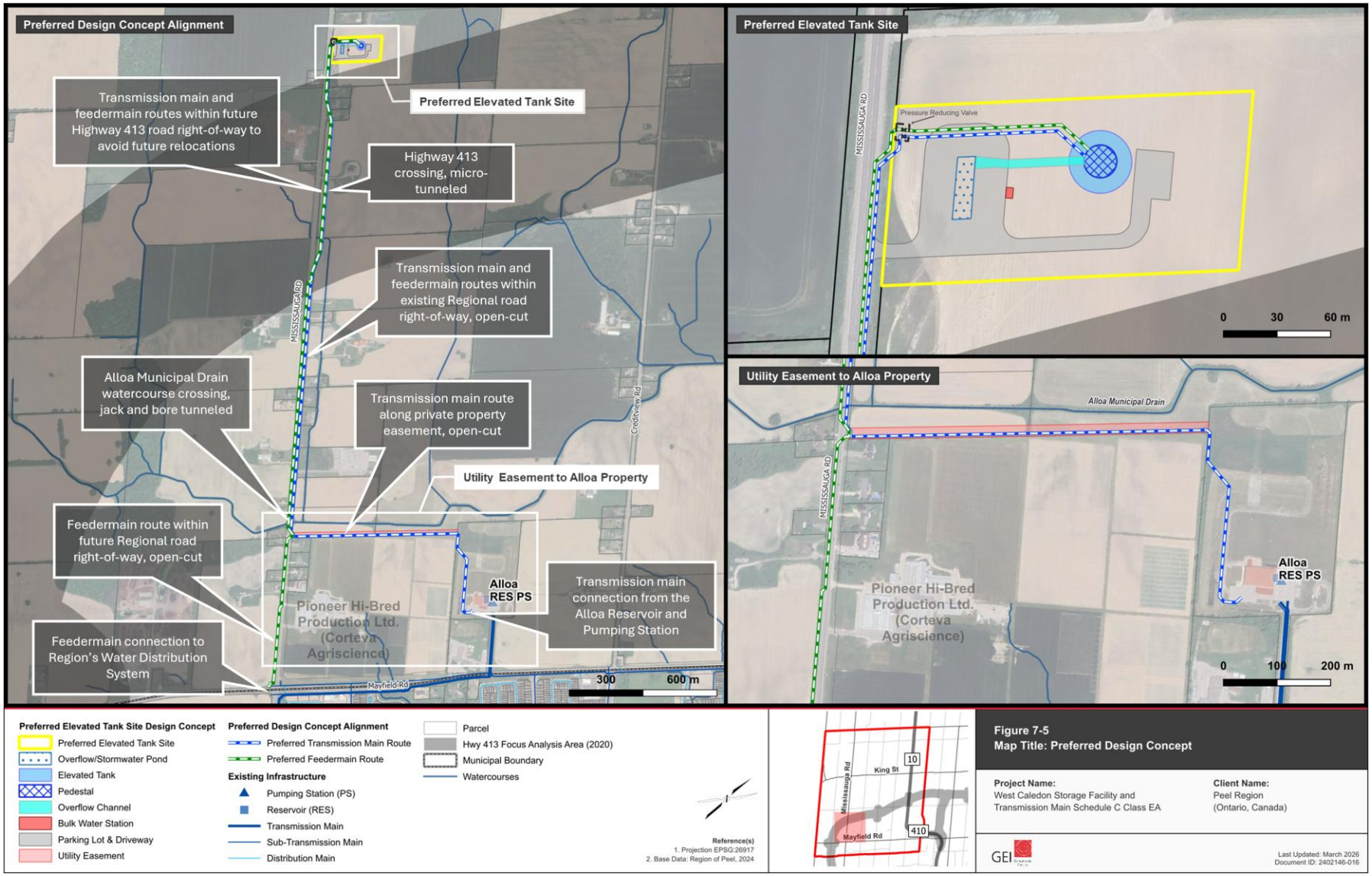

Figure 7-5: Preferred Design Concept

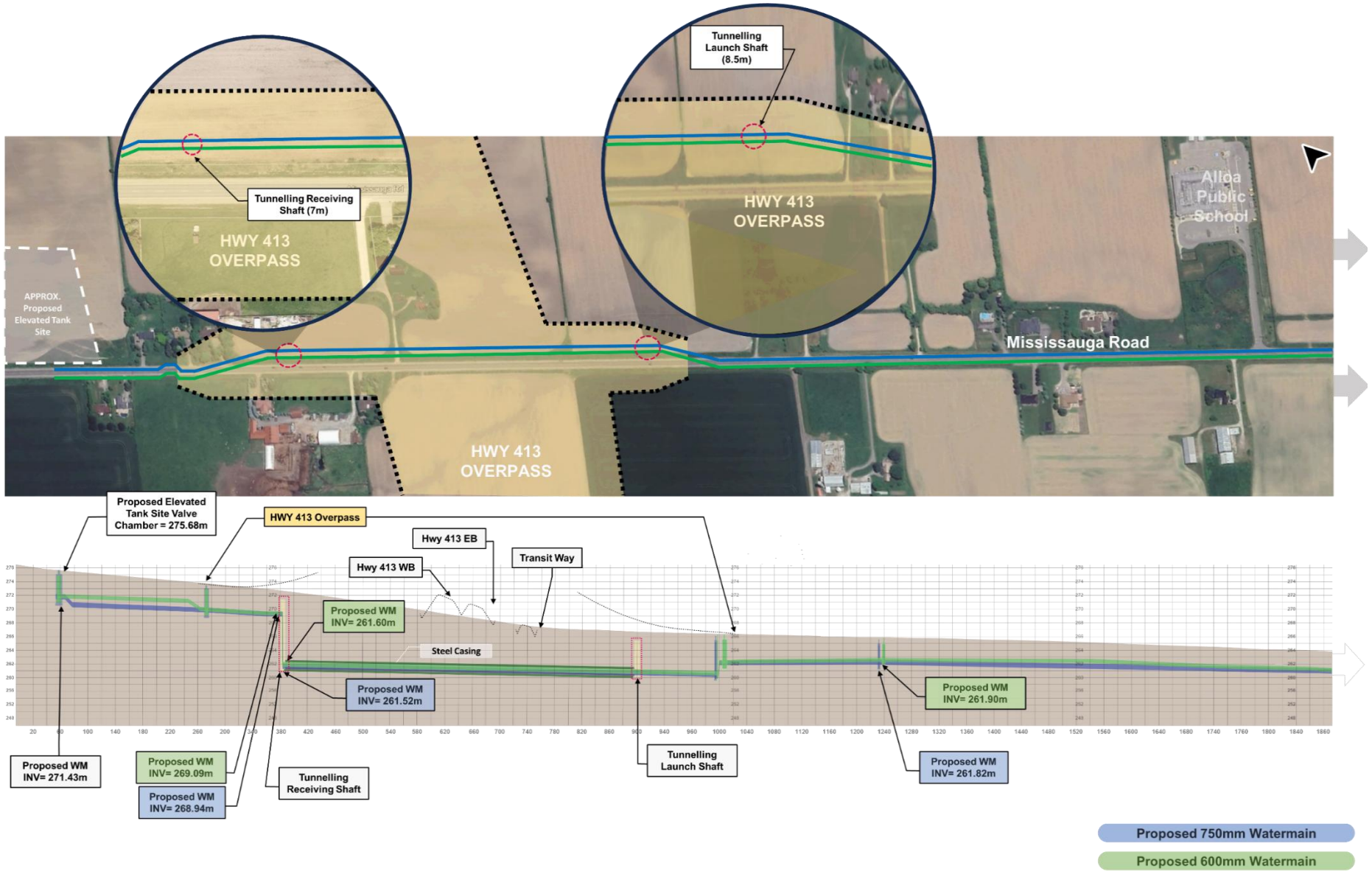

Figure 7-6: Mississauga Road Alignment Plan and Profile (1/2)

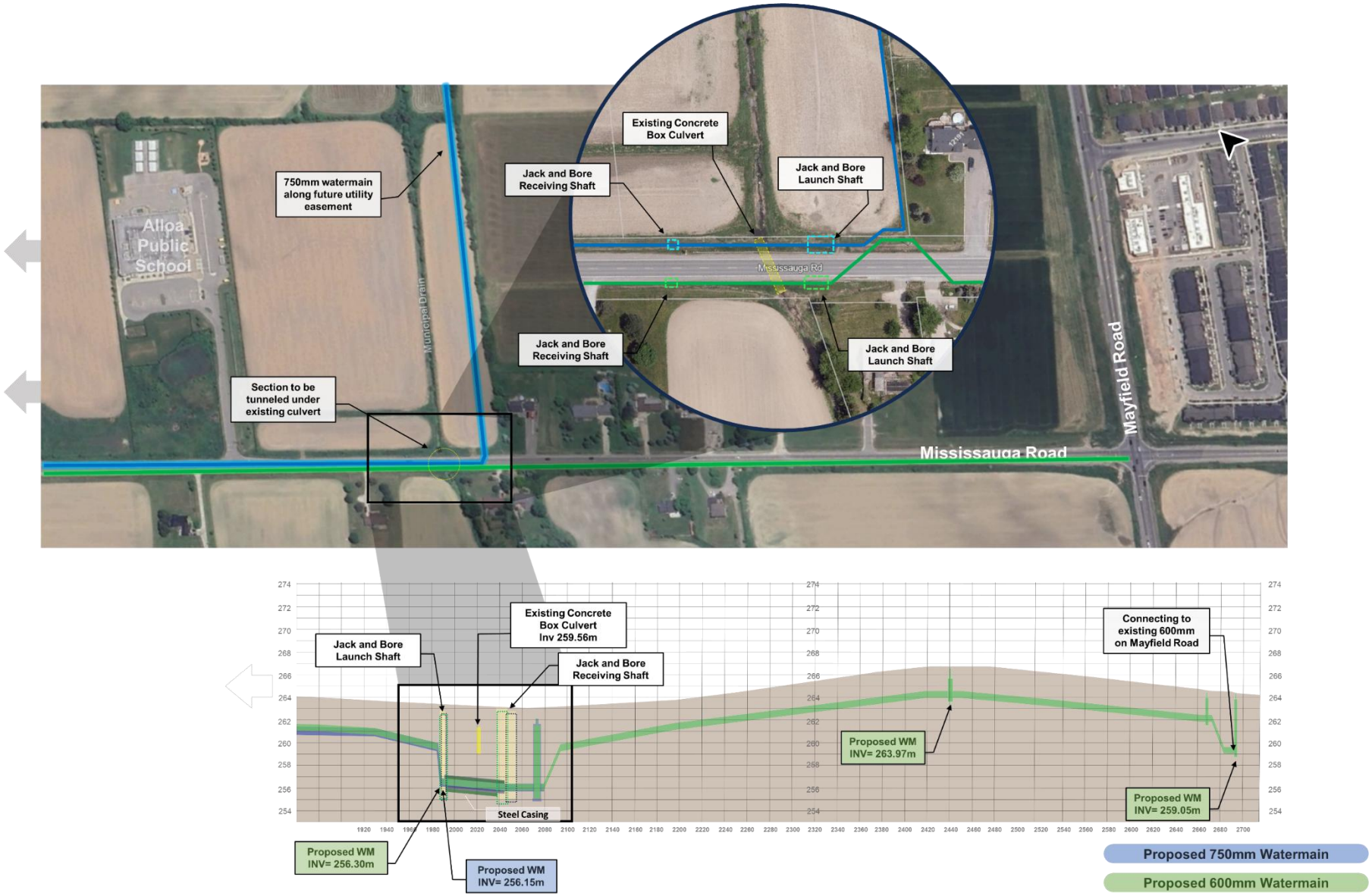

Figure 7-7: Mississauga Road Alignment Plan and Profile (2/2)

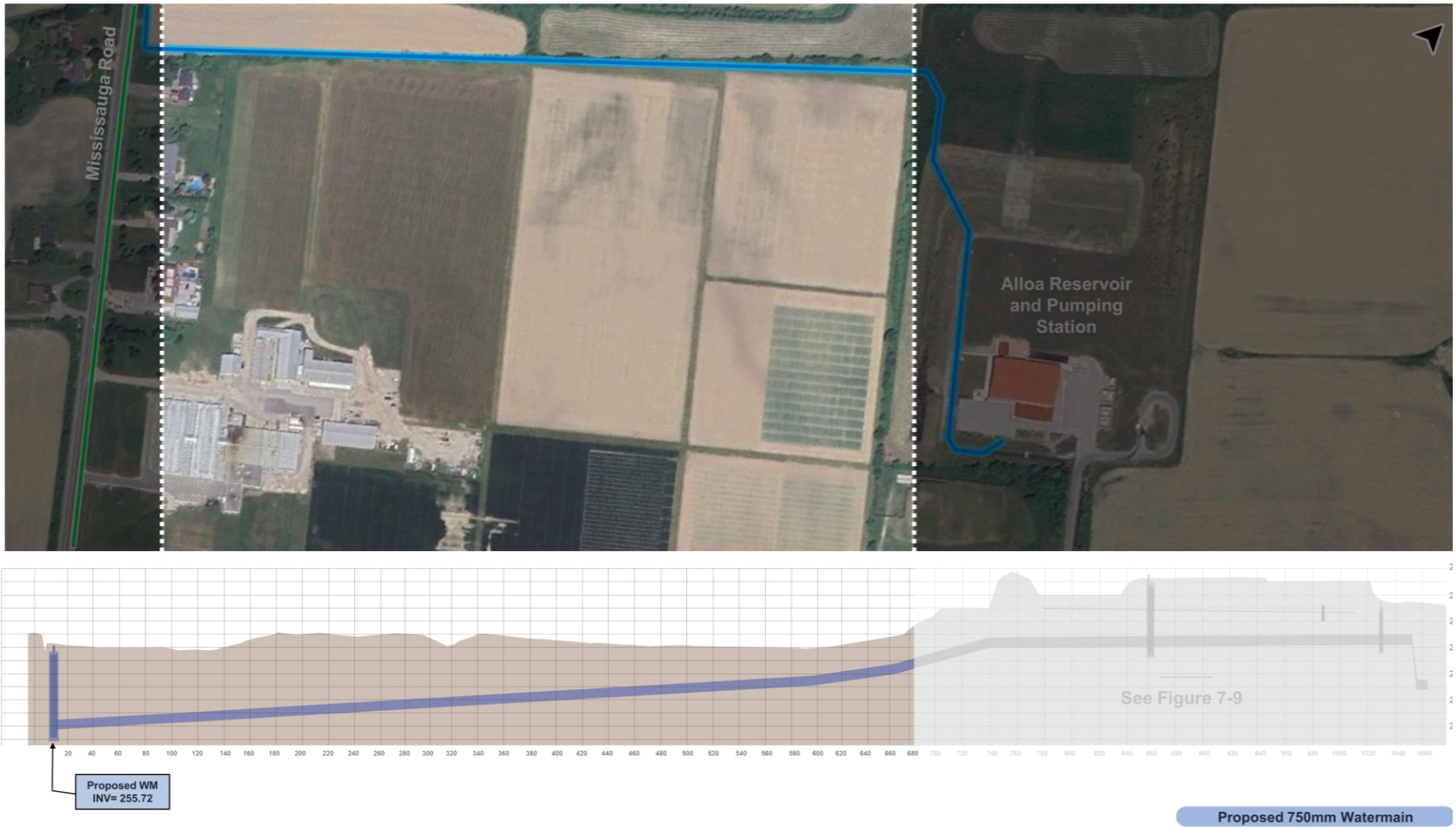

Figure 7-8: Proposed Easement Alignment Plan and Profile

Figure 7-9: Alloa Reservoir & Pumping Station Property Alignment Plan and Profile

7.3 Benefits of the Overall Strategy

The preferred design concept supports long-term servicing objectives for West Caledon Zone 7W and provides the following key benefits:

- Short-term construction impacts with long-term community benefits;
- Minimized impact to the Highway 413 crossing as well as the watercourse crossing on Mississauga Road through use of tunnelling construction technology;
- Reduced surface disturbance and land requirements by minimizing the number of tunnelling shafts;
- Provides sufficient storage and conveyance capacity to support planned development within the 2051 urban boundary;
- Optimized system that protects the environment and meets Regional design standards;
- Optimized coordination with the Town of Caledon and TRCA to facilitate construction while minimizing impact to private land and to the natural environment; and,
- Operational flexibility to access the Alloa Reservoir and Pumping Station facility, and avoids existing constraints within the Alloa facility driveway.

At the conclusion of Phase 3, PIC No. 3 was held on October 7, 2025, at the Margaret Dunn Valleywood Library and Community Room. As noted in **Section 3.5.3.4.1**, PIC No. 3 presented the evaluation and selection of the preliminary preferred design concept for the siting of the elevated tank site, transmission main route, and feedermain route, as well as the construction methodology.

7.4 Other Design Considerations

7.4.1 Future Expansion / Growth

The conceptual design of the preferred solution supports strategic long-term planning beyond the current 2051 planning horizon. The recommended elevated tank location and linear infrastructure alignments were selected based on their conformity with the current RPOP land use designation and water servicing strategy to 2051. Consistent with good engineering practice, the study also considered how the proposed infrastructure could support a broader post-2051 horizon should amendments to the service area occur.

Although the infrastructure is sized to meet the requirements of the 2051 service area, the selected elevated tank location is centrally positioned within the designated urban boundary and in proximity to potential post-2051 growth areas south of the Greenbelt. As such, the preferred siting could support a broader long-term servicing strategy for Zone 7. Any post-2051 servicing approach would require additional infrastructure upgrades and further study.

In addition, the proposed 20 m subsurface utility easement from the Alloa Reservoir and Pumping Station to Mississauga Road provides sufficient width to accommodate future linear watermain infrastructure, if required, thereby supporting long-term system flexibility.

8.0 IMPACTS AND MITIGATION MEASURES

Some additional technical studies were completed, related to the potential impacts and mitigation measures for the preferred design concept to be considered during detailed design and implementation. These studies include the Cultural Heritage Screening, the Phase 1 Environmental Site Assessment, the Traffic Assessment, and the AIA Addendum.

General considerations for climate change, the natural environment, the physical environment, and the built environment were based on existing baseline conditions and were included where further field investigations could not be completed.

The sections below summarize the potential impacts related to climate change, surface water and terrestrial features, geotechnical and hydrogeological features, cultural heritage resources, contamination, traffic, and utilities along with property requirements. The corresponding mitigation measures to be implemented prior to and during construction are also discussed for each potential impact.

8.1 Climate Change Considerations

Peel Region Council has identified climate resiliency as a priority across all Regional services. Climate change has the potential to influence infrastructure performance, reliability, and lifecycle requirements. In accordance with the MECP guidance document *Considering Climate Change in the Environmental Assessment Process*, climate change considerations were incorporated into the evaluation of alternatives and the development of the preferred design concept.

The following sections summarize:

- Potential impacts of climate change on the proposed water infrastructure (adaptation); and,
- Considerations to minimize GHG emissions and support climate change mitigation during implementation of the preferred design concept.

8.1.1 Potential Impacts on the Water System

Climate change adaptation assesses the resilience or vulnerability of the proposed water system to changing climate conditions and focuses on understanding and managing these risks. These climate conditions can significantly impact the performance, reliability, and long-term sustainability of water infrastructure:

- **High Temperatures:** Increased temperatures can affect both water quantity (through elevated demand and evaporation) and water quality (through warmer water temperatures and the potential for algal growth).
- **Drought:** Reduced frequency of wet weather events can lead to water quality issues, limit supply availability, and increase stress on groundwater and surface water sources.
- **Freeze–Thaw Cycles:** Variability in winter temperatures can cause repeated freeze–thaw cycles, increasing the risk of damage to buried infrastructure such as watermain pipes.
- **Wind:** Severe wind events may increase the likelihood of power outages affecting water system operations.

- **Water Levels and Flooding:** Increased precipitation intensity may increase the risk of flooding, potentially affecting infrastructure access and operability.
- **Storms:** More frequent or intense storms may increase risks associated with infrastructure damage and power disruptions.

Based on these considerations, the preferred design concept was developed with the following adaptation principles in mind:

- Supporting the long-term resiliency and reliability of the water distribution system under projected future climate conditions;
- Providing standby power capability at the elevated tank and bulk water station 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;
- Considering further opportunities, in addition to the proposed stormwater management pond, to incorporate Low Impact Development stormwater management measures to improve infiltration and reduce runoff;
- 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 further evaluated and incorporated, as appropriate, during detailed design.

8.1.2 Potential Impacts of the Project on Climate Change

Climate change mitigation focuses on minimizing GHG emissions associated with infrastructure construction and operation. While detailed construction methods will be determined during subsequent phases of the project, the preferred design concept incorporates planning-level measures intended to reduce potential GHG emissions where feasible.

These include:

- Making best use of existing infrastructure to reduce the need for energy- and carbon-intensive construction;
- Planning for future infrastructure within existing road ROW, where possible, to reduce the extent of new disturbance and associated construction requirements; and,
- Avoiding or minimizing disturbance to natural features where practicable, consistent with environmental protection and source water protection policies.

Additional measures to minimize GHG emissions will be considered during detailed design and construction planning, which may include:

- Refining grading and site layout during detailed design to balance cut and fill volumes where feasible, reducing the need for material transport.

- Optimizing material hauling routes and sourcing materials locally, where feasible.
- Selecting appropriate construction methods and equipment to improve efficiency and reduce emissions.
- Implementing construction management practices that minimize unnecessary equipment use and idling.

8.2 Natural Environment Considerations

This Class EA relied on a review of available background information, desktop technical studies (refer to **Section 4.2** and **Volume 3, Appendix 3A**), agency consultation, and applicable policy mapping to identify natural environment features within the study area. Field investigations, seasonal surveys, and detailed impact assessments were not completed as part of this Schedule 'C' Class EA, as access to conduct further investigations was not feasible at this time in the study.

Accordingly, the following sections provide a high-level discussion of potential environmental considerations associated with implementation of the preferred design concept. Site-specific investigations, field confirmation, and regulatory review will be required during subsequent phases of the project (detailed design, permitting, and construction planning) to confirm environmental conditions and refine mitigation measures, where necessary.

Based on available information and the preliminary design concept developed through this Class EA, no significant or unmitigable natural environment impacts are anticipated, provided that standard environmental protection measures are implemented and further studies are completed as required.

The following standard best management practices represent some of the measures that may be implemented during subsequent phases of the project to minimize potential effects on the natural environment:

- Minimize the project footprint and duration to the extent feasible during detailed design and construction;
- Clearly demarcate and maintain construction limits to prevent encroachment into adjacent natural features;
- Prepare grading, drainage, and erosion and sediment control plans for construction areas;
- Implement appropriate erosion and sediment control measures prior to and throughout construction;
- Develop and implement a site-specific spill prevention and spill response plan;
- Ensure construction equipment is clean, properly maintained, and free of fluid leaks;
- Avoid storage of materials, equipment, and stockpiles adjacent to sensitive natural features;
- Use appropriate vegetation clearing techniques (e.g., directional tree felling away from retained features and watercourses);
- Remove and properly dispose of all construction-related debris and excess materials;
- Restore disturbed areas following construction using suitable stabilization measures and native seed mixes, where appropriate; and,

- Provide environmental inspection and monitoring during construction to confirm mitigation measures are implemented, maintained, and adjusted as required.

The following sections provide a high-level discussion of potential considerations related to specific components of the natural environment identified within the study area.

8.2.1 Aquatic Features and Hydrologic Functions

As described in previous sections, the study area contains surface water features, including the Alloa Municipal Drain and associated drainage infrastructure, as well as agricultural tile drainage outlets. Portions of the preferred transmission main alignment and associated infrastructure occur within or adjacent to regulated areas under the jurisdiction of the TRCA.

Potential Natural Environmental Considerations

Implementation of the preferred design concept may result in the following temporary or localized effects:

- Increased suspended sediments during open-cut construction activities in proximity to watercourses or drainage features;
- Temporary disturbance to overland flow paths or agricultural tile drainage outlets, including those from the Pioneer Hi-Bred Production Ltd. (Corteva Agriscience) property;
- Short-term changes in surface runoff patterns due to soil disturbance and compaction;
- Temporary groundwater drawdown associated with localized dewatering activities, where required; and,
- Risk of accidental spills or release of deleterious substances during construction.

Based on the preliminary design concept and available desktop information, permanent alterations to major watercourses or hydrologic systems are not anticipated, as the proposed utility easement has adequate buffer of around 30 m from the Alloa Municipal Drain. However, site-specific conditions will require confirmation during detailed design.

Potential mitigation measures may include, as appropriate:

- Installation and maintenance of erosion and sediment control measures;
- Protection, temporary support, and restoration of agricultural drainage outlets;
- Management of dewatering discharge in accordance with regulatory requirements;
- Limiting dewatering to the smallest practical area and duration;
- Obtaining applicable permits and approvals; and,
- Conducting additional site investigations to confirm hydrologic and hydrogeologic conditions.

8.2.2 Vegetation and Terrestrial Features

Section 4.2 identifies natural heritage features within and adjacent to the study area, including areas of woodland, valleylands, and portions of the Natural Heritage System as identified through applicable provincial and municipal policy mapping.

The preferred design concept generally follows existing road ROW and utility corridors where feasible; however, localized vegetation removal may be required within the easement lands, at shaft locations, within a portion of the future Highway 413 ROW and future Mississauga Road ROW, and along the property border at the elevated tank site. Compensation and replanting measures will be confirmed during detailed design, including consideration of a 1:10 replacement tree planting ratio.

Potential Natural Environmental Considerations

Potential terrestrial effects may include:

- Temporary or permanent removal of vegetation within construction limits;
- Edge effects to adjacent woodlands or natural features;
- Soil compaction and disturbance within work areas; and,
- Potential introduction or spread of invasive plant species through construction activities.

Based on the conceptual design and available mapping, direct impacts to provincially significant wetlands or large contiguous natural heritage features are not anticipated. Confirmation of feature boundaries will occur during detailed design to confirm the extent of impacts and associated mitigation.

Potential mitigation measures may include, as appropriate:

- Refinement of construction limits during detailed design to minimize vegetation removal;
- Confirmation of natural feature boundaries prior to construction;
- Preparation of tree inventory or vegetation assessment, if required;
- Implementation of invasive species prevention and management measures;
- Stabilization and revegetation of disturbed areas using appropriate native species; and,
- Avoidance of material storage and heavy equipment operation within retained natural areas.

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.

8.2.3 Wildlife, Species at Risk, and Significant Wildlife Habitat

Desktop review of available natural heritage information (refer to **Section 4.2** and **Volume 3, Appendix 3A**) indicates potential habitat for wildlife species, including species protected under the ESA and the federal SARA. Significant Wildlife Habitat and other natural heritage features have been identified through policy mapping.

Field-based Species at Risk surveys were not completed as part of this Class EA.

Potential Natural Environmental Considerations

Potential effects to wildlife and species at risk may include:

- Temporary disturbance or displacement of wildlife during construction;

- Potential removal of vegetation that may provide habitat for breeding birds; and,
- Potential presence of species at risk or habitat within or adjacent to construction areas.

Potential mitigation measures may include, as appropriate:

- Conducting breeding bird surveys where vegetation clearing is proposed within the regulated breeding season;
- Undertaking specific species at risk surveys and habitat assessments during detailed design to confirm existence (previously identified during desktop screening) and identifying detailed impacts and mitigation measures;
- Implementing timing restrictions for vegetation clearing, where applicable;
- Coordinating with the MECP if species at risk habitat is confirmed; and,
- Implementing additional mitigation or permitting requirements as identified through future studies.

Through completion of additional field investigations and regulatory review during detailed design, any potential impacts to wildlife or species at risk will be further assessed and addressed in accordance with applicable legislation.

Based on available desktop information and the preferred design concept developed through this Class EA, no significant or unmitigable impacts to natural environment features are anticipated at this time in the study. Implementation of standard environmental protection measures and completion of site-specific investigations during detailed design are expected to appropriately manage potential effects.

Further refinement of mitigation measures and confirmation of environmental conditions will occur during subsequent project phases in consultation with applicable regulatory agencies.

8.3 Physical Environment Considerations

Desktop geotechnical and hydrogeological studies were completed to develop a preliminary understanding of subsurface and groundwater conditions within the study area and along the preferred infrastructure alignments. Based on available information of the preferred design concept, potential physical environment impacts and mitigation measures/considerations are summarized in the following sections. Site-specific investigations will be undertaken during subsequent project phases to confirm conditions and refine design and construction requirements, as needed.

8.3.1 Geotechnical Impacts

A Geotechnical and Hydrogeological Desktop Study (**Volume 3 - Appendix 3B**) was completed to establish a preliminary understanding of subsurface conditions along the preferred Mississauga Road transmission main alignment and at the preferred elevated tank location (Site D). The study was based on available background borehole records and regional geological information. No new field investigations were undertaken as access to Site D was not obtained at this stage of the project.

The Desktop Study indicates that the Mississauga Road alignment is anticipated to be underlain primarily by glacial till deposits (Halton Till), consisting generally of silty clay to clayey silt till with localized sand and gravel layers, overlying shale bedrock of the Queenston Formation. Bedrock is generally anticipated between approximately 17 m and 29 m below ground surface along most of the alignment, with locally shallower bedrock identified near the intersection of Mississauga Road and Mayfield Road based on background borehole information.

At the elevated tank site, Halton Till is anticipated near surface, underlain by deeper soil units and shale bedrock at approximately 15 m depth based on available regional data.

Based on these findings, potential geotechnical considerations associated with construction of the preferred design concept are summarized in **Table 8-6**. These considerations are preliminary and will be confirmed and refined through site-specific geotechnical investigations during detailed design.

Table 8-1. Geotechnical Potential Impacts and Mitigation

Potential Impact	Potential Mitigation Measures / Considerations
Variability in Bedrock Depth Along Mississauga Road Bedrock is generally anticipated at 17–29 m depth but may be locally shallow (~5–6 m) near Mississauga Road and Mayfield Road.	• Confirm bedrock elevation and rock conditions through investigations during detailed design. • Refine construction approach, where necessary, to account for confirmed bedrock conditions.
Presence of Glacial Till (Halton Till) Near Surface Halton Till is anticipated along the alignment and at the elevated tank site. Cobbles and boulders may be present within glacial till deposits.	• Anticipate variable excavation conditions within till deposits. • Construction methods and equipment selection to be refined during detailed design based on confirmed subsurface conditions.
Foundation Requirements for the Elevated Tank The Desktop Study indicates that heavy loaded foundations may require a raft or deep foundation system depending on soil conditions.	• Conduct site-specific geotechnical investigation to determine bearing capacity and settlement characteristics. • Final foundation type and design to be confirmed and optimized during detailed design based on investigation results.

Site-specific geotechnical investigations will be completed during subsequent design phases to support detailed design of the preferred works. These investigations will confirm subsurface conditions along the preferred alignment and at the elevated tank site, and will support refinement of construction methods and foundation design, as required.

8.3.2 Hydrogeological Impacts

A Hydrogeological Desktop Report was completed to establish a preliminary understanding of groundwater conditions along the preferred Mississauga Road transmission main alignment and at the preferred elevated tank site, and to identify potential hydrogeological considerations associated with implementation of the preferred design concept (**Volume 3, Appendix 3F**). The study was based on review of available well records, regional hydrogeologic mapping, previous investigations, and conceptual design information. No new hydrogeological field investigations were undertaken as part of this Class EA.

Available information indicates that groundwater levels within the study area may be encountered approximately 2 m to 11 m below ground surface, while the proposed transmission main and feedermain excavations are anticipated to extend approximately 3 m to 6 m below ground surface, and elevated tank foundation excavations approximately 4 m to 6 m below ground surface. As a result, groundwater may be encountered during construction, and localized dewatering may be required.

Portions of the preferred alignment are located within HVAs, and a SGRA occurs in proximity to the elevated tank site. These areas are more sensitive to surface contamination and require appropriate management of construction-related activities.

Based on the desktop review and preliminary design information, potential hydrogeological considerations associated with construction of the preferred design concept are summarized in **Table 8-7**. These considerations are preliminary and will be confirmed and refined through site-specific hydrogeological investigations, monitoring, and regulatory review during subsequent phases of the project.

Table 8-2. Hydrogeological Potential Impacts and Mitigation

Potential Impact	Potential Mitigation Measures / Considerations
Construction dewatering requirements. Excavations for the transmission main, feedermain, shafts, and elevated tank foundation may encounter groundwater, requiring temporary dewatering.	• Confirm groundwater levels and hydraulic conditions through site-specific hydrogeological investigations during detailed design. • Design and implement appropriate dewatering systems to maintain safe and stable excavation conditions. • Limit the extent and duration of dewatering to the minimum necessary.
Ground settlement associated with groundwater drawdown. Dewatering activities may cause localized groundwater level reductions, which could result in ground settlement depending on soil conditions.	• Assess potential settlement risks during detailed design based on site-specific subsurface and groundwater conditions. • Implement groundwater monitoring, where warranted, during construction. • Refine dewatering approach to minimize drawdown effects.

Potential Impact	Potential Mitigation Measures / Considerations
Potential effects on private groundwater wells. Existing private wells are present within the broader study area and could be temporarily affected by groundwater drawdown.	• Conduct a baseline private well survey during detailed design, where required. • Monitor groundwater levels and well performance, if warranted. • Develop contingency measures, such as temporary water supply or well restoration, if impacts are identified.
Potential groundwater quality considerations during dewatering. Dewatering activities may mobilize inorganic or organic contaminants, if present, within the zone of influence.	• Complete a contaminant overview study during detailed design to evaluate groundwater quality conditions. • Collect and analyze groundwater samples, where required, to confirm appropriate discharge methods. • Treat or dispose of groundwater in accordance with applicable regulatory requirements.
Groundwater discharge management. Discharge of groundwater from dewatering activities may affect receiving systems if not properly managed.	• Register dewatering activities on the EASR, if required. • Develop a discharge, monitoring and contingency plan, if required. • Discharge groundwater to an approved outlet (e.g., storm sewer), subject to regulatory approvals. • Implement erosion and sediment control measures at discharge locations.
Potential influence on groundwater-surface water interaction. Dewatering near watercourses may temporarily affect groundwater contributions to surface water features.	• Minimize dewatering volumes and duration where feasible. • Monitor groundwater levels and nearby surface water features, if required. • Implement erosion and sediment control measures to protect adjacent features.
Groundwater conditions at the elevated tank site. Excavation for the elevated tank foundation may extend below the water table depending on final design elevations.	• Confirm groundwater elevations through site-specific investigations. • Refine foundation design and construction approach based on confirmed groundwater conditions. • Incorporate temporary groundwater control measures during construction, as required.

As per the amendments to *Ontario Regulation 63/16*, any construction dewatering activity involving the taking of more than 50,000 litres per day of groundwater, stormwater, or a combination of both must be registered on the EASR. A discharge report, and a monitoring and contingency plan, will be required as governed by the *Ontario Water Resources Act*.

Groundwater discharge options will be further evaluated during detailed design.

- If discharging to the natural environment (ground surface), groundwater should be discharged at least 30 m away from water bodies to mitigate any impacts. Approval from TRCA may need to be obtained prior to discharge.
    - Temporary erosion control measures should be installed at discharge points to limit turbidity and total suspended solids concentration.
- If discharging to storm sewers, sufficient treatment methods are required to ensure discharge water quality meets the required limits. Approval from MECP may need to be obtained prior to discharge.

Further hydrogeological investigations will be undertaken during subsequent phases of the project to support detailed design, permitting, and construction planning. These investigations will confirm groundwater levels and subsurface conditions, refine anticipated dewatering requirements, and support development of appropriate discharge, monitoring, and mitigation measures in accordance with applicable regulatory requirements.

8.4 Built Environment Considerations

This section summarizes potential impacts to built environment components associated with implementation of the preferred design concept, and identifies potential mitigation measures to manage these impacts during construction and future operation. Considerations include existing residential properties, archaeological and built heritage resources, contamination and excess soil management, traffic operations, and utilities.

8.4.1 Existing Residential Properties

As part of the elevated tank site selection criteria, a buffer of 100 m from existing residential properties was used and to avoid or minimize potential shadow, noise, and other aesthetic impacts on adjacent residential parcels. Further consultation with the Town of Caledon after review of the proposed site plan may be required to confirm whether additional mitigation measures will be needed.

8.4.2 Cultural Heritage Resources

Cultural heritage resources include archeological resources, built heritage resources, and cultural heritage landscapes.

8.4.3 Archaeological Resources

A Stage 1 AA was completed early in the project to support the evaluation and selection of the preferred servicing solution (refer to **Volume 3, Appendix 3D**). The Stage 1 AA reviewed available archaeological records, historical mapping, environmental conditions, and prior assessment history to identify areas of archaeological potential within the study area and to determine requirements for further archaeological investigation.

Based on the findings of the Stage 1 AA, portions of the study area that have not previously been assessed or that retain archaeological potential will require Stage 2 AA prior to any ground-disturbing activities. Areas previously subjected to archaeological assessment and cleared of concern, or areas determined to have no archaeological potential due to prior disturbance, do not require additional archaeological assessment.

In accordance with the Stage 1 AA results, the following project components will require a Stage 2 AA during detailed design, upon obtaining access:

- The elevated tank site;
- The proposed easement lands; and,
- Portions of the future Highway 413 ROW intersecting the preferred alignment.

It should be noted that a portion of the future Mississauga Road right-of-way near the intersection of Mississauga Road and Mayfield Road was previously subject to Stage 3 AA and Stage 4 excavation following the identification of the H1/Dolson/AkGx-700 archaeological site. This area is no longer considered to retain archaeological potential within the road widening limits, as shown in **Figure 8-1.**

NORTHWEST/SOUTHEAST-RUNNING ROADS SOUTH OF MAYFIELD ROAD		
		
(01) Archeoworks 2014a	Stage 1 AA	No further work recommended for areas not exhibiting archaeological potential. Stage 2 AA recommended for undisturbed areas.
(02) Archeoworks, 2018a; Archeoworks, 2018d; Archeoworks, 2020d	Stage 1-2 AA; Stage 3 AA; Stage 4 Excavation	H1/Dolson/AkGx-700 site discovered during Stage 2 survey (Archeoworks, 2018a). The site was later subjected to Stage 3 AA (Archeoworks, 2018d) and Stage 4 excavation and is no longer of archaeological concern within the road widening limits (Archeoworks, 2020d).

Figure 8-1: No Archeological Concern within Mississauga Road Widening Limits

No construction or ground disturbance shall occur within areas of archaeological potential until Stage 2 AA and any subsequent required archaeological investigations have been completed and the MCM has confirmed that all archaeological licensing and technical review requirements have been satisfied.

In the event that previously undocumented archaeological resources are encountered during construction, all ground-disturbing activities in the vicinity of the discovery must cease immediately, and a licensed archaeologist must be retained to assess the find in accordance with the *Ontario Heritage Act*. The MCM and identified Indigenous Communities will be notified to determine appropriate next steps.

Should human remains be encountered during construction, all work must cease immediately, and the police or coroner must be notified in accordance with the *Funeral, Burial and Cremation Services Act, 2002*. If the remains are determined to be archaeological in origin, the MCM must also be notified to ensure compliance with applicable legislation.

8.4.3.1 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Screening Letter was completed to assess the potential for impacts to built heritage resources and cultural heritage landscapes associated with the preferred design concept. The review identified six built heritage resources located adjacent to or in proximity to the preferred elevated tank site, transmission main, and feedermain alignments, as shown in **Figure 8-2**. These properties are listed (non-designated) on the Town of Caledon Municipal Heritage Register, and one property (12872 Creditview Road) is also identified as a Character-Defining Element of the Inventoried Cultural Heritage Landscape "Farmsteads of Former Chinguacousy Township".

A preliminary impact assessment determined that no direct impacts to the identified built heritage resources are anticipated, as the proposed works are generally located within the Mississauga Road ROW or on adjacent lands and maintain sufficient separation from heritage attributes. However, two properties – 12679 Mississauga Road and 12300 Mississauga Road – are located within the 50 m buffer vibration threshold and may be subject to potential indirect impacts related to vibration during excavation and construction. Vibration monitoring during construction is recommended to ensure that these heritage resources are not adversely affected.

Based on the findings, further detailed analysis (heritage impact assessment) is not expected for any of the identified properties. The Cultural Heritage Screening Letter is provided in **Volume 3, Appendix 3G**.

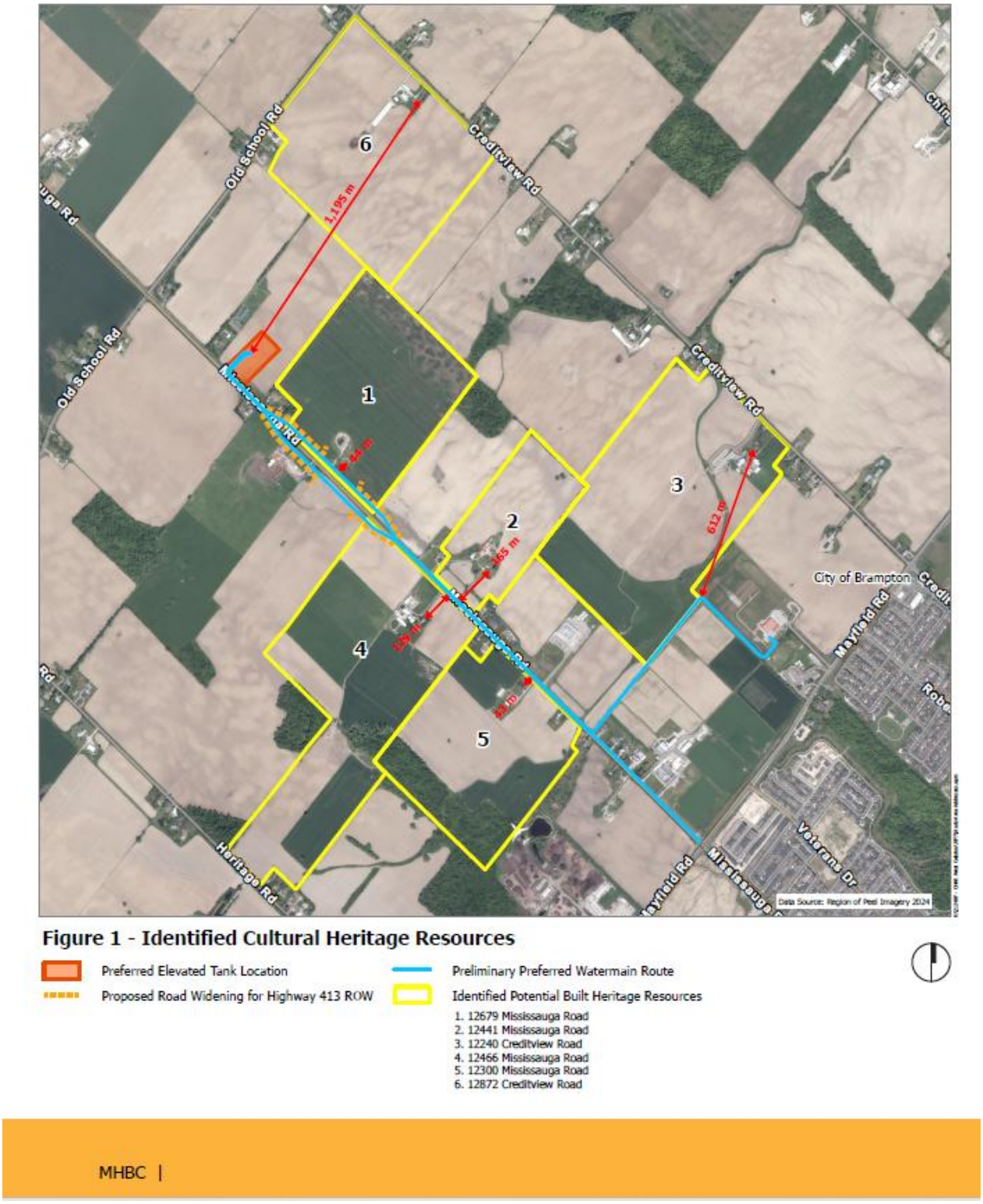

Figure 8-2: Identified Cultural Heritage Resources

8.4.4 Contamination Impacts

A Phase One Environmental Site Assessment was completed for the elevated tank site (Site D), transmission main and feedermain alignments, and associated easement lands, including a 250 m buffer area. The Phase One Environmental Site Assessment report is provided in **Volume 3, Appendix H.**

The Phase One Environmental Site Assessment was undertaken to identify potential environmental concerns associated with historical and current land uses that may affect soil and groundwater conditions within the study area. The assessment was completed in accordance with *O.Reg.153/04* and applicable Canadian Standards Association guidance. A Record of Site Condition is not required to be filed with the MECP, as the proposed land use is not more sensitive than the existing agricultural and roadway uses.

Based on the review of historical records, site reconnaissance, and environmental database searches, several Areas of Potential Environmental Concern (APECs) were identified within the study area. These include:

- Historical and ongoing agricultural activities, including pesticide use;
- Imported fill materials and road maintenance activities within the Mississauga Road right-of-way, including application of road salts; and,
- Off-site fuel oil storage tanks and industrial waste generation at adjacent properties.

No evidence of significant contamination was observed during the Phase One Environmental Site Assessment; however, consistent with standard environmental due diligence practices, a Phase Two Environmental Site Assessment is recommended during future project phases (detailed design, permitting, and construction planning). These investigations will determine, with greater certainty:

- Whether impacts are present to soil and/or groundwater;
- How the impacts may affect construction dewatering and discharge water management; and,
- Provide a detailed soil quality assessment to support development of an Excess Soil Management Plan in accordance with *O.Reg. 406/19*. This includes characterization of soil for reuse or disposal, confirmation of potential contaminants of concern, and assessment of on-site or off-site soil management options.

8.4.5 Traffic Impacts

A Traffic Assessment was completed for the preferred design concept to summarize existing and future traffic conditions at the impacted sites with and without construction. This study also assesses potential traffic impacts on adjacent roadways associated with the proposed construction plans and recommends measures to maintain acceptable traffic operations during construction. The report is provided in **Volume 3, Appendix 3I**.

The traffic assessment was completed for the following intersections:

- Mississauga Road (Regional Road 1) and Mayfield Road (Regional Road 14) (signalized);
- Mississauga Road (Regional Road 1) and Old School Road (unsignalized);
- Mississauga Road (Regional Road 1) and Wanless Drive (signalized);
- Mayfield Road (Regional Road 14) and Creditview Road (signalized); and
- Mayfield Road (Regional Road 14) and Heritage Road (signalized).

All study intersections are forecasted to operate at similar levels of service as under background traffic conditions, with no additional critical movements introduced as a result of construction traffic. This assessment accounts for the planned widening of Mayfield Road (from two to five lanes east of Mississauga Road and from two to four lanes west of Mississauga Road), anticipated to be completed by 2029.

The elevated tank site is located at a considerable distance from major employment, retail, cultural and recreational opportunities. Most construction workers are therefore anticipated to drive to the site. A maximum of 146 passenger car equivalent vehicles are anticipated to travel to the elevated tank site on any given construction day.

No lane closures are planned for the proposed construction works. Construction-related activities will be temporary and are not anticipated to result in significant or long-term impacts on the surrounding road network. The construction activities will be carried out in phases and may not necessarily occur during peak hours. Any minor disruptions during construction are anticipated to be managed through standard traffic control and staging measures. Based on the findings of the Traffic Assessment, the following measures and recommendations are anticipated to support traffic operations during construction:

- Implement optimized traffic signal timings at key intersections, where applicable, to maintain efficient traffic flow during construction activities;
- Carry out construction in accordance with the proposed phasing plan to minimize disruption to the surrounding road network;
- Distribute construction traffic across the study area and schedule activities appropriately to reduce localized congestion; and,
- Implement standard traffic control and traffic management measures, as required, during detailed design and construction.

Further refinement of traffic control measures will be completed during detailed design in coordination with the Peel Region and applicable road authorities.

8.4.6 Utilities

As part of this Class EA study, a review of the existing utilities in proximity to the preferred design concept was completed to confirm any potential impacts during construction. Planning locates were obtained and considered during the preparation of the preliminary design drawings for the preferred design concept. Therefore, the conceptual design conflicts with the following existing utilities are not anticipated at this stage:

- **Hydro One Telecoms Inc.**: fiber optic cables installed underground along a portion of Mississauga Road (eastern side), between Mayfield Road and Old School Road;
- **Bell Canada**: telecommunications cables installed underground along Mississauga Road (western side and partially eastern side), between Mayfield Road and Old School Road;
- **Hydro One Networks Inc.**: hydro poles and overhead cables along Mississauga Road (eastern side), between Mayfield Road and Old School Road; and,
- **Enbridge Gas**: natural gas pipelines installed underground along a portion of Mississauga Road (partially eastern side and partially western side), between Mayfield Road and Old School Road.

Additionally, utility locates will be obtained and coordination will be carried out with the applicable utility providers prior to construction, during detailed design, permitting, and construction planning, to confirm utility locations and any required protection or relocation measures.

8.5 Property Requirement Considerations

Additional property is required to construct the preferred design concept including property acquisition for the elevated tank site and permanent easements for the transmission main alignment. **Table 8-11** provides an overview of the property requirements for the proposed works.

Table 8-3: Additional Property Requirements

Location	Property Ownership	Property Requirements
Transmission main within Alloa Reservoir and Pumping Station Property	Peel Region owned property	No additional property required
Transmission main between Alloa Reservoir and Pumping Station and Mississauga Road	Two private properties	Permanent easement required for construction and long-term access along easement, obtained through the expropriation process
Transmission main along Mississauga Road	Peel Region (Regional Road ROW)	No additional property required
Transmission main and feedermain crossing of future Highway 413 ROW	Five private properties acquired by MTO	Property acquisitions required from properties that are or will be owned by MTO (Property acquisition required by the Region from MTO)
Elevated tank site	One private property	Property acquisition required, obtained through the expropriation process
Feedermain along Mississauga Road	Peel Region (Regional Road ROW)	No additional property required
Feedermain along future Mississauga Road ROW	One private property acquired by MTO	Property acquisitions required from properties that are or will be owned by MTO (Property acquisition required by the Region from MTO)

Property owners were contacted through the Class EA process to facilitate completion of technical studies and field investigations. Permission to Enter agreements were pursued with property owners to allow access to their lands for these purposes.

For the preferred elevated tank site (approximately 2 ha), the RPCA team was unable to obtain a negotiated agreement with the property owner. As a result, the Region initiated the expropriation process to secure the lands required for the project and to undertake detailed investigations and design, upon completion of this Class EA study. A Hearing of Necessity was held before the Ontario Land Tribunal in June 2025, which determined that the taking of the lands was fair, sound, and reasonably necessary for the municipal infrastructure project. As part of detailed design, the Region will continue to engage and consult with neighbouring properties.

Permanent easements have been secured across two privately owned parcels, through a separate expropriation process, to accommodate the transmission main. These easements provide access for construction, operation, and maintenance of the underground infrastructure and related appurtenances while allowing continued compatible land uses following construction. The Region will be able to undertake detailed investigations and design along the easement lands, upon completion of this Class EA study.

An Agricultural Impact Assessment Addendum Letter was completed (refer to **Volume 3 - Appendix 3J)** and confirmed that the transmission main easement lands are located within lands redesignated for urban uses under the RPOP and Future Caledon Official Plans and are no longer part of the prime agricultural area. As such, a full Agricultural Impact Assessment is not required for the proposed transmission main infrastructure. The Agricultural Impact Assessment Addendum Letter also concluded that agricultural impacts associated with installation of the transmission main are expected to be temporary and limited to short-term disturbance during construction. With implementation of appropriate soil handling and rehabilitation measures, the lands within the easement are expected to remain viable for agricultural use until future urban development occurs.

The Region will continue to coordinate with affected property owners and stakeholders during detailed design to support completion of required investigations, confirm access requirements, and minimize potential effects associated with construction and long-term operation of the infrastructure.

9.0 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 address environmental, technical, and community considerations identified through the Class EA process. These commitments build on the Phase 3 technical studies and will help confirm site conditions, refine design details, obtain required approvals and permits, and establish appropriate mitigation and monitoring measures prior to construction. As property acquisitions and easement land agreements are completed, further site-specific investigations may be undertaken to support the detailed design of the elevated tank site, transmission main alignment, and feedermain alignment.

Table 9-1 provides an overview of the future studies and investigations that will inform detailed design and implementation.

Table 9-1: Overview of Future Studies during Detailed Design

Study Component	Design Commitments

Elevated Tank Site	• Peel Region owned property
	• Spill Prevention / Spill Response Plan
	• Construction Management Plan and Restoration Plan
	• Discharge, Monitoring and Contingency Plans
	• Excess Soil Management Plan
	• Traffic Management Plan
	• Natural environment investigations, such as:
	  ○ Vegetation surveys
	  ○ Species at Risk surveys and Significant Wildlife Habitat assessments
	• Hydrogeological and geotechnical field investigations, such as:
	  ○ Baseline private well surveys
	• Stage 2 Archeological Assessment
	• Phase 2 Environmental Site Assessment
	• Topographic survey

Study Component	Design Commitments

Transmission Main	• Construction Staging Plan
	• Spill Prevention / Spill Response Plan
	• Construction Management Plan and Restoration Plan
	• Discharge, Monitoring and Contingency Plans
	• Excess Soil Management Plan
	• Traffic Management Plan
	• Natural environment investigations, such as:
	  ○ Vegetation surveys
	  ○ Species at Risk surveys and Significant Wildlife Habitat assessments
	• Hydrogeological and geotechnical field investigations, such as:
	  ○ Boreholes and in-situ testing within monitoring wells
	  ○ Slug tests and groundwater quality samples within monitoring wells
	  ○ Baseline private well surveys
	• Stage 2 Archeological Assessment
	• Phase 2 Environmental Site Assessment
	• Topographic survey
	• Subsurface Utility Engineering survey

Feedermain	• Construction Staging Plan
	• Spill Prevention / Spill Response Plan
	• Construction Management Plan and Restoration Plan
	• Discharge, Monitoring and Contingency Plans
	• Excess Soil Management Plan
	• Traffic Management Plan
	• Natural environment investigations, such as:
	  ○ Vegetation surveys
	  ○ Species at Risk surveys and Significant Wildlife Habitat assessments
	• Hydrogeological and geotechnical field investigations, such as:
	  ○ Boreholes and in-situ testing within monitoring wells
	  ○ Slug tests and groundwater quality samples within monitoring wells
	  ○ Baseline private well surveys
	• Stage 2 Archeological Assessment
	• Subsurface Utility Engineering survey

Once this Class EA study is approved, the commitments noted in the following sections will be undertaken during detailed design as follows:

9.1 Natural Environment Commitments

Field investigations will be conducted by qualified persons, according to recognized protocols, to obtain a more in-depth evaluation of natural environment features and constraints, as well as how they may be impacted and mitigation measures.

Aquatic and Terrestrial Species Inventory is required, which may include aquatic habitat characterization, significant wildlife habitat and SAR assessments, and vegetation community identification. Specifically, breeding bird surveys, amphibian movement surveys, and bat maternity roosting habitat surveys will be completed. This information will be used to support permitting requirements. The Region will also need to consult with the MECP (Species at Risk Branch) during detailed design to confirm construction timing window for works, prior to construction.

For works constructed within the floodplain limits associated with the Alloa Municipal Drain, further engagement will be required to support permitting and approvals with TRCA. Since the TRCA regulates watercourses, waterbodies, and wetlands in the Etobicoke Creek watershed, the Region will continue consultation with the TRCA to identify if any additional mitigation measures will be needed as part of the required permitting for development within TRCA regulation limits. The Region will also need to provide the TRCA with a Construction Staging Plan for work carried out within the floodplain, showing grading, drainage, and site stabilization as part of erosion and sediment control.

As part of general best practices, the Region will develop a Spill Prevention/ Spill Response Plan to prevent, manage, and mitigate the environmental impact of accidental releases of hazardous materials (fuel, oil, chemicals) during construction, in consultation with the TRCA.

Natural Environment consultation and coordination during Detailed Design with the following stakeholders: MECP and TRCA

9.2 Physical Environment Commitments

9.2.1 Geotechnical Investigations

Site-specific geotechnical investigation will be conducted to further characterize the overburden, bedrock and ground conditions for the elevated tank site and pipe alignments. The intent is to fill in subsurface information data gaps and to minimize risk of unforeseen ground conditions during construction.

Boreholes and in-situ testing within monitoring wells, including but not limited to pressure meter testing, is required to confirm the stratigraphy and presence of fill materials. Boreholes will be at regularly spaced intervals along the proposed tunnel alignments and at every proposed shaft location, to ensure sufficient strength of the overburden within the tunnel horizon and cover above the tunnel obvert. Local utility companies will be contacted prior to any work to identify any potential conflicts with proposed borehole locations.

The environmental quality of the excess soil as a result from the boreholes will be tested for handling, re-use, and disposal, in accordance with the MECP's latest version of the *Management of Excess Soil - A Guide for Best Management Practices*.

Geotechnical consultation and coordination during Detailed Design with the following stakeholders: TRCA, local utility companies, and MECP

9.2.2 Hydrogeological Investigations

Site-specific hydrogeological investigation, specific to open-cut and trenchless construction, will be conducted during detailed design to explore the relationship between the proposed works, and the local groundwater and soil conditions. In particular, the impact of groundwater and potential proximity of aquifers must be addressed to ensure that the proposed works do not result in temporary or long-term unstable conditions.

Monitoring wells will be installed as per the following:

- **Open-cut**: Installed with a maximum spacing of 300 m along the alignment and should be screened within the most representative hydrostratigraphic water bearing units within the footprint of the cut.
- **Trenchless**: Installed at all launch and receiving shaft locations and should be screened within the most representative hydrostratigraphic water bearing units within the footprint of the shaft.

Monitoring wells will be used to determine the hydrogeological properties of the Oak Ridges Moraine Aquifer that the excavations may extend into. Slug tests (water level monitoring) will be completed in select monitoring wells to assess seasonal fluctuations to properly calculate dewatering values based on pre- and post-construction conditions. Groundwater quality samples will also be collected from select monitoring wells to assess the need for groundwater control (dewatering), discharge options and permitting requirements. The results, including groundwater Discharge, Monitoring and Contingency Plans, will be shared with both the TRCA and MECP for review.

Private well surveys will also be undertaken which will consist of canvassing well users for background information on their wells and collecting water level measurements and non-treated well water baseline samples. The results will assist in assessing the risk of design and verifying potential impacts on well users during construction.

The hydrogeological investigation should be performed as part of a combined field investigation with any geotechnical investigations and environmental contamination assessments.

Hydrogeological consultation and coordination during Detailed Design with the following stakeholders: TRCA, MECP, and private well users

9.2.3 Topographic Survey

A topographic survey is necessary to measure the ground elevation and elevation of surface features, both natural and built, and pre-construction drainage patterns. Results will support detailed design within the elevated tank site and easement lands.

9.3 Built Environment Commitments

9.3.1 Archaeological Assessments

For the West Caledon Class EA, a Stage 2 AA will be completed for the elevated tank site and easement lands between Mississauga Road and the Alloa Reservoir and Pumping Station property during detailed design. It will be MTO's responsibility, as part of the future Highway 413 ROW, to complete a separate Stage 2 AA for the Highway 413 overpass along Mississauga Road, which will facilitate the construction of the transmission and feedermains recommended through this study.

The Stage 2 AA objectives are to field test the areas of archaeological potential, which have not been previously disturbed, and locate any archeological resources. If archaeological resources are encountered, a Stage 3 AA may be required. The assessment will involve the following, complying with Section 65 (1) of the *Ontario Heritage Act* and adhering specifically to MCM's *Final Draft Standards and Guidelines for Consultant Archaeologists (2011)*:

- Mould board ploughing and discing of cultivated fields;
- Receipt and review of utility locates within farm complex;
- Pedestrian survey, following a grid pattern along cultivated fields spaced at five metre intervals, looking for artifacts on the surface; and,
- Test-pitting, excavating in a grid pattern along uncultivated fields spaced at five metre intervals, measuring 30 cm by 30 cm to subsoil/ bedrock.

The Region is committed to providing representatives from interested and potentially affected Indigenous Communities an opportunity to participate in the Stage 2 AA, through field work attendance and reviewing of reports.

Archeological consultation and coordination during Detailed Design with the following stakeholders: MCM and Indigenous Communities

9.3.2 Built Heritage Resource Assessments

Consultation with the Town of Caledon will be required during detailed design to confirm mitigation measures for the work near 12679 Mississauga Road and 12300 Mississauga Road. This may include vibration monitoring during excavation and construction activities to ensure that these heritage resources are not adversely affected.

Built Heritage Resource consultation and coordination during Detailed Design with the following stakeholders: Town of Caledon

9.3.3 Contamination Assessments

The Phase 1 Environmental Site Assessment completed for the study area identified several Potentially Contaminating Activities and associated APECs related primarily to historical agricultural activities, potential pesticide use, fill of unknown quality associated with road construction, and nearby fuel storage activities. These activities represent potential sources of contaminants that may have affected soil or groundwater conditions within portions of the study area.

Based on these findings, the Phase 1 Environmental Site Assessment recommends that a Phase 2 Environmental Site Assessment be completed to further evaluate subsurface environmental conditions. During detailed design, a Phase 2 Environmental Site Assessment will therefore be undertaken for the elevated tank site, shaft locations, and associated easement lands. The purpose of the Phase 2 Environmental Site Assessment will be to confirm whether contaminants of potential concern are present in soil and / or groundwater within the identified APECs through targeted subsurface investigation and environmental sampling.

The results of the Phase 2 Environmental Site Assessment will be used to characterize site conditions and inform the design and construction phases of the project. This may include identifying appropriate soil management practices, environmental protection measures, or additional mitigation strategies required during construction to ensure that potential contamination risks are properly managed in accordance with applicable environmental regulations and guidelines.

Contamination consultation and coordination during Detailed Design with the following stakeholders: MECP and Property Owners

9.3.4 Traffic Management

A Traffic Management Plan will be prepared during detailed design, in coordination with the Region's Transportation department to ensure potential conflicts are avoided. This includes consideration for the Mayfield Road widening in the near future. However, the Mississauga Road widening from two to four lanes will not be considered as it is currently scheduled post 2030. No road closures or detours are anticipated, but mitigation measures will be further refined, as necessary.

The plan will need to consider required signage, traffic control measures to aid the safe ingress and egress of trucks to and from the site, and mitigation of impacts to vehicular traffic in addition to other pedestrian and cycling movements.

Traffic Management consultation and coordination during Detailed Design with the following stakeholders: Peel Region Transportation department

9.3.5 Construction Management

A Construction Management Plan and Restoration Plan will be prepared during detailed design for all disturbed areas, which will include the restoration of sites to their original condition or enhanced as determined by the Region. The plans will address haulage of material, protection or removal of trees, changes in topography and drainage patterns, groundwater recharge, and habitat for wildlife.

Additional consultation and coordination will be required with the Region's Stormwater department to avoid obstruction to any storm runoff collections points by construction activities, including potential impacts to culverts. Detailed designs will be provided to the Region for review, demonstrating that there will be no negative hydraulic impacts to inflow and infiltration.

Construction Management consultation and coordination during Detailed Design with the following stakeholders: Peel Region

9.3.6 Utility Assessments

The Region will need to circulate the detailed plan and profile drawings of the transmission main and feedermain alignments along Mississauga Road to Hydro One Telecoms Inc., Bell Canada, Hydro One Networks Inc., and Enbridge Gas. At this time, no utility conflicts or relocations are anticipated during construction, but mitigation measures will be further refined, as necessary. Notices will be sent prior to construction to these utility companies.

A Subsurface Utility Engineering survey is required to confirm the locates of the existing utilities.

The survey will include visual inspection of the property and collection of data using Ground Penetrating Radar and Electromagnetic tools to detect underground utilities.

Utility consultation and coordination during Detailed Design with the following stakeholders: Hydro One Telecoms Inc., Bell Canada, Hydro One Networks Inc., and Enbridge Gas

9.4 Corporate Communications Commitments

Region's Corporate Communications department will continue to inform the Study Contact List, residents within the IFA, and interested Indigenous Communities via online Notices and website updates, public notifications via email/ mail, and via existing social medial channels as the project proceeds to detailed design.

The Region will continue to inform Town of Caledon Ward 2 Councillor and Regional Wards 2 & 6 Councillor via briefing notes throughout detailed design and construction.

Corporate Communications consultation and coordination during Detailed Design with the following stakeholders: Study Contact List, Residents, Indigenous Communities, relevant Councillors

10.0 IMPLEMENTATION

During the next steps of project implementation, the following will be completed:

- Confirmation of property acquisition and easement lands;
- Field investigations, additional studies, and other design commitments as stated in **Section 9.0;**
- Refinement of infrastructure locations and alignments through detailed design;
- Refinement of cost estimates and pre-tender costs through detailed design;
- Fulfillment of all provincial, municipal, and conservation authority permits and approval requirements;
- Additional engagement and consultation with the public, residents, and other stakeholders; and,
- Continued engagement and consultation with Indigenous Communities where treaty rights may be impacted by projects.

10.1 Construction Costs and Funding

As per the ongoing Peel Region 2025 Water and Wastewater Master Plan, total project costs were calculated using the following cost estimation methodology:

1. **Installation Cost =** Basic Cost to Install Infrastructure
2. **Total Construction Cost (Hard) =** Installation Cost + General Item Cost + Provisional Item Allowance Cost + Construction Allowance Cost (Contingency)
3. **Todal Design Cost (Soft) =** Geotechnical/ Hydrogeological + Engineering/Design (Internal) + Design/Contract Administration (External) + Approvals
4. **Total Project Costs =** Total Construction Costs + Total Design Costs + Project Complexity (Contingency)

The total project cost is estimated at approximately **$89.5 M** including HST, based on the 2025 price index, for the following key project elements (detailed costing is outlined in **Volume 1, Appendix 1E**):

- 750 mm dimeter PVC transmission main (includes both open-cut and tunnelled sections);
- 600 mm diameter PVC feedermain (includes both open-cut and tunnelled sections);
- 6.0 m x 4.0 m bulk water station;
- 10 ML composite elevated tank;
- 900 mm diameter PVC feedermain connection (open-cut from elevated tank to interconnection valve chamber); and,
- 750 mm diameter PVC transmission main connection (open-cut from interconnection valve chamber to elevated tank).

The linear alignment components are noted in **Table 10-1.**

Table 10-1: Preferred Alignment Design Concept Components

Components	750 mm Transmission	600 mm Feedermain	750 mm Connection	900 mm Connection
Open-Cut	2495 m	2045 m	106 m	107 m
Tunnelled (micro-tunnel)	515 m	515 m	-	-
Tunnelled (jack and bore)	60 m	70 m	-	-
Chambers (air/drain valve)	4	5	-	-
Chambers (interconnection) - shared	4		-	-
Shafts (micro-tunnel) - shared	2		-	-
Shafts (jack and bore)	2	2	-	-

The unit rates for a length of open-cut watermain depends on pipe diameter, and includes all fittings, bedding, compacted granular backfill to subgrade, restoration, and connection/ testing. Standard (air/drain valve) chamber structures are costed separately depending on pipe diameter, and includes all piping, fittings, valves, appurtenances and restoration. Note that interconnection chambers VC1, VC2, VC5, and VC8 are to be shared between the 600 mm and 750 mm watermains. The costs for these complex chamber structures are estimated based on industry expertise and varies by depth. For the transmission main within the easement, it is notably sloped toward Mississauga Road as per the Region's request, to avoid having any chambers due to limited access for maintenance.

The unit rates for a length of tunnelled watermain depends on pipe diameter and whether it is a micro-tunnel or a jack and bore approach, and includes protective steel casing, pipe supply and soil disposal. All jack and bore shafts are treated as launch shafts and priced using a blended rate to remain conservative, as they are typically smaller and require less complex equipment. In comparison, micro-tunnel requires larger, deeper shafts with more robust construction to support heavier equipment and tighter tolerances for precise guidance systems. Note that shafts related to the Highway 413 crossing are to be shared between the 600 mm and 750 mm watermain.

The cost estimates for the 600 mm feedermain and 750 mm transmission main construction are broken down in **Table 10-2**. The cost estimate for the 900 mm and 750 mm field connecting pipes to/from the elevated tank is broken down in **Table 10-3**.

Table 10-2: Cost Estimate for the 600 mm Feedermain and 750 mm Transmission Main

Description	Base $	Add-on $
Total Installation Cost (600 mm)	$ 12,205,482	
Total Installation Cost (750 mm)	$ 22,473,592	
General		$ 3,121,117
Provisional		$ 2,080,744
Construction Contingency		$ 3,467,907
Total Construction Costs (Hard)	$ 43,348,843	
Total Design Costs (Soft)	$ 9,103,257	
Project Contingency		$ 10,490,420
Total Project Costs	$ 62,942,521	
HST (1.76%)		$ 1,107,788
Total Project Costs	**$ 64,050,309**	

Table 10-3: Cost Estimate for the 750 mm and 900 mm Connecting Pipes to/from Elevated Tank

Description	Base $	Add-on $
Total Installation Cost	$ 829,553	
General		$ 165,911
Provisional		$ 99,546
Construction Contingency		$ 165,911
Total Construction Costs (Hard)	$ 1,260,922	
Total Design Costs (Soft)	$ 315,230	
Project Contingency		$ 157,615
Total Project Costs	$ 1,733,767	
HST (1.76%)		$ 30,514
Total Project Costs	**$ 1,764,282**	

The high-level estimate for the bulk water station itself was developed using typical unit costs observed in similar municipal projects and was consistent with industry expert expectations for those of comparable size and configuration for a 9 m by 2 m footprint. In addition to the bulk water station cost, allowances were included for associated divisional items, such as site works and appurtenances (e.g., bollards, curb, and other ancillary components), to reflect the full scope typically required for bulk water station installations. These additional divisional costs were incorporated to ensure the estimate reasonably represents the supporting infrastructure required for the facility. The cost estimate for the bulk water station construction is broken down in **Table 10-4** with the total project costs adjusted to the 2025 price index.

Table 10-4: Cost Estimate for the Bulk Water Station

Description	Base $	Add-on $
Total Installation Cost	$ 97,002	
General		$ -
Provisional		$ -
Construction Contingency		$ 24,250
Total Construction Costs (Hard)	$ 121,252	
Total Design Costs (Soft)	$ -	
Project Contingency		$ -
Total Project Costs	$ 121,252	
HST (1.76%)		$ 2,134
Total Project Costs	$ 123,386	

Using a similar approach for the elevated tank construction, the Schedule of Items and Prices were based on recent building quote, provided in **Volume 1, Appendix 1E**, and industry experience. The cost estimate for the elevated tank site construction is shown in **Table 10-5**. Note that a contingency of 25% was applied, similar to the bulk water station.

Table 10-5: Cost Estimate for the Elevated Tank and Site Works

Description	Base $	Add-on $
Total Installation Cost	$ 18,486,500	
General		$ -
Provisional		$ -
Construction Contingency		$ 4,621,625
Total Construction Costs (Hard)	$	
Total Design Costs (Soft)	$	
Project Contingency		$
Total Project Costs	$ 23,108,125	
HST (1.76%)		$ 406,703
Total Project Costs	$ 23,514,828	

It should be noted that through the Federal Tax Act, which entitles Regions and municipalities to an HST rebate of ~86% of the Ontario HST rate (13%), the net HST rate applied in the cost estimate is 1.76%.

10.1.1 Conceptual versus Preliminary Cost Comparison

The preliminary cost (as discussed in **Section 6.4.2**) and the conceptual design cost estimates are shown in **Table 10-6** for the transmission main and feedermain, and broken down by installation costs and additional costs. Total project costs without HST have increased by ~$4.76 M from the Site D Preliminary Estimates.

Table 10-6: Preliminary and Conceptual Design Cost Estimate Comparison

	Site D Preliminary Cost ($2025)	2026 Updated Conceptual Cost ($2025)
Transmission Main Installation Costs	$19,297,380	$15,873,592
Feedermain Installation Costs	$15,386,100	$12,205,482
Additional Costs	$22,446,605	$33,813,535
Total Project Cost	**$57,130,085**	**$61,892,610**

For the installation costs, when comparing the items for the transmission main and feedermain, the following key elements have changed from preliminary to conceptual design:

- Total construction lengths were optimized during the conceptual design phase, leading to decreased length for the transmission main and increased length for the feedermain;
- The pipe sizes were optimized during the conceptual design phase, reducing from 900 mm to 750 mm for the transmission main and 750 mm to 600 mm for the feedermain, and leading to decreased unit rates;
- The number of standard chambers were optimized during the conceptual design phase, decreasing by 3 for the transmission main and 2 for the feedermain, and leading to decreased unit rates due to the smaller chamber sizes;
- The Highway 413 crossing methodology was changed from open-cut to tunnelled during the conceptual design phase, leading to decreased open-cut length and increased tunnelled length, as well as decreased unit rates due to the smaller bore diameters;
- The Alloa Municipal Drain tunnelled crossing methodology was updated to be jack and bore during the conceptual design phase, leading to increased length for both the transmission main and feedermain, and increased unit rates to remain conservative; and,
- The launch and receiving shafts for the Alloa Municipal Drain crossing were updated to be jack and bore during the conceptual design phase, leading to decreased unit rates due to the smaller shaft sizes and generally cheaper installation costs.

KEY QUANTITIES & LENGTHS COMPARISON

Item	Site D Preliminary Pipe Size (mm)	Site D Preliminary Quantity (m)	2026 Updated Conceptual Pipe Size (mm)	2026 Updated Conceptual Quantity (m)
TRANSMISSION MAIN				
Total Construction Pipe Length	900	3115	750	3070
Open-Cut Length	900	3085	750	2495
Highway 413 Tunnel	900	0	750	515
Alloa Municipal Drain Tunnel	900	30	750	60
Standard Chambers	900	7	750	4
Shafts	900	2	750	2
FEEDER MAIN				
Total Construction Pipe Length	750	2600	600	2630
Open-Cut Length	750	2570	600	2045
Highway 413 Tunnel	750	0	600	515
Alloa Municipal Drain Tunnel	750	30	600	70
Standard Chambers	750	7	600	5
Shafts	750	2	600	2

UNIT RATE COMPARISON (Key Items)

Item	Site D Preliminary Pipe Size (mm)	Site D Preliminary Unit Rate ($2025)	2026 Updated Conceptual Pipe Size (mm)	2026 Updated Conceptual Unit Rate ($2025)
TRANSMISSION MAIN				
Open-Cut	900	$3,746	750	$3,662
Micro-Tunnelling	900	$14,171	750	$7,334
Jack and Bore Tunnelling	-	$0	750	$8,620
Launch Shaft	900	$796,740	750	$239,098
Receiving Shaft	900	$569,100	750	$239,098
Standard Chamber	900	$850,000	750	$490,858
FEEDER MAIN				
Open-Cut	750	$3,319	600	$3,254
Micro-Tunnelling	750	$9,181	600	$5,737
Jack and Bore Tunnelling	-	$0	600	$6,440
Launch Shaft	750	$796,740	600	$278,947
Receiving Shaft	750	$569,100	600	$278,947
Standard Chamber	750	$745,000	600	$317,614

Figure 10-1: Comparison between Preliminary vs. Conceptual Design

For the conceptual design, the additional costs (including General Items, Provisional Item Allowance, Contingency Allowance, Design and Admin Soft Cost Allowance, and Project Contingency) were divided across multiple sub-projects. Since lower value sub-projects were subject to higher percentage markups, this allocation method ultimately resulted in higher total additional costs.

Additionally, the total conceptual design costs considered other components that were not part of the preliminary scope. These scope changes, costing around $26.0 M, included the following:

- Elevated Tank and Site Works including Piping;
- Bulk Water Station;
- Four Interconnection Chambers; and,
- Two Micro-tunnelling Shafts for the Highway 413 crossing.

10.2 Implementation Schedule

Implementation of the preferred servicing strategy and design concept will occur following completion of this Class EA, detailed design, and acquisition of the required property and easements. Detailed design for the elevated water storage facility is anticipated to begin in 2026, with construction expected to commence in 2027.

Construction of the elevated tank site is anticipated to require approximately one year. The work will include a series of sequential construction activities such as site preparation, foundation construction, tank erection, mechanical and electrical installation, and commissioning. A typical sequence of construction tasks and their estimated durations within a 52-week construction period is illustrated in **Figure 10-2**.

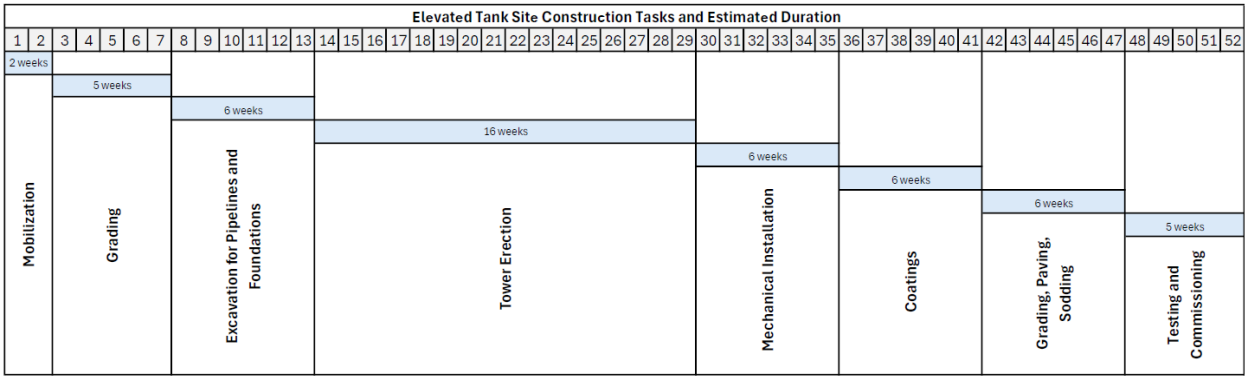

Figure 10-2: Elevated Tank Site Construction Tasks and Estimated Duration

Based on the anticipated schedule, the elevated tank is expected to be completed and placed into service by 2028. Detailed design of the transmission main and feedermain along the preferred alignment is also anticipated to begin in summer 2026, with construction expected to commence in 2027, subject to obtaining the required permits and approvals.

10.2.1 Alloa Pumping Station Operation

During construction of the transmission main connection to the Alloa Reservoir and Pumping Station, several operational considerations will require planning and coordination. Yard piping construction will result in temporary impacts to on-site parking and necessitate designated areas for contractor staging, equipment, and material storage. The proposed piping alignment crosses the existing stormwater management/overflow pond; therefore, construction sequencing must be coordinated with any ongoing works to avoid periods of planned overflow or drainage use. Construction activities in this area should be scheduled during dry weather conditions where feasible, and contingency measures must be in place to address any emergency use of the stormwater management / overflow pond.

Work within the pumping station will include installation of new Zone 7 (West) valves and connection of the new Zone 7 (West) watermain. To safely complete this work, the Zone 7 supply from Alloa will need to be shut down for an extended duration of up to a several weeks. Temporary works will also be required to support testing and commissioning of the new Zone 7 (West) watermain. In addition, a short-term

isolation of 1-2 days for the existing Zone 7 watermain along Mayfield Road will be necessary to complete the Mayfield / Mississauga Road connection.

Following construction, operational impacts will need to be assessed and refined through water system modeling. Several interim operating configurations should be evaluated, including periods during pipe commissioning, operation with the new pipeline in service prior to the elevated tank integration, and full system operation with the elevated tank online, to ensure reliable performance and system stability under all anticipated conditions. The introduction of a new Zone 7 (West) outlet from the Alloa facility may also necessitate adjustments to pump operating set points, control ranges, and associated alarm thresholds.

10.3 Potential Permits and Approvals

Key permits, approvals, or registrations that may be required in advance of the construction activities (to be confirmed following land acquisition, field investigations, and detailed design) are provided as follows:

Department of Fisheries and Oceans

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

Ministry of Environment, Conservation, and Parks

- Completion of Form 1 Record of Watermain Authorizes as a Future Alteration for watermain upgrade projects.
- Environmental Activity and Sector Registry registration for construction dewatering of more than 50,000 L/day.
- Permit or other authorization for the elevated tank site and/or easement lands, due to the potential impacts to endangered or threatened species or their habitat.
- CLI-ECA for the overflow drainage and stormwater management pond on the elevated tank site.

Ministry of Citizenship and Multiculturalism

- Approval for the elevated tank site and/or easement lands, as part of a Stage 2 AA, in accordance with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists*.

Toronto Region Conservation Authority

- Permit (*O. Reg. 41/24*) for the crossing of the Alloa Municipal Drain watercourse, as well as for the transmission main along the easement lands within the TRCA regulated area.

Town of Caledon

- Site plan approval and building permit to construct the new elevated tank and site works.
- Approval for rezoning the parcel with the new elevated tank, as it is outside of the 2051 urban boundary.

Electrical Safety Authority

- Notification for electrical work (including lighting, controls, and power supply) to ensure compliance with the Ontario Electrical Safety Code and inspection of installed works.

Hydro One

- Utility service connection approval required to energize electrical service connection for the elevated tank site.

11.0 CONCLUSION AND RECOMMENDATIONS

This ESR has been prepared for the **West Caledon Storage Facility and Transmission Main Class EA Study**, which has been completed in accordance with the Schedule 'C' MCEA process, fulfilling Phases 1 though 4. The recommendations of this report are to:

- Proceed with confirmation of the potential impacts and refinement of the mitigation measures to be implemented during and post-construction;
- Proceed with detailed design of the new 10 ML elevated storage tank and site plan, including the 6.0 metres by 4.0 metres bulk water station;
- Proceed with detailed design of the 750 mm diameter transmission main, approximately 2,470 metres in length, connecting from the Alloa Reservoir and Pumping Station, along private easement lands and Mississauga Road, to the new elevated tank;
- Proceed with detailed design of the 900 mm / 600 mm diameter feedermain, approximately 2,040 metres in length, extending from the new elevated tank along Mississauga Road, with connection to the existing water distribution system on Mayfield Road.

The proposed infrastructure will support the Region's long-term strategy for delivering water services within the Pressure Zone 7W area while providing sufficient system capacity to accommodate existing demands and projected growth to 2051 and beyond. It will enhance operational flexibility by improving the ability to conduct maintenance, inspections, and emergency response activities, and will bolster system resilience by ensuring adequate capacity to adapt to climate change, including extreme weather events. In addition, the infrastructure has been planned to minimize total capital, operation and maintenance, and lifecycle costs, while reducing potential impacts to the natural environmental, social and cultural heritage features, and jurisdictional area throughout implementation and operation.

Following filing of this ESR, and subject to completion of the required review period and any additional consultation requirements, Peel Region will proceed with implementation of the project, including detailed design and construction of the works.

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WEST CALEDON STORAGE FACILITY AND TRANSMISSION MAIN

Volume 1: Supporting Technical Studies

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Volume 3: Supporting Discipline Studies