John Street Wastewater Pumping Station Schedule B Municipal Class Environmental Assessment Project File Report

The Regional Municipality of Halton

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Acronyms and Glossary of Terms

ATRIS	Aboriginal and Treaty Rights Information System
BMH	Bat Maternity Habitat
CMP	Construction Management Plan
CRAA	Credit River Anglers Association
CVC	Credit Valley Conservation
DBH	Diameter at Breast Height (DBH)
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECA	Environmental Compliance Approval
ELC	Ecological Land Classification
ESAs	Environmentally Sensitive Areas
ESC	Erosion and Sediment Control
HASP	Health and Safety Plan
HDD	Horizontal Directional Drilling
In-TAC	Internal Technical Advisory Committee
LID	Low Impact Development
MBCA	Migratory Birds Convention Act
MCEA	Municipal Class Environmental Assessment
MEA	Municipal Engineers Association
MNRF	Ministry of Natural Resources and Forestry
MTCS	Ministry of Tourism Culture and Sports
MOECC	Ministry of the Environment and Climate Change

NHIC	Natural Heritage Information Centre
NRSI	Natural Resource Solutions Inc.
O&M	Operation and Maintenance
OBBA	Ontario Bird Breeding Atlas
OP	Official Plan
OPSS	Ontario Provincial Standards Specification
ORAA	Ontario Reptile and Amphibian Atlas
OWES	Ontario Wetland Evaluation System
PFR	Project File Report
PIC	Public Information Centre
PLC	Programmable Logic Controller
POS	Problem and Opportunity Statement
PSWs	Provincially Significant Wetlands
Region	Region of Halton
SAR	Species at Risk
SMP	Soil Management Plan
SpMP	Spill Management Plan
SUE	Subsurface Utility Engineering
SWH	Significant Wildlife Habitat
TMP	Traffic Management Plan
WQI	Water Quality Index
WWPS	Wastewater Pumping Station
WWTP	Wastewater Treatment Plant

Executive Summary

The John Street Wastewater Pumping Station (WWPS), located at 68 John Street in the Town of Halton Hills (Georgetown), is nearing the end of its useful life and requires significant capital upgrades in order to maintain the station in a state-of-good repair. The John Street WWPS was built in 1970 and was last upgraded in 2003. In addition to its own catchment area, the John Street WWPS receives wastewater from the Lynden Circle WWPS. All wastewater collected at the John Street WWPS is discharged through a single forcemain to a trunk sewer that drains southward to the Georgetown Wastewater Treatment Plant (WWTP). The John Street WWPS is not equipped with an emergency overflow pipe.

A Municipal Class Environmental Assessment (MCEA) was conducted in compliance with 'Schedule B' of the MCEA document (October 2000, as amended 2007, 2011 and 2015), which is an approved process under the *Ontario Environmental Assessment Act*, to establish a preferred alternative solution that satisfies the following key objectives:

1) Address improvements as documented and recommended in the 2013 *John Street WWPS Condition Assessment Report*;

2) Ensure improvements carried forward for the pump station, system overflow and underground infrastructure are in compliance with Halton Region's *Water and Wastewater Facility Design Manual* and *Water and Wastewater Linear Design Manual*; and,

3) Ensure the John Street WWPS facility and forcemain has sufficient capacity to service projected peak flows out to 2031.

The problem and opportunity statement established for this MCEA Study is as follows:

> **"The purpose of this Study is to undertake a Schedule B Municipal Class Environmental Assessment to consider a wide range of wastewater pumping station and associated infrastructure upgrades in order to select the most appropriate design concept that meets Halton Region's latest design standards and pumping needs, including provision for an emergency over flow."**

The Study Area for the MCEA is displayed in the following figure. The John Street WWPS is located in a residential area in the northeast corner of John Street Park.

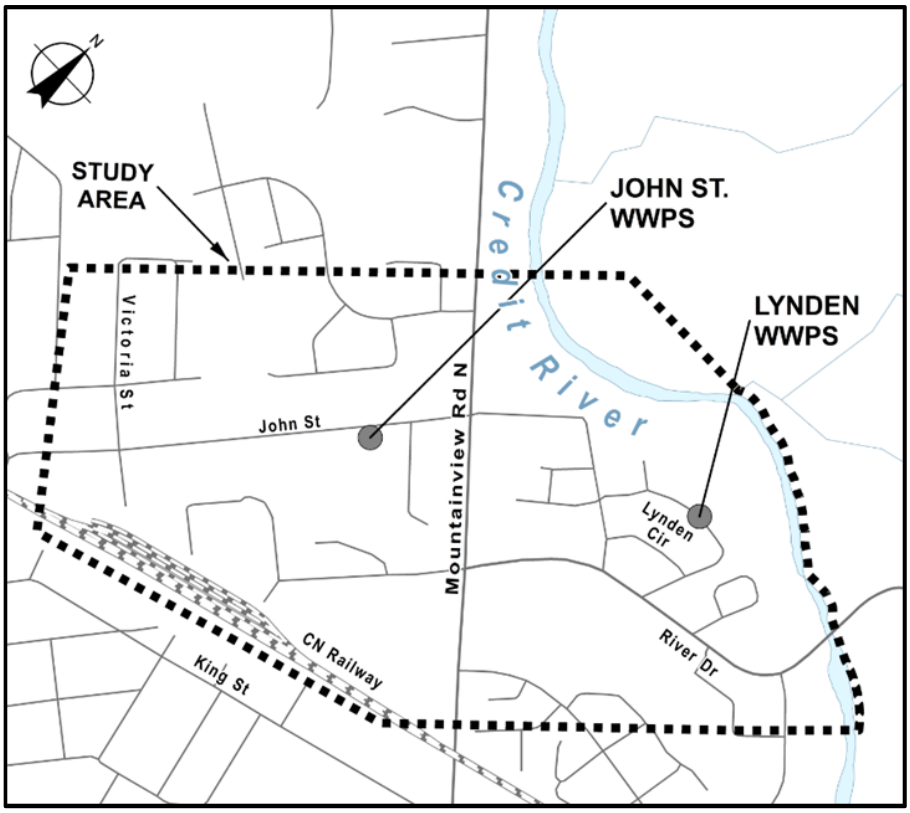

Figure ES-1: John Street WWPS Study Area

A long-list of alternative solutions was identified to meet the objectives of the MCEA, as follows:

- Alternative 1 – Do Nothing.
- Alternative 2 – Upgrade the WWPS at the existing location including the provision of an emergency overflow.
- Alternative 3 – Construct a replacement WWPS at the existing location including the provision of an emergency overflow.
- Alternative 4 – Construct a replacement WWPS at a new location including the provision of an emergency overflow.
- Alternative 5 – Redirect flow from the Lynden Circle WWPS to the Victoria Street gravity sewer, by-passing the John Street WWPS.
- Alternative 6 – Reduce inflow and infiltration in the collection system.

The new pumping station locations considered for Alternative 4 were:

- Parcel 1: Meadowglen Park
- Parcel 2: Stormwater Management Block on Mountainview Road
- Parcel 3: Barber Mill Park
- Parcel 4: Stormwater Management Block at River Drive and Maple Avenue

These location options are shown in the following figure.

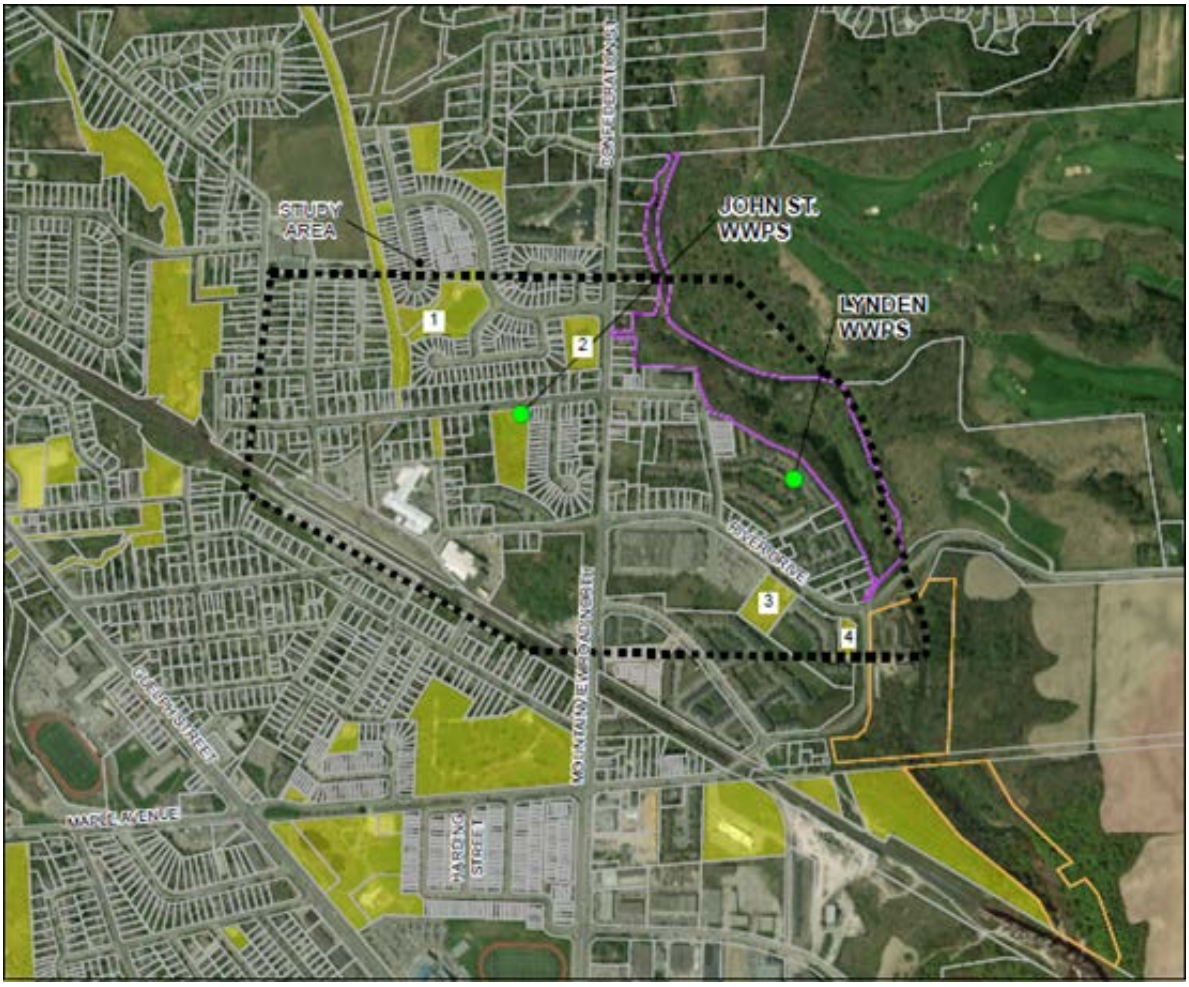

Figure ES-2: Town of Halton Hills Parcels Evaluated for Alternative 4

Alternatives 2, 3 and 4 also included sub-alternatives related to potential routes for a new emergency overflow. The possible routes evaluated for the emergency overflow were:

- Location A: Emergency overflow to Credit River – East end of John Street
- Location B: Emergency overflow to private ponds
- Location C: Emergency overflow to Lynden Circle storm sewer
- Location D: Emergency overflow to Credit River – upstream of the River Road Bridge

The possible emergency overflow routes are shown in the following figure.

Figure ES-3: Alternative Overflow Locations

Pre-screening of the long-list of alternatives was conducted to assess, at a high level, technical feasibility, social/natural impacts and cost. Based on the results of the pre-screening exercise, the following four alternative solutions were short-listed for detailed evaluation:

- Alternative 1 – Do Nothing.
- Alternative 2 – Upgrade the WWPS on the existing site with emergency overflow to Location A.
- Alternative 3 – Construct a new WWPS at the existing site with emergency overflow to Location A.
- Alternative 4 – Construct a new WWPS at a new location (Parcel 3: Barber Mill Park) with emergency overflow to Location D.

Each alternative was developed in sufficient detail so as to clearly define the potential social, natural environment, technical, legal/jurisdictional and economic impacts. Following a detailed evaluation of each alternative and consultation with review agencies, members of the public and the Town of Halton Hills, Alternative 3 – Construct a new WWPS at the existing site with emergency overflow was recommended as the preferred solution.

The preferred alternative consists of:

- New WWPS at John Street Park;
- Provision of a second forcemain along John Street (from the new WWPS at John Street Park to Victoria Street gravity sewer); and
- Provision of an emergency overflow.

Note that the evaluation of Alternative 3 was done assuming the emergency overflow would extend to Credit River at Location A. However, based on agency consultation the preferred emergency overflow location will be confirmed during the detailed design stage of the project. Selection of the preferred location will consider the results of detailed Geomorphology, Hydrogeological, Hydrological, Natural Heritage and Geotechnical studies, all of which will be completed during detailed design (as outlined in Section 8.5 – Future Commitments). Location in proximity to the bed or banks of the Credit River will be subject to approval by MNRF under the Public Lands Act.

The preferred alternative is displayed in the following figure.

Figure ES-4: Preferred Alternative – New Wastewater Pumping Station on Existing Site with Emergency Overflow

The main advantages associated with the preferred alternative solution are as follows:

- Satisfies the Problem and Opportunity Statement established for this project;
- Meets the requirements in the Halton Water and Wastewater Facility Design Manual and Water and Wastewater Linear Design Manual;
- Minimizes operation and maintenance impacts at the station; and,
- Provides increased resiliency in the event of an emergency and to changing flow conditions.

Additional studies will be required following completion of this MCEA Study, including completion of:

- A Stage 2 Archaeological Assessment;
- Geomorphology and Hydrogeological Study;
- Geotechnical Assessment Study;
- Natural Heritage Study; and,
- Hydrological Study.

Mitigation measures to be implemented during construction and operation of the WWPS are as follows:

- The proposed emergency overflow will be constructed using trenchless techniques in the vicinity of the embankments and natural corridor along the Credit River to mitigate potential impacts to the natural environment. The location of the emergency overflow location and the construction method will be finalized during detailed design.
- A compensation plan for removal of bat maternity habitat trees will be confirmed through consultation with MNRF during the detailed design phase.
- An Erosion and Sediment Control (ESC) Plan will be developed during detailed design.
- Any in water work will be conducted in isolation of flowing water. All work zones will be clearly marked on detailed design drawings and the ESC Plan to indicate that no work should occur outside the work zone.
- To mitigate potential groundwater recharge reduction caused by an increased WWPS footprint, the inclusion of bio swales, infiltration galleries or other features to promote localized surface water infiltration to maintain the existing water balance shall be included as part of the detailed design and landscape plans.
- The WWPS layout and location will be designed to minimize the impact to trees. A Tree Preservation Plan shall be prepared, in accordance with the Region's Tree Canopy Replacement Policy (LPS31008), during the detailed design phase of the project to assess the extent of impacts to trees resulting from the proposed construction and establish a plan for compensation of tree loss.
- The presence of Significant Woodlands in the Study Area will be confirmed by a qualified ecologist and through consultation with the Halton Region Forester during detailed design phase of the project.
- The boundary of the Natural Heritage System (NHS) within the Study Area will be confirmed during the detailed design phase of the project. A Natural Heritage Study will be completed during detailed design to confirm requirements associated with proposed works in the NHS.
- Any trees identified for removal as part of the detailed design that has potential suitable bat habitat (i.e., cavity) will be surveyed prior to removal.
- CVC shall be consulted during detailed design with regard to potential works within or in close proximity flood regulated areas, as appropriate.
- Consultation with MNRF is required prior to construction to confirm the protocol for bat surveys and to determine what mitigation measures are appropriate to avoid potential negative effects.
- The potential impacts to fish and fish habitat and mitigation measures relevant to the Preferred Alternative shall be considered during the detailed design stage.
- A complaint response protocol for nuisance impacts including construction noise and vibration shall be prepared during the detailed design phase of the project and implemented by the Region prior to construction.

- The Region will ensure adequate mitigation measures and monitoring of the potential impacts that could affect the identified heritage resources (properties) will be in place during construction.
- Consultation with Town of Halton Hills is required during the detailed design stage for the design of the new WWPS to be creative and compatible with recreational use of the park. This may include using urban design concepts, special treatment of fencing, driveways, and space required for building components, etc.
- A Building Permit and Site Alteration Permit will be required from the Town of Halton Hills prior to construction at the John Street WWPS site. Since the WWPS site is located in a Source Water Protection Vulnerable Area, the site plan process will address constraints associated with the Local Source Water Protection Plan and compliance with Source Water Protection Policies.
- Impacts to the existing function and use of the park and playground should be minimized throughout construction.
- Provision for noise and odour control systems as part of WWPS design will be considered during the detailed design.
- The existing WWPS will be decommissioned and the decommissioned site will be restored as park green space.
- A Public Information Centre will be held prior to construction to present the design and obtain public input.
- The following plans will be prepared by the contractor and implemented prior to construction:
    - Erosion and Sediment Control Plan;
    - Emergency Response and Communications Plan;
    - Complaint Response Protocol;
    - Construction Management Plan;
    - Health and Safety Plans;
    - Soil Management Plan; and
    - Traffic Management Plan.
- The Region will communicate potential traffic impacts due to construction to local residents and the Town of Halton Hills in advance.
- Temporary site fencing will be in place during construction and disturbances such as noise, vibration and dust will be managed.
- Access to residences / pedestrian traffic will be maintained during construction.

Based on a high-level cost estimate, the capital cost for construction of the new John Street WWPS, associated new forcemain and emergency overflow is estimated to be $7.7 million. Construction is anticipated to start in 2021.

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1.0 Introduction

1.1 Background

The John Street Wastewater Pumping Station (WWPS), located at 68 John Street in the Town of Halton Hills (Georgetown), is nearing the end of its useful life and requires significant capital upgrades in order to maintain the Station in a state-of-good repair. The Station was built in 1970 and upgraded in 1984, 2002 and 2003, and it is owned and maintained by Halton Region. In addition to its own catchment area, the Station receives wastewater from Lynden Circle WWPS. Wastewater from the John Street WWPS is directed to the Silver Creek trunk sewer that drains southward to the Georgetown Wastewater Treatment Plant (WWTP).

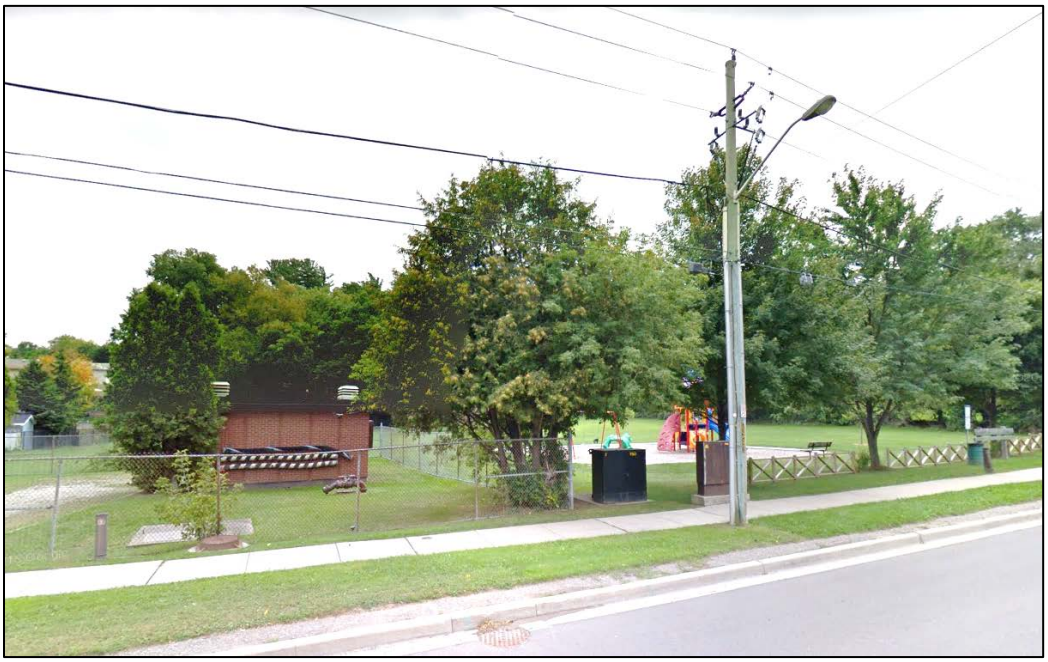


Figure 1: John Street Wastewater Pumping Station

The John Street WWPS has a subsurface wet well with one submersible pump (rated at 62 L/s) and a subsurface dry well with two dry pit pumps (each rated at 63.1 L/s). The building (located above the dry well) houses the electrical system, diesel generator and other ancillary equipment. Sewage is discharged from the pump station via a single 340 m long, 300 mm diameter forcemain. The John Street WWPS has no emergency overflow, but there is an emergency by-pass from the forcemain to the gravity sewer.

1.2 Requirement and Scope of Current MCEA Study

The *John Street WWPS Condition Assessment Report* by Genivar (2013) indicated that the facility is approaching the end of its expected service life, and identified a number or areas where significant upgrades would be required to meet the Region's current design standards, including:

- Provision of an emergency overflow;
- Provision of emergency storage;
- Provision of a second forcemain for redundancy purposes;
- Upgrades to the wastewater pumping system;
- Upgrades to meet the current version of NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities; and
- Upgrades to meet the current version of the Ontario Electrical Safety Code.

Because of the scale and extent of the upgrades required, The Regional Municipality of Halton (Region) has undertaken a Municipal Class Environmental Assessment (MCEA) Study to investigate opportunities for improvements or upgrades to John Street WWPS. R.J. Burnside & Associates Limited (Burnside) has facilitated the MCEA on behalf of the Region.

This Study was carried out in accordance with Schedule 'B' of the MCEA document (October 2000, amended 2007, 2011, and 2015). Schedule B projects are defined as having the potential for some adverse environmental effects and the proponent is required to undertake a screening process involving mandatory contact with directly affected public and relevant review agencies to ensure all are aware of the project and have the opportunity to provide input and feedback.

1.3 Study Objectives

The MCEA Study was completed to meet the following key objectives:

1) Address improvements as documented and recommended in the 2013 *John Street WWPS Condition Assessment Report*.

2) Ensure improvements carried forward for the pump station, emergency overflow and underground infrastructure are in compliance with Halton Region's Water and Wastewater Facility Design Manual and Water and Wastewater Linear Design Manual.

1.4 Study Area

The John Street WWPS is located in a residential area in the northeast corner of John Street Park. John Street Park is owned by the Town of Halton Hills, and includes a playground, manicured open space and a remnant urban forest. The Study Area includes privately owned lands within the Credit River Valley characterized as a dense riparian treed corridor along the Credit River. The remainder of the Study Area is characterized by urban development.

The Study Area was established by considering areas that have the potential to be impacted by this project. As such, the Study Area includes the John Street WWPS, the Lynden Circle WWPS, streets which may be considered for installation or upgrades of the forcemain/overflow and areas that may be impacted by construction activities around the WWPS. The overall Study Area is bounded roughly by Silver Creek to the west, CN rail line to the south, Credit River to the east and the Georgetown Urban Area boundary to the north. Figure 2 illustrates the Study Area limits.

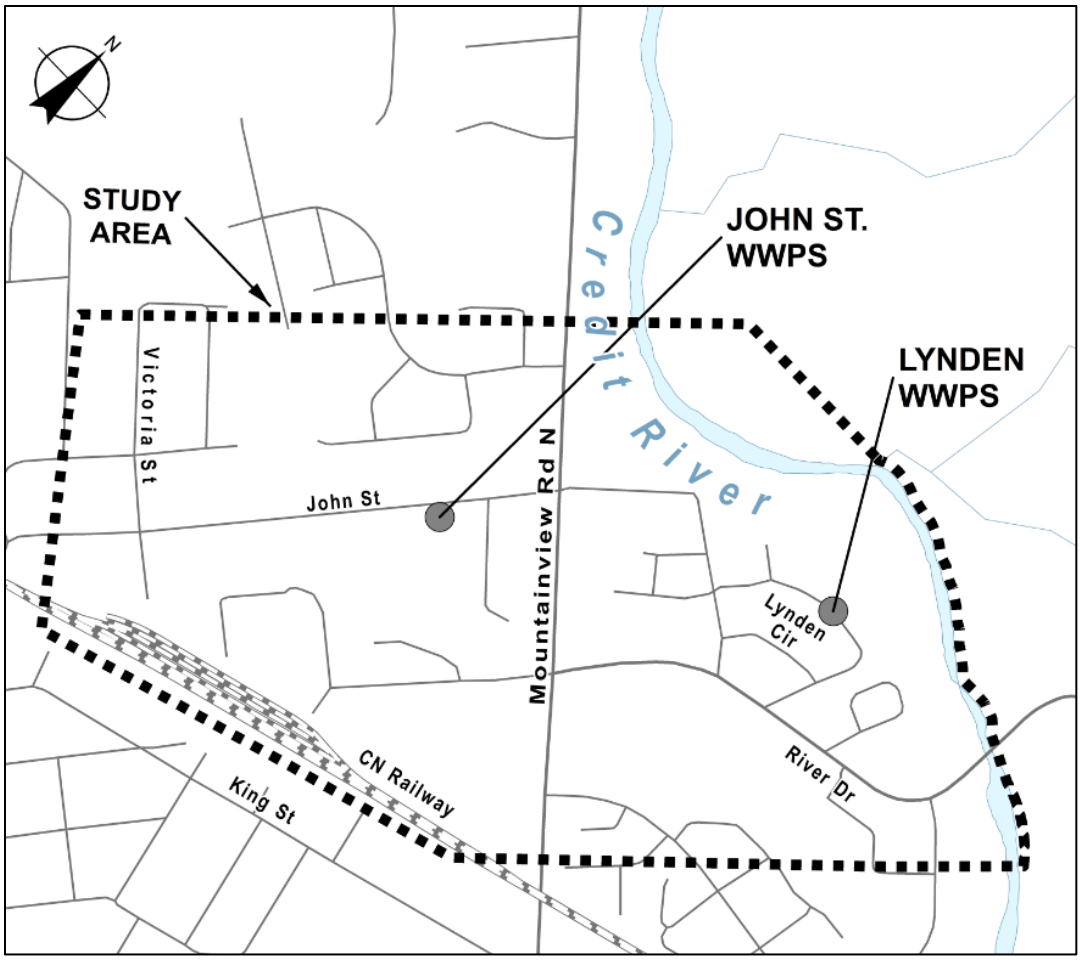


Figure 2: Study Area

1.5 Problem/Opportunity Statement

Phase 1 of the MCEA process involves the identification and description of the problem or opportunity. In general, projects are undertaken to address identified problems or deficiencies, or because of an opportunity that has been previously defined. Often, these problems or opportunities have been described in an earlier Study or review.

There is also an opportunity to provide forcemain redundancy and an emergency overflow in order to comply with Halton Region's latest design standards.

The problem/opportunity statement for this MCEA Study has been defined as follows:

> **"The purpose of this Study is to undertake a Schedule B Municipal Class Environmental Assessment to consider a wide range of wastewater pumping station and associated infrastructure upgrades in order to select the most appropriate design concept that meets Halton Region's latest design standards and pumping needs, including provision for an emergency over flow."**

2.0 Environmental Assessment Process

In Ontario, a project may trigger the need for a federal and/or provincial Environmental Assessment as per the *Canadian Environmental Assessment Act (CEAA), 2012*, or the *Ontario Environmental Assessment Act, 1990*. Each is discussed in the sections below, along with a description of the relevance to this undertaking.

2.1 Canadian Environmental Assessment Act

The need for a study to be conducted under the CEAA can be triggered by municipal-level projects if the following requirements are met:

- Requirement for federal land
- Requirement for federal approval (e.g. Fisheries Act, or any other applicable federal Acts)

Because the John Street WWPS is located on property owned by the Town of Halton Hills, the associated sewers and forcemains are within easements and no federal funding or approvals are required, this project is not anticipated to trigger the need to comply with the CEAA.

2.2 Municipal Class Environmental Assessment

Under the *Ontario Environmental Assessment Act*, complex projects that have the potential to cause adverse environmental impacts, minimal or significant, with major public interest, must prepare a MCEA to be approved by the Ministry of the Environment and Climate Change (MOECC).

A MCEA is a streamlined planning process to produce an environmental assessment where the applicable projects are of routine nature with predictable and manageable environmental effects and is one that includes municipal road, water, and/or sewer projects. Projects can vary in their environmental impacts and are categorized in schedules, as shown below in Table 1.

Table 1: Description of the Class of Undertakings

Schedule	Description
Schedule A	• Pre-approved projects as the environmental impacts are minimal (e.g. normal or emergency operational and maintenance activities).
Schedule A+	• Pre-approved projects that must advise public prior to implementation.
Schedule B	• Potential for adverse environmental impacts. • Proponent is required to proceed with a screening process involving mandatory consultation with those affected (e.g. public, review agencies). • Projects generally include minor expansions and improvements to existing facilities.
Schedule C	• Potential for significant adverse environmental impacts. • Proponent is required to proceed with a full MCEA planning and documentation process as outlined in the MCEA. The Environmental Study Report (ESR) must be prepared and filed for review by the public and review agencies. • Projects generally include major expansions to existing facilities or the construction of new facilities.

Source: Municipal Class Environmental Assessment Document (MEA, 2015)

2.3 Confirmation of John Street WWPS MCEA Project Schedule

The scope and extent of the upgrades proposed in the 2013 *John Street WWPS Condition Assessment Report* led to the decision to proceed as a Schedule B project. In many situations, upgrades can be confined to the existing building footprint, which would require only a Schedule A+ MCEA. For the John Street project, however, considering the fact that a new pump station location must be considered to accommodate the necessary upgrades, a Schedule B is required, as excerpted from the MEA MCEA document:

> *"Construct new pumping station or increase pumping station capacity by adding or replacing equipment and appurtenances, where new equipment is located in a new building or structure."* (Municipal Engineers Association, 2015)

Works associated with the emergency overflow and the forcemain have also been considered under this Schedule B MCEA undertaking.

2.4 MCEA Planning Process

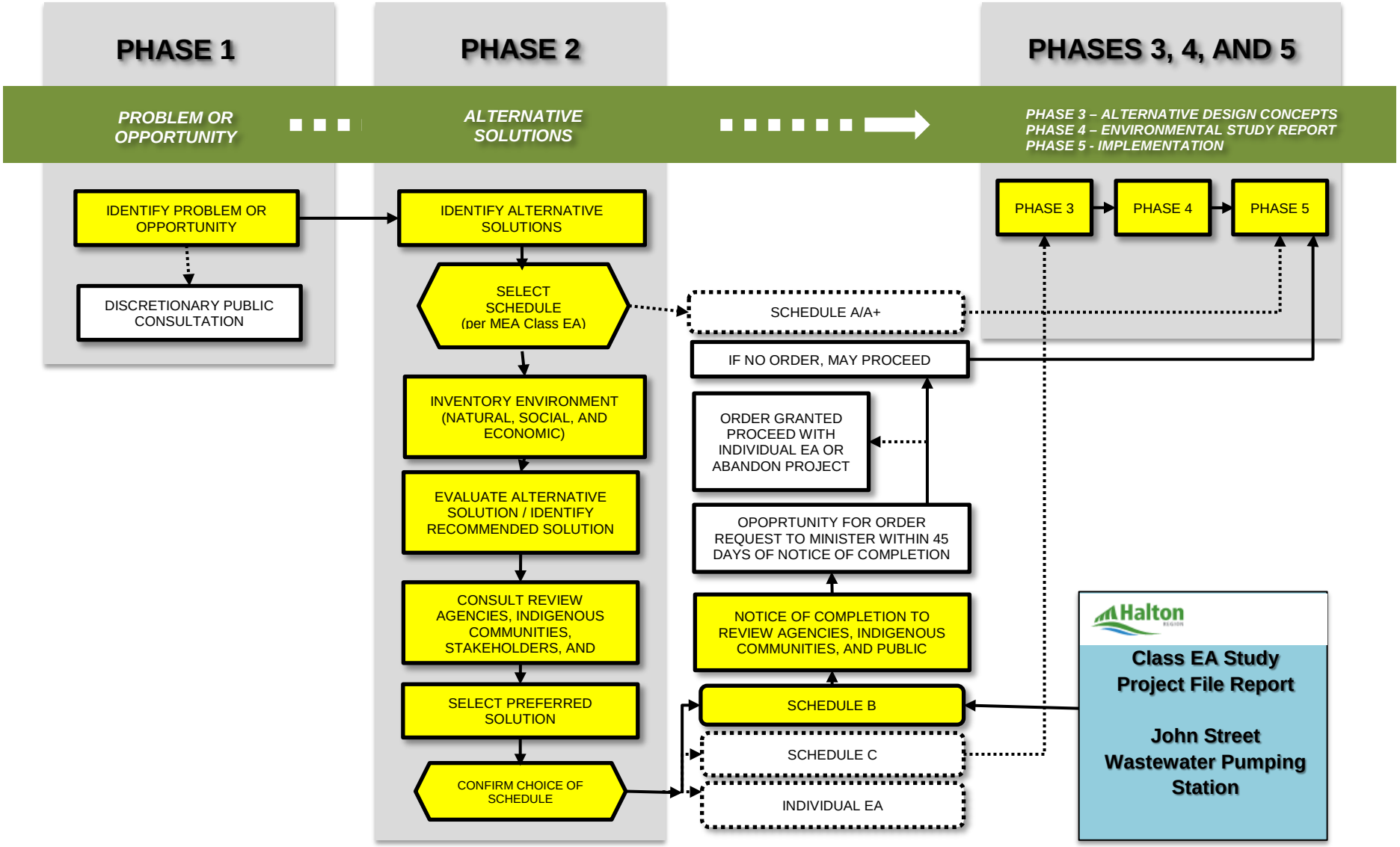
The full MCEA Planning Process involves five phases. However, as this project is following a Schedule B process, only Phases 1, 2 and 5 are required. Phases 3 and 4 are only required for Schedule C projects. These phases are described below in Table 2 and illustrated in Figure 3.

Table 2: Five Phase MCEA Planning Process, MEA

Phase	Description
Phase 1	• Identify the problem (deficiency) or opportunity and create a long list of options for addressing them.
Phase 2	• Review the long list of options taking into account existing environment factors such as natural, social and economic environment, agriculture, technical, cost, etc. • Create a short list of Alternative Solutions. • Present the Alternative Solutions to the public and various agencies through a Public Information Centre to determine the Preferred Solution. • The Project File is reviewed by agencies (MOECC, etc.). • The Project File is placed on “public record” for a 30-day review period.
Phase 3	• Once the Preferred Solution is determined, the alternative methods to this solution are examined. Based on the existing environment and public and agency review, the environment effects and mitigation measures to reduce these effects are evaluated.
Phase 4	• The findings in Phase 1, 2 & 3, as well as the conceptual design of the preferred alternative method are documented in an Environmental Study Report (ESR). The ESR is placed on “public record” for a 30-day review period.
Phase 5	• The completion of the Design phase and construction of the project is undertaken in Phase 5.

Source: Municipal Class Environmental Assessment Document (MEA, 2015)

Figure 3: Schedule B Municipal Class EA Process for John Street WWPS



2.5 Overview of Public, Indigenous Communities, and Agency Consultation

Schedule B projects require a minimum of two points of contact for stakeholder consultation: the first contact is in middle of Phase 2 and the second occurs at the end of Phase 2. At each point of contact the proponent is required to place a notice in a local newspaper (twice) and in addition mail the notice to stakeholders. However, there is also an optional point of contact made in many EAs; the Notice of Commencement. These points of contact are described in greater detail in the following paragraphs.

The first point of contact (optional) is the Notice of Commencement, which takes place in Phase 1 of the MCEA process. The Notice of Commencement informs stakeholders, including the public, Indigenous Communities, and review agencies, of the undertaking and provides contact information for submission of comments.

The second point of contact (required) which takes place in Phase 2 of the planning process. In addition to publishing a notice and conducting mailouts the Region held an optional Public Information Centre (PIC). The purpose of the PIC is to present the problem or opportunity, Alternative Solutions to the problem, general inventory of the natural social and economic environments, and the evaluation process. The Preliminary Preferred Solution is also presented at the PIC.

Stakeholders are invited to review issues, provide input to the identification of the problem, as well as the development of Alternative Solutions, and assist in the selection of a Preferred Solution.

The final point of contact (required) is the Notice of Completion. This Notice informs stakeholders that the MCEA process has been completed and that the Project File has been placed on the public record for review. The Notice also explains the process to request a Part II Order, should concerns remain after contacting the project team for resolution.

The project Communication and Consultation Plan as well as specific consultation activities that were undertaken for this MCEA are discussed in Section 7.0.

3.0 Existing Technical Environment

The purpose of this section is to summarize pertinent technical information related to the existing wastewater system infrastructure, the remaining life of this infrastructure, and the current capacity of the wastewater system. This section is also used to document the John Street WWPS catchment area and to discuss findings and assumptions regarding existing constraints and future needs of the wastewater infrastructure.

3.1 Background Documentation

A number of background reports were provided for review. These include:

- John Street Sanitary Lift Station Renovation Feasibility Study – Marshall Macklin Monaghan, 1992;
- John Street Wastewater Pump Station Assessment Report – Associated Engineering, 2006;
- John Street Wastewater Pump Station Condition Assessment – Genivar, 2013; and
- Review of Overflow alternatives for John Street WWPS – Environmental Infrastructure Solutions Inc. 2016.

In addition to the background reports a number of regional guidance documents and standards were provided. These include:

- Water and Wastewater Linear Design Manual – Halton Region, April 2015; and
- Water and Wastewater Facilities Design Manual – Halton Region, January 2012.

In addition to these studies and standards, a number of technical resources were provided. These include:

- Copies of available engineering drawings for the facilities generally covering:
  - Original PS Construction – 1970;
  - PS Upgrades – 1984;
  - PD Upgrades – addition of third pump – 2002;
  - Plan and Profiles – John Street WWPS to St. Vincent Street;
- GIS information on the wastewater infrastructure; and
- Copy of the Region's sanitary sewer model.

3.2 John Street WWPS Catchment Area

The John Street WWPS services a north-east portion (primarily residential) of Georgetown in the Town of Halton Hills. In addition to its own catchment area, the John Street WWPS receives sanitary flows from the Lynden Circle WWPS catchment. Flow from the Lynden Circle WWPS is pumped via a 150 mm diameter forcemain into a 375 mm diameter gravity sewer at John Street and Mountainview Road. The 375 mm diameter gravity sewer drains to the John Street WWPS. From the John Street WWPS, collected wastewater is pumped via a single 300 mm diameter forcemain to a manhole 100 m east of the intersection of Victoria Street and John Street. The manhole discharges to a 300 mm diameter gravity sewer that connects to the Silver Creek trunk sewer. The Silver Creek trunk sewer drains southward to the Georgetown WWTP.

The Region has identified that the catchment area for the John Street WWPS is approximately 88 ha (see Figure 4).

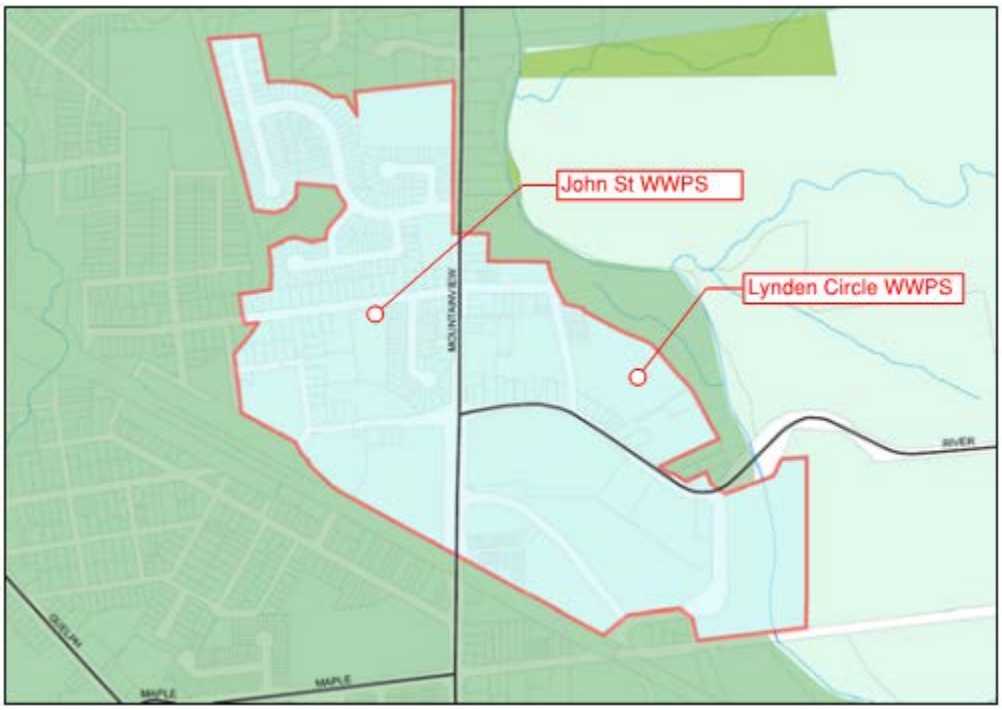


Figure 4: John Street Wastewater Pumping Station Catchment Area

3.3 John Street WWPS Capacity and Infrastructure Review

3.3.1 Current Station Flow Rates and Future Projected Flow Rates

The John Street WWPS currently operates at an average daily flow of 5 L/s and a peak hourly flow of 67 L/s. These flow estimates include wastewater from Lynden Circle WWPS.

The Region estimates the 2031 peak hourly flow to the facility including allowances for inflows and infiltration at 87 L/s.

3.3.2 Pump Capacity

John Street WWPS currently operates under Certificate of Approval (C of A) Number 4434-5FZMS4.

The two pumps in the dry well (P1 and P2) are Vaughan chopper pumps. Each pump is rated for 63.1 L/s at 32.3 m of head. The submersible pump (P3), located in the wet well, is a Flygt pump, and was installed in 2003. The submersible pump is rated at 62 L/s.

Previous studies have identified the firm pumping station capacity at 87 L/s (i.e., capacity of the station with the largest pump out of service). The firm capacity of the WWPS was confirmed through a field test. Given that the current measured peak flow to the station is 67 L/s the existing capacity is considered adequate.

Any upgrades recommended as part of this Study will be designed to accommodate the Regions' projected 2031 flow requirement of 87 L/s. Additional capacity information can be found in Section 6.1.

3.3.3 Pump Cycle Times

Previously completed assessments have concluded that the minimum cycle times for pumps 1, 2 and 3 based on the current Milltronics set points and the results of the recently conducted draw down tests are 6.4 minutes, 5.8 minutes, and 5.8 minutes respectively. These cycle times translate to approximately 10 starts per hour which is generally deficient (too many starts per hour) in comparison to Halton's Water and Wastewater Facilities Design Manual standards.

3.3.4 Forcemain Capacity

Wastewater from the John Street WWPS is discharged via a 300 mm diameter forcemain that is approximately 340 m long and constructed of PVC pipe. The minimum forcemain velocity is approximately 1.3 m/s with one pump running at 62 L/s. At minimum acceptable velocity of 0.70 m/s the forcemain would convey 34.4 L/s and at the maximum acceptable velocity of 2.5 m/s the forcemain would convey 122.7 L/s. This is adequate to accommodate future flows as defined above. As per the Region's design standards, a second forcemain will be required for redundancy purposes.

3.3.5 Emergency Generator and Electrical Equipment

The electrical equipment, 935 L fuel tank and 125 kW diesel generator are located in the above-grade section of the pumping station. This arrangement is not consistent with current design guidelines, standards and regulations including NFPA 820, the Ontario Electrical Safety Code, as well as the provisions of the Halton Special Projects Design Manual, with respect to hazardous area classification, and the electrical equipment and/or ventilation required by the space classification. These issues will be addressed with any upgrades proposed.

3.3.6 Wet Well Storage

Available storage in the John Street WWPS wet well, from the bottom of the pump intakes to the invert of the influent pipe is approximately 28 m^3.

The Region's standard for storage indicates that wet well storage must be equal to or greater than four hours of system storage at peak wet weather flow. Therefore, the station currently provides less than 10% of the required storage volume.

The portion of the pumping station site that is enclosed by a chain link fence measures approximately 19 m x 22 m. It is anticipated that the foot print of a new site would require expansion beyond the limit of the currently fenced area. This will be addressed with any upgrades proposed.

3.4 Lynden Circle WWPS

The Lynden Circle WWPS discharges to a gravity sewer on John Street where the flow is then conveyed by gravity to the John Street WWPS. The Lynden Circle WWPS is equipped with two submersible pumps with estimated capacities of 34 L/s and 30 L/s. When operating together the estimated discharge is 43 L/s.

The Region has identified that, as part of the EA Study, consideration should be given to the benefits of redirecting the discharge from this station such that it bypasses the John Street WWPS and discharges directly to the gravity sewer at Victoria Street.

4.0 Existing Natural Environment

4.1 Overview

As part of this MCEA Study, a set of natural environment investigations were undertaken to document the existing conditions of the Study Area and provide support to the MCEA Study from a natural environment perspective. The preliminary investigations included identification and consideration of all the natural heritage features within the Study Area.

Documentation of existing conditions was based on a desktop assessment of aerial imagery and a review of background data from secondary sources to describe natural heritage conditions within the Study Area. The review of existing background documentation included the following resources:

- Site aerial imagery;
- Mapping of physiography and soils;
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) database;
- Ontario Bird Breeding Atlas (OBBA) database;
- Ontario Reptile and Amphibian Atlas (ORAA) database;
- Land Information Ontario (LIO) MNRF data layers;
- MNRF fisheries records;
- MNRF data request submission; and
- Credit Valley Conservation (CVC) GIS Layers.

Source information was compiled and analyzed to develop a general description of the terrestrial and aquatic habitat features, vegetation and wildlife within the Study Area. Based on this, the need for natural heritage field studies was identified so that they could be completed to provide more detailed information to assist in the evaluation of the Alternative Solutions. In addition, MNRF was consulted to obtain additional information regarding the natural heritage system and potential species at risk in the project area (Aurora District MNRF September 2017).

Existing conditions documented through review of available background information were confirmed during field investigations. Efforts were made to confirm conditions in proximity to the routing of the four short-listed alternative solutions under consideration for the EA.

Natural features within the Study Area in the form of parklands, stream corridors, and open fields were screened for any designations under local, regional and provincial policies, the results of which are summarized in the following sections.

4.1.1 Areas of Natural and Scientific Interest (ANSIs)

Areas of Natural and Scientific Interest (ANSI) are designated by the MNRF. Records contained within the MNRF LIO database did not indicate the presence of any Life Science or Earth Science ANSIs within, or in close proximity to, the Study Area.

4.1.2 Significant Wetlands

Wetland features were screened through available GIS data layers provided by MNRF through LIO and confirmed through MNRF consultation (Aurora District MNRF September 2017). Three types of wetland features are identified in MNRF data layers: provincially significant wetlands (PSWs), evaluated wetlands and unevaluated wetlands. The status of wetlands is determined through an evaluation according to the Ontario Wetland Evaluation System (OWES). PSWs are those for which an OWES evaluation has resulted in a score sufficient to qualify as a provincially significant feature. Unevaluated wetlands are wetland features that have not undergone an OWES evaluation; while, those presented as evaluated wetlands are features where an OWES evaluation has been completed but the score is insufficient to qualify as a provincially significant feature. Evaluated wetlands may also be considered locally significant wetlands.

No PSWs or evaluated wetlands are present within the Study Area. However, unevaluated wetland segments were identified within the Study Area corridor.

4.1.3 Environmentally Sensitive Areas (ESAs)

Environmentally Sensitive Areas (ESAs) are identified in the Town of Halton Hills Official Plan (OP). No such areas, as identified in Appendix X1A (2008, consolidated 2017) of the Town's OP, are located within the limits of the Study Area.

4.1.4 Natural Heritage System (NHS)

A portion of the Study Area near the proposed location of the emergency overflow pipe falls within the Halton Region Natural Heritage System (NHS), as defined in the Halton Regional Official Plan (2009).

4.1.5 Source Water Protection Vulnerable Area

A portion of the Study Area falls within Source Water Protection Vulnerable Areas as detailed in the Credit-Toronto-Central (CTC) Source Protection Plan. Specifically, portions of the Study Area fall within the Water Quantity Well Head Protection Area (WHPA-Q), the Water Quality Well Head Protection Area (WHPA-E), and an Issue Contributing Area for Chloride.

4.2 Physical Environment

The Study Area is situated within the Niagara Escarpment and South Slope physiographic region of Southern Ontario. Several native soil types are found within the study Area: Chinguacousy clay loam, Font sandy loam, Granby sandy loam, Guelph loam, Oneida clay loam and Ravines. Ravines are located along the Credit Rive. To the west of the Credit River soil types include Oneida clay loam, Guelph loam, Granby sandy loam and Font sandy loam. To the east of the Credit River soils consist of Oneida clay loam. Chinguacousy clay loam lies in the southern limits of the Study Area.

The topography within the Study Area gradually decreases from west to east with a significant decline around the Credit River, with the elevation measuring between 262 to 225 m above sea level.

4.3 Terrestrial Environment

4.3.1 Vegetation Communities and Significant Natural Areas

Vegetation communities were characterized using methodologies as presented by Lee et al. (1998) in the Ecological Land Classification (ELC) System for Ontario (First Approximation). As part of these studies, information on the plant species documented within the Study Area was compiled into a plant inventory. Field surveys were conducted on July 13, 2017. Seven distinct vegetation communities were identified within the Study Area, split between seven ecosite polygons. The communities are illustrated on Figure 2 in Appendix A1. The communities identified were:

- Water Lily Floating-leaved Shallow Aquatic / Cattail Mineral Shallow Marsh Ecosite (SAF1-1 / MAS2-1);
- Fresh – Moist Oak – Sugar Maple Deciduous Forest Ecosite (FOD9-1);
- Fresh – Moist Sugar Maple – Hardwood Deciduous Forest (FOD6-5) with White Cedar Mineral Coniferous Swamp (SWC1-1) and Maple Mineral Deciduous Swamp (SWD3) Inclusions;
- Fresh – Moist Black Walnut Lowland Deciduous Forest Ecosite (FOD7-4);
- Reed-canary Grass Mineral Meadow Marsh Ecosite (MAM2-2);
- Dry – Moist Old Field Meadow Ecosite (CUM1-1); and
- Fresh – Moist Black Walnut Lowland Deciduous Forest Ecosite (FOD7-4).

The Study Area is significantly disturbed by anthropogenic land uses. No rare vegetation communities or plant species were documented as part of the field data collection.

The ecosites present within the Study Area, in combination with the Study Area's proximity to the Credit Valley River, indicate the potential presence of 11 Significant Wildlife Habitat types. One of these habitat types (Bat Maternity Habitat) has been confirmed as present through acoustic monitoring conducted in the summer of 2017.

One other type (Rare Vegetation Communities – Sugar Maple - Hemlock Mixed Forest) was determined as not present within the Study Area. There is also potential habitat for five species listed as Special Concern by the ESA, 2007 with observation records identified in the Study Area vicinity. Wildlife habitat and species are discussed in the following sections.

Further details about the Vegetation Communities can be found in the Vegetation Communities and Significant Natural Areas Memo in Appendix A1.

4.3.2 Avifauna (Breeding Birds)

Breeding bird surveys were conducted for this project on June 8 and July 4, 2017 by an Avian Biologist. Breeding bird surveys were completed following the general principles outlined in the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (March 2001), tailored to the needs of this project.

A total of 30 summer resident bird species, exhibiting some level of breeding evidence, were observed within the Study Area during targeted breeding bird surveys (i.e., probable, possible or confirmed). Three additional bird species were observed as either flyovers over the Study Area or foraging in the ponds in the Study Area during breeding bird surveys, but no breeding evidence (i.e., suitable breeding habitat or breeding behavior) was recorded in the Study Area limits: Great Blue Heron (*Ardea herodias*), Barn Swallow (*Hirundo rustica*), and Chimney Swift (*Chaetura pelagica*).

Three bird species listed as provincially significant under the ESA, 2007 were observed in the Study Area during the breeding bird surveys: Barn Swallow (Threatened), Chimney Swift (Threatened) and Eastern Wood-pewee (*Contopus virens*) (Special Concern). For Barn Swallow and Chimney Swift it is concluded that nesting habitat for these two species is not considered present in the Study Area. Eastern Wood-pewee was recorded as a probable breeder in the riparian corridor.

The majority of breeding bird species observed in the Study Area are considered common, widespread, and abundant in the province. No bird species listed as Threatened or Endangered under the ESA, 2007 were confirmed breeding in the Study Area limits.

Further details about the Breeding Birds can be found in the Breeding Birds Memo in Appendix A2.

4.3.3 Herpetofauna (Amphibians)

Amphibian breeding call counts were conducted through a three-night survey of wetland and pond habitat features within the Study Area to determine the presence of breeding amphibians, on April 21, May 6, and July 6, 2017.

A total of five survey station locations were surveyed as part of the field data collection (Figure 2 in Appendix A3):

- Survey Station 1 located adjacent to the western end of the easternmost pond within the valley;
- Survey Station 2 located between Ponds 2 and 3;
- Survey Station 3 is located beside the CRAA Hatchery;
- Survey Station 4 located at the property boundary where the entry driveway is closest to the Credit River; and
- Survey Station 5 located adjacent to the stormwater management pond located in the south corner of the intersection of Mountainview Road and Meadowglen Boulevard.

The locations of the five amphibian survey locations are illustrated on Figure 2 in Appendix A3.

Three species were observed (heard calling and/or seen) within the Study Area, over the course of the three site visits: Gray Treefrog (*Hyla versicolor*), Green Frog (*Lithobates clamitans*), and American Bullfrog (*Lithobates catesbeianus*).

A number of incidental observations for herpetofaunal species also occurred during other field surveys, including:

- June 8th – Pond #4 – 1 Midland Painted Turtle basking on log;
- June 8th – Pond #1 – 2 Bullfrogs calling; also 1 Green Frog calling; and
- June 8th – SWM Pond – 2 Green Frog calling.

A search of the Ontario Reptile & Amphibian Atlas for the OBM Square associated with this project for Northern Map Turtle did not result in any records for this stretch of the Credit River.

Further details about the assessment of amphibian habitat can be found in the Amphibian Survey Memo in Appendix A3.

4.3.4 Bats and Bat Habitat

In April 2017, MNRF Guelph District released the *Survey Protocol for Species at Risk Bats within Treed Habitats* for three of Ontario's four Endangered bat species (Little Brown Myotis – *Myotis lucifugus*; Northern Myotis – *Myotis septontrionalis*; Tri-colored Bat – *Perimyotis subflavus*) (MNRF, 2017c). These three species, along with Eastern Small-footed Myotis (*Myotis leibii*) were designated as Endangered on the Federal *Species at Risk Act*, 2002 in 2014 after observations of dramatic population declines of these species throughout eastern North America (ECCC, 2015). The 2017 protocol is separated into two sub-protocols, a "leaf-off" and a "leaf-on" survey which each target different species. These two surveys focus on treed habitat features, including forests,

swamps and cultural woodlands. Prior to any future study of Species at Risk Bats the MNRF should be consulted to confirm the protocol for such future studies.

The natural environment for bats and bat habitats within the Study Area was assessed using a combination of background review and field studies. Works included identification of candidate Bat Maternity Habitat (BMH) and subsequent acoustic monitoring, since the findings of the “leaf-off” and “leaf-on” surveys resulted in the MNRF requirement for acoustic surveys to confirm the presence of endangered bat species within an area of study.

Leaf-off Survey

Leaf-off surveys of treed habitat for maternity / roosting colonies focus on Little Brown Myotis and Northern Myotis. These species roost in tree cavities or under loose bark. Leaf-off surveys were completed on April 28, 2017. All treed habitat within the Study Area were surveyed for traits that indicate potential BMH for Little Brown and Northern Myotis.

Leaf-on Survey

Tri-colored Bats show strong preference to roosting in the foliage of oak and maple trees, especially those that feature dead or dying clusters of leaves. This survey protocol targets these specific habitat features. Leaf-on Surveys were completed on May 25, 2017. Areas with oak and maple trees were identified during the leaf-off phase of the BMH survey protocol. As such, survey efforts focused on the mixed and deciduous forest communities.

Only treed ecosites within the Credit River Valley were considered for potential BMH because no impact to treed ecosites is anticipated elsewhere in the Study Area. Within these polygons, 94 trees were identified during leaf-off surveys as candidate BMH for Little Brown Myotis and Northern Myotis. 276 trees were identified during leaf-on surveys as candidate BMH for Tri-colored Bats.

Acoustic Survey

Following the screening of leaf-on and leaf-off surveys, candidate BMH trees were selected as potential acoustic monitoring station locations based on bat habitat suitability. Five acoustic monitoring stations were selected to assess the presence of Species at Risk (SAR) bats within the Study Area. These acoustic monitoring stations are illustrated in Figure 2 in Appendix A4. Acoustic surveys were carried out by Natural Resource Solutions Inc. (NRSI). Passive acoustic monitoring was conducted between June 20 and July 5, 2017 for a total of 15 nights at all monitoring stations. Acoustic detectors were set to record bat passes for a total of five hours each night during the monitoring period, commencing at sunset.

Six bat species were identified through acoustic monitoring, including two SAR species (Little Brown Myotis and Eastern Small-footed Myotis (*Myotis leibii*). No suitable roosting habitat was present for one of these species (Small-footed Myotis); it was concluded that this species was utilizing the Study Area for forage only. Suitable habitat was confirmed for the second identified species (Little Brown Myotis). Forested habitats within the riparian corridor have therefore been confirmed as protected SAR habitat.

Further details on bats and bat habitats and surveys can be found in the Bat Maternity Habitat Memo in Appendix A4.

4.4 Tree Inventory

Tree inventories were conducted on July 30 and September 28, 2017. Assessed areas include parklands, municipal boulevards, and private residential properties. A total of 96 individual trees ranging in size from 1 to 97 cm in Diameter at Breast Height (DBH), were identified in the assessed areas with tree health ranging from Good to Poor. Existing trees are represented by 22 different species along areas potentially impacted by the proposed improvements. No tree SAR were present. Determination of impacts to trees resulting from the proposed construction will require additional detail at the future design stages (e.g., 50% design completion or greater). Further details about trees included in the tree inventory can be found in the Tree Inventory Memo in Appendix B.

4.5 Aquatic Environment

An aquatic assessment was completed based on the proximity of the potential works to several watercourses and potential fish habitat, as well as Ontario Regulation (O.Reg.) 160/06, Development, Interference with Wetlands & Alteration to Shorelines & Watercourses Regulation, administered by Credit Valley Conservation (CVC). A comprehensive desktop review of background information was completed to compile existing information related to the local aquatic environment available for the Study Area.

Burnside ecology staff conducted site reconnaissance on June 20, 2017 to assess the existing conditions and determine the form, function and morphology of the watercourses and waterbodies present within the Study Area. Since several of the potential alternative options for the emergency overflow location involve the watercourses and waterbodies within and adjacent to the riparian corridor and the Credit River, most of the information review efforts were focused there.

4.5.1 Surface Water Features

The Site is located within the Glen Williams to Norval Sub-watershed within the Middle Tier of the Credit River (mainstem of the Credit River runs directly through the Study Area). Major features within the middle tier of the Credit River Watershed include the Niagara Escarpment, the mainstem of the Credit River, as well as two of its major tributaries; Silver Creek and Black Creek.

The sources were reviewed for information regarding watercourse management, resident fish species and habitat, as well as water quality within the mainstem of the Credit River in the region of the Study Area.

In total, two watercourses and a private pond system consisting of four connected private ponds (connected to the Credit River) were examined as part of the aquatic habitat assessment. These relatively large private ponds (1, 2, 3, and 4, respectively) are located south of the Credit River, north of Lynden Circle and are aligned in a west to east configuration within the riparian corridor which could potentially be connected to the Credit River.

Burnside also notes that a fish hatchery operated by the Credit River Anglers Association (CRAA) is located west of these private ponds, adjacent to the Credit River. Refer to Section 4.5.2.

Credit River

The mainstem of the Credit River was observed flowing northwest to southeast through the Study Area. The morphology of the upstream section of the Credit River within the Study area was characterized as a run-type morphology for approximately 140 m then flows through a riffle section. The substrate within this section was predominantly cobble, with gravel and sand. The northern bank was eroded and relatively steep. Prior to flowing over the Paper Mill Dam and out of the Study Area, the Credit River flows into a deep scour pool section, between the River Road Bridge and Paper Mill Dam. It has been noted that recent shoreline stabilization measures in the form of large boulders constructed along portions of the southern banks within the riparian corridor have been implemented. Active erosion was also noted along the outside meanders, downstream of the shoreline stabilization measures. A limited amount of large instream woody debris was present within the river, with the majority of in-stream cover being represented as boulders and large cobble. Overhanging riparian vegetation was observed along the shorelines through grasses, forbs, as well as mature shrubs and trees along the stream banks.

Water quality within the mainstem of the Credit River is monitored by the Credit Valley Conservation Authority (CVC) at locations upstream and downstream of the Study Area. The water chemistry Water Quality Index (WQI) status for a location approximately 8 km upstream of the Study Area is “Good”, while a location at the Highway 7 crossing, approximately 6 km downstream of the Study Area is “Marginal”. This indicates that water quality within the mainstem of the Credit River is likely impacted as it flows between the two locations, through the community of Georgetown.

Stormwater Drain

A stormwater drain was observed flowing from south to north between Pond 1 and Pond 2, north of Lilac Lane. This stormwater drainage enters the property from a concrete pipe outfitted with a debris cage, which emerges from a ravine slope north of Lilac Lane. At the time of the site visit, a relatively small amount of water was observed to be flowing from the culvert outlet, and it is likely that the quantity is supplemented by localized groundwater leaking to the system. Small intermittent sections of the watercourse were also noted as containing watercress, likely indicating a groundwater contribution to the channel. The discharge of stormwater drainage to the Credit River is accomplished through a hanging, compressed corrugated steel pipe culvert which flows beneath the roadway within the property. The configuration of the discharge of this channel is considered a barrier to fish movement and is not considered to provide direct fish habitat. No fish were observed within this channel and it was not directly connected to any of the private ponds.

Private Ponds

The location of the four private ponds is illustrated in detail in Figure 2 of Appendix A5. An excerpt is presented in Figure 5 below.

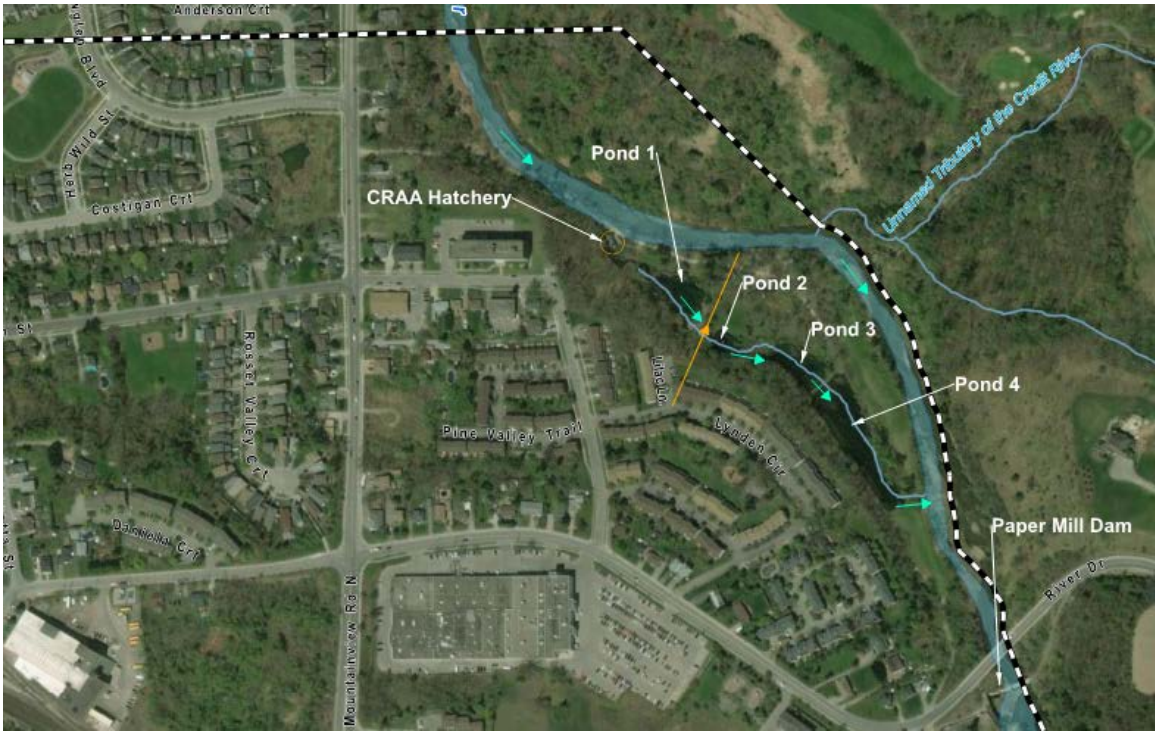


Figure 5: Private Pond Locations

Private Pond 1 – Private Pond 1 is the western most of the four on-site private ponds, approximately 30 m x 50 m, and is connected to the CRAA Hatchery through a narrow and short wooded area. Largemouth bass (*Micropterus salmoides*) and sunfish species (*Lepomis sp.*) were observed within this pond and it has been noted that they have been stocked and are not resident species of the Credit River. The water level in Pond 1 appeared to be maintained through natural groundwater contributions likely flowing from the toe of slope south of the private pond and flows north, toward the river. At the eastern end of private Pond 1 a 150 mm diameter PVC pipe conveys flow downstream to private Pond 2.

Private Pond 2 – Private Pond 2 is located east of private Pond 1 and is approximately 32 m x 21 m. Largemouth Bass and sunfish species were present within Pond 2 and largemouth bass spawning beds were observed near the eastern pond shore. At the eastern end of Pond 2 a 150 mm diameter iron pipe conveys flow downstream to a small man-made channel which flows to private Pond 3.

Private Pond 3 – Private Pond 3 is located downstream (east) of private Pond 2. Pond 3 is approximately 60 m x 30 m. Largemouth bass and sunfish species along with spawning beds were observed in the southeastern corner of Pond 3. A man-made causeway separates private Ponds 3 and 4. The flow of Pond 3 is conveyed to private Pond 4 through a 150 mm diameter iron pipe located beneath the causeway.

Private Pond 4 – Private Pond 4 is the largest of the private ponds approximately 130x35 m. Largemouth bass and sunfish species were observed within private Pond 4. Within the northeastern corner of private Pond 4 there is a 150 mm diameter iron pipe that conveys flow northeast, to the Credit River.

Credit River Anglers Association (CRAA) Hatchery

The Hatchery is located south of the driveway of the privately-owned land (riparian corridor) and the forested ravine slopes of the corridor west of the private ponds (see Figure 2 in Appendix A5). It consists of several closed tanks and pens as well as a pond feature which is located around its tanks. The water within this area appeared to be supplemented with groundwater, which supports the hatchery operation by providing a source of clean, cold water.

The hatchery raises steelhead (migratory rainbow trout), brown trout and Atlantic salmon.

4.5.2 Fish and Fish Habitat

The Credit River is a well-known fishery that provides habitat to several species of sportfish including migratory salmonids. The Credit River within the Study Area is classified as a cool/mixed water watercourse and is to be managed as a mixed cool / cold-water fishery.

Several fish species (largemouth bass, pumpkinseed and unknown salmonid species), were observed within the CRAA Hatchery and connected private ponds during site visits in June 2017. The private ponds are connected to the Credit River, allowing for downstream fish passage, and are considered to be part of a “Fishery” as described in the *Fisheries Act*, 1985. The review of the Fisheries and Oceans Canada (DFO) SAR mapping (2017) did not indicate any aquatic SAR present within the Study Area.

Further details about aquatic environment, habitat inventory (including a summary of potential fish species present within the main branch of the Credit River) and surveys can be found in the Aquatic Environment Memo in Appendix A5.

5.0 Existing Socio-Economic Environment

5.1 Land Use

The Study Area includes a combination of residential, commercial, institutional and industrial land uses, with the additional presence of parks and playgrounds within the Study Area (see Figure 2 in Appendix C). There is vacant land present in the Study Area.

According to the Halton Hills zoning by-law, the Study Area is mainly low density residential. The current location of the John Street WWPS is located in a zoned ‘open space’ (OS1).

5.2 Archaeological Resources

A Stage 1 Archaeological Assessment was completed by Archeoworks Inc., in support of this MCEA Study. The complete Stage 1 Archaeological Assessment Report is included in Appendix D for further reference. The following summarizes the assessment, findings and recommendations.

A Stage 1 Archaeological Assessment background research was undertaken to identify the potential for the recovery of archaeologically significant materials within the Study Area. To determine the archaeological potential classification of the Study Area, a desktop review of ground conditions was undertaken using historical aerial photography and satellite imagery. The desktop review identified parts of the Study Area as having archaeological potential removed (i.e., areas of identified deep and extensive disturbance) and parts of the Study Area as having low to no archaeological potential. The remaining balance of the Study Area was identified as retaining archaeological potential.

Based on the findings detailed in Appendix D, the following recommendations are made:

1. Lands encompassed within the Study Area limits which have already been subjected to Stage 1, Stage 2, and/or Stage 3 survey (Archaeological Services Inc., 2009b; Stantec Consulting Ltd., 2015; AMICK Consultants Ltd., 2016), and deemed free of further archaeological concern are recommended to be exempt from further assessment.

2. Parts of the Study Area that were identified as having archaeological potential removed need to be confirmed through an on-site property inspection during a Stage 2 Archaeological Assessment.

3. Parts of the Study Area that were identified as having no or low archaeological potential (i.e., areas of steeply sloping terrain and low-lying wet areas and watercourses) need to be confirmed through an on-site property inspection during a Stage 2 Archaeological Assessment.

4. Parts of the Study Area that were identified as retaining archaeological potential and that would be disturbed by the construction of the preferred alternative must be subjected to a Stage 2 Archaeological Assessment.

5. It should also be noted that the Stage 1 Archaeological Assessment also identified four designated heritage properties (24, 29, 31, and 33 John Street) in the proximity of Victoria Street and John Street intersection. However, the extent of the potential construction, which would be related to the potential future second forcemain, would be approximately 100 m away from the closest property (33 John Street). The presence of these properties should be communicated to the contractor to ensure appropriate mitigating measures are implemented during construction.

6.0 Phase 2 Alternative Solutions Development and Evaluation

6.1 Design Basis

This section describes the design standards and the basis of design that were used to develop and evaluate the alternative solutions.

6.1.1 Design Standards

The following design standards were referenced to develop the Alternative Solutions:

- Water and Wastewater Facilities Design Manual (Halton Region, 2012)
- Water and Wastewater Linear Design Manual (Halton Region, 2015)
- Design Guidelines for Sewage Works (MOECC, 2008)

6.1.2 Current Capacity and Historical Performance

The Region has established through field testing that the John Street WWPS has a firm rated capacity of 87 L/s. The current average daily flow rate to the station is 5 L/s and the current peak hourly flow to the station is 67 L/s, as estimated by Halton Region.

6.1.3 Future Capacity Requirements

The current Regional Water and Wastewater Master Plan extends to 2031. Any alternative solution evaluated as part of this study must take into account projected increases in wastewater generation rates that arise from population growth in the catchment area, out to 2031. 2031 flow projections have been calculated by the Region using the following methodology:

2031 Projected Flow = Existing Hourly Peak Flow + Increase in Peak Flow due to Growth

For the purposes of this Study, it was assumed that all inflow and infiltration (I/I) has been accounted for in the existing hourly peak flow rate. No additional I/I allowance was included in the calculation of 2031 Projected Flow.

The increase to peak flow due to growth was calculated by multiplying the projected residential and employment equivalent population by the Region's unit wastewater generation rates (i.e., liters per capita daily) to obtain an average daily flow. The Harmon Peaking Factor was applied to the average daily flow to determine the increase in hourly peak flow to the station.

Using this methodology, the Region estimates a peak hourly flow of 87 L/s at the John Street WWPS in 2031. The current firm capacity of 87 L/s is sufficient to satisfy the Regions projected 2031 requirements. In all alternative solutions presented in this study, the pump station is designed to 87 L/S.

6.1.4 Twin Forcemain

The existing WWPS is equipped with a single forcemain. This is a point of vulnerability in the existing design in that a blockage of the forcemain or a break in the forcemain prevents the WWPS from conveying flows until repairs or interim works can be provided to restore service. For this reason the Halton's Water and Wastewater Linear Design Manual standard requires that WWPS's be equipped with twin forcemains.

6.1.5 Emergency Overflow

The existing WWPS is not equipped with an emergency overflow. The MOECC Guidelines (2008) and the Region's current Water and Wastewater Facilities Design Manual both recommend providing an emergency overflow for WWPS. Use of the emergency overflow is essentially the final line of defense against surcharging the sanitary collection system. There are many measures in place in the system to avoid the use of the emergency overflow pipe. These include back-up pumps, back-up power, portable pumps and emergency storage as well as alarms and contingency plans that including trucking wastewater.

6.2 General Evaluation Methodology

A two-step evaluation process was used to identify a preferred alternative solution for improvement of the John Street WWPS. As a first step, a long list of alternative solutions was generated. The long list was then screened to identify a short list of alternatives for a more detailed evaluation. The evaluation considered potential impacts on the natural, social and cultural environments, as well as technical issues and costs.

The key advantages and disadvantages of the long list of alternative solutions were documented to identify the alternatives that should be removed from further consideration.

The remaining alternatives were comparatively evaluated using a set of evaluation criteria. The criteria were chosen to address the full definition of the environment as required in the MCEA process including: natural environment, socio-cultural environment, technical considerations and financial considerations.

6.3 Alternative Solutions Development

6.3.1 Identification of Preliminary Alternative Solutions

The project team identified six alternative solutions:

1. Alternative 1 – Do Nothing.

2. Alternative 2 – Upgrade the WWPS at the existing location including the provision of an emergency overflow.

3. Alternative 3 – Construct a replacement WWPS at the existing location including the provision of an emergency overflow.

4. Alternative 4 – Construct a replacement WWPS at a new location including the provision of an emergency overflow.

5. Alternative 5 – Redirect flow from the Lynden Circle WWPS to the Victoria Street gravity sewer, by-passing the John Street WWPS.

6. Alternative 6 – Reduce inflow and infiltration in the collection system.

6.3.2 Site Selection for Alternative 4

Alternative 4 involves constructing a replacement pumping station at a new location. Prior to a detailed evaluation of the option it was necessary to review potential locations and select a preferred location upon which to base the evaluation of this Alternative Solution.

The Study Area was reviewed for potential locations. Key attributes in the selection of candidate parcels were:

- Existing municipal ownership (Town of Halton Hills),
- Appropriate land area, elevation and grade at site, and
- Minimal anticipated disturbances to neighbouring communities.

A total of four parcels were identified. The four options are displayed in Figure 6.

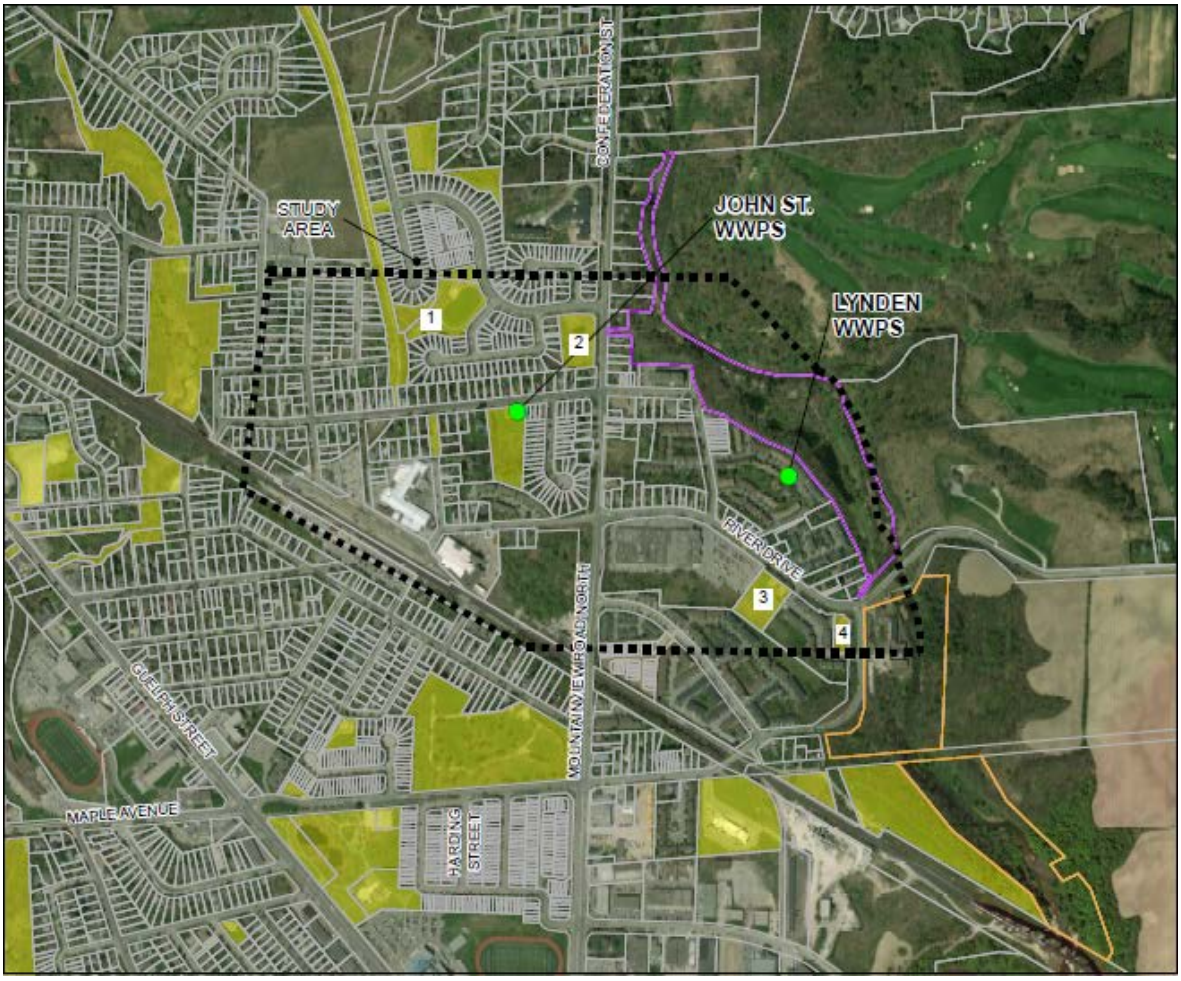


Figure 6: Town of Halton Hills Parcels Evaluated for Alternative 4

To determine a reasonable basis for land parcel size, a preliminary station foot print was developed based on the requirements identified in the Region's Water and Wastewater Facility Design Manual for a Type IV WWPS (based on the flow rating for the facility). It was anticipated that the required site dimensions would be approximately 45 m x 55 m allowing for appropriate property set backs and an anticipated building dimension of 25 m x 30 m.

Alternative Parcel 1 – Meadowglen Park

The parcel is adequate in size (110 m x 124 m) to accommodate the proposed station. There are, however, a number of drawbacks. The parcel is at a higher elevation than the existing station which would result in a deeper pumping structure as well as deep sewer construction. This leads to higher associated costs and longer construction time. Additionally, it is anticipated that the new sewers and forcemain would traverse an existing wooded easement that joins John Street and the park property. The removal of trees would have a negative impact on existing neighbouring properties and may also present concerns with regard to natural environment characteristics. Vehicle access may disturb the relatively newly upgraded park.

Alternative Parcel 2 – Stormwater Management Block on Mountainview Road

The parcel is approximately 110 m x 60 m. The majority of the parcel is occupied by an existing stormwater management pond. The remaining area is not adequate to accommodate the proposed pumping station.

Alternative Parcel 3 – Barber Mill Park

The parcel is approximately 70 m wide x 100 m deep. The portion nearest the street is currently occupied by a neighbourhood park. The property is located at a higher elevation than the John Street Park. The back portion of the park has a considerable slope but is otherwise not occupied. It is anticipated that a pumping station could be located on the back portion of the lot. Access to the pump station would be provided by an access lane parallel to the west property line in order to mitigate impacts on the existing park property. The land parcel is located a considerable distance from the existing facility which will require a significant investment in new infrastructure (i.e., sewers and forcemains). The facility would be deep, the sewers that convey gravity flow from John Street John Street to this location would also have deep sections.

Alternative Parcel 4 – Stormwater Management Block at River Drive and Maple Avenue

The parcel is approximately 30 m x 70 m. The majority of the parcel is occupied by an existing stormwater management pond. The remaining area is not adequate to accommodate the proposed pumping station.

Preferred Parcel for Alternative Solution 4

Based on the review of the identified Parcels, Parcel 2 and 4 are not suitable based on the limited available land area. Parcel 1 is anticipated to have significantly greater social and natural environment impacts than Parcel 3. As such further evaluation of Alternative 4 assumes that replacement facility would be located on Parcel 3 (Barber Mill Park on River Drive).

6.3.3 Site Selection for Emergency Overflow Locations

Alternative Solutions 2, 3 and 4 include the addition of an emergency overflow. To fully characterize and properly evaluate these options it is necessary to identify the general location of the emergency overflow.

Four alternative locations (A, B, C and D) were identified as possible emergency overflow locations:

- Emergency overflow to Credit River - East end of John Street (location A)
- Emergency overflow to Private Ponds (Location B)
- Emergency overflow to Lynden Circle Storm sewer (Location C)
- Emergency overflow to Credit River - upstream of the River Road Bridge (Location D)

The general location of the alternative outfall locations and associated pipe alignment is illustrated in Figure 7.

It should be noted that a previous study (Review of Overflow Alternatives for John Street WWPS by EIS Inc. 2016) concluded that discharging to an existing nearby John Street storm sewer was not feasible, and as such this alternative was not considered.

Figure 7: Alternative Overflow Locations

The preferred emergency overflow location will be confirmed during the detailed design stage of the project. Selection of the preferred location will consider the results of detailed Geomorphology, Hydrogeological, Hydrological, Natural Heritage and Geotechnical studies, all of which will be completed during detailed design (as outlined in Section 8.5 – Future Commitments). Location in proximity to the bed or banks of the Credit River will be subject to approval by MNRF under the Public Lands Act. However, for evaluation purposes, locations A and D were carried forward for further evaluation.

6.4 Pre-screening of the Long List Alternatives

A long list of alternative solutions was generated based on the six alternative solutions and the preceding discussions regarding alternative overflow and pump station locations. The long list of options includes:

- Alternative 1 – Do Nothing.
- Alternative 2A – Upgrade the WWPS at the existing location including the provision of an emergency overflow at location A.
- Alternative 2D – Upgrade the WWPS at the existing location including the provision of an emergency overflow at location D.
- Alternative 3A – Construct a Replacement Station at the existing location including the provision of an emergency overflow A.
- Alternative 3D – Construct a Replacement Station at the existing location including the provision of an emergency overflow D.
- Alternative 4A – Construct a Replacement Station at Barber Mill Park including the provision of an emergency overflow location A.
- Alternative 4D – Construct a Replacement Station at Barber Mill Park including the provision of an emergency overflow location D.
- Alternative 5 – Redirect flow from the Lynden Circle WWPS to the Victoria Street gravity sewer, by-passing the John Street WWPS.
- Alternative 6 – Reduce inflow and infiltration in the collection system.

Pre-screening was conducted to determine, at a high level, whether alternatives are technically feasible and if costs or other potential impacts (such as social or natural environment) would be prohibitive to proceeding with implementation of the project. Pre-screening of the long list of alternative solutions was undertaken based on the following economic / financial, socio-cultural, technical, and environmental criteria:

- Adherence to the Problem and Opportunity Statement (POS);
- Capital and Operation and Maintenance (O&M) Costs;
- Temporary disruption to local residents and community during construction;
- Impacts to heritage features;
- Land Acquisition;
- WWPS footprint and accommodation in the proposed land;
- Complexity / ease of construction (horizontal);
- Complexity / ease of construction (vertical);
- Construction disturbance to the environmental features; and,
- Emergency overflow impact on Credit River.

The long list of alternative solutions and the results of the pre-screening is presented in Table 3.

Table 3: Long List of Alternatives and Pre-screening

Long List of Alternative Solutions	High-Level Evaluation and Screening		Result
	Positives	Negatives	
(1) Do Nothing	• No disturbance to local residence and community. • No impact to heritage features. • No land acquisition is needed. • No complex horizontal / vertical construction expected. • No capital cost.	• ***Does not adhere to the P***roblem/***O***pportunity ***S***tatement (POS), as the existing facility does comply with Halton's Water and Wastewater Design Manual. • Increasing O&M cost as the system ages.	***Mandatory carry forward for comparison purposes***
(2A) Upgrade existing Wastewater pumping station, with storage and emergency overflow at John Street Bend (location A)	• Adheres to the POS, as the new facility is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed. • Moderate capital cost. • Moderate short-term disturbance to local residence and community.	• The facility must remain fully operational while upgrades are made posing constructability challenges. May involve some complexity associated with upgrades and compatibility with the old system. • Would require easement for the emergency overflow. • Park use may be impacted during construction.	***Carry forward***
(2D) Upgrade existing Wastewater pumping station, with storage and emergency overflow near River Road Bridge (location D)	• Adheres to the POS, as the new facility is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed. • Anticipated lower impact to the aquatic community in the case that the emergency overflow is used.	• The facility must remain fully operational while upgrades are made posing constructability challenges. May involve some complexity associated with upgrades and compatibility with the old system. • May require easement for the emergency overflow. • Moderate to high short-term disturbance to local residence and community associated with additional 660 m length of overflow pipe on Mountain Rd. and River Dr. • Park use may be impacted during construction. • Increased capital cost in comparison to Option 2A.	***Do not carry forward***
(3A) New Wastewater pumping station at the current location, with storage and emergency overflow at John Street Bend (location A)	• Adheres to the POS, as the new facility is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed. • Moderate capital cost. • Moderate short-term disturbance to local residence and community. • Easier to construct a replacement facility which is not immediately adjacent to the existing facility thereby not adversely affect existing operations during construction.	• Would require easement for the emergency overflow. • Park use will be impacted during construction.	***Carry forward***
(3D) New wastewater pumping station at the current location, with storage and emergency overflow	• Adheres to the POS, as the new plant is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed. • Anticipated lower impact to the aquatic community in the case that the emergency overflow is used.	• May require easement for the emergency overflow. • Moderate to high short-term disturbance to local residence and community associated with additional 660 m length of overflow pipe on Mountain Rd. and River Rd. • Park use may be impacted during construction.	***Do not carry forward***

Long List of Alternative Solutions	High-Level Evaluation and Screening		Result
	Positives	Negatives	
near River Road Bridge (location D)	• Easier to construct a replacement facility which is not immediately adjacent to the existing facility thereby not adversely affect existing operations during construction.	• Increased capital cost in comparison to Option 3A.	
(4A) New Wastewater Pumping Station at the Barber Mill Park emergency overflow to end of John Street (location A)	• Adheres to the POS, as the new facility is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed.	• Requires easement for the emergency overflow. • Higher capital cost in comparison to Options 2 and 3 associated with deep structure, and deep sewers. • Potential Impacts on Park Use during and post construction. • Moderate to high short-term disturbance to local residence and community associated with additional length of sewers in comparison to Options 2 and 3. • Moderate to high short-term disturbance to local residence and community associated with additional length of overflow in comparison to Option 4D. High capital costs in comparison to Option 4D associated with long deep overflow pipe.	***Do not carry Forward***
(4D) New Wastewater Pumping Station at the Barber Mill Park emergency overflow to River Road. Bridge (location D)	• Adheres to the POS, as the new facility is expected to comply with the Region's Water and Wastewater Design Manual. • No land acquisition for the WWPS structure is needed. May require easement for the emergency overflow. • Anticipated lower impact to the aquatic community in case that the emergency overflow is used.	• May require easement for the emergency overflow. • Higher capital cost in comparison to Options 2 and 3 associated with deep structure, and deep sewers. • Potential Impacts on Park Use during and post construction. • Moderate to high short-term disturbance to local residence and community associated with additional length of sewers in comparison to Options 2 and 3.	***Carry forward***
(5) Redirect flow from the Lynden Circle WWPS to the Victoria Street gravity sewer, by-passing the John Street WWPS.	• This option would free up pumping capacity at the John Street WWPS.	• Capacity is not currently a concern for the John Street WWPS and a capacity increase is not proposed in this MCEA Study. • The Region has reviewed the impact of adding the Lynden Circle WWPS discharge directly to Victoria Street gravity sewer and concluded that there is insufficient capacity to accommodate the flow. • Does not adhere to the Problem/Opportunity Statement (POS), as the existing facility does comply with Halton's Water and Wastewater Design Manual.	***Do not carry Forward***
(6) Reduce inflow and infiltration in the collection system.	• The objective of an implementation of an inflow and infiltration program is to identify and reduce inflows and infiltration into the sanitary collection system, where present. A reduction of inflow and infiltration will restore capacity to the collection system and can delay the need for capacity related upgrades to collection, pumping and treatment facilities.	• The proposed upgrades to the John Street WWPS are not capacity related and an increase in pumping capacity is not proposed in this MCEA Study. • The Region has an inflow and infiltration reduction program and to date inflow and infiltration has not been identified as a priority issue in the Study area. • Does not adhere to the Problem/Opportunity Statement (POS), as the existing facility does comply with Halton's Water and Wastewater Design Manual.	***Do not carry Forward***

6.5 Short-listed Alternative Solutions

Based on the results of the pre-screening of the long list of alternative solutions, the following alternative solutions were short-listed for evaluation to address the Project Problem/Opportunity Statement:

- Alternative 1 – Do Nothing.
- Alternative 2 – Upgrade Wastewater Pumping Station on Existing Site with emergency overflow to location A.
- Alternative 3 – New Wastewater Pumping Station on Existing Site with emergency overflow to location A.
- Alternative 4 – New Wastewater Pumping Station at Barber Mill Park with emergency overflow to location D.

6.5.1 Alternative 1: Do Nothing Alternative

Under the ‘Do Nothing’ alternative, improvements would only consist of ongoing regular maintenance of the John Street WWPS and associated infrastructure. The pumping station would not be brought up to Region standards and thus would not have additional storage or an emergency overflow. Consideration of the ‘Do Nothing’ alternative is a requirement of the MCEA process, as a way to test that proposed improvements are, on balance, preferred over the status quo.

6.5.2 Alternative 2: Upgrade Wastewater Pumping Station on Existing Site with Emergency Overflow to Location A

This alternative would result in the following upgrades (see Figure 8):

- Upgrades to the existing pumping station;
- Provision of a second forcemain along John Street (existing pumping station to Victoria Street gravity sewer); and
- Provision of an emergency overflow to Credit River (Location A).

It should be noted that as a result of the extensive nature of the upgrades required at the John Street WWPS, very little of the original facility can be salvaged and incorporated into the proposed facility. As such, Alternative 2 is very similar in scale and scope to that of Alternative 3. It is anticipated that the existing dry-well and wet-well facility can be repurposed as part of the emergency storage tankage, the balance of the facility would be largely replaced. As some of the facility would be retained the construction is more complicated than that of Alternative 3.

Figure 8: Alternative 2 – Upgrade Wastewater Pumping Station on Existing Site with Emergency Overflow to Location A

6.5.3 Alternative 3: New Wastewater Pumping Station on Existing Site with Emergency Overflow to Location A

This alternative would result in the following upgrades (see Figure 9):

- New pumping station at John Street Park;
- Provision of a second forcemain along John Street (from the new pumping station at John Street Park to Victoria Street gravity sewer); and
- Provision of an emergency overflow to Credit River (Location A).

Figure 9: Alternative 3 – New Wastewater Pumping Station on Existing Site with Emergency Overflow to Location A

6.5.4 Alternative 4: New Wastewater Pumping Station at Barber Mill Park with Emergency Overflow to Location D

This alternative would result in the following upgrades (see Figure 10):

- New pumping station at Barber Mill Park;
- Provision of a gravity main from current John Street Pumping Station location to the new pumping station at Barber Mill Park;
- Provision of two new forcemains along River Drive, Mountainview Road, and John Street (from proposed new pumping station at Barber Mill Park to Victoria Street gravity sewer); and
- Provision of emergency overflow along River Drive (from proposed new pumping station at Barber Mill Park to the Credit River Valley upstream the River Drive bridge – Location D).

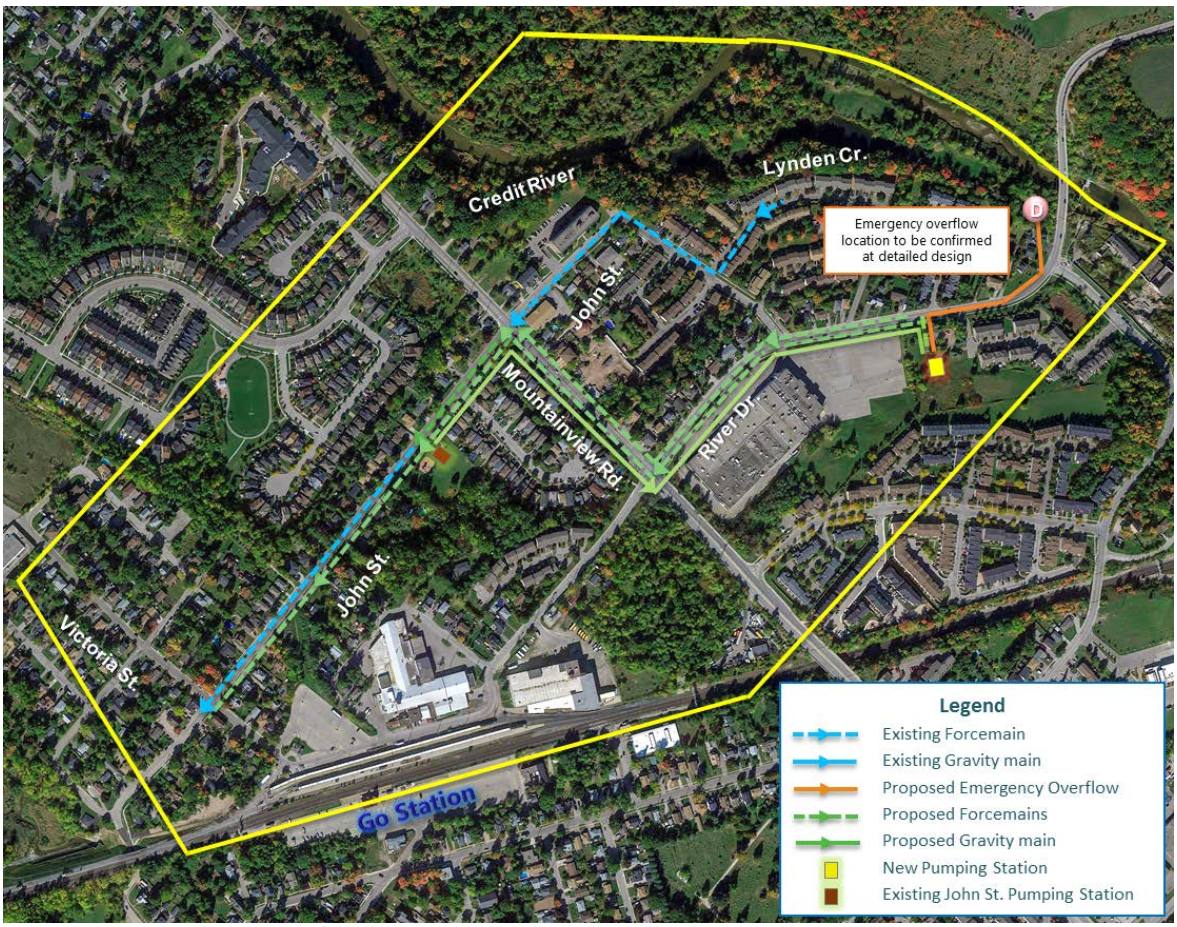


Figure 10: Alternative 4 – New Wastewater Pumping Station at Barber Mill Park

6.5.4.1 Variations on Alternative 4 – Barber Mill Park Location

After the preliminary screening of the long list of alternatives and before the detailed evaluation of the preferred options, the Project Team identified an opportunity at the Barber Mill Park location. Given that the proposed location at Barber Mill Park is in close proximity to the Lynden Circle WWPS, the option of abandoning the Lynden Circle WWPS and extending a gravity sewer from Lynden Circle WWPS to the new WWPS at Barber Mill park was considered. Additional capital costs would be required including the cost of decommissioning the Lynden Circle WWPS, the cost of a new gravity sewer from Lynden Circle WWPS, along Lynden Circle to River Drive and then deepening the proposed sewers under Alternative 4 on River Road from Linden Circle to the proposed pumping station. The inlet trunk sewer (from John Street) was permitted to surcharge along part of its length when the emergency overflow pipe was in use for this scenario to reduce pumping station costs. The surcharging of the trunk sewer from Lynden Circle WWPS to Barber Mill Park does not affect local collection sewers. The additional capital cost and anticipated operating cost savings (one less WWPS) were analyzed on a full life cycle cost basis.

Based on this evaluation, it was concluded that, at this time, retaining the Lynden Circle WWPS independently was preferred on the basis of life cycle cost. The life cycle cost comparison is provided in Appendix H.

6.6 Detailed Assessment of Short-Listed Alternatives - Evaluation Criteria

The objective of the detailed evaluation is to identify a Preferred Alternative Solution among the four short listed alternatives. The Preferred Alternative is typically the option that best satisfies the Project Problem/Opportunity Statement.

To this end, a set of Evaluation Criteria were identified, grouped under five key areas established as part of the MCEA process to comparatively evaluate the Short-Listed Alternatives identified above. The Evaluation Criteria included:

Natural Environment

- Impacts to existing trees and vegetation communities;
- Impacts to wildlife;
- Impacts to fish / aquatic habitat;
- Impacts to surface water quality and drainage;
- Impact/disturbance to soil / subsurface; and
- Impacts to groundwater quality.

Socio-cultural Environment

- Compatibility with surrounding land uses;
- Temporary disruption to local residents and community during construction (e.g., dust, noise, odour, vibration, traffic management);
- Visual / aesthetic impact on existing local residents and community;
- Health and safety of operations and maintenance staff;
- Ability to meet the needs of the local residents and community (e.g., reduction of risk of sewer surcharge);
- Long term impact of operations and maintenance activities on local residents and community;
- Provision for emergency services;
- Impacts to archaeological resources; and
- Impacts on Indigenous lands, treaty rights, archaeological sites, and land claims.

Legal / Jurisdictional Environment

- Supports planned development (Planning permits);
- Land acquisition/easement requirements; and
- Complexity of approval processes and ability to meet regulatory constraints.

Technical/Operational Environment

- Ease / complexity of Construction;
- Reliability (i.e., risk of service failure/reduced level of service and risk, and ability to mitigate risk);
- Ability to meet the Region's latest wastewater pumping station design standards;
- Implementation phasing;
- Ability to maximize existing infrastructure;
- Impacts to utilities; and
- Complexity of technical approval processes and ability to meet regulatory constraints.

Economic Environment

- Capital construction cost;
- Lifecycle cost (Present Value of Capital and O&M Costs); and
- Impact on nearby businesses (short-term and long-term).

6.7 Evaluation Results

The detailed evaluation of the four Short-Listed Alternatives was based on an assessment of potential impacts (per the criteria outlined above) and a review of input received from the public and regulatory agencies during the Study process.

Table 4 provides a summary of the evaluation. The full detailed evaluation matrix is provided in Appendix E.

In the summary and detailed evaluation, the impact of each alternative when evaluated on each criterion is represented by either an open circle, partially filled in circle or a completed filled in circle. The more of the circle that is filled in, the higher of the option on that criteria. For example an option with significant impacts on trees would have more of its circle filled in than an option that did not impact trees for the criteria dealing with impacts on vegetation/trees.

6.8 Preferred Alternative Solution

Following the detailed evaluation of the Short-Listed Alternatives the Preferred Alterative Solution was identified to be Alternative 3 – Replacement Station at the Existing Location with Emergency Overflow.

Further information on the preferred solution can be found in Section 8.

Table 4: Summary of the Evaluation of Alternative Solutions

Evaluation Criteria	Alternative 1: Do Nothing (For comparison purpose only)		Alternative 2: Upgrade at the Existing Location with Emergency Overflow		Alternative 3: Replacement Station at the Existing Location with Emergency Overflow		Alternative 4: Replacement Station at a New Location with Emergency Overflow	
Natural Environment	○	No impacts on trees/vegetation, or natural environmental habitats over existing conditions.	◑	Requires tree/vegetation removals (wastewater pumping station site and emergency overflow location). Potential moderate to high impact on environmental habitats along the roads and at the overflow location. Potential permits may be needed.	◑	Requires tree / vegetation removals (wastewater pumping station site and emergency overflow location). Potential moderate to high impact on environmental habitats along the roads and at the overflow location. Potential permits may be needed.	◕	Highest impact to existing trees and vegetation communities. Will require the removal of a number of individual trees within an established public park (Barber Mill). Requires tree / vegetation removals at emergency overflow location. Potential moderate to high impact on environmental habitats along the roads and at the overflow location. Potential permits may be needed.
Socio-Cultural Environment	◔	Will not be able to address extreme wet weather conditions.	◔	Moderate short-term impacts and disruption during construction. Park use may be impacted.	◔	Moderate short-term impacts and disruption during construction. Park use can be maintained during construction.	◑	High short-term impacts and disruption during construction. High level of disturbance to local residence during construction. Park use may be impacted.
Legal and Jurisdictional Environment	○	No impacts over existing conditions.	◔	Easement required over private property for emergency overflow.	◔	Easement required over private property for emergency overflow.	◔	Easement may be required over private property for emergency overflow.
Technical / Operational Environment	◑	The facility does not meet the Region's current wastewater pumping station design standards. Operation and maintenance may become more complex as the pumping station ages.	◑	Upgrades and meeting the Region's current design standards will minimize the complexity of the operation and maintenance. The facility must remain fully operational while upgrades are made resulting in significant constructability challenges. Potential impact on the underground utilities.	◔	The new pumping station will meet the Region's current design standards and minimize the complexity of the operation and maintenance. Potential impact on the underground utilities.	◑	Deep and long new sewers would substantially add to the potential complexity of the construction, and impact on utilities. Additional / longer wastewater mains would result in increased maintenance.
Economic Environment	○	No capital costs.	◔	Moderate capital cost. Low life cycle cost. Moderate short-term impacts during construction.	◔	Moderate capital cost. Low Life Cycle Cost. Moderate short-term impacts during construction.	◕	High capital cost. High Life Cycle Cost. Highest short-term impacts during construction.
Addresses Project Problem and Opportunity Statement	✘		✓		✓		✓	
Overall Summary	**Not Carried Forward**		**Not Carried Forward**		**Carried Forward**		**Not Carried Forward**	

7.0 Study Consultation

7.1 Introduction

Public and agency consultation is a significant and integral component of the MCEA Process. Active engagement with all potentially affected parties including government agencies, community members, special interest groups, and Indigenous communities ensures a transparent and responsible planning process.

In order to ensure public and agency consultation, a Consultation and Communication Plan was developed at the onset of the study and followed throughout. The objectives of the Consultation and Communication Plan were to:

- Identify potentially affected stakeholders and Indigenous communities;
- Inform stakeholders and Indigenous communities of project status and components;
- Obtain input from stakeholders and Indigenous communities during all phases of the Study; and
- Integrate information received into the planning and decision-making processes.

7.2 Consultation Activities Overview

A wide range of stakeholders were identified and contacted at the onset of the Study and during the MCEA process including relevant review agencies and organizations, key landholders and local residents who may be affected or have interest in the study. These stakeholders were contacted through direct distribution of notices as well as publications within local newspapers and on the Region of Halton website. Indigenous communities that may have an interest in the project were also contacted at the onset of the Study. Details of Indigenous engagement activities completed for this Study are provided in Section 7.5.

Table 5 summarizes the consultation activities undertaken as part of this Study. Details pertaining to the consultation are provided in the following sections.

Table 5: Consultation Activities

EA Phase 1: Notice of Study Commencement		
March 16, 2017	Letter and Notice of Commencement	Property Owners, Tenants, and Potentially Interested Organizations
March 16, 2017	Letter and Notice of Commencement, Agency / Indigenous Consultation Form	Review agencies and Indigenous communities / organizations delegated by MOECC
March 16 and 23 2017	Newspaper Notices	Georgetown Independent
EA Phase 2: Public Information Centre		
November 13, 2017	Notice of PIC	Property Owners, Tenants, Property Development groups, Potentially Interested Organizations, Review agencies and Indigenous communities / organizations
November 16 and 23, 2017	Newspaper Notices	Georgetown Independent
November 30, 2014	PIC	All interested persons
EA Phase 2: Notice of Study Completion and Filing of PFR		
June 14, and June 21, 2018	Newspaper Notices	Georgetown Independent
June 14, 2018	File PFR	Public Record

7.3 EA Phase 1 Consultation

7.3.1 Project Contact List

At the initiation of the project, the Project Team identified stakeholders that were anticipated to have a higher level of engagement in the Study (i.e., expected to comment on the Project, may have significant concerns about the Project or may request additional engagement). These parties were identified in the Project Contact List which includes relevant Federal and Provincial government agencies, local government officials, and special interest groups (Appendix F2). Any individuals, associations or companies who expressed interest in the John Street WWPS MCEA were also added to the project mailing list.

The Project Contact List served as the primary tool to track comments, questions and issues from emails, phone calls and letters and also demonstrated how the comments, questions and issues were considered in the EA process.

7.3.2 Notice of Study Commencement

A Notice of Commencement was placed in the Georgetown Independent local newspaper on March 16 and 23, 2017 and published on the Region of Halton website. The Notice of Study Commencement advised of the Study commencement, outlined its purpose and rationale and invited further comments or concerns relating to the project. Contact information for both the Halton Region and the R. J. Burnside Project Managers was provided so the public could request additional information if desired.

7.3.3 Public Involvement

Notices of Study Commencement were circulated to owners and residents of all properties (residential, commercial or institutional) in the Study Area. A list of property owners within these boundaries was compiled at the onset of the project based on available municipal property ownership / assessment roll information. The list comprised approximately 1,700 property owners and residents. A copy of the Notice of Study Commencement was distributed on March 16, 2017 to all property owners listed as well as tenants of the listed properties in the Study Area.

7.3.4 Review Agency Involvement

With the circulation of the Notice of Commencement, review agencies were also provided an accompanying letter and project response form providing agencies with an opportunity to indicate interest in participating in the Study. A copy of the letter and response form as well as the review agency contact list used for the Notice of Study Commencement is provided in Appendices F1 and F2, respectively. The review agencies included:

- Ministry of Tourism, Culture and Sport
- Department of Fisheries and Oceans Canada
- Ministry of the Environment and Climate Change
- Ministry of Natural Resources and Forestry
- Credit Valley Conservation
- Town of Halton Hills

Comments received from review agencies through returned response forms and emails are available in Appendix F5. A summary of the comments received from review agencies in response to the Notice of Study Commencement as well as other points in the Study process is provided in Table 6. Correspondence received was used to guide the compilation of background information used to identify and assess potential impacts on the environment, or communities as a result of the project.

7.4 EA Phase 2 Consultation

7.4.1 Public Information Centre

This section documents the Public Information Centre (PIC), held on November 30, 2017 and summarizes the notification process, the information presented and the comments received during and after the PIC.

Method of Notification

Details of the date, time, location and purpose of the PIC were published in the Georgetown Independent newspaper on November 16 and 23, 2017. A copy of the advertisement is provided in Appendix F3.

Notification of the PIC was also mailed to regulatory agencies, Indigenous communities, local residents who live within the Study Area, and other interested parties on the Project Contact List, as well as posted on the Region of Halton website.

Public Meeting Format

The PIC was held on November 30, 2017 to present and receive public input regarding the project. The PIC was held at the Georgetown Public Library located at 9 Church Street, Georgetown from 6:00 p.m. to 8:00 p.m. The purpose of the PIC was to introduce the project to potentially affected property owners and interested stakeholders.

Attendees were greeted upon arrival, encouraged to sign-in, and offered a comment form to provide comments on the project and alternative solutions. Display boards describing the EA process, the project and alternatives being considered were placed around the room to facilitate discussion. The PIC was arranged as an open house style session where participants were given the opportunity to review the display boards. Representatives from the Project Team consisting of Region of Halton and consultant staff (Burnside) were available to answer questions and discuss the project, and offer detailed explanation to the interested members of the public on a one-on-one basis or in small groups.

Attendees were invited to submit completed forms either at the PIC or through email or mail within three weeks following the PIC.

A copy of the display boards is provided in Appendix F3.

For those who were not able to attend the meeting, display boards were provided on the Region of Halton’s website.

Participation Levels and Summary of Comments Received

A total of 11 people signed in at the PIC excluding the Project Team members.

A total of four written comment responses and two comment sheets were received during the comment period following the PIC. Comments were provided through two methods including paper comment sheets supplied at the PIC and via email. Copies of these comments and the provided responses are provided in Appendix F3.

A general summary of comments received is as follows:

- Locating the proposed pumping station on the west side of the park reduces visual impact and potential for noise and odour impacts on residents backing onto park property;
- Security measures should be considered for proposed WWPS;
- Need to maintain access from Rosset Valley Court to Park; and
- Preference by some to relocate the station to a new site.

In general terms the Region provided a response to each party restating the specific concerns raised by the party and where appropriate noting how these concerns would be addressed.

- With regard to the location of the station within the park it is anticipated that the station will be located on the west side of the park which is consistent with the desire expressed by PIC participants;
- With regard to security it is anticipated that the site will be fenced, locked and provided with security lights;
- The access from Rosset Valley Park is expected to be maintained; and
- Based on the evaluation matrix it is preferred to keep the station within the existing park parcel.

7.4.2 Internal Technical Advisory Committee

The Project Team established and participated in an Internal Technical Advisory Committee (In-TAC) for this Study. Representatives from Region's key Departments were invited to participate (e.g., Wastewater Collection, Engineering and Construction, Water and Wastewater System Services, Reality Services and Infrastructure Planning). This was an internal Region group only and intended to support the Project Team.

The Project Team facilitated two In-TAC Meetings / Workshops. Study findings were presented and technical input was solicited during each In-TAC workshop. Members of the committee provided valuable insight to Project information as it became available, and helped tailor the information for external stakeholders.

7.4.3 Review Agency Involvement

Consultation with relevant review agencies continued during Phase 2, and involved review of feedback received during Phase 1, and discussion regarding specific concerns raised. These discussions aided in the establishment of mitigation measures to minimize or alleviate potential impacts as a result of construction of the Preferred Alternative Solution. Permitting and approval requirements were also identified throughout this consultation to ensure that requirements were met in advance of the detailed design stage of the project.

A summary of all correspondence with review agencies is provided in Table 6. A copy of correspondence with review agencies can be found in Appendix F5.

Table 6: Review Agency Correspondence Received and Responses Sent

Agency / Organization	Correspondence Received	Response Provided
Credit Valley Conservation (CVC)	Project response form dated April 8, 2017 noting that the pumping station contains no natural features of concern to CVC; however, the Study Area does contain the Credit River, associated valley, natural areas and natural hazards. They further noted that if the project includes WWPS upgrades adjacent to these areas, then CVC will increase their role in this EA. Email received June 23, 2017 in response to background information request indicating a Data Sharing Agreement will be required once the data has been compiled. Email received June 30, 2017 containing the Data Sharing Agreement. Email received August 11, 2017 containing the data from the background information request and comments from ecology staff. Phone call received August 21, 2017, clarifying on “significant wildlife habitat” and the being “potential rare vegetation communities” as per the Peel-Caledon Significant Wildlife Habitat Study (June 2009). Meeting with CVC held on September 27, 2017. The comments from CVC are recorded as part of the meeting minutes (Appendix F5). Email received June 7, 2018 containing comments on the draft PFR circulated for comment. • Comments on suitability of use of Guelph District Protocol for Species at Risk Bats. • Comments on additional analysis required to support outfall location A as preferred. • Comment on commitment to use trenchless technology for the overflow. Email received June 10, 2018 • Agreeing to finalizing the overflow location during detailed design. • Requesting a Hydrological Study be completed during detailed design.	Comment noted. Phone call made June 14, 2017 and email sent inviting CVC to a meeting with the project team. Further emails exchanged on arranging a date / time. The meeting was confirmed for September 27, 2017 at CVC main office. Email sent June 22, 2017 requesting background information on the Study Area. Email sent August 1, 2017 with the signed Data Sharing Agreement. Email sent August 16, 2017 inquiring about “Sensitive Wildlife Habitat” as part of the provided background information by CVC. Meeting with CVC held on September 27, 2017. The Project Team addressed the comments from CVC in the body of this report to clarify Alternatives 2 and 3 in combination with overflow Location D in the Project File Report. Reporting of a wastewater collection system overflow event to CVC was already identified in the Region's reporting procedure. The Region has also committed to: • Conduct the Geomorphology Study during the detailed design stage in order to select exact location for the emergency overflow pipe; and • Submit Project File Report to CVC for review and approval post PIC and before it is filed for public review. Emails from Region to CVC between June 8 and June 11, identifying that location of the overflow will be finalized during detailed design based on future studies to include; Geomorphology, Hydrogeological, Natural Heritage, Geotechnical and Hydrological (flood plain).
Ministry of Tourism Culture and Sports (MTCS)	Letter dated March 20, 2017 providing information surrounding protocol of protecting Ontario’s cultural heritage. Email received December 18, 2017 in response to the notice of PIC, inquiring about the Stage 1 Archaeological Assessment and the cultural heritage resources for the Study and the required checklists. Response email received February 13, 2018 noting that MTCS recommends that further cultural heritage studies (CHER and/or HIA) be completed prior to the completion of the EA process.	Comment noted. Response email sent February 6, 2018, noting that the Stage 1 Archaeological Report has now been completed and submitted to MTCS. Burnside asked for clarification on two items regarding cultural heritage resources assessment requirement and Stage 2 Archaeological Report timing. Response email sent February 20, 2018, suggesting having a phone conversation with MTCS to further discuss the items under discussion. A phone meeting with MTCS was held February 27, 2018. The Project Team further clarified on the extent of the 'Project Area' (extent of the proposed construction work), versus the 'Study Area' in relation to the comments received from MTCS.

Agency / Organization	Correspondence Received	Response Provided
		Based on the phone conversation: MTCS advised that a Cultural Heritage Evaluation Report (CHER) would not be required for the project; however, MTCS advised that we should include discussion in the Project File Report that speaks to the extent of the work in the proximity of these heritage properties. It was also advised that this discussion includes commitments to ensure adequate mitigation measures and monitoring of the potential impacts will be in place during construction. It is always MTCS' preference to have Stage 2 AAs completed during the course of the EA phase. However, since the precise location of the WWPS within the park and the exact emergency overflow location have not been determined, the Project Team intends to defer the Stage 2 AA work until detailed design when there is more certainty of precise locations and the study may be targeted appropriately. Email sent March 19, 2018 clarifying that the project file report would reference the presence of the heritage resources but that as discussed further CHER or HIA would not be required.
Ministry of the Environment and Climate Change (MOECC)	Letter dated March 24, 2017 received providing details for appropriate consultation with Indigenous communities. Email received May 23, 2017, that MOECC is interested in being a member of the Project's External Technical Committee. Email received May 31, 2017, indicating that MOECC would review the PFR during the 45-day public review period.	Comment noted. The Indigenous communities noted by MOECC have been notified and contacted during the course of this Study. Email sent May 18, 2017 following up on the letter sent along with the Notice of Commencement, regarding the MOECC interest on being a member of External Technical Committee. Invitation and follow-up emails sent August 21, September 12, 2017, for Ex-TAC committee meeting. The MOECC will be further consulted during detailed design stage of the project.
Fisheries and Oceans Canada (DFO)	Email received March 22, 2017 indicating that DFO typically does not get engaged at the MCEA stage. They requested that once the project has been determined, a Request for Review be sent in for assessment.	To be consulted during detail design.
Ministry of Natural Resources and Forestry (MNRF)	Email received May 23, 2017, that MNRF is interested in being a member of the Project's External Technical Committee. They also noted that MNRF will be expressing interests in Crown Land, fisheries, wetlands and species at risk. Email received June 6, 2017, noting that acoustic bat surveys are needed to determine which SAR bat species are present, if any and that alternatives will need to be explored that avoid impacting SAR habitat.	Email sent May 18, 2017 following up on the letter sent along with the Notice of Commencement, regarding the MOECC interest on being a member of External Technical Committee. Email sent June 6, 2017, seeking guidance from MNRF Aurora District regarding potential next steps in determining candidate bat maternity habitat for a project area, with preliminary results for leaf-off and leaf-on surveys attached.

Agency / Organization	Correspondence Received	Response Provided
	Email received June 16, 2017, suggesting that Burnside proceed with the acoustic bat survey as planned (email on June 13), and confirming the timing of the acoustic survey. Email received September 27, 2017, providing information on species at risk screening and fishdots. Email received October 12, 2017, noting that they will review the bat survey information provided. Email received June 6, 2018, noting MNRF not in support of Location A for the overflow and expressing preference for Location C. Email received June 9, 2018 confirming approach to resolve outfall location during detailed design.	Email sent June 13, 2017, to confirm acoustic bat survey stations and survey timing. Email sent June 22, 2017 submitting information request (including a request form) on the Study Area. Email sent August 21, 2017 inviting MNRF to a meeting with the project team. Further emails exchanged on arranging a date / time. The meeting was confirmed for November 17, 2017 at Burnside Mississauga office. Email sent October 12, 2017, with an attachment including the relevant bat survey information for review. It was also noted that alternatives for alignment and discharge of the emergency overflow have been adjusted based on Burnside's Senior Terrestrial Biologist recommendation around bat habitat trees, wetland pockets and groundwater seeps in the valley system. Meeting held on November 17, 2017. The Project Team addressed the comments from the meeting in the body of this report. Email June 8, 2018 – Mark Heaton confirmed that the following text should be included in the discussion related to the emergency overflow location. *Four alternative locations (A, B, C and D) were identified as possible emergency overflow locations for the John Street WWPS:* • Emergency overflow to Credit River - East end of John Street (location A) • Emergency overflow to Private Ponds (Location B) • Emergency overflow to Lynden Circle Storm sewer (Location C) • Emergency overflow to Credit River - upstream of the River Road Bridge (Location D) *The preferred emergency overflow location will be confirmed during the detailed design stage of the project. Selection of the preferred location will consider the results of detailed Geomorphology, Hydrogeological, Natural Heritage and Geotechnical studies, all of which will be completed during detailed design (as outlined in Section 8.5 – Future Commitments). Location in proximity to the bed or banks of the Credit River will be subject to approval by MNRF under the Public Lands Act.*

Agency / Organization	Correspondence Received	Response Provided
Town of Halton Hills	Email received (along with the project response form) March 30, 2017, in response to notice of commencement, that Town of Halton Hills would like to be included in the process. They also noted that the Project Team be mindful of the potential impacts to the John Street Park in relation to this Project. Email received April 21, 2017, noting that there are no plans for improvements at John Street Park in the near future. Email received October 23, 2017, providing availability for second meeting date / time. Email received October 27, 2017, noting that the Town is comfortable with what is shown for Options 1 and 3 for public consultation purposes, also suggesting that for the second meeting, to wait until after the public consultation, to be able to discuss the information from the consultation. Email received November 8, 2017, with an attached detailed aerial image of the John Street Park suggesting that the image be used for a clearer presentation on the “options” in John Street Park. Email received January 16, 2018, inquiring about the attendance of residents neighboring west of the Park. Email received May 30, 2018, providing comment on the draft project file report requesting; • confirmation of commitment for design of the station to be creative and compatible with the recreational use of the park; • consideration of odour control and noise mitigation for the proposed WWPS; • confirmation of the fate of the existing WWPS; • noting Town Halton Hills approvals and permits.	Comment noted. Email sent April 3, 2017, acquiring confirmation on the interest of Town of Halton Hills on being a member of Ex-TAC for this Project. Email sent April 21, 2017, inquiring about the Town’s potential future improvement plans for the John Street Park. Email sent August 21, 2017, inviting Town of Halton Hills to a meeting with the Project Team. Further emails exchanged on arranging a date / time for the meeting August 21. The meeting was confirmed for October 13, 2017 at Region of Halton Operations office. Meeting with Town of Halton Hills held on October 13, 2017. The Project Team committed to: • Provide reasonable level of details for proposed footprint in the Park to better inform the public on the future possibilities and stay in line with Town’s acceptable criteria and guidelines; • Include a commitment as part of the Study Project File Report for the detailed design stage, for the design to be creative and compatible with recreational use of the Park; Email sent October 16, 2017, providing an electronic copy of the presentation to the Town. Email sent October 23, 2017, providing three proposed footprint alternatives (options) for the WWPS in the John Street Park, along with the meeting minutes for the October 13 meeting. Email sent October 30, 2017, confirming that the Region would present both Options 1 and 3 (from October 23) at the PIC so as to solicit public input for these options. At the PIC and forward these where referred to Options 1 and 2. Comment noted (from November 8, 2017 email). Email sent January 15, 2018, providing a copy of the presented PIC boards, as well as a summary table of the comments received during and post PIC. Email sent January 17, 2018, noting that residents neighboring west of the Park were sent the notice of PIC, but did not attend the PIC. Email sent May 31, 2018, noting that these suggestions would be incorporated into the final report.

Agency / Organization	Correspondence Received	Response Provided
		Commitments added for creative design, consideration of odour and noise control, and need for site plan related approvals and property transfer. Confirmed that existing facility would be decommissioned.
Halton Catholic School Board	Voice message dated April 7, 2017. They Inquired about the potential effects of John Street WWPS upgrades/improvements on the area south of the CN railway. They would like to remain on the project contact list.	Email sent April 10, 2017 noting that the area south of the railway will not be affected by this Project and falls outside the Class Environmental Assessment Study Area. Comment noted on them remaining on the project contact list.
Halton Fire Department	Project response form dated March 17, 2017 indicating that they do not wish to participate in the Project and would like to be removed from the project contact list.	Comment noted.
Halton Region Planning Services	Email June 11, 2018 identifying that proposed works are located on lands within Halton's Natural Heritage System advising: • Noting Halton Region Natural Heritage System polices and mapping should be referenced as background and reviewed for impacts. • In the event of removals, a tree preservation plan is required. Significant Wildlife Habitat Evaluation should be completed.	Email June 12, 2018 identifying that items not already included in the PFR will be added.
Halton Region Paramedic	Project response form dated April 3, 2017 indicating that they do not wish to participate in the Project, but would like to remain on the project contact list.	Comment noted.
Zayo Group Holdings, Inc. – (Utility Company)	Email received March 29, 2017 indicating that Zayo has no existing plant in the Study Area. They had no markup, no objection, and no comments.	Comment noted.

7.4.3.1 Agency Meetings

As part of the consultation with agencies, representatives from Town of Halton Hills, CVC, DFO, MOECC and MNRF were invited to meet with the project Team. The Project Team met with the interested agencies including CVC, MNRF, and Town of Halton Hills. The record of the meetings is included in Appendix F5 and the outcome of these meetings is also summarized in Table 6.

7.5 Indigenous Community Consultation

As part of the consultation process, the Project Team engaged with Indigenous communities to inform them of the Study, ascertain their level of interest in the Study, offer opportunities to provide input into the Study and, if interested, undertake further engagement with these communities. Consultation with Indigenous Communities for MCEAs is guided by the Government of Ontario. To comply with these requirements, the Aboriginal and Treaty Rights Information Systems (ATRIS) was used to identify Indigenous Communities, including First Nations and Metis communities, located within the vicinity of the Study Area that may potentially be impacted by the project.

The Project Team completed the following tasks:

1. Undertook a search for potential interested/affected Indigenous communities using the ATRIS database (applying a 100 km search radius from the Study Area).

2. In letter form, submitted the list of potential interested / affected Indigenous communities to Ministry of Indigenous Relations and Reconciliation (MIRR), Indigenous and Northern Affairs (INAC) and MOECC Central Region EA Coordinator for review and input. The final community list provided by MOECC included three Indigenous communities to consult: Six Nations of the Grand River Territory, Mississaugas of the New Credit First Nations, and Haudenosaunee Confederacy Council.

3. Following agency response(s), sent the Notice of Study Commencement with an accompanying letter to Indigenous communities identified through the above process (Steps 1 and 2). Correspondence was sent to elected leadership (i.e., Chief) and other representative specified by the Indigenous communities as early as possible regarding the Project (i.e., Notice of Study Commencement). The correspondence included a letter to provide information about the proposed Study, the EA process as well as a response form which communities could use to provide comments and/or express their interest in the Project (Appendix F5). The Indigenous communities were asked to confirm, from their perspective, whether or not there are any land claims within or in proximity to the Study Area and to identify if or how the Project may adversely impact Aboriginal and/or treaty rights.

4. Within a reasonable timeframe, followed up with Indigenous communities who had not responded to the Region's letter / notice via phone to ensure that they received the information package and confirm level of interest in the Project.

5. If requested by the community, Region Staff provided Indigenous communities with the opportunity to meet with the Region and/or Project Team to discuss the Project and gather further information from the community on how the Project may potentially impact their Aboriginal or treaty rights.

6. Documented all Study correspondence and input received from Indigenous communities on the Project Contact List. The Project Team considered comments and concerns from the communities and provided responses on how these comments were considered in the Study as appropriate.

7. Carried out a Stage 1 Archaeological Assessment 1 to establish the archaeological significance of the Study Area and identify any potential archaeological resources (including those of indigenous descent) in order to minimize any potential impacts to the same prior to any future construction activities being undertaken.

Comments received from Indigenous communities through returned response forms and emails are available in Appendix G. All Indigenous communities circulated on the Notice of Study Commencement were retained on the contact list for other notifications provided during the course of the Study.

A copy of the Notice of PIC was also provided to the Indigenous communities for their information. No other comments were received from the other Indigenous communities in response to the Notice of PIC. Follow-up telephone calls were placed with the Indigenous communities to confirm receipt of the Notice of PIC. A record of the telephone calls and correspondence with Indigenous communities is provided in Appendix G.

[1] *The Archaeological Assessment will be submitted to the Ministry of Tourism, Culture and Sport for approval to ensure that any concerns over any potential archaeological sites noted within the Study area are satisfied and/or are to be further addressed through additional archaeological study.*

7.6 Notice of Study Completion

At the conclusion of Phase 2 of the MCEA process for Schedule B projects, a Project File (i.e., this report) is prepared and a Notice of Completion is issued. The purpose of the Notice of Completion is to inform stakeholders that the Project File is available for review and comment within the 45-day review period. The Notice also informs the stakeholders of the right to request a Part II Order from the MOECC within the 45-day review period. The PFR is made available for public review at the following locations during normal business hours:

Clerk's Department
Regional Municipality of Halton
1151 Bronte Road
Oakville, ON L6M 3L1
Tel: (905) 825-6000
Monday–Friday: 8:30 a.m. – 4:30 p.m.

Clerk's Department
Town of Halton Hills
1 Halton Hills Drive
Halton Hills, ON L7G 5G2
Tel: (905) 873-2601
Monday–Friday: 8:30 a.m. – 4:30 p.m.

Halton Hills Public Library
9 Church Street
Georgetown, ON L7G 2A3
Tel: (905) 873-2681
Monday: 1:00 p.m. – 5:00 p.m.
Tuesday - Thursday: 9:30 a.m. – 8:30 p.m.
Friday - Saturday: 9:30 a.m. – 5:00 p.m.
Sunday: 1:00 p.m.– 5:00 p.m.

Written comments on this Project File should be submitted to:

Mr. Sanjeev Oberoi, P. Eng., PMP
Project Manager
Regional Municipality of Halton
1151 Bronte Road
Oakville, ON L6M 3L1
Phone: (866) 442-5866 or (905) 825-6000 Ext. 7921
Fax: (905) 825-8822
Email: sanjeev.oberoi@halton.ca

In accordance with the Municipal Class Environmental Assessment (2000, as amended in 2007,2011 & 2015), if no concerns are expressed by the conclusion of the specified review period, Halton Region may proceed with the design and construction of the project as described in this Project File.

7.6.1 Information on Part II Order Requests

If concerns regarding this project cannot be resolved through discussions with the Region, a person or party may request that the Minister of the Environment and Climate Change order the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. The Ministry's Part II Order Request Form may be downloaded at www.forms.ssb.gov.on.ca.

Requests for a Part II Order must be received by the Ministry and Region in writing through a completed form, at the addresses provided, by **Monday, July 30, 2018 (**within 45 days of this Notice):

Minister,
Ministry of the Environment and Climate Change
Ferguson Block, 77
Wellesley St. W, 11th Floor
Toronto ON M7A 2T5
Fax: 416-314-8452
Minister.MOECC@ontario.ca

Director,
Environmental Assessment and Permissions Branch
Ministry of the Environment and Climate Change
135 St. Clair Ave W, 1st Floor
Toronto ON M4V 1P5
MOECCpermissions@ontario.ca

Sanjeev Oberoi, P.Eng., PMP
Project Manager
Infrastructure Planning & Policy
Halton Region
1151 Bronte Road,
Oakville
ON L6M 3L1
Tel: (905) 825-6000, ext. 7921
sanjeev.oberoi@halton.ca

8.0 Preferred Alternative Solution

8.1 Description of Preferred Alternative Solution

Based on the evaluation presented in Section 6.0 and following consultation with the public, Indigenous Communities and agency stakeholders, the preferred alternative solution was identified as Alternative 3 - Replacement Station at the Existing Location with an Emergency Overflow.

Alternative 3 consists of:

- New pumping station at John Street Park;
- Provision of a second forcemain along John Street (from the new pumping station at John Street Park to Victoria Street gravity sewer); and
- Provision of an emergency overflow.

Alternative 3 is shown below.

Figure 11: Alternative 3 – New Wastewater Pumping Station on Existing Site with Emergency Overflow

The main advantages of Alternative 3 are as follows:

- Satisfies the Problem and Opportunity Statement established for this project.
- Meets the requirements in the Halton Water and Wastewater Facility Design Manual and Water and Wastewater Linear Design Manual.
- Reduces the number of emergency repairs and minimize O&M requirements.
- Provides increased resiliency in the event of an emergency and to changing flow conditions.
- Provides improved constructability over Alternative 2.
- Provided Competitive Life Cycle Cost.

8.1.1 Preliminary Cost Estimate

A preliminary estimate of the cost of constructing the works associated with the preferred Alternative Solution (Alternative 3) including the proposed new WWPS, gravity sewers, forcemains and the new proposed emergency overflow has been prepared. The probable cost for the preferred Alternative Solution (Alternative 3) including allowances for engineering and contingencies is 7.7 million dollars **(**See Appendix H). The cost estimate for construction will be further refined during the detailed design phase of the Project.

8.1.2 Location of the Proposed John Street WWPS Replacement in John Street Park

The Preferred Alternative Solution involves complete replacement of the John Street WWPS at a new location within John Street Park. The Project Team, through consultation with Town of Halton Hills identified two options for the location of the John Street WWPS in the John Street Park. Both of the locations proposed were toward the back of John Street Park property lot (ownership: Town of Halton Hills), to minimize the impact on John Street Park's recreational use and to mitigate the impact on the existing playground. The proposed locations are illustrated in Figure 12.

The proposed location options were presented to the public during the Public Information Centre (PIC) and feedback / comments were documented for further consideration as part of the future design (see Appendix F3). **Feedback from the PIC suggested that Option 2 (locating the WWPS in the western portion of the Park) was preferred by residents that participated in the PIC.** The final location in the park can be established during detailed design in an effort to balance the interest of all stakeholders.

8.1.3 Emergency Overflow Location and Alignment

The selection of Alternative 3 as the preferred alternative solution assumes that the emergency overflow would extend to Credit River at Location A. However, based on several agency consultation discussions, the Project Team concluded that the preferred emergency overflow location will be confirmed during the detailed design stage of the project. Selection of the preferred location will consider the results of detailed Geomorphology, Hydrogeological, Hydrological, Natural Heritage and Geotechnical studies, all of which will be completed during detailed design (as outlined in SectionFuture Commitments8.5 – Future Commitments). Location in proximity to the bed or banks of the Credit River will be subject to approval by MNRF under the Public Lands Act.

Figure 12: Proposed Options for John Street WWPS in the John Street Park

8.2 Environmental Impacts, Mitigation Measures, and Monitoring

The Region plans to start construction of the proposed new John Street WWPS and the emergency overflow in 2021. This construction project is planned to take approximately one to one and a half years to complete.

Potential impacts to the community and the environment as a result of constructing the preferred solution must be avoided whenever possible. In situations where these impacts cannot be avoided, measures must be taken to mitigate or offset these impacts.

Table 7 provides a description of potential impacts associated with pre-construction, construction, and operation of the preferred alternative solution, and measures the Region will undertake to mitigate possible impacts.

Table 7: Summary of Environmental Impacts, Mitigation Measures and Monitoring Activities

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
Pre-Construction and Construction Phases					
Physical Environment	Surface Water	Potential for erosion and sediment generated through the construction of both overflow gravity main and overflow discharge structure can have impacts on surface water features and indirect impacts on both terrestrial and aquatic life and habitats.	**General Mitigation** • The Region is required to comply with the *Ontario Water Resources Act*, 1990, c. O.40 with respect to the quality of water discharging into natural receivers. The footprint of disturbed areas shall be minimized to the extent possible. For example, vegetated buffers shall be left in place adjacent to natural vegetation features (forested areas) to the maximum extent possible. • A Soil Management Plan (SMP) will be prepared by a Qualified Professional as defined in O.Reg. 160/06 for managing soil materials onsite (includes excavation, location of stockpiles, reuse and offsite disposal). • An Erosion and Sediment Control (ESC) Plan will be developed during detailed design in consultation with CVC and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS). Any construction works within CVC regulated areas will require a permit under O.Reg. 60/06. **Construction Mitigation** • Any in water work will be conducted in isolation of flowing water. All work zones will be clearly marked on detailed design drawings and the ESC Plan to indicate that no work should occur outside the work zone. • ESC measures shall be installed and maintained during the construction phase and until all areas of the construction site have been stabilized. ESC measures shall be inspected daily to confirm they are functioning and maintained as required. If ESC measures are not functioning properly, no further work in the affected areas will occur until the sediment and/or erosion problem is resolved.	A qualified Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC are being followed. A qualified Environmental Inspector shall inspect, suggest and confirm the repair of ESC measures as needed.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			• All disturbed areas of the construction site will be stabilized and re-vegetated as soon as conditions allow. • Wet weather restrictions shall be applied during site preparation and excavation.		
Physical Environment	Surface and Ground water	Potential for localized surface water or groundwater impacts as a result of spills, discharge or dumping of materials, fluids and other wastes during construction.	**Construction Mitigation** • Refueling and maintenance of construction equipment should occur within designated areas only. Any hazardous materials used for construction will be handled in accordance to appropriate regulations. • A Construction Emergency Response and Communications Plan shall be developed and followed throughout the construction phase (including spill response plans). The Contractor shall develop spill prevention and contingency plans for the construction of the overflow gravity and the discharge structure in the Credit Valley and general site preparation. Personnel shall be trained in how to apply the plans and the plans shall be reviewed to strengthen their effectiveness and continuous improvement. Spills or depositions into watercourses shall be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Centre at 18002686060.	A qualified Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC are followed. Workers shall report any instances of spills to their supervisors.	No net effects anticipated.
Natural Environment	Trees	Potential for loss of trees. Note: Extent of impact to trees will need to be determined. Installation of underground services may not significantly impact trees within the road right-of-way and adjacent private trees if work is contained within the existing curb limit of the roads or if trenchless technology is used to install these services.	**General Mitigation** • The WWPS layout and location will be designed to minimize the impact to trees. • A Tree Preservation Plan shall be prepared during the detailed design phase of the project in accordance with the Region's Tree Canopy Replacement Policy (LPS31008) to assess the extent of impacts to trees resulting from the proposed construction, and establish a plan for compensation of tree loss.	A Certified Arborist shall be retained during the construction phase of the project to provide guidance on unintended impacts to trees. The arborist will be required to review: • Grading limits adjacent to trees within the road ROW, and on public (e.g., parks) and private land.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			• Trees with rootzones that will be subject to significant grading and/or excavation such as the overflow discharge extending to the Credit River Valley will need to be assessed as part of the Tree Preservation Plan. **Construction Mitigation** • Impacts to trees on the slope of the Credit River Valley can be significantly minimized through the use of underground drilling for the emergency outflow (trenchless technology). • Impacts to trees within John Street Park will depend on placement of structures, excavation for connection to existing or proposed underground services and grading to accommodate these proposed facilities.	• Locations of entry and exit for underground drilling for the emergency outflow discharge proposed in Alternatives 2 and 3. • Impacts to the trees within the riparian community for the emergency outflow discharge adjacent to the River Drive bridge proposed in Alternative 4. • Impacts to park trees resulting from the extent of grading and excavation for the construction of the new pumphouses. • Review tree impacts resulting from temporary laydown or access areas needed during the construction period. All branch and root pruning must be carried out by, or under the direction of a Certified Arborist.	
	Vegetation	• Change in water balance to seasonally flooded or wet habitat within natural vegetation communities affecting groundwater recharge functions. • Direct effects resulting from construction activities including loss of both herbaceous and woody vegetation. • Indirect effects resulting from an increase to edge habitats, including: wind throw and sunscald, introduction of invasive plant and wildlife species that may outcompete or predate native species, change in soil moisture	**General Mitigation** • Incorporation of Low Impact Development (LID) to direct surface water flow to grassed swales in close proximity to the natural heritage features associated with the overflow (refer to CVC Grey to Green Road Retrofits). LID elements should be designed to preserve local predevelopment water balance as they reduce runoff volume through the processes of infiltration and evapotranspiration and improve stormwater quality through a variety of physical and biological treatment processes. • The inclusion of bio swales, infiltration galleries or other features to promote localized surface water infiltration to maintain the existing water balance should be included as	• Monitoring of vegetation communities for changes in plant species composition and soil moisture regime. • Fencing shall be inspected regularly to ensure damage is repaired in a timely manner and that additional risk to wildlife is minimized. • Hoarding site visit required.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
		regime and water availability to plants and plant communities, increases in light penetration (pollution) and noise, soil compaction, equipment and pedestrian “traffic”, equipment laydown and spills.	part of the detailed design and landscape plan. • Plant species loss should be minimized, where possible, and compensatory planting plans established in areas of the Study Area where no clearing activities are proposed, referencing CVC’s Plant Selection Guidelines for the existing soil and vegetation communities. Potential for establishing pollinator species of plants should also be included when establishing a formal planting plan. • Works within the CVC regulated areas will require a permit under O.Reg. 160/06. **Construction Mitigation** • Construction hoarding should be installed prior to commencement of construction activities to both prevent the unnecessary encroachment / disturbance by humans and machinery into vegetation communities and to prevent wildlife from entering the construction areas. Hoarding should be installed and inspected prior to any land. Hoarding should be installed at the dripline of any trees to be preserved. • Construction activity should be outside of the dripline of any trees that are proposed to be retained (per Tree Preservation Plan).		
	Woodlands	Potential for direct environmental effects to woodland habitats during clearing and construction activities for the proposed WWPS and overflow structure. Potential for indirect environmental effects to adjacent woodland features. Potential indirect effects may include noise disturbance as a result of construction and/or operations and maintenance activities. Noise disturbance may impact breeding success of avian species.	**General Mitigation** • The presence of Significant Woodlands in the Study Area will be confirmed by a qualified ecologist and through consultation with the Halton Region Forester during detailed design phase of the project. • A mitigation plan will be designed and implemented to compensate for the temporary removal of vegetation and provide enhancement of the existing features. **Construction Mitigation** • Prior to construction works commencing, installation of construction hoarding is recommended along the perimeter of the limit of construction which includes all areas required for	• Fencing should be monitored on a regular basis to ensure there is no damage that may result in a decrease in function or opportunities for injury or death to wildlife species. • A Biologist may be required on site during construction works in the event that wildlife is trapped within the construction zone and requires removal and relocation to land outside of the construction zone. They may also be required on site as	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			excavation and spoil stockpile, vehicle and worker access and material laydown in order to prevent any wildlife from accessing the construction zone during construction works – specifically, exclusion fencing shall be installed at the beginning of April or earlier. • If designated areas are created during construction for the stockpiling of materials, especially fill, soil, and gravel, the Contractor shall install construction hoarding around the perimeter of those area to prevent any reptile species from entering the area and attempting to nest (reptiles are attracted to these materials for nesting). • Any wildlife should be safely relocated, or permitted to escape, to a suitable habitat no more than 200 m away from the work zone in a similar ecosystem type. • In the event that SAR are found within the construction zone all activities will stop and mitigation options shall be discussed with the Town, whereby an MNRF SAR Biologist may be contacted for advice as these animals are protected under ESA, 2007. • SAR identification training shall be provided by a Biologist to construction personnel prior to commencement of construction works to assist personnel in identifying SAR species, should they be encountered. Educational materials shall also include protocols to be followed to prevent contravention of the ESA, 2007, should any SAR be encountered. All construction personnel will be trained on how to identify and deal with SAR encountered during work.	needed should a species that is protected under the ESA, 2007 be identified within or adjacent to the construction site. The Biologist may be required to confirm the presence and identification of a particular species prior to contacting the MNRF for further advice.	
	Natural Heritage System	Potential impacts to Natural Heritage System within the Study Area near the proposed emergency outflow.	**General Mitigation** • The boundary of the Natural Heritage System (NHS) within the Study Area will be confirmed during the detailed design phase of the project. A Natural Heritage Study will be completed during detailed design to confirm requirements associated with proposed works in the NHS.		No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
	Breeding birds and breeding bird habitat	• Impacts to SAR and their habitat and area-sensitive birds within the forested riparian corridor in the location of the emergency overflow to the Credit River: Eastern Wood-pewee (Special Concern); White-breasted Nuthatch (AS); American Redstart (AS). • Impacts to migratory birds potentially breeding. Potential for disturbance or destruction of migratory breeding birds and their habitat in landscaped trees or vegetation along the roadway and within the riparian corridor in the location of the emergency outflow if the works occur during the active breeding window (prohibitions under the *Migratory Birds Convention Act*, 1994 (MBCA) and/or ESA, 2007 will apply).	**General Mitigation** • To reduce the risk of contravening the MBCA and ESA, 2007, timing constraints shall be applied at the planning stage to avoid any vegetation clearing (including grubbing) and/or structure works (construction, maintenance) during the breeding bird period - broadly from end of March to end of August for most species (regardless of the calendar year). **Construction Mitigation** • Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA, 2007, cannot be destroyed at any time of the year. • If a nesting migratory bird (or SAR protected under ESA, 2007) is identified within or adjacent to the construction site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the MBCA or ESA, 2007, all activities will stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures with the Region. The MNRF and/or Environment Canada shall be contacted to discuss mitigation options. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the Region, the MNRF and/or Environment Canada.	• An Avian Biologist may be required onsite as needed should a nesting migratory bird (or SAR protected under ESA, 2007) be identified within or adjacent to the construction site. • The Avian Biologist may be required to confirm the presence and identification of an active nest and/or breeding bird prior to contacting MNRF for further advice.	No net effects anticipated.
	Bats and bat habitat	• Removal of snag trees suitable as Bat Maternity Habitat (BMH) directly adjacent to proposed overflow pipe/structure. • Potential impacts to SAR bat and their habitat within the forested riparian corridor in the location of the emergency overflow to the Credit River: Little Brown Myotis (EN)	**General Mitigation** • Removal of candidate BMH trees will require appropriate compensation which may involve the installation of bat house(s). The recommended approach for the impact of SAR habitat will need to be discussed with MNRF biologists, and may include proactive establishment of alternate bat habitat features within the Study Area to avoid the requirement for permitting under the ESA, 2007.	A qualified biologist may be required on site as needed should a species that is protected under the ESA, 2007 be identified within or adjacent to the construction site. The Biologist may be required to confirm the presence and identification of a particular species prior to contacting the MNRF for further advice.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			Construction Mitigation • Any trees identified for removal as part of the detailed design for potential suitable bat habitat (i.e., cavity) will be surveyed prior to removal. • Works that may impact trees identified as candidate BMH habitat will be restricted to outside the bat breeding window (May-August). • Compensatory plantings / bat-box will be installed to replace potential lost bat habitat at a ratio to be determined in consultation with MNRF biologists. • In the event that SAR are found within the construction zone all activities will stop and mitigation options shall be discussed with the Town, whereby an MNRF SAR Biologist may be contacted for advice as these animals are protected under ESA, 2007. • SAR identification training shall be provided by a Biologist to construction personnel prior to commencement of construction works to assist personnel in identifying SAR species, should they be encountered. Educational materials shall also include protocols to be followed to prevent contravention of the ESA, 2007, should any SAR be encountered. All construction personnel will be trained on how to identify and deal with SAR encountered during work.		
	Wetlands	• Degradation or fragmentation of existing wildlife habitat/corridors, as well as the creation of edge or marginal habitat. • Contamination of surface water features and substrates, including wetlands, that may support wildlife and/or candidate Significant Wildlife Habitat through project construction activities, works, utilization, and maintenance.	**General Mitigation** • Incorporation of LID to direct surface water flow to grassed swales in close proximity to the natural heritage features associated with the overflow (refer to CVC Grey to Green Road Retrofits). LID elements should be designed to preserve local predevelopment water balance as they reduce runoff volume through the processes of infiltration and evapotranspiration and improve stormwater quality through a variety of physical and biological treatment processes.	ESC and construction hoarding to be inspected regularly to ensure it is operating as designed. If maintenance is required, construction activities to cease until the installation is functional.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
		• Alteration of water balance in forested wetland inclusions and/or open water marsh and pond areas.	• An ESC Plan will be developed during detailed design in consultation with CVC and will conform to industry best management practices and recognized standard specifications such as OPSS. **Construction Mitigation** • Restrict work to the John Street Right-of-Way or other disturbed areas wherever possible. • Employ ESC / construction hoarding for all construction areas. • Fueling and maintenance of construction equipment to occur in designated areas only. Designated fueling and maintenance areas to be as far from sensitive habitats as possible. • Disturbance to natural areas to be minimized wherever possible through the use of underground directional drilling.		
	Amphibians and amphibian habitat	• Potential for erosion and sedimentation impacts. • Potential for localized surface water or groundwater impacts as a result of spills, discharge or dumping of materials, fluids and other wastes during construction of proposed emergency overflow and associated surface water ways (e.g., swales).	**General Mitigation** • A SMP will be prepared by a Qualified Professional as defined in O.Reg. 160/06 for managing soil materials onsite (includes excavation, location of stockpiles, reuse and offsite disposal). • An ESC Plan will be developed during detailed design in consultation with CVC and will conform to industry best management practices and recognized standard specifications such as OPSS. **Construction Mitigation** • The footprint of disturbed areas shall be minimized to the extent possible. For example, vegetated buffers shall be left in place adjacent to natural vegetation features (forested areas) to the maximum extent possible. • Any in water work will be conducted in isolation of flowing water. All work zones will be clearly marked on detailed design drawings and the ESC Plan to indicate that no work should occur outside the work zone.	A qualified Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC are being followed. A qualified Environmental Inspector shall inspect, suggest and confirm the repair of ESC measures as needed.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			• ESC measures shall be installed and maintained during the construction phase and until all areas of the construction site have been stabilized. ESC measures shall be inspected daily to confirm they are functioning and maintained as required. If ESC measures are not functioning properly, no further work in the affected areas will occur until the sediment and/or erosion problem is resolved. • All disturbed areas of the construction site will be stabilized and re-vegetated as soon as conditions allow.		
	Fish and fish habitat	• Impacts to the existing groundwater conditions in the area of the discharge pipe / structure. • Impacts to the Credit River and the resident and downstream fish species during construction.	**General Mitigation** • The impacts to fish and fish habitat and mitigation measures relevant to the Preferred Alternative shall be re-visited during the detailed design stage to accurately reflect the design approach. • A spill management plan (SpMP) and ESC Plan will be developed. **Construction Mitigation** • In-water work will respect timing windows to protect fish. • In-water activities will be conducted in isolation of flowing water to maintain natural flow downstream and avoid introducing sediment to the watercourse. • Riparian vegetation clearing will be kept to a minimum. • Minimize the removal of bank material – any removed material will be set aside and returned to the original location to restore a similar contour and gradient of the bank. • Disturbed banks will be stabilized immediately through re-vegetation of suitable native species and, where necessary, appropriately-sized clean rock. • Wet weather restrictions will be applied during site preparation and excavation. Work will be avoided near watercourses and groundwater discharge areas during periods of significant precipitation and/or significant snow melt.	An Environmental Inspector will regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC plans are followed. Workers shall report any instances of spills or impacts to surface water features.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			• Trenchless construction will be implemented where practicable to minimize potential disturbance to existing vegetation and existing groundwater conditions. • If temporary dewatering is required, implement appropriate energy dissipation and settling/filtration measures for discharge to prevent erosion and sediment release to watercourses. • If required, fish will be rescued from construction zones in accordance with MNRF collector's license. • Compliance with the *Ontario Water Resources Act*, 1990 will be maintained with respect to the quality of water discharging into natural receivers. • Any equipment refueling and chemical storage will take place in designated areas at least 30 m from the watercourse.		
Socio-Economic Environment	Human Health and Safety	Potential safety hazard from construction activities, heavy equipment and increased construction traffic.	**Construction Mitigation** • The contractor shall develop a Health and Safety Plan (HASP) and have it reviewed and approved by the City prior to implementing. The HASP shall follow the *Occupational Health and Safety Act*, 1990 and regulatory requirements.	N/A	No net effects anticipated.
	Pedestrian Safety	Potential for use of certain sidewalks to be restricted during construction.	**Construction Mitigation** • Signage identifying pedestrian safe passage will be provided. • Access for pedestrian traffic will be maintained during construction.	N/A.	No net effects anticipated.
	Traffic	• Temporary traffic flow / access disruptions. • Truck traffic increase during the construction of the Pumping Station and gravity / forcemains as equipment and materials are delivered and/or removed.	**General Mitigation** • The contractor will be required to develop and implement a Traffic Management Plan (TMP) in coordination with the Region / Town of Halton. • The Region will communicate potential traffic impacts due to construction to local residents and the Town of Halton Hills in advance.	N/A.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			Construction Mitigation • Adequate signage to give advance notice of disruptions and detours is to be provided by the contractor. • Work will be carried out from Monday to Friday during normal daylight working hours to minimize disruption to local residents. Exemptions shall follow appropriate procedures defined by local noise-bylaws; and • Should road traffic be disrupted during the construction of the gravity / forcemain, traffic diversions will be implemented as needed to ensure impacts on traffic are short-term and that traffic can access properties.		
	Noise and Vibration	Potential for temporary noise and vibration during construction.	**General Mitigation** • A complaint response protocol for nuisance impacts including construction noise and vibration shall be prepared during the detailed design phase of the project and implemented by the Region prior to construction. **Construction Mitigation** • All vehicles and construction equipment will be equipped with effective muffling devices and operated in a fashion so as to minimize noise in the project area. • Halton Region will commit to adhere to the Town of Halton Hills's noise bylaw (2010-0030) for the construction the Pumping Station and gravity / forcemains including limiting hours of construction and days of construction. • Work shall be done in such a manner as to minimize disruption to the adjacent residential and commercial neighbourhood. Noise shall be controlled. Contract specifications shall ensure that all equipment and vehicles are compliant with noise standards for applicable equipment. • The construction contractor will be required to develop a Construction Management Plan (CMP) that specifically addresses noise and vibration controls, mitigation to be implemented and frequency of mitigation inspection.	N/A.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
			• Temporary site fencing will be in place during construction and disturbances such as noise, vibration and dust will be managed.		
	Dust and Mud	Potential for dust and mud transferring off-site during construction. Potential for temporary dust emissions during construction.	**General Mitigation** • A complaint response protocol for nuisance impacts including construction dust emissions shall be prepared during the detailed design phase of the project and implemented by the Region prior to construction. **Construction Mitigation** Construction best management practices are to be used to control dust and mud and to control dust on site and to prevent dust from transferring off-site. The mitigation methods may include: • Dust control measures such as the application of water or calcium chloride will be undertaken as necessary. • Public roadways will be kept clean and free of mud by regular street cleaning. • Trucks will be regularly washed to control the transfer of dust from the construction site to off-site areas. Any mud tracking onto the pumping station / gravity / forcemain construction area roads will be cleaned by the contractor on a regular basis. • Work shall be done in such a manner as to minimize disruption to the adjacent residential and commercial neighbourhood. Dust emissions shall be controlled. The construction contractor will be required to develop a CMP that specifically addresses dust and mud controls, mitigations to be implemented and frequency of mitigation inspection.	N/A.	No net effects anticipated.

Environmental Component	Environmental Sub-Component	Potential Environmental Effects	Recommended Mitigation Measures	Recommended Monitoring Activities	Net Effects
Cultural Environment	Archaeology	Based on the results of the Stage 1 Archaeological Assessment, the Study Area does retain archaeological potential in some areas. These areas will be subject to a Stage 2 Archaeological Assessment during the detailed design phase of the project. Any potential impacts to archaeological resources will be identified during the Stage 2 Archaeological Assessment.	**General Mitigation** • Complete a Stage 2 Archaeological Assessment during the detailed design stage of the Project to determine if there are any archaeological resources within the project area (area subject to construction).	To be identified, if any, through the Stage 2 Archaeological Assessment.	To be identified, if any, through the Stage 2 Archaeological Assessment.
Operation Phase					
Natural Environment	Fish and Fish Habitat and Credit River Shoreline	• Potential for emergency overflow of raw sewage to Credit River. • Impacts will be specific to the discharge location and the characteristics of the discharge. • Impacts will mostly temporarily (incident-dependent impact period) affect the water quality of the Credit River and thus the fish and fish habitat. • Potential for temporarily impact the river shoreline vegetation. • Potential for temporarily odour impacts. • Potential for temporary visual impact the river shore.	**General Mitigation** • Region to follow Wastewater Collection - MOECC Event Reporting Protocol.	Region to follow Wastewater Collection - MOECC Event Reporting Protocol.	The net effect will be specific to the discharge location; It will also be identified based on the characteristics of the discharge.

8.3 Traffic Management

Traffic management during construction will be reviewed during the detailed design phase of the Project. The contractor will be required to provide construction staging plans to be approved by the Region.

Utility relocations and other underground service installations may require short-term lane closures. Provisions must be made in the construction contract for these lane closures including detours, traffic control, flag persons, etc., based on discussions with the Region's traffic staff.

8.4 Project Implementation (EA Phase 5)

Phase 5 of the MCEA process involves the completion of detailed design drawings, specifications and tender documents to be provided to a successful contractor for the construction of the proposed project. Construction is expected to be initiated in 2021. During the implementation phase, the Region and will need to adhere to the mitigation measures and monitoring plans as documented in this PFR, some of which will need to be in place prior to and during construction. Permits will be needed from various regulatory agencies.

8.5 Future Commitments

The following list provides a preliminary set of commitments to be undertaken during the detailed design phase of the Project to ensure that work is being completed in accordance with the MCEA as well as a preliminary list of commitments to prepare construction plans. The detailed preliminary list of commitments to be undertaken during the construction phase is provided in the mitigation measure table (Table 7).

8.5.1 Detailed Design Commitments

- The proposed emergency overflow will be constructed using trenchless techniques in the vicinity of the embankments and natural corridor along the Credit River so as to mitigate potential impacts to the natural environment. The exact location of the emergency overflow and the construction method will be finalized during detailed design.
- The WWPS layout and location will be designed to minimize the impact to trees. A Tree Preservation Plan shall be prepared, in accordance with the Region's Tree Canopy Replacement Policy (LPS31008), during the detailed design phase of the project to assess the extent of impacts to trees resulting from the proposed construction and establish a plan for compensation of tree loss.
- Specific restoration areas will be identified during detailed design stage and will be addressed in consultation with CVC.

- The presence of Significant Woodlands in the Study Area will be confirmed by a qualified ecologist and through consultation with the Halton Region Forester during detailed design phase of the project.
- The boundary of the Natural Heritage System (NHS) within the Study Area will be confirmed during the detailed design phase of the project. A Natural Heritage Study will be completed during detailed design to confirm requirements associated with proposed works in the NHS.
- Any trees identified for removal as part of the detailed design for potential suitable bat habitat (i.e., cavity) will be surveyed prior to removal.
- Consultation with MNRF is required prior to construction to confirm the protocol for bat surveys and determine what mitigation measures are appropriate to avoid potential negative effects.
- A compensation plan for removal of bat maternity habitat trees shall be confirmed through consultation with MNRF.
- An Erosion and Sediment Control (ESC) Plan will be developed during detailed design in consultation with CVC and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS).
- Any in water work will be conducted in isolation of flowing water. All work zones will be clearly marked on detailed design drawings and the ESC Plan to indicate that no work should occur outside the work zone.
- To mitigate potential groundwater recharge reduction caused by an increased WWPS footprint, the inclusion of bio swales, infiltration galleries or other features to promote localized surface water infiltration to maintain the existing water balance shall be included as part of the detailed design and landscape plans.
- CVC shall be consulted during detailed design with regard to potential works within or in close proximity flood regulated areas, as appropriate.
- The impacts to fish and fish habitat and mitigation measures relevant to the Preferred Alternative shall be re-visited during the detailed design stage to accurately reflect the design approach.
- A complaint response protocol for nuisance impacts including construction noise and vibration shall be prepared during the detailed design phase of the project and implemented by the Region prior to construction.
- Consultation with Town of Halton Hills is required during the detailed design stage for the design of the new WWPS to be creative and compatible with recreational use of the park. This may include using urban design concepts, special treatment of fencing, driveways, and space required for building components etc.
- A Building Permit and Site Alteration Permit will be required from the Town of Halton Hills prior to construction at the John Street WWPS site. Since the WWPS site is located in a Source Water Protection Vulnerable Area, the site plan process will address constraints associated with the Local Source Water Protection Plan and compliance with Source Water Protection Policies.

- Impacts to the existing function and use of the park and playground should be minimized throughout construction.
- Provision for noise and odour control systems as part of WWPS design will be considered during the detailed design.
- A complaint response protocol for nuisance impacts including construction noise and vibration shall be prepared during the detailed design phase of the project and implemented by the Region prior to construction.
  The Region will ensure adequate mitigation measures and monitoring of the potential impacts that could affect the identified heritage resources (properties) will be in place during construction.
- The existing WWPS will be decommissioned and the decommissioned site will be restored as park green space.
- A Public Information Centre will be held prior to construction to present the design and obtain public input.

Hydrogeology, Hydrological, Natural Heritage and Geomorphology

- The Region will perform geomorphology, hydrological, natural heritage and hydrogeological studies in the Study Area (particularly in the proximity of the emergency overflow alternatives to Credit River) during the detailed design phase of the Project. These studies will be done during the detailed design stage in order to select exact location for the emergency overflow pipe.

Geotechnical Assessment

- The Region will perform a geotechnical assessment study in the Study Area (particularly in proximity to the emergency overflow alternatives and the location of the proposed WWPS during the detailed design phase of the Project.

Archaeology

- The Region will complete a Stage 2 Archaeological Assessment during the detailed design stage of the Project to determine if there are any archaeological resources within the project area (area subject to construction).

Consultation

- A PIC will be held prior to construction to present the design and obtain public input.

8.5.2 Construction Plans

The following plans will need to be prepared by the contractor and implemented prior to construction:

- Erosion and Sediment Control Plan;
- Emergency Response and Communications Plan;
- Complaint Response Protocol;
- Construction Management Plan;
- Health and Safety Plans;
- Soil Management Plan; and
- Traffic Management Plan.

8.6 Permit Requirements

The following list provides a preliminary set of permit requirements that will need to be undertaken by the contractor. A final list of permits should be determined during the detailed design phase of the Project.

- A permit approval will be required from CVC in accordance with O.Reg 160/06 Credit Valley Conservation Authority: Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses for construction works in CVC regulated areas.
- An MOECC Permit to Take Water under the Ontario *Water Resources Act,* 1990 if Project construction requires taking more than 50,000 L in a day from a lake, stream, river or groundwater source might be required.
- An MOECC approval (an Environmental Compliance Approval (ECA)) is required for the proposed works associated with the preferred alternative solution.
- Halton Region will require approvals from the Town of Halton Hills for road works within John Street right of way which is within the Town of Halton Hills boundary. Permits expected to be required include a Municipal Consent Permit and a Road Cut Permit.
- A Building Permit and Site Alteration Permit will be required from the Town of Halton Hills prior to construction at the John Street WWPS site. The site plan process will address constraints associated with the Local Source Water Protection Plan, Compliance with Source Water Protection Policy.
- Additional approvals or permits may be required from utility companies, such as hydro or telecommunications, if their infrastructure may be affected during construction activities. Utility permit requirements must be confirmed during the design phase, prior to construction.
- Once the construction details are confirmed during the detailed design phase for the emergency overflow pipe, proposed works will be assessed to determine whether they can adhere to the DFO ‘Measures to avoid causing harm to fish and fish habitat including aquatic species at risk’, and thereby comply with the Fisheries Act.

8.7 Easement Requirement and Transfer of Land

- Halton Region may also need to negotiate the acquisition of easements for the emergency overflow to Credit River. If required, discussions on this topic will occur during the preliminary and detailed design process.
- The land in John St Park where the new WWPS is proposed is owned by the Town of Halton Hills. Halton Region will need to negotiate the purchase/transfer of lands with the Town during the preliminary and detailed design process.
- The final location of the overflow will be subject to approval by MNRF under the Public Lands Act.

9.0 Conclusions and Recommendations

This Project File Report documents the Schedule B MCEA Process for the John Street Wastewater Pumping Station (WWPS). A Solution was required to meet the following objectives:

1) Address improvements as documented and recommended in the 2013 *John Street WWPS Condition Assessment Report*;

2) Ensure improvements carried forward for the pump station, system overflow and underground infrastructure are in compliance with Halton Region's *Water and Wastewater Facility Design Manual* and *Water and Wastewater Linear Design Manual*; and,

3) Ensure the John Street WWPS facility and forcemain has sufficient capacity to service projected peak flows out to 2031.

The long list of Alternative Solutions considered for the WWPD were:

- Alternative 1 – Do Nothing.
- Alternative 2A – Upgrade the WWPS at the existing location including the provision of an emergency overflow at location A.
- Alternative 2D – Upgrade the WWPS at the existing location including the provision of an emergency overflow at location D.
- Alternative 3A – Construct a Replacement Station at the existing location including the provision of an emergency overflow A.
- Alternative 3D – Construct a Replacement Station at the existing location including the provision of an emergency overflow D.
- Alternative 4A – Construct a Replacement Station at Barber Mill Park including the provision of an emergency overflow location A.
- Alternative 4D – Construct a Replacement Station at Barber Mill Park including the provision of an emergency overflow location D.
- Alternative 5 – Redirect flow from the Lynden Circle WWPS to the Victoria Street gravity sewer, by-passing the John Street WWPS.
- Alternative 6 – Reduce inflow and infiltration in the collection system.

The short listed Alternative Solutions considered for the WWPS were:

- Alternative 1 – Do Nothing.
- Alternative 2 – Upgrade Wastewater Pumping Station on Existing Site with emergency overflow to location A.
- Alternative 3 – New Wastewater Pumping Station on Existing Site with emergency overflow to location A.

- Alternative 4 – New Wastewater Pumping Station at Barber Mill Park with emergency overflow to location D.

The shortlisted WWPS and conveyance alternatives were evaluated against social, natural environment, technical, legal/jurisdictional, and economic evaluation criteria. Through the evaluation process and following consultation with interested stakeholders, the Preferred Alternative Solution was identified to be Alternative 3:

- New pumping station at John Street Park;
- Provision of a second forcemain along John Street (from the new pumping station at John Street Park to Victoria Street gravity sewer); and
- Provision of an emergency overflow.

Based on several agency consultation discussions, the Project Team concluded that the preferred emergency overflow location will be confirmed during the detailed design stage of the project. Selection of the preferred location will consider the results of detailed Geomorphology, Hydrological, Hydrogeological, Natural Heritage and Geotechnical studies, all of which will be completed during detailed design (as outlined in Section 8.5 – Future Commitments). Location in proximity to the bed or banks of the Credit River will be subject to approval by MNRF under the Public Lands Act.

Additional studies will be required following completion of this MCEA, including completion of:

- A Stage 2 Archaeological Assessment;
- Geomorphology and Hydrogeological Study;
- Geotechnical Assessment Study;
- Natural Heritage Study;
- Hydrological Study.

Moderate adjustment of the overflow upstream or downstream will not impact the selection of Alternative 3 as the Preferred Alternative Solution.

Several mitigation measures were identified, including those related to the natural environment and construction related social impacts and will be incorporated into the detailed design and construction of the facility.

A number of permits and approvals are required prior to proceeding to construction as detailed in Section 8.6.

Securing of land or easements will be required to suit the requirements confirmed during detailed design.

Moreover, during construction, the following actions will be taken:

- The Region will communicate potential traffic impacts due to construction to local residents and the Town of Halton Hills in advance.
- Temporary site fencing will be in place during construction and disturbances such as noise, vibration and dust will be managed.
- Access to residences / pedestrian traffic will be maintained during construction.

The capital cost for construction of the new John Street WWPS, associated new forcemain and emergency overflow is estimated to be $7.7 million. Construction is anticipated to start in 2021.

10.0 References

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Appendix A

Natural Environment Memos

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Appendix A1

Ecological Land Classification and Sensitive Wildlife Habitat

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Appendix A2

Breeding Birds

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Appendix A3

Amphibians

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Appendix A4

Bat and Bat Maternity Habitat

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Appendix A5

Aquatic Assessment and Fish Habitat

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Appendix B

Tree Inventory

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Appendix C

Socio-Economic Assessment Report

Appendix D

Stage 1 Archaeological Assessment Report

Appendix E

Evaluation of Alternative Solutions

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Appendix F

Study Consultation

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Appendix F1

Notice of Study Commencement

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Project Contact List

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Public Information Centre

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Public Correspondence

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Agency Correspondence

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Other Stakeholders Correspondence

Appendix G

Indigenous Communities Correspondence

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Appendix H

Preliminary Opinion of Probable Costs

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Appendix I

Notice of Study Completion