DILLON CONSULTING

Town of LaSalle

Master Drainage Study Report

Howard/Bouffard Planning Area

September 2024 – 18-8169

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Appendices (provided in separate document)

Acronyms, Abbreviations, Definitions

AA	Archaeological Assessment
CFN	Caldwell First Nation
COTTFN	Chippewas of the Thames First Nation
CMS	Cubic metres per second
DFO	Fisheries and Oceans Canada
Downstream	D/S
e.g.	Exempli gratia (for example)
EA	Environmental Assessment
EBC	East Branch Cahill
ERCA	Essex Region Conservation Authority
ESA	*Endangered Species Act, 2007*
ha	Hectare(s)
IPZ	Intake Protection Zone
m	Metre(s)
MECP	Ministry of the Environment, Conservation and Parks
mm	Millimetre(s)
MTO	Ministry of Transportation, Ontario
OPRAR	Ontario Public Register of Archaeological Reports
PCSWMM	Personal Computer Storm Water Management Model
PIC	Public Information Centre
PPS	*Provincial Policy Statement, 2020*
SAR	Species at Risk
SGRA	Significant Groundwater Recharge Area
SWH	Significant Wildlife Habitat

SWM	Stormwater management
The Town	The Town of LaSalle
The County	The County of Essex
Upstream	U/S
WBC	West Branch Cahill

Executive Summary

Dillon Consulting Limited was retained by the Town of LaSalle to develop a solution to address stormwater overflow into the Howard/Bouffard Planning Area during major storm events. Currently, a large portion of the Planning Area is within the flood inundation zone where development approvals cannot be issued. Addressing these flooding issues will allow for development to proceed within the area, which is a key growth area for the Town of LaSalle.

Three alternative solutions were evaluated as part of this study:

- **Alternative 1: Do Nothing** would leave the area as is, not addressing the issues identified above;
- **Alternative 2: Regional Facility** is a consolidated approach, with two regional ponds along a main drainage channel; and,
- **Alternative 3: Local Stormwater Management Ponds** is a localized approach, with one regional pond and several local ponds to be built as part of individual development projects in the area.

Through a comparative evaluation of the alternative solutions, Alternative 3 (Local Stormwater Management Ponds) has been selected as the preferred solution. This localized approach addresses the existing flooding issues and creates an improved drainage system that individual land developers can outlet to as the area develops. Key advantages of Alternative 3 include:

- Lesser impacts to the natural environment;
- Reduced engineering complexity;
- Reduced costs for the recommended works;
- More control of development in the hands of the respective developers; and,
- An expedited implementation schedule.

The consultation program for the study included three Public Information Centres (PIC), wherein updates were provided, and feedback was sought from local landowners, developers, agencies, Indigenous communities, and the general public. Other notifications and newsletters were also provided as required. Meetings were held with landowners and developers in the area to discuss the study and understand the

development context. The Essex Region Conservation Authority (ERCA) was consulted throughout the study for review and input. Feedback was considered by the project team, leading to a refined solution that addresses key concerns raised, including implementation timelines and property impacts.

To implement the preferred solution, it is anticipated approximately 26 hectares (ha) of private property is needed from a total of 56 landowners. Consultation with impacted property owners will be required when the area of impact is refined during future design phases.

As part of this study, sufficient natural environment information has been collected to support the functional design. There is potential for Species at Risk (SAR) and/or significant natural features to be impacted by the proposed works. This report recommends a natural environment impact assessment be completed during future design phases to identify direct impacts based on specific construction plans. If it is determined during future design phases that SAR and/or SAR habitat have the potential to be adversely impacted, consultation with the Ministry of the Environment, Conservation and Parks (MECP) will be required.

Portions of the project area retain archaeological potential and will require Stage 2 archaeological assessment prior to any ground disturbing activities. Areas of archaeological potential are outlined in this report, along with next steps and other requirements related to archaeology.

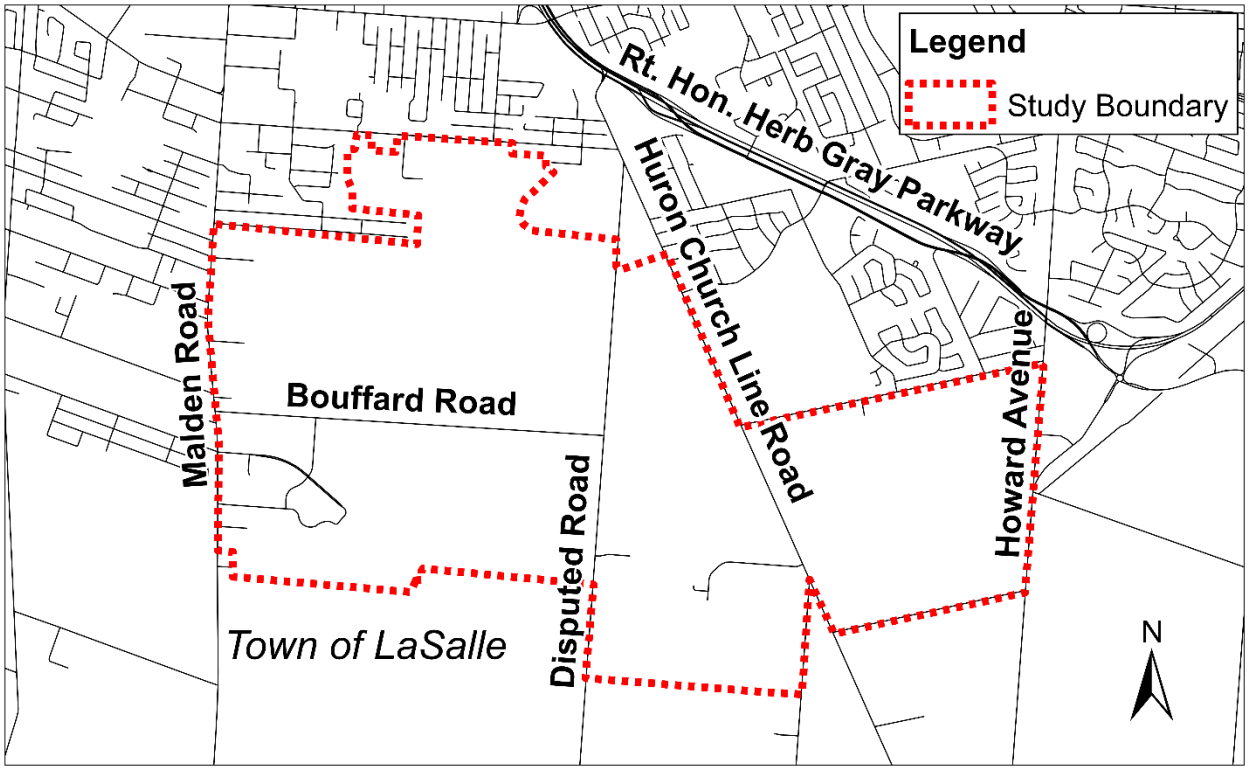
The estimated cost for engineering and construction of the proposed works is approximately $18 million. This estimate is based on 2023 dollars and excludes the cost of land acquisition. The *Drainage Act* is currently the preferred mechanism to implement the project, including refining the design, project costs, and confirming the assessments to the contributing lands. Other mechanisms of implementation (agreements, negotiations, development charges, etc.) may be reviewed prior to commencing any *Drainage Act* process.

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by the Town of LaSalle (the Town) to prepare a comprehensive solution to address stormwater overflow into the Howard/Bouffard Planning Area during major storm events. This Master Drainage Study was completed following the requirements of the Municipal Class Environmental Assessment (EA; 2023) for a Master Plan.

The Howard/Bouffard Planning Area (herein referred to as the Study Area) is generally bounded by Howard Avenue and Malden Road to the east and west, and Normandy Street and Judy Recker Crescent to the north and south, as shown in **Figure 1**.

Figure 1: Project Location



The Town has studied the feasibility of developing the Study Area and has invested considerably on infrastructure in the area, including the construction of Laurier Parkway and a trunk sanitary sewer. Previous studies have also addressed stormwater management (SWM) for minor and major events; however, spill-over from adjacent drainage areas was not considered.

The purpose of this study is to:

- Build on the solutions developed through the Bouffard Howard Planning Districts Class EA Addendum (March 2017). The Addendum outlined the preferred location and sizing of municipal infrastructure to service the Study Area;
- Define the flood mapping for existing conditions (note: regulatory flood mapping extents are not provided as part of this study);
- Establish build-out conditions and develop an implementation strategy to mitigate flooding in the area; and,
- Confirm the approach to regional SWM for the Study Area, including location and estimated capital costs.

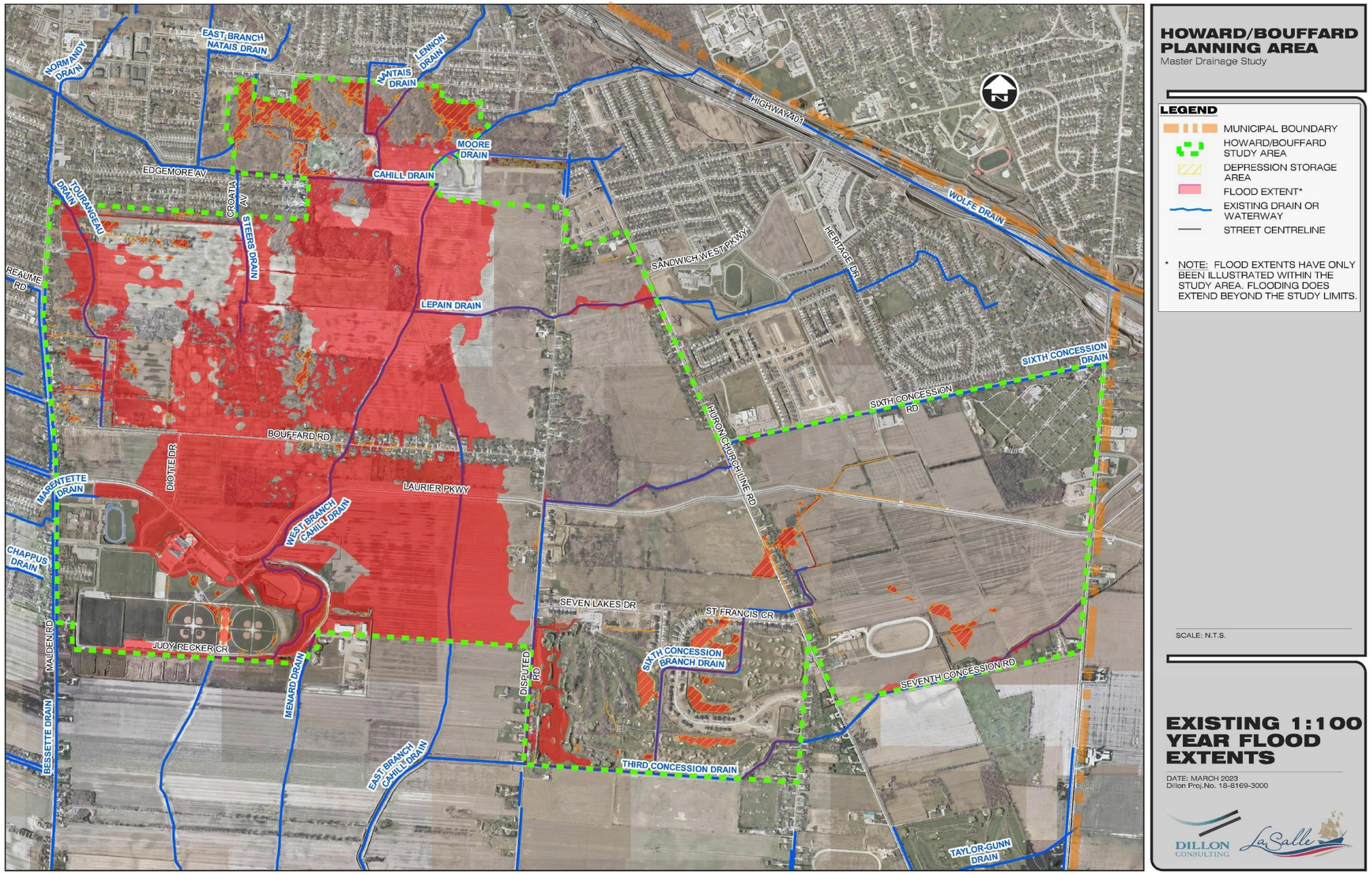
1.1 Background and Purpose of Report

This report documents the Class EA study completed for the project, including alternatives considered, consultation completed, and an assessment of project impacts. The report also outlines mitigation measures and next steps for the future design and construction phases.

This study is a critical step for both the Town and the Essex Region Conservation Authority (ERCA) to allow development to proceed in the Study Area. The map shown in **Figure 2** provides guidance to the Town and ERCA with respect to the status of developable lands.

It should be noted that the map was originally issued in January of 2019 and is based on the stormwater models prepared early in the study. At the commencement of the study, there were questions as to whether or not there was a spill and the extent of flooding that it would cause. Since that time, the spill rate and volume have been further refined through the Turkey Creek Watershed Modelling Study and are lower than the early results. As such, we anticipate that the flooding extents will be less than illustrated in **Figure 2**. In any case, the results confirm the need for the study and preferred solution as described further below.

Figure 2: Flood Inundation Area



HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD/BOUFFARD STUDY AREA
- DEPRESSION STORAGE AREA
- FLOOD EXTENT*
- EXISTING DRAIN OR WATERWAY
- STREET CENTRELINE

* NOTE: FLOOD EXTENTS HAVE ONLY BEEN ILLUSTRATED WITHIN THE STUDY AREA. FLOODING DOES EXTEND BEYOND THE STUDY LIMITS.

SCALE: N.T.S.

EXISTING 1:100 YEAR FLOOD EXTENTS

DATE: MARCH 2023
Dillon Proj.No. 18-8169-3000

DILLON CONSULTING

1.2 Class Environmental Assessment Process

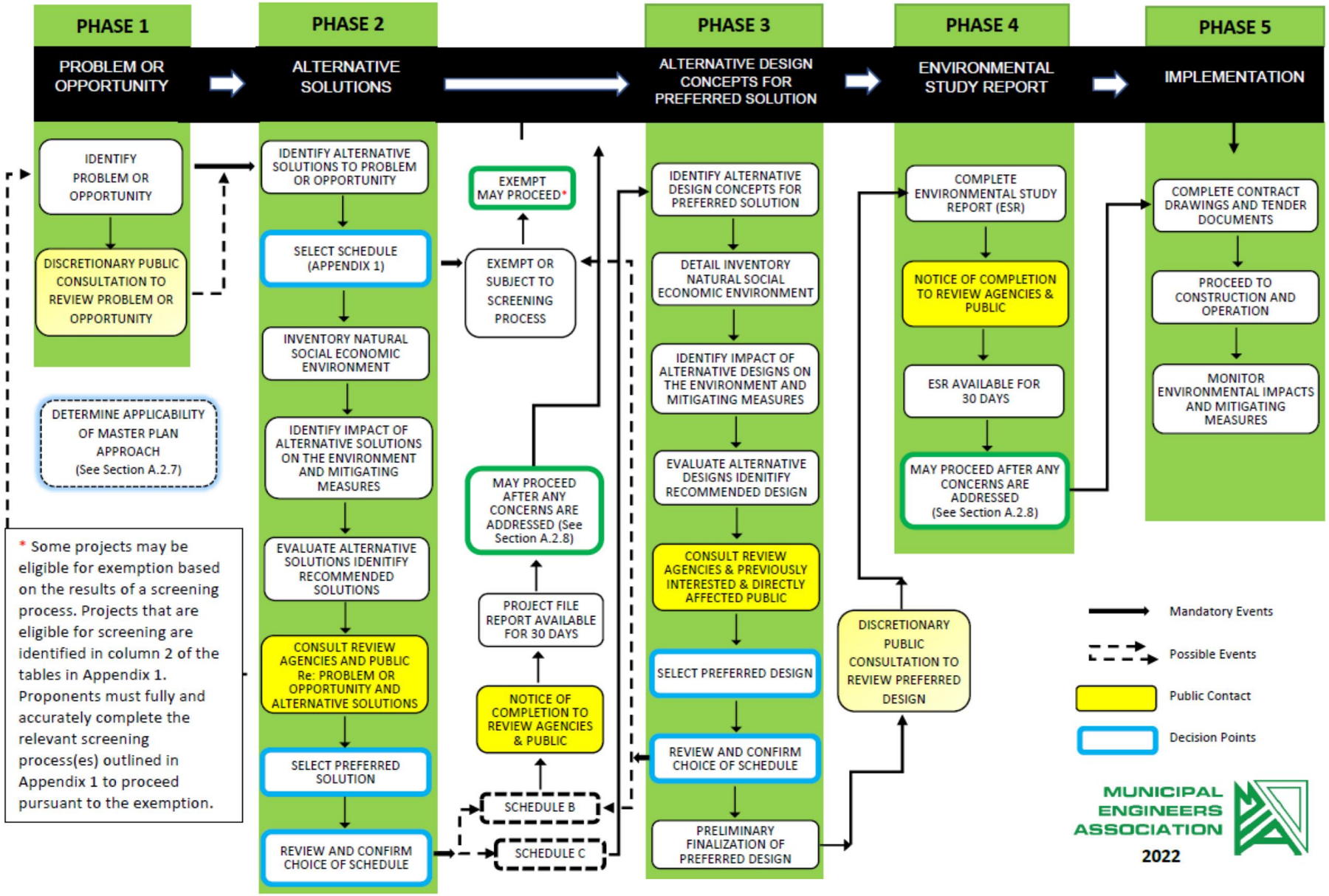
Municipal infrastructure projects must meet the requirements of the Ontario *Environmental Assessment Act* (EA Act). The Municipal Class EA (2023), applies to a group or "class" of municipal infrastructure projects which occur frequently and have relatively minor and predictable impacts. These projects are approved under the EA Act as long as they are planned, designed, and constructed according to the requirements of the Municipal Class EA.

Under the Municipal Class EA, projects are classified based on the type of work proposed and, for some projects, the anticipated construction costs. The classifications are described in **Section 1.2.1**. The classification of the project determines the planning and design process that is required under the Class EA.

The full planning and design process under the Municipal Class EA is illustrated in **Figure 3**, and includes the following 5 phases:

- Phase 1 – Identify the problem/opportunity to be addressed;
- Phase 2 – Evaluate alternative solutions to address the problem/opportunity;
- Phase 3 – Develop and evaluate alternative design concepts for the preferred solution;
- Phase 4 – Document the study and environmental commitments in an Environmental Study Report; and,
- Phase 5 – Implement the project (detailed design, construction, and environmental monitoring).

Figure 3: Planning and Design Process (Source: Municipal Class EA, 2023)



1.2.1 Municipal Class EA Project Schedules

Four classes of projects are identified in the Municipal Class EA:

- **Exempt** projects generally have the lowest complexity and potential for environmental impacts. These projects do not need to follow the Municipal Class EA process as they are exempt from the requirements of the EA Act;
  - Some projects with a higher level of complexity and potential for environmental impacts are **eligible for exemption**, subject to screening. Two screening processes are described in Appendix 1 of the Municipal Class EA, 1 or both of which may apply to a given project;
- **Schedule B** projects generally have a greater potential for environmental impacts, and are required to proceed through the first two phases of the Class EA planning and design process prior to implementation. Accordingly, proponents must inventory existing conditions, identify and evaluate alternative solutions to the problem/opportunity, and select a preferred solution. They must also consult with relevant agencies, affected members of the public, and Indigenous communities during the study. Following completion of Phase 2 of the Class EA process and publishing of the project file for public review, the project may proceed to detailed design and construction (Phase 5) as long as there are no formal EA challenges outstanding; and,
- **Schedule C** projects require more detailed study, public consultation, and documentation, as they generally have greater potential for impacts. Projects categorized as Schedule C must proceed through all five phases of the Class EA planning and design process. This includes evaluation of design concepts for the preferred solution, an additional opportunity for public review during Phase 3, and publication of an Environmental Study Report for public review in Phase 4.

1.2.2 Project-Specific Study Process

This project is following Master Plan Approach #2, as described in Appendix 4 of the Municipal Class EA. Approach #2 involves the preparation of a Master Plan document at the conclusion of Phases 1 and 2 of the Municipal Class EA process. Accordingly, the final public notice for the Master Plan will be the Notice of Completion for any Schedule B projects required to achieve the preferred solution described herein. If any

Schedule C projects are required to implement the preferred solution, further study is required to address Phases 3 and 4 of the Municipal Class EA process.

Projects that are required to achieve the preferred solution are expected to be classified as Schedule B, as discussed in **Section 7.4**.

1.3 Consultation Program Overview

Public and agency consultation was completed in accordance with the Municipal Class EA process and typical procedures for Class EA studies in the Town of LaSalle. An overview of the consultation program is provided below. Details on the consultation activities, input received, and how it was addressed by the project team are provided in **Section 3.0**.

- A meeting was held with local developers in September 2018 to provide background about the study and request information regarding proposed developments in the Study Area;
- The Notice of Study Commencement was issued in October 2018 to introduce the study and provide an initial opportunity for input;
- Project Update Newsletters were issued in January 2019 and May 2019 to share progress on the mapping of flood extents within the Study Area and the development of alternative solutions;
- Three Public Information Centres (PICs) were hosted, as follows:
- PIC 1 was held in June 2019 to outline the initial alternatives considered and the preferred solution that was identified at the time;
- PIC 2 was held in December 2019 to present a revised solution, which accommodated future development throughout the Study Area;
- PIC 3 was held in March 2023 to present a revised solution that addressed feedback from PIC 2 and incorporated the findings of the Turkey Creek Watershed Study;
- Following PIC 3, meetings were held with agencies and local landowners as required to refine the preferred solution identified at PIC 3; and,
- Notifications were sent to local Indigenous communities at key milestones throughout the study.

2.0 Project Need and Justification

The Study Area consists of approximately 1,100 hectares (ha) of largely undeveloped land within the Urban Area Boundary outlined in the Town's Official Plan (2018). The Study Area is designated for a mix of land uses, primarily residential, and is planned to be developed over several decades.

Several studies have been completed to plan for new infrastructure in the area, including:

- Bouffard and Howard Planning Districts Functional Design Study (2005) and Addendum (2017);
- Environmental Study Report for Laurier Parkway between Malden Road and Howard Avenue (2009);
- Detailed design and construction of Laurier Parkway (2010); and,
- Design and construction of the expansion of the Vollmer Complex and related SWM facility (2010).

The Town has invested considerably on infrastructure in the Study Area, including the construction of Laurier Parkway and a trunk sanitary sewer. This infrastructure is intended to support development of the area; however, the existing flooding issues prevent development from proceeding in parts of the Study Area. ERCA has indicated issuance of permits for development purposes within the flood inundation area would be difficult until these issues are addressed.

This study reviewed flood extents for the 1-in-100 year, 24-hour rainfall event in the Study Area based on simulated water surface elevations. Based on an analysis of the spill early in the development of the study and as shown in **Figure 2**, significant portions of the Study Area are flooded during this event, with southern areas adjacent to the West Branch Cahill (WBC) Drain and East Branch Cahill (EBC) Drain completely inundated. The spill rate and volume was further refined through the Turkey Creek Watershed Study as described further below and confirmed that flooding would occur under the 1-in-100 year, 24-hour rainfall event.

2.1 Problem/Opportunity Statement

The problem and opportunity statement for this Class EA study is as follows:

- Significant portions of the Howard/Bouffard Planning Area are flooded during the 1-in-100 year, 24-hour rainfall event. ERCA has indicated issuance of permits for development would be difficult until the flooding issues are addressed. This study has developed and evaluated alternative solutions to address the existing flooding issues and support future development in this key growth area.

3.0 Consultation Activities

This section summarizes public and agency consultation undertaken throughout the study. Copies of all consultation materials referred to in this section are included in **Appendix A** (note: personal information has been redacted as required by the *Municipal Freedom of Information and Protection of Privacy Act*).

3.1 Contact List

The study contact list includes 93 stakeholders from the following groups:

- Town of LaSalle departments and Council;
- Relevant staff from other local municipalities;
- ERCA;
- Provincial Ministries;
- Indigenous communities;
- Utility companies;
- School boards;
- Local landowners and developers; and,
- Individuals who requested to be kept informed about the study.

Throughout the study, notices were sent to the contact list as well as property owners in the Study Area (approximately 1,000 individuals). The contact list was updated throughout the study as required.

3.2 Project Webpage and Email Address

A project webpage was set up on the Town's website and updated at key milestones throughout the study. The address of the project webpage was www.lasalle.ca/hbmds.

A dedicated email address, HowardBouffard@dillon.ca, was also created for the study. This email address was included on notices issued throughout the study, along with the contact information for the Town's project lead.

Due to the COVID-19 pandemic, PlaceSpeak was introduced midway through the study to allow for virtual public participation with this project and more specifically from PIC 3 onwards. The address of the PlaceSpeak page was www.placespeak.com/en/topic/6720 and a link to the page was provided on the project webpage on the Town's website.

3.3 Development Stakeholder Meeting

An initial meeting was held on September 13, 2018, with the local development community. The purpose of the meeting was to provide background information about the study and request information regarding proposed developments in the area.

The project team provided a presentation, and a questionnaire was used to gather information from the developers. Feedback gathered via the questionnaire indicated that developments are ready to proceed and awaiting completion of this study.

3.4 Notice of Study Commencement

A Notice of Study Commencement was prepared to introduce the study and invite initial input. The Notice was sent to the contact list on October 23, 2018, and published to the project webpage on the Town's website.

A total of three agency comments and ten public comments were received in response to the Notice of Study Commencement. The comments and project team responses are summarized in **Table 1** and **Table 2**, respectively.

Table 1: Notice of Study Commencement – Agency Comments

Agency	Date Received	Comment Summary	Response
Ministry of Tourism, Culture and Sport (MTCS; now Ministry of Citizenship and Multiculturalism [MCM]) Katherine Kirzati, Heritage Planner	November 21, 2018	• Determine potential impacts to cultural heritage resources as part of the study; • Submit cultural heritage resource screening checklists to MTCS (now MCM); and, • If further cultural resource technical reports are required, submit them to MTCS (now MCM) for review.	• No response required.
NAV Canada Olivier Meier, Manager – Land Use and NOTAM	December 9, 2018	• NAV Canada has no objection to the proposal as submitted; and, • Future development proposals should be submitted to NAV Canada for assessment.	• No response required.
ERCA Michael Nelson, B.Sc., M.Sc., Watershed Planner	April 12, 2019	• Requested to be added to contact list.	• Individual was added to the contact list.

Table 2: Notice of Study Commencement – Public Comments

Date Received	Comment Summary	Response
November 1, 2018	• Requested to be added to contact list.	• Individual was added to the contact list.
November 2, 2018	• Requested to be added to contact list; and, • Will there be any building in my area?	• Individual was added to the contact list; and, • No buildings are proposed as part of this study at this time; further study is required to determine location and extent of construction.
November 5, 2018	• Will there be any building on my property?	• No buildings are proposed as part of this study at this time; and, • This study will facilitate future development, but those developments will need to be approved through a separate process.
November 21, 2018	• Requested to be added to contact list.	• Individual was added to the contact list.

Date Received	Comment Summary	Response
December 14, 2018	• Study Area boundary should be expanded; and, • Land south of the Study Area boundary should be reviewed for consideration of a large SWM pond and natural area at this location.	• Comments noted; • The project team is currently assessing the extents of flooding in the area and will be recommending alternative solutions; and, • The Study Area was established through previous Environmental Assessments and studies.
December 21, 2018	• Requested to be added to contact list.	• Individual was added to the contact list.
December 29, 2018	• Suggested to stop all residential construction along Disputed Road until this study is completed; • Expressed concerns about stormwater runoff after major storms, and traffic impacts of development; and, • ERCA and the Province of Ontario should be involved in this study.	• This master drainage study is the first step in addressing the SWM needs of the Study Area; • Home builders will need to comply with proposed grades and the matter will be reviewed closely; and, • ERCA and the Province of Ontario are involved in this study and will play a key role in finalizing the report.

Date Received	Comment Summary	Response
December 31, 2018	• Laurier Parkway floods, closing intersection with Disputed Road and causing detours to get home.	• Current study efforts have been focused on establishing existing conditions; and, • Comments are noted as focus is shifting to potential solutions.
January 2, 2019	• Individual indicated they own land within the Study Area but outside of the flood zone; • Draft Plan of Subdivision for their lands was previously approved but has been delayed by this study; • Will other drainage changes be forced on us? • Do we need to share costs of these improvements? • Request to set up meeting.	• The project team met with the individual to discuss their concerns; • The upcoming PIC and timing of next steps was discussed; and, • A solution to the flooding issue is being developed and in the interim, the landowner can proceed with the development of a portion of their property.

Date Received	Comment Summary	Response
January 16, 2019	• Study Area boundary should be adjusted to include all of the property owner's lands; • Provided summary sketch showing drainage pattern on property; • Drainage improvements for their own use on their own property provided; • Study should not adversely impact individual's property; • Comments on draft Existing Conditions Flood Extents mapping – request for a meeting to discuss; • Questioning flood extents based on on-site observations and as-built drawings for subdivision – plans to survey the area to confirm; and, • Questions about model outputs and impact of depression storage areas.	• Mapping that was prepared followed technical guideline for flood hazard mapping; • Objective of solutions is to properly collect and distribute stormwater; • Existing conditions must be finalized based on information available to-date; and, • Meeting offered to discuss in further detail.

3.5 Follow-Up Consultation

3.5.1 Project Update Newsletter 1

A Project Update Newsletter was posted on the project website in January 2019. This update provided details on the existing flood conditions for the Howard/Bouffard planning area, and details regarding next steps in the study.

3.5.2 Technical Engagement Session

A technical engagement session was held on April 23, 2019, at the offices of Dillon. Representatives of ERCA, the Town of LaSalle, and Dillon were in attendance. Discussion included the results of the hydraulic analysis, comparison of alternatives, and balancing of flows completed to date. All parties were in agreeance with moving forward with the alternatives for presentation at PIC 1.

3.5.3 Project Update Newsletter 2

A second Project Update Newsletter was posted to the project website in May 2019. This update provided details on the progress made towards the development of alternative solutions, the anticipated project timeline, and next steps. The update also shared that a PIC would be held in June 2019.

3.6 Public Information Centre 1

The first PIC for this study presented an initial set of alternatives and the preferred solution that had been identified.

The Notice of PIC was sent to the contact list on June 10, 2019. The Notice was also posted on the project webpage and published in the LaSalle Post during the week of June 10, 2019.

PIC 1 was held from 4:00 to 7:00 p.m. on June 26, 2019 at LaSalle Civic Centre. Display boards were used to present information about the study, existing conditions, evaluation completed, the preferred alternative, and next steps. Members of the project team were available to answer questions and receive feedback.

The PIC was attended by 28 individuals, the majority of whom were landowners in the Study Area. Twelve written comments were received from members of the public (local landowners and developers); these comments, and responses from the project team, are summarized in **Table 3**. Two comments were received from Indigenous communities. Consultation with Indigenous communities throughout the study is summarized in **Section 3.10**.

A representative of the County of Essex (the County) requested that the County be kept informed about the study, especially regarding any costs that will be assessed to the County. The County of Essex is included on the contact list.

Table 3: PIC 1 Public Comments

Date Received	Summary of Comments	Project Team Response
June 26, 2019	• Request to be kept informed.	• Individual was added to the contact list.
June 26, 2019	• Concern about flooding downstream and impacts to properties along banks of the river; and, • Future home owners along river should be informed that it is a flood zone.	• The analysis will confirm that there are no negative impacts downstream and that the stormwater is maintained within the banks of the channels and ponds.
July 5, 2019	• Proceeding through planning approvals for subdivision in the Study Area; • Servicing and stormwater management for development is being completed based on existing approved documents; • Concern about insufficient room within Laurier Parkway right-of-way for the proposed infrastructure; • Proposed changes to the Master Plan may cause unnecessary delays in subdivision approvals; and, • Additional time is needed to complete analysis.	• Proceeding through planning process based on current EA is an option; however, once that process is complete it will remove options of regaining land proposed by ponds as developable; and, • Meeting offered to discuss further.

Date Received	Summary of Comments	Project Team Response
July 8, 2019	• Solution should be funded by the Town of LaSalle immediately with recovery of costs through development charges; and, • Town should allow development to proceed on an interim basis where it is feasible.	• Comments noted; and, • Funding mechanism will be determined at a later stage.
July 10, 2019	• Support project – Town needs to take control and fund through Development Charges; and, • In calculating amounts to be paid by benefiting owners, is volume of water discharged to be a factor?	• Comments noted; and, • Funding mechanism and approach will be determined at a later stage.
July 15, 2019	• Provide more details on project timing/end date as it relates to developments; • Costs should not be borne entirely by developers – residents, school board, Town, and City of Windsor should contribute; • What are the projected development charges for commercial development, and how would they be calculated; and, • Is there an opportunity to consider interim stormwater management solutions?	• Comments noted; • Additional details on project timing/end date as it relates to developments was provided in subsequent PICs; • Funding mechanism will be determined at a later stage; and, • Phased/interim solutions will be considered as part of the process.

Date Received	Summary of Comments	Project Team Response
July 16, 2019	• What is the estimated land acquisition cost?	• The extent of land acquisition required, and associated costs, will be determined during the future design phase.
July 16, 2019	• Support for preferred solution; and, • Opportunity to consider interim stormwater management solutions?	• Phased/interim solutions will be considered as part of the process.
August 9, 2019	• Proposed solution will land-lock their farm property; • Not included in Study Area or notified about the study before the preferred solution was selected; • Study fails to consider costs of expropriation and injurious affectation claims; • Relevant environmental, social, and engineering factors not considered by the study; • Transferring water to another property is contrary to the *Drainage Act* and good planning principles; • Benefits of growth as stated in PIC display materials are not substantiated;	• The preferred solution ultimately recommended in this EA does not require the drain interconnection along Kelly Road, so these lands are no longer impacted.

Date Received	Summary of Comments	Project Team Response
	• "Natural Area Linkages" is a meaningless phrase – too narrow to be a wildlife corridor; • Study fails to consider stormwater management ponds on development lands as an alternative solution; • Consider capturing stormwater on individual residential properties in new developments instead of sending downstream; and, • Consider alternative stormwater management pond location on the north side of 8025 Disputed Road – no bridges or culverts required, and avoids cutting off four landowners from Kelly Road (sketch provided).	
August 13, 2019	• Preserve mature trees that presently border the existing drain; • If tree removals are required, replace with a variety of trees of similar value and provide us with wood for firewood; • Concern about loss of privacy from vegetation removals; and, • Fencing along the length of the existing ditch needs to remain.	• Comments noted; and, • Impacts to the natural environment will be evaluated through this study.

Date Received	Summary of Comments	Project Team Response
August 21, 2019	• Alternative ditch alignment proposed to address concerns of impacts to development potential for Kelly Road property owners (sketch and description provided).	• The preferred solution ultimately recommended in this EA does not require the drain interconnection along Kelly Road, so these lands are no longer impacted.
August 21, 2019	• Proposal impacts development potential of lands by removing street frontage; and, • Consider moving drainage to the back of property, purchasing the entire property, or providing a similar property in exchange.	• Comments noted.
September 15, 2019	• Prepared to proceed with the preferred solution set out in the current EA documents; • Why not include relocation of the 6th Concession Drain in this Master Drainage Study; and, • Subdivision proceeding with a SWM pond – understand it will be removed for ultimate solution. What requirements will the Town impose for the ultimate solution?	• Comments noted; • Advised additional discussions may be required between involved parties for rerouting of stormwater flow; however, • Preferred solution ultimately recommended in this EA creates local SWM ponds on individual development lands within the Study Area.

3.6.1 Landowner Meetings

Following PIC 1, the Town of LaSalle sent invitations to landowners directly impacted by the preferred solution that was presented at the PIC. Meetings were held on August 6, 7, and 9, 2019, at LaSalle Civic Centre. Members of the project team discussed the PIC materials in detail with attendees.

Attendees raised questions about expropriations, tree removals, financing, impacts to development potential, and alternative drain layouts. Project team members recorded comments and suggested that attendees submit comment sheets.

3.6.2 Agency Meeting

In advance of the PIC 2, a meeting was held with ERCA, the Town, and Dillon Consulting Limited on November 4, 2019. The purpose of the meeting was to provide an update on the study, upcoming notifications for PIC 2, and additional work to be done. Attendees discussed another study adjacent to the Study Area and how it may affect the analysis for this study. The issue of the existing conditions flood extents and who benefits from the proposed work was also discussed, as well as updating the estimate of cost and land required.

3.7 Public Information Centre 2

A second PIC was held to present a revised solution that would accommodate planned development throughout the Howard/Bouffard Planning Area.

The Notice of PIC 2 was sent to the contact list and posted to the project website during the week of December 4, 2019. The Notice was also advertised in the LaSalle Post on December 6, 2019.

PIC 2 was held from 4:00 to 7:00 p.m. on December 12, 2019, at LaSalle Civic Centre. Display boards were used to present information and solicit feedback on the revised recommended solution. Members of the project team were available to answer questions and receive feedback. The PIC was attended by 46 individuals, the majority of whom were landowners in the area.

A total of eight written comments were received, all of which were submitted by members of the public (local landowners and developers). Public comments and responses from the project team are summarized in **Table 4**. A number of meetings were held following PIC 2 to discuss comments and questions received from landowners in the Study Area. These landowner meetings are summarized in **Table 4** as they relate to the comments received.

Table 4: PIC 2 Public Comments

Date Received	Summary of Comments	Project Team Response
December 12, 2019	• What is the individual flood risk at my property?	• The question appears to be related to ponds that are not a part of the proposed solution; and, • Proper pond design is such that the stormwater should be maintained within the banks.
December 17, 2020	• Prefer to create three stormwater management ponds as opposed to one large pond; • Understanding is Town will not need to acquire any of his property; • Will require Town to erect privacy fence to protect his property from the trail associated with the drain; • What is the current thought process on who would bear the burden of the cost of the proposed solution; and, • Why are the bridges now 8 m vs 10 m?	• Proposed solution solves overland flooding and development needs while reducing long-term operation/maintenance costs for Town; • Town will construct fencing along boundary of Town property that abuts landowner's property; • Financing will be determined in future project phases. Likely some will be paid by existing rate payers; and, • Town continues to refine plans to reduce costs while still meeting objectives.

Date Received	Summary of Comments	Project Team Response
January 15, 2020	• Correct errors on flood extent mapping for property; and, • Sixth Concession Branch Drain is not shown properly on mapping – sections of it have been filled in.	• Meeting held on February 3, 2020; and, • The landowner's concern was that the existing conditions flood extents would impact future development of the property, however, the property cannot develop due to a lack of sanitary sewer allocation.
January 21, 2020	• Request to meet to discuss alternative drain alignment that limits impacts to his property and two other impacted properties (described in email).	• Moving drain onto a different property would be difficult at this stage; • Meeting set up for January 24, 2020; and, • At the January 24, 2020 meeting, the issues of property access, future development of the properties, and the impact of the proposed drainage improvements was discussed. Alternative alignments were also discussed, and subsequently reviewed by the project team.
January 23, 2020	• Impacts of land acquisition on local residents not adequately factored into evaluation; and, • Impacted residents were not properly notified about PIC 1.	• Comments noted; and, • The preferred solution ultimately recommended in this EA does not require the drain interconnection along Kelly Road, so these lands are no longer impacted.

Date Received	Summary of Comments	Project Team Response
January 23, 2020	• Two alternative solutions (described in email) are preferred to the solution proposed by the Master Drainage Study.	• The preferred solution ultimately recommended in this EA does not require the drain interconnection along Kelly Road, so these lands are no longer impacted.
January 28, 2020	• Request to meet regarding the latest version of the plan.	• Meeting held January 28, 2020; and, • Options discussed at meeting will be evaluated.
January 29, 2020	• Why the sudden change in direction from 2017 EA to 2020? What has changed since the EA Addendum; • The EA does not consider the natural environment. Is Ministry of the Environment, Conservation and Parks (MECP) involved in the EA process; • Provide information on impact to residents who remain in the area – noise, dust, privacy, trail connections, etc.; • Clarify the project timelines; and, • Provide details about Council/public involvement in the process.	• The 2017 EA did not address spillover from the Cahill Drain; • Natural environment review will be completed and documented in the Environmental Study Report (ESR), which will be circulated for review; • Trail connections, utility relocations, bridge design, etc. will be established through detailed design; • Construction could commence as early as 2022. Property acquisitions are required prior to construction; and, • Project will be presented to Council for approval to post the Notice of Completion.

Date Received	Summary of Comments	Project Team Response
		During the 30-day review period, objections can be sent to MECP.

3.8 Notice of Project Re-Start

Following PIC 2, the study was paused to await and incorporate the findings of the Turkey Creek Watershed Study. The Turkey Creek Watershed Study focused on establishing a consistent watershed model so all affected projects and studies, including this Master Drainage Study, would have consistent reference data.

Upon substantial completion of the Turkey Creek Watershed Study, a Notice of Project Re-Start was sent to the contact list on July 27, 2022. The Notice outlined why the study was paused, the alternative solutions under consideration, and the intent to hold a third PIC in the coming months.

A total of six comments were received following the issuance of the Notice of Project Re-Start, including two from agencies and four from members of the public. Agency comments and project team responses are summarized in **Table 5** and public comments and project team responses are summarized in **Table 6**.

Table 5: Project Re-Start Agency Comments

Contact	Date Received	Comment Summary	Project Team Response
ERCA James Bryant, P.Eng, Director of Watershed Management Services	August 4, 2022	• Indicated preferred method of obtaining project notices; and, • Provided staff to be notified.	• Confirmed that the project contact list will be updated accordingly.
Ministry of the Environment, Conservation and Parks Mark Badali, Regional Environmental Planner – Southwest Region	August 26, 2022	• Acknowledged receipt of the notice; and, • Provided resources and outlined expectations for the Master Plan approach being followed.	• Comments noted; no response required.

Table 6: Project Re-Start Public Comments

Date Received	Comment Summary	Project Team Response
August 4, 2022	• Questions regarding the status of the study and PICs.	• Indicated that this project has been underway since November 2018; • Provided links to the news page and project page on the Town's website; • Confirmed that another PIC will be held in the future; and, • Offered to resolve outstanding questions or comments once the commenter has reviewed project materials.
August 28, 2022	• Questions regarding the status of property acquisition and whether their client's house would be required for the project.	• Advised that information on property impacts would be provided at the future PIC (note: no impacts to buildings are expected as a result of the preferred solution).
September 14, 2022	• Advised that their lands were withdrawn from the Master Drainage Study and are moving forward under a guideline plan.	• Comments noted; no response required

Date Received	Comment Summary	Project Team Response
September 14, 2022	• Asked if the Study Area has been altered since the start of the project, and if the project team intends to amend the boundaries; • Inquired about details of how the project would be funded; and, • Asked about the amount of water being contributed by lands outside of the Study Area.	• Confirmed the Study Area remains unchanged; • Stated that cost mechanisms are not yet available as the study is still in progress; and, • Shared the approximate water volume contributed to the spill location, and that final volumes and flows are being developed.

3.9 Public Information Centre 3

A third PIC was held to present a revised solution that incorporates the findings from the Turkey Watershed Study and addresses feedback received through PIC 2.

The Notice of PIC 3 was sent to the contact list[1] on February 7, 2023 and posted in the LaSalle Post on February 22, 2023. The PIC was held on March 1, 2023, in-person from 4:00 p.m. to 7:00 p.m. at Council Chambers in the LaSalle Civic Centre.

Informational materials were displayed in an open-house format for viewing and staff were available to answer questions. The project team shared why the study had been paused to accommodate the Turkey Creek Watershed Study, information incorporated from that study, and details on the preferred solution.

In addition to the in-person forum, the information presented at PIC 3 was available for viewing on the virtual platform PlaceSpeak for a period of 30 days beginning on March 1, 2023. This virtual option was included to provide the public with an additional opportunity for review and feedback. Links to access the materials via PlaceSpeak were available on the project website.

A total of 56 people attended the in-person forum. The majority of attendees were local residents and affected property owners. Attendees inquired about potential property impacts, the development schedule, and details surrounding the preferred alternative such as channel width and pond shape. Project team members were available to respond to these inquiries.

A total of 13 written comments and inquiries were received as part of PIC 3. Agency comments and project team responses are summarized in **Table 7**. Public comments and project team responses are summarized in **Table 8**.

The solution presented at PIC 3 was subsequently refined, as noted in the following sections, to develop the preferred solution presented in **Section 5.4**.

[1] As discussed in **Section 3.12**, the project team later discovered that the Notice of PIC 3 was not delivered to everyone on the study contact list and sent a project update letter in November 2023 to address this.

Table 7: PIC 3 Agency Comments

Contact	Date Received	Comment Summary	Project Team Response
City of Windsor Ryan Langlois, P.Eng, Storm and Wastewater Engineer	April 3, 2023	• Inquired about the basis of the assessment area for the proposed drainage works for City lands; and, • Inquired about the expected mechanism to determine City proportion of costs for the proposed works.	• Shared that the *Drainage Act* process has not been initiated yet; and, • Virtual meeting held on April 6, 2023, to discuss the City's comments. The *Drainage Act* and accompanying assessment rationale has not yet commenced. Notices will be sent out in advance when that process begins.
Wildlife Preservation Canada Johnathan Choquette, Bsc., MLA, Phd Candidate Lead Biologist – Ojibway Prairie Reptile Recovery	June 7, 2023	• Does not support placement of one large SWM within LaSalle Woods Environmentally Sensitive Area; and, • Lands are identified as Restoration Opportunity Lands, restoration of agricultural lands to habitat is encouraged.	• The ponds proposed as part of the 2017 Functional Servicing EA Addendum remain in the proposed plan today; the Cahill Spill Pond is to deal with the existing drainage system; • The Cahill Spill Pond will serve a dual purpose: in addition to its SWM benefits for the existing conditions that are present upstream in Windsor and Tecumseh (i.e., addressing issues caused by the spill-over from upstream drainage areas), the pond will consist of grassland when it is dry, which could be most of the year. This grassland will support a number of wildlife species and contribute to meeting the Town and the ERCA's goals for the LaSalle Woods Environmentally Sensitive Area. • ERCA has been consulted extensively throughout this study, and supports the planned approach including the location of the Cahill Spill pond; • During future design phases, the Town plans to continue consulting with ERCA regarding seed mixes and how best to incorporate the drainage improvements into the area's natural heritage system; and, • Advised that the special policy area for the Bouffard planning district was removed as part of the Town's last Official Plan update, and that a new Secondary Plan is being prepared for the area including opportunities for public and agency involvement.
	August 21, 2023	• Inquired about an updated map to show locations of proposed SWM ponds; • Inquired about the location of the Cahill Spill Pond in relation to Cahill Drain; • Inquired about a cross section for the Cahill Spill Pond, and what times of year it will be filled with water; and, • Seeking clarification on the LaSalle/ERCA management plan referenced.	• Confirmed that the ponds recommended in the 2017 EA addendum are not being removed through this study, intention is that developments will still require stormwater management in some form and the location will be confirmed through detailed design of individual developments; • Stated that it is anticipated the spillover pond will be dry with the exception of severe storm events where overtopping of the Cahill Drain occurs; and, • Stated that the original secondary plan was removed as part of an Official Plan amendment. Contextual history may still be on file, but there are newer studies that may have modified previous plans. The Town and ERCA are cooperatively working towards the completion of this study. A secondary planning process currently underway will include a natural environment review.

Contact	Date Received	Comment Summary	Project Team Response
	August 30, 2023	• Inquired whether the public will be consulted on the detailed design process for land development projects within the Study Area; and, • Requested a cross section diagram of the spillover pond.	• Advised that the detailed design and approvals for developments is not typically a public process; • Explained that cross sections of the spillover pond have not been developed as this study involves a functional level design of the preferred solution; and, • Provided information on the design of the spillover pond, with reference to panel 19 of the PIC 3 display materials.
	September 11, 2023	• Noted that the spillover pond, with 20 percent side slopes and appropriate vegetation cover, has potential to contribute to the ecological health of LaSalle Woods, assuming it is maintained assuming it is maintained in a way that is sensitive to the needs of endangered reptiles and depending on the timing of flood events; and, • Advised that any additional information about expected timing of flooding and nature and timing of required maintenance would be welcome.	• Comments noted; additional information about expected timing of flooding, and nature and timing of required maintenance, is not available.

Table 8: PIC 3 Public Comments

Date Received	Comment Summary	Project Team Response
February 7, 2023	• Inquired about the status of the proposed solution based on new inputs from the completed Turkey Creek Watershed Study; • Inquired about property requirements and whether their property would be affected; and, • Inquired about timelines for next steps.	• The preferred solution has been modified and updated based on the Turkey Creek Watershed Study; and, • Information on requirements and timelines will be available at the PIC on March 1, 2023.
February 8, 2023	• Requested a copy of the study prior to the PIC to allow time to review the content.	• Advised that the completed study is not yet available as the work is currently ongoing; and, • Stated that following the PIC there will be a comment period to allow for feedback which will be considered for the completed study.
February 13, 2023	• Inquired whether the project will affect their properties.	• Advised that one of the individual's properties is within the Study Area.
March 1, 2023	• Noted that doing nothing is not a solution within the context of the study.	• Comments noted.
March 5, 2023	• Requested a meeting to discuss the implications of the study on their lands; and, • Requested further information the preferred solution, including a proposed pond location.	• Meeting scheduled for March 21, 2023; summarized in **Section 3.9.1**.
March 14, 2023	• Requested a copy of the study.	• Advised that the completed study is not yet available as the work is currently ongoing; and, • Shared the link to the PIC materials and the deadline to submit comments for consideration.
March 20, 2023	• Noted their understanding that this study identifies a planning level master drainage plan, and there will be flexibility to modify specific design elements during the detailed design phase of future development; • Has concern with the lack of language within the study to emphasize this flexibility for solution refining and optimization at the detailed design phase; • Noted the low probability of a Cahill Spill event and provided examples of alternative drainage systems to promote the addition of flexible language during design phase; and, • Posed several specific technical questions regarding the engineering of the drainage system.	• The preferred solution will be refined during the ongoing secondary planning process and/or the detailed design process, including the locations of the ponds identified in the 2017 EA Addendum; • It is expected any such refinements will be in keeping with, and not compromise, the recommended alternative; and, • Technical questions regarding the Cahill Spill and the preferred solution were addressed (see response in **Appendix A** for details).

Date Received	Comment Summary	Project Team Response
March 31, 2023	• Noted that based on their understanding of the preferred solution they are comfortable with awaiting next steps.	• Comments noted.

March 31, 2023	• Noted that this drainage study presents an opportunity to create an ecological corridor through LaSalle, linking to Windsor and Amherstburg; and,
	• Suggested that as an alternative to stormwater ponds, a wider corridor and the restoration of forest should be pursued.
		• We appreciate your recommendation for a wider natural corridor surrounding the drain; however, there is a need to balance environmental benefits with property acquisition requirements and landowner needs;
		• The preferred solution includes a natural corridor that is planned to extend approximately six metres (m) on each side of the main drain;
		• The dry pond at the north end of the study area will serve a dual purpose: in addition to its stormwater management benefits, the pond will provide grassland habitat when it is dry, which could be most of the year;
		• During the future detailed design stage, we anticipate there will be refinements in keeping with the preferred alternative, including:
		  ○ Exploring opportunities to enhance the wildlife habitat potential of the drainage improvements; and,
		  ○ Considering opportunities for stormwater management in natural low lying areas to reduce dependency on traditional stormwater facilities;
		• The ERCA will continue to be consulted regarding how best to incorporate the drainage improvements into the natural heritage system; and,
		• We understand you have met with Town staff on this matter and that you are aware of the recently initiated secondary plan for the area. Hopefully, you can continue to be involved in the secondary plan process to provide input to the Town through the natural heritage/natural feature reviews that will be carried out for that process.

August 10, 2023	• Building on the above (March 31) comment and the project team's response, suggested that the preferred alternative is designed to maximize the area for building development and minimize natural habitat; • Presented two additional alternatives that utilize natural and/or restored wetlands in managing stormwater; • Suggested that the Town consider incorporating natural areas to the proposed Ojibway National Urban Park; and, • Provided a sketch of suggested alternatives.	• Noted that at this point in the process a recommended solution has been examined at a functional level of detail; • The Town will be undertaking a secondary plan which will provide clarity on natural areas to be retained; and, • Acknowledged that further refinement will take place as progress is made and that there are opportunities for naturalization and use of existing natural areas to enhance the recommended solution.

Date Received	Comment Summary	Project Team Response
September 28, 2023	• Requested clarification regarding the EA referred to in the project team response; • Inquired about whether there is a natural environment report available for review, noting the PIC 3 display materials do not quantify all of the impacts of each alternative solution; and, • Identified a statement in the PIC 3 display panels that conflicts with his understanding of the location of the Cahill Spill Pond.	• Explained that the EA referred to in the earlier project team response is the current study; • Noted the Master Drainage Study Report will be made available for public review in the coming weeks and a notice will be sent at that time; and, • Reiterated that this study is in the planning stage and next steps will include further public engagement; the study presents a conceptual layout which will be refined through future studies.

3.9.1 Landowner Meetings

On March 21, 2023, the project team met with two owners of land within the Study Area regarding the development potential of their lands. An overview of the changes since PIC 2 was provided, including information about the Turkey Creek Watershed Study and its impact on the Howard/Bouffard Master Drainage Study.

The landowners questioned the timing and cost sharing for the project. The *Drainage Act* was discussed as the likely mechanism to move forward with the detailed design and assessment of costs. The project team advised it is anticipated that all who benefit will contribute to the cost. The drainage solution will have to be in place to provide an outlet to the proposed developments. It was noted there is not an opportunity to phase the proposed solution.

It was discussed that the 2017 major storm event did not result in flooding in the Study Area as it tracked further north. The Turkey Creek Study did consider what would have happened if the storm had tracked differently.

The project team explained that other approvals are in place including the Transportation Master Plan. Further discussion with the Town regarding sanitary allocation is required.

The landowners suggested that the drain should follow the woodlot and Diotte right-of-way to be less impactful to their property. Following the meeting, the preferred solution was refined accordingly to reduce property impacts.

A follow-up meeting was held with one of the landowners on November 14, 2023 to discuss the project, including spillover rates, peak flow, and spill volumes. The landowner indicated that the existing spill rate used for the conceptual design (7.8 cubic metres per second [CMS]) was inconsistent with the rate presented in the Turkey Creek Study (6.7 CMS). In a follow-up email, the landowner indicated they believe significant efficiencies can be realized through the detailed design process. The Town noted the conceptual design may represent the worst-case scenario and if flows are refined during detailed design, the sizing and construction costs may be reduced.

3.9.2 Agency Meetings

3.9.2.1 ERCA

At the request of ERCA, a meeting was held with ECRA, the Town of LaSalle, and Dillon on April 14, 2023. The following topics were discussed as they relate to the study and the preferred solution:

- The existing conditions flood extents have not been revised based on the spill rate from the Turkey Creek Watershed Study;
- There is inline attenuation in the design of the preferred alternative;
- The volume is currently based on a 1-in-100 year event in the Turkey Creek watershed and a 1-in-100 year event in the Howard/Bouffard watershed. It was discussed that using a 1-in-25 year event in the Howard/Bouffard area does not make a significant difference to the proposed infrastructure;
- Regarding the impacts of the proposed solution on the Canard River, it is understood that ERCA typically requires no more than a 1 centimetre increase in water levels. This translates to approximately a 500 litres per second increase in flow;
- The stormwater facility could be naturalized;
- The use of parks for storage is not being objected to in principle, but the details would be required for further evaluation;
- The use of natural areas for storage was discussed. The land designation would have to be confirmed through the ongoing secondary plan; and,
- For the tailwater, the project team used a 1-in-5 year Detroit River water level, which is approximately the same as a 1-in-25 year level in the Canard River. This corresponds to a water level of 175.35 metres.

3.9.2.2 Ministry of Transportation, Ontario

The project team met with representatives from Corridor Management and Operations at the Ministry of Transportation, Ontario (MTO) on April 21, 2023, to discuss the project. The meeting was arranged due to the Study Area's proximity to the Herb Gray Parkway, a provincial highway that is approximately 1 kilometre northeast of the Study Area. The Herb Gray Parkway is upstream of the Study Area within the Turkey Creek Watershed, which spills into the Study Area during major storm events.

The project team provided an overview of the study and the preferred solution, as identified in the PIC 3 display materials. It was noted that the preferred solution fully mitigates flooding in the Study Area, and that the intent is not to back up the flow from upstream watercourses.

MTO indicated the preferred solution was generally consistent with what they would expect. MTO's permit control area extends 800 metres from its property, and development within that area would require permits. MTO noted that it would need to review the project with respect to the financial implications for MTO as an upstream property owner given the intent for the project to be implemented through the *Drainage Act*.

Following the meeting, the project team emailed MTO the PIC 3 display materials and the Turkey Creek Watershed study, and requested a response by May 5, 2023. MTO provided the following response via email on May 24, 2023:

- Suggested the Town consider providing detailed documents for the Howard/Bouffard Master Drainage Study, similar to what was provided for the Turkey Creek Watershed study, for a more comprehensive review;
- Inquired whether this study will recommend a maintenance program that can be accomplished using hand tools;
- Recommended the Town consider options that might reduce the need for the current construction contingency of 50 percent, which was identified as high; and,
- Advised to ensure Alternative 3 complies with MTO requirements regarding permits and approvals, if any.

On June 28, 2023, the project team provided the following response:

- The Howard/Bouffard Master Drainage Study Report is currently being prepared and will be posted for public review in the coming weeks;
- Six-metre wide maintenance corridors are planned for each side of the main drain; these will also function as recreational areas and flood plains for major storm events. It is anticipated equipment such as an excavator will be required for the maintenance and cleaning of the drain;
- The current construction contingency is 10 percent; and,
- Permits and approvals will be applied for if/as required.

- Note: The project team has determined the drainage works proposed as part of this study are outside the MTO's permit control area, being approximately 1 km southwest of the Herb Gray Parkway.

3.10 Consultation with Indigenous Communities

Representatives from the following Indigenous communities were included in the contact list and received notices and newsletters issued throughout the study:

- Aamjiwnaang First Nation;
- Caldwell First Nation (CFN);
- Chippewas of Kettle and Stony Point First Nation;
- Chippewas of the Thames First Nation (COTTFN);
- Métis Nation of Ontario;
- Delaware Nation at Moraviantown;
- Oneida Nation of the Thames[2];
- Southern First Nations Secretariat; and,
- Walpole Island First Nation/Bkejwanong Territory.

Following issuance of the project update letter described in **Section 3.12**, the project team called Indigenous communities from which no response had been received. The calls were placed during the week of December 4, 2023. The project team spoke with representatives at all Indigenous communities on the contact list except Métis Nation of Ontario (a voicemail was left) and Southern First Nations Secretariat (no voicemail option). Updated contact information was received from Walpole Island First Nation/Bkejwanong Territory and Delaware Nation at Moraviantown, and the project update letter was subsequently sent to the updated contacts on December 5, 2023.

[2] Note: Oneida Nation of the Thames was added to the study contact list as directed in a letter received from MECP on August 26, 2022 in response to the Notice of Project Re-start. The Notice of Project Re-start was sent to Oneida Nation of the Thames on August 30, 2022.

Table 9 outlines comments received from Indigenous communities throughout the study and project team responses, where required. Meetings with COTTFN and CFN are summarized in **Section 3.10.1** and **Section 3.10.2**, respectively. No further comments or questions have been received from Indigenous communities regarding the project.

Table 9: Indigenous Communities Comments

Community	Date Received	Comment Summary	Project Team Response
COTTFN	November 9, 2018	Comments provided in response to the Notice of Study Commencement: • Minimal concerns about the project; and, • Request for an electronic copy of the Master Drainage Study when available.	• No response required.
	July 3, 2019	Comments provided in response to the Notice of PIC 1: • Request to be kept informed of substantive changes and for final reports to be sent via email.	• No response required.
	November 30, 2023	Comments provided in response to the Project Update Letter: • No comments or questions at this time; and, • Request to be notified when the Master Drainage Study Report becomes available for review.	• No response required.
	February 9, 2024	Comments provided in response to the Notice of Completion: • COTTFN must be afforded the opportunity to deploy archaeology field monitors in future archaeological assessments; • Will there be oversight by the Town to confirm that SWM for individual developments in the study area meets the Town's requirements? • Was modelling completed to determine that the preferred solution would be enough to prevent flooding in this development area? • Improving riparian habitat around the drains must be prioritized in later design phases rather than recreational trails; • Protection of significant woodlands, wetlands, etc. must be prioritized; • SAR and their habitat should be avoided; and, • COTTFN would like to be involved in future design phases and studies.	Response provided March 8, 2024: • The Town will invite COTTFN to deploy archaeology field monitors during future archaeological assessments, and will remind developers in the area of the need to provide the same opportunity to COTTFN; • The Howard/Bouffard Secondary Plan will help guide development in the area; your comments have been provided to the Secondary Plan team for consideration as they relate to land use policies; • The Town will review individual development applications in the study area as part of the Planning Act approval process, and will also review the works during construction to ensure compliance with the approved design; • Extensive stormwater modelling was completed as part of this study, as outlined in **Section 1.1**; the preferred solution as developed to contain and control stormwater flows up to and including the 1-in-100 year event; • As noted in **Section 7.5**, it is anticipated the Town will refine the preferred solution during detailed design, including opportunities for naturalization. The intent of the multi-use pathways is to connect the surrounding communities. We believe both goals can be achieved through careful consideration during detailed design.

Community	Date Received	Comment Summary	Project Team Response
			• The Town understands that COTTFN wishes to be involved in future studies and design stages, especially if there are any significant changes.
Aamjiwnaang First Nation	July 19, 2019	Comments provided in response to the Notice of PIC 1: • Request for all relevant information pertaining to the project to be provided.	• Link to project website sent via email; and, • Notice will be sent when the EA report is available for review.
CFN	February 9 to 23, 2024	Comments provided in response to the Notice of Completion (note: multiple communications are summarized below for clarity; individual comment summaries are provided in **Appendix A**): • CFN requested that the Minister of the Environment, Conservation and Parks issue a Section 16 Order to "bump up" the project to require completion a Comprehensive EA; • Should a permit become required from the MECP, CFN requests to be notified; • CFN is concerned that the natural heritage impact assessment has not been completed prior to finalizing the Master Drainage Study; this study would help inform the review of the alternatives; • CFN is seeking clarification on the anticipated stormwater impacts of the build-out of the Howard/Bouffard Planning Area • Consultation undertaken with CFN is not reflected in the Master Drainage Study Report; • Not all natural heritage features in the Study Area are acknowledged in the report; • Butternut and Willow Leaf Aster are of special importance; consultation with CFN regarding impacts and mitigation measures will be necessary. CFN has a replacement ratio of 40:1 for Butternut. • The proposed SWM facility is located within the portion of the Study Area where there is the highest concentration of natural heritage features; these features are anticipated to be impacted by noise, dust, and debris during construction;	• The requirement to notify CFN should a permit from MECP become required has been noted by the Town. • The level of detail provided in this study is in line with the requirements for a Master Plan following Approach 2 in the Municipal Class (2023). As the detailed design process unfolds, a more detailed assessment of impacts can be completed as recommended in the Master Drainage Study Report. • The work completed as part of this study meets the requirements of professional standards, the Town, and the ERCA. SWM for development lands will similarly be required to abide by the local guidelines and will be subject to review and approval by the Town and ERCA. • The Master Drainage Study Report did not include a record of consultation with CFN regarding the Secondary Plan because they are separate studies. In addition, as the Master Drainage Study Report was finalized in December 2023, it did not document consultation that occurred in 2024. A revised report is being prepared, which will incorporate consultation that occurred in 2024 regarding the Master Drainage Study. • **Section 4.2** is focused on species observed in previous field surveys; the wording will be updated accordingly to clarify this. **Section 6.2** recommends additional natural environment impact assessments in detailed design. • A Butternut Health Assessment may be required during detailed design depending on the proximity of the drainage works to the Butternut tree. The need to consult with CFN regarding impacts to Butternut or Willow Leaf Aster, and CFN's replacement ratio for Butternut, has been noted. • The drainage improvements will create a north-south corridor through the development area along with meadow habitat within the Cahill Spill Pond. The spill pond will consist of grassland when it is dry, which could be most of the

Community	Date Received	Comment Summary	Project Team Response
		• CFN should be notified of archaeological studies and afforded the opportunity to deploy field liaisons; • CFN has concerns regarding disruption to unregistered burial grounds located within the Turkey Creek watershed; • CFN has concerns regarding impacts on the ecosystem and biodiversity of the future National Ojibway Urban Park; • Have you considered how you could increase the size of the existing wetlands on the site to use a nature-based climate solution? • How will the Town maintain the SWM facilities to ensure they are adequately addressing impacts of climate change? • What level of monitoring and inspection will occur to ensure the anticipated volume and intensity are being adequately addressed? • What pollution monitoring will occur to ensure there is no spill out into groundwater? • What features will be incorporated into the design of the facility to prevent sedimentation into the water? • Will the new facilities be stress tested?	year. This grassland will support several wildlife species and contribute to the natural heritage system in the area. • The requirement to notify CFN regarding archaeological assessments has been noted. • No impacts to Turkey Creek are anticipated; all drainage that is conveyed by the preferred solution flows into the Canard River and therefore does not impact the Turkey Creek watershed. • It is anticipated opportunities for naturalization to enhance the benefits of SWM features including the drain and dry pond will be explored during detailed design. Furthermore, opportunities for naturalization and enhancement of the natural heritage system throughout the Howard/Bouffard Planning Area are being considered as part of the Secondary Plan. • A solution involving a broader natural area surrounding the drain was considered in response to the first comment on page 37 of the Master Drainage Study Report (in **Table 8: PIC 3 Public Comments**). As outlined in our response to that comment, there is a need for the preferred solution to balance environmental benefits with property acquisition requirements, costs, and landowner needs. • As noted in **Section 5.4.1**, all local SWM ponds within the Study Area are required to follow the regional guidelines for Windsor and Essex County, including a Climate Change Stress Test. The Town's facilities and the developers' facilities will be subject to that requirement during detailed design. In addition, these improvements will be subject to review and approval by the ERCA. • As noted in the last row of **Table 7**, the nature and timing of required maintenance will be determined by the Town in the future. Typically, maintenance of SWM ponds involves periodic clean-out of accumulated sediment (5 to 10 years) and general ground and slope maintenance with cutting and vegetation control throughout the year. • **Section 6.6** will be updated to recommend that provisions to address potential spills be developed during detailed design and incorporated into the construction contract. Typical provisions include setbacks from waterbodies for

Community	Date Received	Comment Summary	Project Team Response
			refueling equipment and preparation of a spill prevention and response contingency plan by the contractor. • A new **Section 6.3.4** will be added to recommend that erosion and sediment control provisions be developed during the detailed design phase.
	May 28, 2024	• CFN has reviewed the response letter and agree that its comments and concerns have been adequately addressed; and, • The Environment & Consultation Department (ECD) will await the final copy of the report for review.	• Thank you for the message; and, • We will send the revised report once it is ready.

3.10.1 Meeting with COTTFN

Following receipt of COTTFN's February 9, 2024 comments on this report, the project team met with COTTFN staff via video call on March 12, 2024 to discuss their comments. Prior to the meeting, the project team provided a written response in a letter dated March 8, 2024. The purpose of the meeting was to discuss the project team's responses and determine if COTTFN had outstanding questions or concerns. Following a review of the responses, COTTFN staff advised that they had no outstanding comments or concerns.

3.10.2 Meetings with CFN

In response to comments from CFN, an initial meeting between the Town and CFN was held on February 27, 2024 to develop their relationship and discuss consultation procedures. It was determined that a subsequent meeting including both the Howard/Bouffard Master Drainage Study team and the Howard/Bouffard Secondary Plan team would be beneficial, as CFN's comments related to both studies and how they interconnect.

The project team and the Howard/Bouffard Secondary Plan team met with CFN on May 8, 2024 to discuss CFN's comments on the this report and the Secondary Plan. Three attendees were present from CFN: the Environment & Consultation Department Manager, the Land Guardian, and a planner employed by CFN. Both project teams provided an overview of the respective studies (Master Drainage Study and Secondary Plan), followed by a discussion of the comments raised by CFN. The Master Drainage Study team responded to each of the comments raised by CFN, noting areas of this report that would be revised in response. CFN did not express concerns with the responses but requested written responses for review.

As outlined in **Table 9**, the project team sent a written response to CFN on May 24, 2024. CFN replied on May 28, 2024 advising that its comments and concerns had been adequately addressed in Dillon's May 24, 2024 response letter, and that CFN would await the final copy of the report for review.

3.11 MECP Review of this Report

Prior to the Notice of Completion being issued, a draft version of this report was provided to MECP for review. MECP provided comments in a letter dated September 29, 2023 regarding the evaluation of alternatives, consultation with Indigenous communities, and mitigation measures. This report was subsequently revised in response to MECP's comments, and a response letter was prepared.

The comment letter from MECP and the response letter from the project team are included in **Appendix A**.

3.12 Project Update Letter

As part of preparation to finalize the study, the project team discovered that the Notice of PIC 3 was not delivered to everyone on the study contact list. As a result, on November 20, 2023 an update letter was sent to those on the contact list who did not receive the Notice of PIC 3 to seek any final feedback before this report was published. The letter provided an update on the status of the project, including the planned Town Council presentation on November 28, 2023. Enclosed were a copy of the PIC 3 display materials and the updated conceptual design drawing of the preferred solution (**Figure 7**).

A general project update letter was also sent to the remainder of the contact list and posted on the project webpage on November 20, 2023. This letter also provided an update on the status of the project, including the planned Town Council presentation on November 28, 2023. Enclosed was a copy of the updated conceptual design drawing.

One agency comment was received, from Essex Powerlines Corporation on November 21, 2023. Essex Powerlines Corporation requested to be kept informed of progressions in the future design phase to identify infrastructure interference. The project team responded on November 28, 2023 advising that detailed drawings will be developed in the future design phase, and affected utility companies will be consulted at that time.

One public comment was received, from a local property owner on November 20, 2023. The property owner requested a meeting to discuss how the updates to the conceptual design change the impacts to their property. The project ream responded on November 20, 2023 with additional information about the changes and an offer to meet to discuss

further. The property owner expressed concerns regarding how drainage from their property would be maintained, what would be built behind their property, and construction impacts. The project team provided additional context, including decisions that would be made during the detailed design phase and through the ongoing Secondary Planning process for the area. Ultimately, it was determined that a meeting would not be necessary at this time but the property owner indicated they would re-evaluate whether they wish to meet with the project team in 2024.

3.13 Council Meeting

A presentation outlining the outcome of the Master Drainage Study was presented to Town Council on November 28, 2023. The presentation outlined the Class EA process and consultation undertaken, the selection of the preferred solution, and recommendations moving forward. The motion to accept the report and authorize issuance of the Notice of Completion was accepted by Council.

3.14 Notice of Completion

At the completion of the study, a Notice of Completion was distributed to outline the findings of the study and opportunities to review and comment on this report. The Notice was sent to the contact list, uploaded to the project webpage, and posted in the LaSalle Post during the week of January 8, 2024.

During the 30-day comment period following the Notice of Completion, a total of 10 comments were received: 4 from agencies, 4 from members of the public, and 2 from Indigenous communities. Comments from Indigenous communities are discussed in **Section 3.10**.

Comments received from the agencies and the public centred around:

- Opportunities for naturalization and wildlife corridors throughout the Study Area;
- Technical drainage details and report revisions; and,
- Questions surrounding specific properties.

Suggestions for naturalization and wildlife corridors will be considered during the future detailed design phase, and have also been forwarded to the Howard/Bouffard Secondary Plan project team as appropriate. Questions regarding specific properties

were responded to by the project team. Other comments regarding drainage and report revisions have been implemented in the final report.

Copies of the comments and project team responses are included at the end of **Appendix A**. Revisions made to this report in response to the comments received are outlined in **Table 10**.

Table 10: Report Revisions Following Notice of Completion

Contact	Date Received	Summary of Comments Requiring Revisions	Revisions to this Report
City of Windsor Stacey McGuire, P.Eng., Executive Director of Engineering	January 29, 2024	• In **Table 7**, it is noted that the Cahill Pond provides SWM benefits for existing conditions in the upstream areas of Windsor and Tecumseh. The City requests this statement be clarified as it is unclear what degree of benefit would be attributed to the City, if any.	• The statement on benefits for the upstream areas of Windsor and Tecumseh in **Table 7** has been revised to clarify that it is referring to the benefit of addressing issues caused by the spill-over from upstream drainage areas. Note: This statement is included in the second bullet of the second row of **Table 7**.
Ministry of Citizenship and Multiculturalism Joseph Harvey, Heritage Planner	February 6, 2024	• Recommended revisions to the wording of **Section 6.4.1** to align with current legislation.	• **Section 6.4.1** was revised as recommended.
ERCA James Bryant, P. Eng., Director of Watershed Management Services	February 8, 2024	• **Figure 2** should identify the flood extents as draft; • ERCA's typical standard is no more than 1 centimetre increase in water levels for modelled watercourses; • Recommended that tailwater elevations be included in the report (1-in-5 year Detroit River, 1-in-25 year Canard River); • Provided further details related to Source Water Protection to be incorporated into **Section 4.3.1**; • The reference to **Figure 2** in **Section 4.3.3** should indicate that the inundation mapping data has since been refined and therefore may not provide an accurate depiction of potential flood extents; • An existing conditions table of flows and corresponding water levels, in addition to changes to future flow, should be provided in the Master Drainage Study Report; • Expected flow rates should be specified for drain Reaches 1, 2, and 3; • Pond information should include contributing areas (drainage area plan and hectarage), planned impervious area, and allowable release rates into larger watercourses; and,	• A note has been added to **Figure 2** indicating that the flood extents are draft and based on the results of the Turkey Creek Study, they are likely less than what is shown; • **Section 3.9.2.1** has been updated to reflect ERCA's typical standard of no more than 1 centimetre increase in water levels; • Tailwater elevations for the 1-in-5 year Detroit River and 1-in-25 year Canard River have been added to **Section 3.9.2.1**; • **Section 4.3.1** and **Section 6.3.1** have been updated based on the additional Source Water Protection information provided; • **Section 4.3.3** has been updated to reflect the modelling data having been refined; • A new **Table 12** outlining expected flows and corresponding water levels for the preferred solution has been added to **Section 5.4**; • Expected flow rates for drain reaches have been represented in **Table 12**; • Pond information including contributing areas, planned impervious area, and allowable release rates have been added to a new **Figure 8**; and,

Contact	Date Received	Summary of Comments Requiring Revisions	Revisions to this Report
		• Release rates should be provided for contributing lands, prorated on a per hectare basis; it may also be beneficial to understand the total expected flow rate from the local drainage areas into Reach 1.	• Release rates for contributing lands, prorated on a per hectare basis, have also been added to **Figure 8**. The total expected flow rates from individual SWM Ponds into Reach 1 have also been included in this figure.
Member of the Public	February 9, 2024	• The policies in Section 3.4.5 a) of the County of Essex Official Plan (2014) are not addressed in the Master Drainage Study Report.	• A summary of the policies in Section 3.4.5 a) of the County of Essex Official Plan has been added to **Section 4.1.4**, and a new **Section 6.2.1** has been added to describe how these policies were addressed in the study, where applicable.
CFN	February 9 to 23, 2024	• The Master Drainage Study Report does not reflect consultation that occurred with CFN; • Not all natural heritage features in the Study Area are acknowledged in the report; and, • Seeking clarification on monitoring and inspection, including pollution monitoring and erosion and sediment control during construction.	• **Section 3.10** and **Appendix A** have been updated to incorporate consultation that occurred following the Notice of Completion; • **Section 4.2** has been adjusted to clarify that it is focused on those species that were observed in the area during the previous field surveys outlined in that section; • **Section 6.2** has been revised to clarify that it is focused on the area within 120 m of the drainage improvements; and • **Section 6.6** has been updated to recommend incorporation of provisions for spill prevention and mitigation; and, • A new **Section 6.3.4** has been added to recommend the development of erosion and sediment control provisions during detailed design.

4.0 Existing Conditions

This section summarizes existing socio-economic, natural environment, water resources, and cultural heritage conditions within the Study Area. The information in this section provides a baseline to support the evaluation of alternative solutions (**Section 5.2**) and assessment of project impacts (**Section 6.0**).

4.1 Socio-Economic Conditions

Information on existing and planned socio-economic conditions was gathered from 2021 Census data, the County of Essex Official Plan (2014), the Town of LaSalle Official Plan (2018), and aerial imagery. Province-wide planning policies and legislation were also reviewed for context.

4.1.1 Background

A number of provincial actions have been taken in recent years to address what is referred to as the housing crisis in Ontario, including the *More Homes Built Faster Act, 2022*. One of the key objectives of the *More Homes Built Faster Act* is to increase the supply of housing as well as the mix of different types and densities of housing.

According to Statistics Canada, as of 2021, the Town of LaSalle had a population of approximately 32,721. The Town's population is anticipated to grow to as many as 60,000 residents at full build-out (Town of LaSalle Official Plan, 2018). However, the Official Plan notes that, "growth in LaSalle (and in the broader Windsor-Essex Region) over the past number of years has been modest" (Section 2.1 b).

The Howard/Bouffard Planning Area is a large (approximately 1,100 ha) undeveloped area within the Urban Area Boundary outlined in the Town's Official Plan. Land development in this area is a key step in addressing the Town's modest pace of growth and thereby helping to meet growth objectives of both the Town and the Province.

The Howard/Bouffard Planning Area is currently going through a Secondary Planning process under the *Planning Act*, as described further in **Section 4.1.4.**

4.1.2 Existing Land Uses

Currently, the Study Area consists primarily of active agricultural lands. Other land uses in the Study Area include:

- The Vollmer Centre, a large culture and recreation complex at the southwest boundary;
- A low-density residential subdivision east of the Seven Lakes Golf Course at the southern boundary;
- Two churches and a cemetery at the eastern boundary;
- Small stretches of single detached residences along portions of various roadways; and,
- A number of small businesses.

Surrounding areas to the north, east, and west primarily consist of low-density residential land uses. Lands to the south are primarily agricultural.

4.1.3 Provincial Planning Policy

The Ontario *Planning Act* requires that planning decisions be consistent with the *Provincial Policy Statement, 2020* (PPS). The PPS provides policy for matters of provincial interest, including land use patterns, stormwater management, and mitigation of natural hazards. Key policies that apply to this study are highlighted below.

Chapter 1 of the PPS outlines policies for community planning, including the requirement that Settlement Areas be the focus of growth and development. The PPS also states stormwater shall be managed effectively to prepare for the impacts of a changing climate and to mitigate risks to human health, safety, property, and the environment.

Policies for the protecting public health and safety are included in Chapter 3 of the PPS, which includes a discussion of flooding hazards. The PPS requires that development and site alteration be prohibited within flood zones unless appropriate mitigation has been applied.

The PPS also requires that proponents consider significant provincial resources in planning decisions. Significant provincial resources include prime agricultural areas,

natural heritage features, ground water, surface water, archaeological resources, and built heritage resources.

4.1.4 Municipal Planning Policy

The County of Essex Official Plan (2014) and the Town of LaSalle Official Plan (2018) were reviewed to identify designated land uses within the Study Area. Applicable mapping from both documents is included in **Appendix B**, and the land use designations are described below.

The County of Essex Official Plan designates the Study Area as part of the County's Primary Settlement Area. These areas are intended to be the focus of growth and investment in the respective municipality. The County Official Plan requires that Primary Settlement Areas have full municipal services including SWM, and a range of land uses and densities.

The Town's Official Plan designates the following land uses within the Study Area (Schedule B):

- The majority is designated as Residential District, which provides for a range of uses including low-rise, mid-rise, and high-rise residential development. This designation also provides for schools, community facilities, parks, open spaces, public uses, and utilities;
- Malden Road and Laurier Parkway within the Study Area are designated as Mixed Use Corridor, which provides for commercial, mid-rise and high-rise residential, institutional, and community uses. There is also additional land east of Malden Road and south of Valiant Street with the same designation;
- The southeast corner of the Study Area is designated Business Park District, which provides for industrial, office, limited retail, recreational, service, public uses, private utilities, and related uses; and,
- Other portions of the Study Area are designated Significant Terrestrial Features (primarily at the north end), Vollmer Recreation District (at the southwest corner) and Golf Course District (south end, between Disputed Road and Huron Church Line Road).

The Town is currently preparing a Secondary Plan for the Howard/Bouffard Planning Area. The "Emerging Preferred Plan" for the area was presented to Town Council on

November 28, 2023, noting future public consultation was required as part of that study. As part of the Secondary Plan, policies are being prepared to protect, enhance, and restore the area's natural heritage system. These policies will direct future development and set the requirements for any future *Planning Act* applications, including triggers for an Environmental Impact Assessment.

It is noted a number of development applications are at various stages throughout the Study Area. Given this study is intended to address flooding concerns to accommodate future development (**Section 2.1**), these applications were not reviewed in detail. However, local land owners and developers were consulted throughout this study to contribute to the creation of a solution that will support planned developments in the area.

Portions of the Study Area are identified as Primary and Secondary Restoration Opportunities on Schedule B3 of the County of Essex Official Plan (**Appendix B**). Section 3.4.5 of the County of Essex Official Plan states that during the preparation of an Environmental Assessment for infrastructure in these areas, opportunities to restore and enhance natural heritage features, including establishing linkages must be considered. The Official Plan also states that low impact development, the establishment of buffers, opportunities to promote naturalization, restoration and/or enhancement, and education about enhancing the natural heritage system must be considered. **Section 6.2.1** discusses how this study considers each of the relevant policies in Section 3.4.5 of the County of Essex Official Plan.

4.2 Natural Environment

Due to the lack of natural heritage features remaining within the Essex area, watercourses, fragmented woodlands, and meadows provide important ecological functions. These functions include providing habitat/potential habitat for several Species at Risk (SAR) listed as *Endangered* or *Threatened* under the Ontario *Endangered Species Act, 2007* (ESA).

The Study Area is primarily comprised of active agricultural lands, bisected by various roadways and municipal drains. A total of seven municipal drains potentially impacted by the project were identified within the Study Area:

- Cahill Drain;

- East Branch Cahill Drain;
- West Branch Cahill Drain;
- Lepain Drain;
- Tourageau Drain
- 6th Concession Drain; and,
- 3rd Concession Drain.

While some of these drains are located at least partially within or adjacent to natural features, they largely exist as ditches in association with active agricultural fields, with little to no riparian vegetation. These watercourses collect runoff from the agricultural fields and provide little habitat for wildlife and SAR based on the water quality and lack of suitable riparian habitat for protection.

The County of Essex Official Plan (2014) and the Town of LaSalle Official Plan (2018) were reviewed to identify designated natural environment features within the Study Area. Relevant mapping from both documents is included in **Appendix B**. Designated natural features within the Study Area include:

- Natural Environment areas (Schedule A-1 of the County's Official Plan);
- Significant Terrestrial Features and Provincially Significant Wetlands (Schedule B1 of the County's Official Plan);
- Additional features included in the Natural Environment Overlay (Schedule B2 of the County's Official Plan);
- Provincially Significant Wetlands and Significant Terrestrial Features (Schedule B of the Town's Official Plan); and,
- Additional features included in the Natural Environment Overlay (Schedule C of the Town's Official Plan).

Natural features within the Study Area were investigated through previous site-specific studies undertaken from 2015 through 2017. These previous studies included SAR screenings, Ecological Land Classification (ELC), botanical assessments, amphibian surveys, breeding bird surveys and aquatic assessments in support of Environmental Impact Assessments for individual private landowners within the Study Area. A site reconnaissance was conducted in late 2022 as part of this study to confirm presence of previously documented significant natural features identified in the aforementioned Environment Impact Assessments.

The following SAR have been identified within the Study Area based on field surveys completed to date:

- Butler's Gartersnake (*Thamnophis butleri*);
- Eastern Foxsnake (*Pantherophis gloydi*);
- Massasauga Rattlesnake (*Sistrurus catenatus*);
- Butternut (*Juglans cinerea*);
- Red Mulberry (*Morus rubra*);
- Bats (*Myotis sp., Perimyotis subflavus.*);
- Willowleaf Aster (*Symphyotrichum praealtum)*; and,
- Dense Blazing Star (*Liatris spicata)*.

Several natural vegetation communities were identified within the Study Area during previous field studies, many of which have experienced disturbance due to adjacent agricultural activity and encroachment of human settlements. These communities are characterized by the presence of early successional and/or invasive (non-native) species. Natural heritage features identified within the Study Area include Significant Woodlands, wetlands, Significant Wildlife Habitat (SWH) and SAR habitat. Further information regarding significant natural features, including potential impacts and recommended mitigation measures, is included in **Section 6.2**.

4.3 Water Resources

4.3.1 Source Water Protection

The Essex Region Source Protection Plan (2015) outlines policies for areas where there is an elevated risk of contamination to drinking water sources. These areas are designated as Intake Protection Zones (IPZs), Highly Vulnerable Aquifers, and Significant Groundwater Recharge Areas (SGRAs) in ERCA's online interactive mapping tool. Images from the mapping tool, retrieved on June 16, 2023, are included in **Appendix C**.

Portions of the Study Area are located within IPZ-3, meaning that it includes watercourses that may convey contaminants to a municipal drinking water intake during an extreme rainfall or wind storm event. IPZ-3 is the lowest threat category for Intake Protection Zones.

The Study Area is not within a Highly Vulnerable Aquifer, meaning it does not feature an aquifer that is likely to be impacted by external sources.

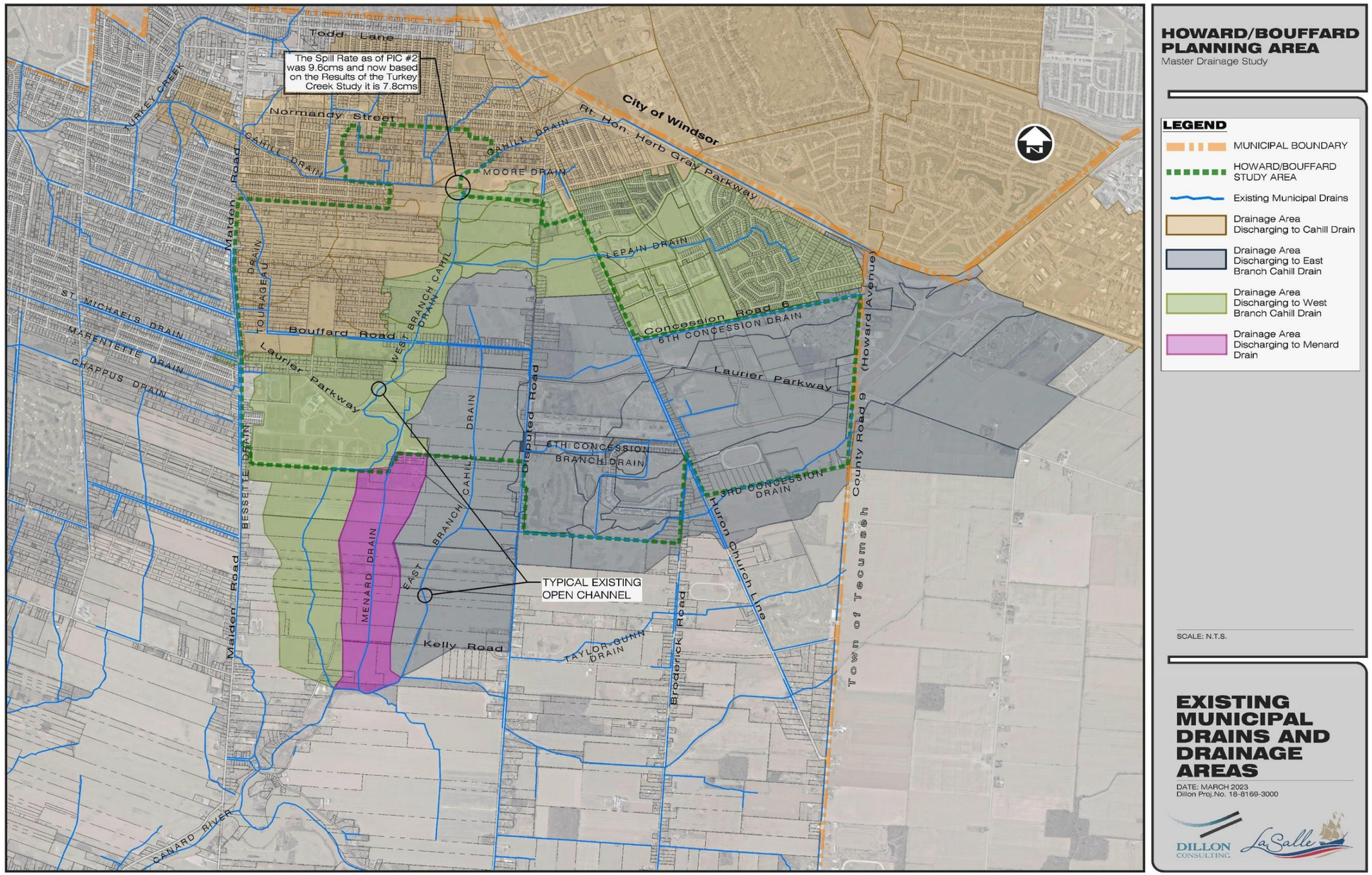
Portions of Study Area are designated as 'Low Vulnerability' SGRAs (SGRA-2), meaning they are considered low drinking water threats. There are no associated Significant Drinking Water Threats or policies within these areas.

The Study Area also falls within the Event Based Area for the Amherstburg Water Treatment Plant. In this area, the above grade handling and storage of liquid fuel in volumes of 15,000 litres or greater is identified as a Significant Drinking Water Threats.

4.3.2 Municipal Drains and Drainage Areas

The majority of the Study Area is currently undeveloped, with drainage conveyed through three major drains: the Cahill, East Branch Cahill (EBC), and West Branch Cahill (WBC). A depiction of the existing drainage system in the Study Area, along with the drainage area of the three major drains, is presented in **Figure 4**.

Figure 4: Existing Drainage Conditions



The Cahill Drain is located at the northern limit of the Study Area, running east to west. The Cahill Drain collects flows from the Lennon, Steers, and Tourangeau Drains and eventually outlets to Turkey Creek near Sprucewood Avenue, west of the Study Area. In terms of volume, the Cahill Drain is the largest of the three major drains in the Study Area.

The WBC Drain flows south from the Cahill Drain and discharges to the River Canard south of Kelly Road. The WBC Drain collects drainage from the LePain Drain and the Vollmer Center.

The EBC Drain flows south, collecting water from drains to the east including the Sixth Concession, Sixth Concession Branch, and Third Concession. The EBC eventually outlets to the River Canard south of Kelly Road.

4.3.3 Flooding

Existing conditions flood extent mapping was competed in May 2019 and described in Project Update Newsletter 2 (**Section 3.5.3**).

The overall flood extent mapping for the 1-in-100 year, 24-hour rainfall event is shown in **Figure 2**. As noted on **Figure 2**, the flood extents shown are estimates from May 2019. These estimates have since been refined and therefore **Figure 2** may not provide an accurate depiction of potential flood extents within the Study Area.

Based on an analysis of the spill early in the development of the study, significant portions of the Study Area are flooded during this event, with the southern areas adjacent to the WBC and EBC completely inundated. Simulated water levels along the LePain and 6th Concessions Drains are predominately contained within the banks and do not spill. The spill rate and volume was further refined through the Turkey Creek Watershed Study as described further below and confirmed that flooding would occur under the 1-in-100 year, 24-hour rainfall event. The spill rate from the Cahill Drain considered for this study was 7.8 m^3/s, during the 1-in-100 year, 24-hour rainfall event. This corresponds to a total volume of approximately 150,000 m^3. This is considered a conservative estimate of the spill rate and volume. This flow rate does not consider impact of flow attenuation occurring in Ponds maintained by MTO for the Windsor-Essex Parkway, immediately upstream of the spill location, along Lennon Drain.

4.4 Cultural Heritage Resources

This section describes existing cultural heritage conditions, including archaeological resources, built heritage resources, and cultural heritage landscapes. The study area employed for the review of these components of the environment (herein referred to as the cultural heritage study area) was a combination of the two alternative solutions described in **Section 5.1**.

4.4.1 Archaeological Resources

As part of this study, a Stage 1 archaeological assessment (AA) was completed July 13, 2023, by Fisher Archaeological Consulting under Project Information Form P359-0140-2022. The Stage 1 AA report is included in **Appendix D**, and was accepted into the Ontario Public Register of Archeological Reports on July 22, 2023.

A Stage 1 AA consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, and contacting MCM to find out whether or not there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g., Stage 2 to 4) as necessary.

The Stage 1 AA determined that the cultural heritage study area has high potential for Indigenous archaeology as it is within 300 metres of tributaries of both Turkey Creek and River Canard. In addition, historic maps indicate that extensive wetlands were present near the cultural heritage study area, which is also an indicator of high Indigenous potential. One unregistered archaeological site overlaps the cultural heritage study area; this location was noted in the 2005 Windsor Archaeological Master Plan. The cultural heritage study area also has high potential for Euro-Canadian archaeology as it is located within 100 metres of historic roads, and within an area of historic settlement, as well as the above noted proximity to sources of water.

The Property Inspection noted one area of modern disturbance in the Town of LaSalle Public Works Yard as well as large stockpiles of earth nearby. These areas had their archaeological potential reduced to low, following Section 1.3.2 of the Standards and Guidelines (MCM, 2011).

Large portions of the cultural heritage study area have previously been subjected to Stage 2 AA where nothing was found. The reports describing these portions, and the work undertaken upon them, have been accepted into the Ontario Public Register of Archaeological Reports (OPRAR). As a result, no further archaeological work is required in these areas.

High archaeological potential remains in the remainder of the cultural heritage study area. Further details and mapping of areas of archaeological potential as they relate to the preferred solution are provided in **Section 6.4.1**.

4.4.2 Built Heritage Resources and Cultural Heritage Landscapes

The project was screened based on the MTCS (now MCM) checklist, "Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes" (2016). To support completion of the checklist, the project team contacted the Town of LaSalle, MHSTCI (now MCM), and the Ontario Heritage Trust. The completed checklist, along with the supporting agency correspondence, is included in **Appendix E**.

Information received from the Town of LaSalle, MHSTCI (now MCM), and the Ontario Heritage Trust indicates there are no known or recognized cultural heritage resources or landscapes within the cultural heritage study area. As identified in the completed checklist, the area does not contain features that indicate an elevated potential for cultural heritage value. As a result, there is low potential for built heritage resources or cultural heritage landscapes in the cultural heritage study area.

5.0 Alternative Solutions

Phase 2 of the Municipal Class EA process involves developing and evaluating alternative solutions in light of the problems and opportunities identified in Phase 1. This section describes the three alternatives that were evaluated to select the preferred SWM solution for the Howard/Bouffard Planning Area.

5.1 Stormwater Management Alternatives

5.1.1 Alternative 1: Do Nothing

The "do nothing" alternative is required to be considered as part of the Class EA process. This alternative would maintain the status quo, with no drainage solution to address the existing flooding issues during major storm events. As described in **Section 2.1**, development within the existing flood inundation area would not be permitted to proceed under this scenario.

5.1.2 Alternative 2: Consolidate Stormwater to Regional Facility

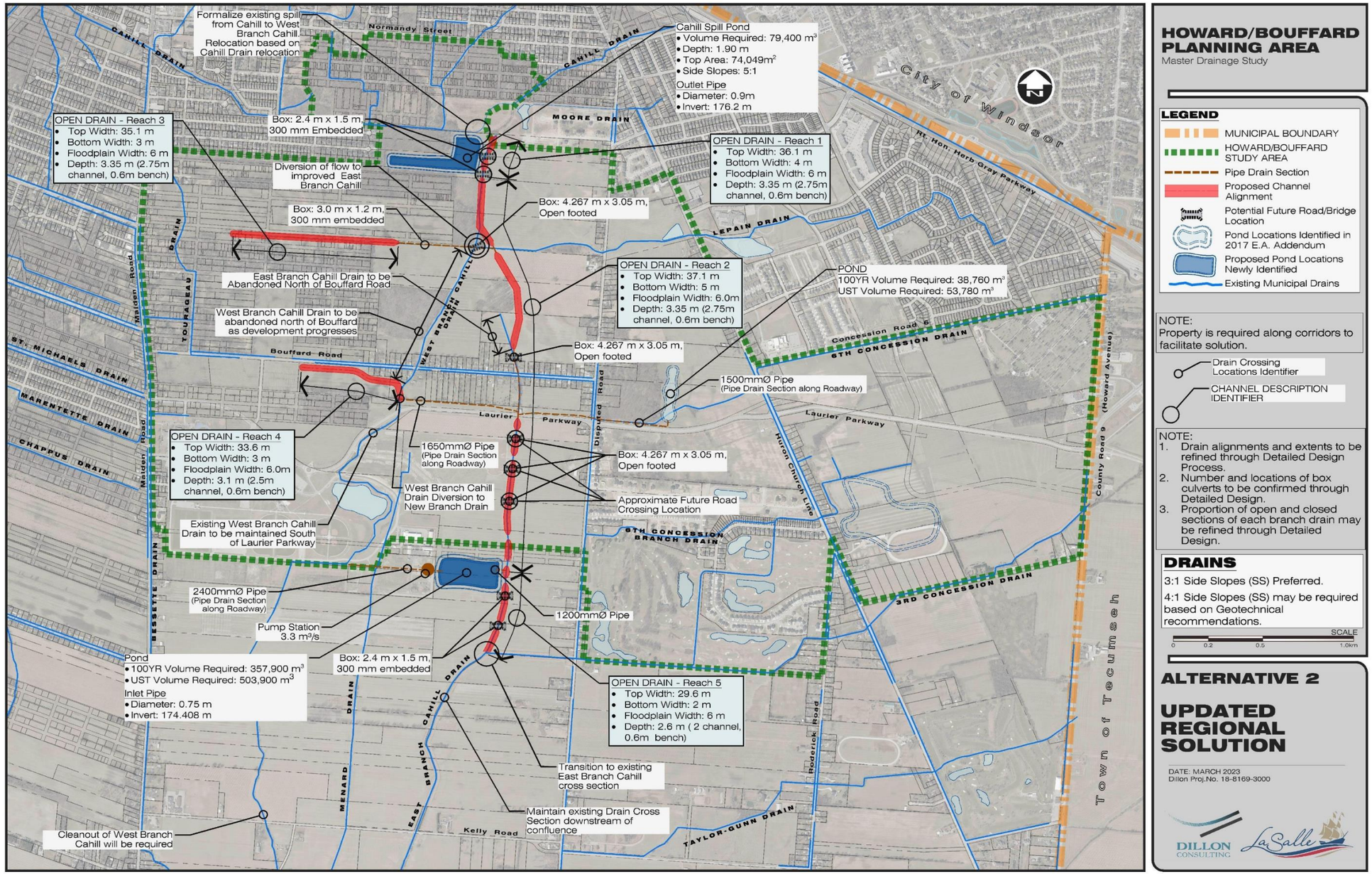
Alternative 2 would consolidate stormwater into 2 new regional ponds: The Cahill Spill Pond to the north provides attenuation of the spill during major storm events. The second pond at the south limit of the Study Area would provide quality and quantity control for the proposed developments (**Figure 5**). Stormwater would be conveyed through the Study Area to the southern pond via a combination of open channels and enclosures.

The WBC and EBC Drains would be abandoned north of Bouffard Road, and a new drainage channel would be created in this area. The channel would connect to a new pipe under Bouffard Road and the associated residences, extending to an expanded EBC Drain south of Bouffard Road.

The channel improvements would extend to the confluence of the East Branch Cahill Drain and the 3rd Concession Drain. From that point southerly, the EBC Drain was improved through previous projects.

Flow would be routed to a regional stormwater facility to provide both quality control as required by ERCA and quantity control during major storm events. A pump station would pump flows to the West Branch Cahill Drain. The flows between the WBC and EBC Drains have been balanced such that the total flow reaching the tributary to the Canard River does not result in an increase in water levels greater than 2 centimetres.

Figure 5: Alternative 2 Conceptual Layout



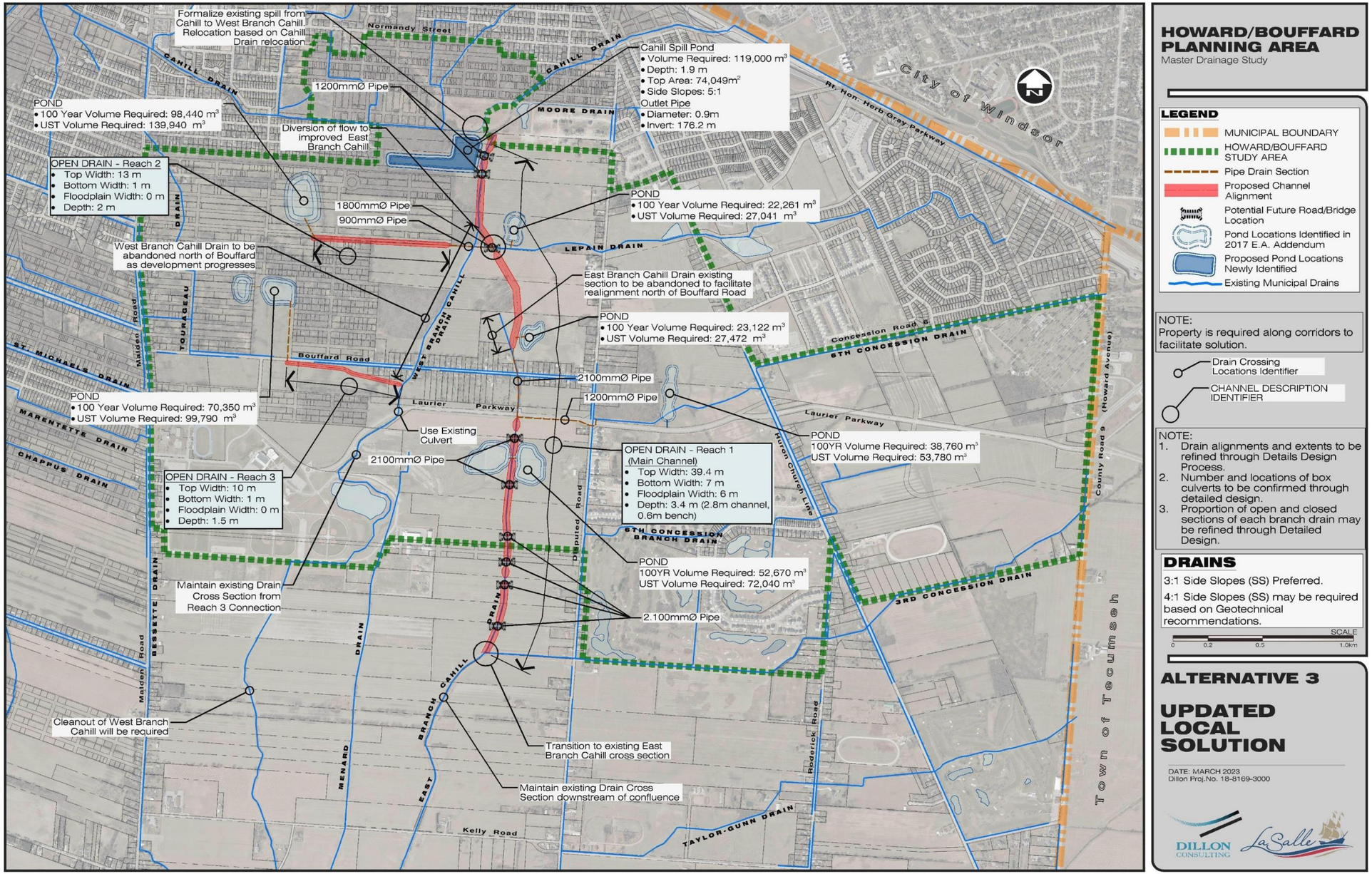
5.1.3 Alternative 3: Local Stormwater Management Ponds

Similar to Alternative 2, Alternative 3 would utilize the Cahill Spill Pond to the north to provide attenuation of the spill during major storm events. Alternative 3 would provide for a new channel north of Bouffard Road to convey flows southerly and would require the improvement of the EBC Drain from Bouffard Road southerly to the confluence with the 3rd Concession Drain.

This alternative, as evaluated and presented at PIC 3, is provided in **Figure 6**; however, it is noted the layout was subsequently refined as described in **Section 5.3**.

While still requiring the Cahill Spill Pond at the north end of the Study Area, Alternative 3 would avoid the need for a regional pond to the south. Instead, stormwater quality and quantity within the majority of the Study Area would be managed via local ponds built by individual developers. These local ponds are to be built at the developer's expense and are therefore not included in the cost estimate. The conceptual layout builds on the solution presented in the 2017 EA Addendum, and includes the 7 pond locations identified in that Addendum.

Figure 6: Alternative 3 Conceptual Layout (Prior to Refinements)



5.2 Evaluation of Alternative Solutions

A comparative evaluation of the three alternative solutions was completed to identify which alternative is preferred across a range of evaluation criteria. A total of 22 criteria were used for the evaluation, under the following categories:

- Natural Environment;
- Socio-Economic Environment;
- Engineering; and,
- Cost.

Feedback from the development community following PIC 2 has been clear that they want more control over the scope, schedule, and cost of works required for the development of their respective lands. As such, the evaluation has been completed on the basis of only the works recommended within this study and to be undertaken by the Town.

5.2.1 Evaluation Summary

A summary of the comparative evaluation of alternatives is provided in **Table 11**. The results are discussed in **Section 5.2.2**, and details on the preferred solution are provided in the following sections.

Table 11: Evaluation of Alternative Solutions

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
Natural Environment	Terrestrial Ecosystems	Anticipated area of impact to natural environment communities	 **More Preferred** Does not affect natural environment communities (no change from existing conditions).	 **Less Preferred** Affects approximately 3 ha of natural environment communities, including restoration areas. Effects include impacts to 1 ha of significand woodland/forest (FOD), 0.1 ha of meadow (MEFM), 0.3 ha of a pit and mound restoration area, 0.6 ha of fencerow (TAGM5), 0.3 ha of thicket (THD) and 0.7 ha of woodland (WOD).	 **Moderately Preferred** Affects approximately 2.1 ha of natural environment communities, including restoration areas. Effects include impacts to approximately 0.7 ha of significant woodland/forest (FOD), 0.1 ha of meadow (MEFM), 0.3 ha of pits and mount restoration area, 0.7 ha of fencerow (TAGM5), and 0.3 ha of thicket (THD).
	Terrestrial Ecosystems	Anticipated area of impact to SAR/SAR habitat and/or SWH	 **More Preferred** Does not impact any SAR/SAR habitat or SWH (no change from existing conditions).	 **Moderately Preferred** Anticipated to affect a small area of SWH (less than 1.2 ha).	 **Moderately Preferred** Anticipated to affect a small area of SWH (less than 1.2 ha).
	Terrestrial Ecosystems	Potential benefit for terrestrial ecosystems and connectivity	 **Less Preferred** Does not introduce any new corridors or linkages to the existing natural heritage system (no change from existing conditions).	 **Moderately Preferred** Has the potential to benefit terrestrial ecosystems and connectivity through new sections of open drains and widening associated with existing drains with connections to both the WBC and EBC Drains. Additionally, new and/or larger (enhanced) corridors/linkages within the existing natural heritage system and adds to the amount of potential usable area for SAR and other wildlife within the existing natural heritage system.	 **Moderately Preferred** Has the potential to benefit terrestrial ecosystems and connectivity through new sections of open drains and widening associated with existing drains with connections to both the WBC and EBC Drains. Additionally, new and/or larger (enhanced) corridors/linkages within the existing natural heritage system and adds to the amount of potential usable area for SAR and other wildlife within the existing natural heritage system.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
	Aquatic Ecosystems	Anticipated length of fish habitat and aquatic ecosystems to be impacted	 **More Preferred** Does not affect fish habitat or aquatic ecosystems (no change from existing conditions).	 **Less Preferred** Affects more fish habitat and aquatic ecosystems than Alternative 3. In addition to the removal of approximately 845 metres (m) of the Cahill Drain, approximately 835 m of 6th Concession Drain and 383m of Cahill Drain are to be converted from open channel to pipes. This Alternative also includes the alteration of 2,015 m of Cahill Drain to increase size and capacity.	 **Moderately Preferred** Affects less fish habitat and aquatic ecosystems than Alternative 2, including the removal of 845 m of Cahill Drain and piping 385 m of Cahill Drain. This Alternative would also include the alteration of 270 m of Cahill Drain through the installation of culverts/bridges.
	Aquatic Ecosystems	Potential benefit to fish habitat and aquatic ecosystems	 **Less Preferred** Does not create new channel/fish habitat or connections between existing drains.	 **Moderately Preferred** Includes the creation of 567 m of new channel/fish habitat to account for the WBC Drain abandonment.	 **More Preferred** Includes the creation of 567 m of new channel/fish habitat to account for the WBC Drain abandonment. The Alternative also includes the creation of 530 m of new open drain that would have direct downstream connection to existing fish habitat in the WBC Drain.
	Source Water Protection	Potential impact on water sources for municipal drinking water systems	 **More Preferred** Does not have potential to impact drinking water sources as no construction would take place.	 **Moderately Preferred** Not expected to be considered a threat to drinking water sources.	 **Moderately Preferred** Not expected to be considered a threat to drinking water sources.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
Socio-Economic Environment	Property Impacts	Anticipated private property acquisition (area and number of properties impacted)	 **More preferred** Does not require any property acquisition.	 **Less Preferred** More property acquisition is expected than what is expected for Alternative 3.	 **Moderately Preferred** Less property acquisition is expected than what is expected for Alternative 2.
	Existing and Planned Land Uses	Effectiveness in supporting existing and planned land uses for the area (Official Plan and Zoning By-law)	 **Less Preferred** Does not support the planned land use for the area as development in the flood inundation area would continue to not be permitted.	 **More preferred** Supports the planned land use for the area, including the Comprehensive Zoning By-law and the Official Plan, where uses are restricted until further studies to ensure compliance with applicable policy and to ensure adequate stormwater management infrastructure is in place prior to development.	 **More preferred** Supports the planned land use for the area, including the Comprehensive Zoning By-law and the Official Plan, where uses are restricted until further studies to ensure compliance with applicable policy and to ensure adequate stormwater management infrastructure is in place prior to development.
	Provincial Policy	Alignment with the PPS	 **Less Preferred** Does not provide appropriate stormwater infrastructure to address the needs of future development, protect natural features or protect public health and safety.	 **More preferred** Provides stormwater infrastructure that is appropriate to address lands designated for future development, and protects natural features, public health and safety.	 **More preferred** Provides stormwater infrastructure that is appropriate to address lands designated for future development, and protects natural features, public health and safety.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
	Community Impacts	Anticipated impact to the local community during construction (noise, dust, traffic restrictions, access disruptions)	 **More Preferred** No construction would occur (no change from existing conditions).	 **Moderately Preferred** May have temporary impacts to the local community during construction, including noise, dust, traffic, and property access disruptions.	 **Moderately Preferred** May have temporary impacts to the local community during construction, including noise, dust, traffic, and property access disruptions.
	Community Benefits	Potential benefit to public safety	 **Less Preferred** Would have no benefit to public safety as no solution to overland flooding during storm events is implemented.	 **More preferred** Expected to increase public safety due to a decrease of overland flooding during storm events.	 **More preferred** Expected to increase public safety due to a decrease of overland flooding during storm events.
	Aesthetic Considerations	Potential impact to the public realm (aesthetics, trails, recreational amenities)	 **Less Preferred** Does not prevent/reduce overland flooding within the Study Area. No additional recreational uses are provided (no change from existing conditions).	 **More preferred** Prevents/reduces overland flooding within the Study Area, therefore improving the public realm and positively impacting the area to reduce the visual impact from overland flooding. Would also provide additional recreational uses within the public right of way adjacent to the drains.	 **More preferred** Prevents/reduces overland flooding within the Study Area, therefore, improving the public realm and positively impacting the area to reduce the visual impact from overland flooding. Would also provide additional recreational uses within the public right of way adjacent to the drains.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
Cultural Heritage	Archaeological Resources	Anticipated impacts to areas with archaeological potential	 **More Preferred** Would not require any archaeological assessment(s) as no ground disturbance would take place.	 **Moderately Preferred** Would require a Stage 2 archaeological assessment within areas of archaeological potential (similar size to Alternative 3).	 **Moderately Preferred** Would require a Stage 2 archaeological assessment within areas of archaeological potential (similar size to Alternative 2).
	Built Heritage and Cultural Heritage Landscapes	Potential impact to built heritage and cultural landscapes	 **More Preferred** No potential impacts to built heritage resources and cultural heritage landscapes within the project area as no construction would take place.	 **Moderately Preferred** There is low potential for impacts to built heritage resources and cultural heritage landscapes within the project area.	 **Moderately Preferred** There is low potential for impacts to built heritage resources and cultural heritage landscapes within the project area.
Engineering	Construction Complexity	Anticipated requirements for utility relocation or complex construction staging	 **More Preferred** No utility relocation or construction staging requirements as no construction would take place.	 **Less Preferred** Requires the construction of larger channels and enclosures as well as a regional pond and pump station with backup power.	 **Moderately Preferred** Requires the construction of smaller channels and enclosures, avoids the need for a regional pond and pump station, and has less enclosure length required when compared to Alternative 2.
	Risk Management	Risk of stormwater facility failure	**Not Applicable** There is no facility to address the spill or the future development lands.	 **Moderately Preferred** Greater risk to the system associated with one facility failing due to the consolidation into a larger regional facility.	 **More Preferred** Lesser risk to the system associated with one facility failing due to the use of multiple smaller facilities.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
	Drainage	Ability to provide quantity control and flood protection	 **Less Preferred** Does not capture or convey the spill from the Cahill Drain, and does not serve the stormwater management needs of the various lands (no change from existing conditions).	 **More Preferred** Adequately captures and conveys the spill from the Cahill Drain and serves the stormwater management needs of the various development lands.	 **More Preferred** Adequately captures and conveys the spill from the Cahill Drain and serves the stormwater management needs of the various development lands.
	Permitting and Approvals	Potential challenges in obtaining permits and approvals	 **More Preferred** Would require no permitting or approvals.	 **Moderately Preferred** Would require permits and approvals, including ERCA permitting and approvals from Provincial and Federal Ministries.	 **Moderately Preferred** Would require permits and approvals, including ERCA permitting and approvals from Provincial and Federal Ministries.
	Utilities	Anticipated impacts to existing services and utilities	 **Most Preferred** Would not require relocation of utilities as no construction would occur.	 **Moderately Preferred** Would require the relocation of various utilities in the Study Area to facilitate construction.	 **Moderately Preferred** Would require the relocation of various utilities in the Study Area to facilitate construction.
Costs	Capital Cost	Estimated cost of implementation, including property acquisition costs	 **More Preferred** No construction or property acquisition would occur.	 **Less Preferred** More expensive than Alternative 3 when construction and property acquisition are considered.	 **Moderately Preferred** Less expensive than Alternative 2 when construction and property acquisition are considered.

Category	Criterion	Metric(s)	Alternative 1: Do Nothing	Alternative 2: Regional Facility	Alternative 3: Local SWM Ponds
	Operation and Maintenance Costs	Estimated operations and maintenance costs	**More Preferred** No expenses beyond the existing operation and maintenance costs.	**Less Preferred** More expensive than Alternative 3 due to the larger channels and structures, in addition to the regional pond and pump station.	**Moderately Preferred** Less expensive than Alternative 2 as the channels and structures are smaller and there is no regional pond or pump station.
	Future Flood Costs	Estimated reduction in future flood damage costs	**Less Preferred** Does not address the issues associated with flooding and therefore no reduction in future flood damage is expected.	**More Preferred** Adequately captures and conveys the spill from the Cahill Drain providing protection to downstream lands.	**More Preferred** Adequately captures and conveys the spill from the Cahill Drain providing protection to downstream lands.
Timing of Implementation	Timing of Implementation	Estimated time required for project implementation	**Not Applicable** No solution is implemented through this alternative.	**Less Preferred** Would take longer to implement than Alternative 3 due to financing, property acquisition requirements, and construction duration.	**More Preferred** Would take less time to implement than Alternative 2 due to lower financing and property acquisition requirements, and shorter construction.

5.2.2 Preferred Solution: Alternative 3 (Local SWM Ponds)

Alternative 1 (do nothing) does not involve any new impacts, permitting requirements, or capital costs as no construction would take place. However, this alternative does not address the hazards and issues associated with existing flooding in the area, and development would not be permitted to proceed within the current flood inundation area. The Study Area is a key growth area within the Town, and development of this area would contribute to meeting the growth objectives of both the Town and the Province. This alternative is the least preferred as it does not address the problems and opportunities identified in **Section 2.1**.

Alternative 3 (Local SWM Ponds) has been selected as the preferred solution. When compared to Alternative 2 (Regional Facility), the following key advantages were identified:

- Lesser anticipated impact on both terrestrial and aquatic ecosystems;
- Greater potential for positive impacts to aquatic ecosystems through creation of new open channel with direct connection to existing fish habitat;
- Reduced amount of private property to be acquired;
- Less, smaller enclosures and channels;
- Does not require a regional pond and pump station;
- Construction and engineering costs are estimated to be $36 million lower;
- Lower operation and maintenance costs;
- Less time to implement; and,
- Gives developers more control over stormwater management solutions for developed lands.

5.3 Refinement of Preferred Solution

Following PIC 3, the preferred solution was refined to address feedback received from landowners (**Section 3.9.1**) and ERCA (**Section 3.9.2**). The resulting preferred solution includes the following refinements:

- The alignment of the outlet pipe west of the WBC Drain, north of Bouffard Road, was adjusted to follow a future collector road at this location;

- The alignment of the open drain west of the WBC Drain, south of Bouffard Road, was adjusted to follow the edge of the existing woodlot to the south/west;
- The alignment of the EBC Drain, north of Bouffard Road, was adjusted to parallel a future north-south collector road at this location; and,
- The alignment of the EBC Drain, south of Bouffard Road, was adjusted to follow the future north/south collector road.

The conceptual layout of the preferred solution is illustrated in **Figure 7**, and more detailed notes regarding sizing of each of the ponds are included in **Figure 8**. Typical cross-sections for each of the three reaches of open drain are provided in **Figure 9**, **Figure 10**, and **Figure 11**. Major features are described in **Section 5.4**.

Figure 7: Preferred SWM Solution

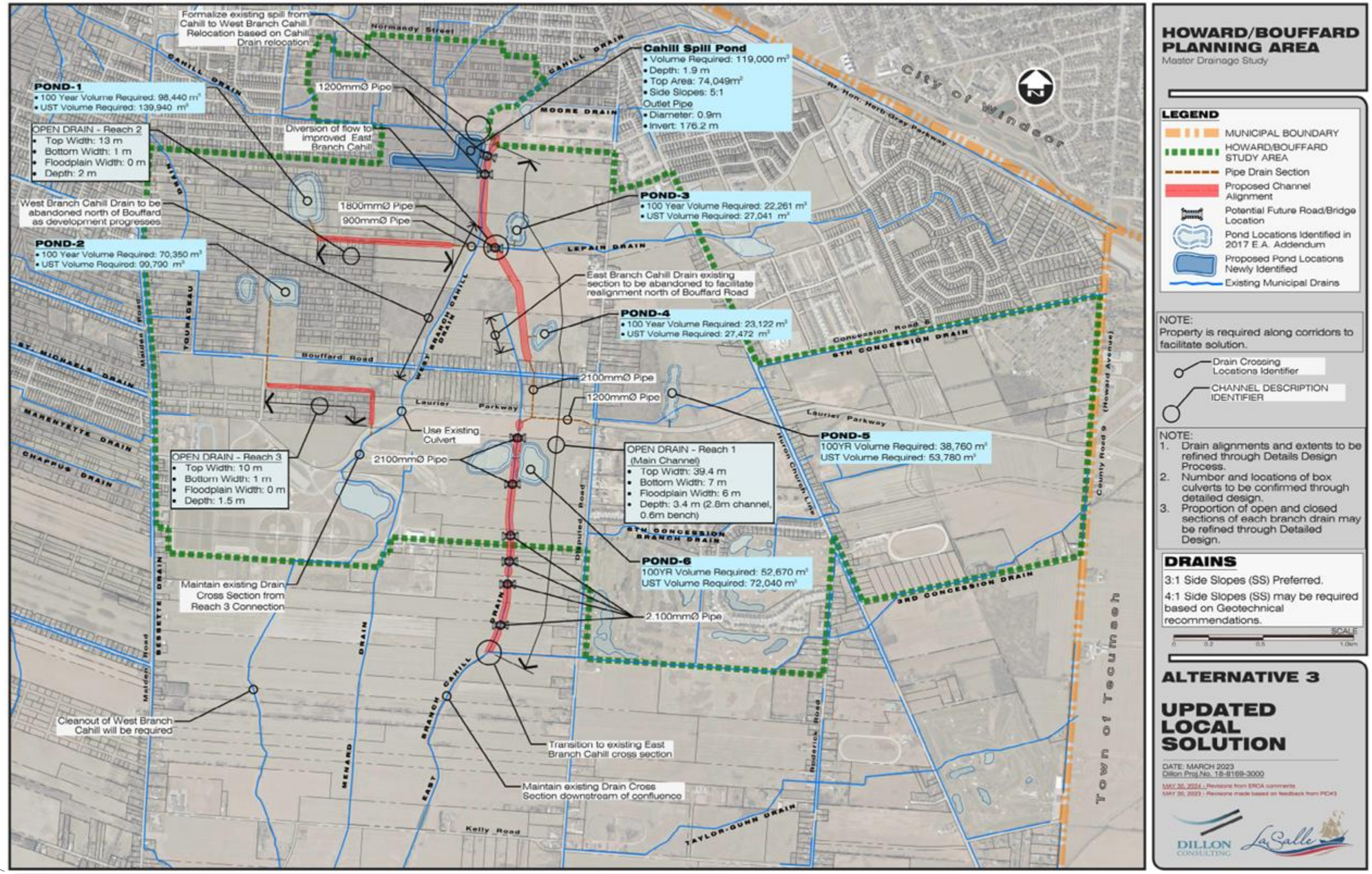


Figure 8: Preferred SWM Solution – Including Detailed Pond Sizing Notes

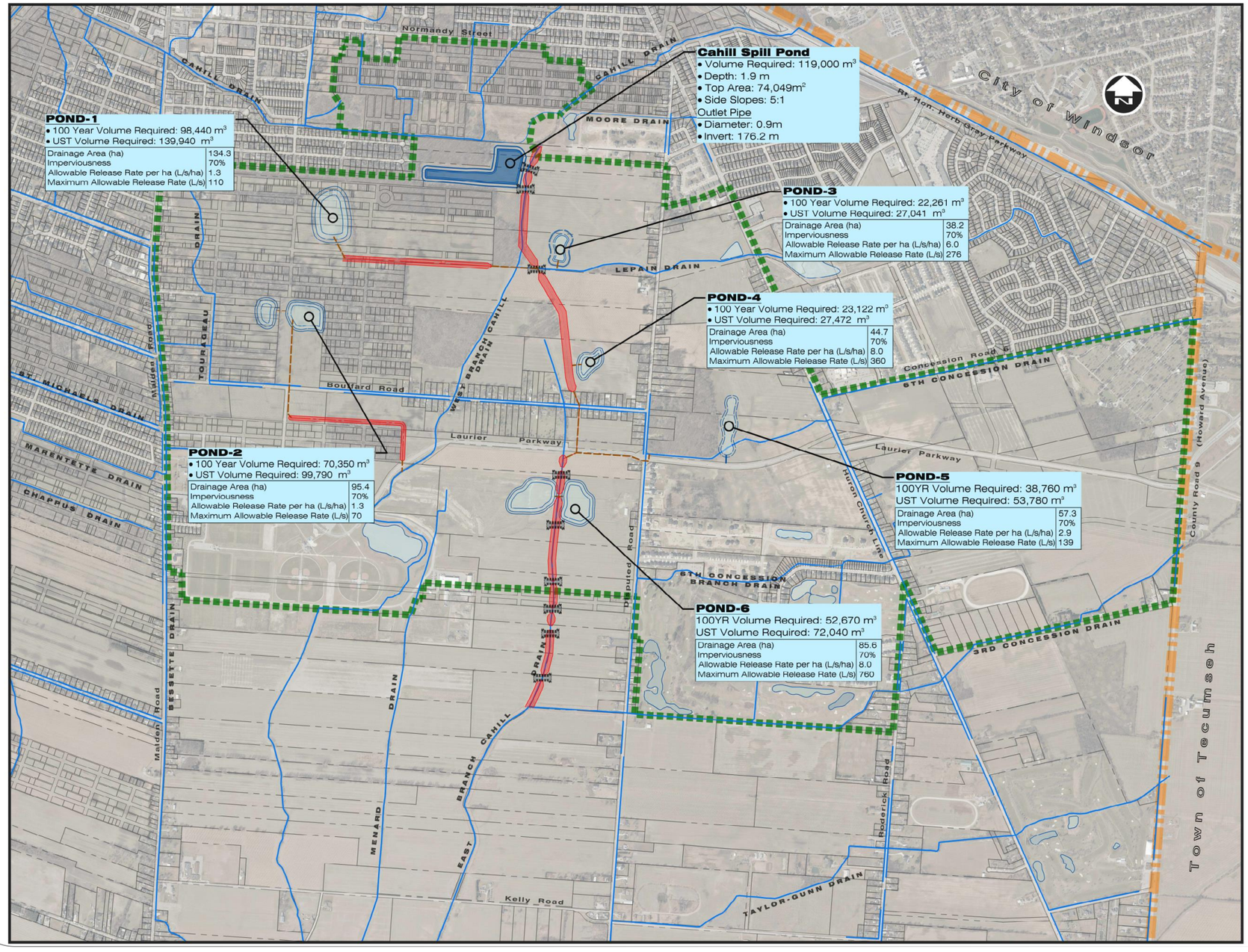


Figure 9: Typical Drain Cross-Section, Reach 1

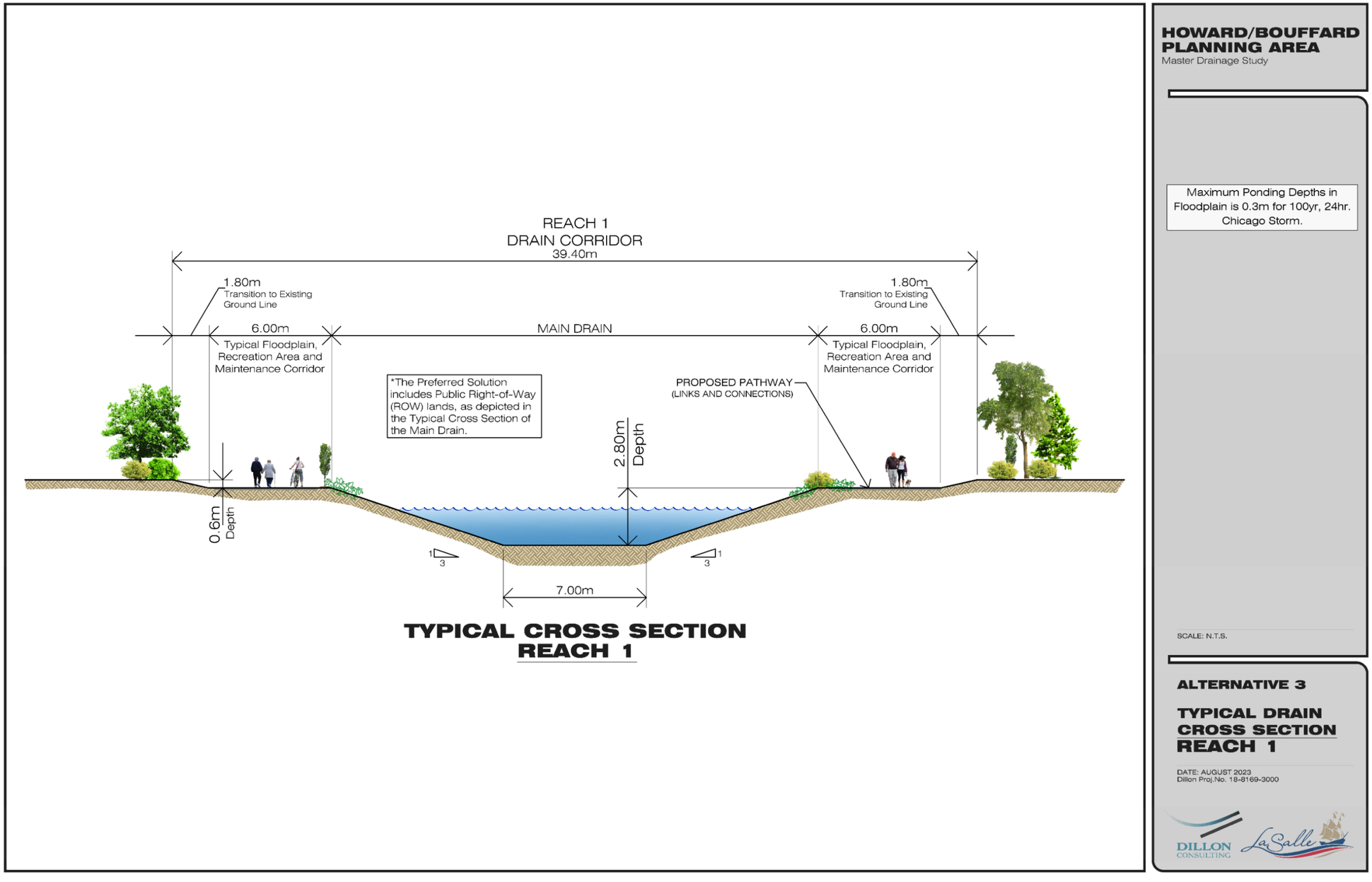


Figure 10: Typical Drain Cross-Section, Reach 2

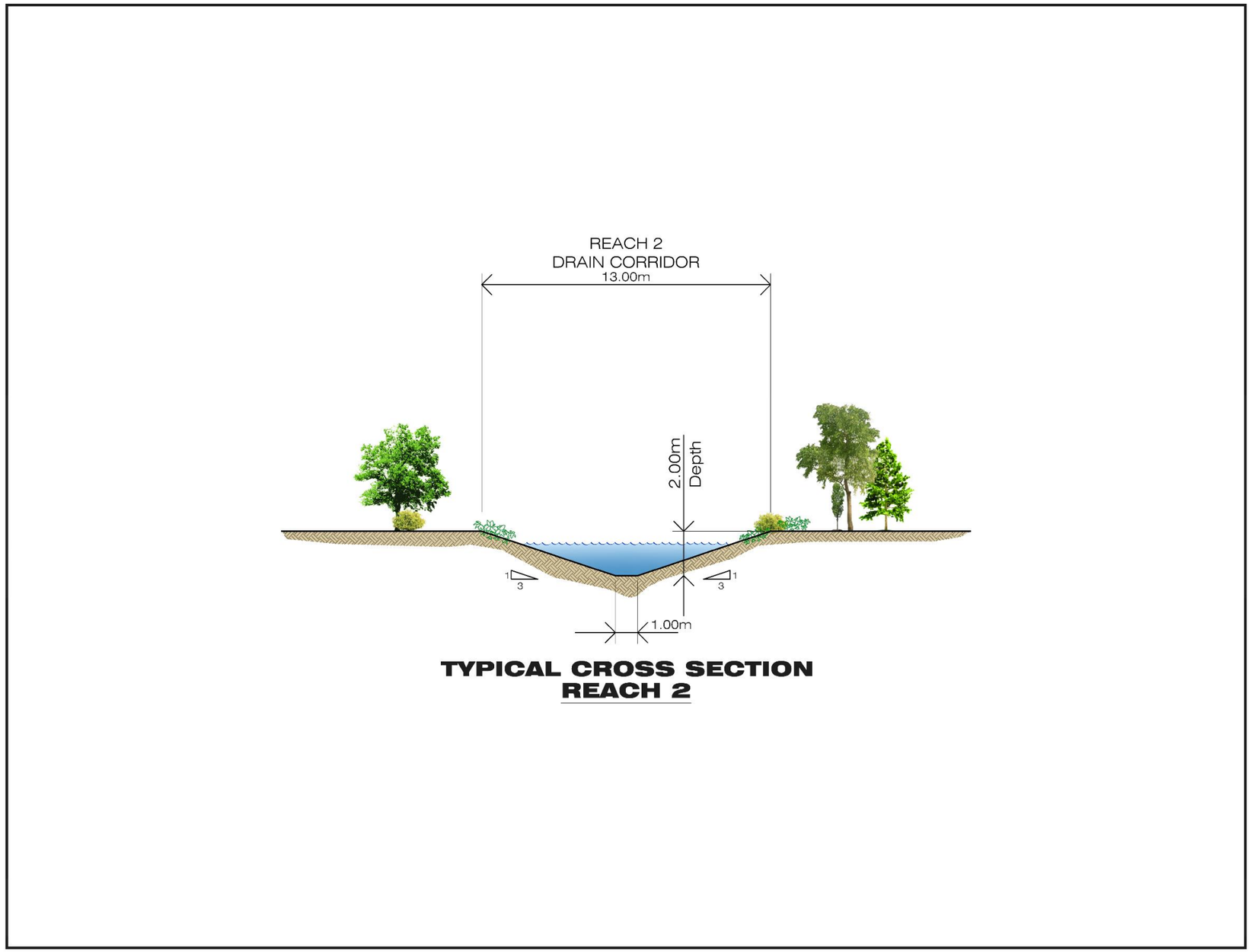
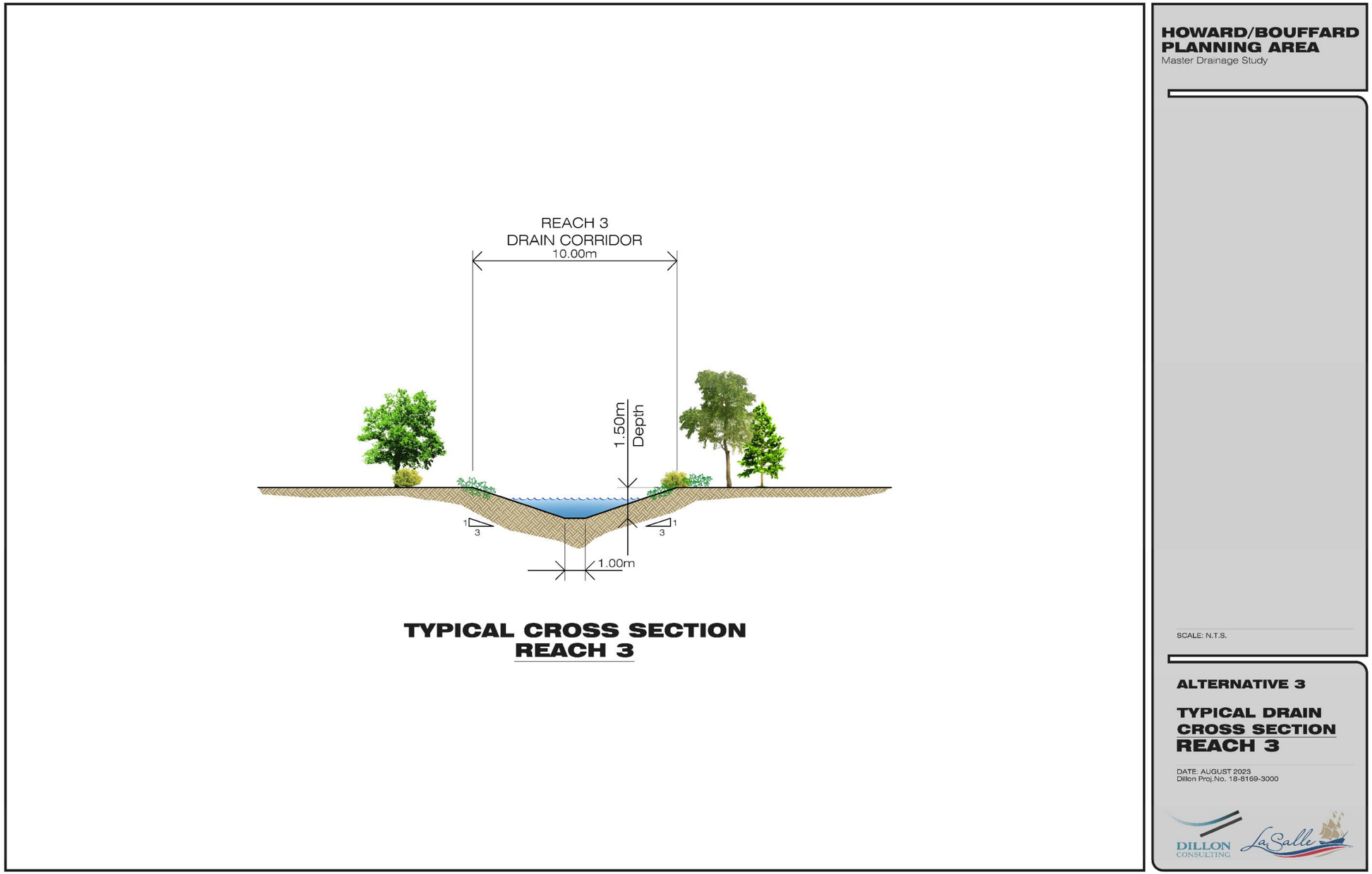


Figure 11: Typical Drain Cross-Section, Reach 3



5.4 Major Features of the Preferred Solution

The preferred SWM solution consists of the following major components:

- Drainage improvements at the north end of the Study Area will formalize the existing spill from the Cahill to the proposed spill pond;
- A new SWM dry pond (Cahill Spill Pond) will be built on existing agricultural land to provide storage at the headwaters of the Study Area;
- An expanded open channel will extend along the current alignment of the WBC Drain before turning southeast onto a new alignment as it approaches Bouffard Road;
- The WBC Drain will be abandoned south of the point where the above-mentioned drain turns southeast on a new alignment;
- Underground pipes will extend under Bouffard Road parallel to a future north-south collector road in this area, connecting to the EBC Drain south of Laurier Parkway;
- An expanded open channel will extend southward along the existing EBC Drain south of Laurier Parkway, transitioning to the existing EBC Drain cross-section at the confluence with the 3rd Concession Drain;
- East-west drainage via open channels and enclosures is provided to serve ponds in the northwest portion of the Study Area;
- An enclosure along Laurier Parkway, east of the EBC Drain, provides drainage for the eastern portion of the Study Area; and,
- Potential future road/bridge locations are identified for reference purposes; however, their location and design will be determined during future design phases in coordination with the design of new roadways within the Study Area.

Local SWM ponds as identified in the 2017 EA Addendum are included in **Figure 7** and **Figure 8**, although they are not part of the works to be completed by the Town. The preferred solution includes connections between these local ponds and the municipal drains in the Study Area. Design details for the local ponds will be confirmed by individual developers as part of the respective land development projects.

The water surface elevations and flows at key locations along the main reaches within the study area are identified in **Table 12** for the preferred solution. The flow and level values are sourced from the Personal Computer Storm Water Management Model (PCSWMM) developed for the preferred solution.

Table 12: Levels and Flows at Key Locations (Preferred Solution)

Drain	Location	Peak Flow (m^3/s)	Water Level (m)
EBC	Downstream (D/S) of Cahill Spill	1.24	178.05
	D/S of Lepain Drain confluence	3.18	177.85
	Upstream (U/S) of Bouffard Road	3.44	177.84
	D/S of Bouffard Road	3.45	177.71
	U/S of Laurier Parkway	3.45	177.50
	D/S of Laurier Parkway	3.70	177.42
Lepain	U/S of Huron Church Line Road	4.21	180.44
	D/S of Huron Church Line Road	4.21	180.32
	U/S of Disputed Road	4.27	179.33
	D/S of Disputed Road	4.27	179.25
WBC	U/S of Bouffard Road	0.07	176.78
	D/S of Bouffard Road	0.07	176.78
	U/S of Laurier Parkway	0.06	176.78
	D/S of Laurier Parkway	0.06	176.78
	U/S of Judy Recker Crescent North	0.06	176.15
	D/S of Judy Recker Crescent North	0.07	176.15
	U/S of Judy Recker Crescent South	0.42	176.13
	D/S of Judy Recker Crescent South	0.42	176.13
Sixth Concession Branch	U/S of Huron Church Line Road	1.20	179.36
	D/S of Huron Church Line Road	1.16	179.34
	U/S of Laurier Parkway	1.46	177.84
	D/S of Laurier Parkway	1.45	177.79

Drain	Location	Peak Flow (m^3/s)	Water Level (m)
Sixth Concession	U/S of Seven Lakes Drive	1.69	177.99
	D/S of Seven Lakes Drive	1.67	177.94
Third Concession	D/S of Howard Ave	3.12	183.27
	U/S of Seventh Concession Road	3.12	180.34
	D/S of Seventh Concession Road	3.12	180.11
	U/S of Huron Church Line Road	3.12	179.92
	D/S of Huron Church Line Road	3.12	179.88
	U/S of Broderick Road	3.76	179.64
	D/S of Broderick Road	3.95	179.58
	U/S of Disputed Road	8.26	176.78
	D/S of Disputed Road	8.25	176.74

5.4.1 Climate Change Considerations

This section discusses the considerations given to assess the resiliency of the preferred solution to withstand storm events larger than a 1-in-100 year event, either in terms of peak intensity or total volume. Storms of this magnitude can be associated with impacts due to climate change.

The Windsor Essex Regional Stormwater Standards Manual (Stantec, 2018) recommends an Urban Stress Test design rainfall event to be simulated to stress test SWM facilities being designed in the region. This design storm corresponds the 1-in-100 year 24 hour Chicago storm with an additional 42 millimetres (mm) of precipitation depth distributed uniformly over the 24-hour rainfall duration (total precipitation depth of 150 millimetres).

All local SWM ponds within the Study Area will need to be designed to the standards outlined in the Windsor Essex Regional Stormwater Standards Manual. The local SWM ponds will be required to limit their peak discharge into municipal drainage infrastructure to the allowable release rates allocated to them based on the Bouffard

Howard Planning Districts Class EA Addendum (March 2017) without overtopping their banks. This requirement applies for all design storm events, up to and including the Urban Stress Test event.

Design of local SWM ponds in the Study Area to the Urban Stress Test storm event adds resiliency to the design to withstand storms of higher magnitude than a 1-in-100 year return period event.

6.0 Impacts and Mitigation

This section describes potential impacts of the preferred solution, and recommends measures to mitigate those impacts where applicable. The mitigation measures are intended to be refined during the future design phases and incorporated into the construction contract.

6.1 Socio-Economic

The preferred solution addresses the existing flooding issues in the Study Area, removing the key impediment for development to proceed in the Study Area. Developers will be required to address SWM impacts of their developments individually.

6.1.1 Property Impacts

To implement the preferred solution, it is anticipated approximately 26 ha of private property is required from a total of 56 landowners. Consultation with impacted property owners will be required when the area of impact is refined during future design phases.

6.1.2 Air Quality and Noise

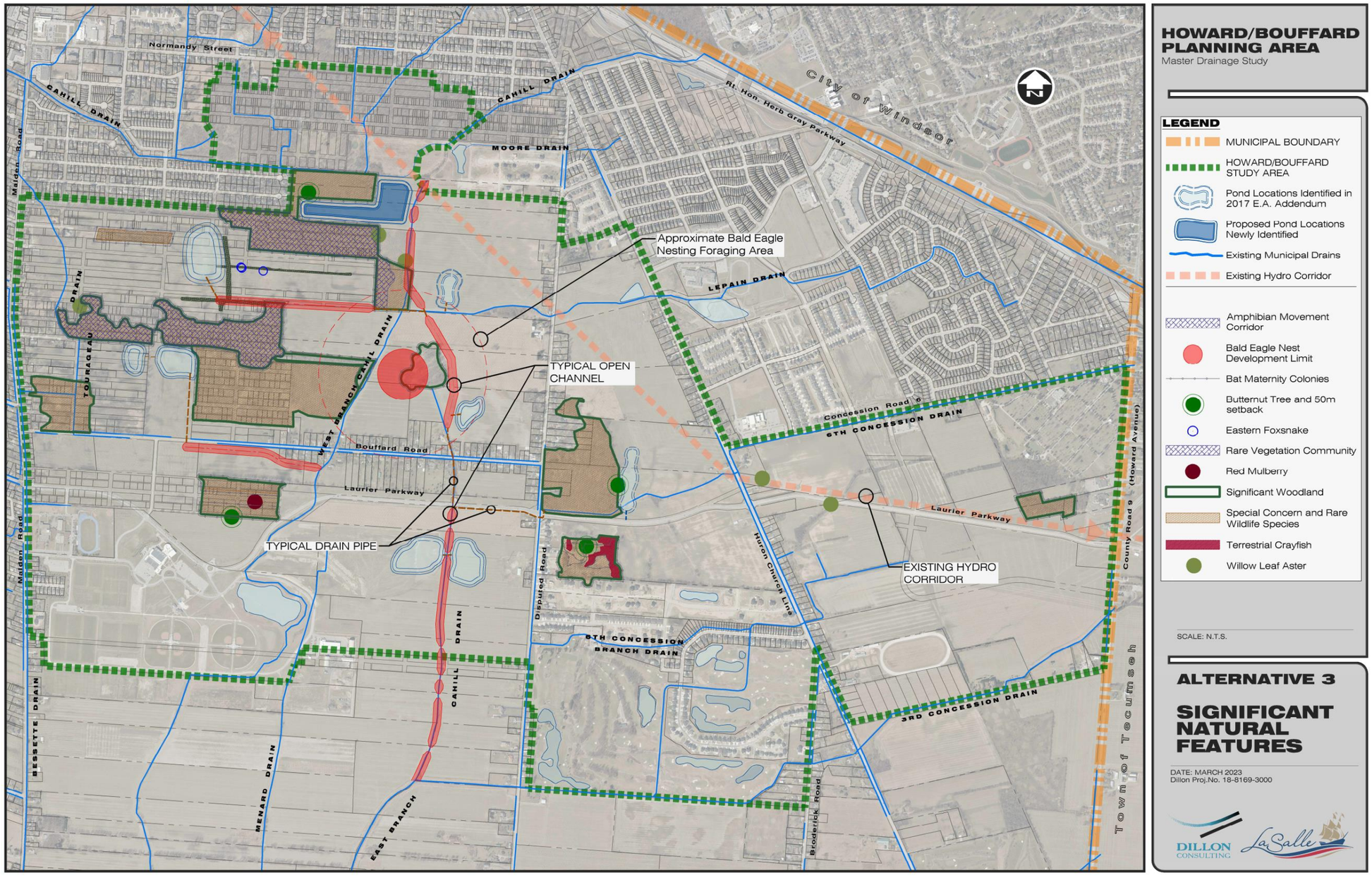
Dust, air quality, and noise control measures should be included in construction mitigation plans to mitigate adverse impacts to nearby residential land uses during construction activities. Non-chloride dust suppressants are recommended.

Construction noise and vibration impacts are temporary in nature but will be noticeable at times. The municipal by-law hours of construction operation should be adhered to or an exemption requested by the contractor. If public complaints are received, they should be addressed as required.

6.2 Natural Environment

Based on the layout of the preferred solution, there is potential for SAR and/or significant natural features to be impacted by the proposed works, if left unmitigated. Significant natural features in the Study Area are shown on **Figure 12**, which includes the layout of the preferred solution as evaluated and presented at PIC 3 for reference.

Figure 12: Significant Natural Features



The review for potential impacts focused on areas within approximately 120 metres of the planned drainage improvements. At a high level, potential impacts of the preferred solution include:

- Tree and vegetation removal;
- Erosion and sedimentation of adjacent natural features;
- Surface water impacts; and,
- Impacts to wildlife and wildlife habitat, including SWH and SAR habitat.

Additional natural environment impact assessment should be completed during future design phases to identify direct impacts based on specific construction plans. Site-specific environmental management plans should be developed where required prior to construction.

In the event SAR and/or SAR habitat have the potential to be adversely impacted as a result of the project, MECP should be consulted to determine whether permitting and/or approvals under the ESA are required.

6.2.1 County of Essex Official Plan Restoration Opportunity Policies

Section 3.4.5 of the County of Essex Official Plan identifies policies for restoration opportunity policies, as noted in **Section 4.1.4**. The list below discusses how each of the policies outlined in Section 3.4.5 of the Official Plan have been addressed in this Study.

i. Opportunities to restore and enhance natural heritage features were reviewed and incorporated into the evaluation of alternative solutions outlined in **Section 5.2**;

ii. Low Impact Development measures are beyond the scope of this study but may be considered as part of the Secondary Plan;

iii. Buffers are incorporated into the typical drain cross-sections (**Figure 7**, **Figure 9**, **Figure 10** and **Figure 11**), which will be further refined during detailed design;

iv. Opportunities to set aside strategic areas for restoration and enhancement may be considered as part of the Secondary Plan;

v. Opportunities for stewardship, naturalization, and education are beyond the scope of this study;

vi. Land acquisition recommended in this study is focused on lands required for the proposed drainage improvements; and,

vii. Further land acquisitions or protections may be considered as part of the Secondary Plan.

6.3 Water Resources

6.3.1 Source Water Protection

As described in **Section 4.3.1**, portions of the Study Area are within IPZ-3 and SGRA-2, both of which indicate a relatively low potential for impacts to drinking water sources. Based on the low potential for impacts within these areas, and the nature of the project, the preferred solution is not expected to be considered a source water threat. The need for studies related to source water protection should be reviewed during future design phases when construction methods are determined.

As further described in **Section 4.3.1**, the Study Area falls within the Event Based Area for the Amherstburg Water Treatment Plant. If it is determined during detailed design that the above grade handling and storage of 15,000 litres or more liquid fuel will be required, Essex Region's Risk Management Official must be notified to develop a Section 58 Risk Management Plan to mitigate this drinking water threat.

The creation, relocation, or removal of drains and/or other open watercourses may affect the delineation of vulnerable areas in the Essex Region Source Protection Plan and Assessment Report. Upon completion of construction, Essex Region Source Protection staff may need to adjust the delineation of the vulnerable areas. The Essex Region Source Protection Authority should be informed of the creation, relocation, and removal of drains, open watercourses, and (if applicable) sewers during detailed design.

6.3.2 Municipal Drains and SWM Ponds

The preferred solution involves improving portions of the WBC and EBC Drains, creating sections of new open channel and underground drain pipes, and abandoning a portion of the WBC Drain. These works will require ERCA approval for Work within a Regulated Area. It is also anticipated MECP approval will be required for work regulated by the *Ontario Water Resources Act*. Additionally, Fisheries and Oceans Canada (DFO) approval may be required for abandoning, moving, and enclosing sections of municipal drains. These works should be screened during the detailed design phase to determine whether an application to DFO is required.

As described in **Section 7.3**, the *Drainage Act* is currently the preferred mechanism to implement the project. The process involves consultation with impacted landowners who will need to sign a petition to initiate the process.

6.3.3 Flooding

The preferred solution addresses the existing flooding issues in the Study Area during major storm events. In addition to allowing for development to proceed, this will also mitigate the hazards associated with flooding in the Study Area.

6.3.4 Erosion and Sediment Control

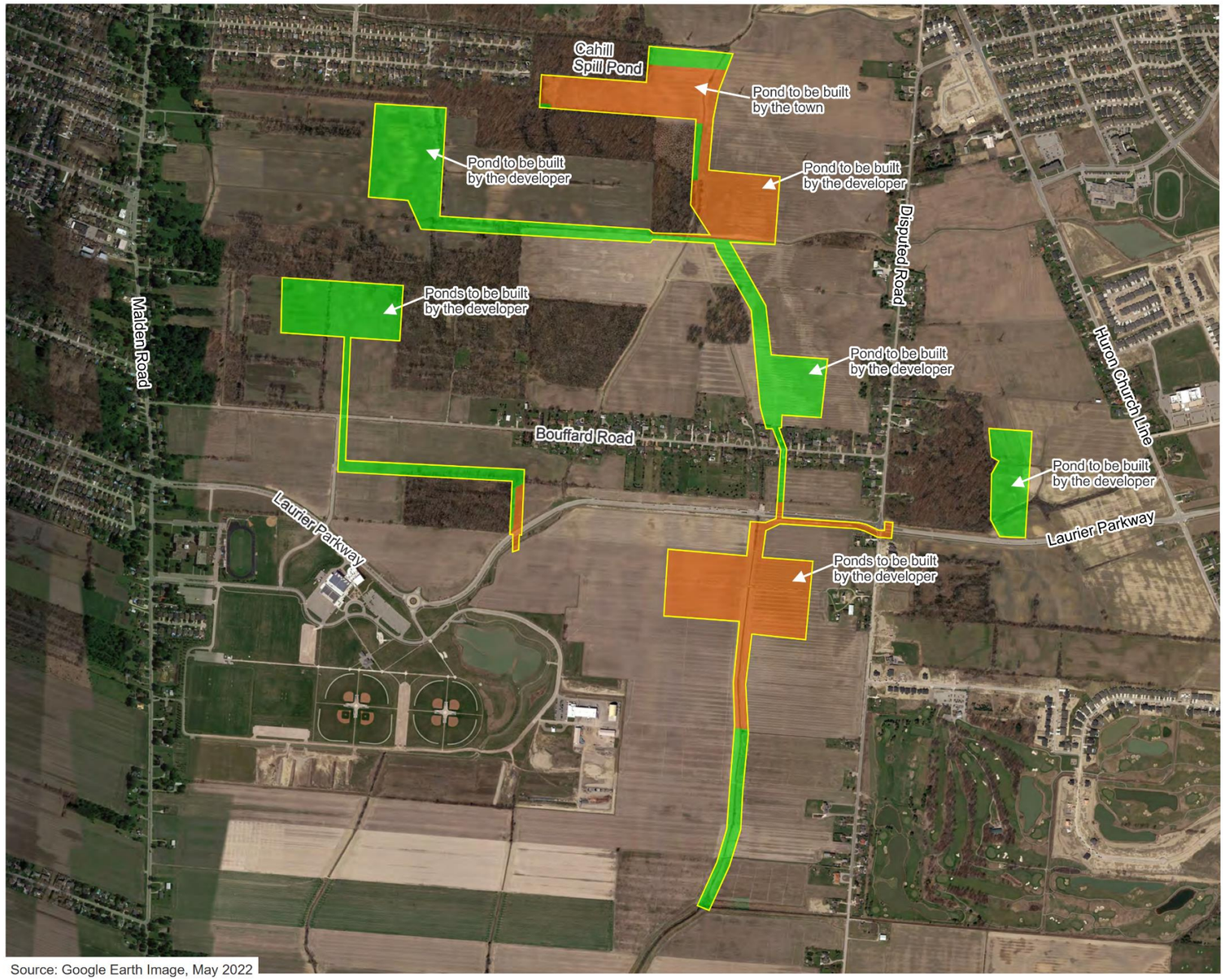
Earth disturbance and exposed soils during construction have the potential to cause erosion and sedimentation of watercourses. During the detailed design phase, erosion and sediment control provisions should be developed for incorporation into the construction contract. These provisions should include appropriate mitigation techniques such as silt fence, geotextiles, and requirements for reseeding exposed soils in a timely manner.

6.4 Cultural Heritage Resources

6.4.1 Archaeological Resources

As noted in **Section 4.4.1**, portions of the Study Area retain high potential for Indigenous and Euro-Canadian archaeological resources (Fisher Archaeological Consulting, 2023). The Stage 1 archaeological assessment results are shown on **Figure 13**. It is noted that areas around the local SWM ponds are included; however, these areas are not part of the works to be completed by the Town.

Figure 13: Stage 1 Archaeological Assessment Results (Source: Fisher Archaeological Consulting, 2023)



KEY

Footprint of Alternative 3
Note: All ponds except for Cahill Spill Pond will be built by the developers (indicated), the remainder of the solution will be built by the town

Previously Subjected to Stage 2: Assessment, Nothing Found, No Further Archaeological Work Recommended

Stage 2: Assessment Recommended by Pedestrian Survey where Ploughing Is Feasible, by Shovel Testing at 5 m Intervals where Ploughing Is Not Feasible

FAC

Date: 18/06/23
Designer: JM

Scale
0 500 m

N

HOWARD-BOUFFARD DRAIN PROJECT,
LaSalle, Essex County
Archaeological Stage 1: Background Study

Figure 12: Recommendations from Stage 1, Alternative 3

Areas that retain archaeological potential will require Stage 2 archaeological assessment via pedestrian survey where ploughing is feasible, and via test pit survey where ploughing is not feasible. MCM acceptance of all required archaeological reports into the Ontario Public Register of Archaeological Reports is required prior to any ground disturbing activities.

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

The *Funeral, Burial and Cremation Services Act*, 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that *Act* related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

6.4.2 Built Heritage Resources and Cultural Heritage Landscapes

As outlined in **Section 4.4.2**, the project area does not contain features that indicate an elevated potential for built heritage resources or cultural heritage landscapes. Should the area of impact change during future design phases, the need for a cultural heritage study should be reviewed.

6.5 Excess Materials Management

Implementation of the preferred solution will require earth excavation to create stormwater management ponds and new/modified drainage channels. For the purpose of cost estimation, it has been assumed excess material will be transported offsite. There may be an opportunity to reduce the cost if some or all of the material can remain

onsite. Opportunities to reuse excess material onsite should be reviewed further during detailed design.

Management of excess soil shall be addressed during detailed design in accordance with *Ontario Regulation 406/19* and the following MECP guidance documents:

- Management of Excess Soil – A Guide for Best Management Practices (2014); and,
- Rules for Soil Management and Excess Soil Quality Standards (2022).

6.6 Waste and Spill Management

During construction, it is expected waste materials will be generated including solid and liquid waste from construction crews. All waste generated during construction must be disposed of in accordance with MECP requirements. Waste management procedures should be developed during the detailed design phase and included in the construction contract.

Provisions should be established for handling potential spills during construction, in accordance with MECP guidelines and best management practices. It is recommended that the construction contract require preparation of a spill prevention and response contingency plan. To prevent incidental petrochemical releases into watercourses, vehicle and equipment refueling should not occur within 120 m of watercourses.

6.7 Howard/Bouffard Secondary Plan

As noted in **Section 4.1.4**, the Town is currently preparing a Secondary Plan for the Howard/Bouffard Planning Area. The Howard/Bouffard Secondary Plan considers items outside the scope of this Master Drainage Study, including:

- Consideration of Low Impact Development measures;
- Opportunities to set aside strategic areas for restoration and enhancement;
- Opportunities for stewardship, naturalization and education;
- Further land acquisitions or protections outside the scope of this study; and,
- Consideration of wildlife corridors and natural linkages.

7.0 Implementation Plan

7.1 Construction Phasing and Timing

It is understood that there is support from the Municipality and development community to proceed with the design and construction of the preferred solution as soon as possible. It is anticipated that the *Drainage Act* process including the design, public engagement, and approvals, will take approximately two years to complete. It is further anticipated that construction may take up to two years to complete.

The Secondary Plan undertaken by the Town will proceed concurrently. The planning, design, and construction of the individual developments are anticipated to happen concurrently to the extent possible.

7.2 Cost Estimate

The anticipated cost for engineering and construction of the proposed work is $18 million (based on 2023 dollars). This cost excludes property acquisition and applicable taxes.

7.3 Drainage Act

The *Drainage Act* is currently the preferred mechanism to implement the project, including refining the design, project costs, and confirming the assessments to the benefitting lands. The *Drainage Act* provides a mechanism for the Town to recover the project costs from the owners of the contributing/benefitting lands, including upstream lands. The *Drainage Act* process involves consultation with impacted landowners who will need to sign a petition to initiate the process.

Other mechanisms of implementation (agreements, negotiations, development charges, etc.) may be reviewed prior to commencing any *Drainage Act* process.

7.4 Class EA Requirements

As noted in **Section 1.2**, this study was completed in accordance with Master Plan Approach #2 under the Municipal Class EA. Accordingly, the final public notice for this study will be the Notice of Completion for Schedule B projects required to implement the preferred solution.

The preferred solution consists of a new SWM pond and drainage works for the purpose of flood control, as described in **Section 5.4**. The applicable project Schedule for each of these components of the preferred solution is as follows:

- New SWM ponds are considered Schedule B projects in accordance with item 40b in Appendix A, Table B of the Municipal Class EA; and,
- Drainage ditch works for the purposes of flood control are considered Schedule B projects in accordance with item 51 in Appendix A, Table B of the Municipal Class EA.

Following the clearance of this report under the EA Act, the project will be considered approved for implementation. Further details on opportunities for formal EA challenge are provided in **Section 7.4.1**.

7.4.1 Review of this Report

This report is being made available for a 30-day public, Indigenous community, and agency comment period as required by the Municipal Class EA. Instructions on how to provide comments to the project team or initiate a formal EA challenge are provided in the Notice of Completion, a copy of which is included following the cover page of this report.

If there are no outstanding issues following the comment period, the project will proceed to detailed design and construction.

7.5 Future Design Activities

During the detailed design stage, it is anticipated there will be refinements to the preferred alternative. Opportunities include refinements to the main channel and branches, consideration to naturalize areas including the dry pond, and utilizing designed and/or naturally low-lying areas for stormwater management. In addition, as the process unfolds for each of the proposed developments, the locations of the local

stormwater ponds will be determined. At that time the routing of the branch drains may need to be adjusted to accommodate the proposed pond locations.

7.6 Future Consultation

The following future consultation activities are recommended to be completed as the project proceeds through detailed design:

- Continue to consult with impacted property owners regarding required property acquisition and working corridors;
- Continue to consult with the ERCA;
- If it is determined during detailed design that the above grade handling and storage of 15,000 litres or more liquid fuel will be required, Essex Region's Risk Management Official must be notified;
- The Essex Region Source Protection Authority should be informed of the creation, relocation, and removal of drains, open watercourses, and (if applicable) sewers during detailed design;
- Continue to consult with the City of Windsor, Town of Tecumseh, and MTO;
- Invite Indigenous communities including COTTFN and CFN to participate in future AA(s) for the project, including providing field liaison monitors to oversee the work;
- In the event SAR and/or SAR habitat have the potential to be adversely impacted as a result of the project, MECP should be consulted to determine whether permitting and/or approvals under the ESA are required;
- In the event impacts to Butternut or Willow Leaf Aster are anticipated based on the detailed design, consult with CFN;
- If required based on screening during detailed design, consult with DFO regarding application requirements for abandoning, moving, and enclosing sections of municipal drains; and,
- Consult with affected utility companies during detailed design when utility impacts are known.

7.7 Anticipated Permits and Approvals

Prior to construction of the preferred solution, it is anticipated that the following permits and/or approvals will be required:

- ERCA approval for Work within a Regulated Area (Application for Permit for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses);
- Completion of the *Drainage Act* process for the proposed drainage improvements to be constructed by the Town (assuming this remains the preferred implementation mechanism);
- MECP approval for work regulated by the *Ontario Water Resources Act*;
- Environmental Compliance Approval should be sought from MECP when SWM design details are confirmed during detailed design; and,
- MCM acceptance of all required archaeological assessment reports into the OPRAR.