Howard/Bouffard Planning Area Master Drainage Study

Public Information Centre #3

Town of LaSalle

March 1, 2023

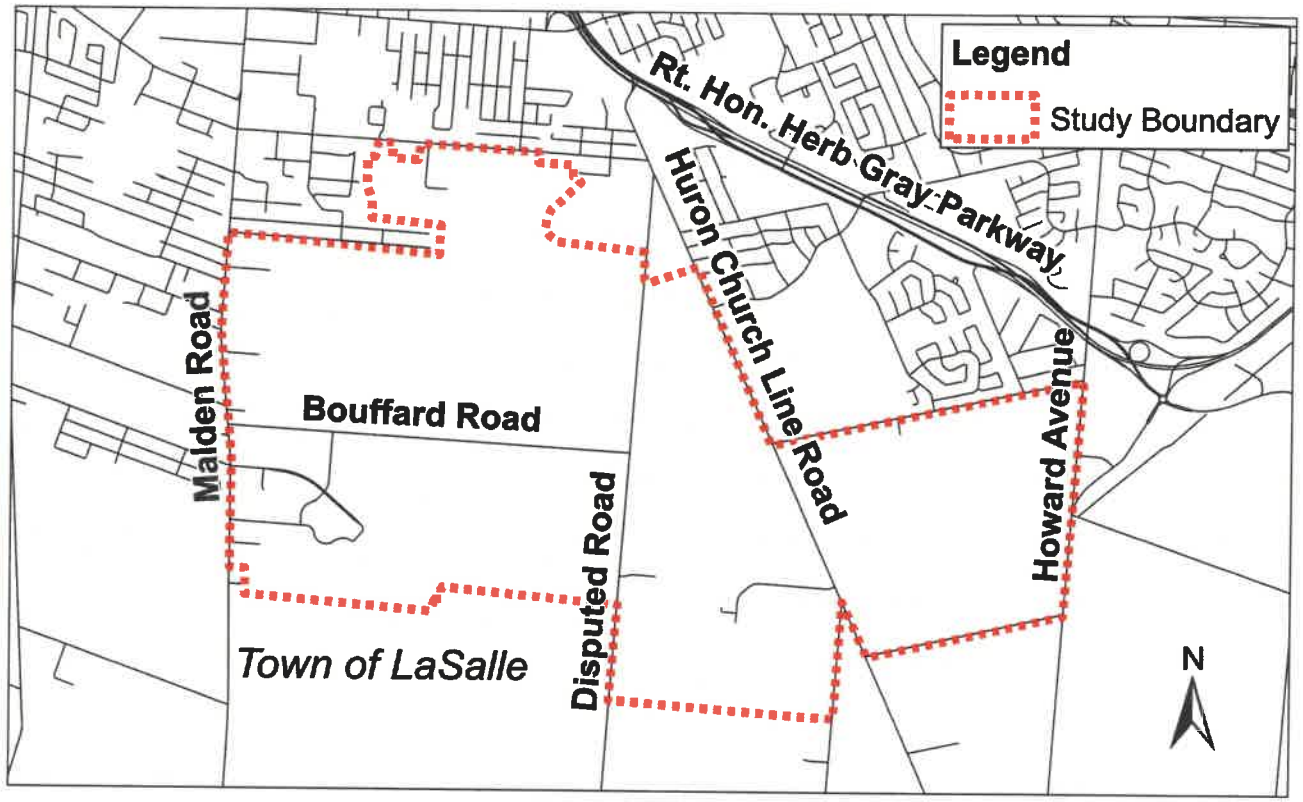
DILLON CONSULTING

Welcome

- Thanks for your interest in this study
- The purpose of the study is to address drainage issues within the Howard/Bouffard Planning Area, which is shown on the map below.

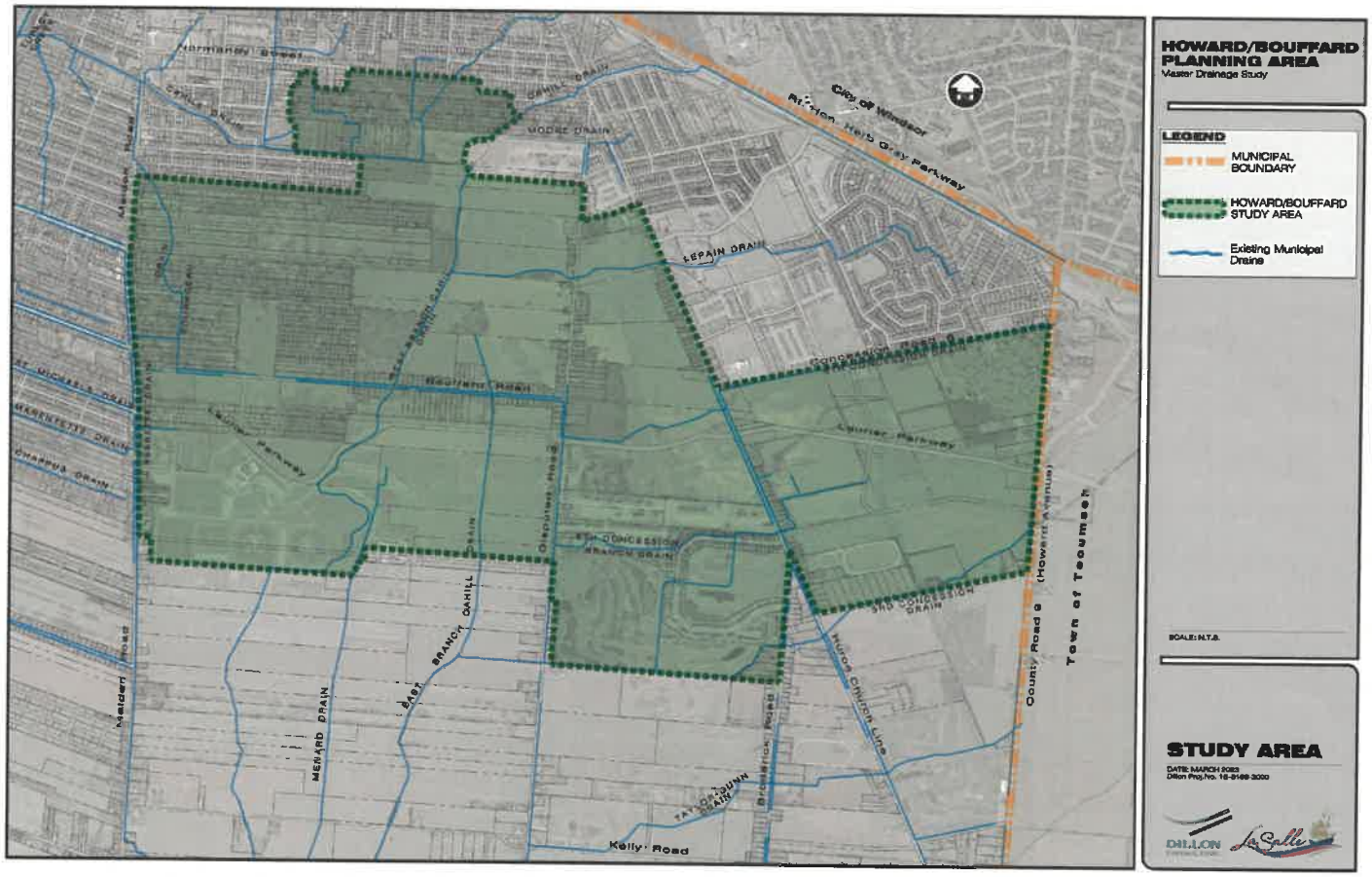
Public Information Centre (PIC) Objectives

- Provide an update on the study
- Present the evaluation of alternative solutions
- Gather feedback on the preferred solution
- Summarize next steps.



Background – Need for the Project

- The Howard/Bouffard Planning Area is primarily designated residential and is planned to be developed over the next decades.
  - The Town of LaSalle and Essex Region Conservation Authority (ERCA) are only able to issue approvals for development outside of the flood inundation area.



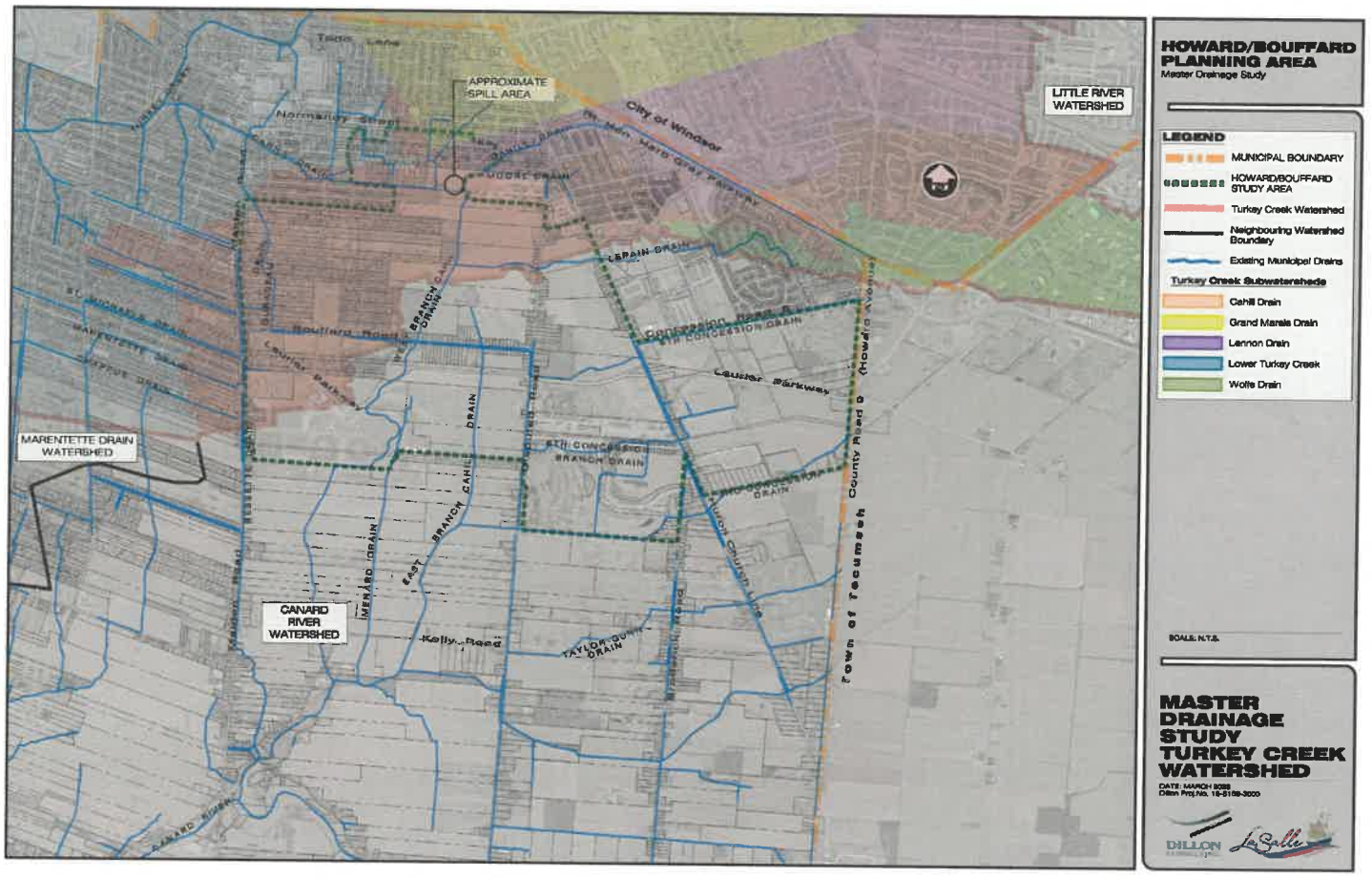
Background – Previous Studies

- Several studies have been completed to plan for new infrastructure in the area:
  - 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)
  - Design and construction of the expansion of the Vollmer Complex and related stormwater management facility (2010).
  - Townwide Transportation & Active Transportation Master Plan (2019)

- Previous studies addressed stormwater management for minor and major events; however, **spill-over from adjacent drainage areas were not considered**
- This study aims to prepare a comprehensive solution to address stormwater overflow into the Howard/Bouffard Planning Area during major storm events to ensure existing residents are protected and to provide sufficient outlet for proposed future developments.

Background – Why the Study was Paused

- In July 2020, the Howard Bouffard Master Drainage Study was paused while the Essex Region Conservation Authority undertook the Turkey Creek Watershed Study. The Turkey Creek Study established a consistent and agreed upon model which affects the Howard/Bouffard Planning Area.
- The Turkey Creek Watershed Study is now complete and can inform the Howard/Bouffard Master Drainage Study.



Project Re-Start & Objectives

- Notice of Project Re-Start was issued on August 2, 2022
  - Comments in response to the Notice included an inquiry about property impacts, confirmation that certain lands were withdrawn from the study, and guidance from the Ministry of Tourism, Culture and Sport.

Study Objectives

- Build on the solution developed through the Bouffard Howard Planning District Class Environmental Assessment Addendum (March 2017)
- Establish existing flood extents in the area
- Develop an implementation strategy, including interim conditions (if any) and full build-out
- Estimate construction costs and consider cost recovery mechanisms
- Establish property requirements to facilitate the improvements.

Class Environmental Assessment Process

PHASE 1: Problem/ Opportunity

- Identify problems/ opportunities to be addressed in the planning and design process
- Prepare a "Problem Statement."

PHASE 2: Alternative Solutions

- Evaluate alternative solutions to address problems/opportunities
- Review existing and planned conditions
- Consult with review agencies and the public
- Assess impacts of the preferred alternative
- Prepare report documenting the study.

PIC #1

PIC #2

PIC #3 ★ We are here

PHASE 5: Implementation

- Design and construction phase
- Project must address recommendations and commitments made in the environmental assessment documentation.

This study is following Master Plan approach #2 under the *Municipal Class Environmental Assessment* (EA; 2000, as amended), and will proceed through Phases 1 and 2 of the process.

The Class EA process requires that:

- ✓ Relevant social, environmental, and engineering factors are considered in the planning and design process
- ✓ Public and agency input is integrated into the decisions.

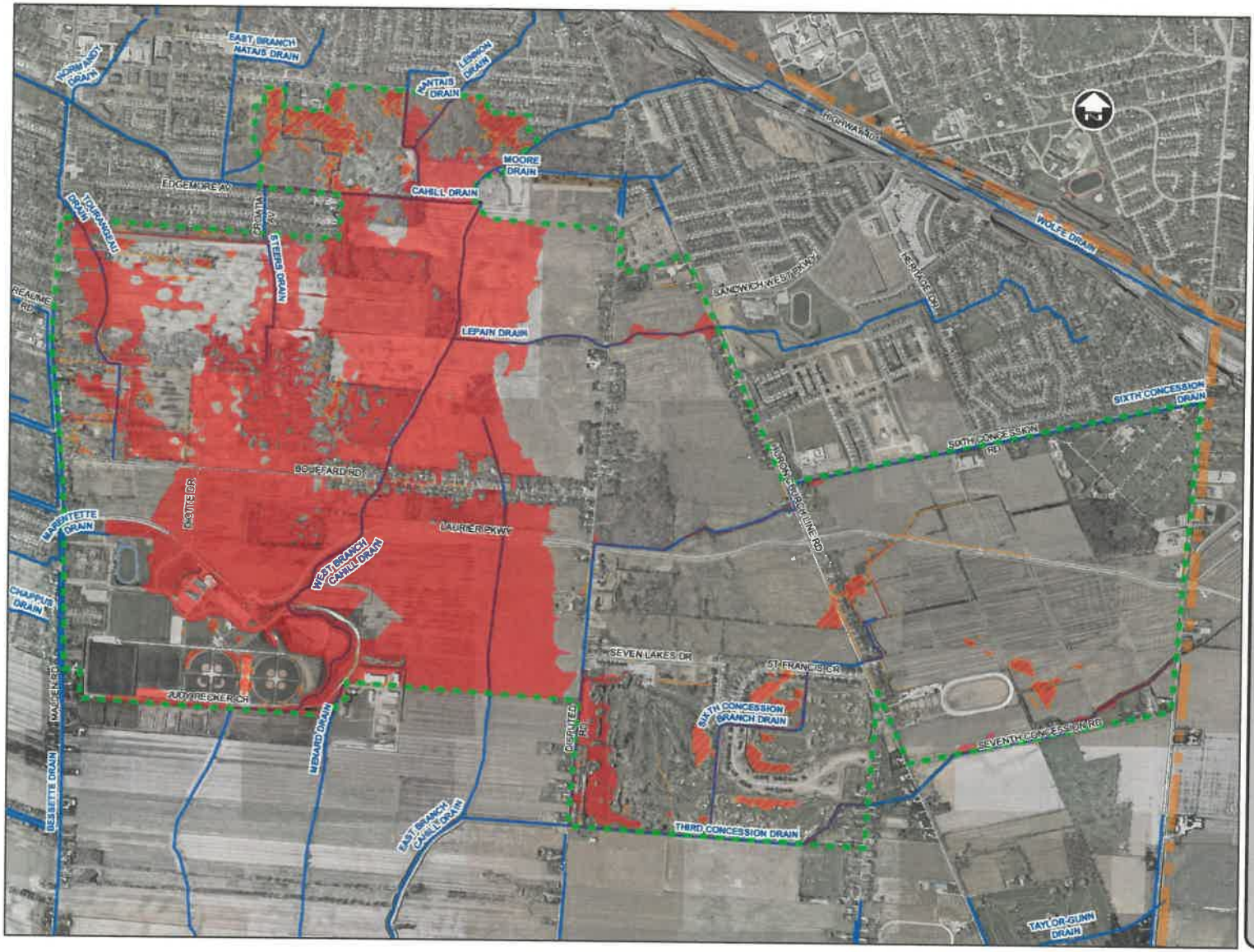
Consultation Summary

- **October 23, 2018** – Notice of Study Commencement was distributed to introduce the study and invite initial input
  - Concerns were raised about existing flooding and property impacts
  - It was suggested that the study area be expanded.
- **June 26, 2019** – PIC #1 outlined the alternatives considered and the initial preferred solution
  - Concerns were raised about downstream flooding, property impacts, timing for development, funding mechanisms and the evaluation.
  - Changes to the preferred solution were suggested.
- **December 12, 2019** – PIC #2 presented a revised solution which accommodated all future development within the planning area
  - Concerns were raised about property impacts, funding mechanisms, involvement of impacted landowners and the flood extents.
- **The current PIC** presents a solution that incorporates the findings of the Turkey Creek Watershed Study and addresses feedback from PIC #2.

Stakeholder Feedback and Actions

Summary of Feedback from PIC #2	Demonstrated Change for PIC #3
Concern with respect to the estimated construction cost of the preferred alternative	The solution identified in Alternative 3 will result in a substantially lower cost than the preferred solution identified in PIC #2.
Concern with the amount of time required to finance and construct the preferred alternative	The solution identified in Alternative 3 will require less financing and time to construct.
Concern with impacts to residential lands	The solution identified in Alternative 3 will reduce the impacts to private lands.
Concern with respect to implementation of one large solution	Alternative 3 is a scaled back such that it can be more easily implemented at one time.
Concern with respect to the spill rate from the Cahill Drain	The estimated spill from the Cahill Drain was 9.6 m^3/s as of PIC #2. Based on the completed Turkey Creek Study, that amount has been refined to 7.8 m^3/s for PIC #3.
Request for clarity with respect to what lands benefit and how costs will be distributed.	It is likely that the Drainage Act will be pursued as a next step in the process and would confirm the contributions from the upstream lands and affected lands within the Howard/Bouffard area.

Existing Conditions – Flood Extents



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

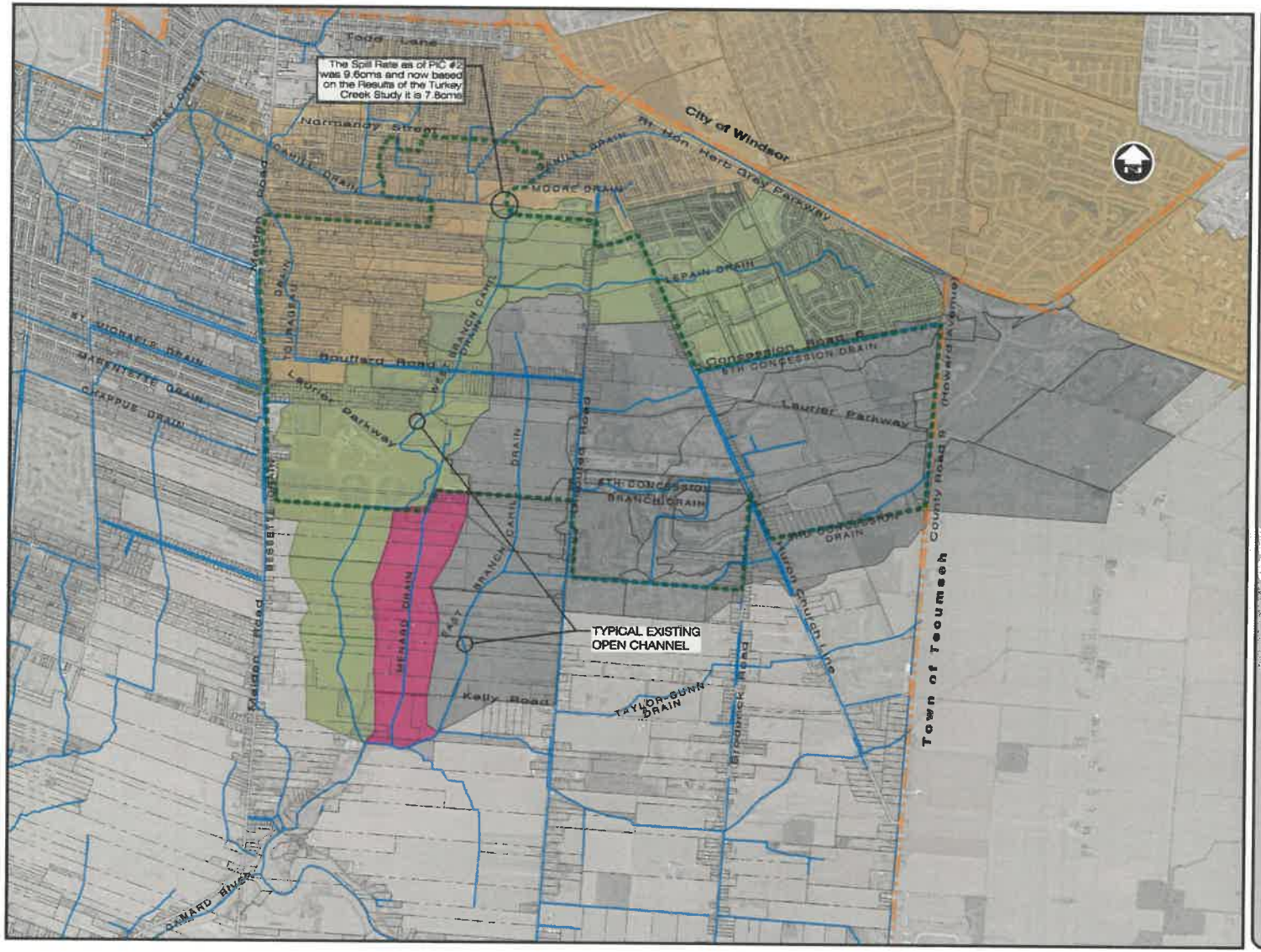
* NOTE: FLOOD EXTENTS HAVE ONLY BEEN ILLUSTRATED WITHIN THE STUDY AREA. FLOODING DOES EXTEND BEYOND THE STUDY LIMITS.

SCALE: N.T.S

EXISTING 1:100 YEAR FLOOD EXTENTS

DATE: MARCH 2023
Dillon Proj.No. 18-8189-3000

Existing Conditions – Drainage



HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD/BOUFFARD STUDY AREA
- Existing Municipal Drains
- Drainage Area Discharging to Cahill Drain
- Drainage Area Discharging to East Branch Cahill Drain
- Drainage Area Discharging to West Branch Cahill Drain
- Drainage Area Discharging to Menard Drain

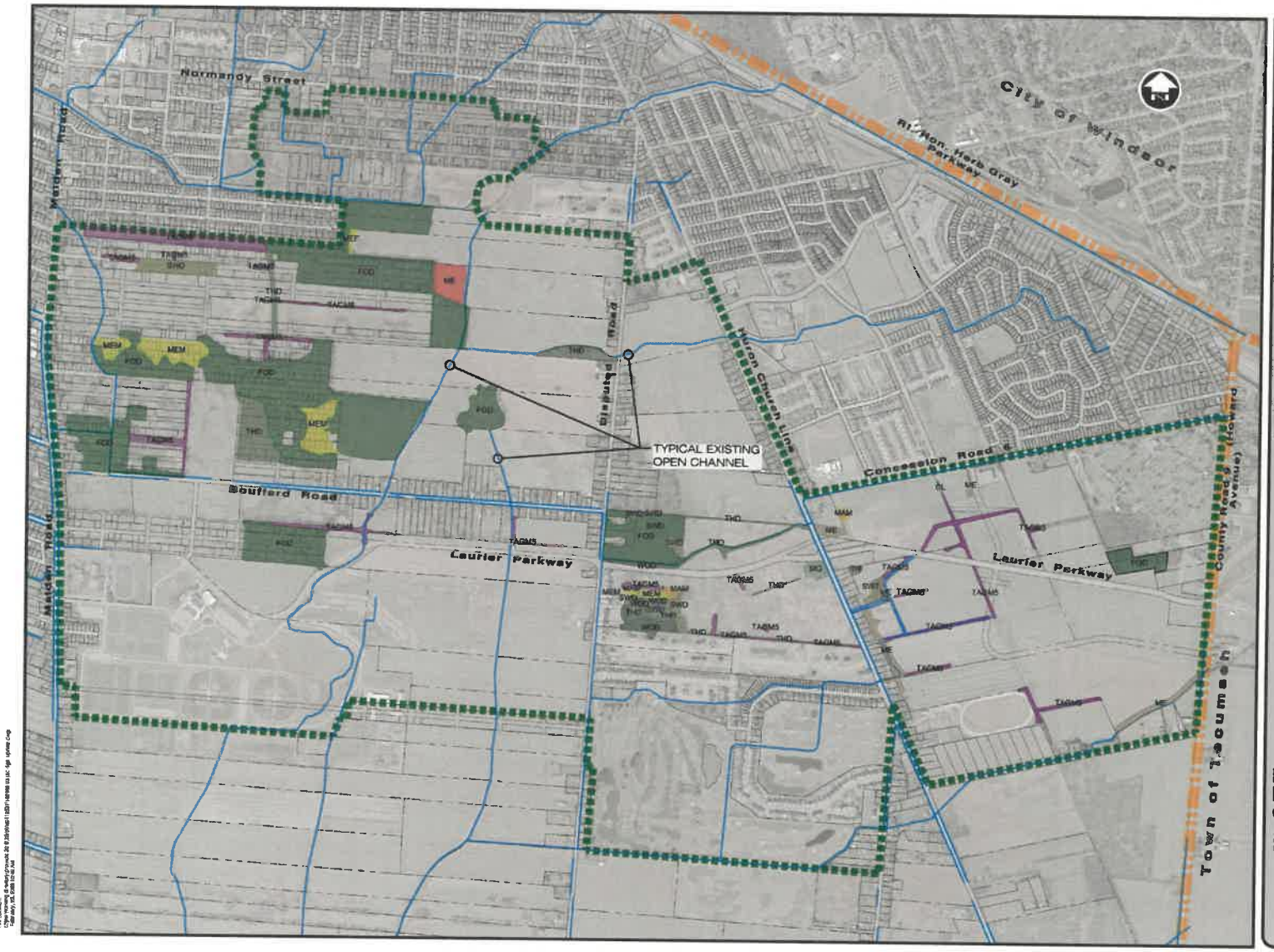
Note: Existing Conditions – Drainage were determined in 2019 and presented at PIC#1 and #2.

SCALE: N.T.S.

EXISTING MUNICIPAL DRAINS AND DRAINAGE AREAS

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

Existing Conditions – Natural Environment



HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD/BOUFFARD STUDY AREA
- Existing Municipal Drains

CL:	Cleared by Drainage Works/Pipeline ROW Works
ME:	Mineral Cultural Meadow
TH:	Cultural Thicket
FOD:	Deciduous Forest
MAM:	Mineral Meadow Marsh
MEF:	Forb Meadow
MEM:	Mixed Meadow
MG:	Manicured Grass
ME:	Pit/Mound Restoration Area
SWD:	Deciduous Swamp
SWT:	Mineral Thicket Swamp
TAGM5:	Fencerow
THD:	Deciduous Thicket
WOD:	Deciduous Woodland

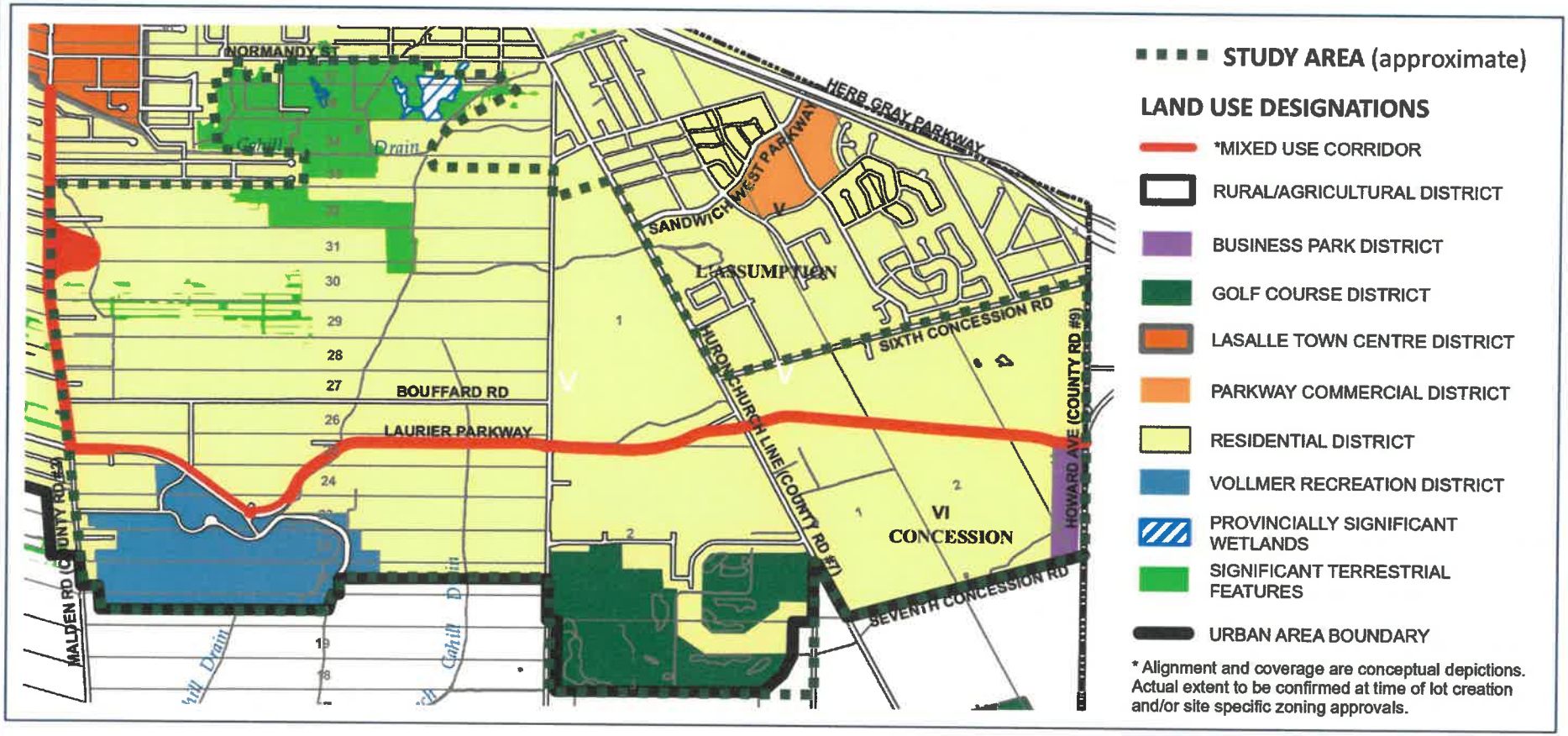
SCALE: N.T.S.

ECOLOGICAL LAND CLASSIFICATION

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

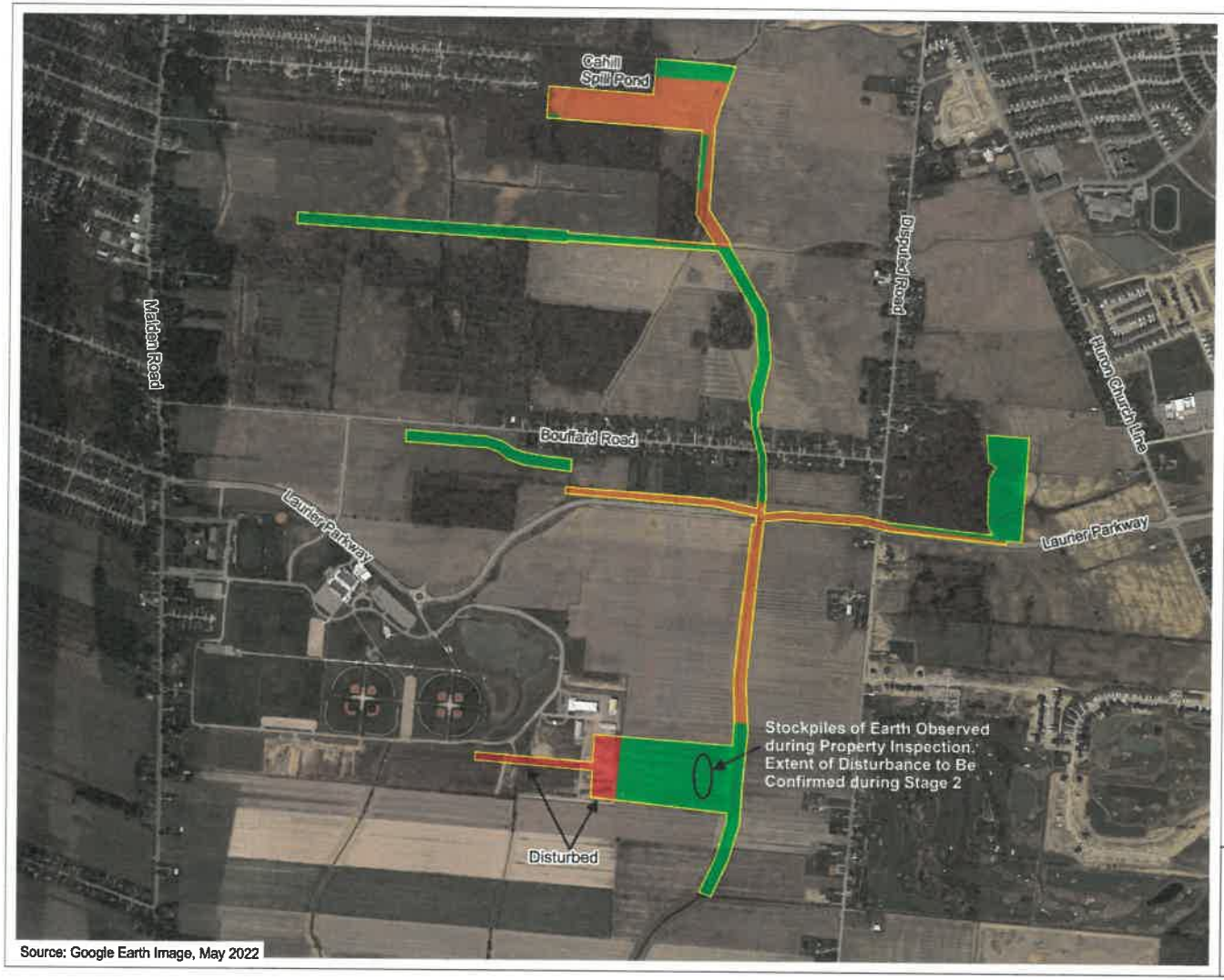
Existing Conditions – Socio-Economic

- Study area is primarily agricultural, with some existing residential dwellings, commercial and institutional uses, recreational facilities, and natural areas
  - Town of LaSalle Official Plan (Schedule B, excerpt below) calls for residential, mixed-use, and business park development in the area



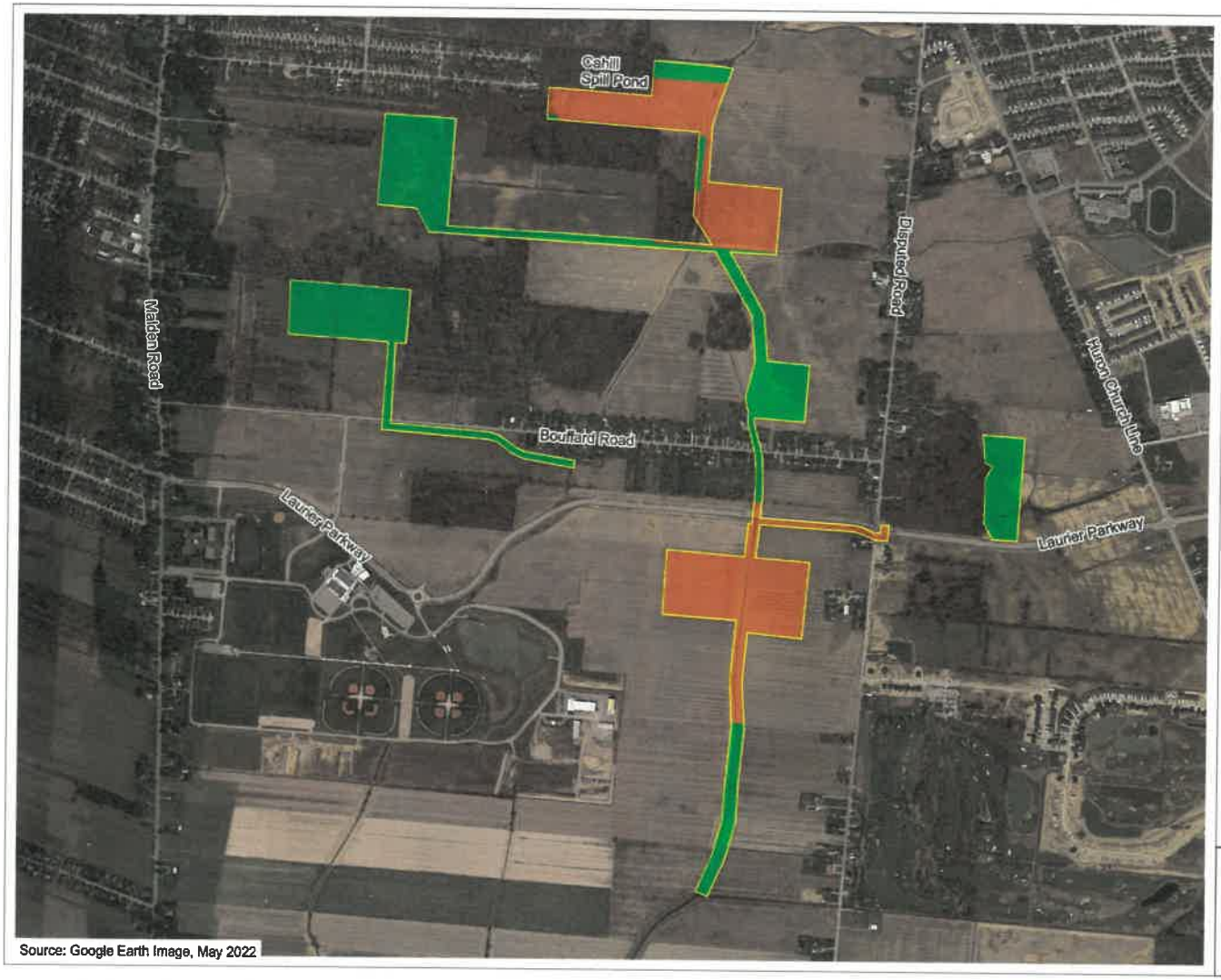
Existing Conditions – Cultural Heritage

Alternative 2



Existing Conditions – Cultural Heritage

Alternative 3



Source: Google Earth Image, May 2022

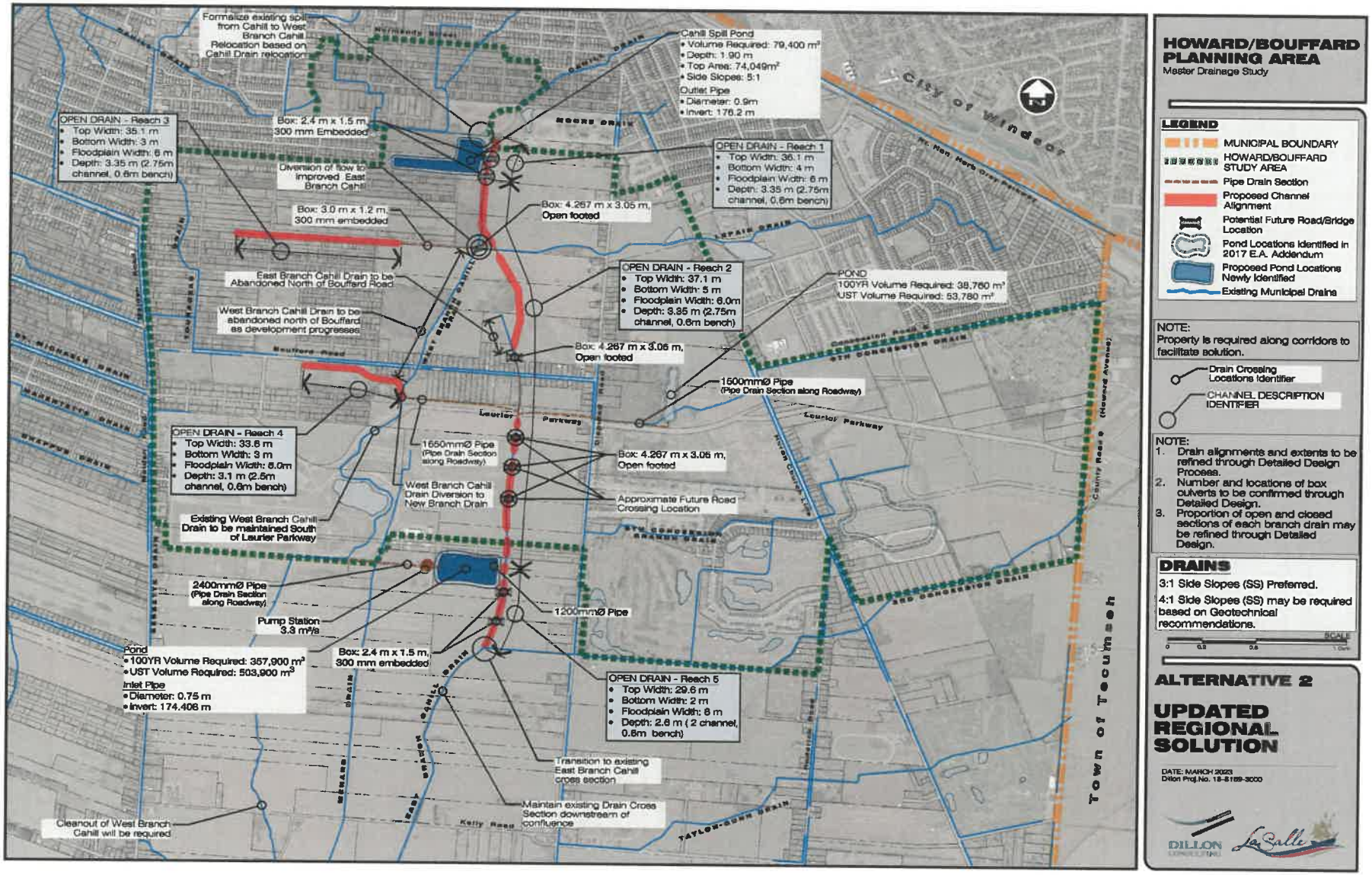
Alternative Solutions

	Alternative Solution	Description
Alternative 1*	Do Nothing	Maintain status quo – no drainage solution to address spillover
Alternative 2	Consolidate Stormwater to Regional Facility	Update of previous preferred solution (as presented at PIC #2)
Alternative 3	Local Stormwater Management Ponds	Builds on the solution as presented in the 2017 EA Addendum

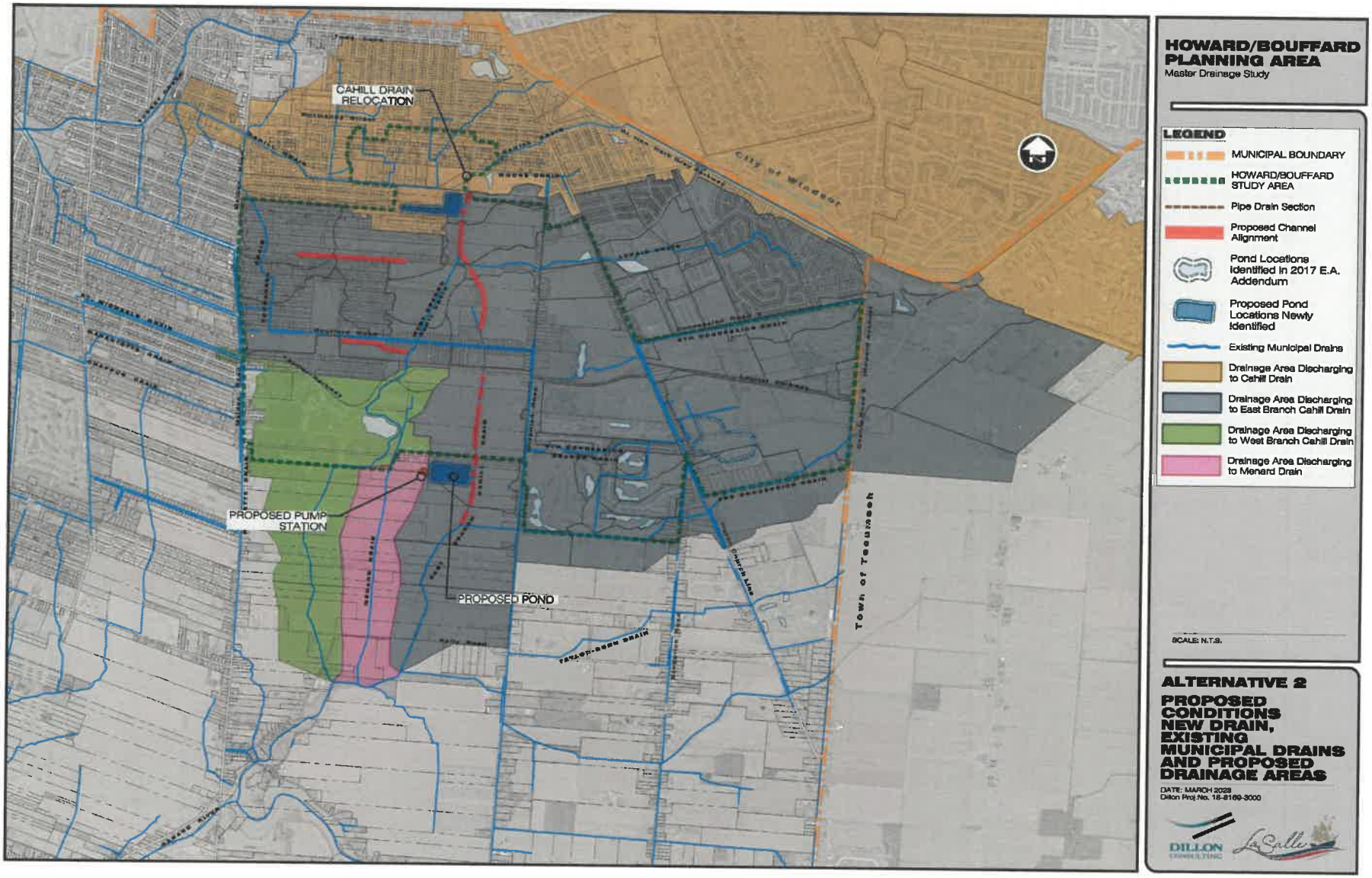
Evaluation of Alternative Solutions: A comparative evaluation for three alternative solutions was completed to identify the level of preference for each alternative solution in comparison to the others. The following categories were used for the evaluation: natural environment, socio-economic, cultural heritage, engineering, cost and timing of implementation.

***Alternative 1: Do Nothing** does not address the identified problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative is not considered further in the evaluation of alternatives.**

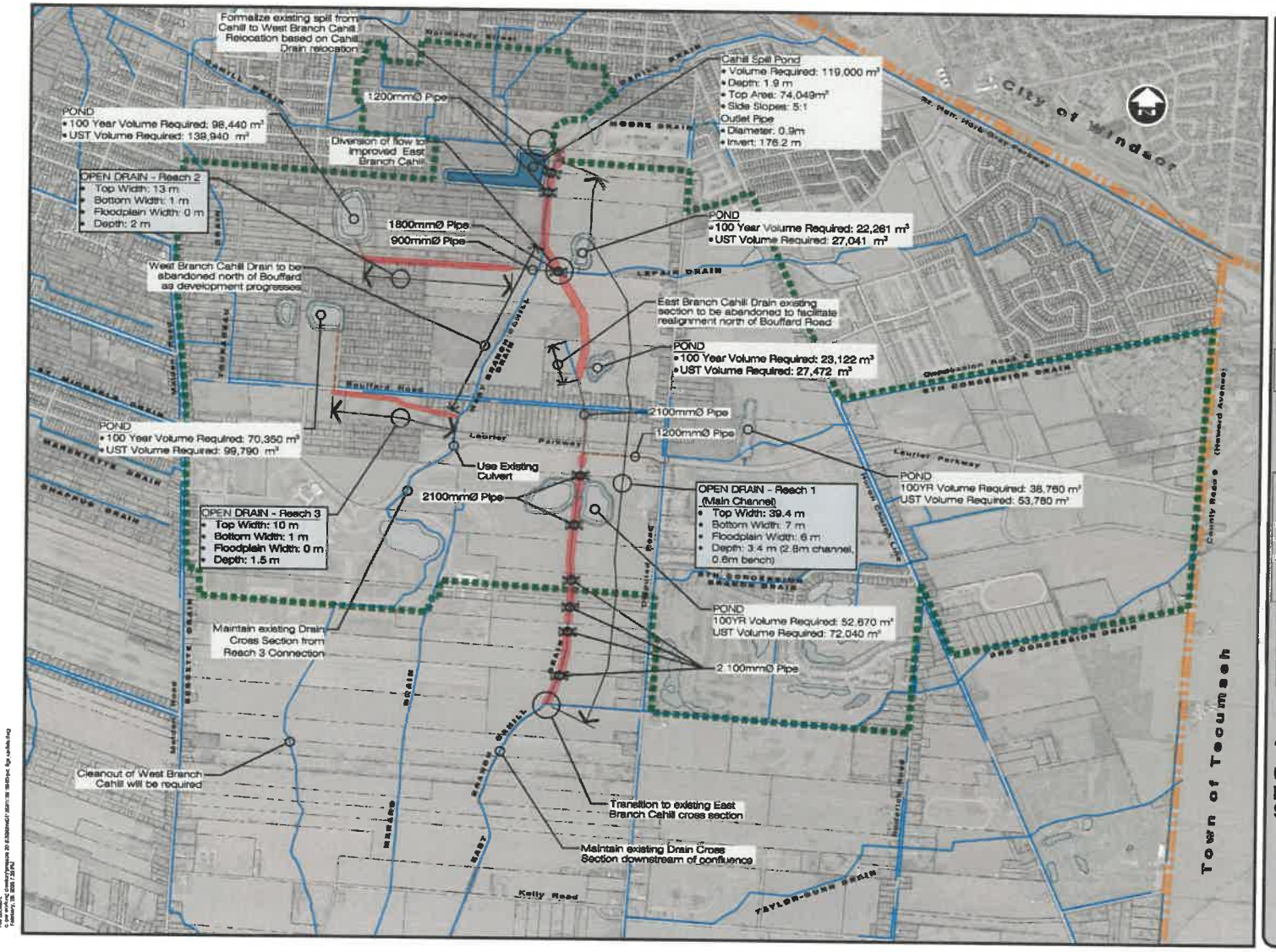
Alternative 2 – Regional Facility



Alternative 2 – Proposed Drainage Conditions



Alternative 3 – Local SWM Ponds



HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

LEGEND
- MUNICIPAL BOUNDARY
- HOWARD/BOUFFARD STUDY AREA
- Pipe Drain Section
- Proposed Channel Alignment
- Potential Future Road/Bridge Location
- Pond Locations Identified in 2017 E.A. Addendum
- Proposed Pond Locations Newly Identified
- Existing Municipal Drains

NOTE:
Property is required along corridors to facilitate solution.

- Drain Crossing Locations Identifier
- CHANNEL DESCRIPTION IDENTIFIER

NOTE:
1. Drain alignments and extents to be refined through Details Design Process.
2. Number and locations of box culverts to be confirmed through detailed design
3. Proportion of open and closed sections of each branch drain may be refined through Detailed Design.

DRAINS
3:1 Side Slopes (SS) Preferred.
4:1 Side Slopes (SS) may be required based on Geotechnical recommendations.

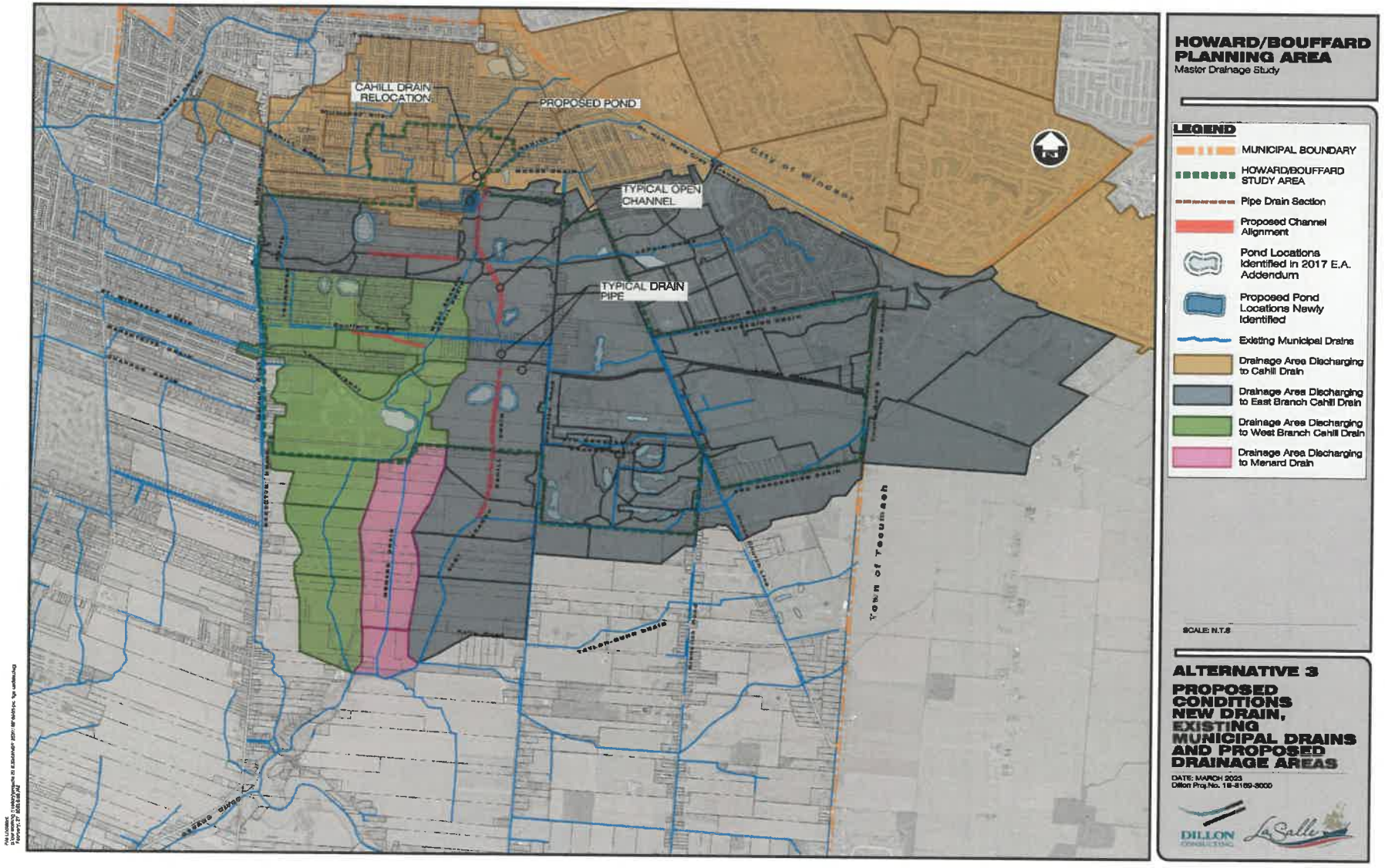
SCALE
0 0.2 0.5 1.0km

ALTERNATIVE 3

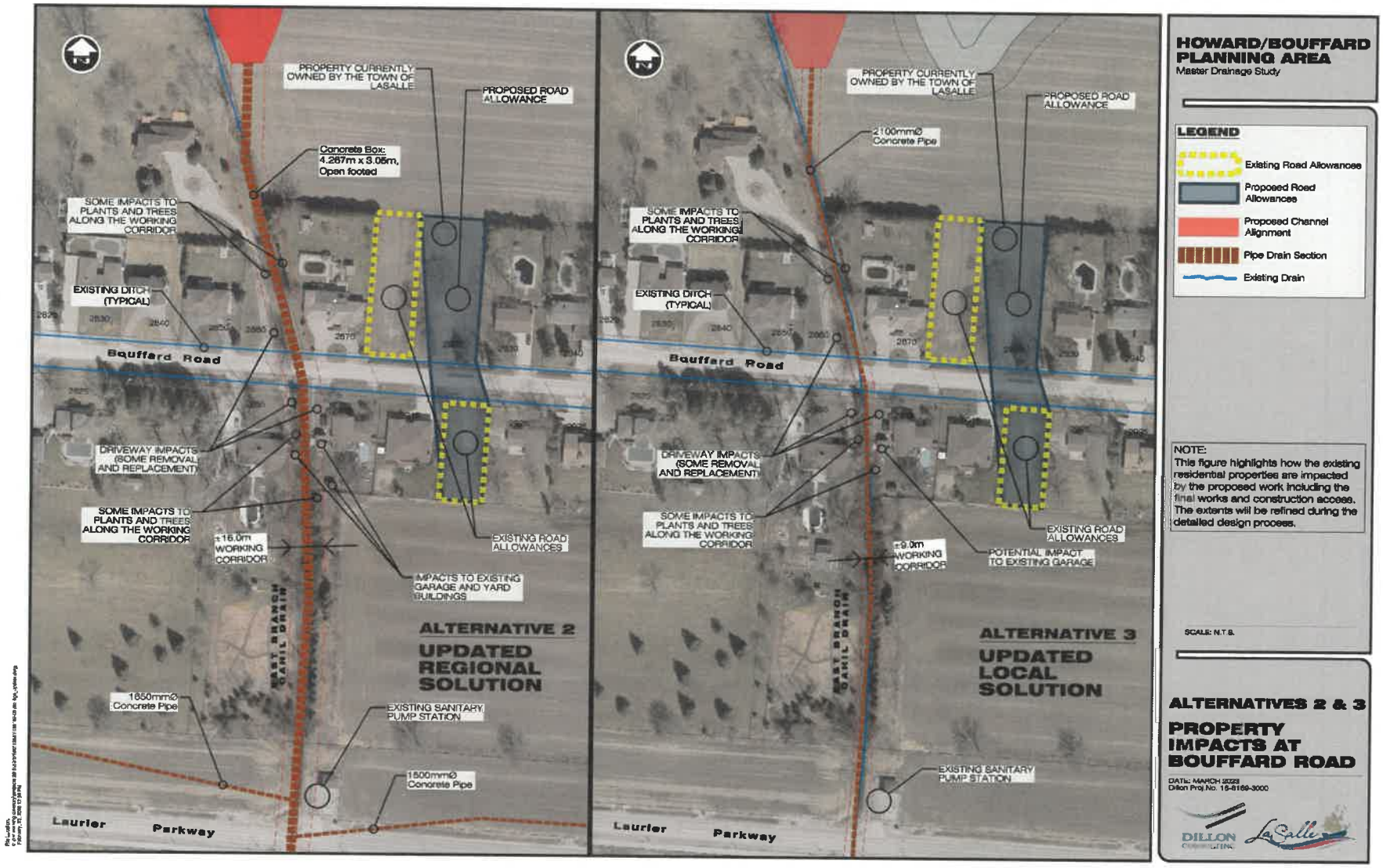
UPDATED LOCAL SOLUTION

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

Alternative 3 – Proposed Drainage Conditions



Alternatives 2 and 3 – Property Impacts



Evaluation of Alternatives – Natural Environment

Natural Environment Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Terrestrial Ecosystems	• Anticipated area of impact to natural environment communities		
Terrestrial Ecosystems	• Anticipated area of impact to Species at Risk / Species at Risk habitat and/or Significant Wildlife Habitat	Potential impact is considered equal	Potential impact is considered equal
Terrestrial Ecosystems	• Potential benefit for terrestrial ecosystems/connectivity	Potential benefit is considered equal	Potential benefit is considered equal
Aquatic Ecosystems	• Anticipated length of fish habitat and aquatic ecosystems to be impacted		
Aquatic Ecosystems	• Potential benefit to fish habitat and aquatic ecosystems		
Source Water Protection	• Potential impact on water sources for municipal drinking water systems	Stormwater management is not considered a threat to drinking water within the study area	Stormwater management is not considered a threat to drinking water within the study area

Natural Environment Evaluation Summary	**Alternative 3 is more preferred in terms of natural environment impacts.** Compared to Alternative 2, it is anticipated to have a lesser impact on both terrestrial and aquatic ecosystems, and has a greater potential for positive impacts to aquatic ecosystems. Specifically, Alternative 3: • Impacts approximately 0.92 hectares less natural environment communities, and avoids restoration areas • Impacts to Significant Wildlife Habitat and Species at Risk habitat are considered equal (0.1 hectare difference between alternatives) • Alters approximately 1,745 metres less of the Cahill Drain

EVALUATION LEGEND  **Most Preferred**  **Least Preferred**

***Alternative 1: Do Nothing** does not address the identifiec problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation of Alternatives – Socio-Economic

Socio-Economic Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Land Use	• Effectiveness in supporting existing and planned land uses for the area	Support for existing and planned land use is considered equal	Support for existing and planned land use is considered equal
Policies	• Alignment with policies in the local Official Plans and the Provincial Policy Statement, 2020	Alignment with policies is considered equal	Alignment with policies is considered equal
Community Impacts	• Anticipated impact to the local community during construction (noise, dust, traffic restrictions, duration of impacts) • Potential impact/benefit to public safety	Community impacts during construction and benefit to public safety is considered equal	Community impacts during construction and benefit to public safety is considered equal
Aesthetics	• Potential impact/benefit to the public realm (aesthetics, trails, recreational amenities)	Benefit to area aesthetics and recreational amenities is considered equal	Benefit to area aesthetics and recreational amenities is considered equal
Property Impacts	• Anticipated impacts to private property (including driveways, trees, aesthetics)		

Socio-Economic Evaluation Summary	**Alternative 3 is most preferred due to anticipating a lesser impact to private property** Alternatives 2 and 3 are equally preferred for the following socio-economic criterion: • Support the existing and planned land uses and policies for the area. • Temporary impacts to the local community during construction • Increase public safety due to decrease of overland flooding during storm events • Increase recreational amenities in the study area (through public ROW recreational areas adjacent to drains)

EVALUATION LEGEND  **Most Preferred**  **Least Preferred**

***Alternative 1: Do Nothing** does not address the identifiec problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation of Alternatives – Cultural Environment

Cultural Environment Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Archaeology	• Anticipated impacts to areas with archaeological potential	Potential impact is considered equal	Potential impact is considered equal
Cultural Heritage	• Potential impact to built heritage resources and cultural heritage landscapes	Potential impact is considered equal	Potential impact is considered equal
Cultural Environment Evaluation Summary	**Areas requiring Stage 2 investigations are present for both Alternative 2 and 3 and the potential impact is considered equal.** Alternative 2 will require less effort to complete a Stage 2 archaeological assessment compared to Alternative 3 based on shovel testing required.		

EVALUATION LEGEND — **Most Preferred** — **Least Preferred**

***Alternative 1: Do Nothing** does not address the identifiec problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation of Alternatives - Engineering

Engineering Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Drainage	• Ability to provide quantity control and flood protection	Ability to provide quantity control and flood protection is considered equal	Ability to provide quantity control and flood protection is considered equal
Permitting/ Approvals	• Potential challenges in obtaining permits and approvals	Alternatives require similar approvals (Conservation Authority, Provincial and Federal)	Alternatives require similar approvals (Conservation Authority, Provincial and Federal)
Utilities	• Anticipated impacts to existing municipal services and utilities	Alternatives require the relocation of various utilities to facility construction	Alternatives require the relocation of various utilities to facility construction
Construction Complexity	• Anticipated requirements for utility relocation or complex construction staging		
Engineering Evaluation Summary	**Alternative 3 is most preferred as it requires less, smaller enclosures, smaller and more shallow channels and does not require a regional pond and pump station.** Alternatives 2 and 3 are considered as having equal requirements for drainage, permitting/approvals and utility relocation.		

EVALUATION LEGEND  **Most Preferred**  **Least Preferred**

***Alternative 1: Do Nothing** does not address the identifiec problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation of Alternatives - Cost

Cost Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Capital Cost	• Estimated cost of implementation, including property acquisition costs		
Operational Costs	• Estimated operations and maintenance costs		
Future Flood Costs	• Estimated reduction in future flood damage costs	Estimated reduction in future flood damage costs are considered equal	Estimated reduction in future flood damage costs are considered equal

Cost Evaluation Summary	**Alternative 3 is most preferred as the costs for construction, property acquisition and Operation and Maintenance are much lower than Alternative 2.** **The estimate for Construction and Engineering for Alternative 2 is $54M. For Alternative 3 it is $18M.** **Property Acquisition is an additional cost.** In the case of both Alternatives, the excess material is assumed to be trucked away. There may be an opportunity to reduce the cost if some or all of the material can remain onsite. This will have to be reviewed further during detailed design. **The cost evaluation considers only the estimated cost of each alternative as presented. The local ponds and pump stations identified in Alternative 3 would be the responsibility of the developer and are <u>not</u> considered in the Evaluation of Alternatives.**

EVALUATION LEGEND  **Most Preferred**  **Least Preferred**

***Alternative 1: Do Nothing** does not address the identified problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation of Alternatives – Timing of Implementation

Timing Of Implementation Criteria	Metrics	Alternative 2 Regional Facility	Alternative 3 Local SWM Ponds
Timing of Implementation	• Estimated time required for project implementation		
Timing of Implementation Evaluation Summary	**Alternative 3 is most preferred as it will take less time to implement and more control over stormwater management for development lands is left with the developers.**		

EVALUATION LEGEND  **Most Preferred**  **Least Preferred**

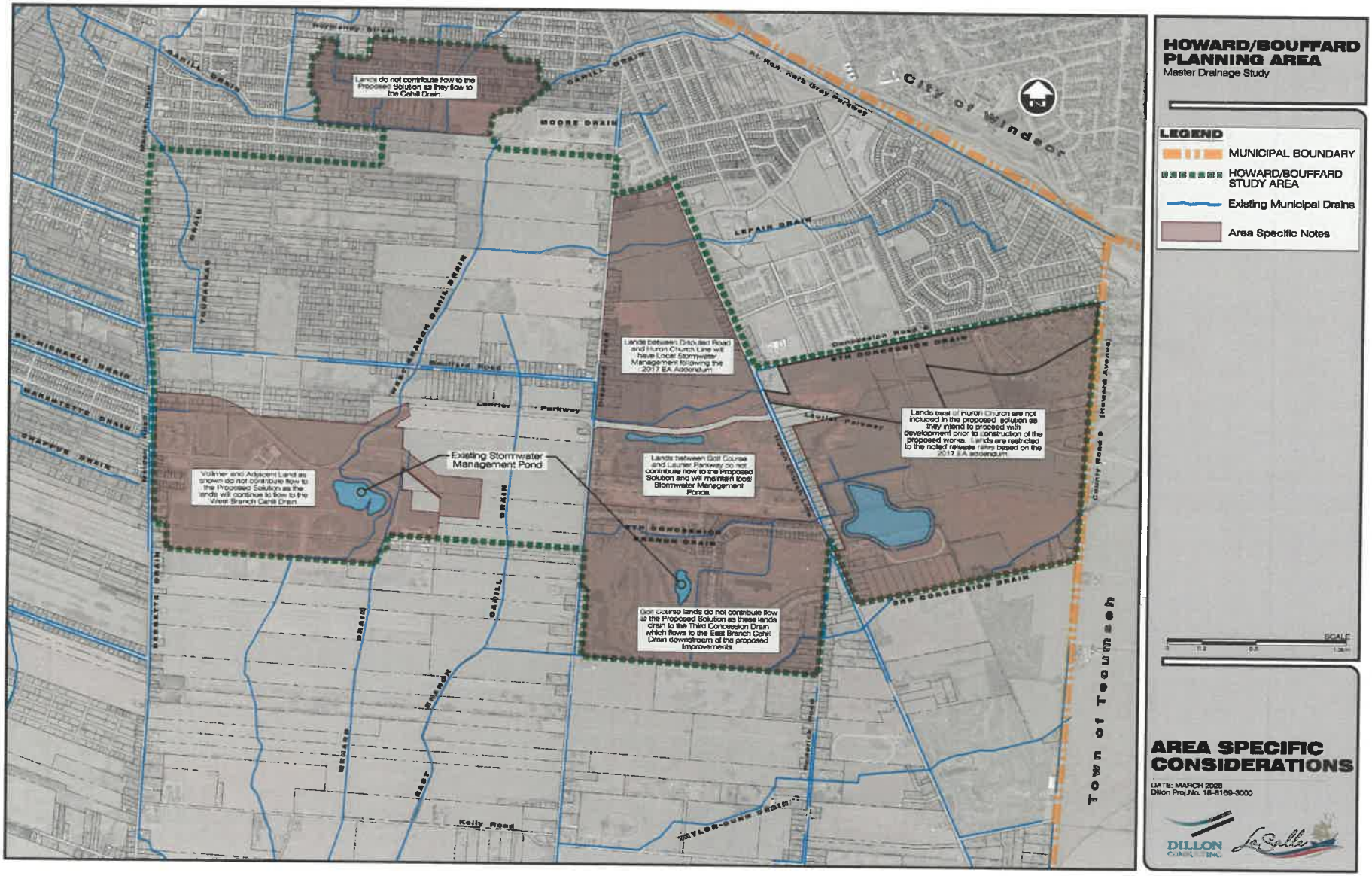
***Alternative 1: Do Nothing** does not address the identifiec problem statement requiring a solution to address overland flooding and support future development in the Study Area. **This Alternative was not considered further in the evaluation of alternatives.**

Evaluation Summary and Preferred Solution

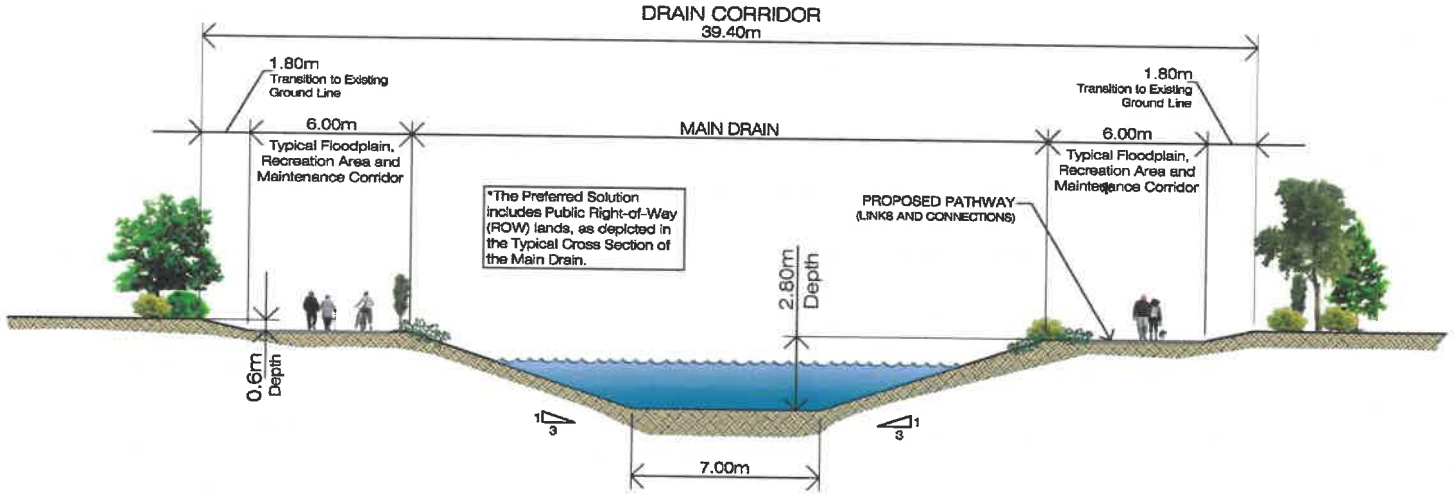
Category	Preferred Solution Determined by Evaluation
Natural Environment	**Alternative 3 – Local SWM Ponds**
Socio-Economic Environment	**Alternative 3 – Local SWM Ponds**
Cultural Environment	**Alternatives are considered equal**
Engineering	**Alternative 3 – Local SWM Ponds**
Cost	**Alternative 3 – Local SWM Ponds**
Timing of Implementation	**Alternative 3 – Local SWM Ponds**

Based on the Evaluation of Alternatives, it was determined that **Alternative 3 – Local SWM Ponds is the Preferred Solution**

Area Specific Considerations



Preferred Solution – Typical Cross Section



TYPICAL CROSS SECTION

HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

Maximum Ponding Depths in Floodplain is 0.3m for 100yr, 24hr. Chicago Storm.

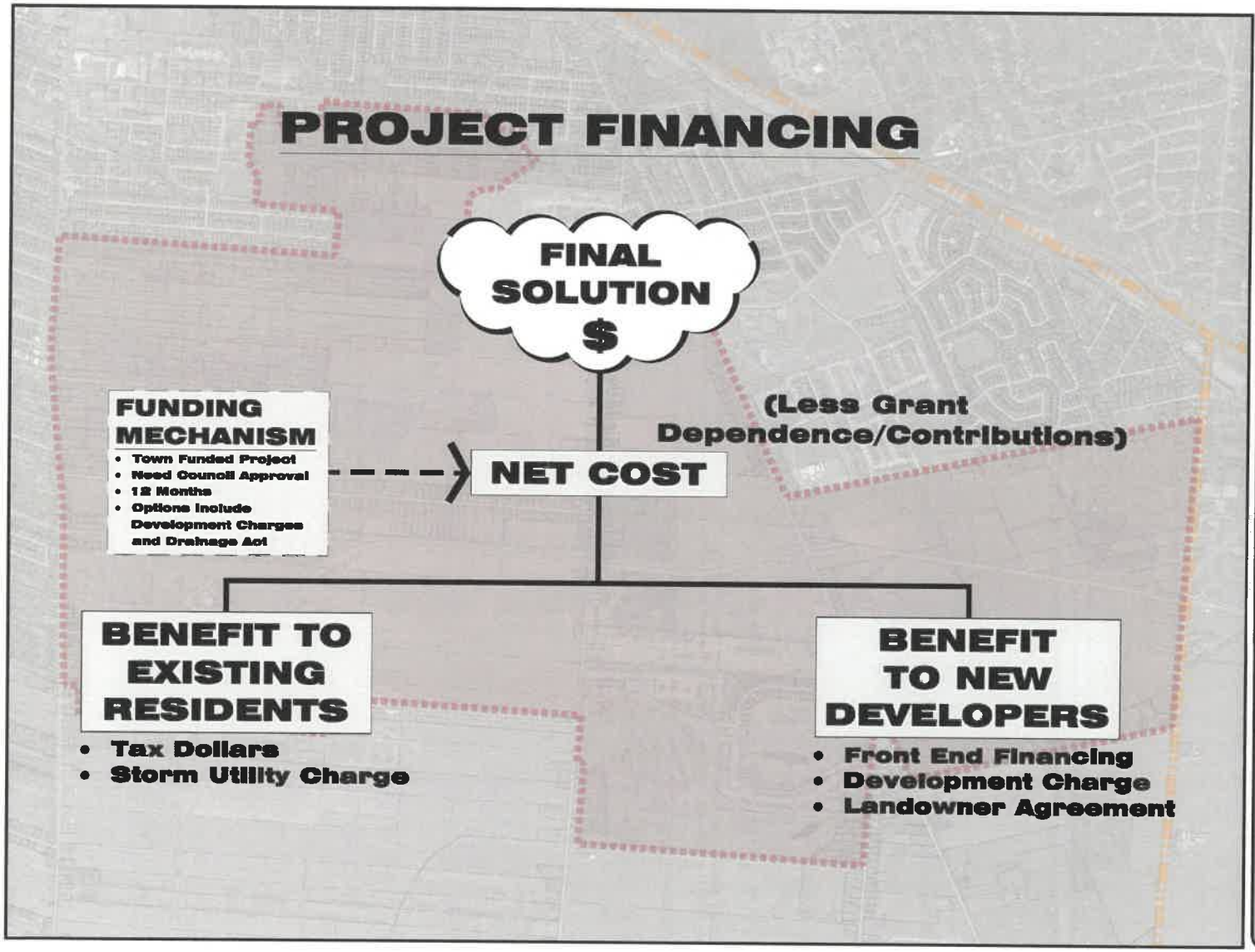
SCALE: N.T.S.

ALTERNATIVE 3

TYPICAL DRAIN CROSS SECTION

DATE: MARCH 2023
Dillon Proj.No. 18-8189-3000

Project Financing



HOWARD/BOUFFARD PLANNING AREA
Master Drainage Study

* The Drainage Act is currently the preferred mechanism to formalize the implementation of the project including refining the design, project costs and confirming the assessments to the contributing lands. The Drainage Act provides a mechanism to ensure that upstream lands contribute to the project cost.

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

Anticipated Project Timeline

	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025
1. Final Master Drainage Study (Public Process)		X	X									
2. Financing Solutions • Drainage Act • Agreements • Development Charges (Public Process)				X	X	X	X					
3. Preliminary Development Plans						X	X	X	X			
4. Agency Approvals								X	X			
5. Tender and Construction										X	X	X
6. Development Design and Construction									X	X	X	X

Notes:

- All works beyond Final Master Drainage Study require Council Approval
- Preliminary Schedule shown is based on no objections throughout the various public process'
- Development Approval to begin in 2025
- Tender and Construction extends beyond Q4 2025

We Need Your Participation

Feedback from the public and the development community is vital as this project sets the basis for future development of a key part of LaSalle.

- These display slides and an opportunity to comment will be available on PlaceSpeak
- Comment forms are also available today and can be submitted at or following this PIC
- You can contact the project leads below via email, mail, or phone.

Please provide your comments by:

March 31, 2023

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Project website: www.lasalle.ca/hbmds