



Town of Wasaga Beach Constance Boulevard Drainage Improvements Schedule 'C' Municipal Class Environmental Assessment

Public Information Centre No. 2

June 23, 2022



Introduction

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- Project Manager
- Engineering Lead



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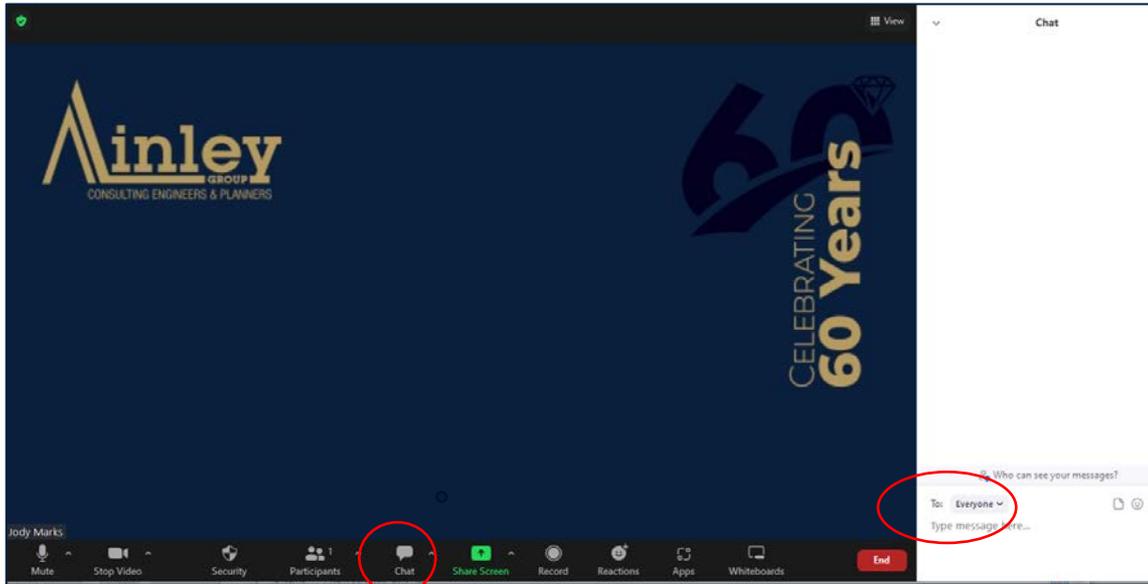
- Class Environmental Assessment Lead



Agenda

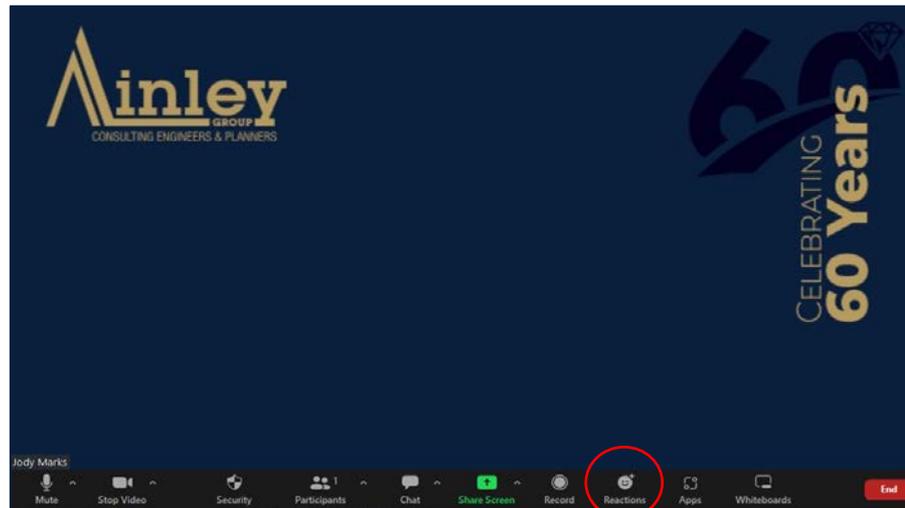
1. Virtual Engagement
2. Purpose of Public Information Centre (PIC) No. 2
3. Project Overview
4. Results of Phase 2 Evaluation
5. Design Concepts
6. Comment Period 1
7. Evaluation of Design Concepts
8. Next Steps
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Virtual Engagement



Chat Feature

- TO: Everyone
- Type and send your comment or question
- A project team member will read out loud on your behalf.

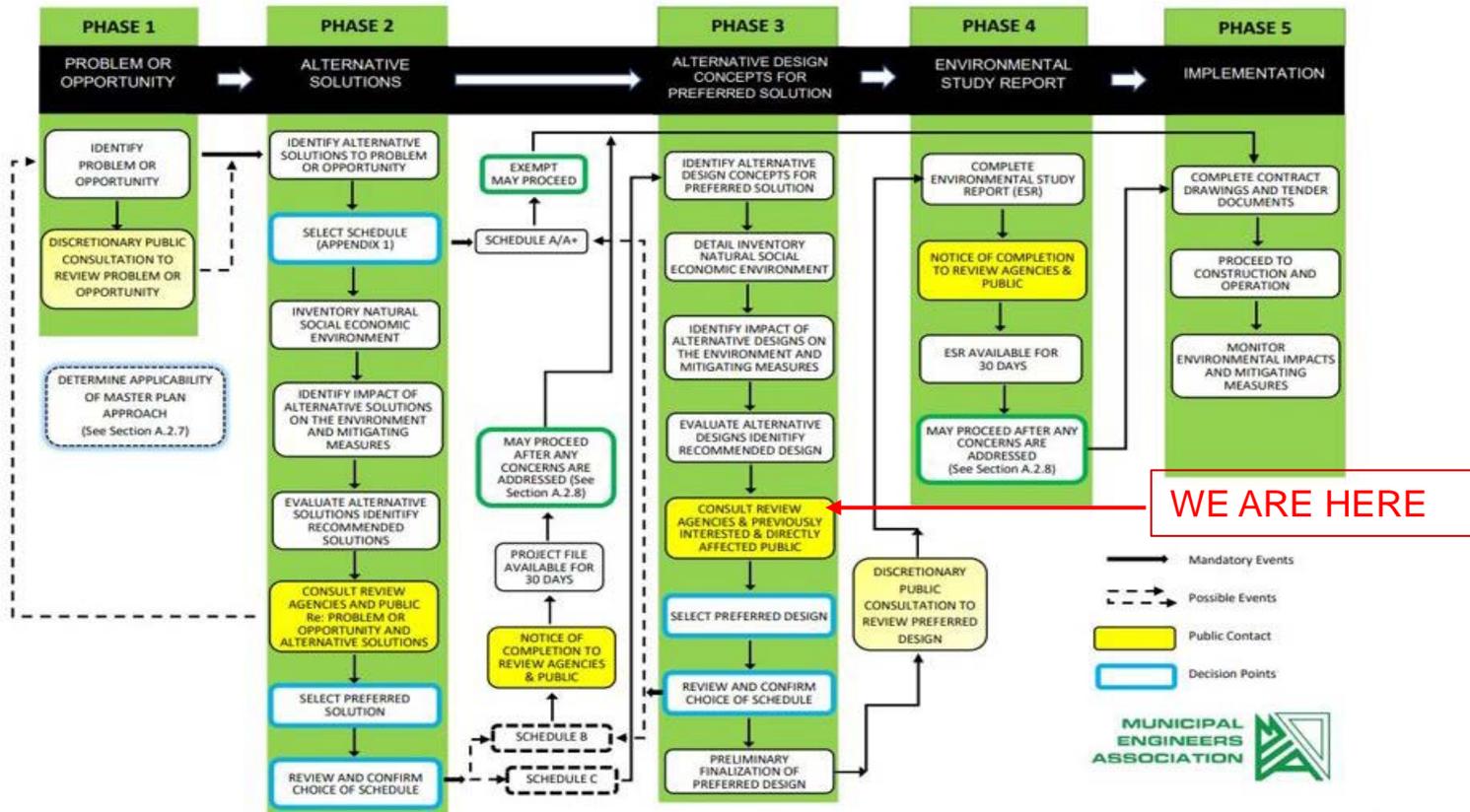


Raise Hand Feature

- A hand icon will appear on your video for the host to see.
- Indicates you would like to ask a question directly.
- The host will unmute your microphone when you are called on.

Purpose

The purpose of this PIC is to present various design concepts that have been developed to implement the Preferred Solution selected during Phase 2. Consultation is an important part of the Class Environmental Assessment process, public input is encouraged and will be considered throughout the project process.



Project Overview

- The Town of Wasaga Beach has undertaken a Municipal Class Environmental Assessment (Class EA) to identify a suitable solution for reducing the probability of flooding events in the area of Constance Boulevard and Thomas Street to Bayswater Drive, particularly in consideration of snow melt occurrences as well as increased rainfall intensities expected due to climate change.



- The current capacity of the side road ditch along Constance Boulevard in this area is insufficient to contain larger stormwater events and results in flooding.
- The study area (outlined roughly in red) is focused around the corridors of Thomas Street, Bayswater Drive, and the segment of Constance Boulevard that runs parallel to the shoreline of Georgian Bay.

*The Town is undertaking a 2D hydraulic model specific to the area of George Ave., Marilyn Ave. South, and Robert St. South. This undertaking (area boundary outlined roughly in yellow and beyond) is a separate project and being conducted under the Drainage Master Plan.

Project Overview

- The Class EA process requires the evaluation of potential alternative solutions and design concepts so as to select a suitable approach that will address the problem or opportunity, but also keep impacts to a minimum.
- During Phase 2, various background field studies were completed to determine existing environmental conditions to assist with identify any potential impacts from the alternative solutions proposed.
 - Cultural Heritage Resource Assessment
 - Stage 1 Archaeological Assessment
 - Natural Heritage Preliminary Constraints Investigation
- As part of Phase 2, the Town hosted a virtual PIC No. 1 on March 3, 2022. This PIC presented alternative solutions under consideration for consultation and input from stakeholders and interested parties.
- The PIC No. 1 material can be reviewed at the following link, please note that the comment period on the material has since closed.
<https://www.wasagabeach.com/en/town-and-government/engineering-services.aspx#Environmental-Assessment-Studies>

Results of Phase 2 Evaluation

- The alternative solutions developed for consideration under Phase 2 to address the problem or opportunity:
 - Option 1 - “Do Nothing”/Status Quo
 - **Option 2 - Create New Outlet to the Bay through Property at 18 Constance Boulevard**
 - Option 3 - Increase Capacity of Constance Boulevard Ditch to Outlet North of Bayswater Drive
 - Option 4A - Redirect Drainage to Other Private Lands
 - Option 4B - Redirect Drainage to Other Private Lands
- Each of the alternatives were evaluated based on their potential impact to the study area environment (physical, natural, cultural, and socio-economic).
- Given the results of the evaluation and review of input received, Option 2 has been selected as the Preferred Solution.



Design Concepts

As part of Phase 3 of the Class EA process, several design concepts have been developed for consideration to implement the Preferred Solution.

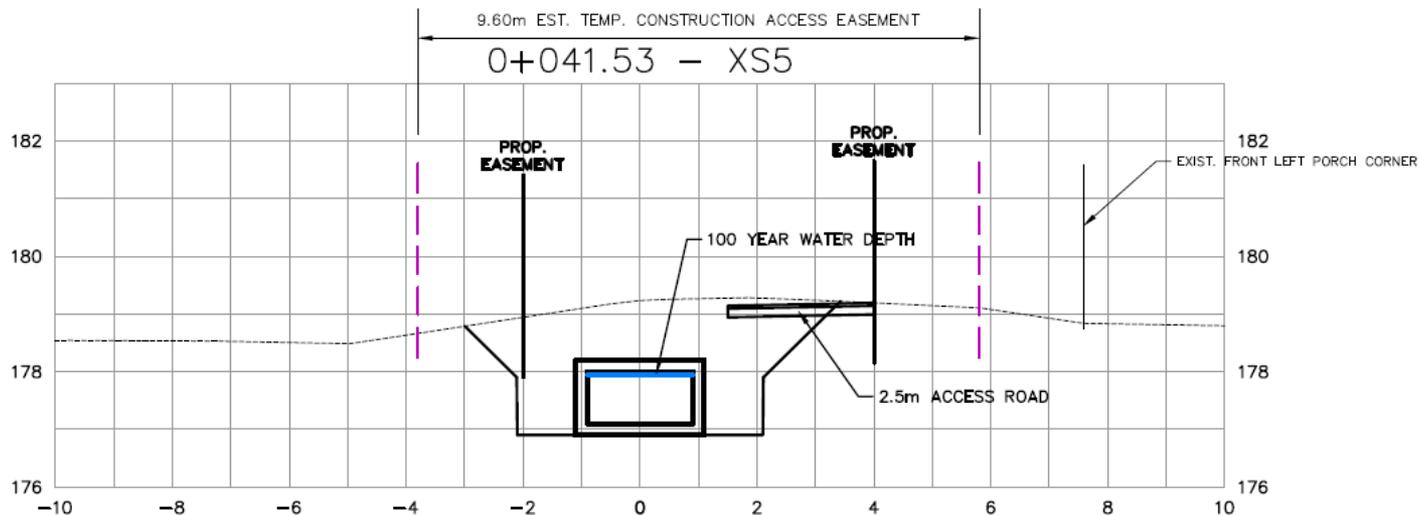
- Alternative 1 – Skewed Alignment with a Culvert Extension
- Alternative 2 – Skewed Alignment with Open Channel, Slope of 3:1
- Alternative 3 – Straight Alignment with Culvert Extension
- Alternative 4 – Skewed Alignment with Open Channel, Slope of 2:1
- Alternative 5 – Skewed Alignment with Open Channel and Retaining Wall, Slope of 2:1

Further details of each concept will be discussed in the follow slides.

Design Concepts

Alternative 1 – Skewed Alignment with a Culvert Extension

- A concrete culvert installed under Constance Boulevard. The current culvert under Thomas Street that outlets to the Constance Boulevard ditch will remain in place.
- New concrete box culvert extension 1800 x 900mm (width and height).
- Access road for maintenance would be adjacent to the culvert extension.
- Total easement width required would be approximately 9.6m for construction, with the possibility post construction the easement width reduced 6m.



Design Concepts

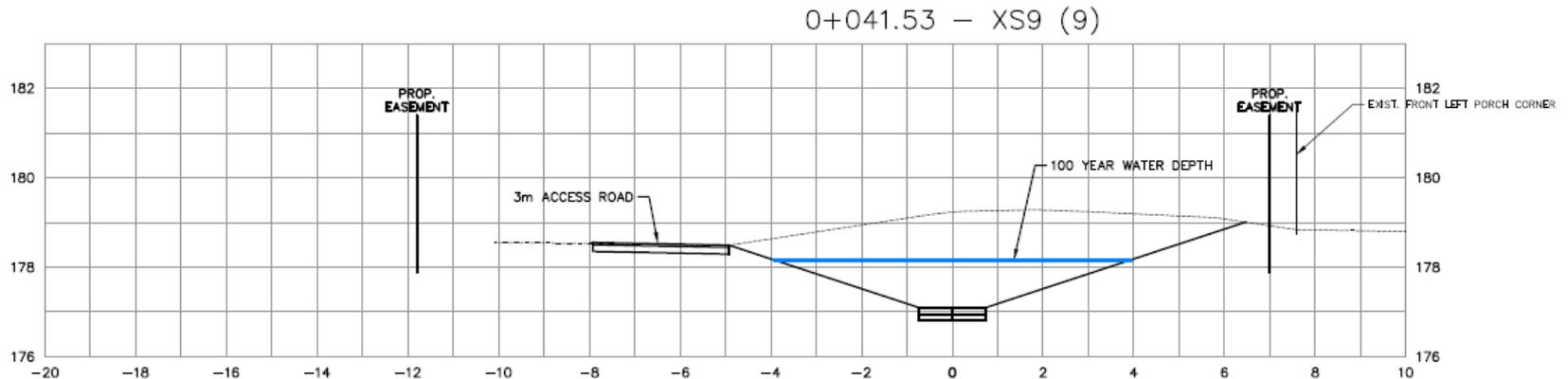
Alternative 1 – Skewed Alignment with a Culvert Extension



Design Concepts

Alternative 2 – Skewed Alignment with Open Channel Slope of 3:1

- A concrete culvert installed under Constance Boulevard. The current culvert under Thomas Street that outlets to the Constance Boulevard ditch will remain in place.
- 1.5m flat bottom channel with a 3:1 side slope
- Access road for maintenance would be adjacent to channel.
- Total easement width required would be approximately 18.8m.
- Perimeter fencing installed around perimeter for public safety.



Design Concepts

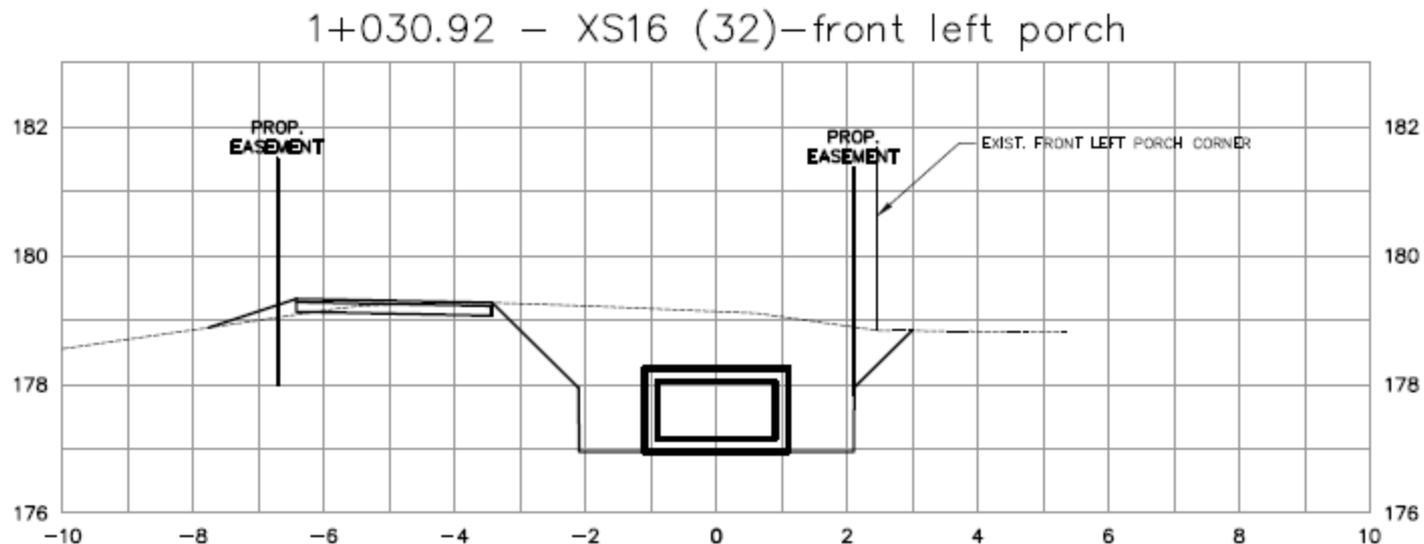
Alternative 2 – Skewed Alignment with Open Channel Slope of 3:1



Design Concepts

Alternative 3 – Straight Alignment with Culvert Extension

- Concrete culvert installed under Constance Boulevard. Current culvert under Thomas Street that outlets to the Constance Boulevard ditch will remain in place.
- New concrete box culvert extension 1800 x 900mm (width and height)
- Access road for maintenance would be adjacent to the culvert extension
- Total easement width required would be approximately 8.8m.



Design Concepts

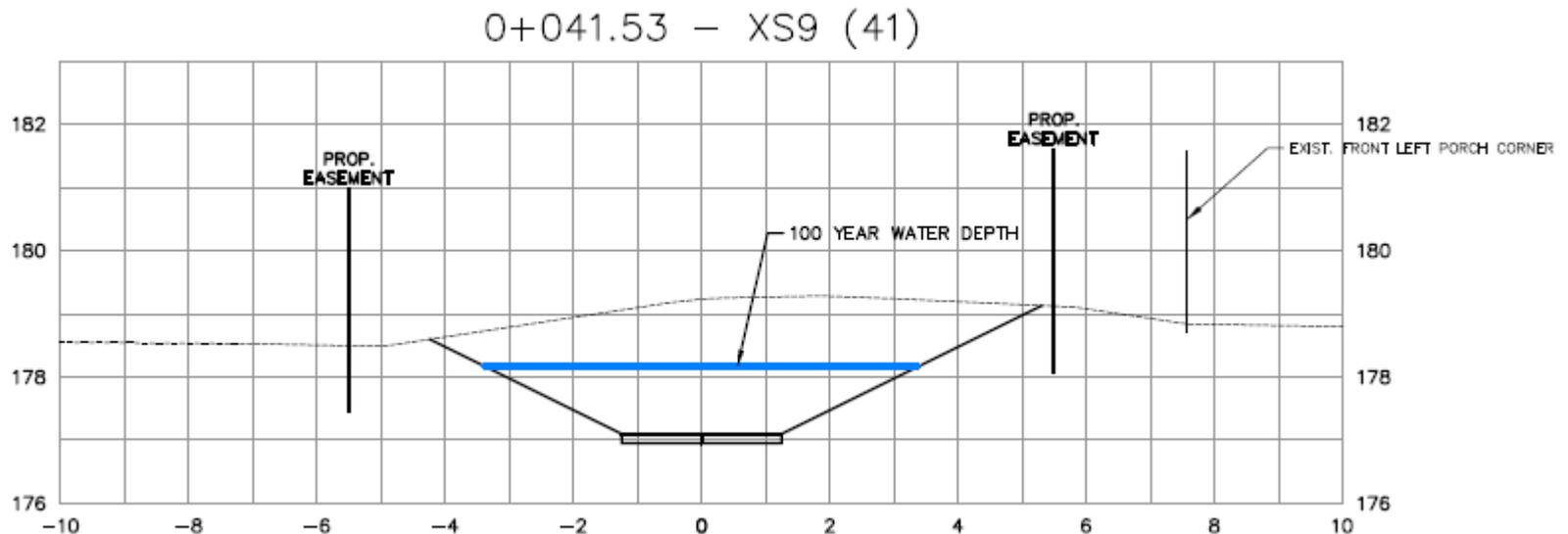
Alternative 3 – Straight Alignment with Culvert Extension



Design Concepts

Alternative 4 – Skewed Alignment with Open Channel Slope of 2:1

- Concrete culvert installed under Constance Boulevard. Current culvert under Thomas Street that outlets to the Constance Boulevard ditch will remain in place.
- 2.5m flat bottom channel with a 2:1 side slope.
- Access road for maintenance would be accommodated inside the channel.
- Total easement width required would be approximately 11m.
- Perimeter fencing installed around perimeter for public safety.



Design Concepts

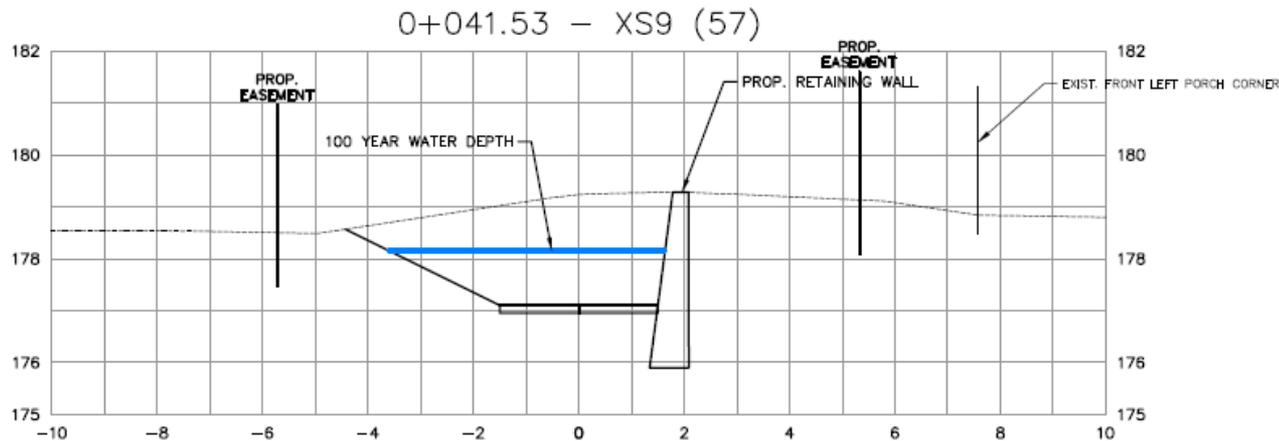
Alternative 4 – Skewed Alignment with Open Channel Slope of 2:1



Design Concepts

Alternative 5 – Skewed Alignment with Open Channel and Retaining Wall Slope of 2:1

- Concrete culvert installed under Constance Boulevard. Current culvert under Thomas Street that outlets to the Constance Boulevard ditch will remain in place.
- 3.0m flat bottom channel with a 2:1 side slope
- Access road for maintenance would be accommodated inside the channel
- A retaining wall would be constructed on the south eastern side of the channel for the section of channel in proximity to the existing structure.
- Total easement width required would be approximately 11m.
- Perimeter fencing installed around perimeter for public safety.



Design Concepts

Alternative 5 – Skewed Alignment with Open Channel and Retaining Wall Slope of 2:1



Comment Period 1

Evaluation of Design Concepts

- Each of the alternatives were evaluated based on their potential impact to the study area environment (physical, natural, cultural, and socio-economic).
- The evaluation is presented in a table or matrix to provide a simplified, visual comparison.

Legend:

Positive	Positive Neutral	Neutral	Negative Neutral	Negative
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- Green represents the most preferred option, as it will address the key concerns, but create the least amount of environmental impact.
- Red is indicative of a least preferred option as it has a higher potential to impact the environment.
- A blank space indicates that the impact is considered neutral

Evaluation of Design Concepts

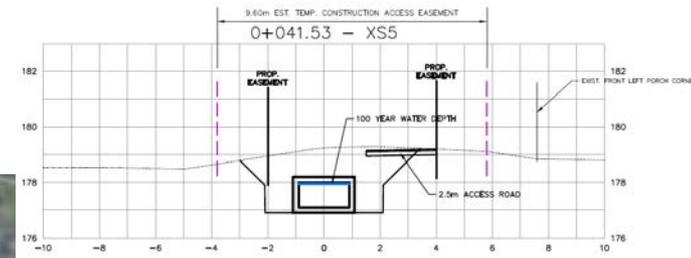
EVALUATION CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	DESCRIPTION OF IMPACTS
PHYSICAL ENVIRONMENT						
Expected Performance						All design alternatives are expected to perform equally. The 100-year water depth at the critical cross-section for each of the alternatives are comparable as the depth is within in <2cm difference for culvert designs and open channel designs.
Constructability						An open channel design is considered easier to construct than a culvert design. Alternatives 3, 4, and 5 will be subject to the Ontario Building Code to protect the existing structure.
Erosion Potential						Under Alternatives 1 and 3 erosion along the length of the culvert extension is not likely as the box culvert is underground. There is potential for erosion at the outlet to the bay due to the velocity of water exiting the culvert, however mitigation measures can be implemented to reduce the impacts. Under Alternatives 2, 4 and 5 there is potential for erosion of the exposed channel side slopes.
Required Easement						The open channel design of Alternative 2 will require the largest easement width. While the designs of Alternatives 1 and 3 have the smallest easement width, the alignment of Alternative 3 brings the limit of the easement within the closest proximity to the existing structure. The required easement to implement Alternatives 4 and 5 are considered mid-range when compared to the other Alternatives.
Safety						The design of the culvert extension as part of Alternatives 1 and 3 places the culvert underground, with no exposed water flow or depth. Alternatives 2, 4 and 5 propose an open channel that could potential be a safety concern, however secure fencing will be installed around the perimeter of the open channel to ensure safety.
Maintenance						Alternative 1 is on a skewed alignment, creating a 'bend' in the flow of water from the culvert under Constance Boulevard, which may create blockages and require more frequent maintenance. Alternative 3 has a straight alignment, however underground culverts still can pose challenges to maintenance. Alternatives 2, 4 and 5 have an open channel design allowing for ease of maintenance and visual inspection.
NATURAL ENVIRONMENT						
Terrestrial (Includes SAR)						No Species at Risk (SAR) habitat is present within the project area. Under Alternative 2, tree removal will be required and potentially as part of Alternatives 4 and 5. It is anticipated that tree removal would not be required as part of Alternatives 1 and 3.

Evaluation of Design Concepts

EVALUATION CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	DESCRIPTION OF IMPACTS
NATURAL ENVIRONMENT						
Fish Habitat (Includes SAR)						Under all Alternatives the project will require submission to Fisheries and Oceans Canada for review. The project is not anticipated to negatively impact fish or fish habitat.
SOCIAL ENVIRONMENT						
Cultural Heritage & Archaeological						Each alternative is considered to have potential to impact possible archaeological resources, further field investigation is required to confirm. The area of the shoreline (classified as a Cultural Heritage Landscape) is beyond the scope of this project and mitigation measures have been addressed through the proposed West End Depot ditch.
Property Impacts						Alternative 1 proposes a design that has the smallest easement in comparison and utilizes the existing driveway. Alternatives 2 and 3 propose designs that, at the critical cross section, are the closest to the existing structure. Alternatives 4 and 5 propose the same easement width, however the retaining wall of Alternative 5 minimize the proximity of the channel to the existing structure on private property.
Climate Change						All of the Alternatives are expected to provide flood relief and create a more resilient system to the affects of climate change within the local community.
ECONOMIC ENVIRONMENT						
Construction Costs						Construction costs associated with the concrete box culvert under Alternatives 1 and 3 creates an overall higher cost, compared to the construction material and complexity of the open channel as part of Alternatives 2, 4 and 5. Alternative 5 includes the construction of a retaining wall, which will somewhat increase costs in comparison.
Operating and Maintenance Costs						Alternative 1 is on a skewed alignment, creating a 'bend' in the flow of water from the culvert under Constance Boulevard and may require more frequent maintenance to remove blockages. Alternatives 4 and 5 may require more frequent maintenance due to the steeper slope of 2:1.
TOTALS						
						The Design Concepts have been ranked using the evaluation of all criteria to select a design that will implement the Preferred Solution, but also keep impacts to a minimum.

Preliminary Preferred Design

- The results of the initial evaluation have identified the preliminary preferred design as **Alternative 1: Skewed Alignment with a Culvert Extension**



Next Steps

- All PIC material will be available on the Engineering Services – Environmental Assessment Studies page of www.wasagabeach.com
- The Project Team will receive comments for consideration until **July 7, 2022**. The project team will review input received and select the Preferred Design Solution. The project will move into Phase 4 of the Class EA process.
- During Phase 4, an Environmental Study Report (ESR) will be published that will document the Class EA process for this project and include the selected Preferred Design Solution and any mitigation measures. The ESR will be available for public and stakeholder comment.
- A Notice of Completion will be published to advise the public of the completion of the ESR and provide information on how to access the report and provide comment.

Comments

We invite you to provide any comments in writing via email.

All comments are to be submitted by **July 7, 2022** to one of the following members of the Project Team:

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Thank you for your attendance at this meeting!
We appreciate your participation.

MUNICIPAL FREEDOM OF INFORMATION & PROTECTION OF PRIVACY ACT

Comments and information regarding this project are being collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act for the purpose of meeting environmental assessment requirements. With the exception of personal information, all comments received will become part of the public record.