

**Welcome**

**Town of Cobourg  
Midtown Creek Flood Ponding Area and  
Kerr Street Extension from Division Street to the Railway Spur**

**Schedule C Municipal Class Environmental Assessment**

**Public Information Centre No. 3  
- Open House -**

January 25, 2018

Please sign in and take an information package and comment sheet.

Feel free to provide written input or comment using the comment sheets provided or by contacting the identified representatives of the Town of Cobourg or its consultant for this project (D.M. Wills Associates Limited).

Representatives of the Town of Cobourg and D.M. Wills Associates Limited are available to discuss questions or concerns you may have regarding this project.



Town of Cobourg  
Midtown Creek and Kerr Street -Municipal Class EA  
Public Information Centre #3

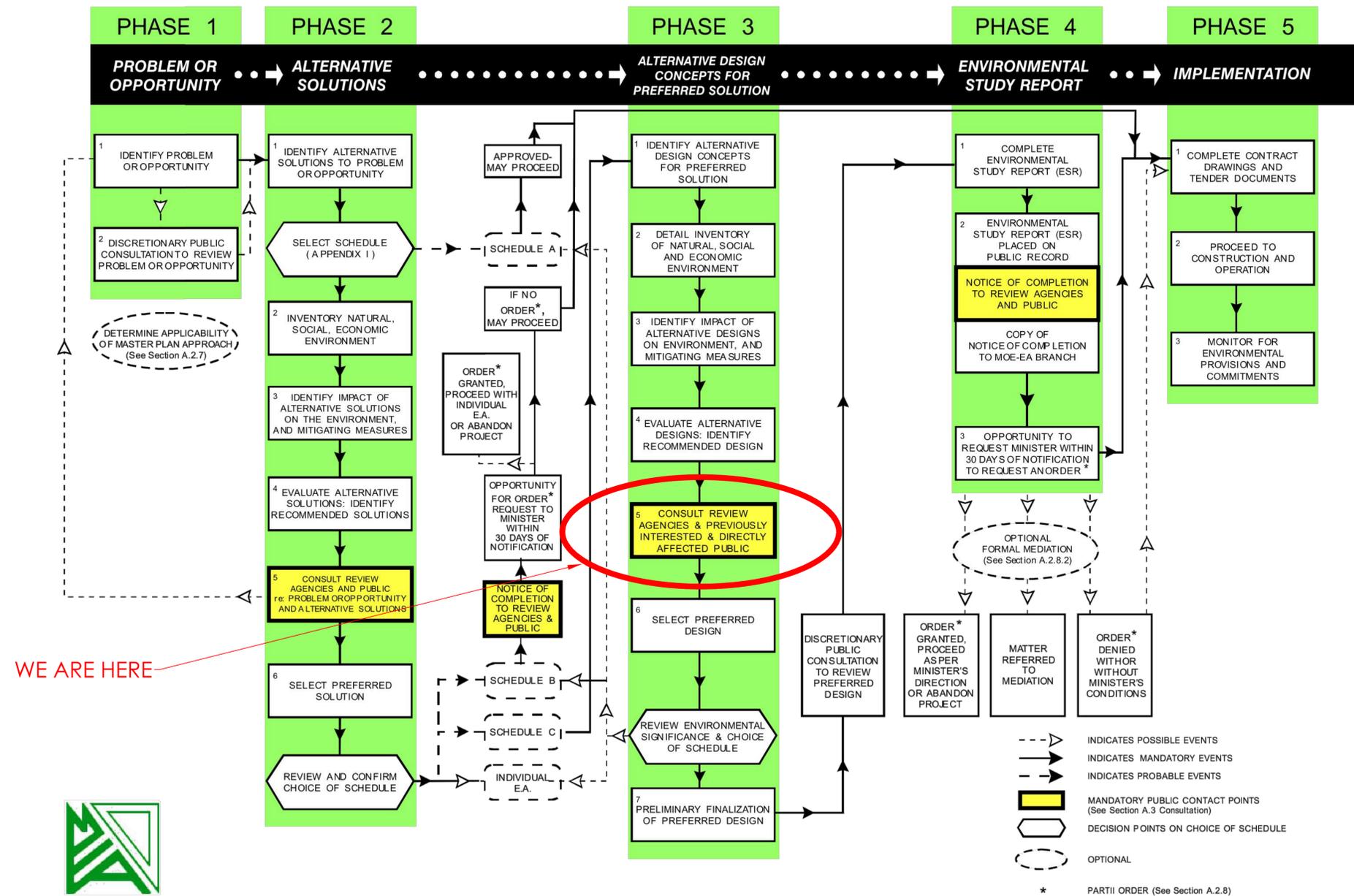


# Municipal Class Environmental Assessment Process

**EXHIBIT A.2**

## MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

*NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA*



# Problem or Opportunity

## Identification of Problem or Opportunity

### General Location Plan



### Problem / Opportunity Statement

- **The study will identify and evaluate alternatives to maximize flood protection for downstream properties within the Midtown Creek floodplain as a result of the extension of Kerr Street between Division Street and the railway spur.**

### Study Area

- The Study Area generally covers the area north of the Canadian National Railway (CNR) and Canadian Pacific Railway (CPR) tracks, south of the rear lots of the properties on Ballantine Street, west of Division Street and east of the rear lots of the properties on Sutherland Crescent and Gillett Court.
- The Study Area includes the light industrial and residential lands fronting on Division Street, Buchanan Street, George Street and Station Street, the Kerr Street right of way and a railway spur that provides access to the rear of the Canada Pallet Company property.
- Midtown Creek generally flows from north to south through the study area with culvert crossings at Division Street, the railway spur, Buchanan Street, George Street and Station Street and the CNR/CPR tracks. There is currently an open channel through the former railway embankment that is contained within the Kerr Street ROW.

### Purpose of Study

- The provision of Kerr Street as additional east-west capacity will enhance distribution throughout the Town of Cobourg and increase the capacity life of the existing road network. Vehicular traffic volumes on existing east-west, as well as north-south routes within the Town of Cobourg will continue to increase steadily with the growth of the Town through area developments and infilling of lands.
- Construction of this portion of the Kerr Street extension will create overbank ponding along Midtown Creek, upstream of the roadway that will protect existing structures in the floodplain between the proposed Kerr Street extension and the existing railway corridor to the south. Excavation of soil from lands to the north of the proposed Kerr Street extension will increase the ponding of water and thereby further increase flood protection.

### Public and Review Agency Consultation

- PIC #2 was conducted on November 29, 2017 where alternative solutions were presented and the preferred alternative solution was identified as Alternative #3, an on-line pond upstream of the proposed Kerr Street.
- A "Notice of Public Information Centre" was previously published in local newspaper(s), posted on the Town of Cobourg website and sent to review agencies and identified stakeholders.
- This Public Information Centre (PIC) is intended to present alternative design concepts and to select a preferred alternative design concept and provide an opportunity for members of the public to review and discuss the project with the Town of Cobourg and its representatives, provide input for consideration during the planning of this project, express any concerns with respect to proposed alternatives and discuss potential impacts associated with construction related to the project.

# Inventory of Natural, Social and Economic Environment

## Water Resources

- There is a history of flooding along Midtown Creek upstream of the CNR and CPR corridor that has caused substantial flood damages to private properties in the area of Buchanan Street, George Street and Station Street as well as frequent flooding of the Division Street Railway Underpass.



January 2010 Flooding at George Street and Buchanan Street

- Following the January 2010 flood, the Town of Cobourg and Ganaraska Region Conservation Authority undertook studies to investigate the causes of the flooding and assess alternatives to mitigate future flooding in the area.
- Based on the analysis completed by the Ganaraska Region Conservation Authority, it was determined that the Buchanan Street culvert has less capacity than the culverts crossing the railway corridor.
- The Ganaraska Region Conservation Authority authored two technical reports regarding the flooding and potential mitigation measures.

The first report focused on providing a flood ponding area upstream of Elgin Street (Chris Garrett Park). It was determined that a ponding area upstream of Elgin Street would reduce flooding of the Elgin Street culvert, however the flood reduction downstream of Division Street would be negligible.

The second report focused on providing a flood ponding area upstream of the Kerr Street right of way. Two different solutions were considered (on-line pond and off-line pond) and it was determined that an on-line flood ponding area would provide the highest level of flood reduction within the study area.

## Utilities and Services

- There are existing utilities (electrical, gas, sanitary sewer, storm sewer, watermain) located within the vicinity of the Midtown Creek flood ponding area and the Kerr Street right of way. As required, utility relocations will be incorporated into the detailed design.

## Property Ownership

- The construction of the flood ponding area will require the Town of Cobourg to acquire parts of the existing properties upstream of the Kerr Street right of way.

## Natural Environment

- Terrestrial ecology and fisheries studies were completed by the Ganaraska Region Conservation Authority.
- Fisheries Assessment Report - Midtown Creek is a coldwater fishery with species captured by the GRCA within the study area including Brook Trout, Rainbow Trout and Mottled Sculpin. The site is characterized by large amounts of silt, has a low gradient and lacks defined riffles and has been described as showing signs of stress due to degradation of habitat and water quality. The area serves as a migratory corridor for lake run Rainbow Trout that utilize upstream habitats for spawning and rearing.
- Terrestrial Ecology Report - There is a high diversity of vegetation community types on the site; however, none of these is significant with respect to rarity. Most of the relatively natural woodland is early successional and some is highly disturbed. The remainder is cultural woodland and is dominated by invasive tree species. The open areas are cultural meadow and are highly disturbed.

## Cultural Heritage and Archaeology

- Stage 1 and Stage 2 Archaeological Assessments were completed by AMICK Consultants Limited. No archaeological resources were encountered as a result of the Stage 2 Archaeological Assessment.
- No further archaeological assessment is warranted as the proposed project is clear of any archaeological concern.

## Soils and Groundwater

- Phase 1 and 2 Environmental Site Assessments and a Geotechnical Investigation was completed by WSP Canada Inc. to support the planning and design process for the flood ponding area.
- Although there is a history of industrial activity on and adjacent to this site, the soil and groundwater analytical results indicate that all parameters meet the MOECC requirements.
- The slope stability analysis completed as part of the Geotechnical Investigation concluded that the berm structure and internal stability should be adequate for the intended future use, provided the proposed roadway is widened and constructed according to good practices.

## Transportation

- The Town of Cobourg Transportation Master Plan (TMP) suggests that the existing east-west road network in Cobourg will experience capacity or over-capacity conditions in the near future. In order to mitigate the expected capacity issues, the TMP recommends that Kerr Street from Westwood Drive to D'Arcy Street be constructed between 2011 and 2021. The proposed section of Kerr Street is located within this corridor.



## Town of Cobourg Midtown Creek and Kerr Street - Municipal Class EA Public Information Centre #3



# Phase 3 - Alternative Design Concepts

## Phase 3: Alternative Design Concepts for the Preferred Solution

### Design Goals and Constraints

1. The facility must control the 100-year peak flow rate to the capacity of the Buchanan Street Culvert (4.11 m<sup>3</sup>/s), which is equivalent to the 2-year peak flow rate.
2. The Regional Storm peak flow rate of 44.85 m<sup>3</sup>/s must be conveyed across Kerr Street and safe access must be provided (flood depth of 0.30 m or less).
3. The outlet structure must have a span less than 6.0 m.
4. The facility should promote fish passage.
5. The facility should not restrict normal base flows.
6. A freeboard of 1.0 m is desired for the design (50-year) storm (measured from the high water level to the edge of the traveled lane).
7. Berms other than the Kerr Street embankment should not be used to contain the online storage.
8. The maximum ponding elevation is 91.60 m, above which water will spill over the railway spur.
9. The facility must not impact private properties adjacent to Midtown Creek upstream of the railway spur that are not currently within the Regulatory Floodplain.
10. The invert elevation of the outlet structure should be set to match the existing watercourse invert downstream of the proposed Kerr Street right of way.

### Preferred Alternative

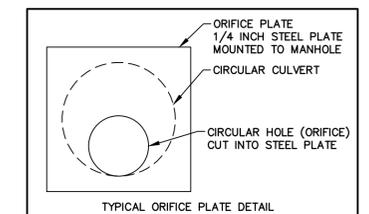
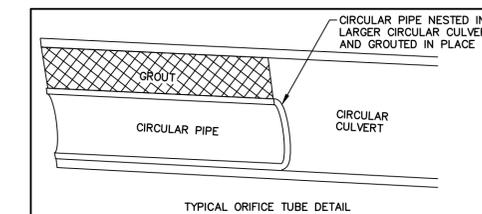
The preferred alternative from Phase 2 of the Municipal Class EA was Alternative 3 - On-Line Flood Ponding Area Upstream of Kerr Street right of way.

### Alternative Storage Configurations

1. Flood Ponding Area contained on West side of George Street right of way (6.27 ha\*m at 91.60 m).
2. Flood Ponding Area extending to East side of George Street right of way (7.17 ha\*m at 91.60 m).

### Alternative Outlet Configurations

1. Circular Orifice Plate.
2. Circular Orifice Tube.
3. Circular Concrete Culvert.
4. Rectangular Orifice Plate.



### Alternative Design Concepts

- #1 Storage Configuration 1 with Outlet Configuration 1.
- #2 Storage Configuration 1 with Outlet Configuration 2.
- #3 Storage Configuration 1 with Outlet Configuration 3.
- #4 Storage Configuration 1 with Outlet Configuration 4.
- #5 Storage Configuration 2 with Outlet Configuration 1.
- #6 Storage Configuration 2 with Outlet Configuration 2.
- #7 Storage Configuration 2 with Outlet Configuration 3.
- #8 Storage Configuration 2 with Outlet Configuration 4.

# Phase 3 - Alternative Design Concepts

## Alternative Design Concepts #1 to #4

### Storage Configuration

- Storage Configuration #1 - Flood ponding area contained on west side of George Street right of way.
- Storage volume of 6.27 ha\*m at 91.60 m. Pondered area of 3.35 ha.
- Minor grading (fill) up to an elevation of 92.00 m is required on the east side of the George Street right of way to ensure the flood ponding does not spill onto adjacent lands and that those lands continue to drain to the Flood Ponding Area.
- Maintains the existing infrastructure (watermain, sewer, hydro) in the George Street right of way.

### Outlet Configurations

- Considered four (4) outlet configurations. Each outlet configuration includes a 45 m long, 2000 mm diameter smooth walled HDPE culvert under Kerr Street to convey flows up to the 100-year storm and a weir spill over top of Kerr Street to ensure safe passage of the Regional Storm.

Design Concept	Control Type	Size (m)
1	Circular Orifice Plate	1084
2	Circular Orifice Tube	917
3	Circular Concrete Culvert	1050
4	Rectangular Orifice Plate	593 x 1500

### Results of Analyses

Design Concept	50-Year Design Storm			100-Year Design Storm			Spill over Kerr Street	
	Ponding Elevation (m)	Storage Volume (ha-m)	Controlled Flow (m <sup>3</sup> /s)	Ponding Elevation (m)	Storage Volume (ha-m)	Controlled Flow (m <sup>3</sup> /s)	Spill Length (m)	Spill Elevation (m)
1	90.91	4.24	3.81	91.30	5.36	4.11	170	91.32
2	90.95	4.35	3.73	91.35	5.50	4.01	200	91.35
3	91.00	4.49	3.77	91.38	5.61	4.08	250	91.39
4	90.87	4.13	3.83	91.27	5.27	4.11	150	91.30

### Notes

1. Orifice/pipe sizing details are considered preliminary and are included for the purpose of evaluating the alternative design concepts and to ensure that the alternative design concepts are feasible. Actual orifice/pipe sizing may change during detailed design.
2. Results are provided to demonstrate how each alternative design concept performs. Ponding Elevations, Storage Volumes and Controlled Flow Rates may change during detailed design.



# Phase 3 - Alternative Design Concepts

## Alternative Design Concepts #5 to #8

### Storage Configuration

- Storage Configuration #2 - Flood ponding area extending to east side of George Street right of way.
- Storage volume of 7.17 ha\*m at 91.60 m. Pondered area of 3.82 ha.
- Minor grading (fill) up to an elevation of 92.00 m is required on the east side of the George Street right of way to ensure the flood ponding does not spill onto adjacent lands and that those lands continue to drain to the Flood Ponding Area.
- Existing infrastructure (watermain, sewer, hydro) in the George Street right of way would be affected.

### Outlet Configurations

- Considered four (4) outlet configurations. Each outlet configuration includes a 45 m long, 2000 mm diameter smooth walled HDPE culvert under Kerr Street to convey flows up to the 100-year storm and a weir spill over top of Kerr Street to ensure safe passage of the Regional Storm.

Design Concept	Control Type	Size (m)
5	Circular Orifice Plate	1107
6	Circular Orifice Tube	900
7	Circular Concrete Culvert	1050
8	Rectangular Orifice Plate	620 x 1500

### Results of Analyses

Design Concept	50-Year Design Storm			100-Year Design Storm			Spill over Kerr Street	
	Ponding Elevation (m)	Storage Volume (ha-m)	Controlled Flow (m <sup>3</sup> /s)	Ponding Elevation (m)	Storage Volume (ha-m)	Controlled Flow (m <sup>3</sup> /s)	Spill Length (m)	Spill Elevation (m)
5	90.71	4.28	3.80	91.07	5.40	4.10	150	91.30
6	90.85	4.70	3.53	91.22	5.90	3.78	150	91.30
7	90.86	4.72	3.65	91.21	5.87	3.95	150	91.30
8	90.67	4.14	3.83	91.03	5.28	4.11	150	91.30

### Notes

1. Orifice/pipe sizing details are considered preliminary and are included for the purpose of evaluating the alternative design concepts and to ensure that the alternative design concepts are feasible. Actual orifice/pipe sizing may change during detailed design.
2. Results are provided to demonstrate how each alternative design concept performs. Ponding Elevations, Storage Volumes and Controlled Flow Rates may change during detailed design.



# Vegetation Clearing Requirements

## Design Concepts #1 to #4

- Vegetation clearing is required in order to facilitate construction and grading of the flood ponding area.
- These design concepts would require approximately 5.11 ha of land to be cleared.
- Vegetation clearing is proposed to be completed in two (2) phases. Phase 1 will include the clearing and removal of trees prior to the Migratory Birds Convention Act timing window and Phase 2 will include removal of all other low level vegetation.
- A planting plan will be incorporated into the detailed design for the restored natural channel.

## Design Concepts #5 to #8

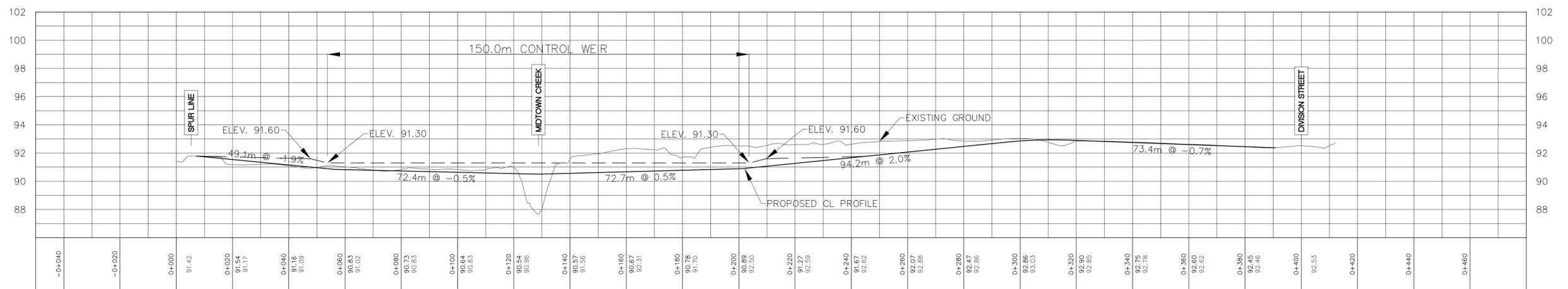
- Vegetation clearing is required in order to facilitate construction and grading of the flood ponding area.
- These design concepts would require approximately 5.11 ha of land to be cleared.
- Vegetation clearing is proposed to be completed in two (2) phases. Phase 1 will include the clearing and removal of trees prior to the Migratory Birds Convention Act timing window and Phase 2 will include removal of all other low level vegetation.
- A planting plan will be incorporated into the detailed design for the restored natural channel.



# Kerr Street Conceptual Design



KERR STREET EXTENSION

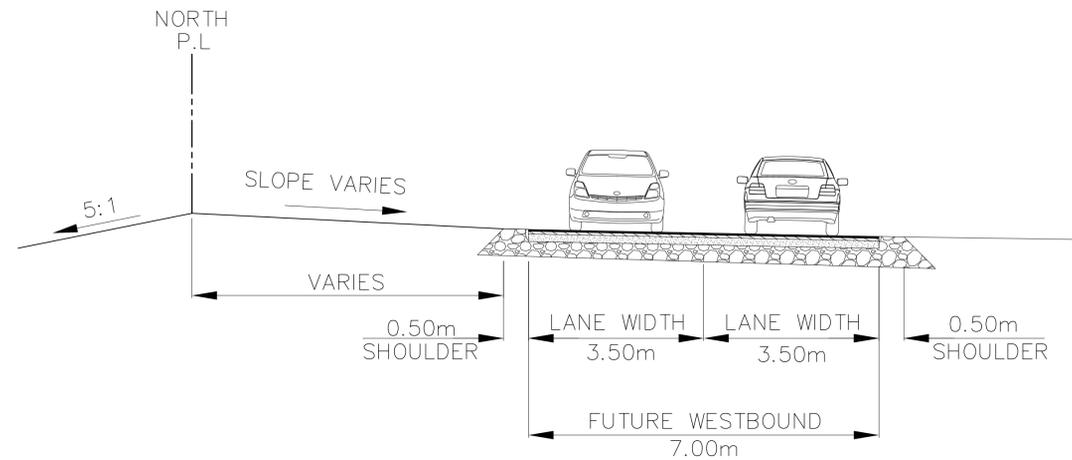


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# Kerr Street Conceptual Design

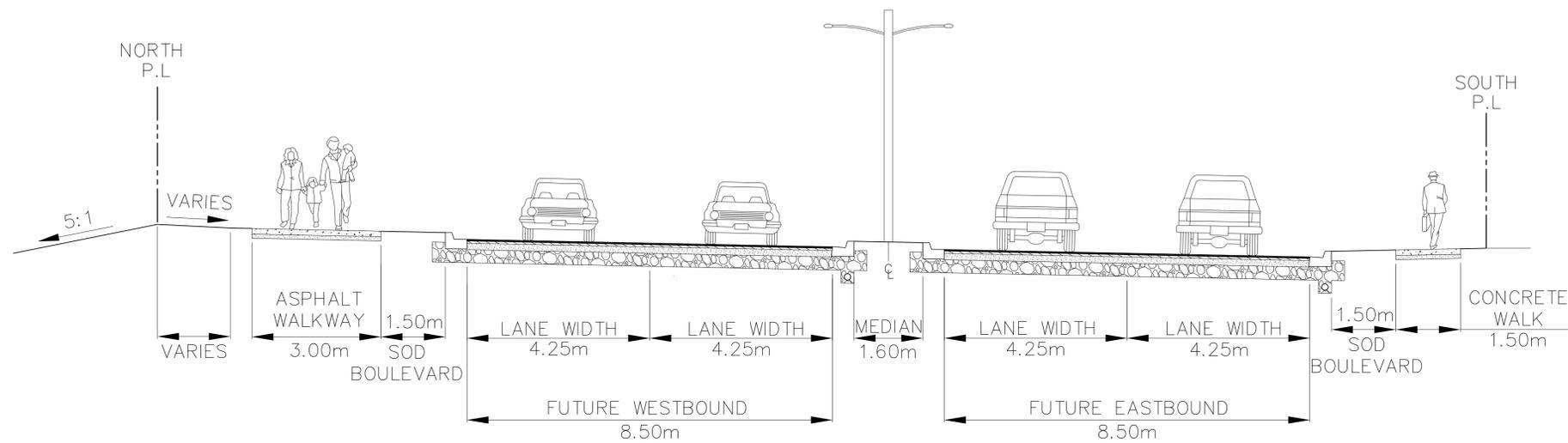
KEER STREET  
INTERIM CROSS SECTION



Cross Sections

- The ultimate cross section includes four lanes of divided traffic, a multi-use trail and a sidewalk.
- A future storm sewer will be included to collect and convey runoff.
- The interim cross section will be constructed with two traffic lanes until the ultimate section is warranted.

KERR STREET  
ULTIMATE CROSS SECTION



# Phase 3 - Evaluation of Alternative Design Concepts

## Evaluation Process

- The screening criteria were adapted from the MEA MCEA document. Items deemed not related to this project were eliminated to simplify the screening process. The screening criteria are divided into five (5) categories:
  - Natural Environment
  - Social Environment
  - Cultural Environment
  - Engineering / Technical Environment
  - Economic Environment
- The screening criteria were each assigned a weighting factor based on their relative significance in this situation. The factors were assigned on a scale of one (1) to ten (10), with ten (10) being very important and one (1) being not important.
- Each alternative was scored by Wills with input from the Town of Cobourg and Ganaraska Region Conservation Authority. The scoring was based on a rating of the potential effect of each alternative on the screening criteria. The environmental effects were assessed based on the following scale:

Range of Effect	Code	Points Assigned
Highly Negative Effect	-H	-5
Moderate Negative Effect	-M	-3
Slight Negative Effect	-L	-1
No Effect	Nil	0
Slight Positive Effect	+L	+1
Moderate Positive Effect	+M	+3
Significant Positive Effect	+H	+5

- The total score for each rating criteria was the multiplication of the weighting factor and the scoring factor. The scores for each alternative were totaled and ranked from highest to lowest.

## Evaluation Results

- The rankings resulting from the evaluation of alternatives are as follows:

Alternative Design Concepts 1 to 4 - Flood Ponding Area West of George Street right of way

Screening Criteria	Alternative Design Concept 1 Circular Orifice Plate	Alternative Design Concept 2 Circular Orifice Tube	Alternative Design Concept 3 Circular Concrete Culvert	Alternative Design Concept 4 Rectangular Orifice Plate
Natural Environment	1	1	1	1
Social Environment	1	1	1	1
Cultural Environment	1	1	1	1
Engineering / Technical Environment	2	4	5	1
Economic Environment	1	3	3	1
<b>Overall Rank</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>1</b>

Alternative Design Concepts 5 to 8 - Flood Ponding Area East of George Street right of way

Screening Criteria	Alternative Design Concept 5 Circular Orifice Plate	Alternative Design Concept 6 Circular Orifice Tube	Alternative Design Concept 7 Circular Concrete Culvert	Alternative Design Concept 8 Rectangular Orifice Plate
Natural Environment	1	1	1	1
Social Environment	1	1	1	1
Cultural Environment	1	1	1	1
Engineering / Technical Environment	6	7	3	8
Economic Environment	5	7	7	5
<b>Overall Rank</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>8</b>

- 1 - Highest Ranked (Most Preferred)
- 8 - Lowest Ranked (Least Preferred)
- Same Rank - Evaluation resulted in a tie

## Selection of the Preferred Alternative Design Concept

- Alternative Design Concepts 1 and 4, ranked numbers 2 and 1 respectively, were the highest scoring alternative design concepts. The detailed evaluation scoring resulted in a difference of only four (4) points between the two concepts.
- Based on the evaluation results and to give additional flexibility during detailed design, it is recommended that a combination of Alternative Design Concepts 1 and 4 be selected as the preferred alternative design concept.
- The preferred alternative design concept is: **Flood ponding area west of the George Street right of way with a control structure that uses an orifice plate (any shape and dimension).**

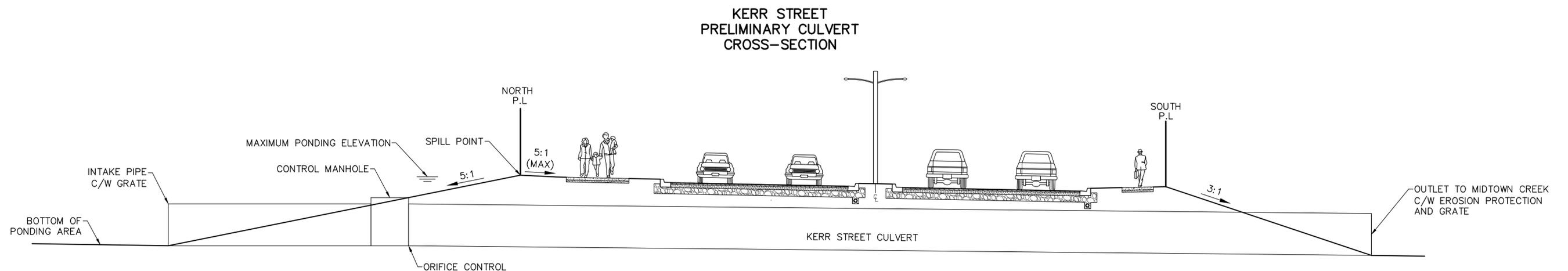


# Preferred Alternative Design Concept

## Details of Preferred Alternative Design Concept

The construction of this alternative design concept will involve the following:

- Construction of Kerr Street between Division Street and the railway spur.
- Removal of vegetation within the flood ponding area and other areas where minor grading is required.
- Excavation/removal of soil and grading for the proposed flood ponding area.
- Revegetation and stabilization of the proposed flood ponding area.
- Construction of a restored natural channel between the railway spur and Kerr Street, including a step pool drop structure at the north end of the railway spur.
- Construction of a control structure that uses an orifice pate (any shape or dimension) to restrict flows (the 100-year storm peak flow will be reduced to the target flow rate of 4.11 m<sup>3</sup>/s).
- Construction of a culvert under Kerr Street to convey up to the 100-year storm controlled peak flow, including erosion/scour protection at the outlet to the Midtown Creek main channel.
- Construction of Kerr Street as a weir to convey the Regulatory Storm to ensure safe access (flood depth less than 0.30 m) with no increased flood impacts to both upstream and downstream properties.
- Erosion protection on the downstream side of the Kerr Street embankment.



# Next Steps and Project Contacts

## Next Steps

- Prepare Draft Environmental Study Report.
- Publish "Notice of Study Completion" and place Draft Environmental Study Report on Public Record.
- Review Public and Review Agency comments on Environmental Study Report, if any.
- Detailed Design and Approvals.
- Construction.

## Public Input and Comment

- Feel free to provide written input or comment, for consideration by the project team, using the comment sheets provided or by contacting the identified representatives of the Town of Cobourg or D.M. Wills Associates Limited.
- Information and comments received are collected under the authority of the Municipal Act and will be subject to the requirements of the Freedom of Information and Protection of Privacy Act.
- Should you have any questions or concerns at any time during the project, or would like additional information please contact the identified representatives of the Town of Cobourg or D.M. Wills Associates Limited.

## THANK YOU FOR ATTENDING

### **Town of Cobourg**

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