WELCOME

CORPORATION OF THE TOWN OF CALEDON
DOMINION STREET CLASS ENVIRONMENTAL ASSESSMENT
PUBLIC INFORMATION CENTRE #2

INGLEWOOD COMMUNITY CENTRE
DECEMBER 13, 2017

TOWN OF CALEDON

GHD

Details of Public Information Centre #2

- ✓ Please sign-in so we may add you to our contact list for future project notifications
- ✓ Consultation is an intergral component of the Class EA process and we appreciate your input
- ✓ If you have any comments or concerns please complete a Comment Form or speak with a Project Team member
- ✓ We would appreciate your feedback by January 12, 2018

Northwest embankment north of bridge

West embankment looking south

Credit River facing west towards bridge

Gabion baskets, on bridge facing west

TOWN OF CALEDON

GHD

PIC #1 Held on November 30, 2016

Summary of PIC #1 Comments Received

- Rehabilitation of the existing bridge
- Consider implementing “Local Only” Traffic Signs
- Retain the existing “style” of bridge
- Minimize use of metal guardrails, railings or abutments
- Ensure space for pedestrians and cyclists
- Keep it as natural as possible

TOWN OF CALEDON

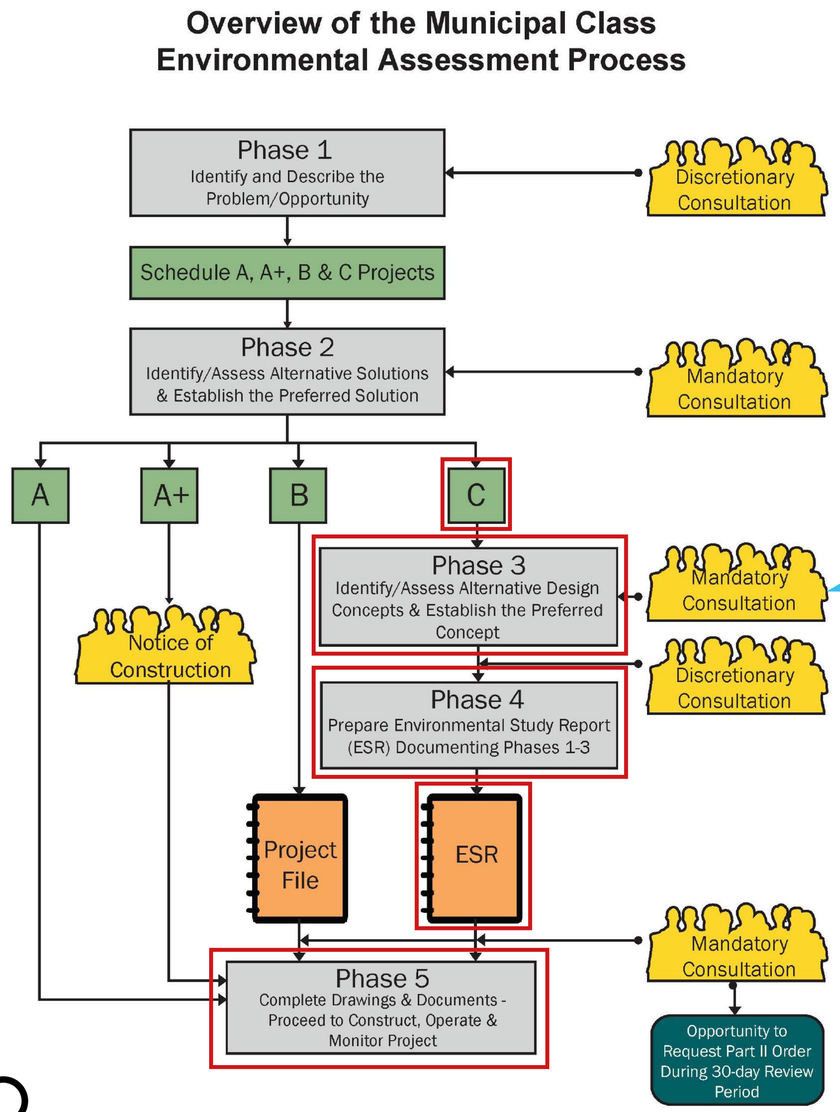
GHD

Class Environmental Assessment Processes

MUNICIPAL ENGINEERS ASSOCIATION (MEA) CLASS EA PROCESS

Schedule 'C' Process

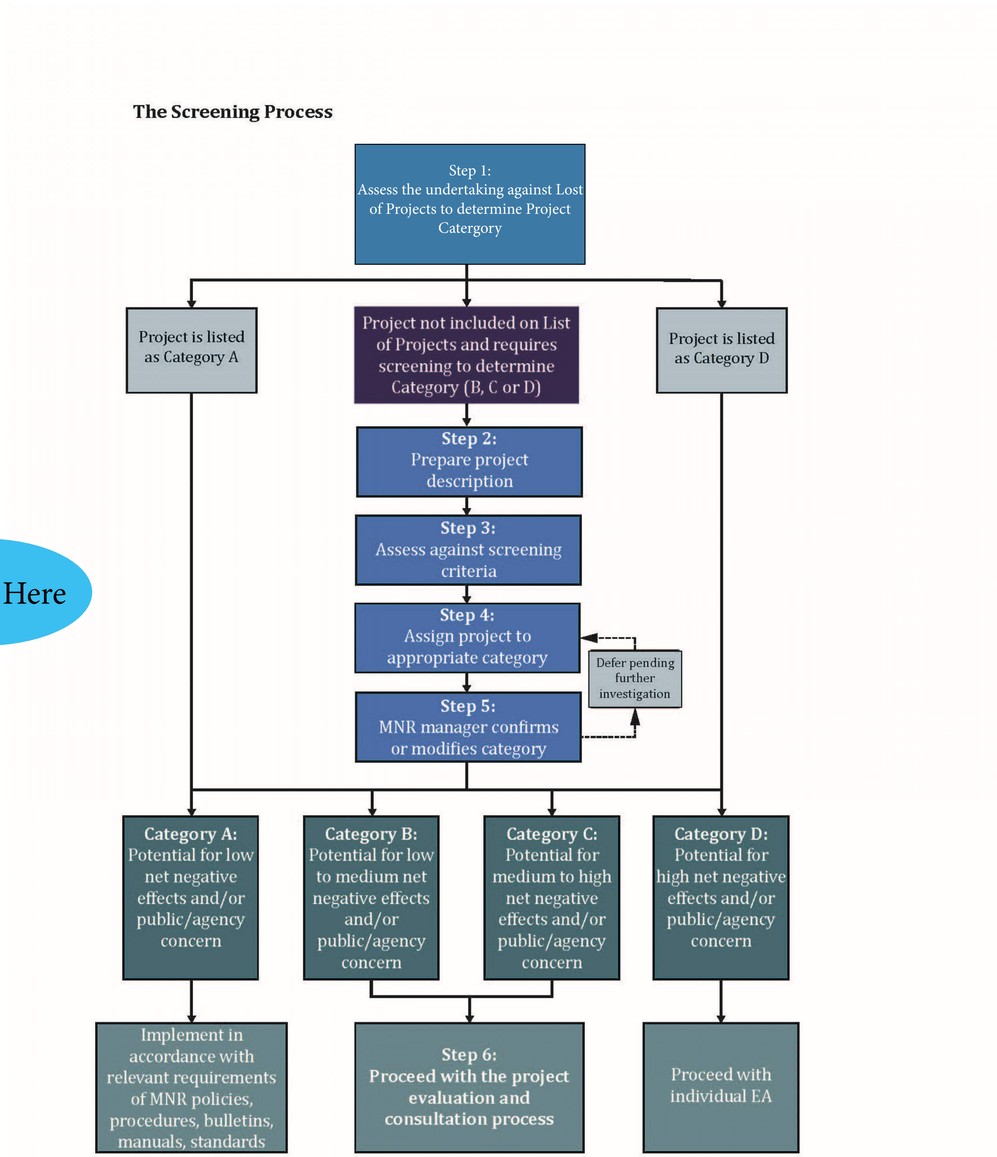
Projects included under this classification have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the MEA Class EA document (i.e., Phases 1 to 4).



MINISTRY OF NATURAL RESOURCES AND FORESTRY (MNRF) PUBLIC PARKS & CONSERVATION RESERVES (PPCR) CLASS EA PROCESS

Category 'C' Process

Potential for high net negative effects and concerns of interested parties. Requires detailed information and analysis, and a comprehensive external review process. Projects classified as a Category C undertaking require the completion of an ESR.



TOWN OF CALEDON

GHD

HARMONIZED CLASS EA PROCESS
MEA CLASS EA + MNRF PPCR CLASS EA

The Harmonized Class EA process consists of the following five milestones, which incorporate various phases and steps of both the MEA Class EA and MNRF PPCR Class EA processes.

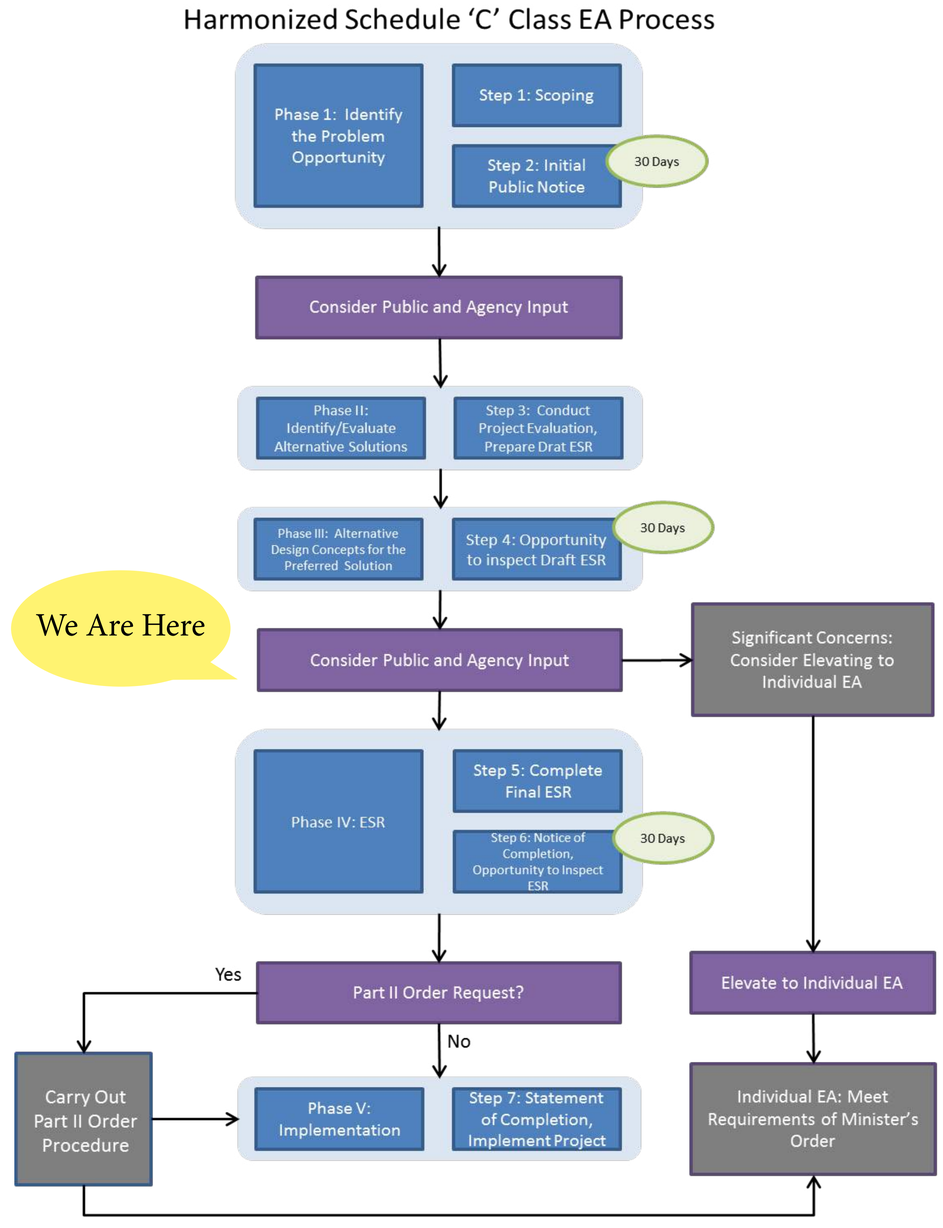
Milestone 1 Municipal Class EA Phase 1 + MNRF PPCR Steps 1 & 2

Milestone 2 Municipal Class EA Phase 2 + MNRF PPCR Step 3

Milestone 3 Municipal Class EA Phase 3 + MNRF PPCR Step 4

Milestone 4 Municipal Class EA Phase 4 + MNRF PPCR Steps 5 & 6

Milestone 5 Municipal Class EA Phase 5 + MNRF PPCR Step 7



TOWN OF CALEDON

GHD

Phase 1 and Phase 2 Summary

PROBLEM

- Structural integrity of Dominion Street and Bridge warrants rehabilitation
- Access to residential dwellings on Dominion Street and emergency and Town services is critical
- Erosion is evident, must be addressed, and has the potential to threaten existing mature vegetation on the embankment
- The Bridge is a cultural heritage component and key link of the Bruce Trail Conservancy
- The Bridge should provide safe pedestrian passage and safe vehicle access while respecting cultural heritage value
- The solution to this problem must be financially viable

OPPORTUNITY

- Remediate issues associated with existing Dominion Street and bridge
- Improve access based on completion of identified work
- Potential opportunity for enhancement of the Bruce Trail in the Study Area
- Potential opportunity for maintenance and rehabilitation of Cultural Heritage Resources for future long-term use

PREFERRED ALTERNATIVE SOLUTION

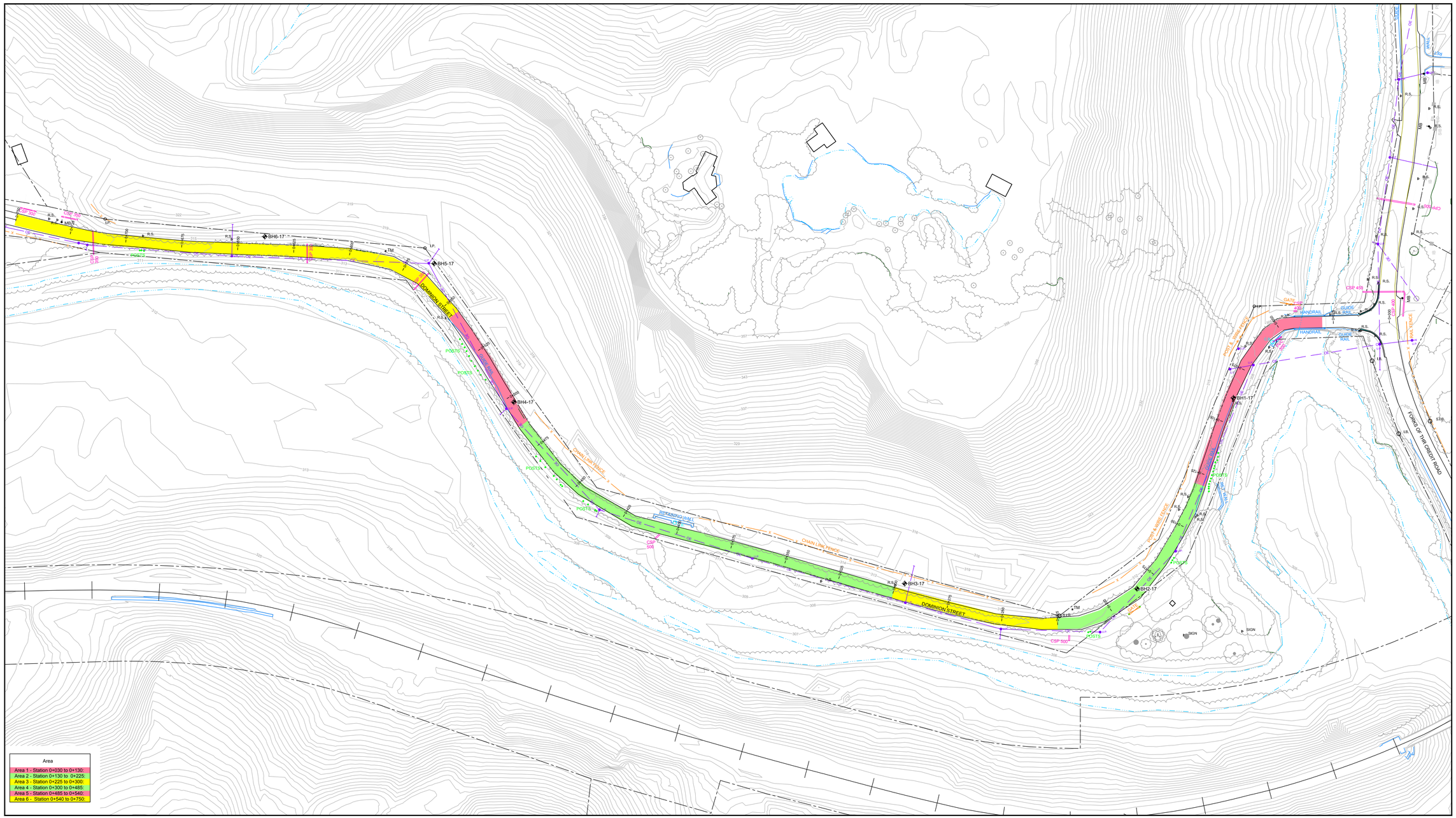
Alternative 3A: Existing Bridge and Road Rehabilitation

Undertake embankment stabilization works required to safeguard against potential hazards to the Public and Town assets, where a single point access would remain.

TOWN OF CALEDON

GHD

Dominion Street Existing Road Conditions



0 16 32 48m

LEGEND

BH3-17	BOREHOLE LOCATION
	COMPLETE EDGE/SLOPE FAILURE
	SLIGHT TO MODERATE EDGE CRACKING
	GENERALLY NO ISSUES

GHD

TOWN OF CALEDON
PROPOSED DOMINION STREET IMPROVEMENTS
GEOTECHNICAL INVESTIGATION REPORT

11116800-00

Nov 6, 2017

BOREHOLE LOCATION PLAN

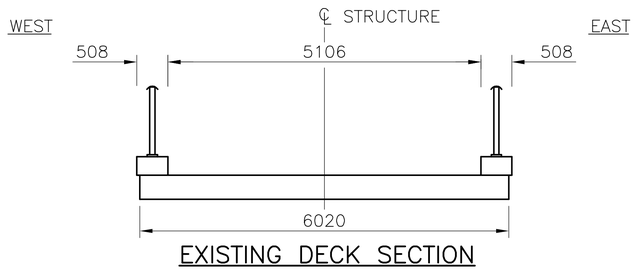
FIGURE 5 & 6 COMBINED

CAD File: G:\111\11116800\17 Environmental\Geotechnical\CAD from HASSAN\11116800-00(009)GN-WA003.dwg

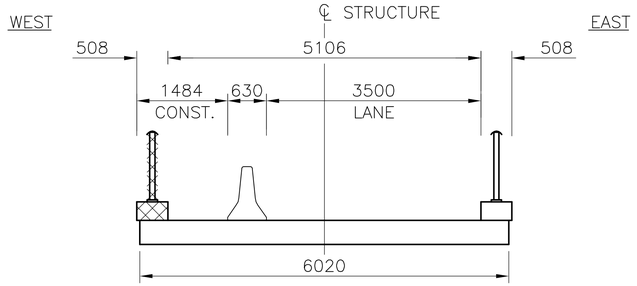
TOWN OF CALEDON

GHD

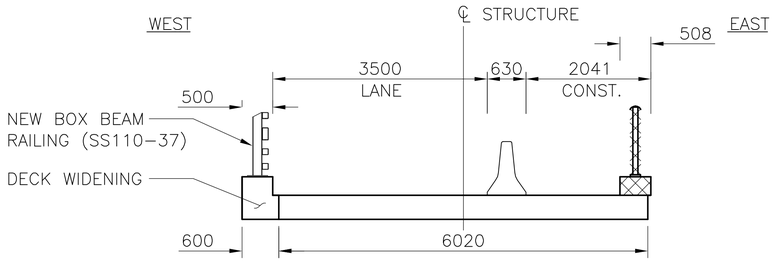
Dominion Street Bridge Rehabilitation: Staging Plan



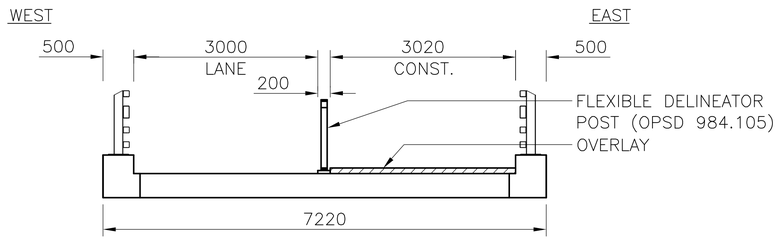
EXISTING DECK SECTION



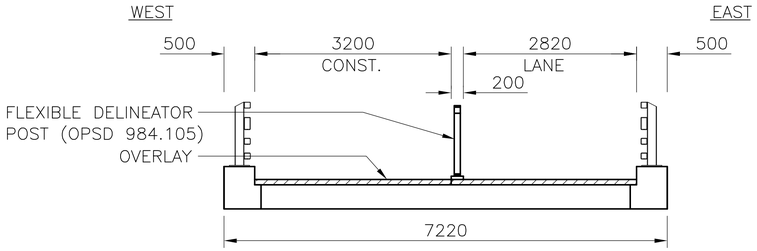
STAGE 1



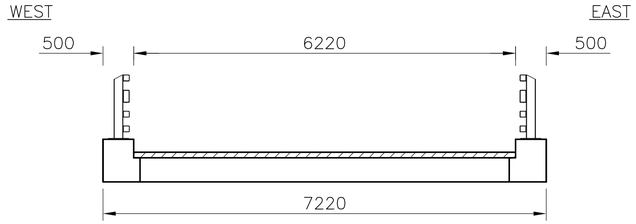
STAGE 2



STAGE 3



STAGE 4



FINAL DECK SECTION

LEGEND

DENOTES AREA OF REMOVAL

Example Railing Systems

Staging Plan Considerations:

Construction staging of the bridge will maintain local traffic and emergency services access throughout construction.

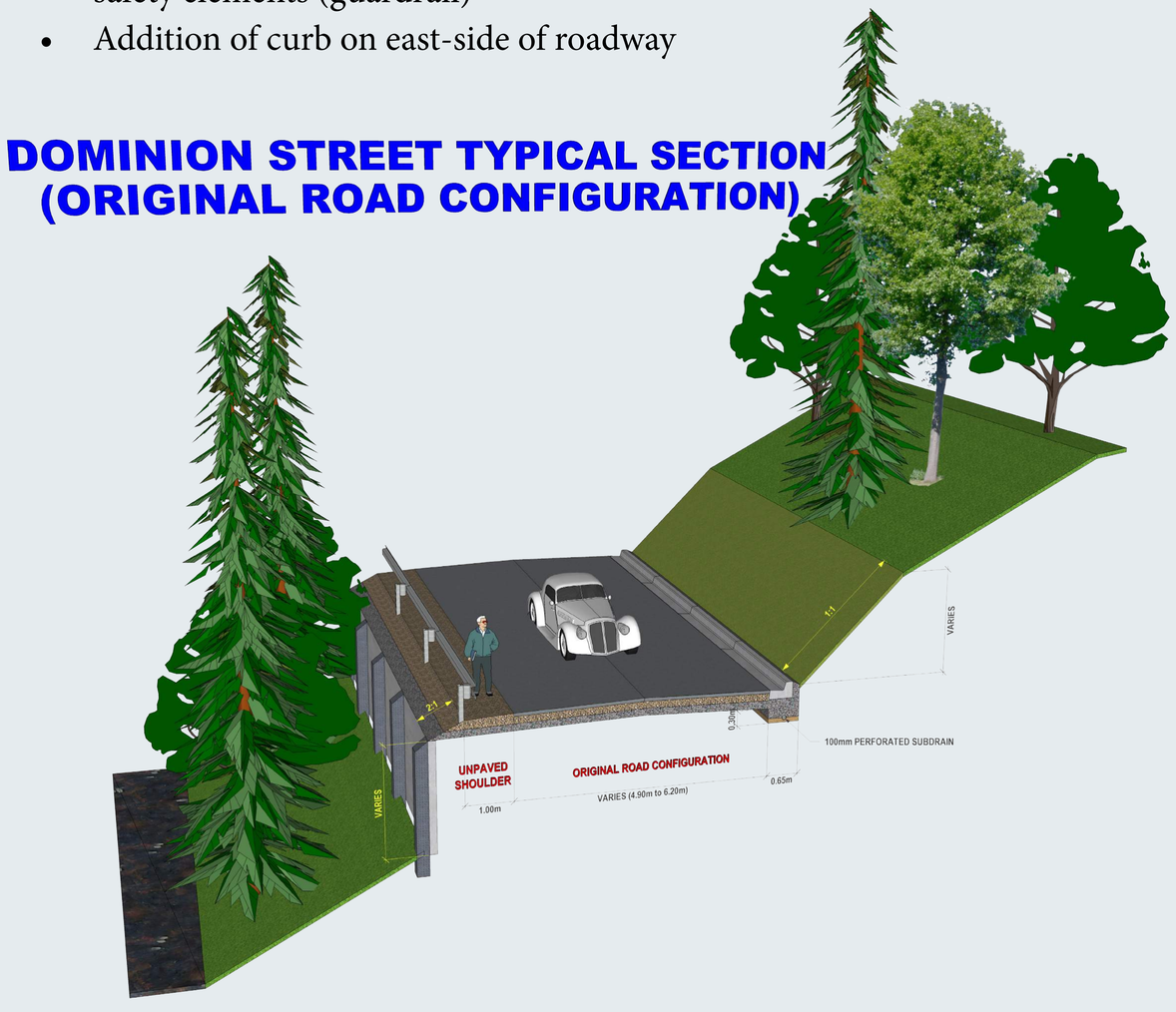
TOWN OF CALEDON

GHD

Phase 3: Road Options

Road Option 1: Original Road Configuration

- Rehabilitate full road in good-fair condition to its original road configuration
- Reconstruct failed sections with 2.7m lanes, unpaved shoulder. and roadside safety elements (guardrail)
- Addition of curb on east-side of roadway



Road Option 2: Widen Existing Roadway

- Two-lane Local Road with 2.7m lane width
- Full reconstruction of roadway
- Addition of unpaved shoulders, road safety elements (guardrail), concrete curb gutter, or ditch on east-side of road

TOWN OF CALEDON

GHD

Phase 3: Geotechnical Methods

Geotechnical Methods	Advantages	Disadvantages
1 - Soldier Pile and Lagging System	• Cost effective ($500-$800/m^2) • Minimal road closure required • Versatile system and easily adapted • Little impact to riverbank vegatation	• Problems with high groundwater • Problems with non-cohesive ground • Cost increases if bedrock is in the soldier pile
2 - Sheet Pile Wall	• Cost effective ($500-$800/m^2) • Minimal road closure required • Externally or internally braced	• Not typical in deep excavations • May cause neighbourhood disturbances • May decrease safety if slope cannot stabilize
3 - Reinforced Soil Slopes (RSS System)	• Cost effective (half MSW walls) • Length of reinforcement will deepen • Additional safety against slope failure • Blend with natural environment	• Area behind wall is required for reinforcement • Significant road closure • Removes existing riverbank vegetation • Road widening will encroach on riverbank
4 - Mechanically Stabilized Earth (MSE) Retaining Wall	• Cost effective ($400-$800/m^2) • Simple and rapid construction • Road width can be increased • Little impact to riverbank vegetation	• Area behind wall is required for reinforcement • Cost associated with MSE walls may make it uneconomical
5 - Soil Nails/Micro-piles and Shotcrete Facing	• Cost effective ($350 - $800/m^2) • Can be installed in bedrock • Aesthetically pleasing facing can be included	• Problems with high groundwater • Problems in non-cohesive ground • Not typical in deep excavations
6 - Soil Mixed Walls	• Can be installed to depths of up to 100m • Road width can be increased • Minimal vibrations	• Problems with high groundwater • Problems in non-cohesive ground • Not typical in deep excavations
7 - Tangent/Secant Pile Walls	• Can be installed to depths of up to 100m • Road width can be increased • Minimal vibrations	• More expensive ($1000 - 1600/m^2) • Difficult installalation and long construction • May decrease safety if slope cannot stabilize

Phase 3: Geotechnical Methods

1 - Soldier Pile and Lagging System

2 - Sheet Pile Wall

3 - RSS System

4 - MSE Retaining Wall

5 - Soil Nails/Micro-piles and Shotcrete Facing

6 - Soil Mixed Walls

7 - Tangent/Secant Pile Walls

TOWN OF CALEDON

GHD

Phase 3: Evaluation Criteria

TECHNICAL

- Potential effect on property access
- Constructability
- Timing for construction
- Potential for future maintenance requirements
- Extent of excavation required
- Potential for and extent of construction site vibrations

BUILT, SOCIAL, CULTURAL

- Compliance with applicable land use objectives
- Potential for disturbing existing recreational facilities through temporary and/or permanent effects
- Potential effect on properties
- Potential for effects on archaeological, cultural/ built heritage resources

NATURAL ENVIRONMENT

- Potential for effects on the natural environment (terrestrial & aquatic)
- Potential for effects on baseflow and/or groundwater resources
- Potential to enhance the quality and character of natural resources

ECONOMIC & FINANCIAL

- Costs for implementation
- Operations and maintenance costs

TOWN OF CALEDON

GHD

Phase 3 Evaluation: Road Options (Alternative Design Concepts)

Evaluation Criteria	Evaluation of Road Options	
	1- Original Road Configuration	2 - Widen Existing Roadway (2.7m Lane Width) Two-Lane Local Road
1. TECHNICAL/FEASIBILITY		
Level of Effect:	Good	Poor
2. NATURAL/PHYSICAL ENVIRONMENT		
Level of Effect:	Good	Poor
3. BUILT, SOCIAL, AND CULTURAL ENVIRONMENT		
Level of Effect:	Neutral	
4. ECONOMIC/FINANCIAL VIABILITY		
Level of Effect:	Good	Poor
Ranking of Road Options	**Preferred (Recommended)**	**Least Preferred**

RANKING METHODOLOGY

The recommended Preferred Alternative Design Concept was determined based on its relative advantages and disadvantages compared to other alternatives considered. With this in mind, the Alternative Design Concepts were ranked according to their advantages and disadvantages, as identified in the Phase 3 Evaluation Table.

TOWN OF CALEDON

GHD

Phase 3 Evaluation: Geotechnical Methods (Alternative Design Concepts)

Evaluation Criteria	Evaluation of Geotechnical Methods for Road Rehabilitation						
	1 - Soldier Pile and Lagging System	2 - Sheet Pile Walls	3 - Reinforced Soil Slopes (RSS System)	4 - Mechanically Stabilized Earth (MSE) Retaining Wall	5 - Soil Nails/ Micro-piles and Shotcrete Facing	6 - Soil Mized Walls	7 - Tangent/ Secant Pile Walls
1. TECHNICAL/FEASIBILITY							
Level of Effect:	Good	Minor	Moderate	Moderate	Moderate	Poor	Poor
2. NATURAL/PHYSICAL ENVIRONMENT							
Level of Effect:	Good	Minor	Moderate	Moderate	Poor	Poor	Poor
3. BUILT, SOCIAL, AND CULTURAL ENVIRONMENT							
Level of Effect:	Neutral						
4. ECONOMIC/FINANCIAL VIABILITY							
Level of Effect:	Minor	Minor	Minor	Good	Good	Moderate	Poor
Ranking of Geotechnical Methods	**1st (RECOMMENDED)**	**2nd**	**4th**	**3rd**	**5th**	**6th**	**7th (LEAST PREFERRED)**

RANKING METHODOLOGY

The recommended Preferred Alternative Design Concept was determined based on its relative advantages and disadvantages compared to other alternatives considered. With this in mind, the Alternative Design Concepts were ranked according to their advantages and disadvantages, as identified in the Phase 3 Evaluation Table.

TOWN OF CALEDON

GHD

ESR Mitigation Measures

1. Minimize disturbance to existing vegetation

2. Operate within appropriate timing windows for construction near water and fish habitat

3. Implement best management practices for Redside Dace habitat protection

4. Implement Construction Staging Plan

Next Steps for Implementation

1. Completion of the ESR

2. Notice of Completion and 30-day review

3. Detailed Design Initiation

4. Construction Monitoring, Provisions, Commitments

Over the next number of weeks we will review the feedback received from the public, agencies, Indigenous groups and continue to work on developing the Environmental Study Report for the Dominion Street Class Environmental Assessment

Thank you for your participation

TOWN OF CALEDON

GHD