
CANADIAN TRANSIT COMPANY
Ambassador Bridge Enhancement Project

CEAA ENVIRONMENTAL
ENVIRONMENTAL IMPACT ASSESSMENT

AMBASSADOR BRIDGE ENHANCEMENT PROJECT
Replacement Span and Plaza Expansion

APPENDIX E

DRAFT EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN

Erosion and Sediment Control and Stormwater Management Plan

Introduction

Erosion and sediment are an issue during construction and measures need to be implemented to mitigate any negative impacts on the Detroit River. Unchecked erosion from an active construction site can have a substantial impact ranging from hazardous driving conditions to short and long term reduction of water quality in receiving water courses and wetlands. Soil particles and other forms of suspended matter in surface runoff can eventually accumulate as sediment, thereby restricting drainage, exacerbating flooding, and diverting flows. This can increase the erosion of the beds and banks of receiving water bodies, damage adjacent property, and harm aquatic ecosystems that are associated with wetlands and surface waters. To mitigate any impacts associated with erosion and sediment a control plan will be developed in detail during final design and implemented prior to commencing construction on the Proposed Project and plaza improvements. The following represents a conceptual erosion and sediment control plan that will be reviewed and revised during the engineering design of the Proposed Project and plaza improvements. An Environmental Compliance Approval, if necessary, will be applied for prior to engaging in any activities related to stormwater management and erosion/sediment control.

Construction Phase

Erosion and sediment control measures shall be implemented during construction in order to address water quality leaving the site. This can be achieved with an Erosion and Sediment Control Plan (ESCP). The primary objective of the ESCP is to prevent erosion and control sediments from leaving the construction site. The stormwater treatment facility, outfall, stormwater pipe, and drain inlets will be designed to function as the main form of stormwater conveyance and treatment through both construction and operation.

The ESCP defines the measures and methods that will be employed throughout the project that comply with provincial local, and federal guidelines for erosion and sediment control. The Ontario Provincial Standards for Roads and Public Works (OPS), prepared by the provincial Ministry of Transportation (MTO) and the Municipal Engineers Association (MEA), has developed and published a comprehensive set of standard specifications and drawings for use in the construction of roads and public works in Ontario. These standard specifications and drawings provide clear and concise measures for a wide range of construction activities. There are two components of the published OPS material that will address erosion and sediment control, the Ontario Provincial Standard Specification (OPSS) 577 and the Ontario Provincial Standard Drawings (OPSD) 219. OPSS 577 describes the requirements for the installation, maintenance and removal of temporary erosion and sediment control measures and the removal of sediment accumulated by the control measure. OPSD 219 illustrates several placement methods for various control devices. The ongoing review and revision of this document will give consideration to the MTO Sediment and Erosion Guidelines “Environmental

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Guide for Erosion & Sediment Control During Construction of Highway Projects” issued in February 2007 as may be amended, the most current policies/guidelines and directives will be relied upon during the construction phase.

The selection of the control devices is dependent upon the existing site characteristics including soils, drainage patterns, terrain and groundcover. Maintaining the control measures throughout the construction phase is as important as implementation. It is necessary to inspect, repair and update the erosion and sediment control devices throughout the course of construction.

OPSS 577 temporary erosion and sediment control measures include the following:

- Light-duty sediment barriers
 - Straw bale
 - Silt fence
- Heavy-duty sediment barriers
 - Silt fence
 - Berm
 - Sandbag
- Flow check dams
 - Straw bale
 - Silt fence
 - Sandbag
 - Rock
- Excavated sediment traps
- Chutes
- Dewatering traps
- Turbidity curtains
- Cofferdams
- Sediment removal
- Control measure removal

Silt fence, straw bales and inlet protection at a minimum will be utilized during construction to address erosion and sediment control. Consideration will be given to incorporating these temporary erosion and sediment control measures. The ESCP is best managed by monitoring and updating the plan throughout the construction phase, allowing issues to be addressed that were not anticipated during the development of the original plan. Planned site modifications, if necessary, will be reviewed during preconstruction meetings with appropriate approval agencies to insure that the erosion and sedimentation control measures are properly applied and when necessary, additional protective measures (such as those identified in OPSS 577) will be applied to protect adjacent property and surface waters.

The ESCP will include a written report and detailed plans that shall be developed during the design phase of this Project. The report will discuss the drainage issues relevant to

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the site, construction staging and seasonal timing, and types of control measures that will be used during construction. The report will also outline the construction schedule and maintenance schedule for inspection and repairs, if necessary, for the control measures. The detailed plans will illustrate and identify the following:

- Location maps and site property lines
- Surrounding streams and sensitive lands
- Limits of disturbance and limits of construction
- Existing site topography and features including slope characteristics
- Proposed site works
- Proposed site grading
- Proposed cross-section details
- Drainage details including boundaries and flow direction
- Temporary control measure location and details that best suit the site
- Permanent control measure location and details
- Stormwater management facility including discharge points
- Slope stabilization details, if necessary.

Measures are formulated to prevent, control and abate erosion, sedimentation, and water pollution. These measures will be used at the locations described in the approved ESCP or as directed by the project engineer to comply with all federal, provincial and local regulations and review requirements. Throughout the project, inspection of established erosion and sediment control measures will take place to ensure the measures are in proper working order.

The ESCP also defines the proposed methods for minimizing off-site vehicle tracking of sediments and generating dust. The proposed methods include the following:

- Cover loaded haul trucks with tarpaulins;
- Remove excess soil materials from roads daily;
- Stabilize construction entrances;
- Use roadway sweepers during dust generating activities such as excavation and milling operations; and
- Prohibit the operation of vehicles and equipment in waters or wetlands within or adjacent to the project site unless specifically authorized by the responsible regulatory agencies.

All the necessary regulatory permits will be applied for and approved before construction on this project, including but not limited to:

- Ontario Ministry of Natural Resources Work Permit and Land Occupational Authority Permit
- Stormwater Management Plan by Ontario Ministry of Environment and Essex

- Region Conservation Authority
- Environmental Compliance Approval, if necessary.

All anticipated non-stormwater discharges (except flows from fire fighting activities) shall be identified in the ESCP and fully defined. If the on-site contractor encounters contaminated soil or groundwater, work will immediately cease. Immediate measures will be implemented prior to the arrival of authorities to ensure that contaminants do not reach receiving water bodies either directly or indirectly.

Operation Phase

Any additional storm and surface water runoff resulting from construction activities must be contained on-site via a stormwater management facility. Provisions for a stormwater management facility will be provided during the design phase for this project. Stormwater will be treated at an “Enhanced” level, if necessary, as described in the MOE’s Stormwater Management Manual. The design and maintenance for the stormwater management facility will require review and approval from several regulatory bodies. The facility will be designed to control the post-development water quantity as well as quality. The technical and procedural guidelines that will be utilized in the planning and development of the stormwater facility will be in accordance with the applicable regulatory standards (*MOE Stormwater Management Planning and Design Manual*, (March 2003)). The erosion and sediment control features identified on Figure 1 will form the basis for the operational stormwater management system. Silt fence and staked hay bales will be removed only after disturbed portions of the site have been stabilized with ground cover vegetation.

Runoff from the new bridge will be collected in a stormwater conveyance system, located on the bridge deck. This runoff will be connected to a pipeline that will drain into the project storm water management facility for further treatment and discharge. Runoff from the existing bridge will be treated as it is being treated today. Likewise, runoff from the plaza expansion will be connected to a pipeline that will drain into the project storm water management facility for further treatment and discharge..

The proposed project will add to the impervious area that already exists, thereby increasing the rate of peak surface water discharges during storm events. To mitigate the impact on surface runoff, a stormwater management and treatment facility shall be created. The facility will be designed to store and slowly release storm water to prevent flooding and to minimize the release of soil particles and suspended particulate matter that could compromise the water quality of receiving water bodies. The facility would be designed to accommodate a specific storm event frequency in accordance with the applicable regulatory standards. If stormwater retention ponds are required, they will be designed to fit into the project landscape scheme.