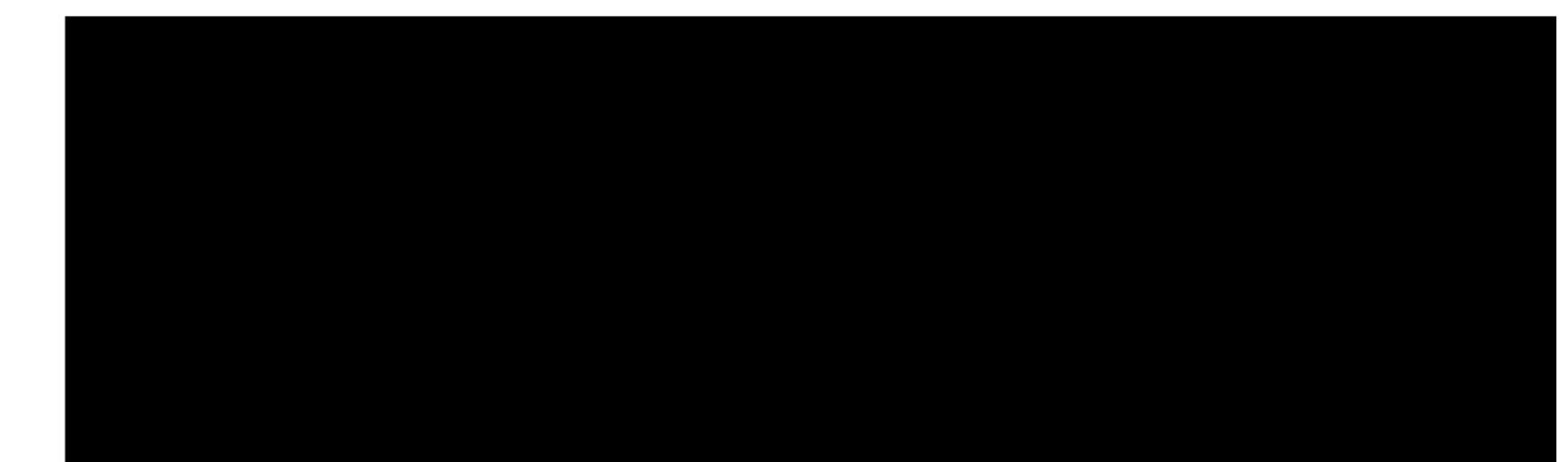




WELCOME

Town of Caledon
Coleraine Drive and King Street West
Stormwater Outfall Erosion Control Project
Municipal Class Environmental Assessment
PUBLIC INFORMATION CENTRE
October 30th, 2019

Your comments are encouraged and appreciated, as this will provide us an opportunity to address project issues and concerns.



Feedback

Consultation



STUDY PURPOSE

The Town of Caledon has initiated this study to address stream erosion and sedimentation concerns downstream of Coleraine Drive on the south side of King Street West.

STUDY BACKGROUND



- The Town of Caledon completed a Stormwater Management Master Plan in 2016.
- The erosion inventory completed as part of Stormwater Management Master Plan focused on receiving watercourses downstream of the stormwater management facilities.
- This study site was identified as the one high priority erosion site where stream rehabilitation was recommended.
- The current study will be undertaken as a Municipal Class Schedule 'B' Environmental Assessment.
- The intent is to develop, evaluate, and recommend alternatives for reducing the risks from stream erosion in this area.



PUBLIC INFORMATION CENTRE PURPOSE

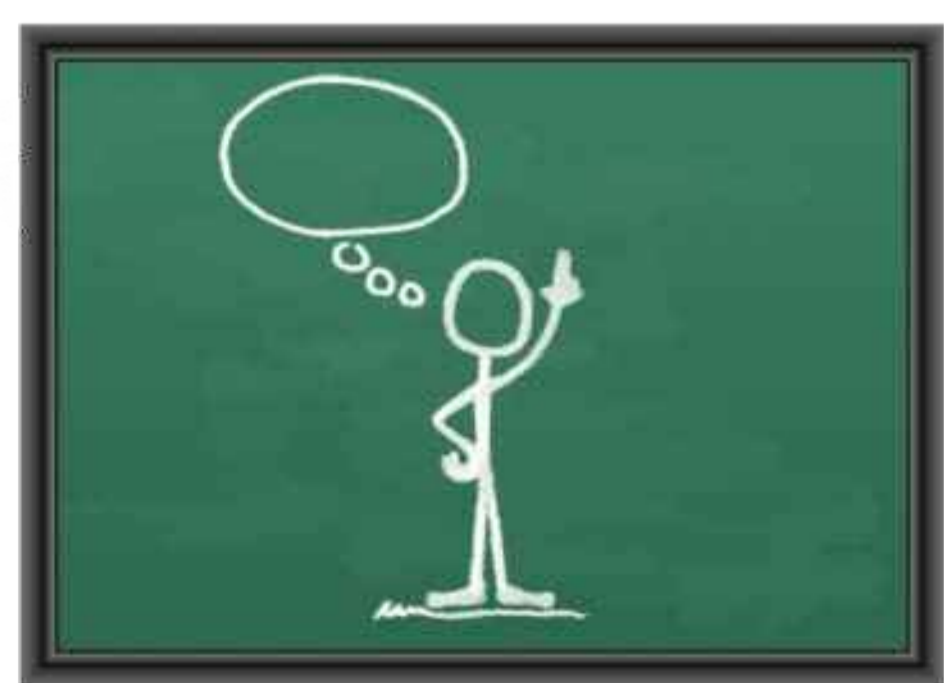
CONSULTATION

- This Public Information Meeting will provide you with information on existing conditions and constraints.
- The study follows the Municipal Class Schedule 'B' Environmental Assessment process which provides an opportunity for the public to offer comments and feedback to the study, and to discuss related concerns with the study team.

FEEDBACK: The public is encouraged to provide input at this Public Information Centre (PIC).

Please provide feedback on:

- The results of the existing conditions study
- The alternative solutions and evaluation criteria
- The recommended solution





MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PROCESS



Many projects related to municipal systems are similar in nature, are carried out routinely, and have predictable environmental effects that can largely be mitigated.

Based on Municipal Class Environmental Assessment requirements in Ontario, the Coleraine Drive and King Street West Stormwater Outfall Erosion Control Project has been classified as a **Schedule B** project following phases 1 and 2 of the planning and design process. Schedule B projects have the potential for some adverse environmental effects and generally include improvements and minor expansions to existing facilities.



The flow chart below illustrates the key steps to be completed as part of phases 1 and 2 of the Municipal Class EA process under **Schedule B**.

- Phase 1 – Identify Problems**
- Identify Problem or Opportunity
- Document Existing Conditions

- Phase 2 – Alternative Solutions**
- Identify Alternative Solutions
- Select EA Schedule Process – Schedule B Selected
- Inventory Natural, Social, Economic Environments
- Identify Impact of Alternative Solutions
- Evaluation of Alternative Solutions
- Identify Recommended Solution
- Consult Public and Review Agencies
- Notice of Completion 30 Day EA Review Period
- Detailed Design, Approvals, and Implementation



We Are Here



Feedback

Consultation



EXISTING CONDITIONS

Stream Erosion



A Stormwater Management Facility Pond 9: Upstream of study area, west of Coleraine Drive



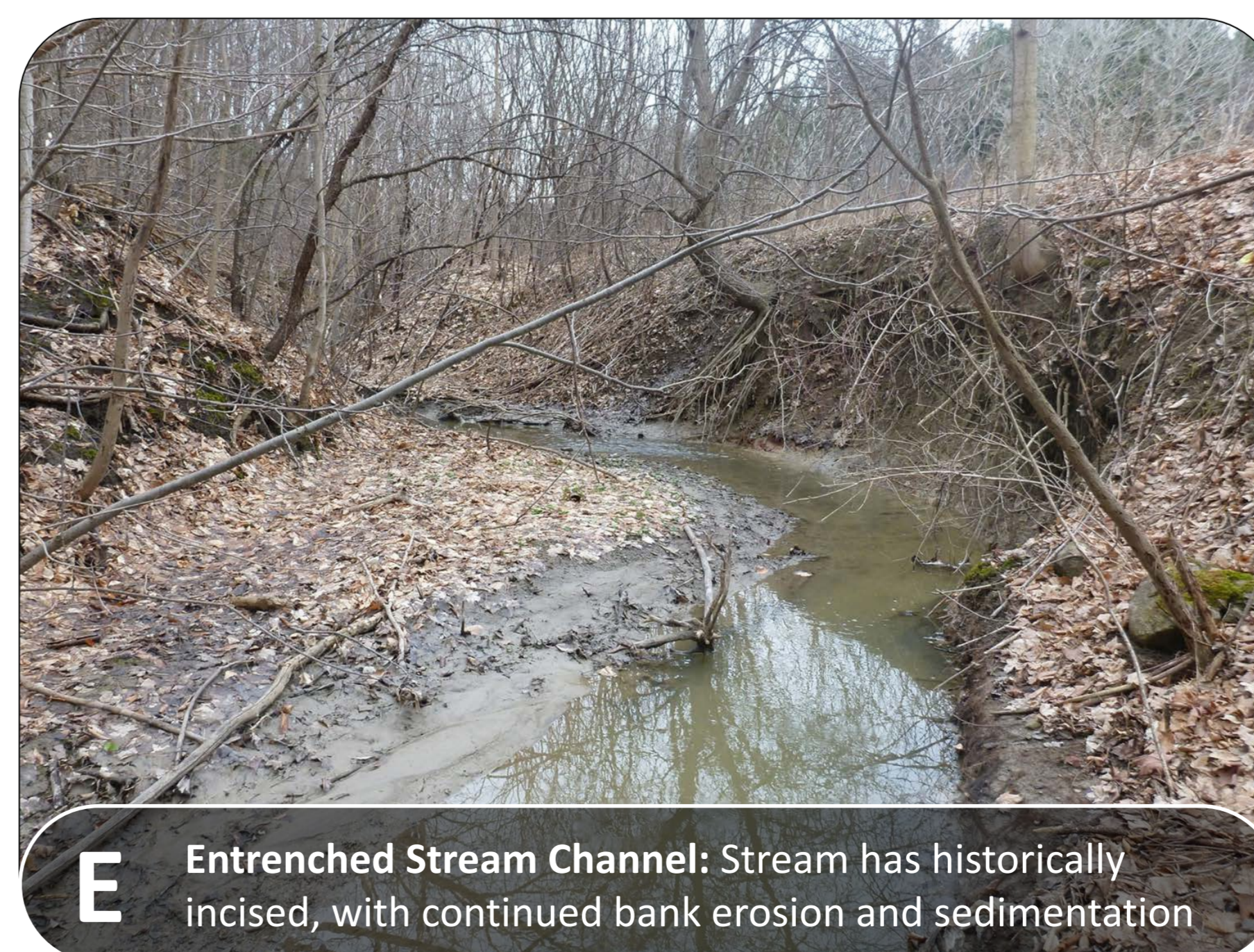
B Stormwater Outfall from Pond 9: Perched concrete apron for outfall at upstream limit of study area.



C Watercourse Downstream of Outfall: Bank erosion and undermined trees in stream channel.



D Failure of Valley Slope Toe: Bank erosion along valley wall causing local slope failures, including fallen trees



E Entrenched Stream Channel: Stream has historically incised, with continued bank erosion and sedimentation



H Stormwater Management Facility Pond 10: Downstream of study area, south of King Street West



G Watercourse Inlet to Pond 10 Downstream: Sediment from upstream channel delivered to pond downstream



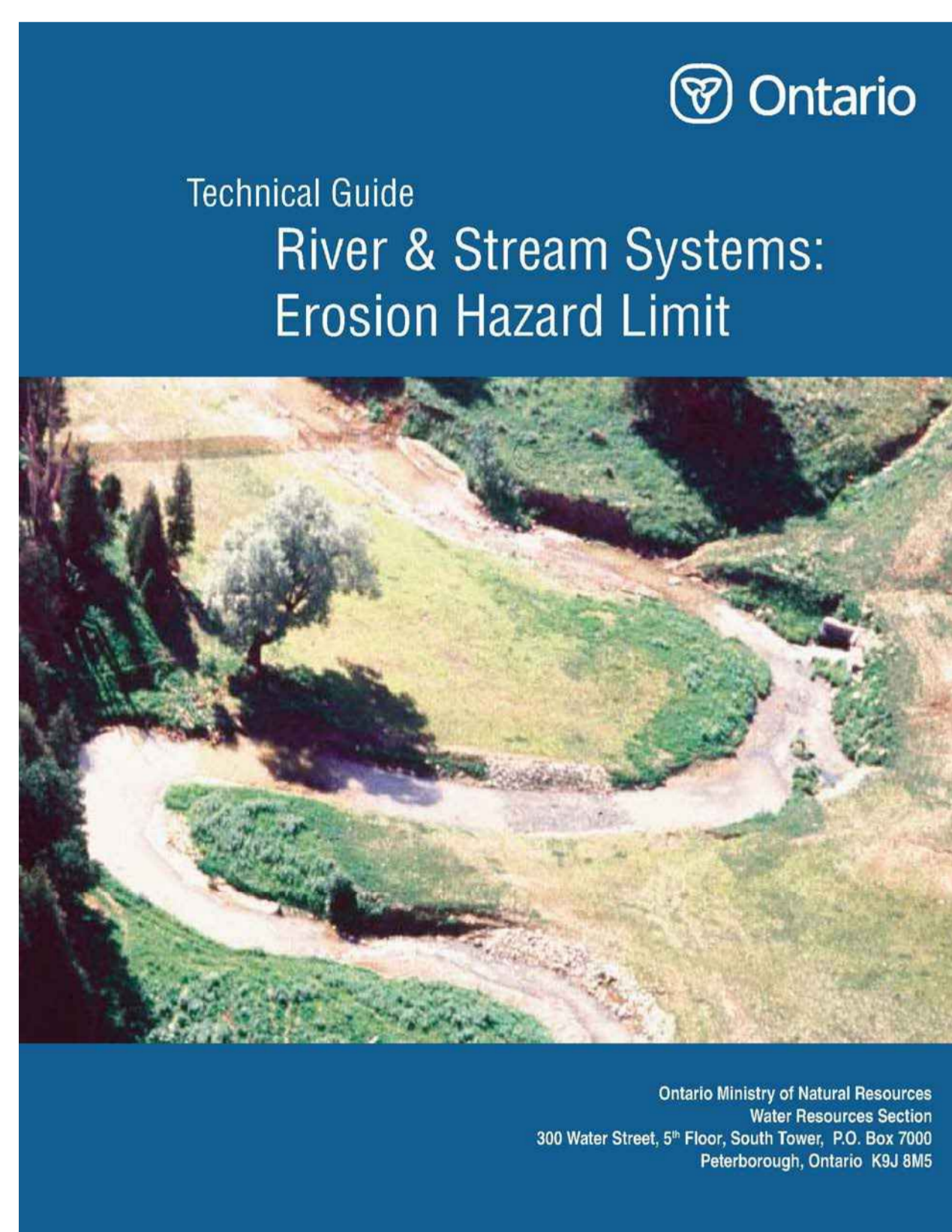
F Scour Around Large Woody Debris: Excessive erosion increases input of woody material to the watercourse



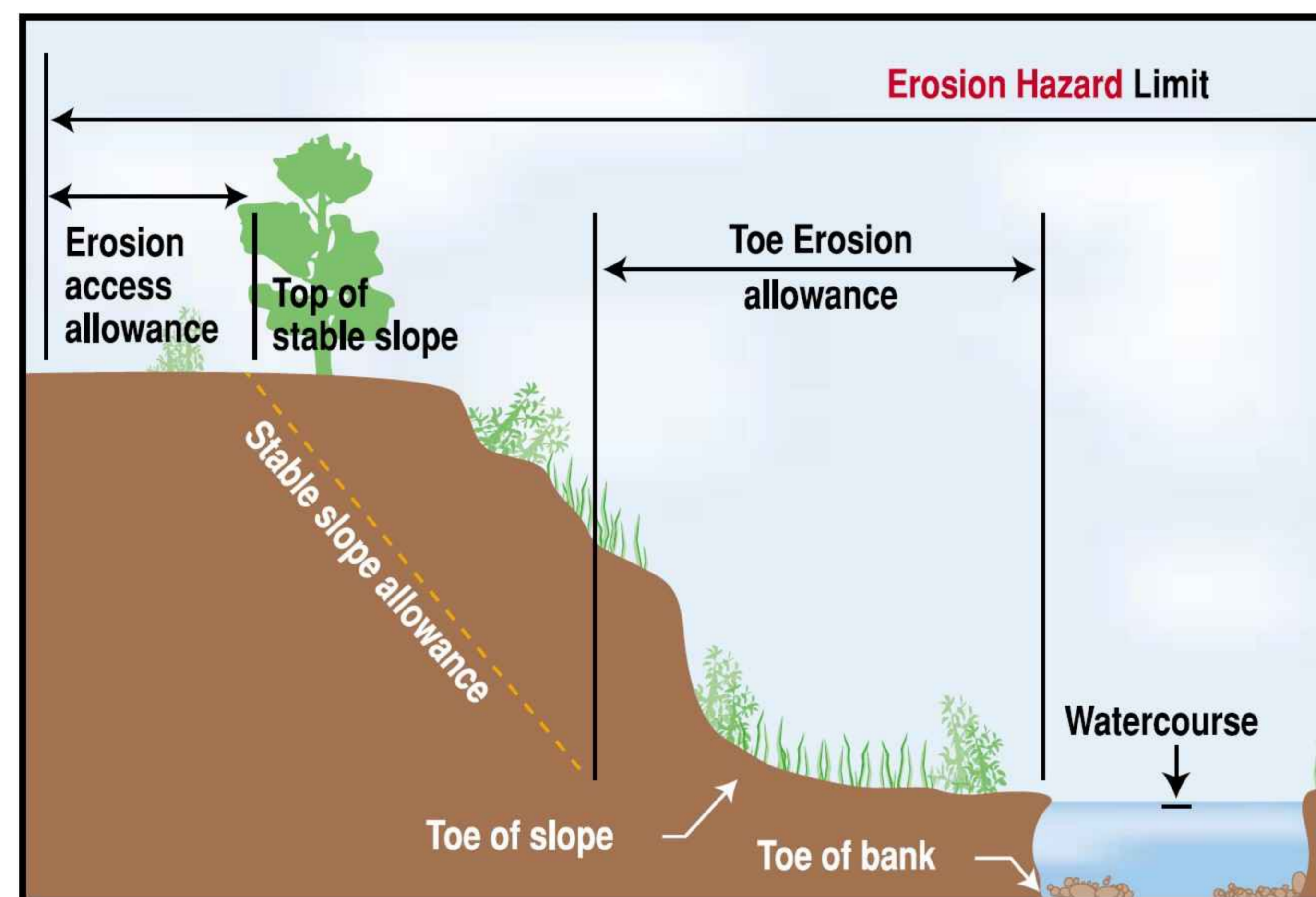
EXISTING CONDITIONS

Slope Hazards

The long-term stable slope hazards for the Coleraine erosion site have been assessed based on geotechnical guidelines published by the Ontario Ministry of Natural Resources (2002).

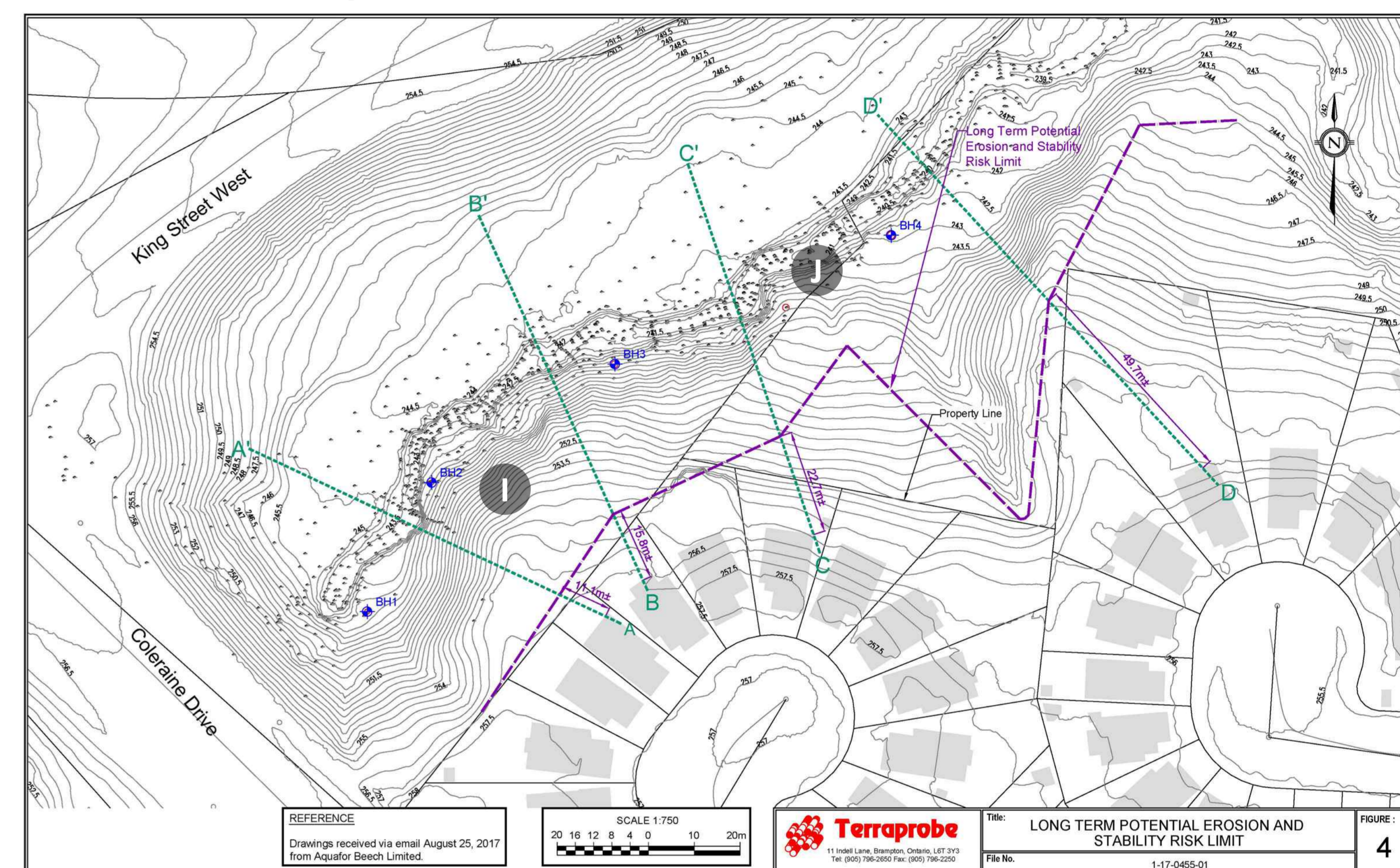


Long-Term Stable Slope Hazard Provincial Guidelines

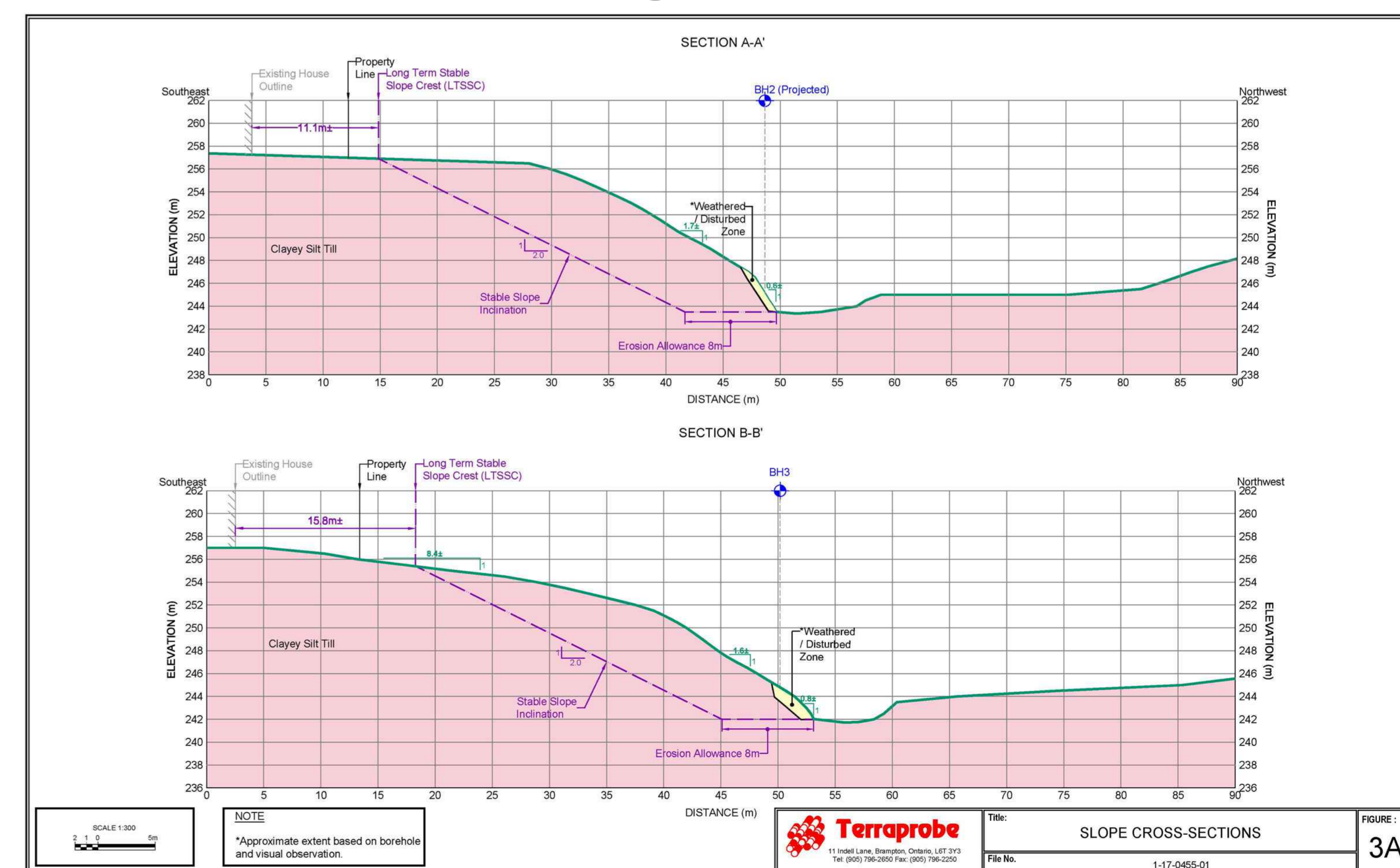


Source: Ontario Ministry of Natural Resources, 2002

Map of Long-Term Stable Slope Hazard



Cross-sections of Long-Term Stable Slope Hazard



South Valley Wall: Steep forested slope adjacent to watercourse



Failure of Valley Slope Toe: Bank erosion along valley wall causing local slope failures, including fallen trees

EXISTING CONDITIONS

Natural Heritage

TREE INVENTORY

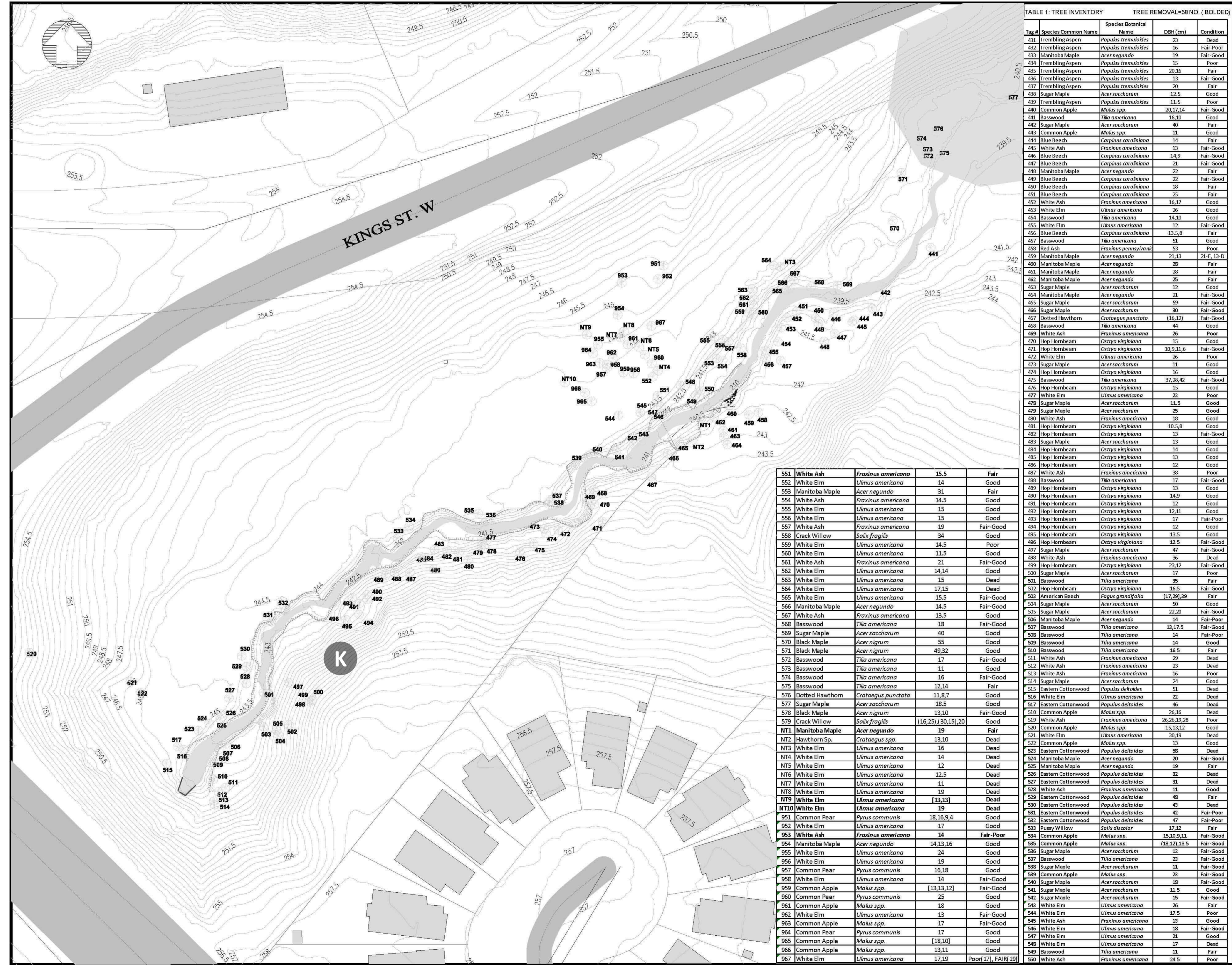
An inventory of trees within the study area was completed in July 2017.

Species Common Name	Species Botanical Name
Acer negundo	Manitoba Maple
Acer nigrum	Black Maple
Acer saccharum	Sugar Maple
Carpinus caroliniana	Blue Beech
Crataegus punctata	Dotted Hawthorn
Crataegus spp.	Hawthorn Sp.
Fagus grandifolia	American Beech
Fraxinus americana	White Ash
Fraxinus pennsylvanica	Red Ash
Malus spp.	Common Apple
Ostrya virginiana	Hop Hornbeam
Populus deltoides	Eastern Cottonwood
Populus tremuloides	Trembling Aspen
Salix discolor	Pussy Willow
Salix fragilis	Crack Willow
Tilia americana	Basswood
Ulmus americana	White Elm



K Tree Inventory: Photo of forested slope adjacent to the watercourse.

Detailed Tree Inventory



BAT ROOSTING
It is expected that potential works will impact candidate bat maternity roost sites.

SPECIES AT RISK

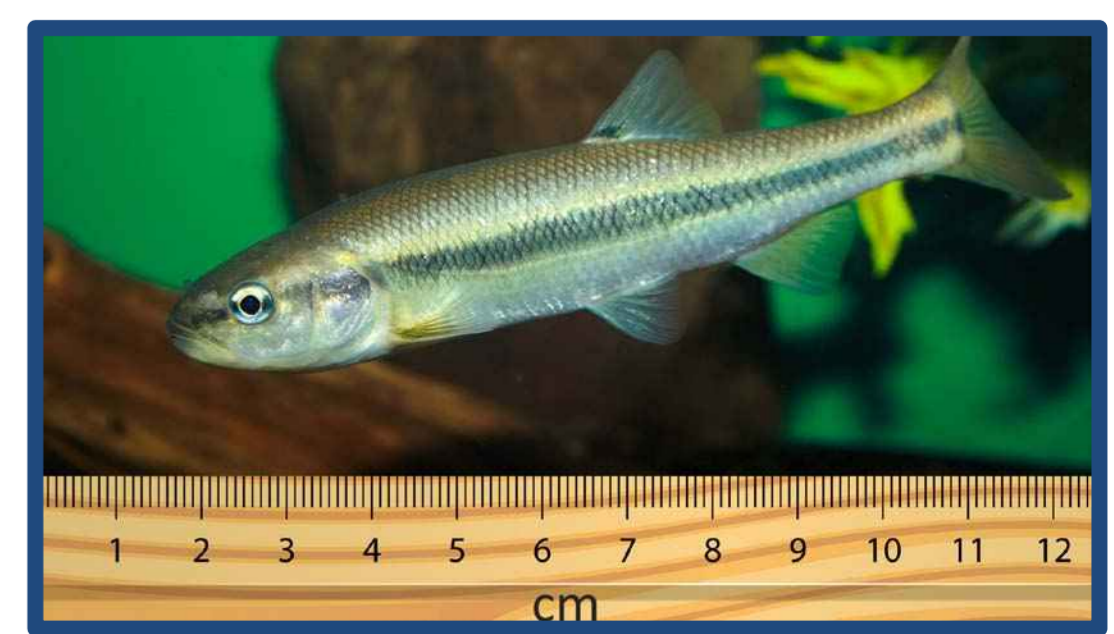
Consultation has been initiated with Ontario Ministry of Natural Resources*. Potential species at risk include Blanding's turtle (threatened), butternut trees (endangered) and various species of endangered bats. No species at risk have been found within, or adjacent to, the study area.



Blanding's Turtle

FISHERIES and AQUATIC HABITAT

The fisheries designation for the watercourse is warm water, with a construction window of July 1st to March 31st. No in-water works are allowed from April 1st to June 30th.



Creek chub

*Note: ESA now managed under Ministry of Environment, Conservation, and Parks (MECP)



Alternative Solutions

ALTERNATIVE 1 – DO NOTHING

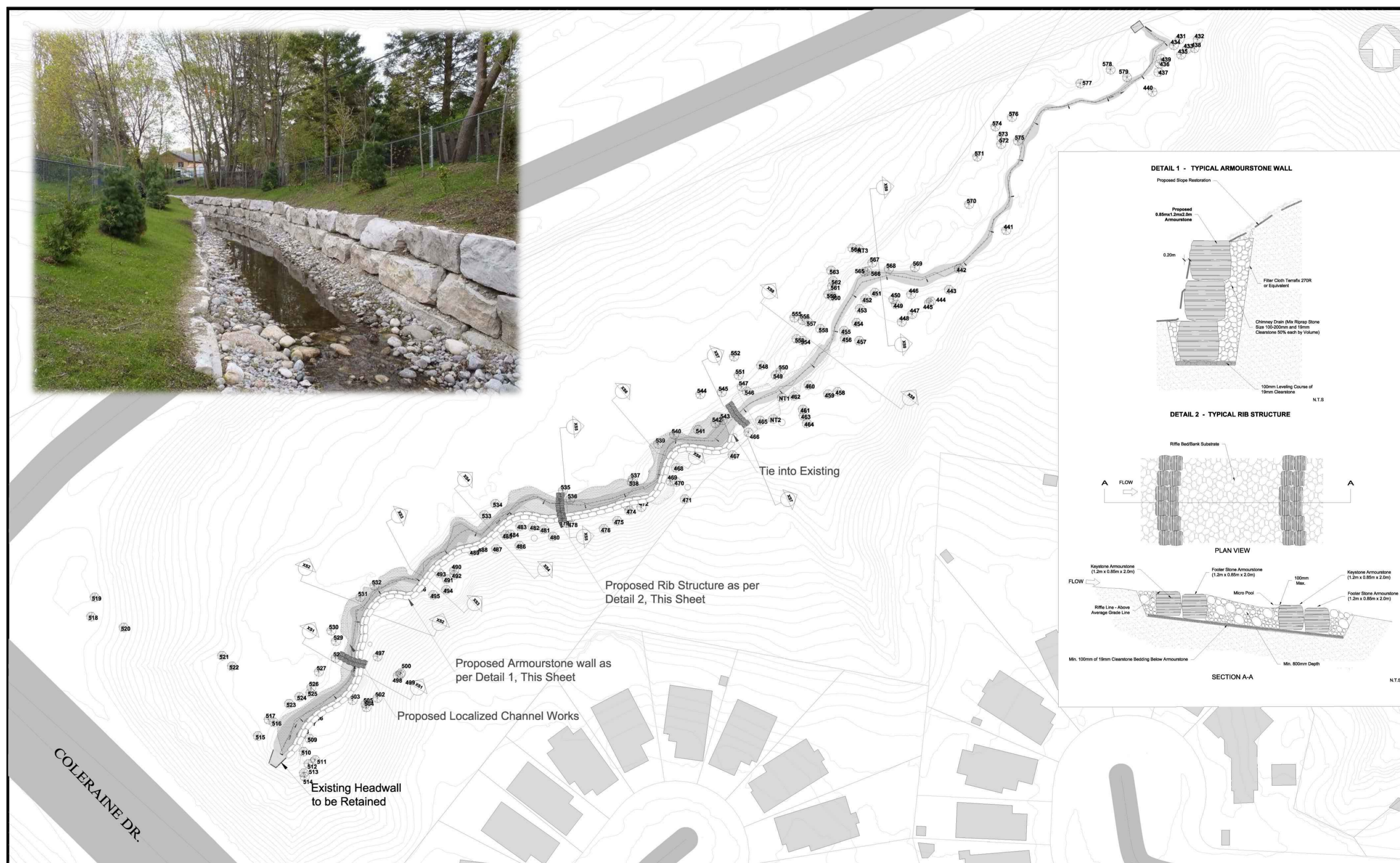
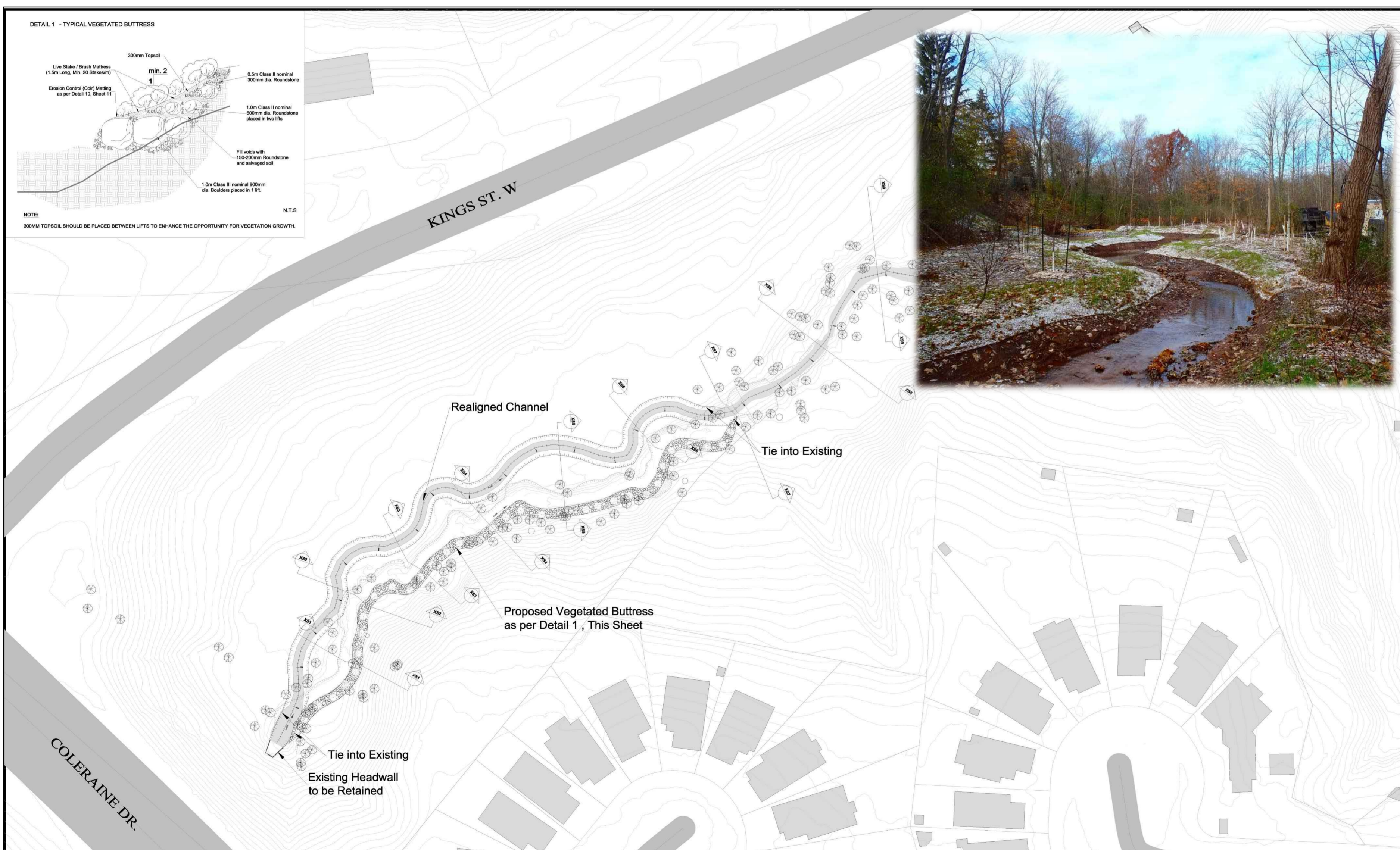
Required for consideration under the EA process, this alternative involves leaving the site as is and allowing erosion processes to continue within the watercourse corridor. Works may still have to be undertaken in the future if erosion risks continue to worsen. The risks from continued erosion also include the impacts of excess sedimentation on downstream stormwater management ponds and aquatic habitats.

ALTERNATIVE 2 – REALIGN CHANNEL AND PROTECT TOE

Realign the channel northwards away from contact with the toe of the south valley wall allowing for continued migration with lower erosion rates. Install a vegetated rock buttress to protect the south slope toe from future erosion.

ALTERNATIVE 3 – PROTECT IN PLACE

Construct an armourstone wall at the valley toe to protect against future bank erosion with stone grade control structures to prevent erosion within the channel. Some minor channel realignment may still be required.



ALTERNATIVE 4 – REMOVAL OF RISK

Allow erosion to continue by removing, if possible, the risks from future erosion within the channel and valley corridor.

This alternative may include some combination of:

- Removal of public infrastructure from the channel and valley corridor that is at risk within the erosion and flooding hazards zones;
- Removal of private property and structures from the erosion and flooding hazard zones (and for securement of natural features) through land acquisition; and
- Removal or mitigation of risks to downstream reaches as per the above list.



Evaluation of Alternatives

As a part of the EA process, each alternative must be evaluated based on a set of physical, natural, social, cultural, economic environments, as well as technical and engineering considerations. For each criteria item, a score was applied ranging from 1 to 5.

Evaluation Criteria	Description
Physical and Ecological Environment Factors	
Addresses stream erosion risks	Greater effectiveness to address erosion risks to public and/or private lands for longer time scores higher
Addresses stream flooding risks	Greater effectiveness to address flooding risks to public and/or private lands for longer time scores higher
Enhances or maintains aquatic/terrestrial habitat	Greater potential to enhance or maintain existing aquatic and terrestrial habitat scores higher
Avoids environmental and habitat disturbance	Greater potential to avoid environmental disruption and habitat disturbance scores higher
Social and Cultural Environment Factors	
Public acceptance	Expectation of greater public acceptance scores higher based on environmental, social, and economic values
Maintains public recreational resources	Greater potential to maintain public recreational resources scores higher, including trails and park spaces
Minimizes community disruption	Less disruption of the surrounding community and residents scores higher
Enhances or maintains public health and safety	Greater protection of public health and safety for a longer time scores higher
Economic Environment Factors	
Capital construction costs	Lower construction cost relative to other alternatives scores higher
Operation and maintenance costs	Lower operations and maintenance costs relative to other alternatives scores higher
Life cycle costs	Lower life cycle costs relative to the other alternatives scores higher, assuming 50 year planning horizon
Infrastructure protection	Greater protection of existing infrastructure for a longer time scores higher
Technical and Engineering Factors	
Ease of implementation (or project complexity)	Greater ease of implementation scores higher (or lower project complexity scores higher)
Technical feasibility (or solution viability)	Greater technical feasibility scores higher (or greater solution viability scores higher)
Agency acceptance	Expectation of greater acceptance by regulatory authorities scores higher, with focus on environmental policies
Town acceptance	Greater compliance with Town plans, policies, and bylaw requirements scores higher, with focus on public service

Ranking Scale						
Negative Impact	1	2	3	4	5	Positive Impact

Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Realign Channel and Protect Toe	Alternative 3 Protect in Place	Alternative 4 Removal of Risk
Physical/Natural Environment				
Addresses Stream Erosion Risks	1	3	5	3
Addresses Stream Flooding Risks	3	3	3	3
Enhances or Maintains Aquatic and Terrestrial Habitat	2	3	4	2
Avoids Environmental Disruption and Habitat Disturbance	4	2	3	4
Social/Cultural Environment				
Public Acceptance	3	4	5	1
Maintains Public Recreational Resources	3	3	3	3
Minimizes Community Disruption	3	2	2	1
Enhances or Maintains Public Health & Safety	1	3	4	3
Economic Considerations				
Capital Construction Costs	4	2	2	1
Operation and Maintenance Costs	2	3	3	4
Life Cycle Costs	3	4	2	3
Infrastructure Protection	1	3	5	3
Technical, Engineering, and Approvals				
Ease of Implementation (Project Complexity)	4	3	3	1
Technical Feasibility (Viable Solution)	3	4	4	1
Agency Acceptance (Environmental Priorities)	3	4	4	3
Town Acceptance (Public Priorities)	2	3	4	1
Total Score (/80)	42	49	56	37

5 = Alternative ranks high compared to other alternatives

1 = Alternative ranks low compared to other alternatives

Feedback

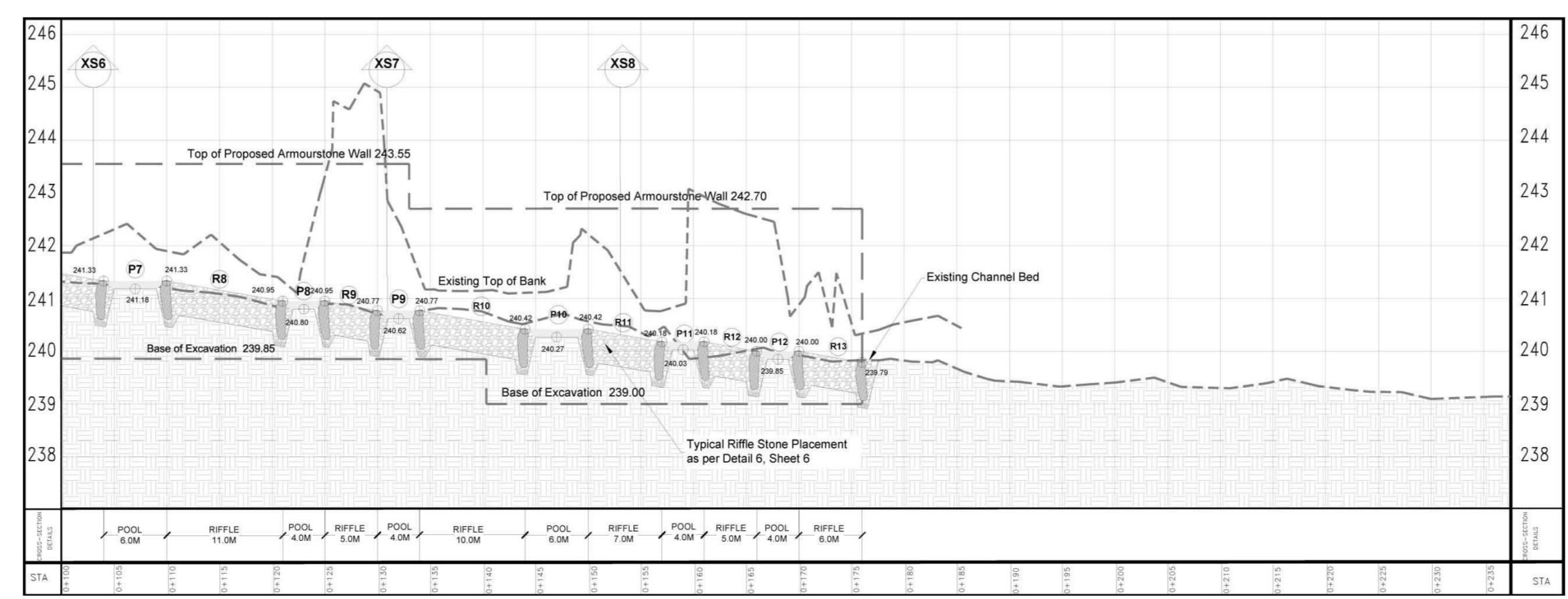
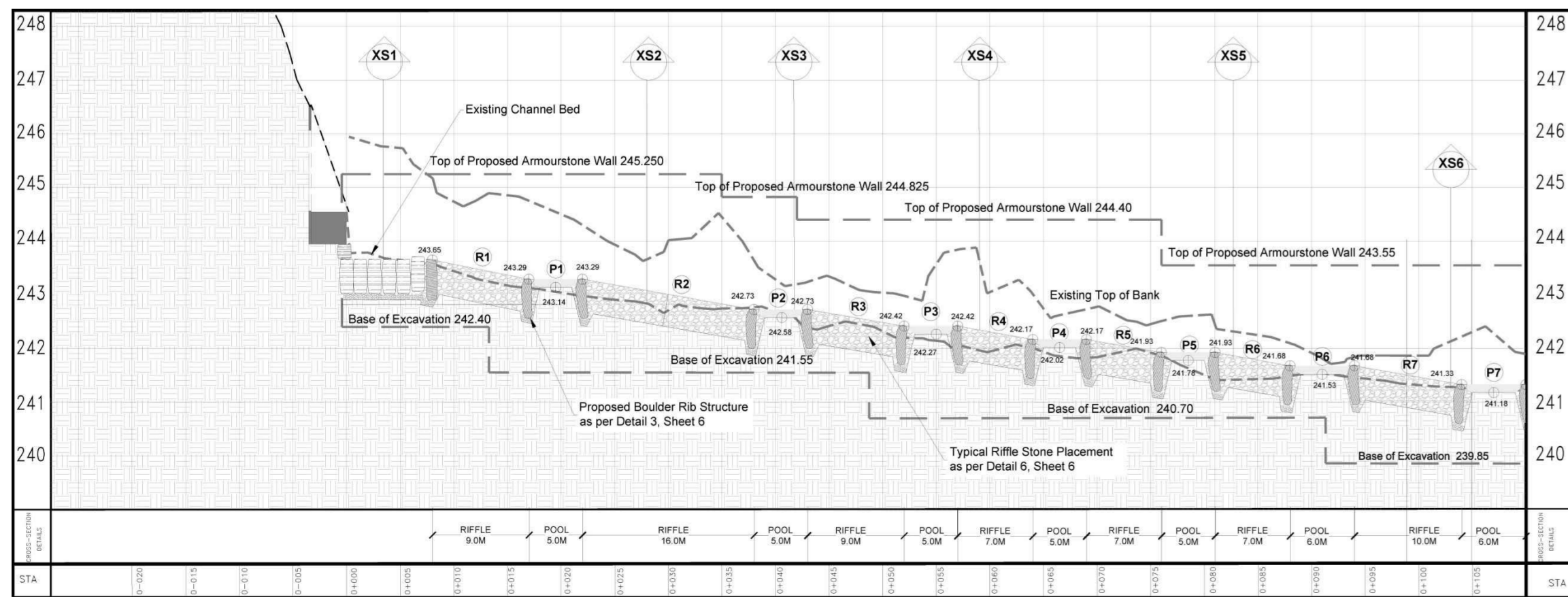
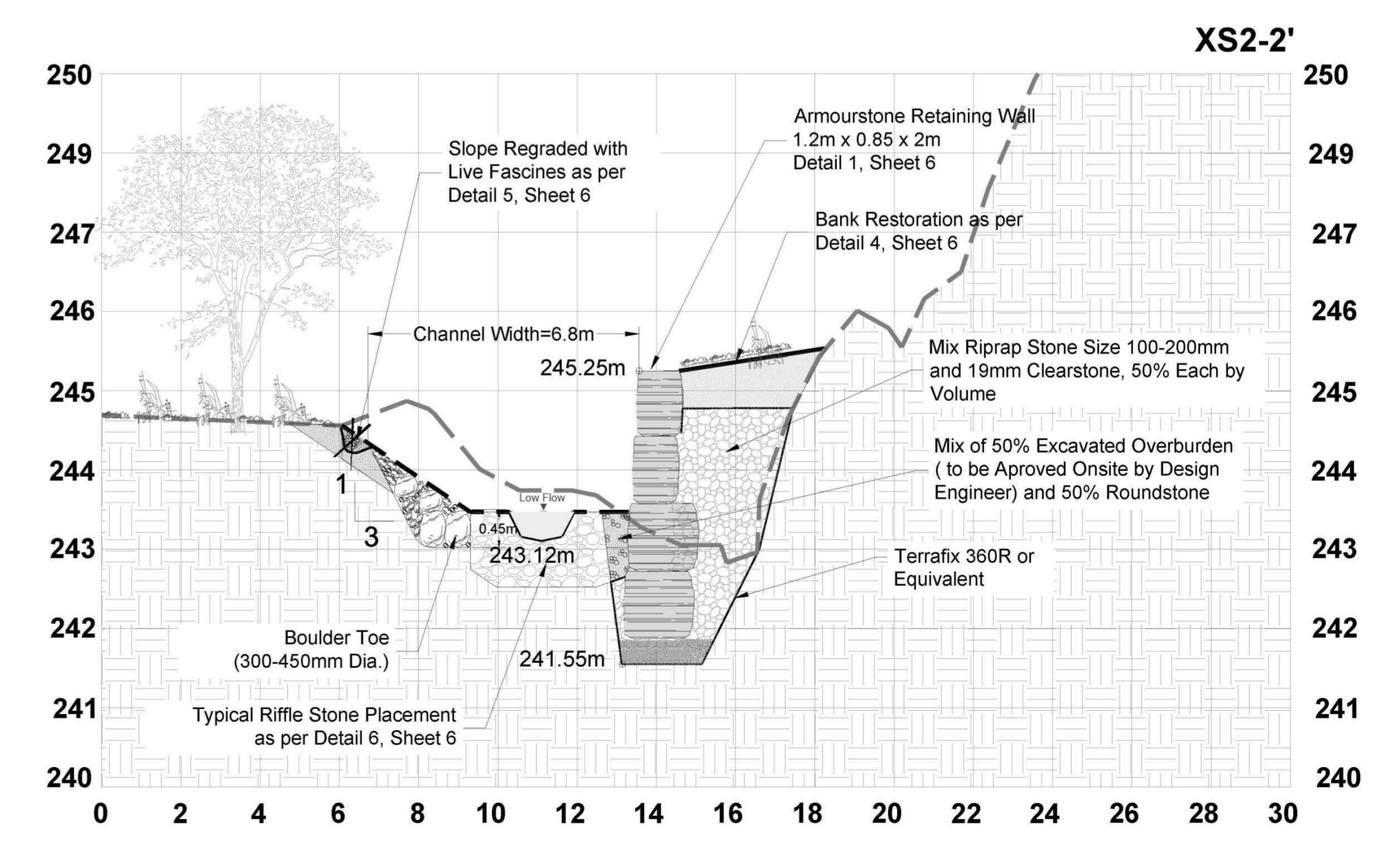
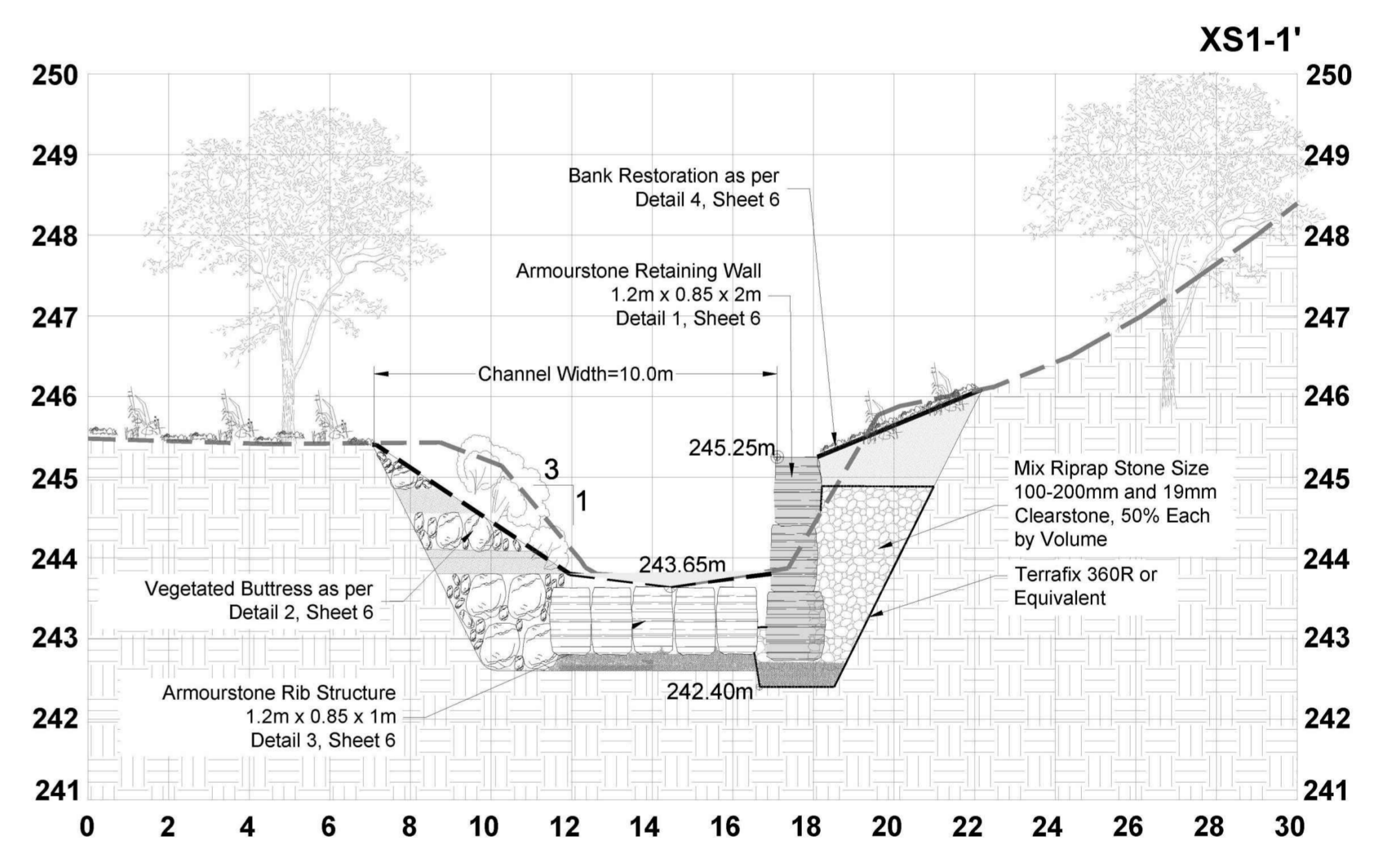
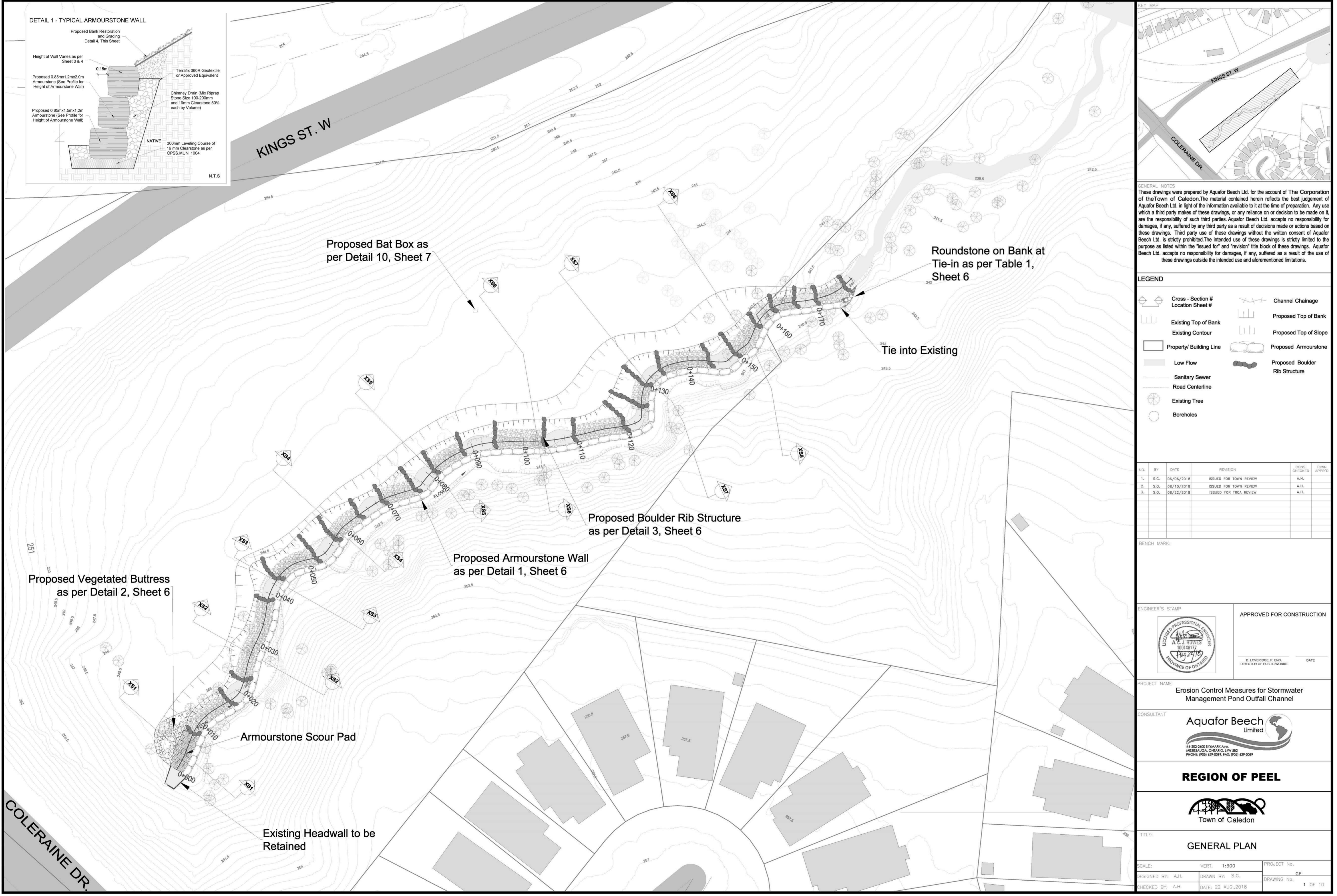
Consultation



Recommended Alternative

Alternative 3 – Protect in Place is recommended based on the long-term stable slope hazard from the geotechnical report and due to the negative impacts of continued sedimentation to downstream stormwater management ponds and watercourses.

Preliminary Functional Design



Feedback

Consultation



NEXT STEPS



CONSULT WITH STAKEHOLDERS AND REGULATORY REVIEW AGENCIES

- Region of Peel
- Toronto and Region Conservation Authority (TRCA)
- Ontario Ministry of Environment, Conservation and Parks (MECP)
- Canada Department of Fisheries and Oceans (DFO)

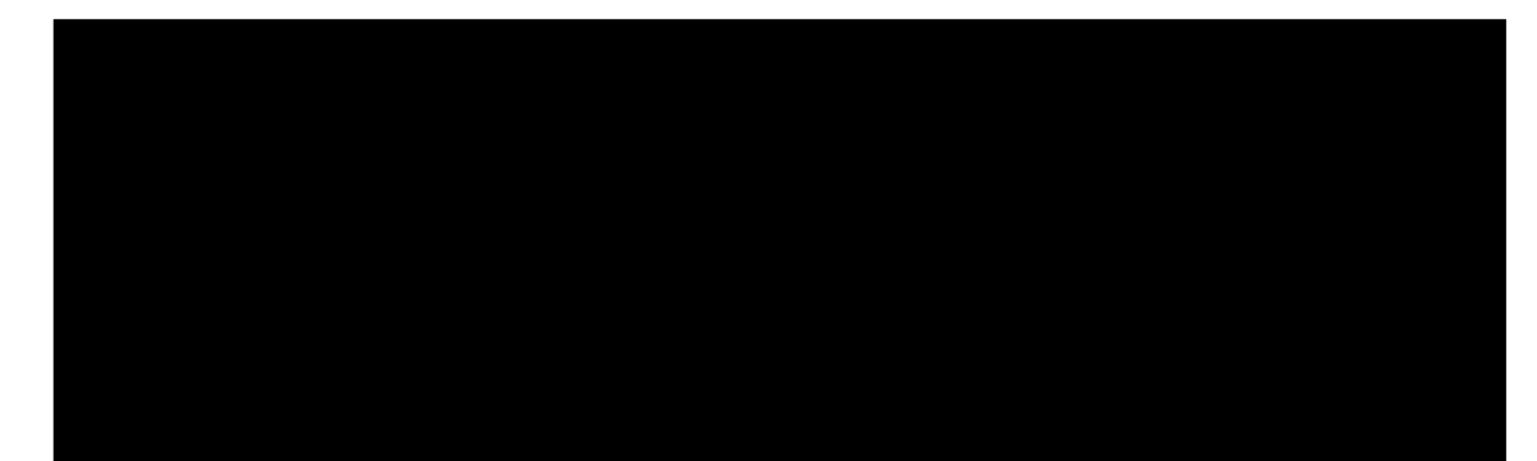
ENVIRONMENTAL ASSESSMENT NOTICE OF COMPLETION

- Public Notice of Completion to the Ministry of Environment, Conservation and Parks
- Project File available for 30 day public review period

PROJECT IMPLEMENTATION

- Detailed design and tender documents
- Approvals from regulatory agencies
- Contract tendering and construction

THANK YOU



Feedback

Consultation