

Beverley Acres German Mills Creek Erosion Control

Community Liaison Committee Meeting #1

October 26th, 2023



AGENDA



Beverley Acres German Mills Creek Erosion Control

1. Project Overview
2. Roles and Introductions
3. Existing Conditions & Background Information
4. Schedule B Municipal Class Environmental Assessment (MCEA)
Process
5. Municipal Class Environmental Assessment Problem Statement
6. Planned Technical Assessments
7. Preliminary Identification of Alternative Solutions
8. Public Consultation
9. Project Schedule & Next Steps



Project Overview

Erosion and natural hazards are placing York Region sanitary sewer infrastructure at risk along a portion of German Mills Creek in the Beverly Acres Community of Richmond Hill. A total of six (6) sanitary sewer risk sites have been identified. TRCA, in partnership with York Region, have retained Aquafor Beech Limited to complete an Environmental Assessment and detailed design to address the risks to York Region infrastructure.



Project Study Area

Roles and Introductions



Beverley Acres German Mills Creek Erosion Control

Aquafor Beech Ltd Staff

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- Jacob Ursulak – ursulak.j@aquaforbееch.com
- Terrance Singh – singh.t@aquaforbееch.com



Toronto and Region Conservation Authority Staff

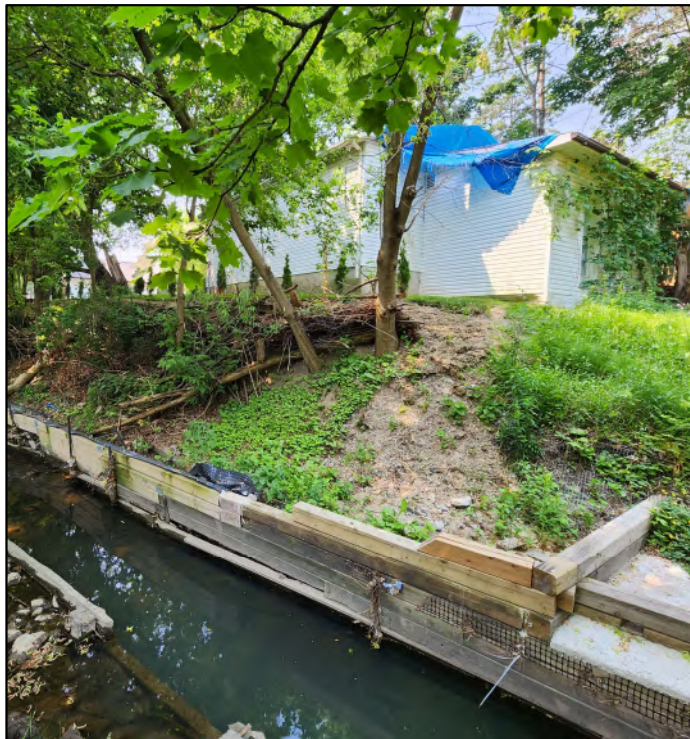
- Phil Wolfrain - 416.902.3709 - Phil.Wolfrain@trca.ca (**Lead Contact**)
- Iris Yan – Iris.Yan@trca.ca



Background Information

Historic and recently constructed bank protection works within German Mills Creek are common within the study area, including:

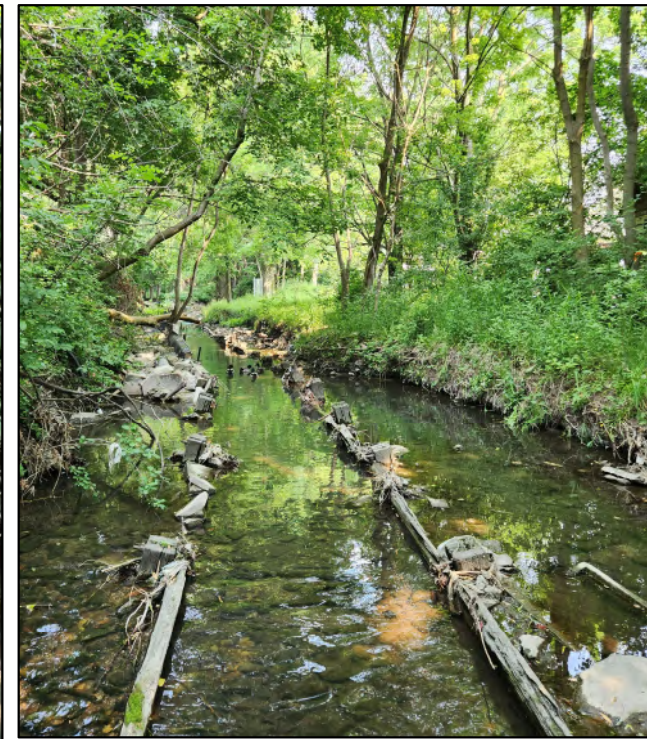
- Wooden retaining walls
- Gabion baskets
- Timber channel lining



Recently constructed wooden retaining wall



Gabion basket bank protection



Historic timber channel lining

Background Information

- These bank protection measures have started to degrade, fail, and become outflanked and undermined, leading to accelerated erosion:



Undermined gabion baskets and heavily eroded channel banks



Outflanked timber channel lining

Background Information

- This erosion has placed the adjacent sanitary trunk sewer and residential private properties at risk:



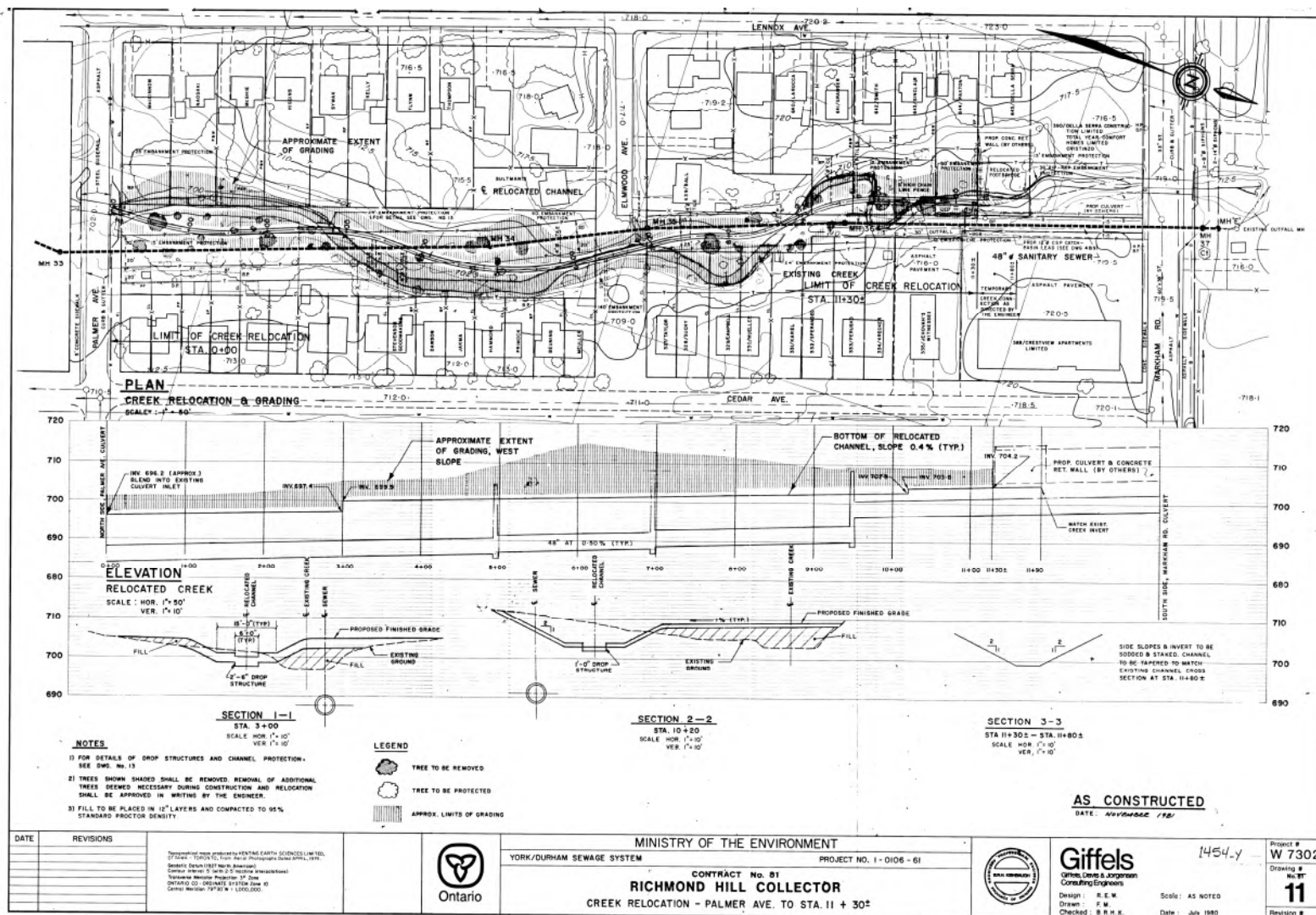
Sanitary manhole in close proximity to channel



Bank erosion impacting adjacent residential properties

Background Information – As-Builts

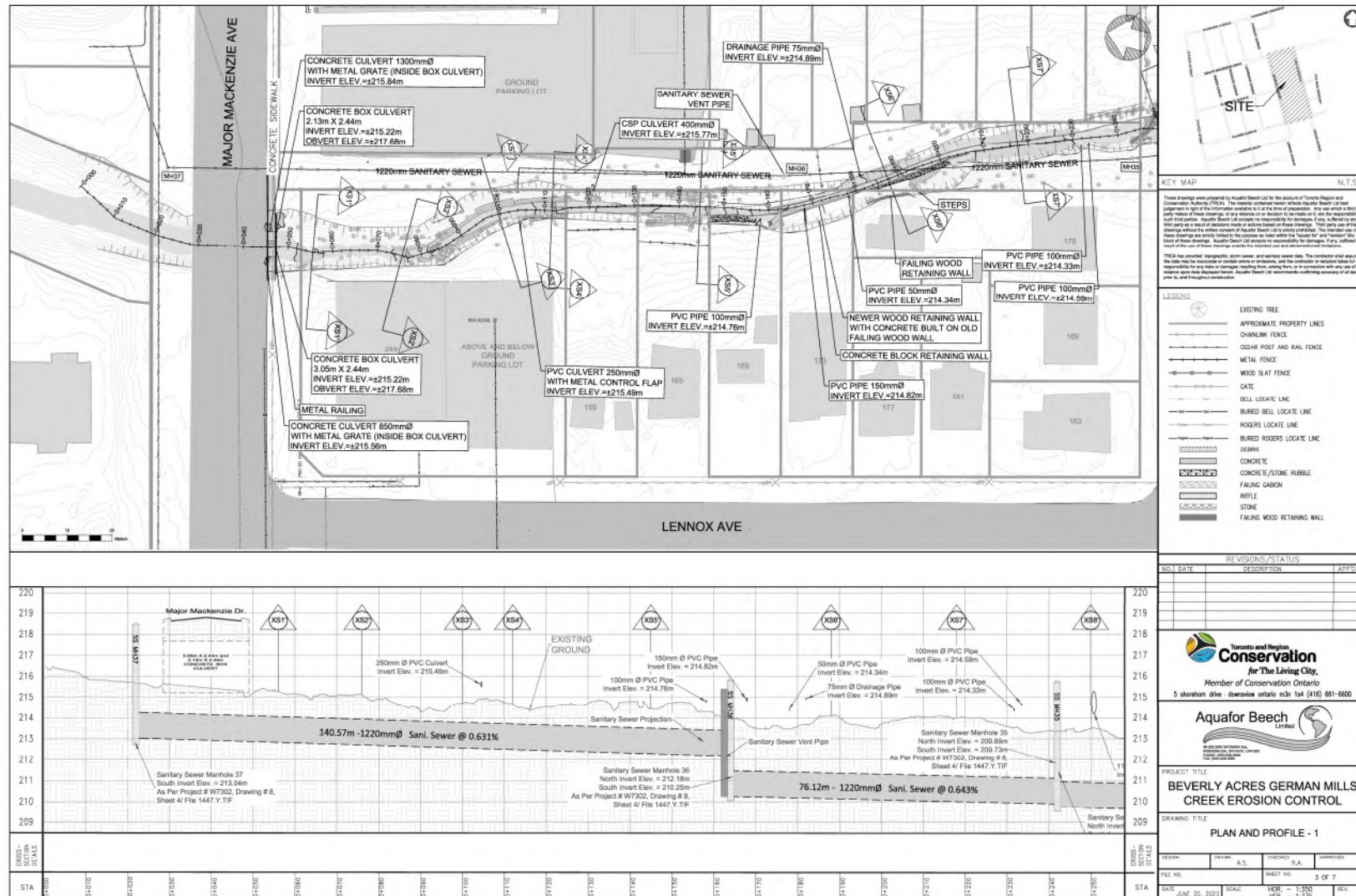
- The at-risk sewer is 1,200 mm in diameter
- German Mills Creek was modified to accommodate the sewer



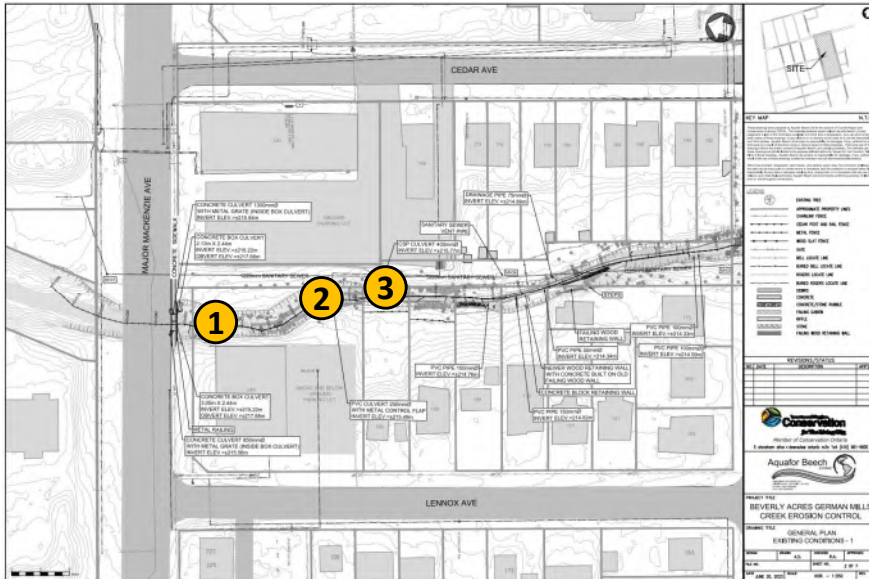
As-Constructed Creek Relocation Drawings (November, 1981)

Existing Conditions

Aquafor has created engineering drawings illustrating the existing channel conditions, as shown below:



Existing Conditions



Major Mackenzie Drive culvert crossing

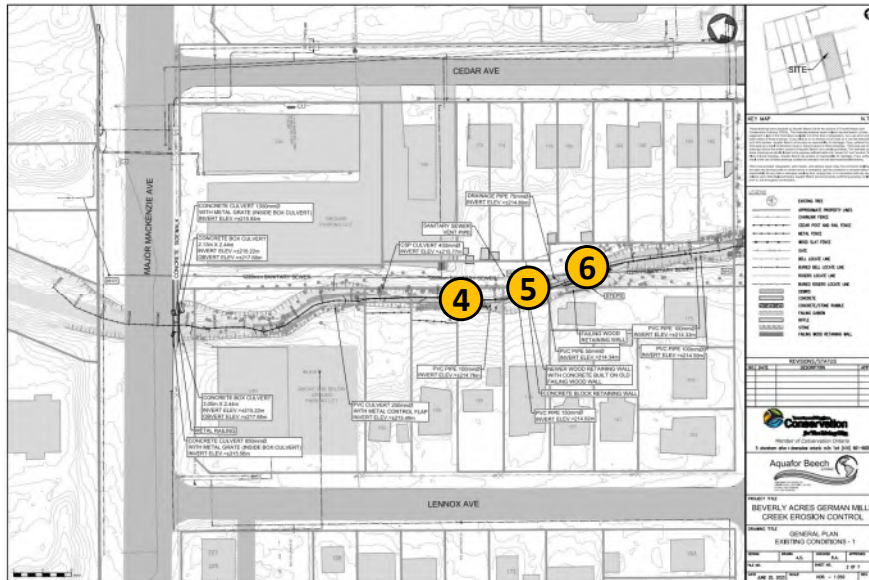


Failing gabion basket bank protection works



400 mm diameter corrugated metal pipe outfall

Existing Conditions



Concrete rubble and debris

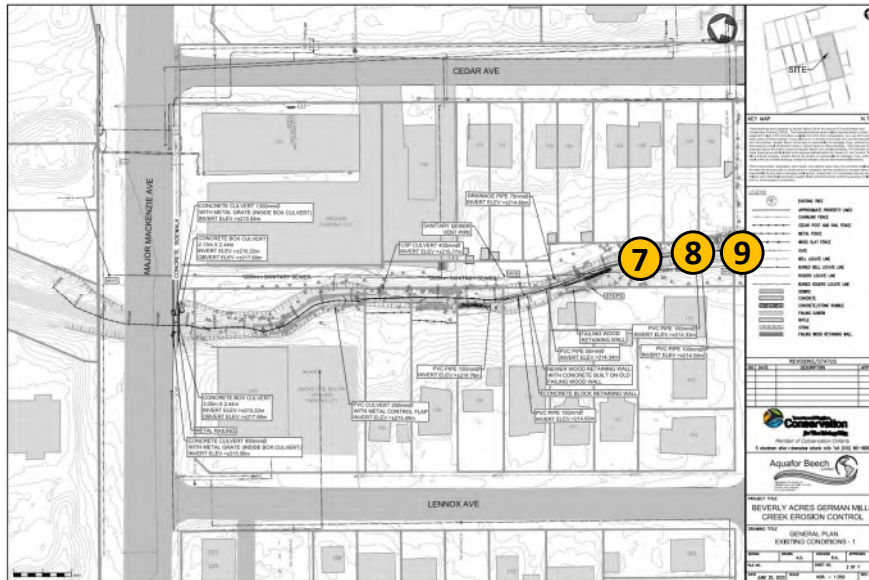


Timber creek retaining walls



Active channel widening

Existing Conditions



Active channel widening

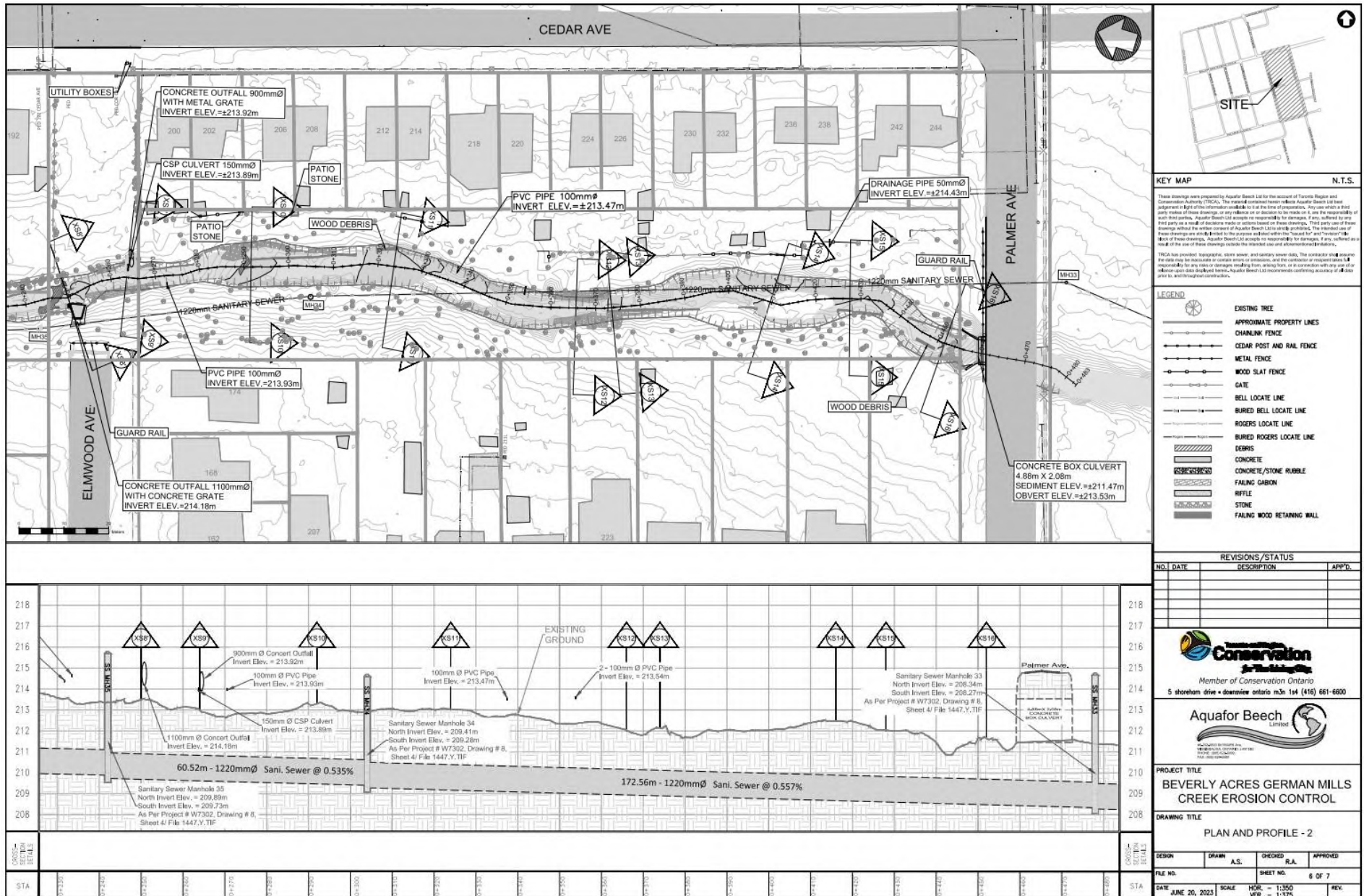


PVC pipe outlets

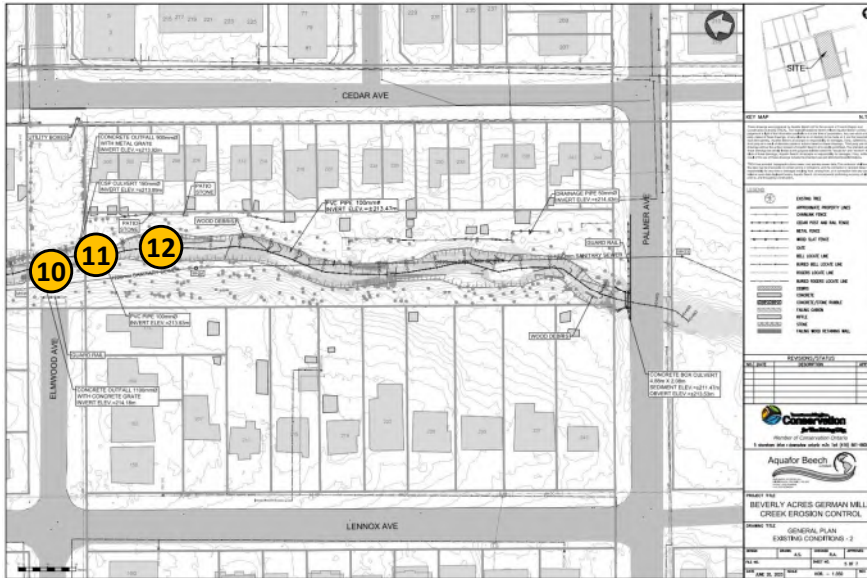


Channel conditions at the study area mid-point

Existing Conditions



Existing Conditions



1,100 mm diameter concrete outfall

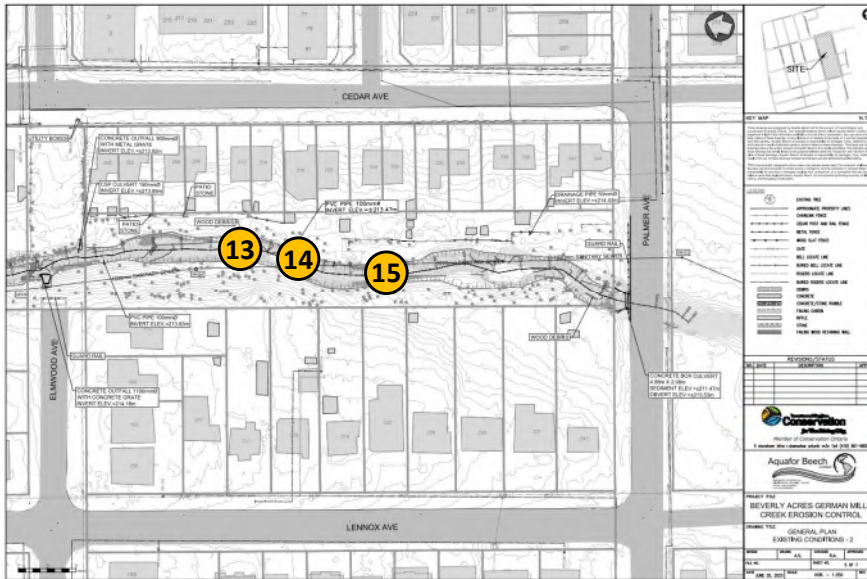


900 mm diameter concrete outfall



Accumulated channel debris

Existing Conditions



Active bank erosion

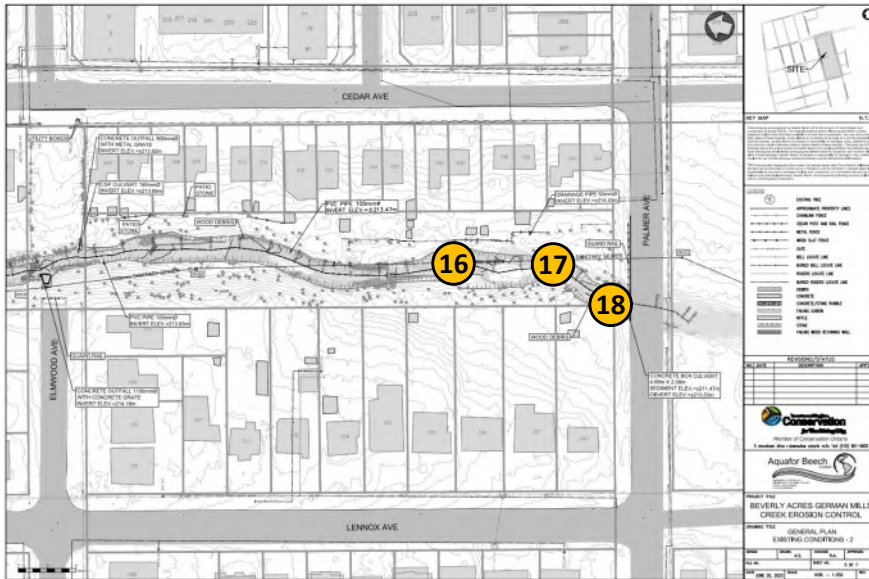


Protruding 100 mm diameter PVC pipe



Failing gabion baskets

Existing Conditions



Channel erosion towards private property



Active bank erosion



Palmer Avenue culvert crossing

Property Ownership

Beverley Acres German Mills Creek Erosion Control



Date: 2023-01-11

Disclaimer:
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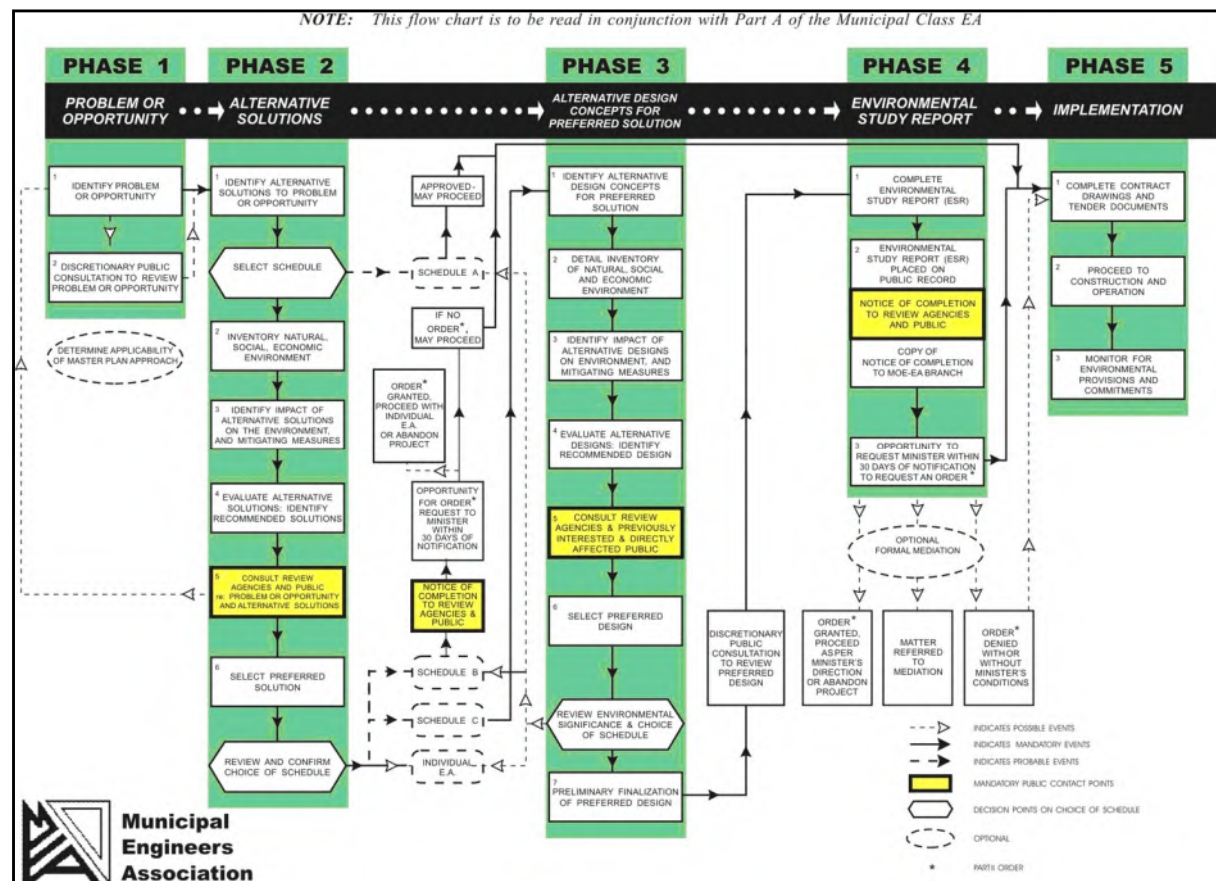
Property ownership within the Study Area is split between:

1. York Region owned lands
2. City of Richmond Hill owned lands
3. Private properties
4. Public easements for infrastructure maintenance

Municipal Class Environmental Assessment Process

Many projects related to municipal systems are similar in nature, are carried out routinely, and have predictable and mitigatable environmental effects which are investigated according to the Municipal Engineers Association “Municipal Class Environmental Assessment” process (October 2000, as amended in 2007, 2011, 2015 & 2023).

The Beverley Acres German Mills Creek Erosion EA will follow a Schedule B project under the Municipal Class Environmental Assessment process. The flow chart below illustrates the key steps to be undertaken as part of the EA process.



Problem Statement



Beverley Acres German Mills Creek Erosion Control

The Toronto and Region Conservation Authority, in partnership with the Regional Municipality of York is initiating a Municipal Class Environment Assessment to identify erosion control solutions for sanitary infrastructure protection. The study area includes municipal lands and easements along German Mills Creek between Major Mackenzie Drive East and Palmer Avenue, in the City of Richmond Hill.

Planned Technical Assessments

The following technical assessments are planned in support of the EA and Detailed Design:

1. Topographical survey
2. Tree inventory and arborist report
3. Terrestrial and aquatic ecological inventories including Species at Risk screening
4. Hydraulic modelling investigation
5. Geomorphic analysis
6. Geotechnical investigation

Topographical Survey

TRCA completed a topographical survey to define existing site conditions including:

- Channel width
- Profile of the creek
- Existing erosion control structures
- Infrastructure extents (i.e., manholes and outfalls)



Photo of Topographic Surveyor at City of Barrie Erosion Site

Tree Inventory and Arborist Report

The tree inventory will:

- Inventory all trees greater than 100 mm Diameter at Breast Height (DBH)
- Define key tree attributes (i.e., species, Diameter at Breast Height, health, etc.)
- Identify potential Species at Risk (SAR) habitat (i.e., SAR bats)
- Contribute to the development of tree protection and site restoration plans



Photo of Arborist at Coburg Development Site

Terrestrial and Aquatic Ecological Inventories

Terrestrial and aquatic ecological inventories will be completed to:

1. Define vegetation communities
2. Inventory observed fauna and flora
3. Screen for Species-at-Risk and SAR habitat to inform the Ministry of the Environment, Conservation and Parks (MECP) permitting process
4. Assess aquatic habitat conditions according to the Ontario Stream Assessment Protocol (OSAP) to guide the Fisheries and Oceans Canada (DFO) approval process



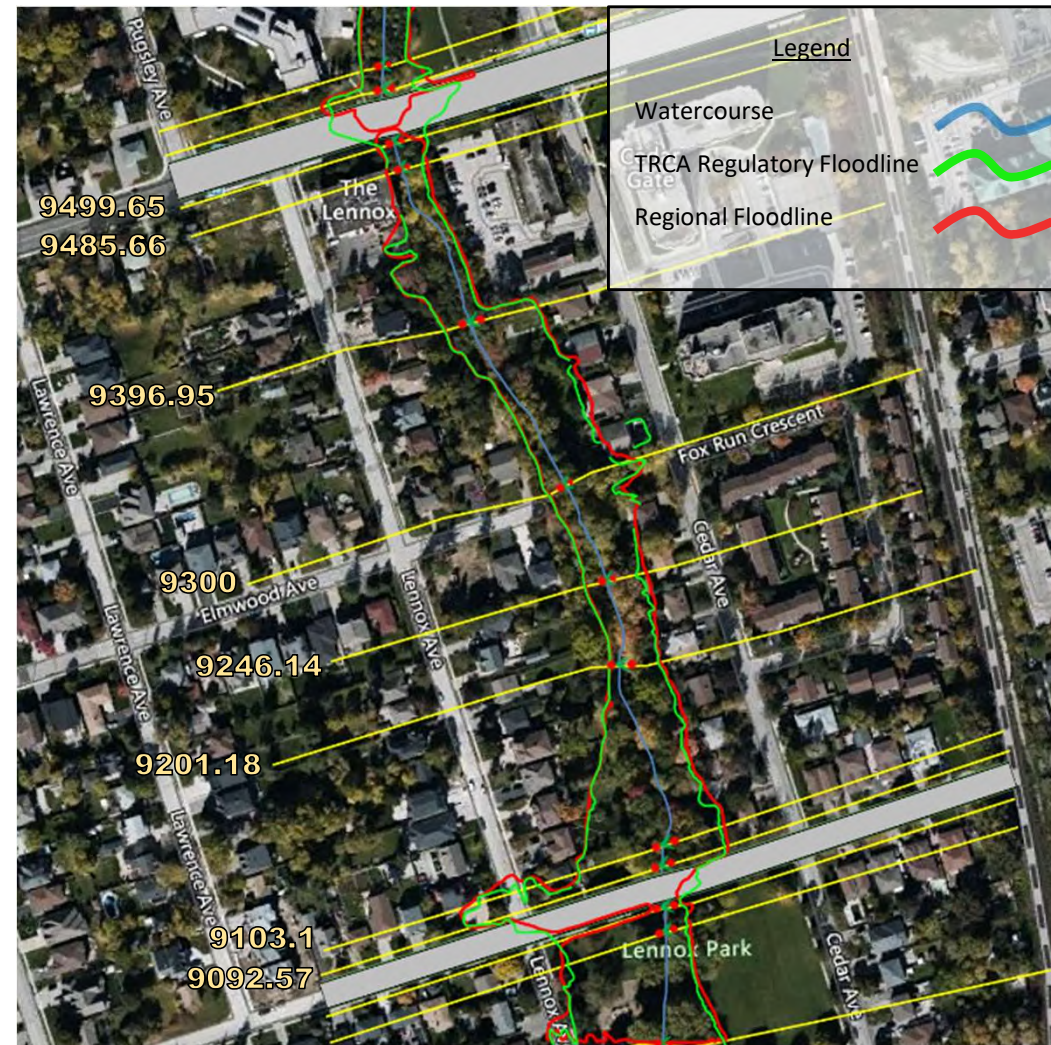
Example Photo of Aquafor Ecologists

Hydraulic Modelling Investigation

TRCA's HEC-RAS model will be used to define the impact of the proposed design on:

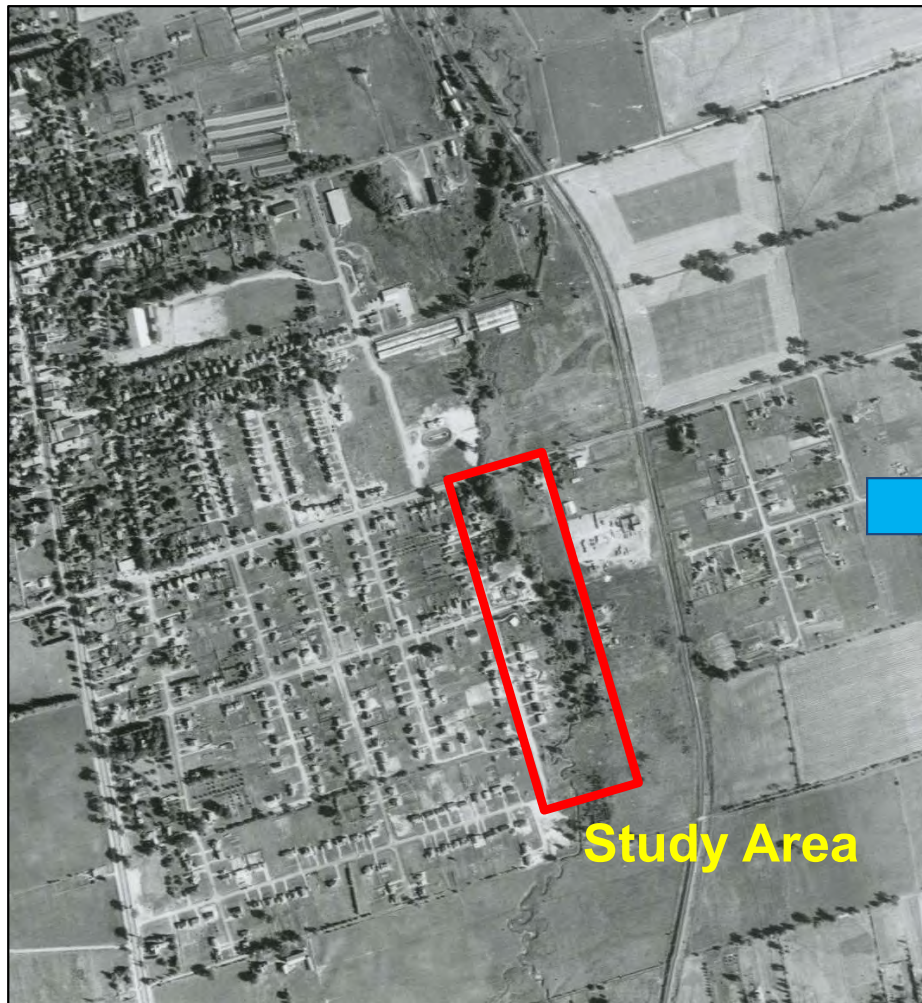
- Water surface elevations and modelled flood line extents
- Erosion forces (i.e., channel velocities and shear stress values)
- Fish passage potential

The design will ensure there is no negative impact with respect to flooding or erosion control when compared to existing conditions.

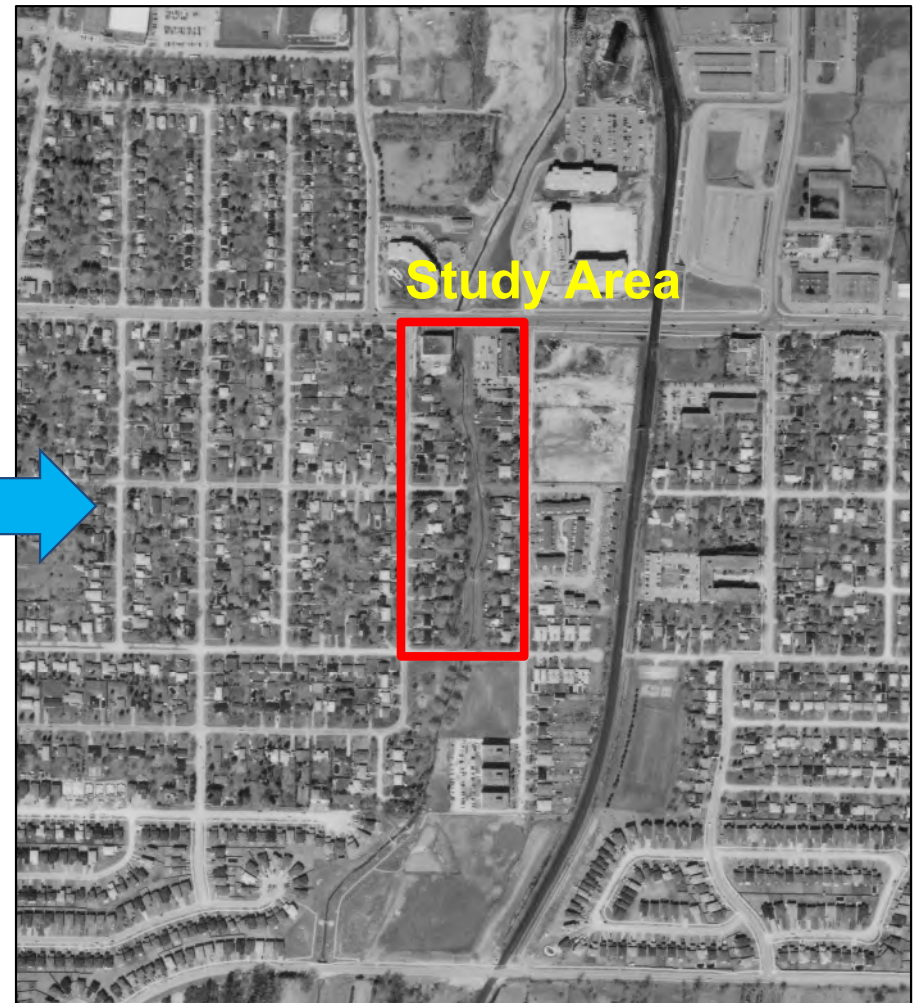


Geomorphic Analysis

Aquafor's fluvial geomorphology team will review available background information and existing site conditions to define key geomorphic parameters including: substrate composition, watercourse stability, dominant geomorphic processes and estimated rates of erosion.



Historic Ortho Imagery - 1954



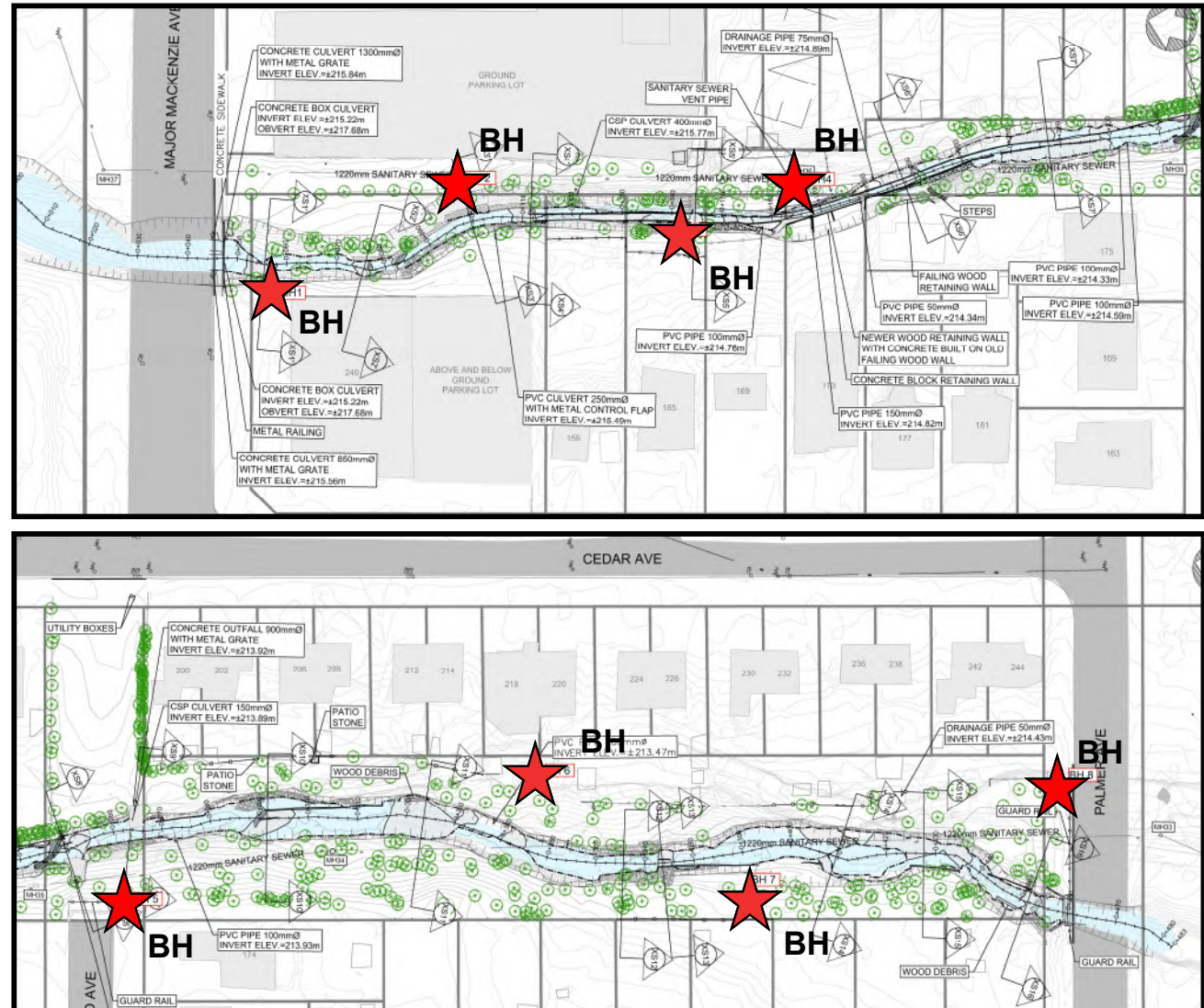
Historic Ortho Imagery - 1988

Toronto and Region
Conservation
Authority

Beverley Acres German Mills Creek Erosion Control

Geotechnical investigation
planned to:

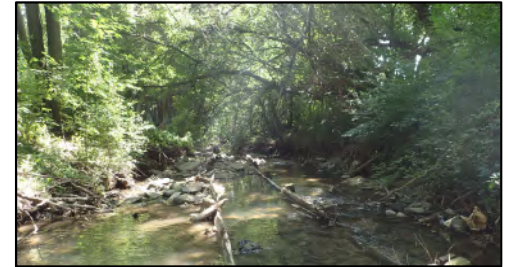
- Determine soil parameters
- Inform the design of erosion control structures
- Estimate groundwater levels
- Test soil quality
- Provide recommendations for the disposal of excess material offsite



Preliminary Alternative Solutions

Alternative 1 – Do Nothing

- Define existing levels of risk and continue monitoring until further restoration works are required.



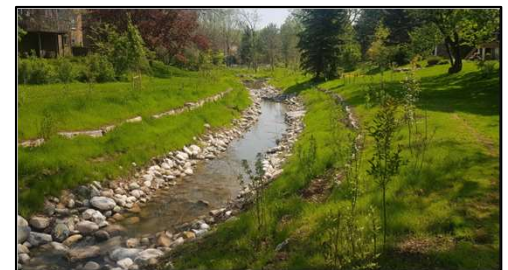
Alternative 2 – Local Works

- Includes localized bank protection or channel restoration works at the six sites.



Alternative 3 – Extended Works

- Includes restoration works for the entire study area, addressing the local erosion sites as part of a larger more comprehensive design solution



Example – Local Works

Erosion Restoration of Mount Joy Creek – City of Markham

- 40 m of local channel restoration works to protect an at-risk manhole and sewer crossing
- New riffle placed overtop of sewer to increase depth of cover
- Armourstone retaining walls installed to prevent lateral bank erosion



Pre-Construction – September 2019



Two Years Post Construction – August 2023

Example – Extended Works

Roseland Creek Restoration – City of Burlington

- ~800 m of continuous channel restoration works to protect at-risk infrastructure and private properties
- Combination of natural channel design and traditional engineering design principles



Pre-Construction – August 2014



Post Construction – May 2018

Public Consultation



Beverley Acres German Mills Creek Erosion Control

Effective consultation is a key component of the EA and Detailed Design process.

The following key consultation activities are Completed:

- Issue Notice of Commencement (October 2023)
- x1 Technical Advisory Committee (TAC) meeting (October 2023)
- x1 Community Liaison Committee (CLC) meeting (October 2023)

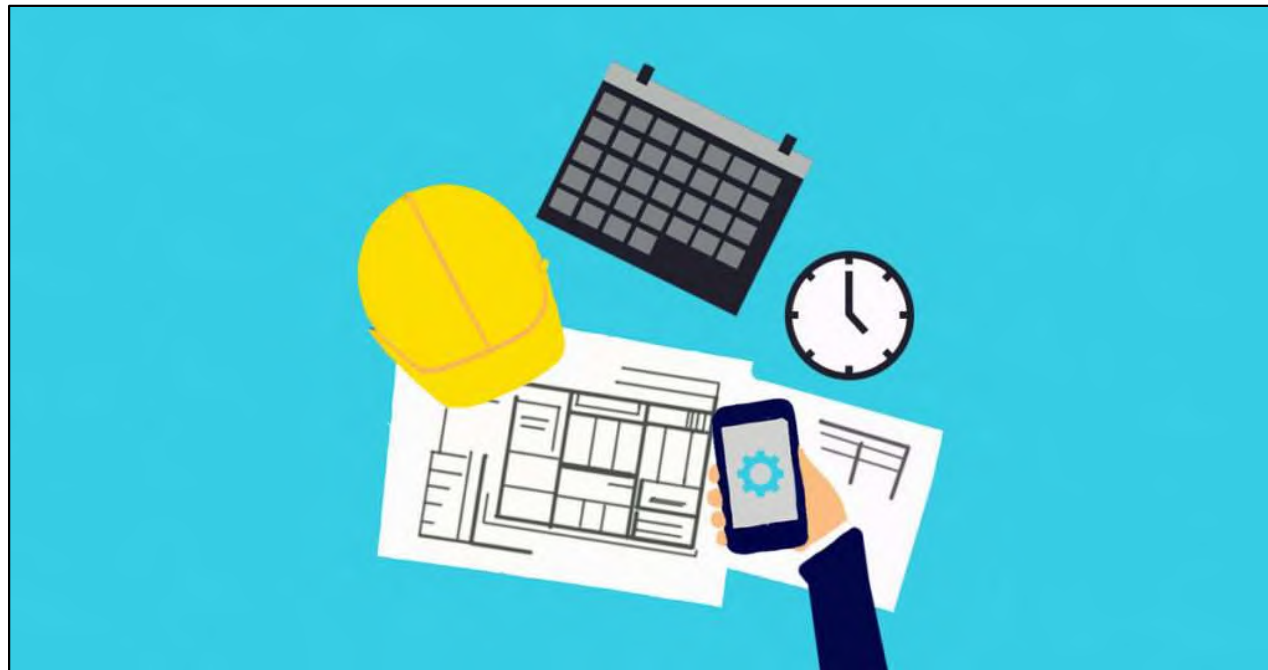
The following key consultation activities are Planned:

- x1 Technical Advisory Committee (TAC) meeting (March 2024)
- x1 Community Liaison Committee (CLC) meeting (March 2024)
- x1 Public Information Centre (PIC) (April 2024)
 - One Virtual and One In-Person Session
- Issue Notice of Completion (Summer 2024)



Project Schedule & Next Steps

- Final Conceptual Designs - December 2023
- Public Information Center - April 2024
- Final MCEA Project File and MCEA Concept Evaluation Report - June 2024
- Commencement of Construction - July 2026



QUESTIONS ?



Beverley Acres German Mills Creek Erosion Control

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***CLC Meeting #2 Tentatively Scheduled for
March 27th, 2024***