

# German Mills Creek Geomorphic Systems Master Plan Environmental Assessment

Public Consultation: August 2023

# German Mills Creek Geomorphic Systems Master Plan

In 2021 the City of Toronto initiated the German Mills Creek Geomorphic Systems Master Plan (GSMP) Environmental Assessment (EA), as one of five ongoing GSMPs across the City to identify and assess water and stormwater infrastructure in German Mills that is at risk of erosion from high flows due to storms and snow melt runoff.

## Study Purpose:

- To identify concerns related to erosion that may damage the City's water and stormwater infrastructure
- To develop solutions that protect the City's water and stormwater infrastructure from excessive erosion processes within the stream
- To improve stream functions, such as increasing stream bank stability, reducing erosion, enhancing stormwater conveyance, and improving habitats



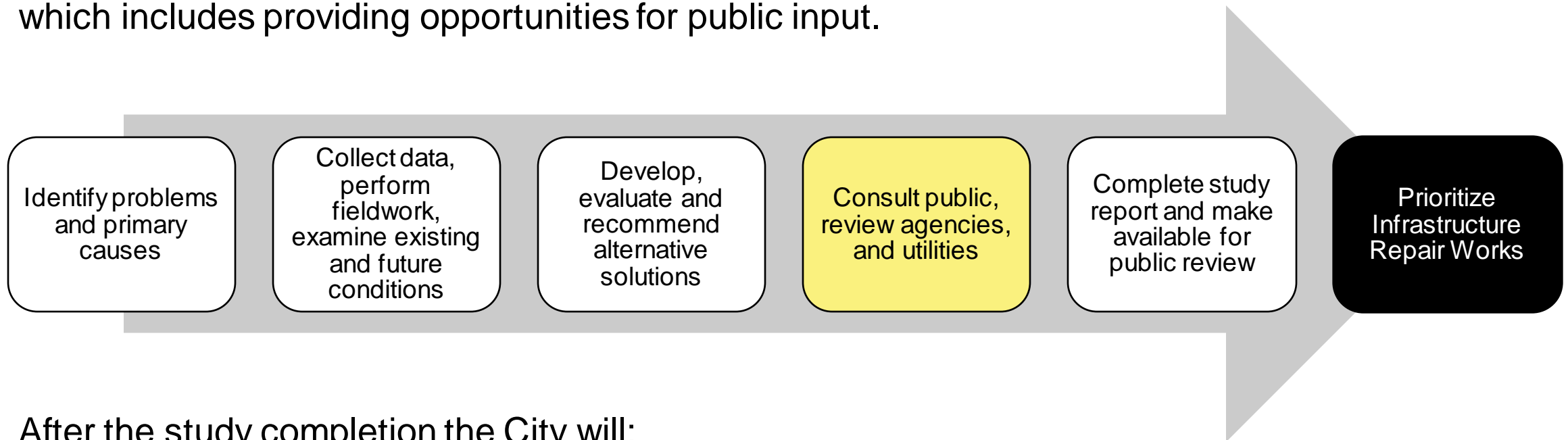
The City's sewer and water infrastructure in and alongside streams include:

- **Watermains** to supply drinking water to homes and businesses
- **Storm sewers** to collect rain and snow-melt from streets and properties and discharge it into streams (via outfalls)
- **Sanitary sewers** to collect and transport sewage from homes and businesses for treatment

This study is not focused on trails, trail access, trees, invasive species or other park features.

# Study Process

This study is being undertaken as a Master Plan which is a long-range plan that examines the needs within a geographic area and provides a framework and vision for recommended improvements. The study will follow the Municipal Class Environmental Assessment study process, an approved planning process under the Ontario Environmental Assessment Act, which includes providing opportunities for public input.












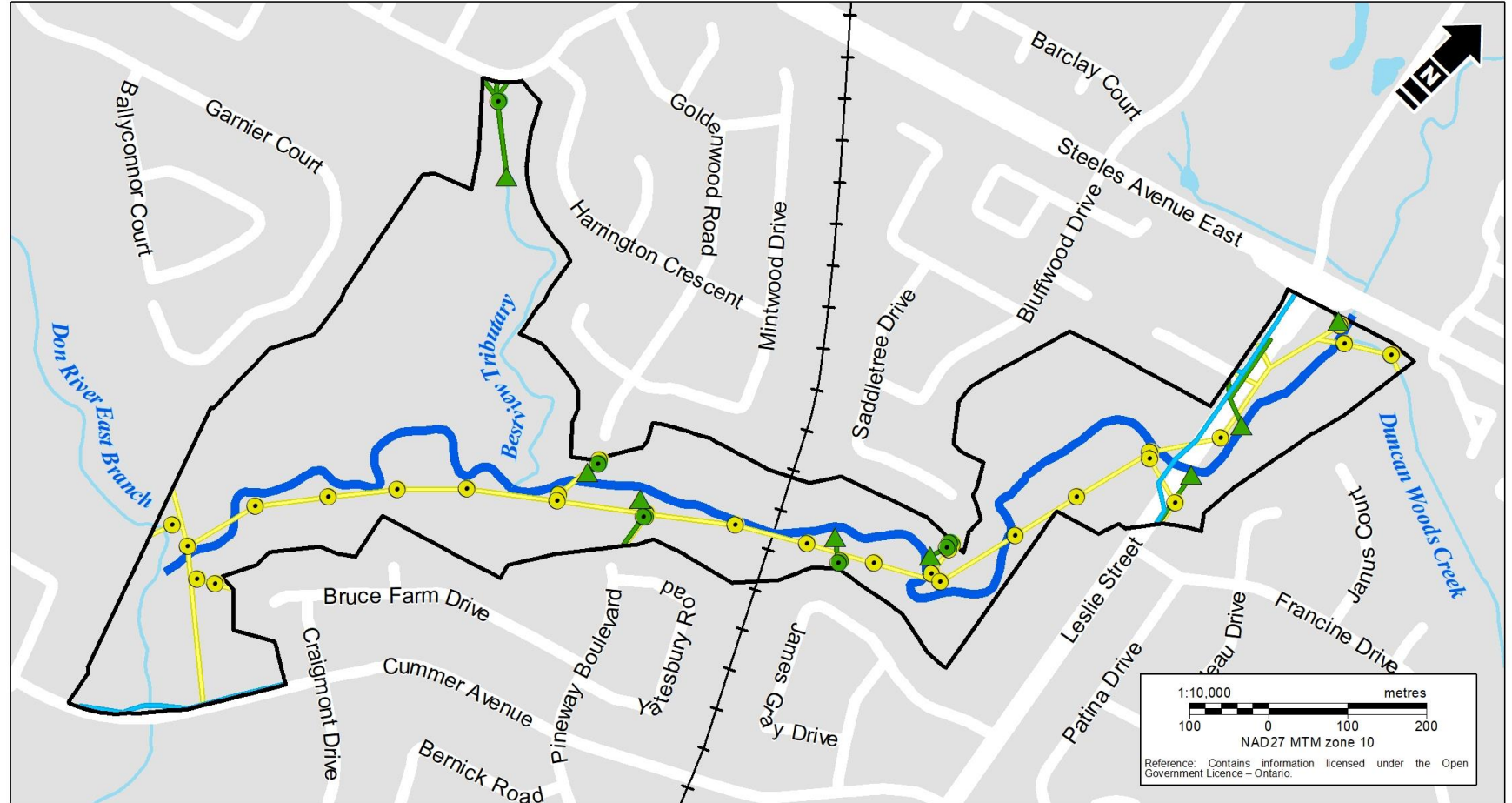
After the study completion the City will:

- Prioritise projects from all five ongoing GSMPs based on a city-wide approach for creek and river restoration and erosion control work

# Study Area

The study area is the two-kilometer length of German Mills Creek from Steeles Avenue East to where it meets the East Don River in the west.

-  Focused Study Area
-  Watercourse
-  Railway
-  Watermain
-  Storm Sewer
-  Sanitary Sewer
-  Stormwater Outfall
-  Storm Sewer Maintenance Hole
-  Sanitary Sewer Maintenance Hole



# Level of Erosion Risk

The level of risk caused by erosion was based on a technical assessment characterizing risk probability (time to exposure), existing bank protection, and risk severity should damage occur.

## Very Low – Low-risk Sites

- Infrastructure and site conditions are stable
- Limited monitoring is required

## Medium-risk Sites

- Infrastructure and site conditions are relatively stable
- Limited/some monitoring may be required

## High-risk Sites

- Infrastructure is not exposed but is expected within 5 years
- Regular monitoring may be required

## Imminent-risk Sites

- Infrastructure is exposed and at risk of failure; requires immediate attention
- Regular monitoring and improvements to the infrastructure are required

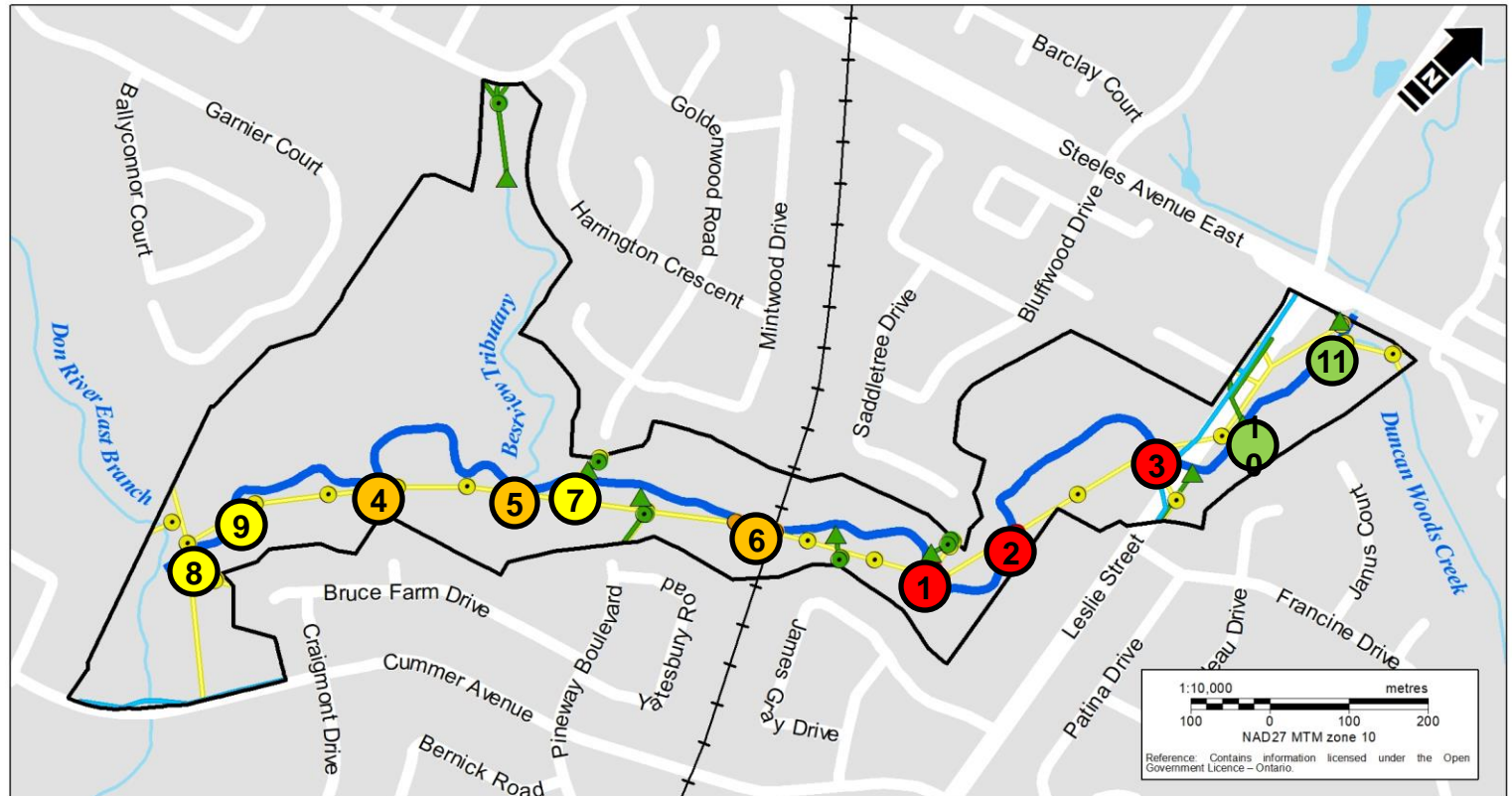


# Priority Sites Based on Risk

The study area includes 56 City of Toronto water, stormwater and sanitary sewer infrastructure sites.

Level of risk was assessed for 43 water and stormwater sites.

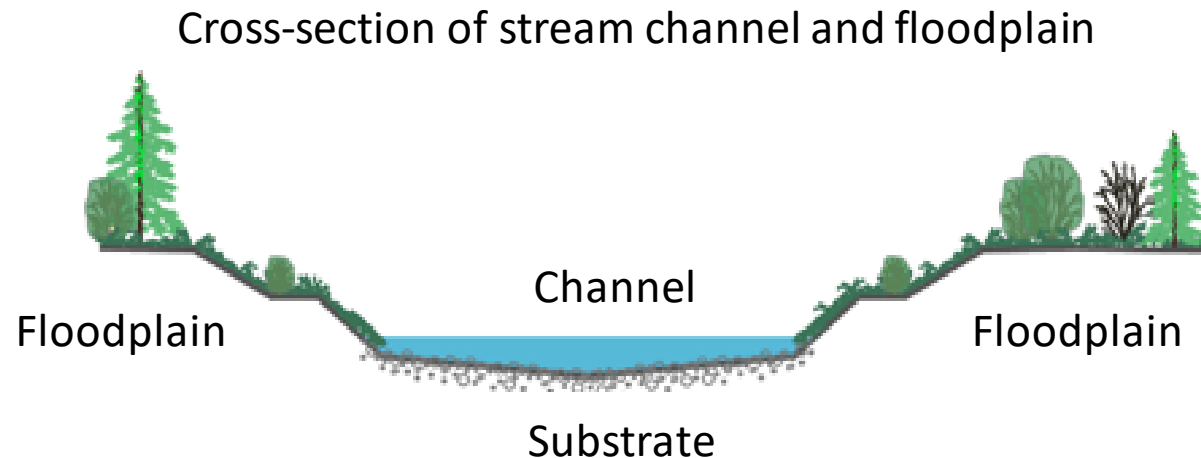
Based on the risk assessment, 11 priority project sites were identified for further evaluation as part of the study.



- Imminent Risk Priority Projects 1 to 3
- Medium Risk Priority Projects 7 to 8
- High Risk Priority Projects 4 to 6
- Low Risk Priority Projects 10 to 11

# Risk Assessment Glossary of Terms

Bank:	The sides of the creek, also part of the floodplain
Channel:	The water in the creek / river / stream
Confluence:	Where 2 or more watercourses meet
Erosion:	Gradual changes to the form (path a creek follows) and function (aquatic and terrestrial habitats the stream supports) of the creek and creek bed due to increased water flow and storms
Floodplain:	The area surrounding the channel which holds increased water flow when the width of the creek expands seasonally or due to storms and snowmelt
Substrate:	The material on bottom of the bed of the creek



# Risk Assessment: Priority Site 1

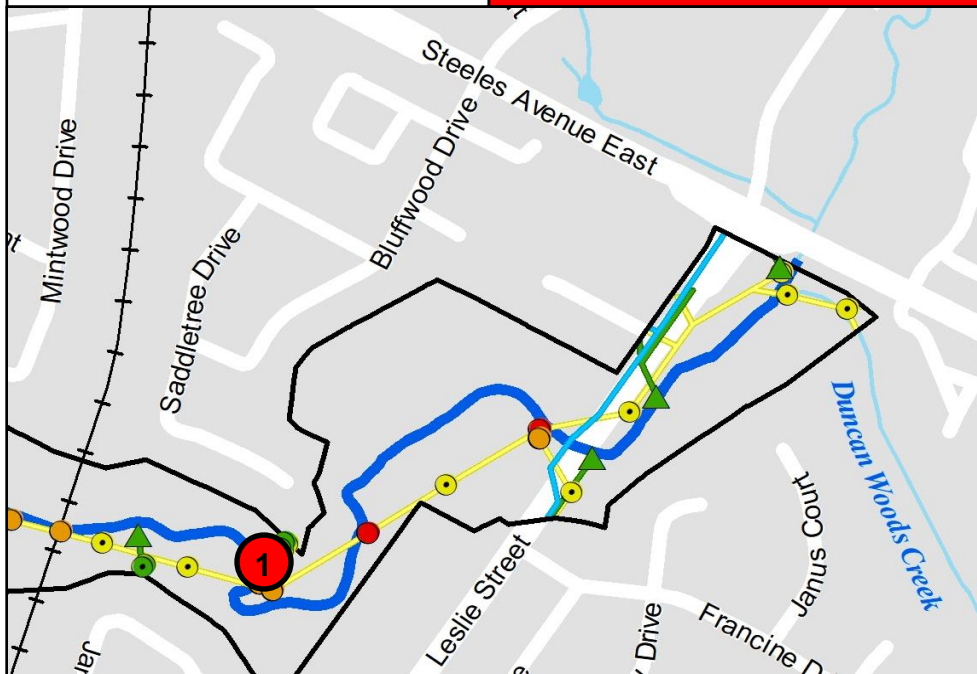
## Sanitary sewer maintenance hole and lateral sewer connection

### Descriptions of conditions

- Exposed maintenance hole and pipe
- Other 2 pipes 1.2 m and 0.16 m depth of cover remaining
- At an actively eroding large meander

### Risk level

**Imminent**



# Risk Assessment: Priority Site 2

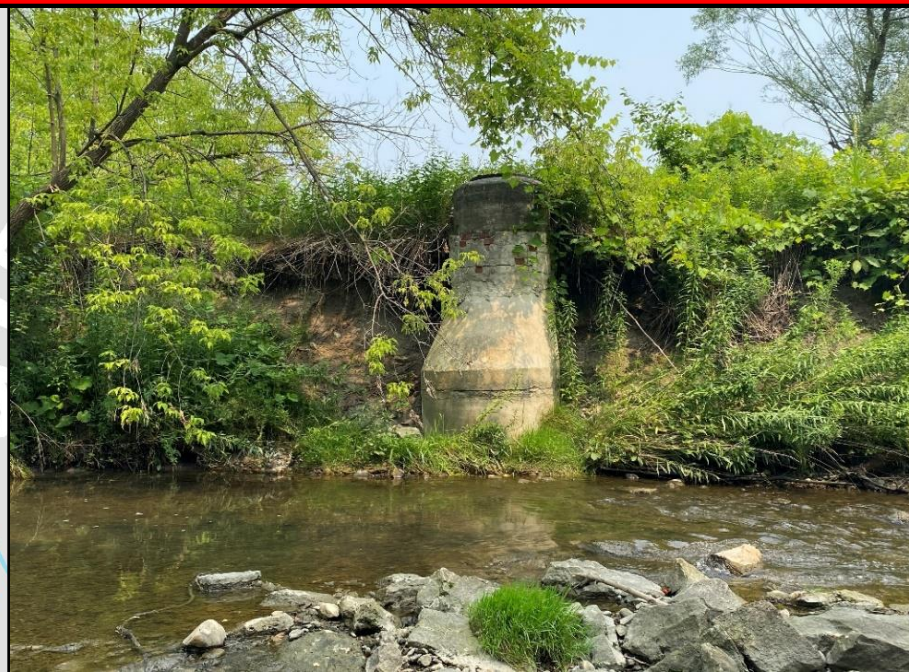
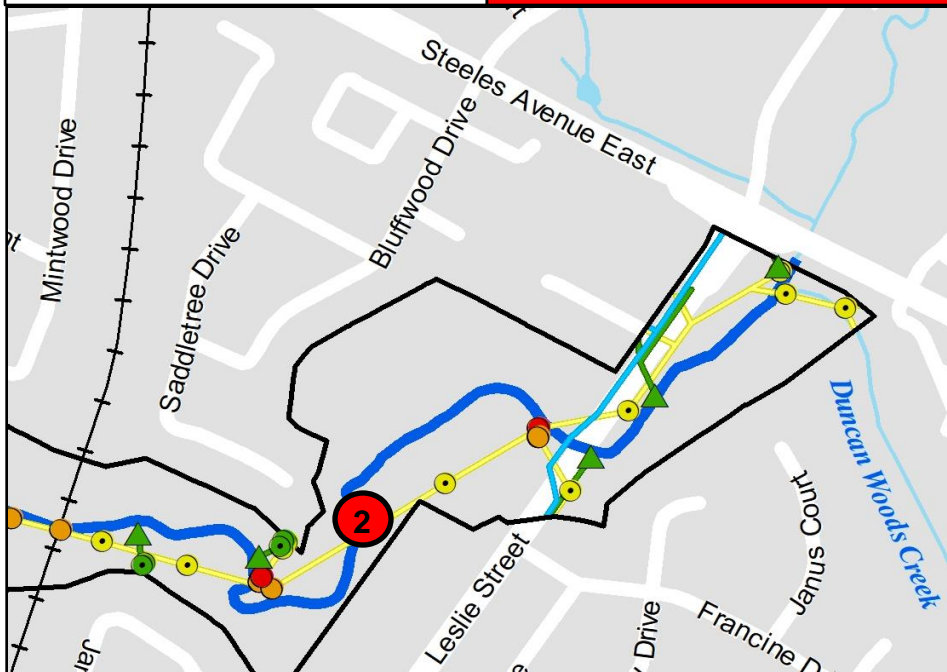
## Sanitary sewer maintenance hole

### Descriptions of conditions

- 1 maintenance hole fully exposed
- 1.3 m depth of cover remaining at sewer crossing
- Severe and ongoing bank erosion occurring

### Risk level

**Imminent**



# Risk Assessment: Priority Site 3

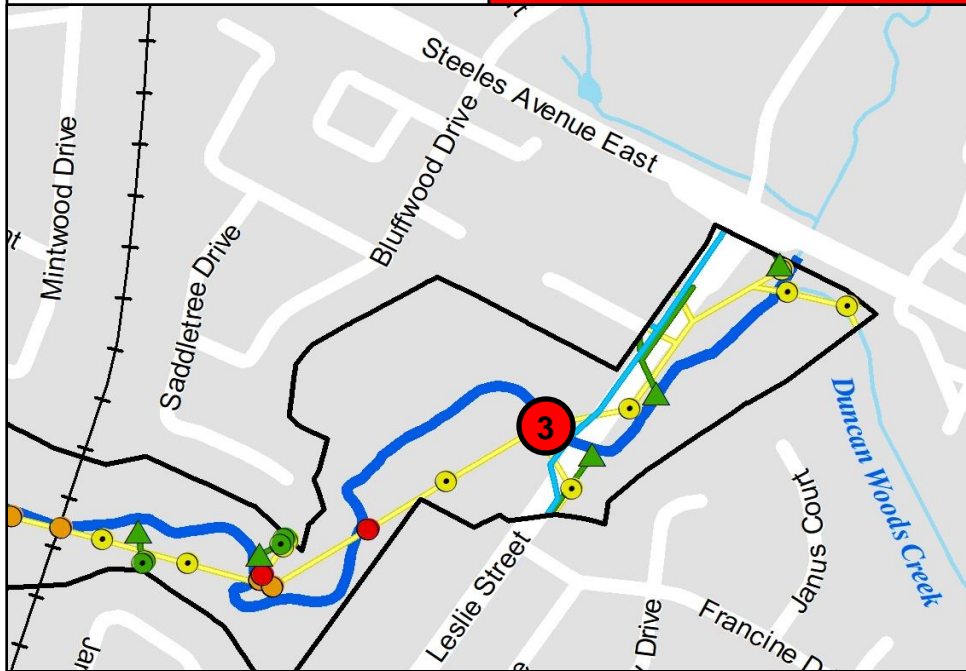
## Sanitary sewer maintenance hole

### Descriptions of conditions

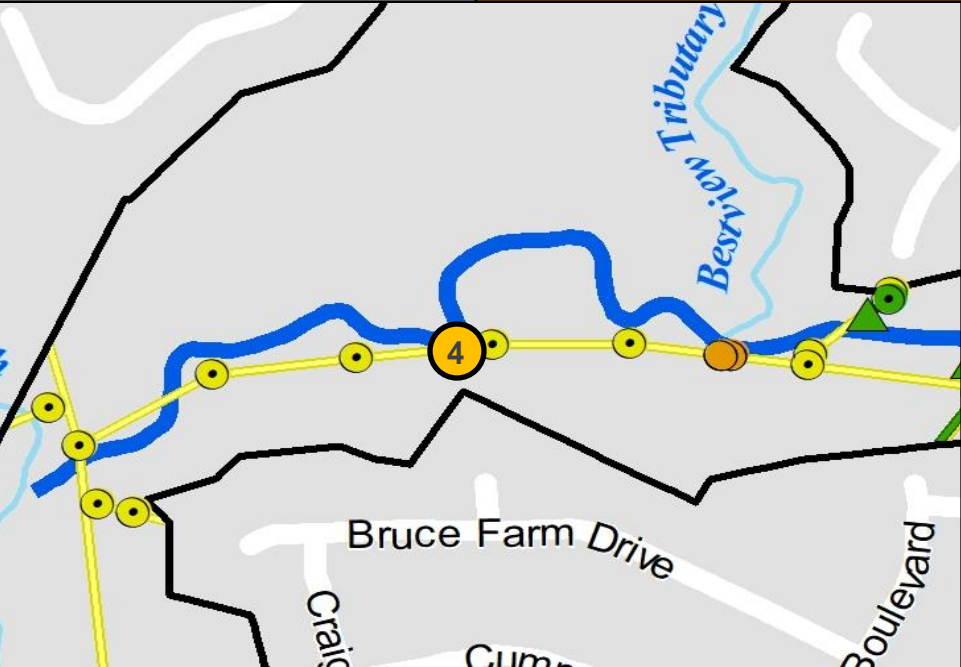

- 0.92 m and 1.54 m depth over nearby pipe crossings
- 1 maintenance hole is fully exposed
- Severe and ongoing bank erosion

### Risk level


**Imminent**



# Risk Assessment: Priority Site 4

<b>Sanitary sewer adjacent to pathway</b>	
<b>Descriptions of conditions</b>	<ul style="list-style-type: none"><li>• Sewer within 1 m from edge of creek</li><li>• Sewer runs parallel to pathway and creek</li><li>• Vertical banks against sewer in several locations</li></ul>
<b>Risk level</b>	<b>High</b>
	

# Risk Assessment: Priority Site 5

Sanitary sewer adjacent to pathway	
Descriptions of conditions	<ul style="list-style-type: none"><li>• Sewer within 1 m from edge of creek</li><li>• Sewer runs parallel to pathway and creek</li><li>• Bank is actively eroding and near confluence with Bestview Tributary</li></ul>
Risk level	High
	

# Risk Assessment: Priority Site 6

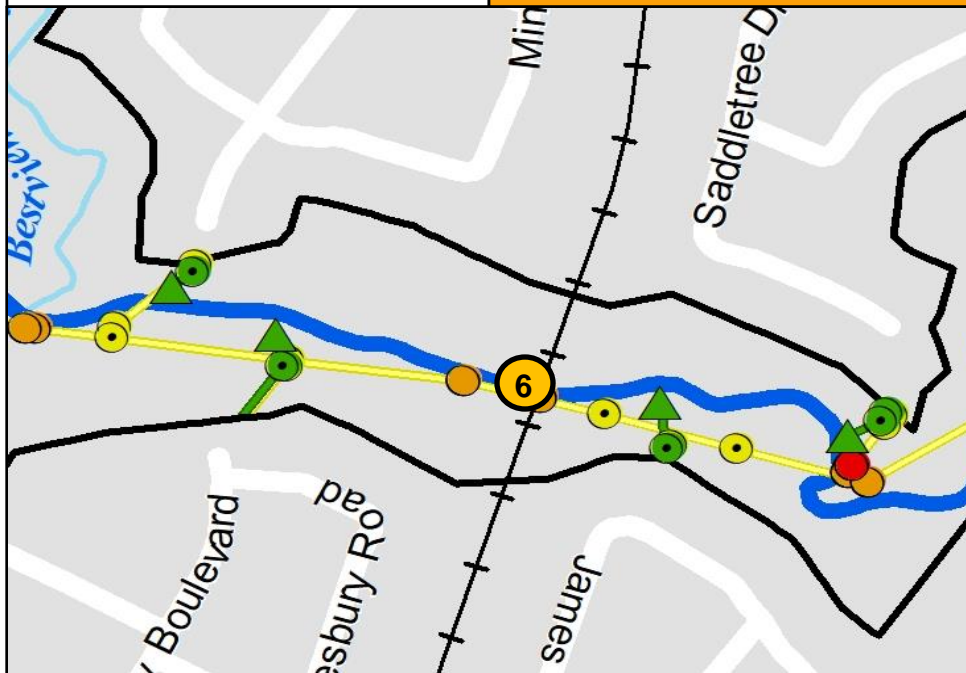
## Sanitary sewer adjacent to pathway and railway

### Descriptions of conditions

- Sewer within 1 m from edge of creek
- Existing erosion protection moderately stable

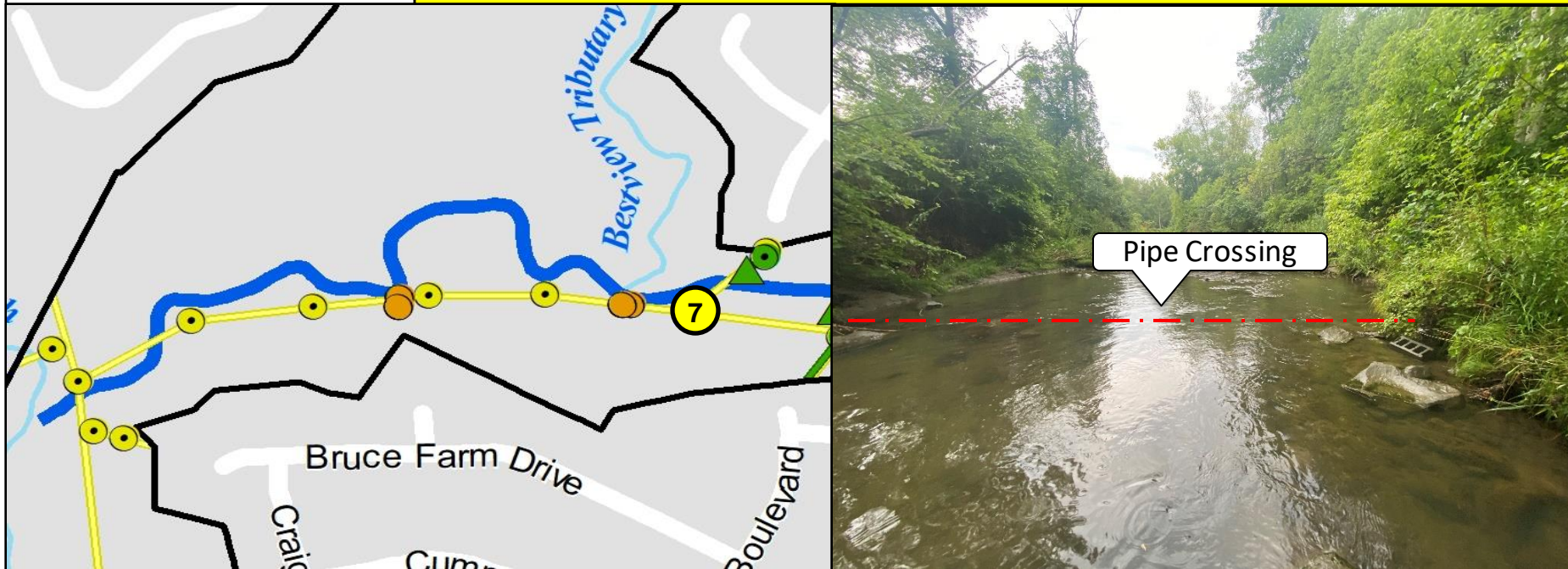
### Risk level

**High**



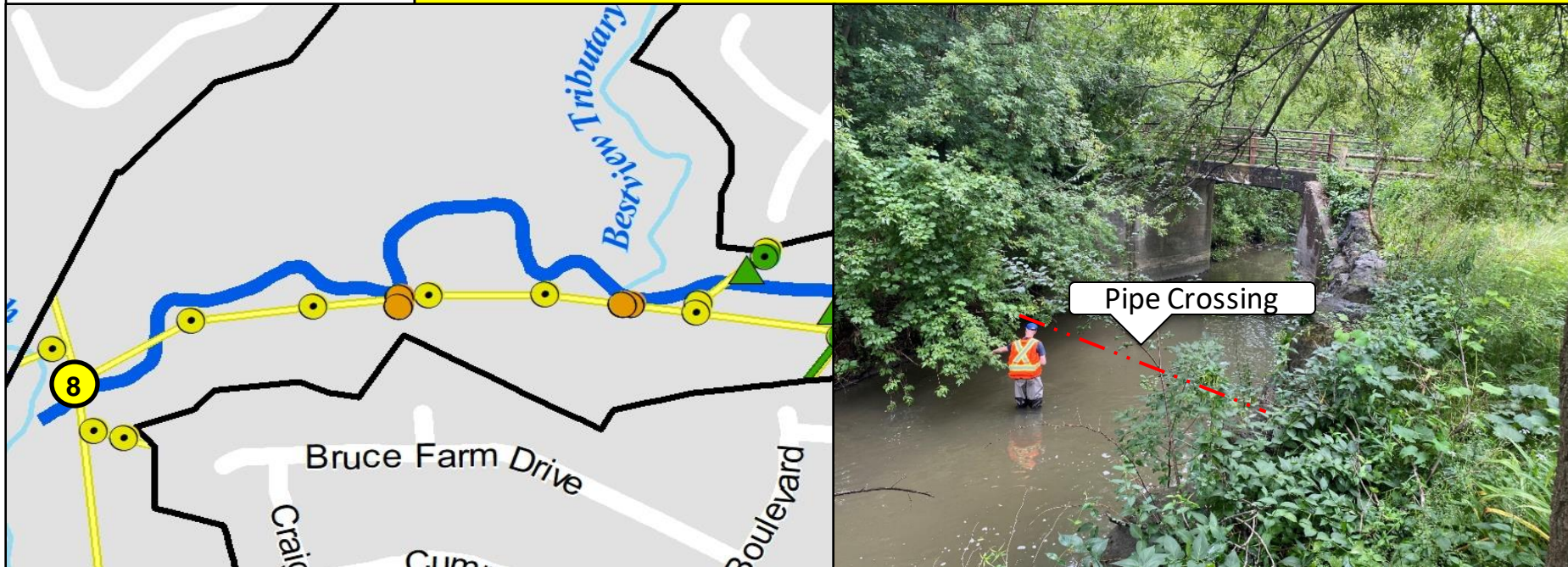
# Risk Assessment: Priority Site 7

<b>Sanitary sewer pipe crossing</b>	
<b>Descriptions of conditions</b>	<ul style="list-style-type: none"><li>• 0.37 m depth of cover over existing pipe</li><li>• Channel substrate is mainly sand so more susceptible to erosion</li></ul>
<b>Risk level</b>	<b>Medium</b>




# Risk Assessment: Priority Site 8


<b>Sanitary sewer pipe crossing</b>	
<b>Descriptions of conditions</b>	<ul style="list-style-type: none"><li>• 0.48 m depth of cover over existing pipe</li><li>• Channel substrate is cobble and gravel so less susceptible to erosion</li></ul>
<b>Risk level</b>	<b>Medium</b>



# Risk Assessment: Priority Site 9

Sanitary sewer pipe crossing	
Descriptions of conditions	<ul style="list-style-type: none"><li>• 1.2 m depth of cover over existing pipe</li><li>• Grade control structures (rocky ribs) to reduce channel velocities</li></ul>
Risk level	<b>Medium</b>
 The bottom section of the table contains two images. On the left is a map showing a blue line representing a waterway, labeled 'Beaumont Tributary'. A yellow line representing a sanitary sewer pipe crosses the tributary. A yellow circle with the number '9' is placed on the pipe. Other labels on the map include 'Bruce Farm Drive' and 'Craig'. On the right is a photograph of the tributary, showing a rocky channel with water flowing over several small cascades. A red dashed line indicates the location of the pipe crossing, and a white callout box with the text 'Pipe Crossing' points to this location.	

# Risk Assessment: Priority Site 10

<b>Sanitary sewer outfall</b>	
<b>Descriptions of conditions</b>	<ul style="list-style-type: none"><li>• Outfall protected by armourstone and large boulders</li></ul>
<b>Risk level</b>	<b>Low</b>
 The table's bottom row contains two images. On the left is a map showing a network of streets including Leslie Street, Beau Drive, Francine Drive, and Janus Court, with Duncan Woods Creek flowing through the area. A green circle with the number '10' is placed on the creek. On the right is a photograph of the creek's edge, showing a large log and several large boulders. A white callout box with the word 'Outfall' points to a pipe opening in the rocks.	

# Risk Assessment: Priority Site 11

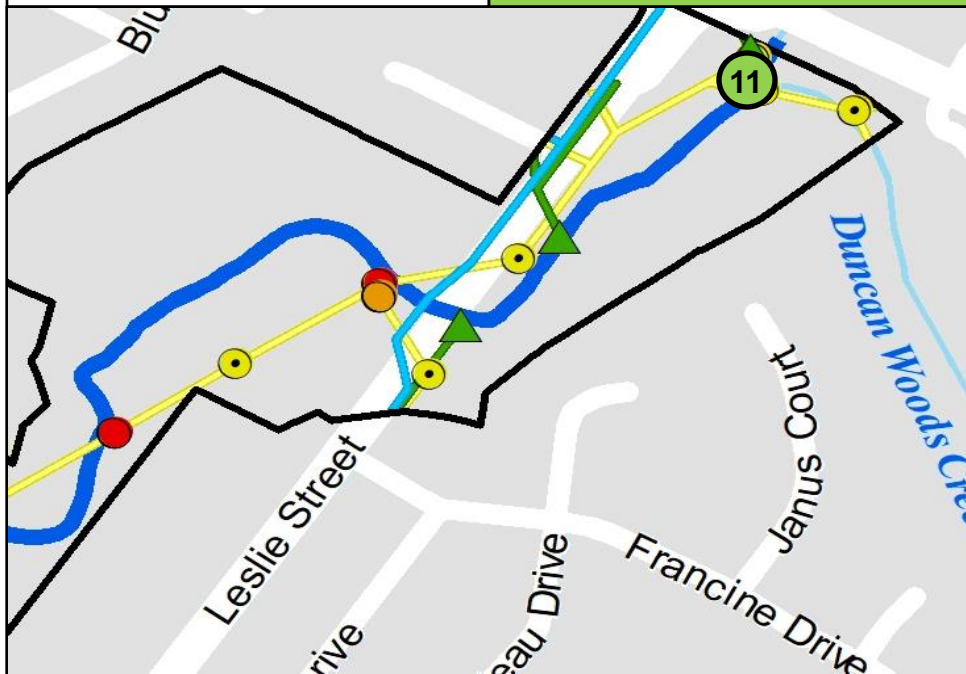
## Sanitary sewer maintenance hole

### Descriptions of conditions

- Maintenance hole well protected behind armourstone blocks
- No sign of active erosion but maintenance hole is within 4 m of creek

### Risk level

Low



# Alternative Solutions for Natural Channel Design

## **Alternative 1: Do Nothing**

- No improvements

## **Alternative 2: Improvements through local works less than 200 metres**

- Bed and bank work in the stream and floodplain
- Project site less than 200 metres
- No work between project sites

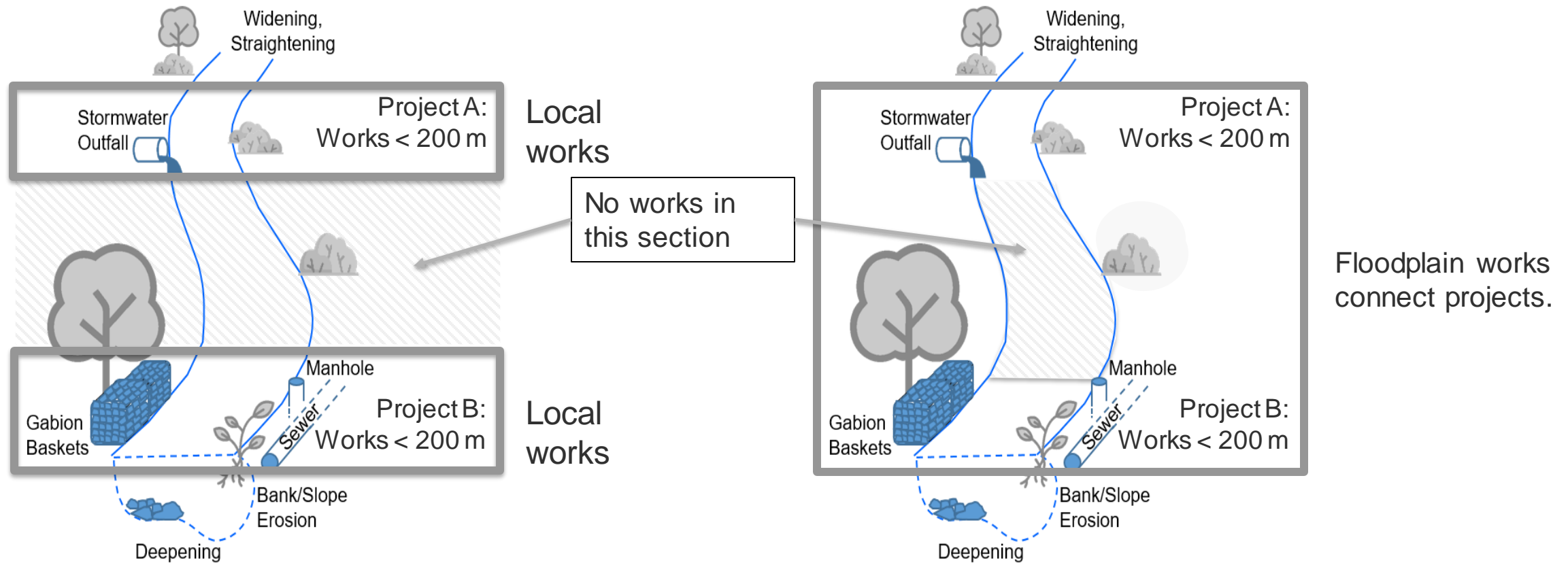
## **Alternative 3: Improvements through local works less than 200 metres and floodplain connections**

- Bed and bank work in the stream and floodplain
- Floodplain will be widened to increase capacity for creek flow, reducing water velocities and erosion
- Project site less than 200 metres
- Where there are gaps between project sites, there is only floodplain work and no work in the creek

## **Alternative 4: Improvements in a segment of the creek greater than 200 metres**

- Bed and bank work in the stream and floodplain
- Larger project sites greater than 200 metres
- Bed, bank, and floodplain works are continuous between project sites

# Alternative Solutions for Natural Channel Design continued



**Alternative 2** – Project A and B separated

**Alternative 3** – Project A and B connected through works in the floodplain

# Example of Alternative 2

Improvements through local works less than 200 metres



# Example Alternative 4, Greater than 200 m

Improvements through local greater than 200 metres



Section of creek realigned



# Evaluation Criteria

The following 5 categories of criteria are used to evaluate alternative solutions

## Physical & Natural Environment

Improves stability of stream and valley walls, flood conveyance, groundwater quality, vegetation, aquatic and terrestrial habitats including habitat for at-risk species, and minimised tree removals

## Economic Considerations

Evaluate total capital costs against recurring costs for maximum improvements and outcomes over a span of 30 years

## Infrastructure Risk

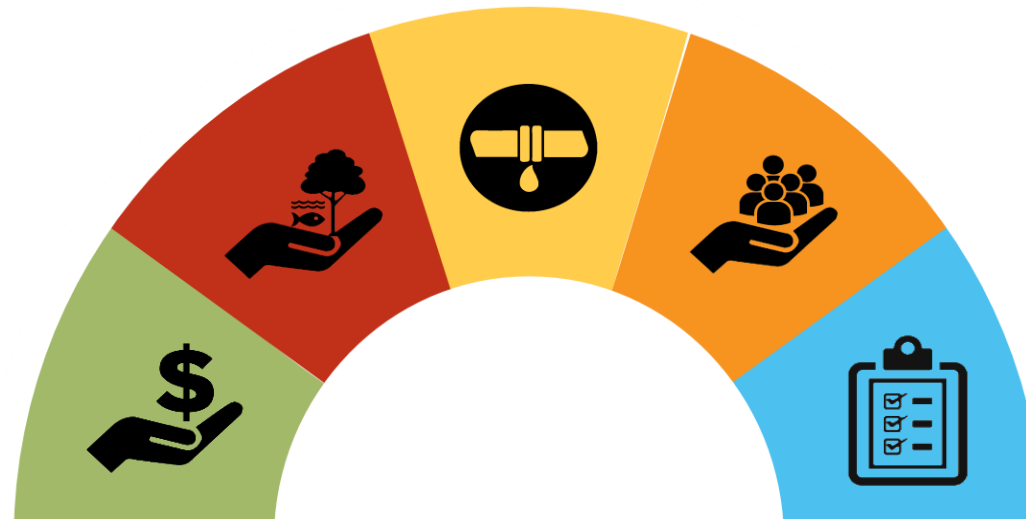
Addresses erosion and risk to City's water and sewer infrastructure

## Social & Cultural Environments

Protects built and cultural heritage as well as landscape and archaeological resources, long term benefits for the community, minimum or short term negative impacts, and consideration for impacts on private property

## Technical & Engineering Considerations

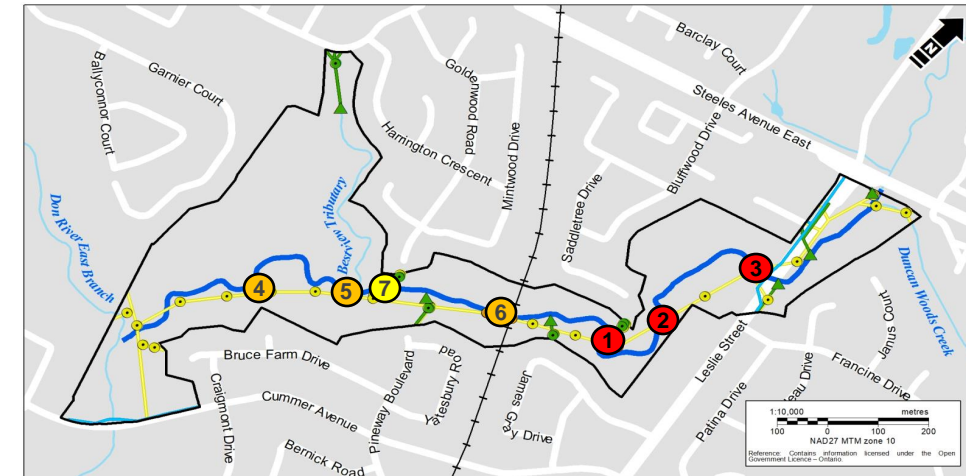
Evaluate regulatory agency standards, availability of staff and technical resources, maximum improvement for ecosystem and infrastructure



# Recommended Solutions: Imminent-risk Sites

Project were developed based on the priority risk sites. Each project will address the priority risk site along with nearby infrastructure

Project No.	Recommended Solution	Evaluation Detail
1	Local work and floodplain connection  Possible realignment of the pedestrian bridge located 500 metres west of Leslie Street to allow the stream a natural course	<p>Recommended solution:</p> <ul style="list-style-type: none"> <li>Addresses erosion risk within existing footprint without major corridor realignment and grading</li> <li>Floodplain connection not as essential in these areas as it is generally well connected</li> <li>Erosion issues are less severe in these locations</li> </ul> <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs.</p>
2	Local work and floodplain connection	Same as Project No. 1 above
3	Local work and floodplain connection	Same as Project No. 1 above

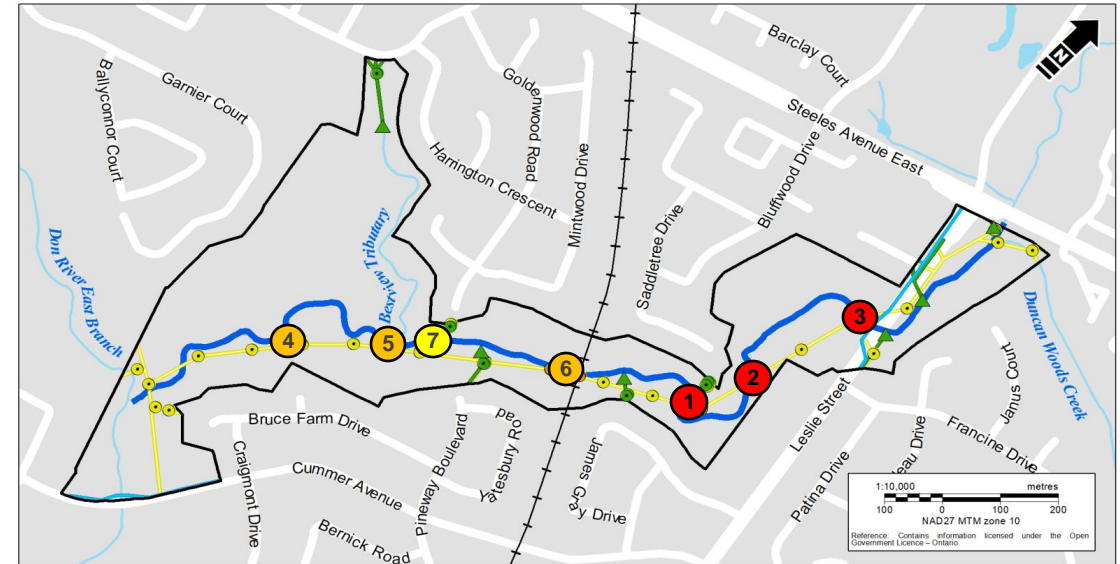


● Imminent Risk Priority Projects 1 to 3

● High Risk Priority Projects 4 to 6

# Preferred Solutions: High-risk Sites

Project No.	Recommended Solution	Evaluation Detail
4, 5, 6, and 7	Local work less than 200 m	<p>Recommended solution:</p> <ul style="list-style-type: none"> <li>Addresses erosion risk within existing footprint without major corridor realignment and grading</li> <li>Floodplain connection not as essential in these areas as it is generally well connected</li> <li>Erosion issues are less severe in these locations</li> </ul> <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs.</p>

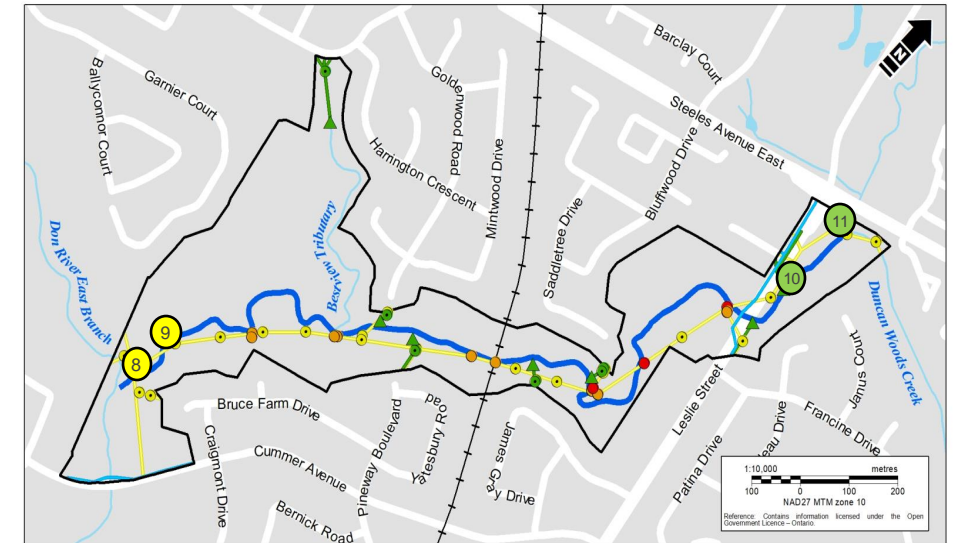


**Imminent Risk Priority Projects 1 to 3**

**High Risk Priority Projects 4 to 6**

# Preferred Solutions: Medium- and Low-risk Sites

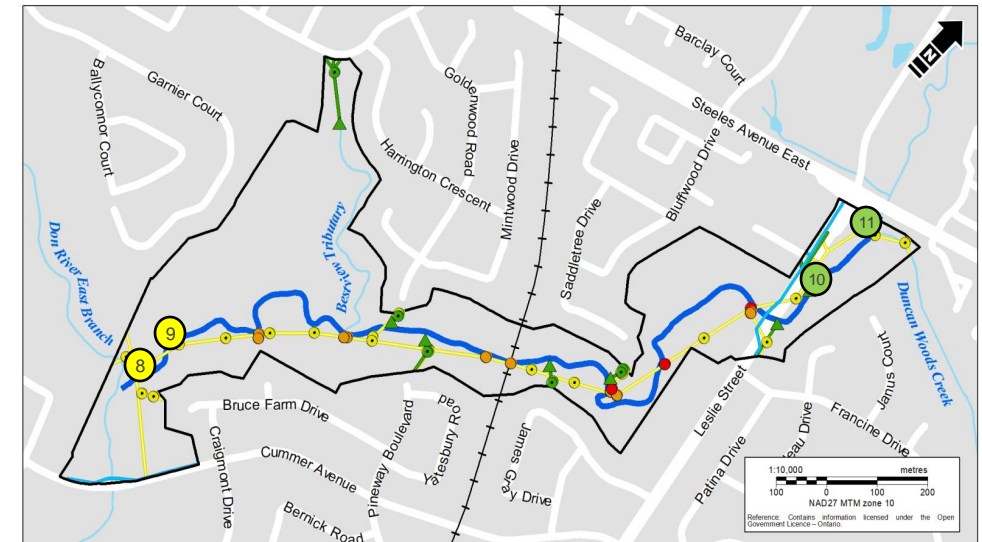
Project No.	Recommended Solution	Evaluation Detail
8	Local works less than 200 metres and floodplain connections	<ul style="list-style-type: none"> <li>Projects in close proximity to each other – addresses multiple erosion risks to infrastructure at once within one construction period as well as provides efficiencies in design costs</li> <li>Balances in-stream erosion reduction and tree removals</li> </ul> <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs</p>
9	Local works less than 200 metres and floodplain connections	Same as Project No. 8 above



● **Medium Risk Priority Projects 7 to 8**
● **Low Risk Priority Projects 10 to 11**

# Preferred Solution: Medium- and Low-risk Sites continued

Project No.	Recommended Solution	Evaluation Detail
10	Local works less than 200 metres	<ul style="list-style-type: none"> <li>Low erosion risk, therefore local works minimize cost and impacts to surrounding infrastructure</li> </ul> <p>Future implementation of the recommended natural channel design projects requires tree removal, to be followed by restoration and replanting with native trees and shrubs</p>
11	Local works less than 200 metres	Same as Project No. 10 above



● Medium Risk Priority Projects 7 to 8

● Low Risk Priority Projects 10 to 11

# Impacts of Creek Restoration and Erosion Control Restoration Works

## **Future implementation of the recommended natural channel design projects requires:**

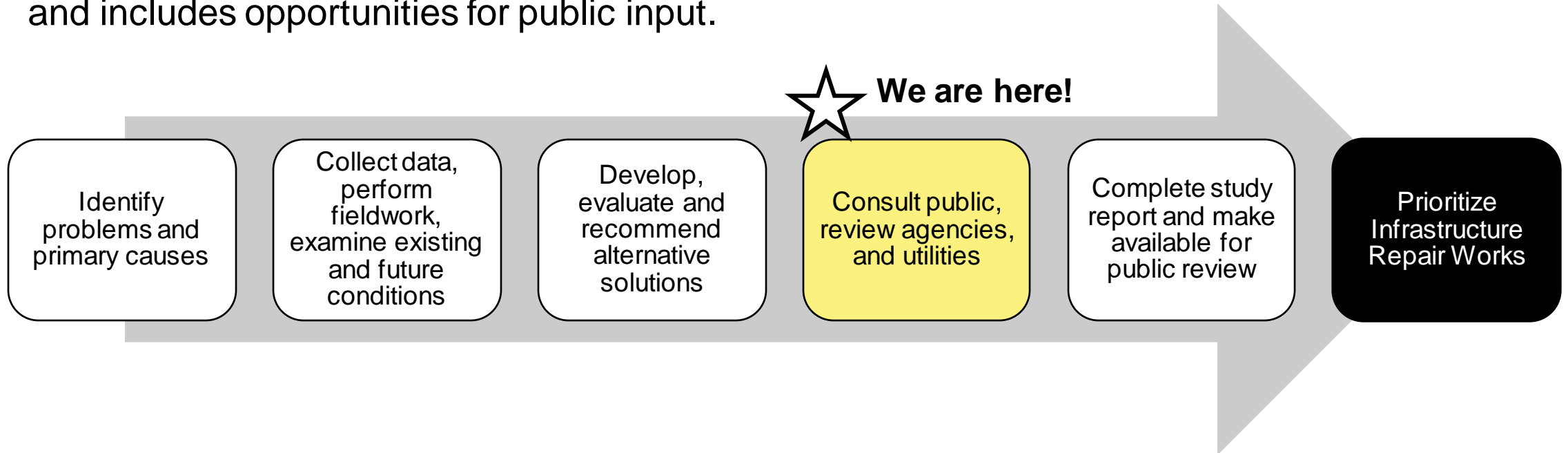
- Tree and vegetation removal – to be replaced with healthy native species, to be further analyzed during detailed design
- Potential pedestrian bridge realignment to allow the stream to have a natural course and avoid future erosion

## **Construction Impacts**

- Residents will be notified prior to any construction
- A restoration plan will be developed prior to construction

# Next Steps in Study Process

The study is following the Municipal Class Environmental Assessment study process for Master Plans, which is an approved planning process under the Ontario Environmental Assessment Act and includes opportunities for public input.

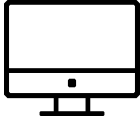




Once a GSMP is approved, recommended solutions will be included in the City's Stream Restoration and Erosion Control Program which will prioritize and allocate budget for detail engineering design and construction.

Residents will be notified prior to any construction occurring.

# Public Consultation

# Public Consultation – Activities

Learn More	Attend a site walk	Provide Feedback
<p>View project information on the website and provide feedback <b><a href="https://toronto.ca/germanmills">toronto.ca/germanmills</a></b></p> 	<p>Visit the study area with the project team to discuss the study recommendations and ask questions</p> <p>Friday August 18, 2023 (rain or shine) Drop in 9:00 a.m. – 11:00 a.m. Site walk at 9:00 a.m.</p> 	<p>Complete an online survey or request a printed copy. Submit comments by email, mail or phone.</p> <p>Comment deadline: Friday September 1, 2023</p> 

Meet at the trail entrance south of Steeles Avenue on the west side of Leslie Street.

This location is wheelchair/mobility device accessible. If you have a specific accessibility need or require accommodation, please contact us in advance.

Paid parking is available at the Canadian Memorial Chiropractic College at 6100 Leslie Street.

# Staff Contacts

## **Project Manager**

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