

# Cooksville Creek Erosion Control Project

## Mississauga Valley Boulevard to the Canadian Pacific Rail Crossing

City of Mississauga  
Public Information Centre

June 1, 2023



# Land Acknowledgement

We acknowledge the lands which constitute the present-day City of Mississauga as being part of the Treaty and Traditional Territory of the Mississaugas of the Credit First Nation, the Haudenosaunee Confederacy, and the Huron-Wendat and Wyandot Nations. We recognize these peoples and their ancestors as peoples who inhabited these lands since time immemorial. The City of Mississauga is home to many global Indigenous Peoples.

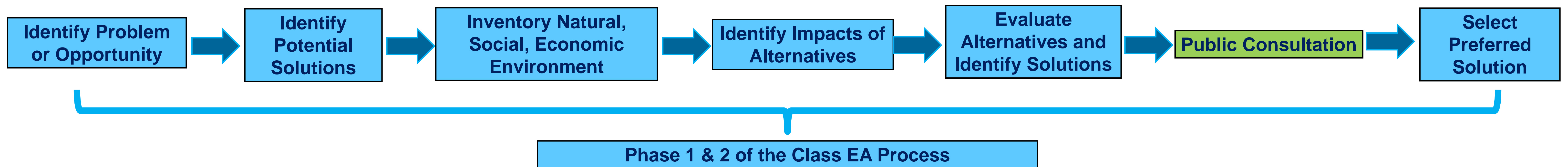
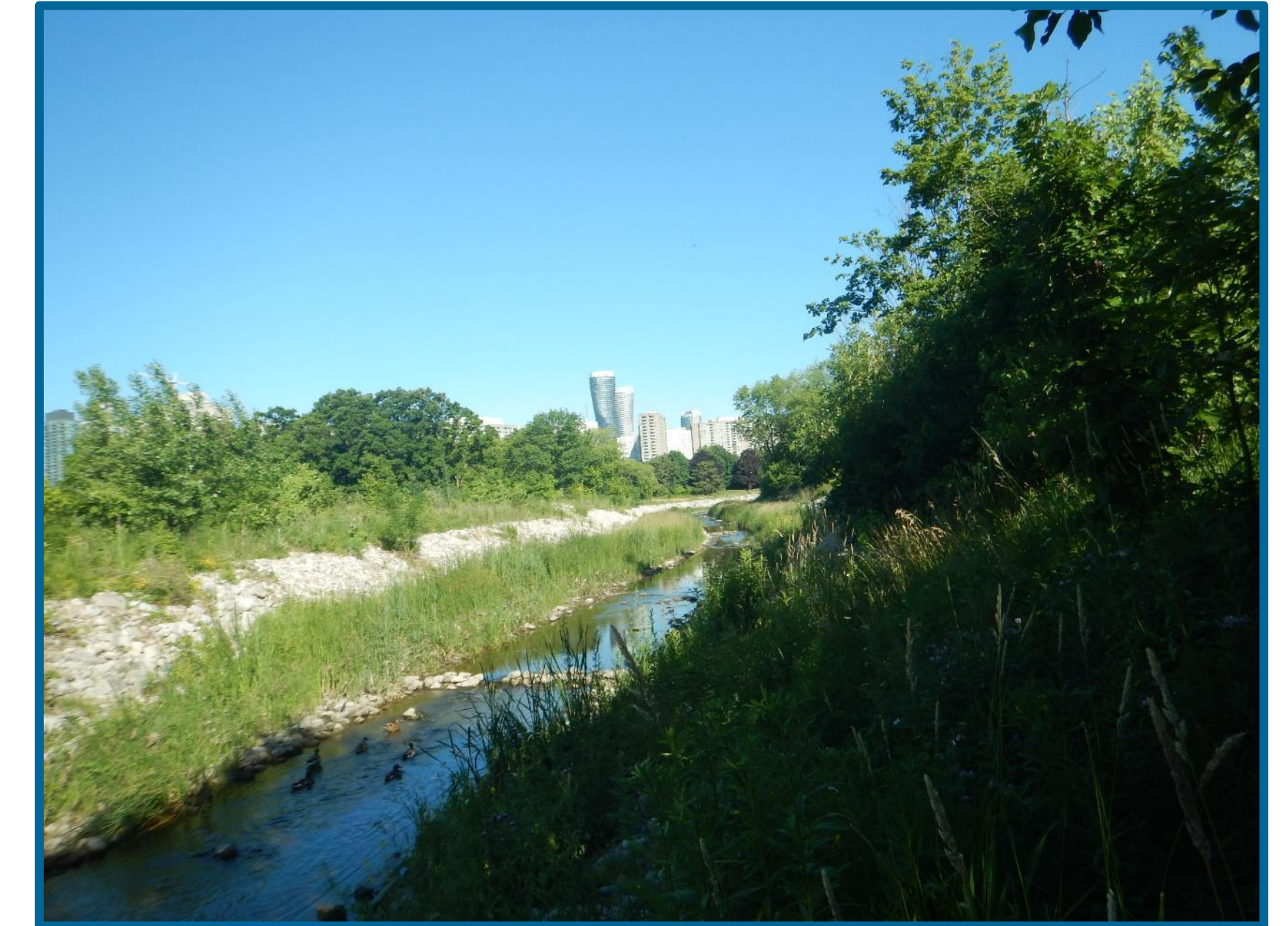
As a municipality, the City of Mississauga is actively working toward reconciliation by confronting our past and our present, providing space for Indigenous peoples within their territory, to recognize and uphold their Treaty Rights, and to support Indigenous Peoples. We formally recognize the Anishinaabe origins of our name and continue to make Mississauga a safe space for all Indigenous peoples.

# Virtual Public Information Center Agenda

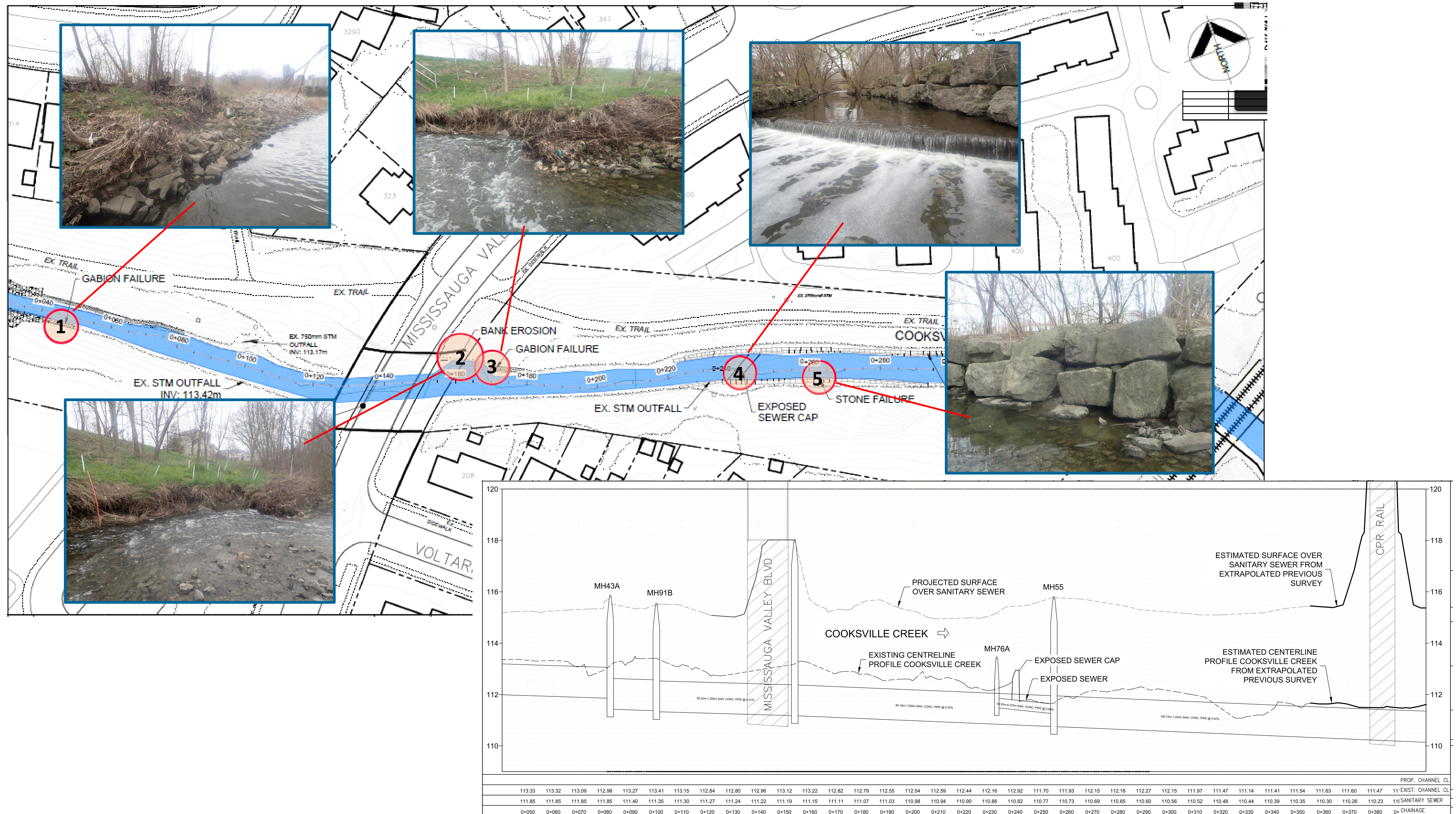
- Study Objectives
- Existing Conditions
- Alternative Solutions Development
- Next Steps



# Study Objectives and Class EA Process



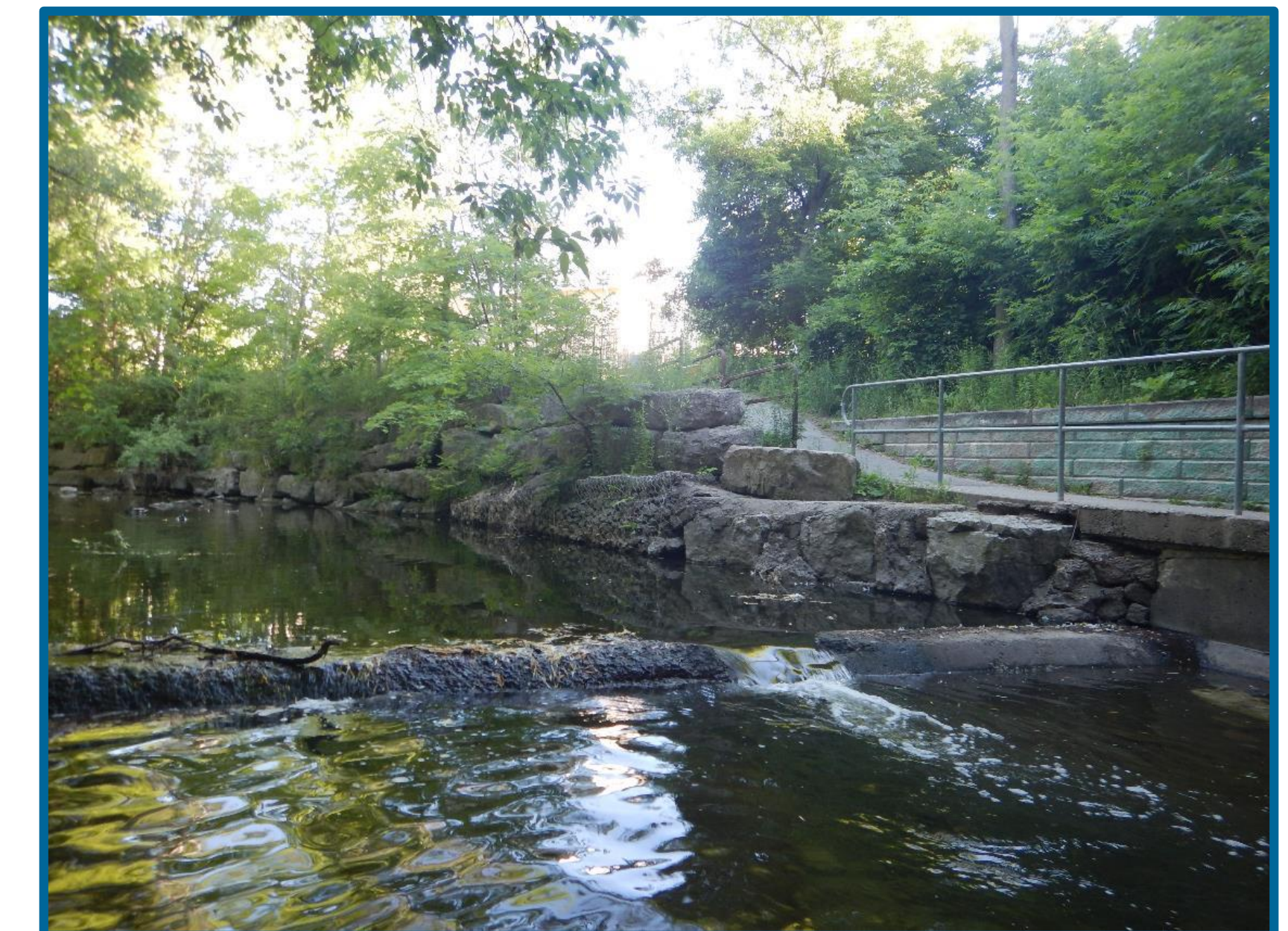
# Existing Study Area Conditions



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## CHANNEL CONDITION

- There are two exposed concrete encased sanitary sewer crossings.
- Manholes are present a short distance from the creek banks.
- Bank treatments vary throughout the study area (armourstone, gabion) and are in a degraded state (eroded/failed, undercut, outflanked).
- Gabions under the concrete slabs below Mississauga Valley are failing; the concrete slabs are interfering with flow patterns and contributing to erosion.



## GEOMORPHOLOGY

- Substrate on the creek bed includes locally exposed till (clayey), angular stone (riprap), shale fragments, and bedrock; the streambed is classified as gravel bed (D50 = 50 mm) based on the median grain size.
- The exposed sanitary sewers create backwater conditions/long pool; riffle features have developed in the creek.
- Overall, the creek has a relatively low grade (0.60%).
- The flow capacity for the creek is “bankfull flow” (60% of 2-year flow event); larger flows spill onto the floodplain.
- Hydraulic conditions in the creek result in stability for the largest stones, but anticipated mobility of most of the channel bed materials.

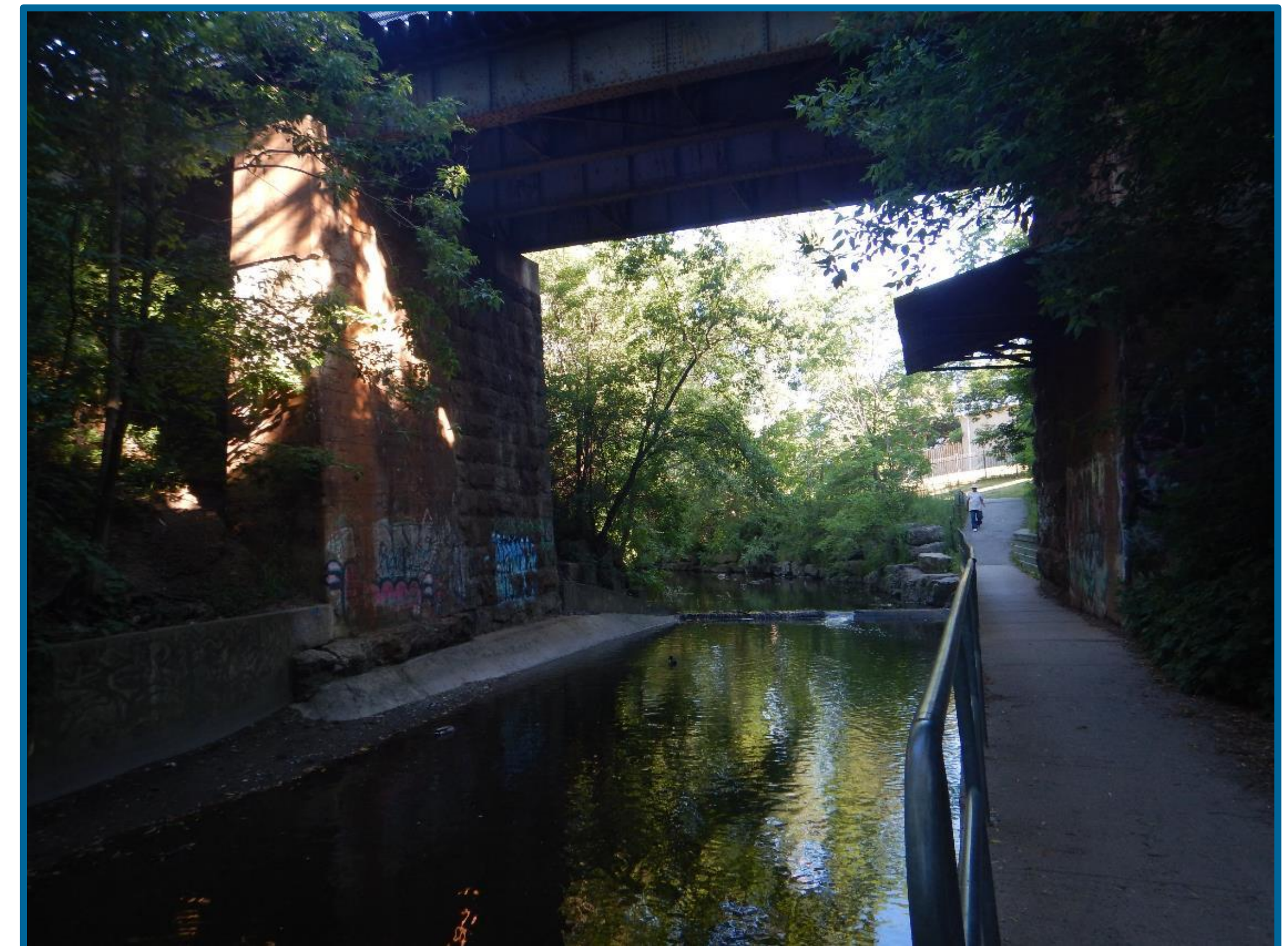
# Existing Study Area Conditions

## NATURAL ENVIRONMENT

- Field investigations completed during the spring and summer of 2022 include aquatic habitat assessment, Ecological Land Classification (ELC), vascular flora inventory, fauna inventory, species at risk screening, significant wildlife habitat screening, breeding bird surveys, incidental wildlife observations.
- Field observations did not identify any species at risk flora species.
- Breeding bird surveys identified the Eastern Wood Pewee (species of concern).

## SOCIAL

- The site is situated on Mississauga property (Stonebrook Park and Richard Jones Park) and within a municipal sanitary sewer easement in City-owned parkland.
- A walking trail is located along the east bank; the asphalt is cracked and uneven in several locations.
- Previously undisturbed or minimally disturbed areas (grassed, treed) may have archaeological potential (to be further assessed).
- Private residential property occurs along the wooded City-owned lands on the west side of the creek.



# Alternative Solutions Development

## Alternative 1: Do Nothing

- No action taken to address the identified erosion issues.
- Always considered in an EA for comparative purposes.
- Continuation of ongoing erosion and risk to private property and municipal infrastructure is anticipated.

## Alternative 2: Spot Repairs

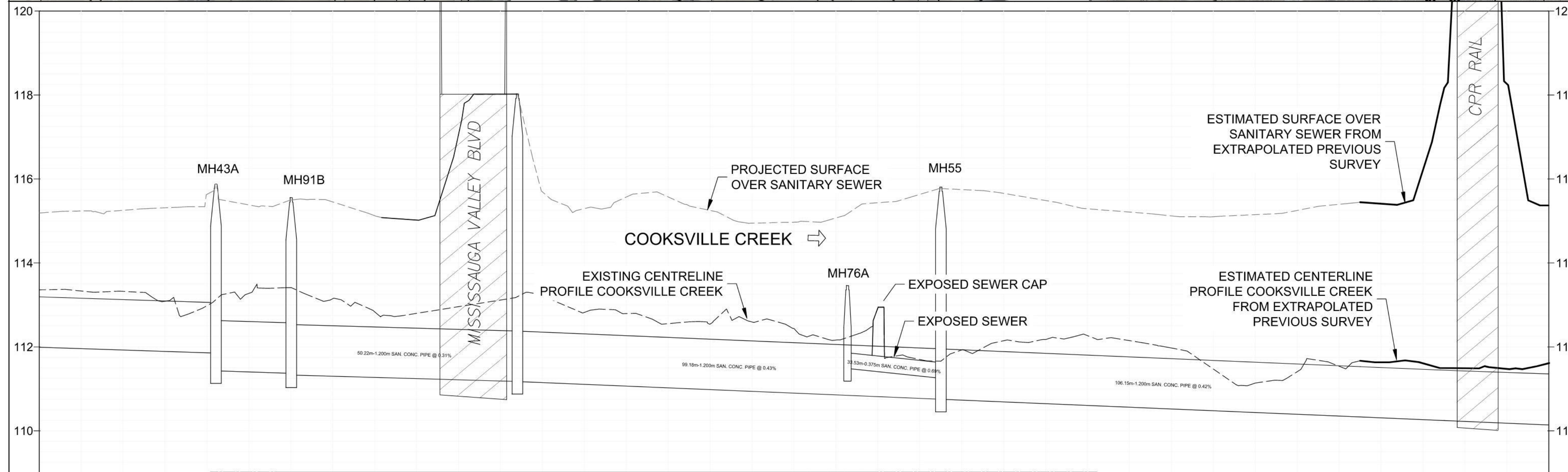
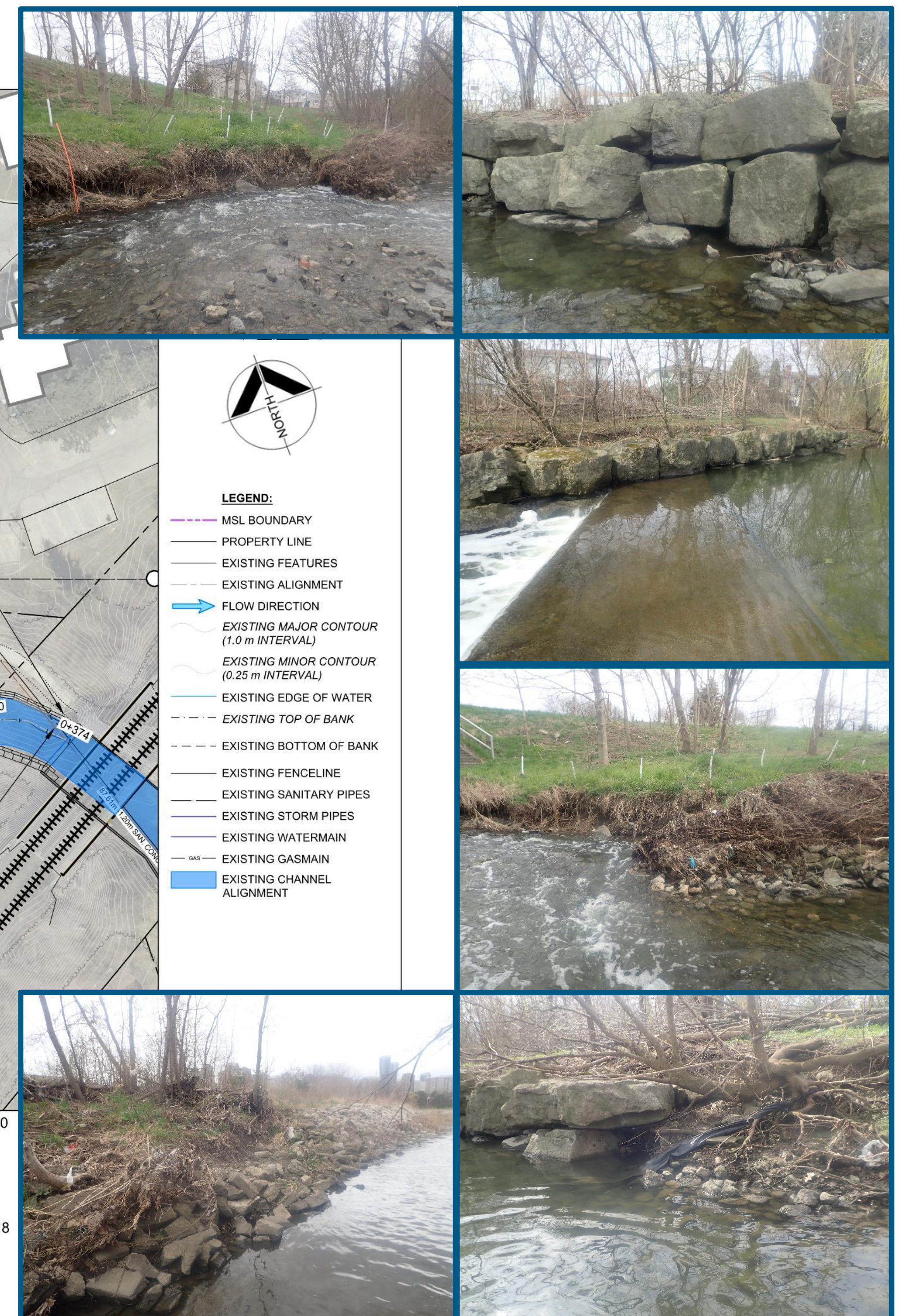
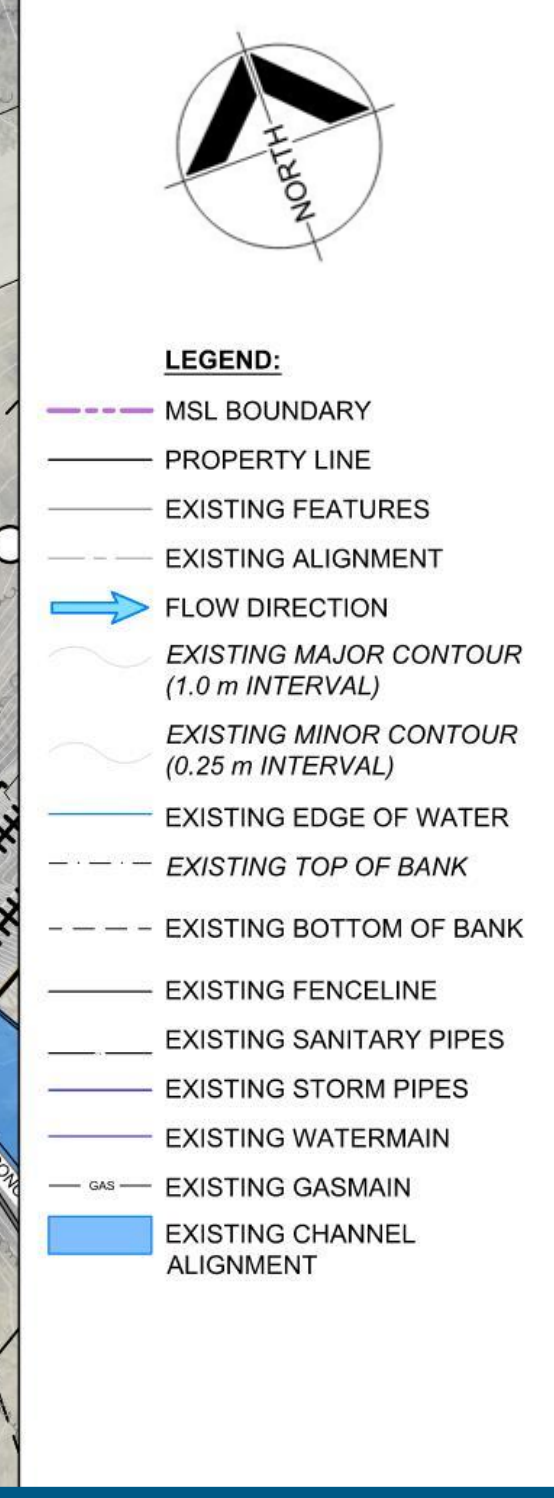
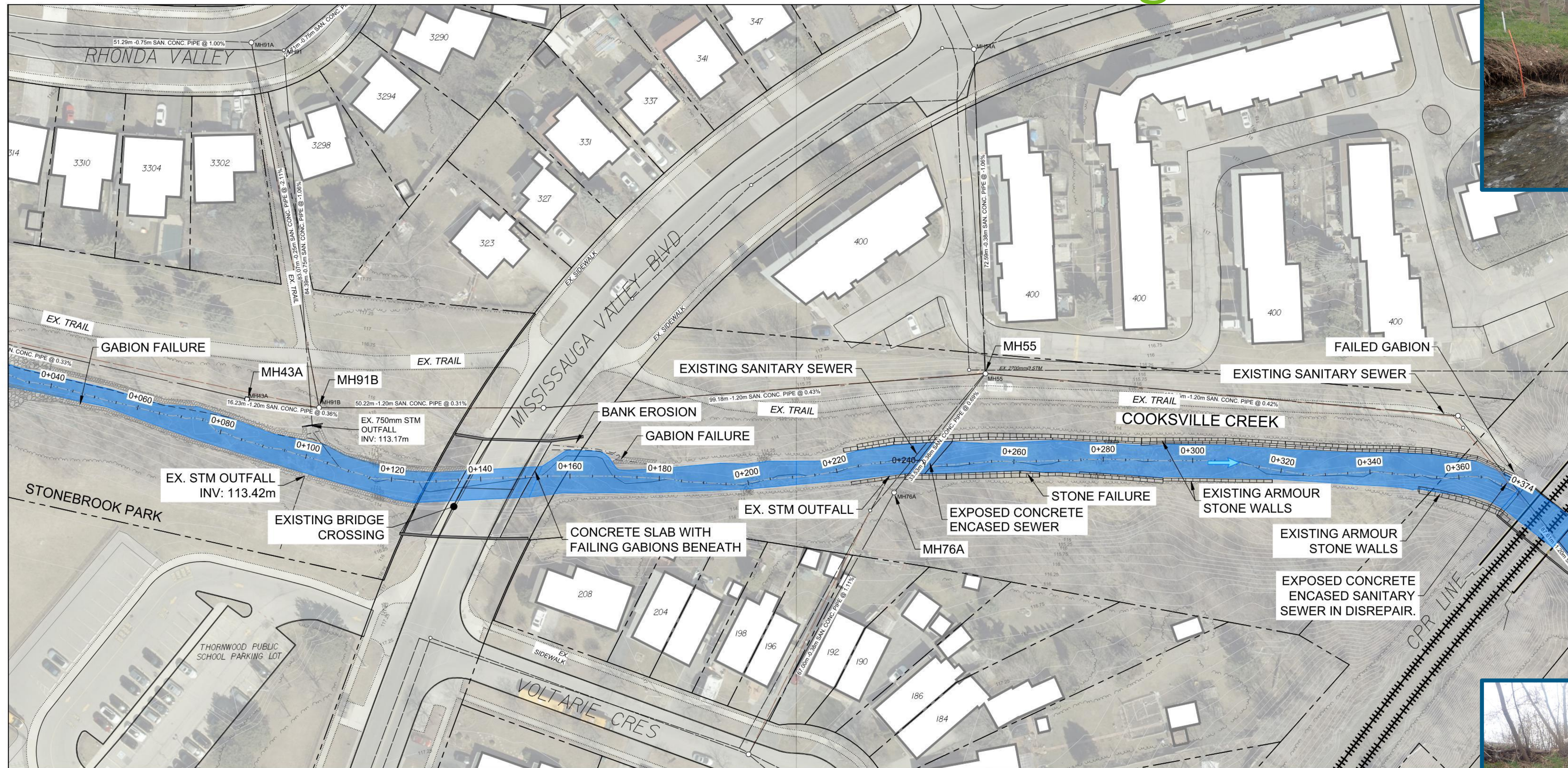
- Repair or replace failed gabions and/or large angular stone along creek banks.
- Repair or replace concrete lining.
- Protect the manholes that are at risk from channel widening.
- Protect sanitary sewer crossing.
- Replace or repair outfalls and associated structures.

## Alternative 3: Channel Modification and Realignment

- Channel modifications to increase cross-section area.
- Realign channel away from trail where there is sufficient space.
- Protect sanitary sewer crossings.
- Incorporate repair/replacement of outfalls.
- Protect any manholes from channel processes.



# Alternative 1 – Do Nothing



Station	Prop. Channel CL	Exist. Channel CL	Sanitary Sewer
0+050	113.33	111.85	111.85
0+060	113.32	111.85	111.85
0+070	113.09	111.85	111.85
0+080	112.98	111.40	111.40
0+090	113.27	111.35	111.27
0+100	113.41	111.30	111.24
0+110	113.15	111.22	111.19
0+120	112.84	111.15	111.11
0+130	112.80	111.11	111.07
0+140	112.96	111.11	111.03
0+150	113.12	111.07	110.98
0+160	113.22	111.07	110.94
0+170	112.82	111.07	110.90
0+180	112.79	111.07	110.86
0+190	112.55	111.07	110.82
0+200	112.54	111.07	110.77
0+210	112.59	111.07	110.73
0+220	112.44	111.07	110.69
0+230	112.16	111.07	110.65
0+240	112.92	111.07	110.60
0+250	111.70	111.07	110.56
0+260	111.93	111.07	110.52
0+270	112.15	111.07	110.48
0+280	112.18	111.07	110.44
0+290	112.27	111.07	110.39
0+300	112.15	111.07	110.35
0+310	111.97	111.07	110.30
0+320	111.47	111.07	110.26
0+330	111.14	111.07	110.23
0+340	111.41	111.07	110.23
0+350	111.54	111.07	110.23
0+360	111.63	111.07	110.23
0+370	111.60	111.07	110.23
0+380	111.47	111.07	110.23
0+390	111.47	111.07	110.23

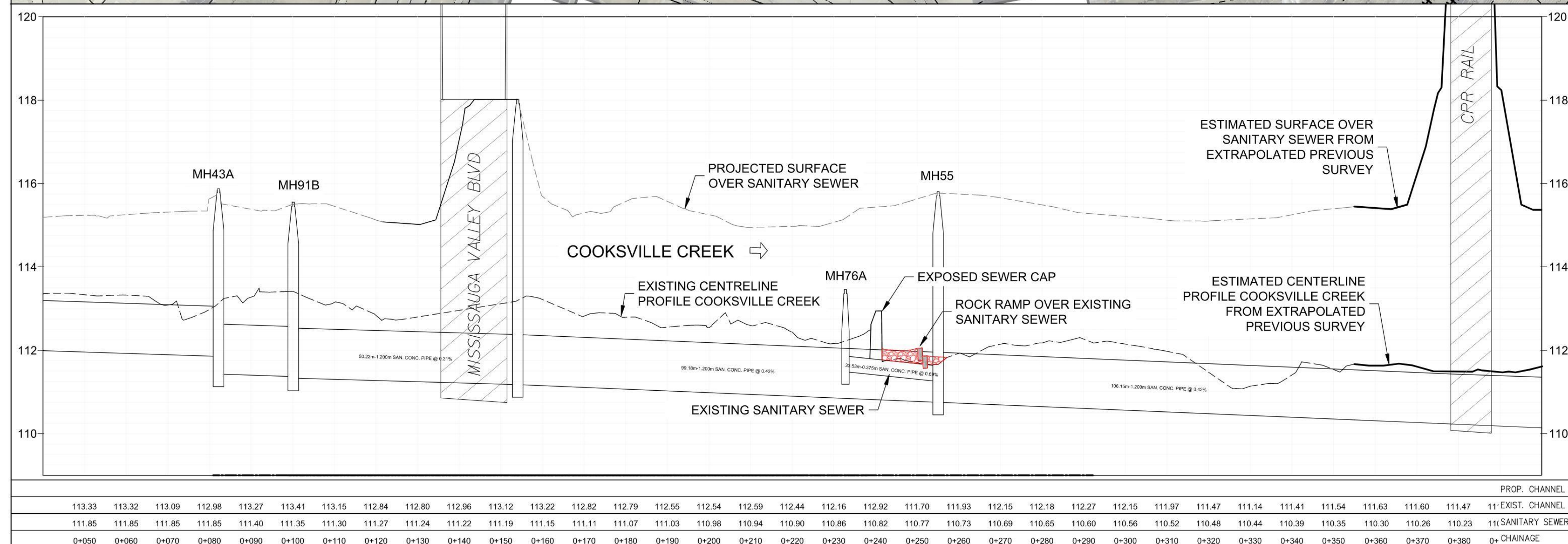
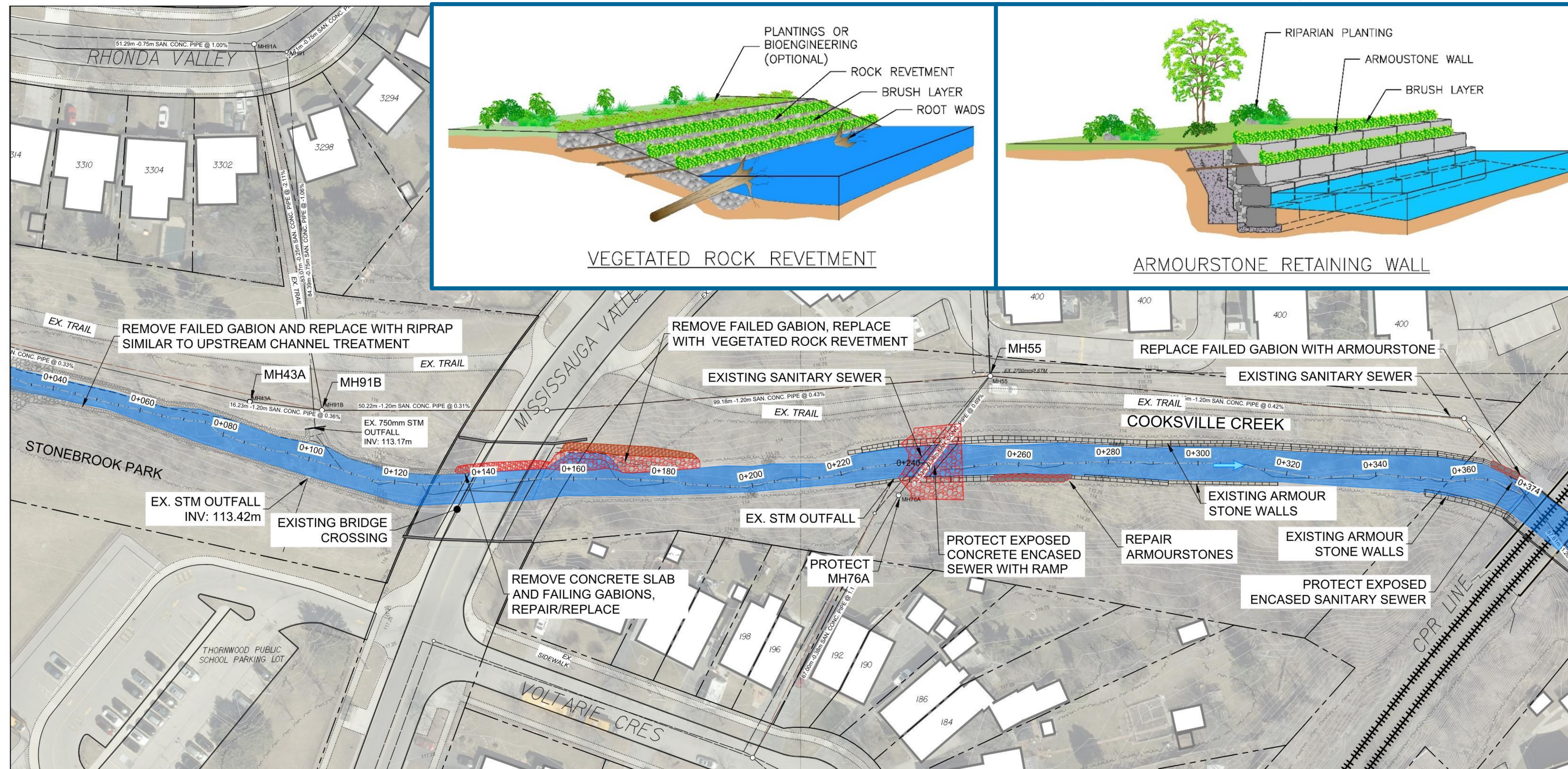
## Advantages

- Low cost
- Continuation of natural channel processes
- Continuation of sediment supply

## Disadvantages

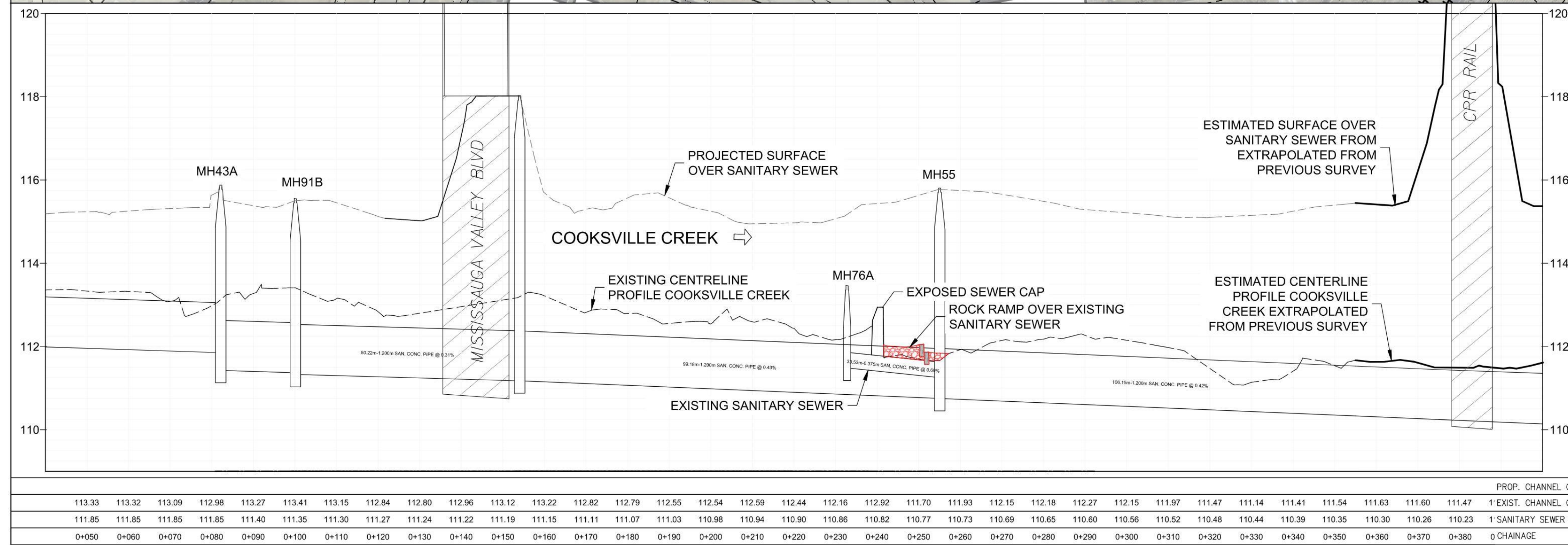
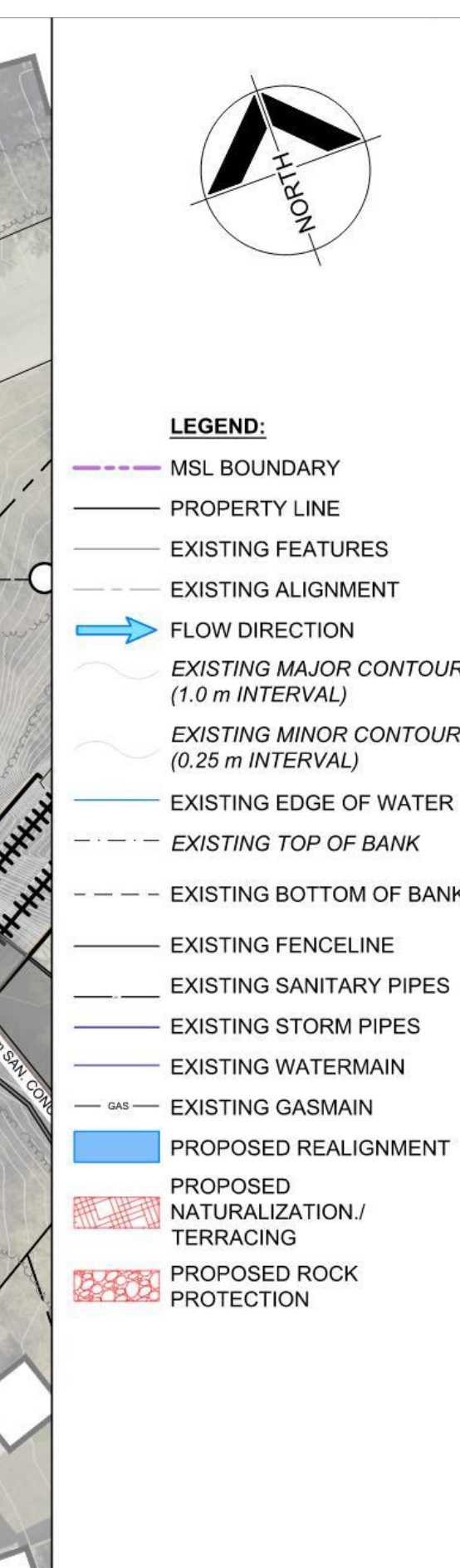
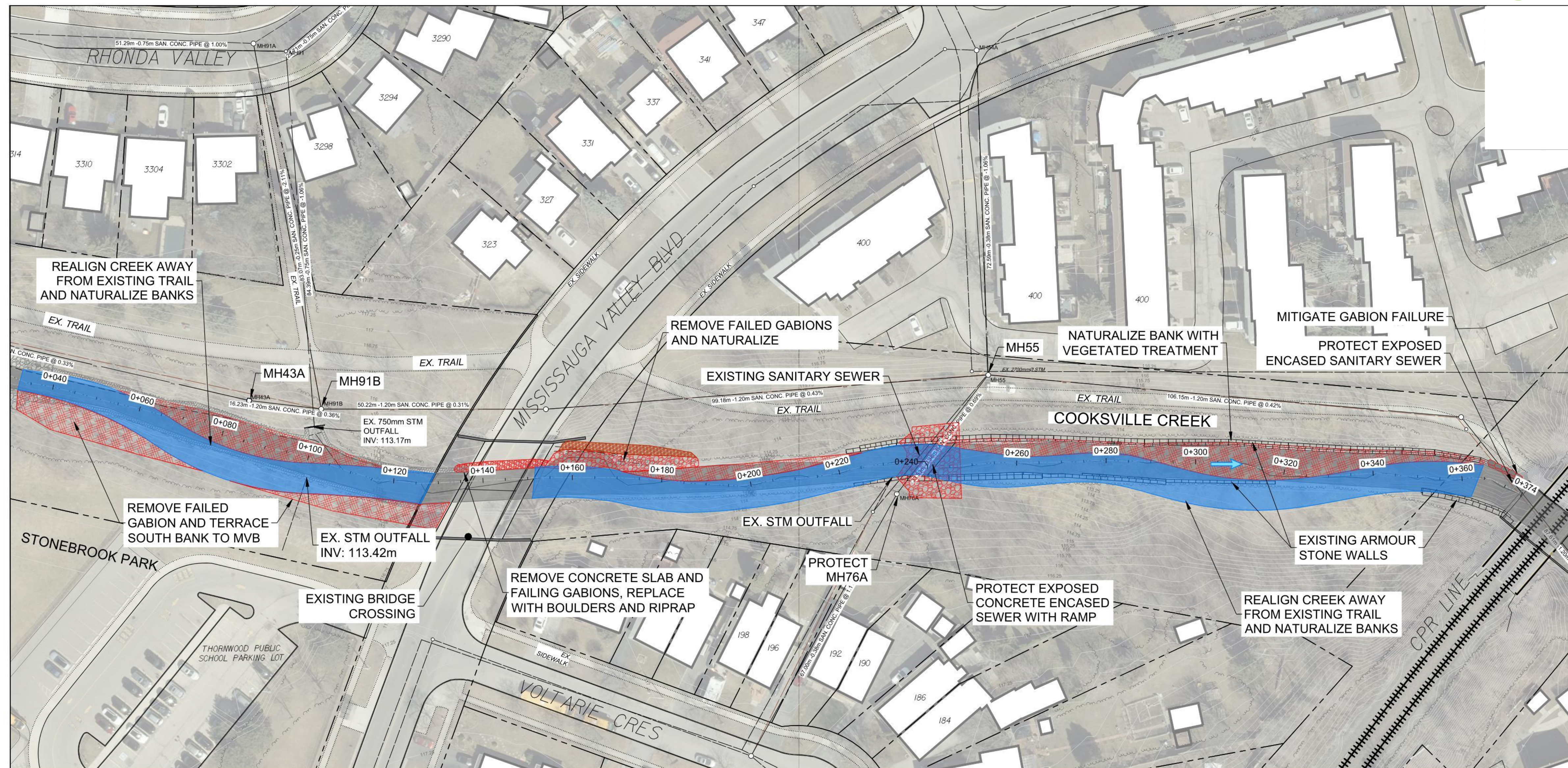
- Risk to sanitary sewer infrastructure
- Long-term maintenance costs
- Risk to trail

# Alternative 2 – Spot Repairs



- Advantages**
- Increases capacity and reduces overbank flooding during frequent flows.
  - Enhances erosion protection measures where risk to private property or infrastructure exists.
  - Enhances aquatic environment, and vegetation cover.
- Disadvantages**
- Moderately high cost
  - Extent of erosion control measures and channel hardening will remain relatively high.

# Alternative 3 - Channel Modifications/Realignment



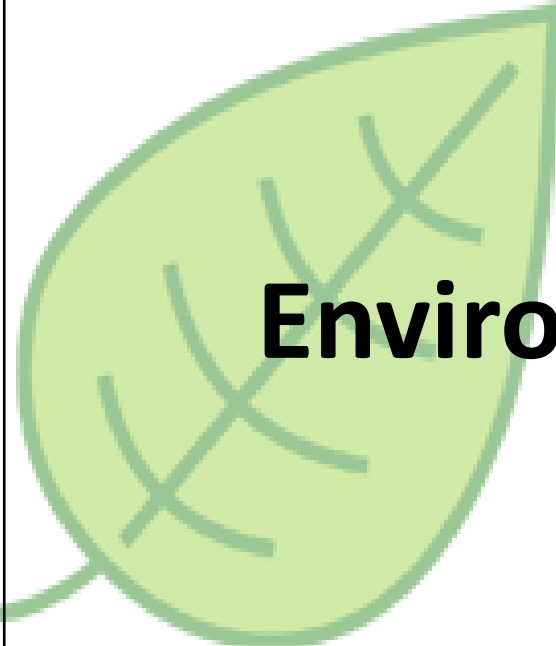



## Advantages

- Reduces risk to sanitary sewer and associated infrastructure
- Replaces broken infrastructure (outfalls)
- Enhances vegetative buffer along channel banks
- Re-establishes natural channel profile and enhances planform where feasible
- Minimizes channel hardening

## Disadvantages

- High cost
- Increase in footprint of channel; potential disruption of terrestrial habit with tree removal

# Evaluation Criteria

Category	Criteria
 <p><b>Environment</b></p>	<ul style="list-style-type: none"> <li>• Impact on aquatic habitat and species</li> <li>• Impact on terrestrial habitat and communities</li> <li>• Impact on Species at Risk (SAR) and associated habitat</li> <li>• Potential for enhancement</li> </ul>
 <p><b>Technical</b></p>	<ul style="list-style-type: none"> <li>• Erosion protection</li> <li>• Impacts to stream processes</li> <li>• Flood risk</li> <li>• Constructability</li> <li>• Construction impacts (temporary) – site access, noise, vibration, impacts to residents and businesses</li> <li>• Operation and maintenance</li> </ul>
 <p><b>Social</b></p>	<ul style="list-style-type: none"> <li>• Public health and safety</li> <li>• Protection of residents, buildings, and property</li> <li>• Aesthetics (vegetation removal, material placement, restoration)</li> <li>• Archaeological value</li> <li>• Indigenous communities</li> </ul>
 <p><b>Economic</b></p>	<ul style="list-style-type: none"> <li>• Flood damages</li> <li>• Construction cost (short term &amp; long term)</li> <li>• Implementation costs</li> <li>• Operation and maintenance</li> <li>• Cost comparison</li> </ul>

# Next Steps

- Alternative Evaluation
- Selection of Preferred Alternative
- Project report



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