

Naturalization of North Strasburg Creek:

A Case Study in Multi-Disciplinary Approaches to the Restoration of Industrial Creek Corridors



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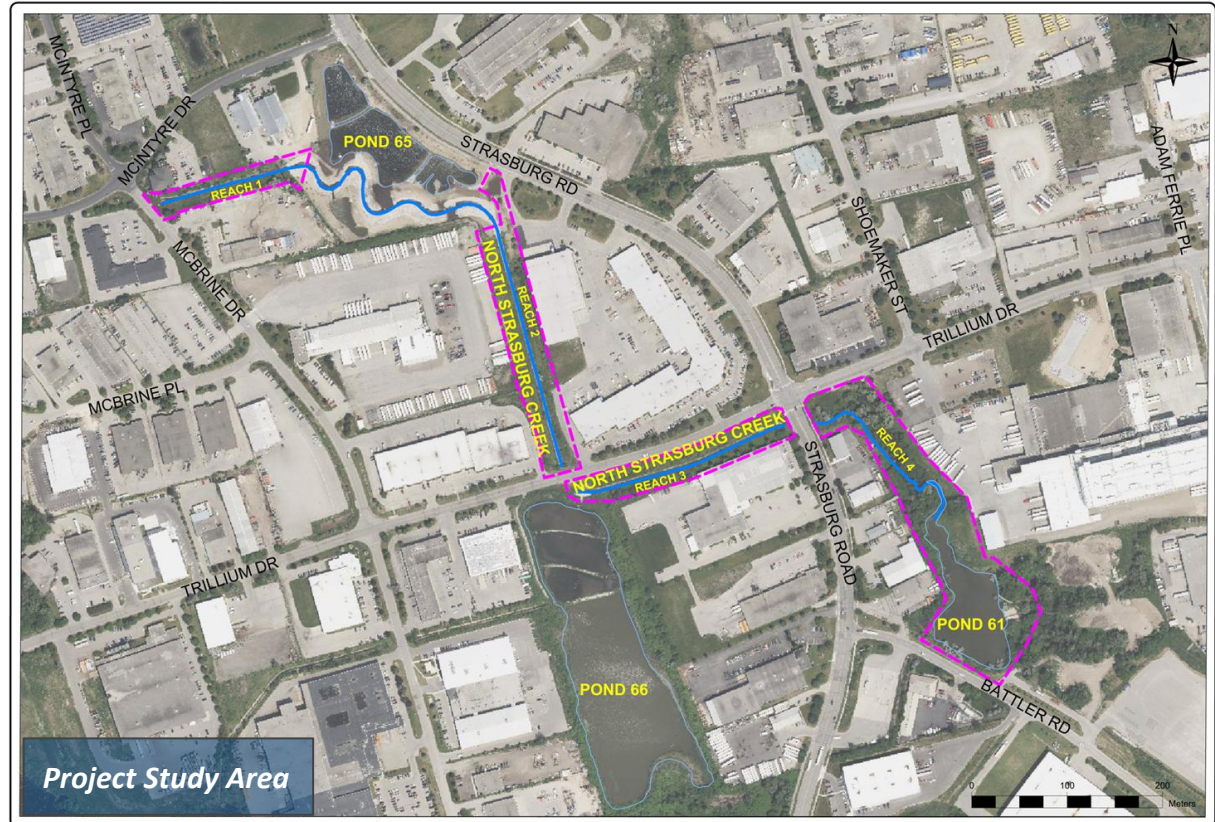
LESSONS LEARNED

Overview & Background

The City of Kitchener completed a Schedule B EA in 2011 for the revitalization of the North Strasburg Creek watershed.

A core objective of the EA was to identify opportunities to improve water quality.

The watershed has been historically subjected to significant pressures from industrialization but was found to maintain potential to support Coldwater fisheries.



Overview & Background

The EA ultimately recommended the following:

- Retrofit / restoration of existing SWM facilities to include water quality control
- Removal of existing fish barriers
- Naturalization of over 500 m of concrete lined channels
- Enhancements to riparian buffer communities and landscaped areas

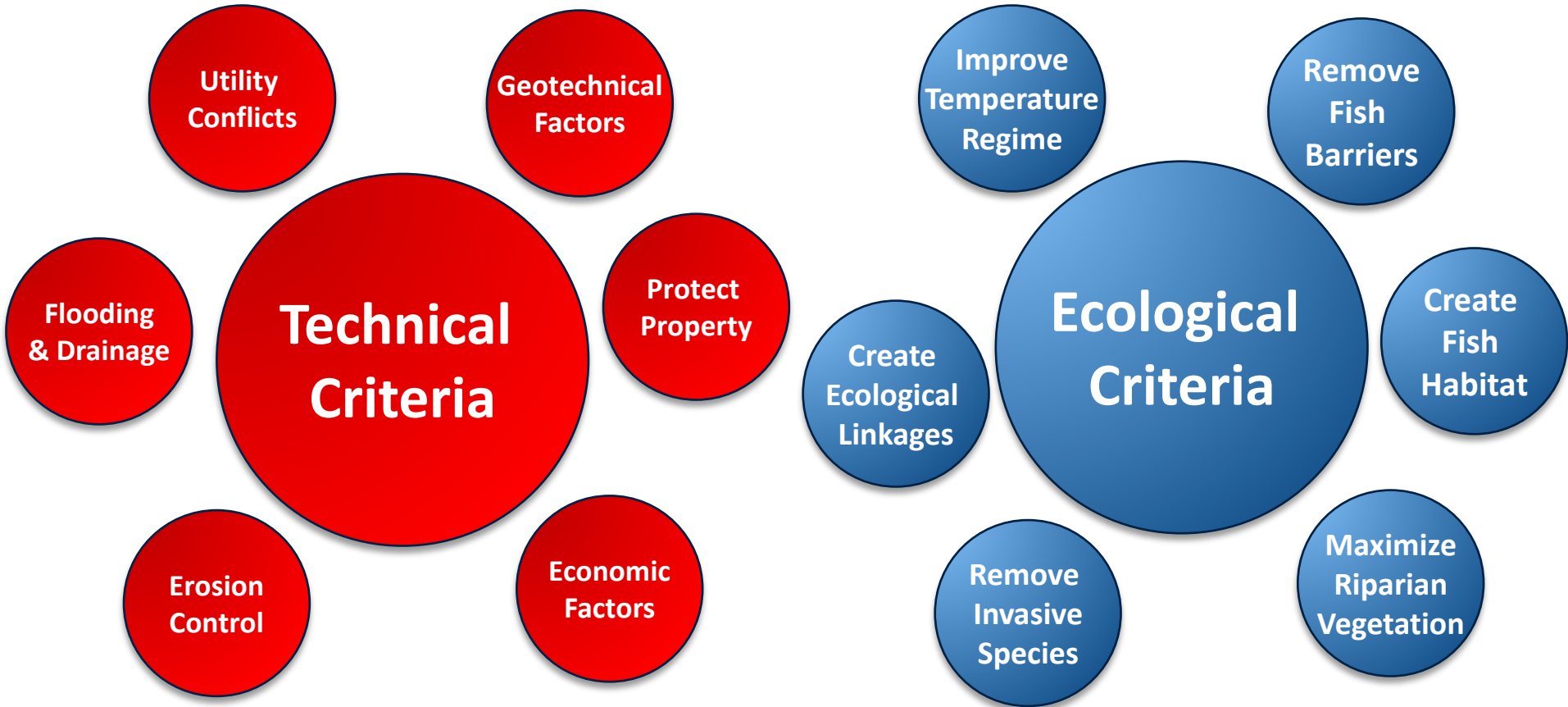


Pond 65 Retrofit

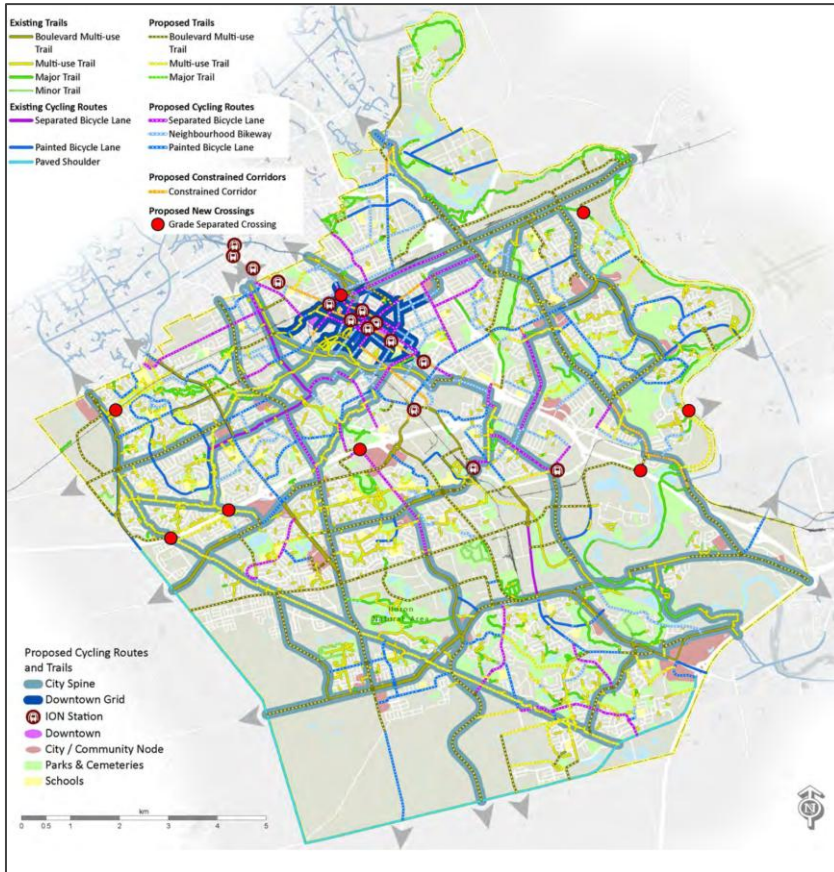
Project Objectives and Constraints



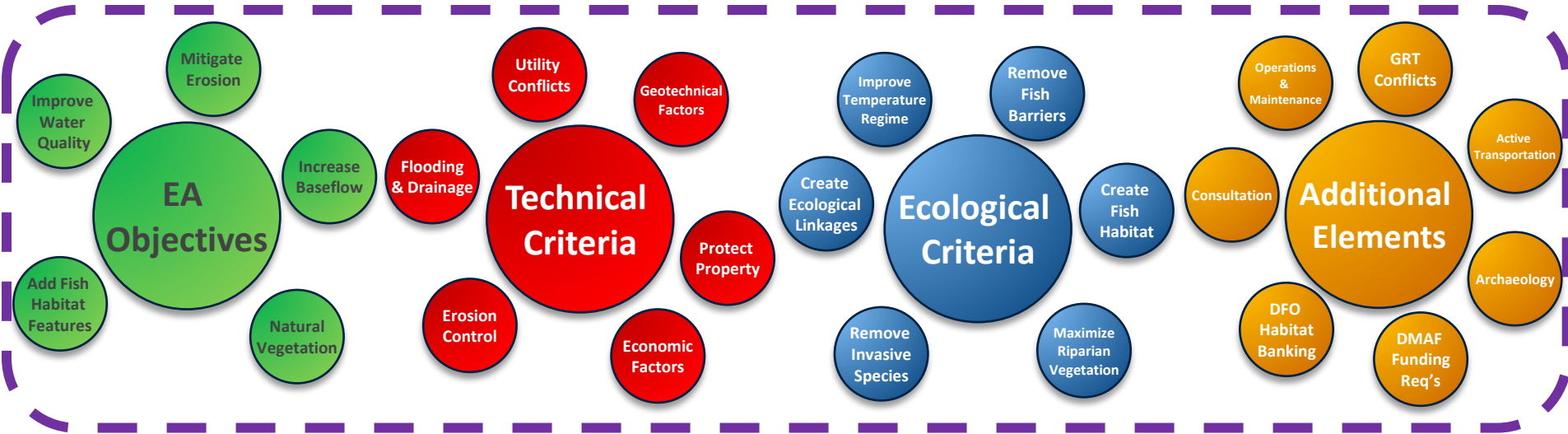
Channel Design Criteria



Additional Project Elements



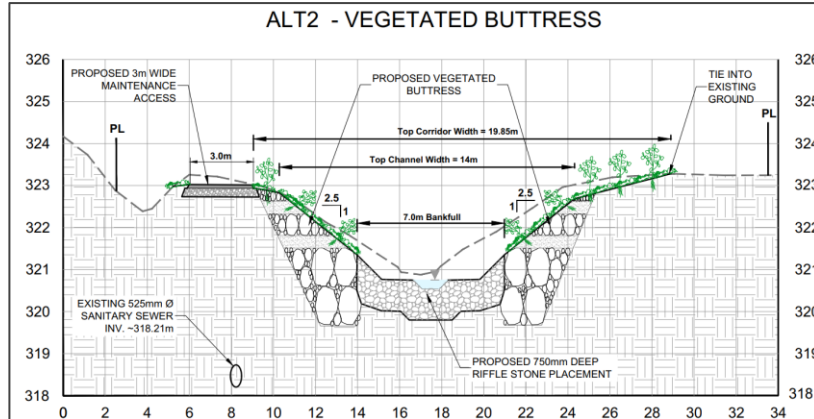
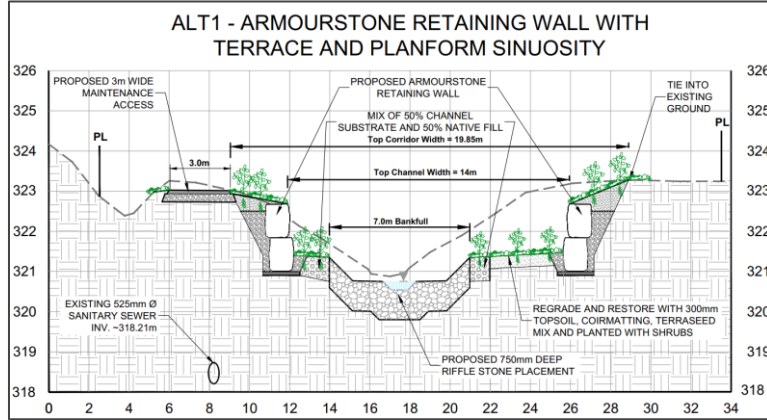
A Multi-Disciplinary Design Approach



Required Practitioners

1. Water Resources Engineers
2. Geomorphologists
3. Aquatic Biologists
4. Arborists
5. Terrestrial Ecologists
6. Geotechnical Engineers
7. Project Managers
8. Landscape Architects
9. SUE Engineers
10. Surveyors
11. Consultation Specialists
12. Archaeologists
13. Contractors
14. Contract Administrators
15. Site Inspectors

Channel Design



Fish Habitat Enhancement Features

The design enhanced Fish Habitat through the following measures:

1. Removal of Concrete Lined Channels
2. Riffle-Pool Morphology with Rounded Channel Substrate
3. Riparian Plantings
4. Root wads
5. Overhanging Logs
6. Removal of Fish Passage Barriers

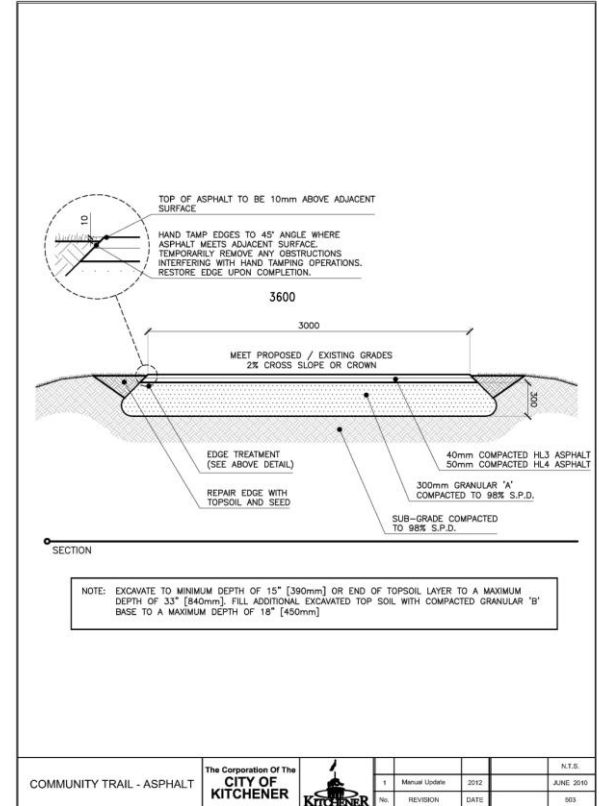


Wildlife Connectivity

- Downstream Fish Barrier at Pond 61 Removed through installation of a new Bypass Channel
- Terrestrial Clay Benches Installed at Culvert Crossings



Active Transportation Design



NOTES:

COMMUNITY TRAIL - ASPHALT

1. THE TRAIL CENTERLINE TO BE PAINTED YELLOW , 100mm WIDTH.

Permitting and Approvals



Permits and Approvals were coordinated from:

Grand River Conservation Authority (GRCA)



Ministry of the Environment, Conservation and Parks (MECP)



Ministry of Natural Resources (MNR)



Letter of Advice from Fisheries and Oceans Canada (DFO)



Implementation

Key Considerations during

Construction Included:

1. Blandings Turtle Management Plan
2. Management and Disposal of Contaminated Soils
3. Coordination with GRT and Local Businesses
4. Winter Construction
5. Lack of Space onsite for Staging and Storage of Material



Construction of Reach 3

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Post-Construction Monitoring



The project will be subject to extensive post-construction monitoring requirements to determine if the project achieves its objective of allowing for the reintroduction of Coldwater fisheries to North Strasburg Creek, with Brook Trout used as the indicator species.

The Five-Year Monitoring requirements include:

1. Geomorphic Monitoring (RGAs, and Riffle-Pool Assessments)
2. Vegetation Assessment
3. Fish Community Sampling
4. Benthic Sampling
5. Water Temperature Monitoring



Lessons Learned



- Multi-disciplinary designs can offer immense value including opportunities for implementation efficiencies and new partnerships
- Effective communication is key
- A clear decision-making framework is required to resolve instances where competing interests arise

Questions?

Jacob Ursulak, M.A.Sc., P.Eng.
ursulak.j@aquaforbeech.com
226.606.2703

