



SOURCE FOR STREAM

2023 Conference

Canada's Premier
Stormwater and Erosion
and Sediment Control
Conference

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In association with:



Kettleby Creek Barrier Mitigation Project

Source to Stream 2023

March 23, 2023

Peter Shuttleworth
Restoration Project Specialist
LSRCA

Ed Gazendam
President, Sr. Geomorphologist
Water's Edge



Lake Simcoe Region
conservation authority





Enhancing Our Natural Heritage

- Protect, restore, enhance natural heritage systems
- Create/restore critical wildlife habitat
- Increase native biodiversity
- Expand, buffer, connect natural heritage features



Improving Our Water Quality and Quantity

- Address nutrient inputs to surface water
- Reduce sediment loading
- Control erosion
- Lower water temperatures



Creating Community Connections

- Involve the community
- Provide volunteer opportunities
- Create economic stimulus



Lake Simcoe Region
conservation authority



Lake Simcoe
Conservation
Foundation



Fisheries and Oceans
Canada
Pêches et Océans
Canada



The Kettleby Creek Barrier Mitigation Project...

- Built on ongoing efforts in the watershed
- Addressed the critical need to support and promote the conservation and recovery of aquatic species at risk and their habitats
- Reestablished a natural watercourse
- Removed a barrier to fish passage
- Provided education to local residents about the importance of healthy aquatic habitat

Background Regarding Funding

- 2016-2019 – LSRCA received DFO funding for fish habitat enhancement projects
- 2019 – LSRCA applied to LSCF for funding to continue the program
- Funds carried over to 2020 to align with external grant applications which were submitted in 2019 and 2020 for a single, large-scale project
- Applications were submitted to DFO for the 2020 HSP funding and MECP for the 2020 SARSP funding for a barrier mitigation project on Kettleby Creek
- The remaining LSCF funds would be contributed to this project

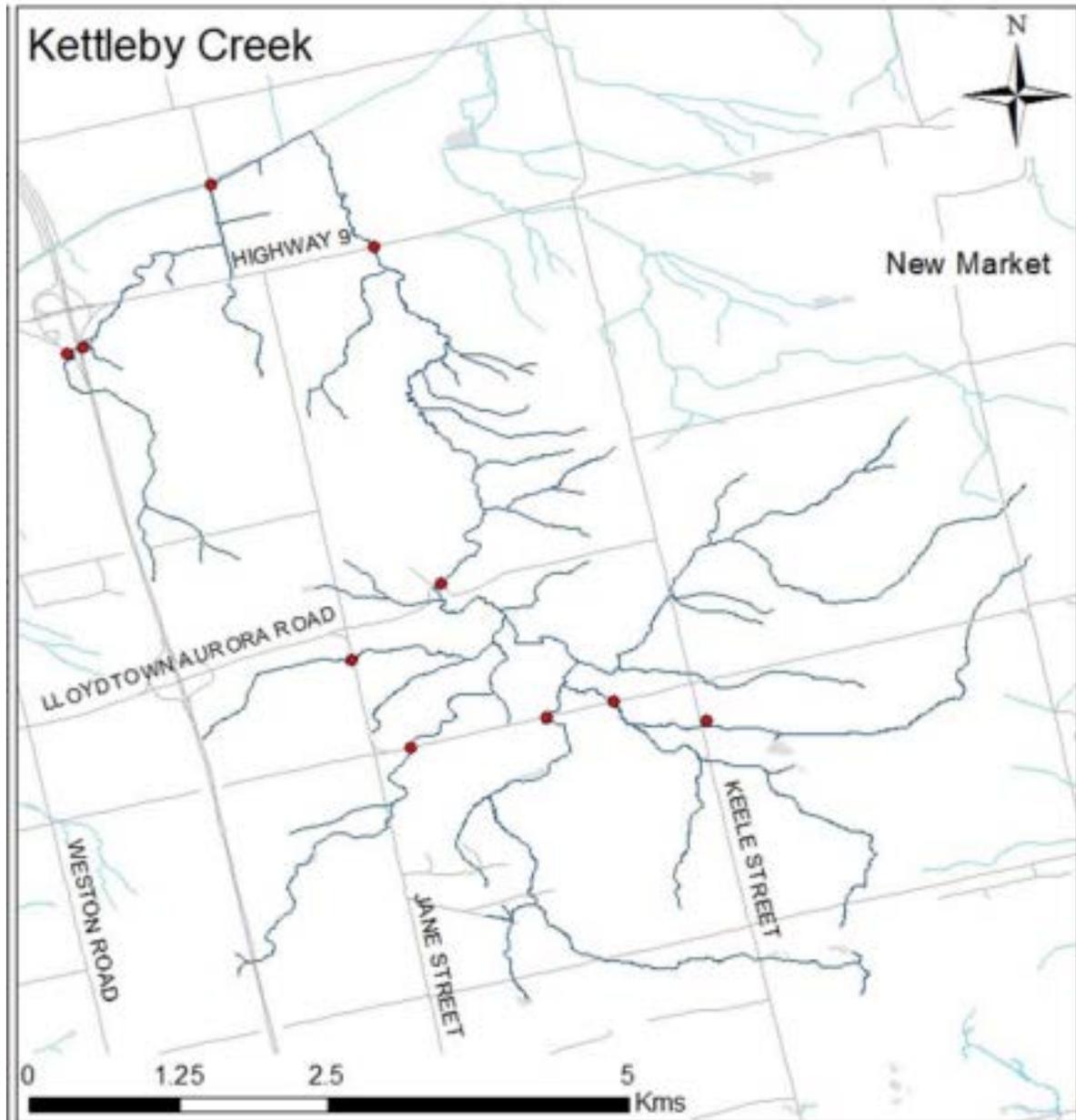
Funds Contributed

- LSCF - \$18,525
- DFO HSP - \$53,380
- MECP SARSP - \$100,000
- LSRCA - \$81,839

Total Project Cost
\$253,744

Kettleby Creek

- Coldwater tributary of West Holland River
- Headwaters in Oak Ridges Moraine
- Supports Brook Trout
- Historical records of Redside Dace

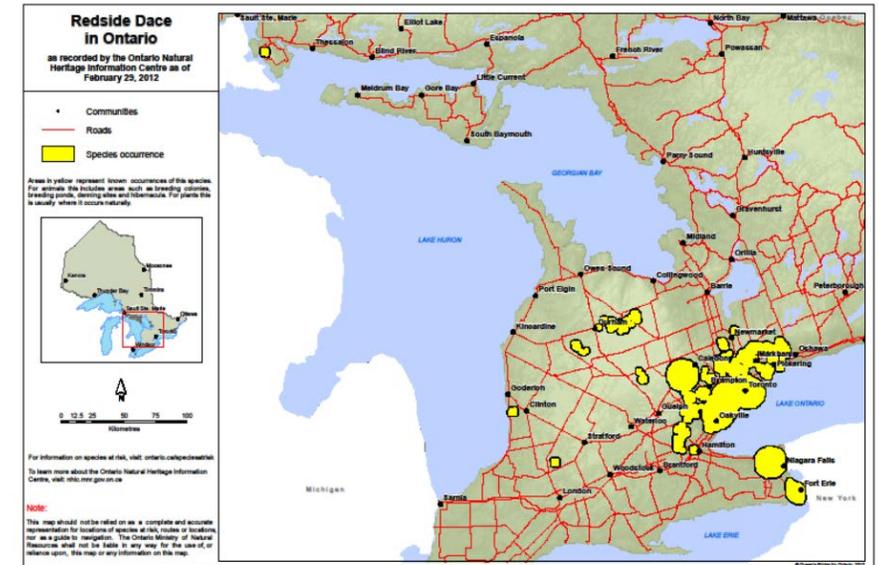


Redside Dace



Guarding
Species at Risk

- Colourful member of the minnow family
- Need cool clear water and healthy spawning habitat
- Their presence is an important indicator of stream health
- Major threats include habitat loss and degradation due to urban and agricultural development, and habitat fragmentation due to human-made barriers
- Populations have undergone significant declines in recent decades
- Now extirpated from many watersheds in Ontario
- Identified as Endangered under the federal Species At Risk Act (SARA).

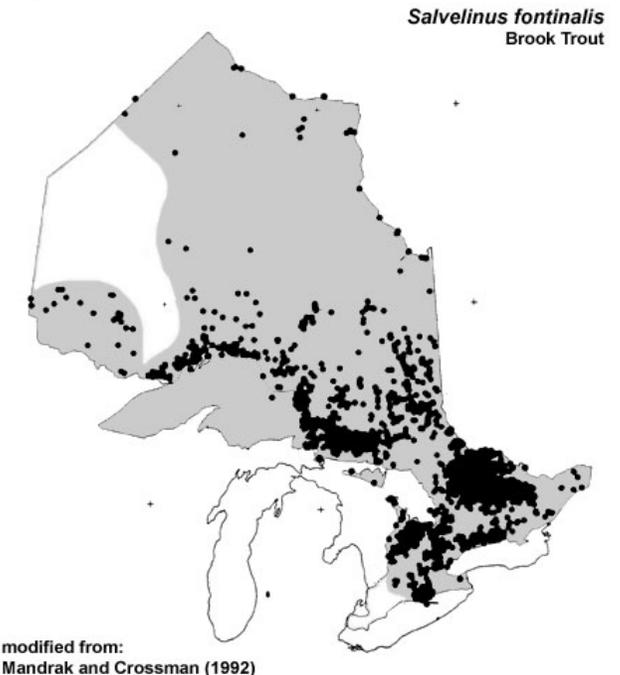


ontario.ca/speciesatrisk

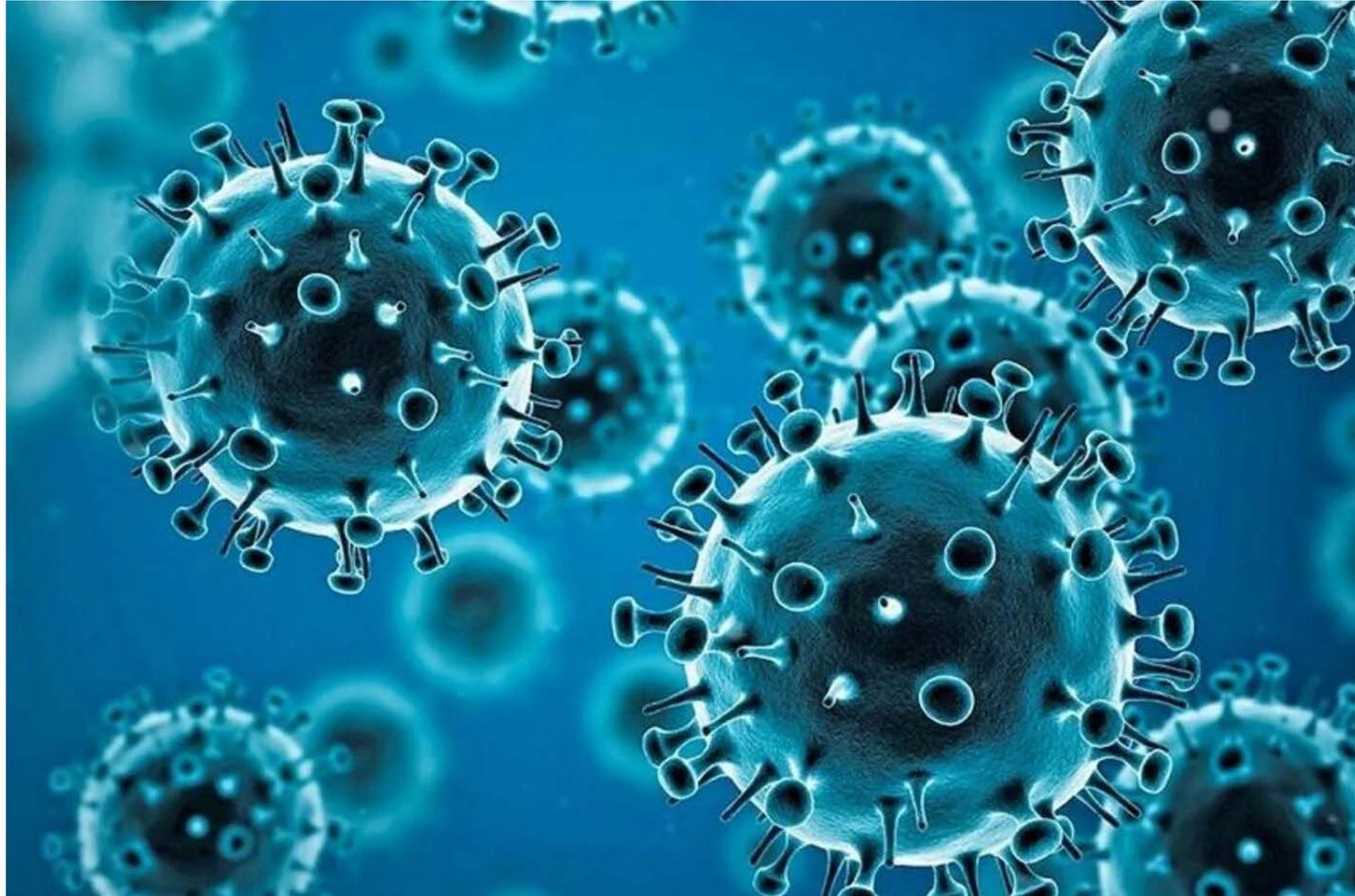
Brook Trout



- *Salvelinus fontinalis* is a member of the trout and salmon family
- An important indicator of stream health
- Major threats include habitat loss and degradation due to urban and agricultural development, and habitat fragmentation due to human-made barriers
- On the decline in southwestern Ontario due to urbanization and warming streams
- Need cold clear water and access to groundwater fed headwater streams for fall spawning
- Removing barriers to headwater areas for spawning and cold-water refuge is key to their survival in a warming climate



And then this happened...



Kettleby Valley Camp and Dam

- Prominent feature of the property is a large pond
- Constructed in mid-1950s as water supply for a chicken farm on Lloydtown-Aurora Rd.
- Connected to the creek by a corrugated steel pipe
- Dam installed to maintain water levels in the pond
- Wooden footbridge



21 0 10 21 Meters



The challenges:

- Timing
- Designing for two target species
- Maintaining the pond
- Access and stockpiling
- Replacing the bridge



Design Issues:

- Creek Restoration
- Access
- Pedestrian Bridge
- Pond Levels
- Flow Diversion
- Winter Construction
- Seepage

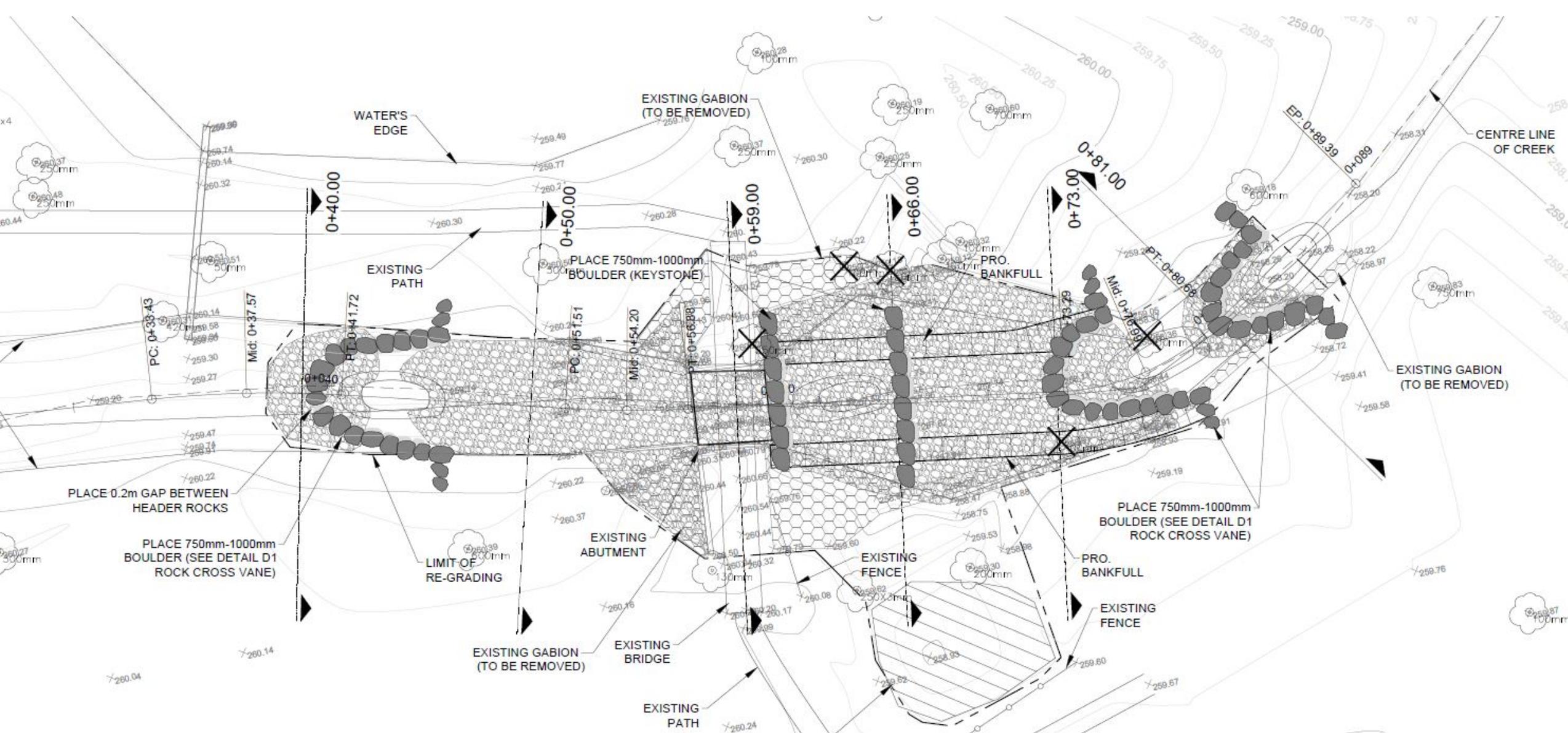


Design Issues:

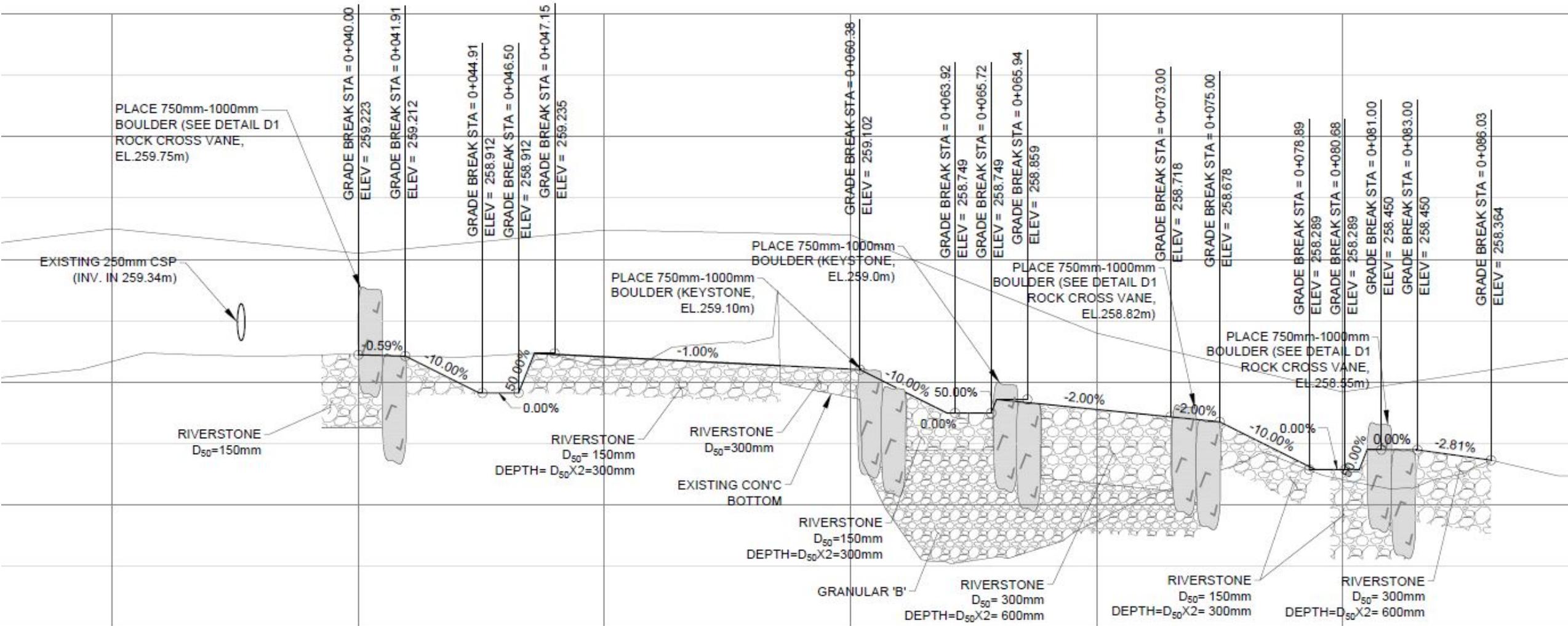
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Planview:

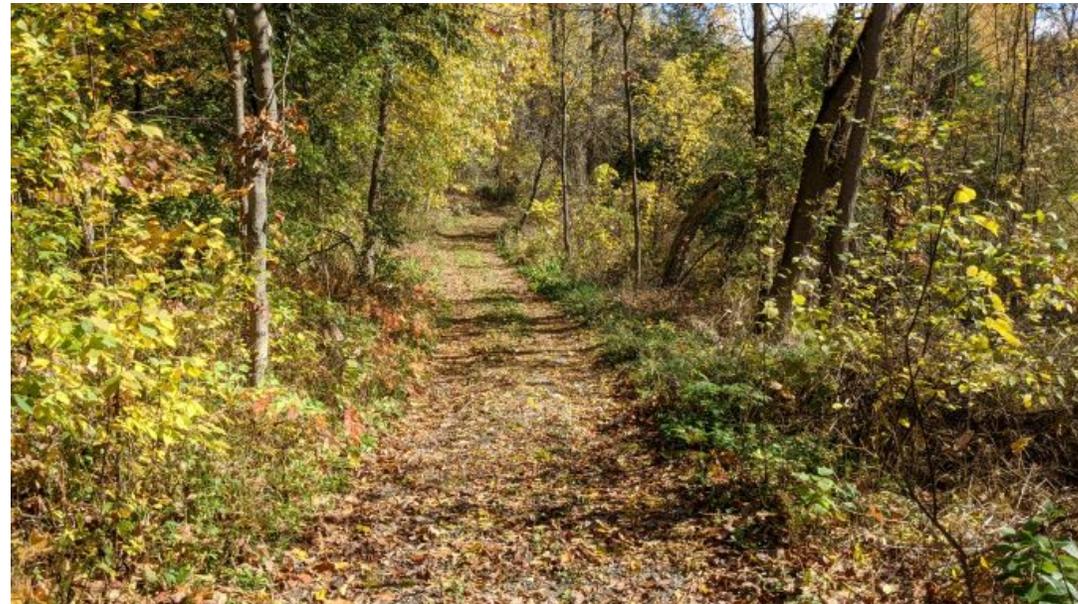


Profile:



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Access Route:



Design Issues:

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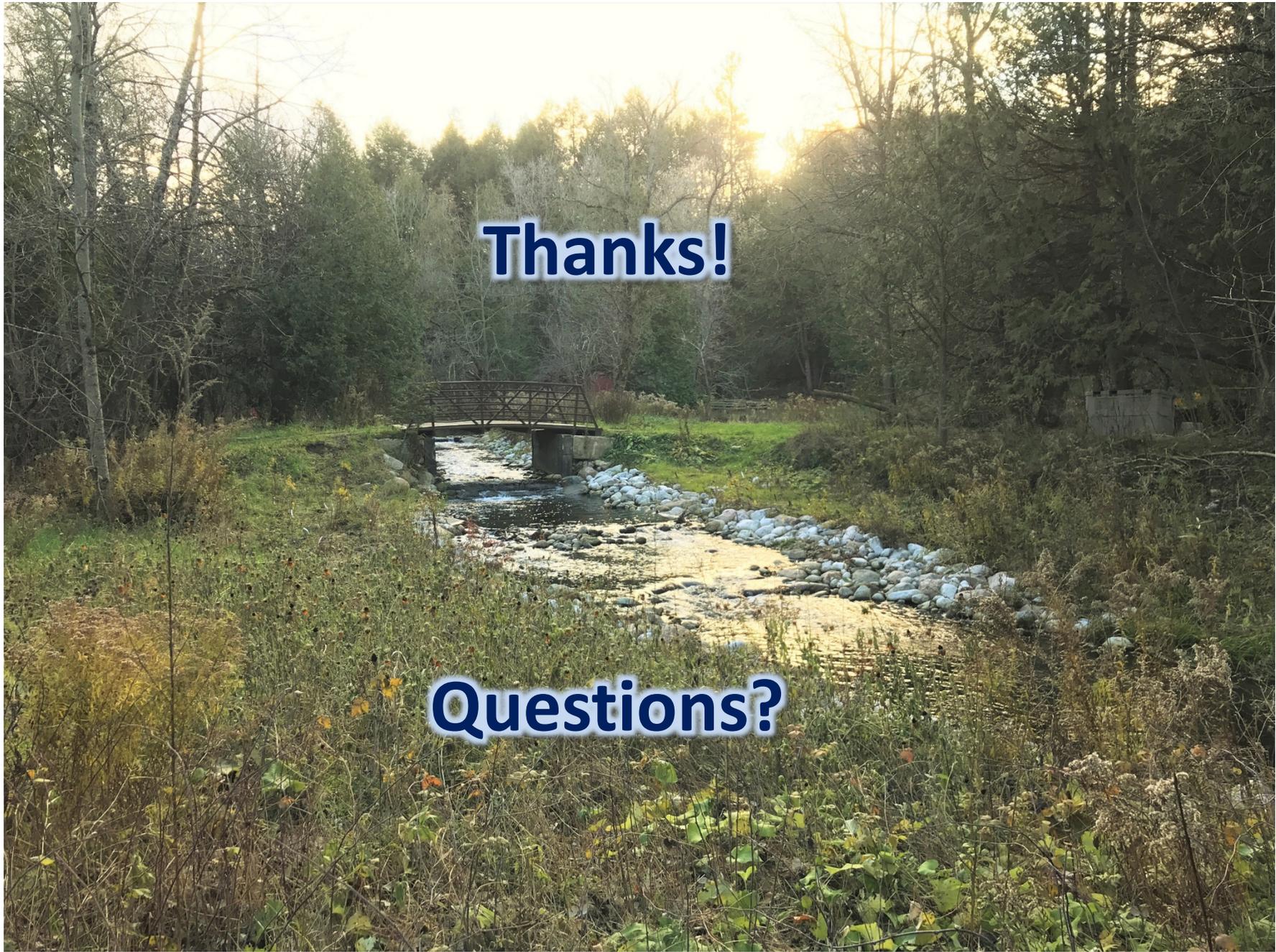
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In Conclusion:





Thanks!

Questions?



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