



SOURCE FOR STREAM

2023 Conference

Canada's Premier
Stormwater and Erosion
and Sediment Control
Conference

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Belfountain Dam and Headpond

Class EA and Construction

Source to Stream

March 23, 2023







Overview

- 1 Introductions – Speakers and Lists of Supporting Personnel
- 2 Background/History
- 3 Processes – Class EA, Funding, Design, Permits, Approvals, Prequalification, and Tendering
- 4 Construction
- 5 Q&A

Introductions

CVC

Project Manager (Belfountain Phase 1 Implementation)

- Scott Cafarella

Project Team (Belfountain Conservation Area Management Plan)

- Jesse de Jager, Eric Baldin, Laura Rundle, Victoria Edwards

Prime Consultant and Prime Contractor

WSP (PM, Civil/Water Resources/Structural/Geotechnical Engineering)

- Brian Bishop, Ryan Kohler, Ron Scheckenberger, Mary Kelly, Ahmed Abdeldayem

R&M Construction

- Jared Reinders, Mike Kuipery, Scott Hansma

Supporting CVC Staff

Technical Steering Committee (CVC):

- Baljit Seran, Bernadeta Surowiec, Bob Morris, Charlotte Cox, David Orr, Eric Mailloux, Evan Orme, Frank Liu, Heather Hynn, Heather Marcks, Jeff Wong, Jennifer Sylvester, Jon Clayton, John Sinnige, Liam Marray, Olivia Bakowski, Paul Biscaia, Phil James, Rizwan Haq, Shawn Verge, Sherwin Watson-Leung

Special Thanks to:

- Deborah Martin-Downs, Kate Burgess, Kim Peters, Jeff Payne, Joana Marques, Lisa Grbinicek, Mark Thompson, Susan Cooper, Suzie Losiak

Fish Rescue Team (CVC):

- Chelsea McIsaac, Mark Hendry, Jessie Spasov, Steven Fraccaro, Phil Bird

Consultants

Matrix Solutions Inc.

- Fluvial Geomorphology

Brook McIlroy Inc.

- Park Design / Landscape Architecture

Geo Morphix Inc.

- Soil Testing and Characterization Report for Excess Fill

GM Blueplan

- Servicing / Municipal Engineering

Grounded Engineering

- Fox Folly Geotechnical Engineering

Terraprobe Inc.

- Geotechnical Engineering, Dam Safety Report

Specialized Subcontractors

Clifford Restoration

- Fountain Rehabilitation

Dean Mclellan Stonework

- Masonry

Fountain Place

- Fountain water feature

Graff Construction

- Concrete cutting and removal

Ground Force Foundations Inc.

- Micropiles and helical piles

Iron Bridge Fabrication Inc.

- Prefabricated Pedestrian Bridge
and Fox Folly

Keller Group

- Rock Anchors

Lafontaine Iron Werks Inc.

- Custom metal work and public art

Marbridge Construction

- Concrete

Ontario Protective Coatings

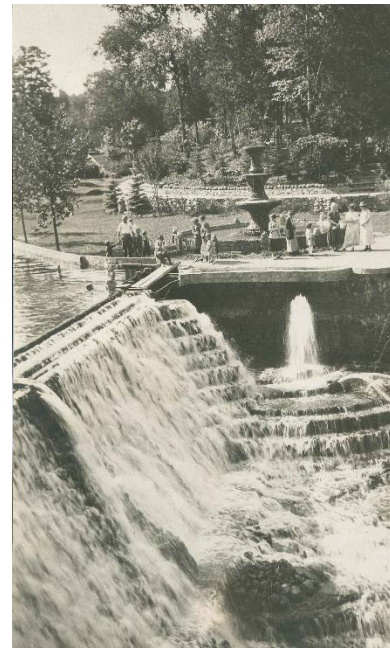
- Liner/membrane for fountain and lily
pond

Reno by Choice

- Wood boardwalk construction

Background

- Indigenous use of the site (pre-1818)
- Milling, Quarrying and Village Development (1818 - 1908)
- Mack's Park and 'Luckenuf' Era (1909-1945); parks as remedying social ills, vernacular interpretation of English Picturesque landscape
- 1959 - CVC purchase of the property
- 1961 - dam modifications, wing wall stabilization, modern swing bridge
- Dam Safety Reviews 2007; 2013
- Management Plan 2013-2018, master plan vision (concurrent with EA)
- Environmental Assessment



Timeline (EA, Design, Construction)

Class EA

- 2013 – 2017 (March 2017 Part II Order - October 2017 Approval)

Detailed Design, Agency Consultation and Approvals

- 2018 – 2021

Permit Applications and Approvals

- February 2020 – May 2021

Tender and Award

- February 2021 – May 2021

Construction (approx. \$6 million total project cost)

- March 2021: tree clearing, wildlife/amphibian fencing (CVC)
- June 2021 – December 2021: contracted works
- Through May 2022: final contracted works: landscaping / public realm

Post- Construction

- 2022-2023: Warranty and ongoing monitoring

Permitting, Approvals and Funding

- Belfountain Conservation Area Management Plan (Pt. 3 of Niagara Escarpment Plan); NEC endorsement in 2019, approval by MNRF in 2021
- Lakes and Rivers Improvement Act
- Public Lands Act
- Endangered Species Act
- Department of Fisheries and Oceans letter of advice
- Heritage Permit - Town of Caledon Heritage Designation (Part IV of the Ontario Heritage Act)
- Funding:
 - Federal / provincial infrastructure funding (ICIP)
 - WECI
 - CVC capital reserves



Prequalification

- Tool used to streamline the tender process, and to lower the risk of the general contractor carrying less-qualified subcontractors
- Key contract elements: dam modification, natural channel, landscaping, cultural heritage restoration, environmental controls
- Additional legal review of prequalification and tender process

Sample questions included:

- Document landscaping experience constructing high-quality public realm
- Document the contractor's experience in channel bank stabilization within the last five (5) years, including placement of armour stone, rip-rap, timber crib, root wads, and other bioengineering materials such as fascines, brush mattress, coir/jute mats and rolls.
- Document the contractor's experience at conducting creek restoration work including planting and seeding of native species within the last five (5) years.

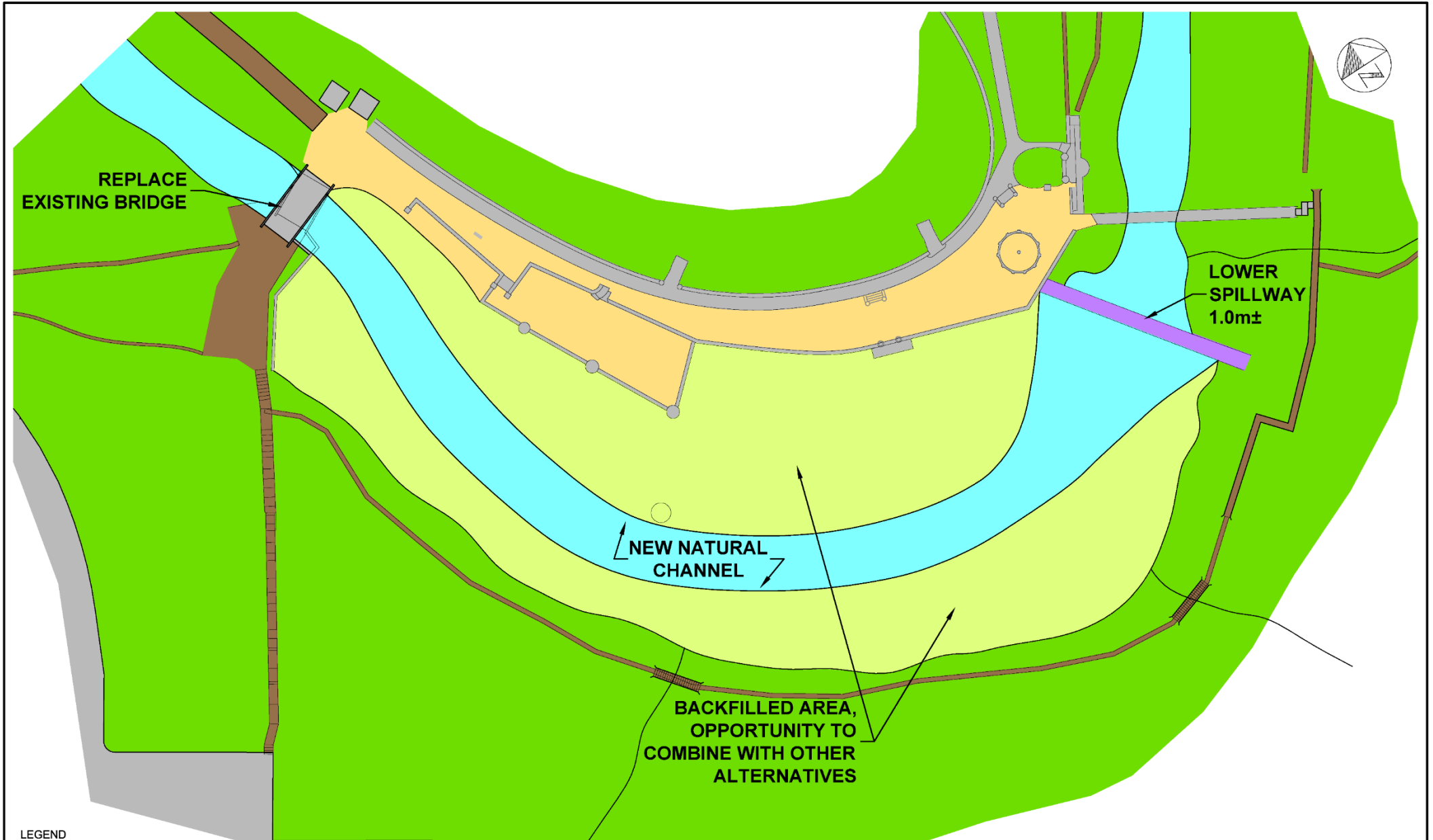


Existing Spillway Elev. 359.3 m (7 m high waterfall)

Lowered Spillway Elev. 358.3 m
(6 m high waterfall)

BrookMcIlroy

Option D4H5
Lower the Spillway, Backfill the
Heapond and Construct Channel



LEGEND

- EXISTING HEADPOND AREA
- EXISTING TURF AREA
- EXISTING FOREST COMMUNITY
- EXISTING STRUCTURE
- EXISTING PATH/TRAIL

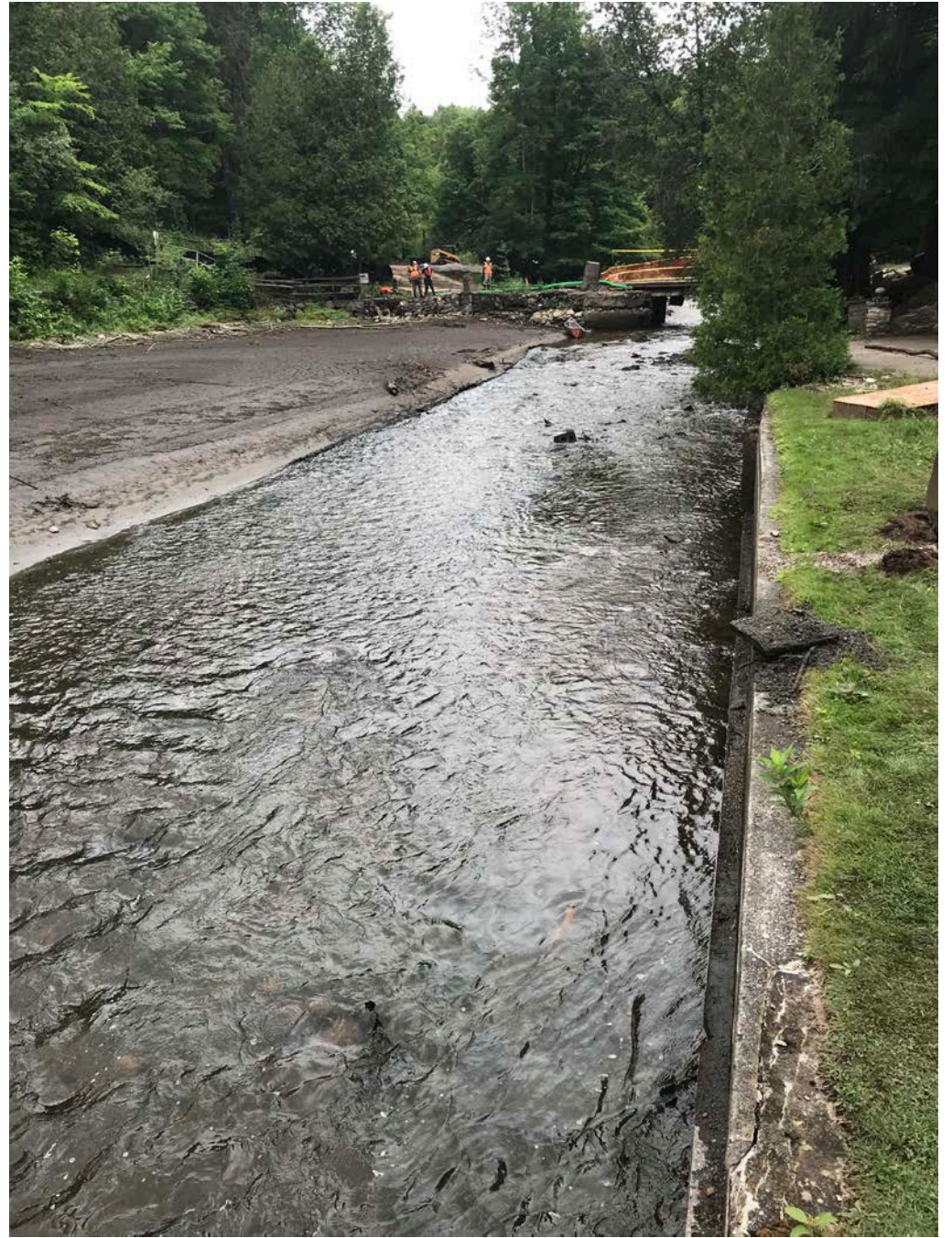
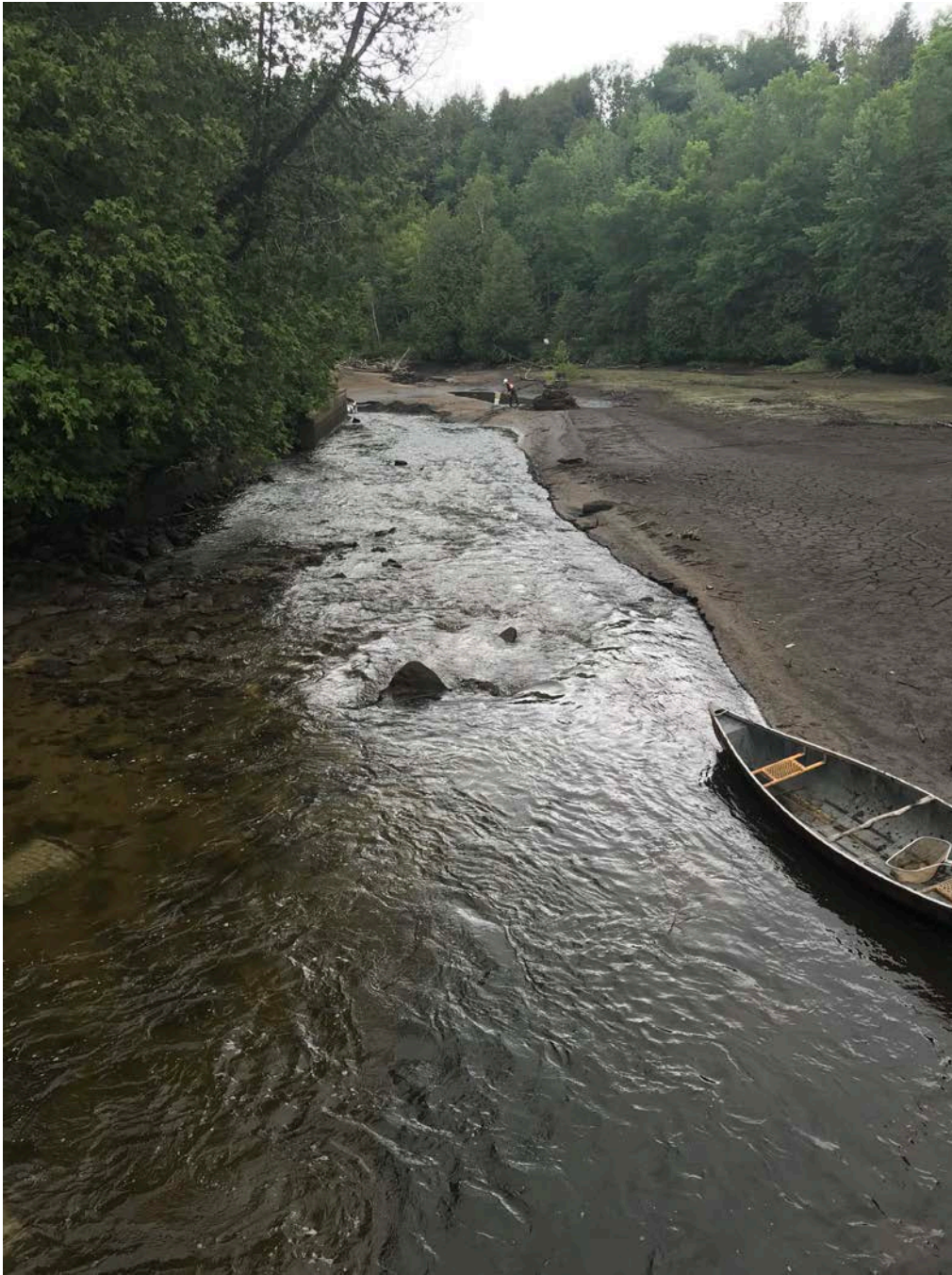
BELFOUNTAIN DAM AND HEADPOND CLASS EA
CREDIT VALLEY CONSERVATION

ALTERNATIVE D4H5:
LOWER THE SPILLWAY AND BACKFILL THE HEADPOND AND CONSTRUCT CHANNEL



SCALE VALID ONLY FOR 24"x36" VERSION
Scale 1:250
0 25 50
Consultant File No. TP114113
Figure No. 9





Fish Rescue Summary

Date:

June 16th - 81 fish

June 29th - 35 fish

July 9th - 2,678 + fish

July 13th - 564+ fish

August 5th - 171 fish

Species	Estimated
White Sucker	2277
Brook Stickleback	630
Common Shiner	4
Creek Chub	61
Bluntnose Minnow	4
Longnose Dace	19
Blacknose Dace	359
Unknown YOY	33
Rainbow Trout	2
Brown Trout	5
Brook Trout	84
Central Mudminnow	1
Total	3479



















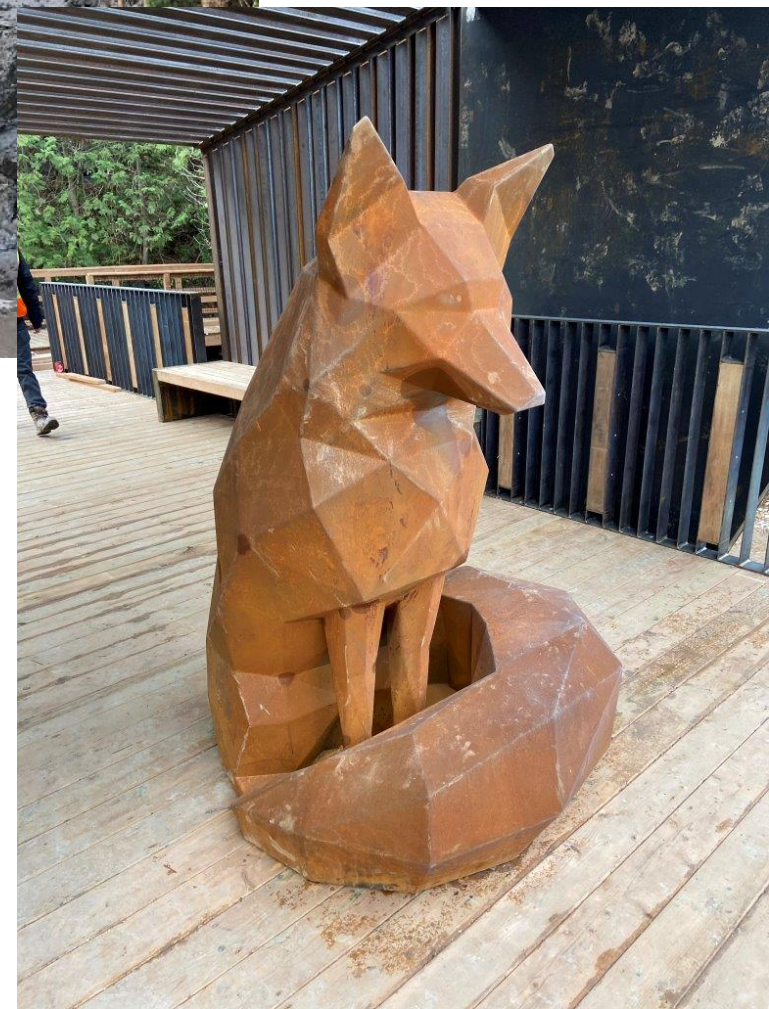


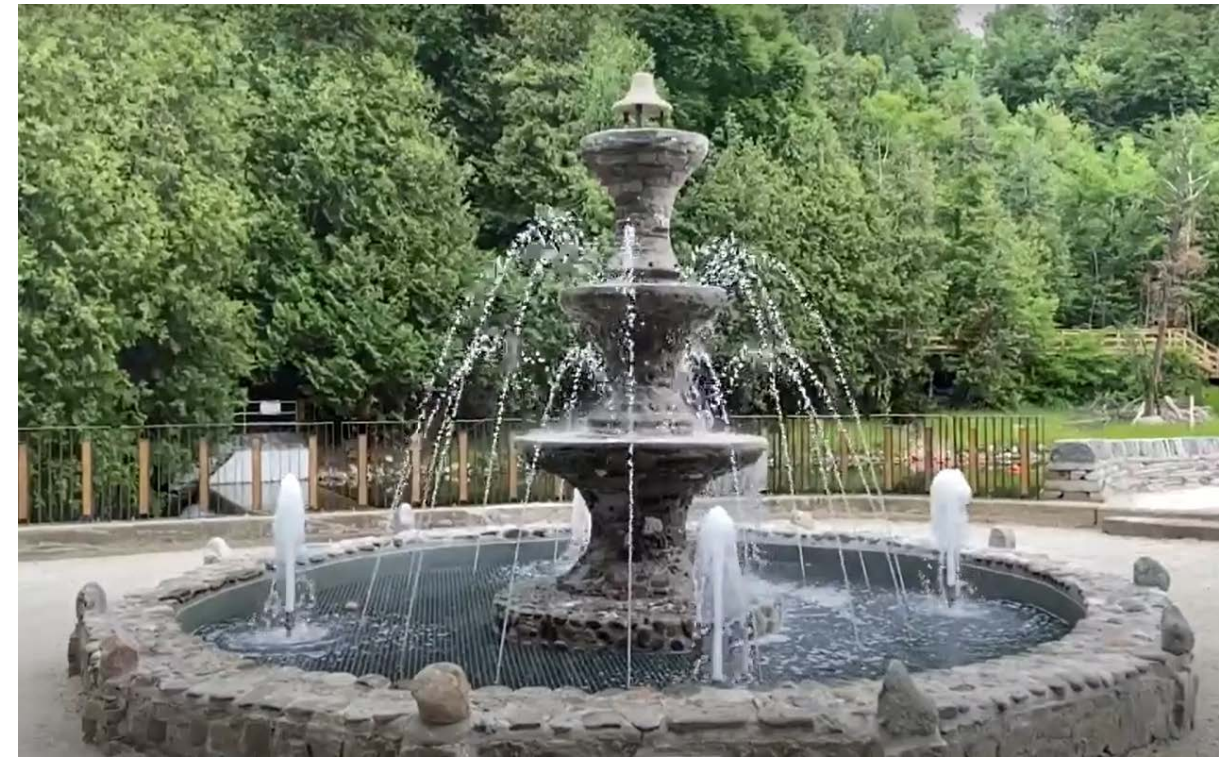


























Summary

Process

- Multi-year process: planning, EA, design, approvals, prequalification, tendering, construction, monitoring/reporting

Integration of Multiple Objectives

- impaired riverine/aquatic habitat, safety (dam and other infrastructure), poorly accommodated regional visitation, investment in cultural heritage
- New landform, cultural heritage preservation & restoration, dam, headpond, channel, bridge, boardwalk, landscaping

Funding & Regulatory Control

- Large project reliant upon funding and other controls

Construction Management

- General management, staging and implementation of phased construction, multiple environmental controls

Thank you





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