



Emburo Dam Class Environmental Assessment

Township of Zorra Council Meeting

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Agenda

- Environmental Assessment Study
- PRELIMINARY Project Implementation Plan
- Next Steps



Environmental Assessment Study



STUDY LOCATION

Embro Dam was acquired by UTRCA in 1958 and reconstructed in 1959. The dam is located on Spring Creek, also known as Youngsville Drain, and is a tributary of North Branch Creek.

The dam controls a drainage area of 7 km² of mostly agricultural lands, forming a small reservoir of approximately 0.8 ha with an estimated volume of 3,000 m³.

The dam structure consists of a 100 m long earthen embankment, 4.5 m approx. height, with a concrete bottom draw inlet with an inverted V-shaped trash-rack anchored to the top of the outlet. An emergency spillway is located on the east embankment.



PROJECT HISTORY AND PROBLEM STATEMENT

- Dam safety and stability assessment studies (2007/2008) identified related concerns with the structure
 - Class EA project initially commenced in 2015
 - Draft EA project file report completed in 2017
 - Per comments received, UTRCA undertook additional cultural heritage assessments (2022)
 - EA process recommenced Fall 2022
 - EA updated and presented to Township and UTRCA Board (Winter 2023)
 - Community Liaison Committee established (meetings held late Summer and mid-Fall 2023)
 - Project implementation plan developed (Fall 2023 / Winter 2024)
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Significant concerns related to the structural integrity and hydraulic capacity of the Embro Dam have been identified through recent engineering assessments.

A Class Environmental Assessment was initiated to evaluate a range of alternatives to address the identified issues in consideration of the environmental, social, economic, and technical aspects of the dam.

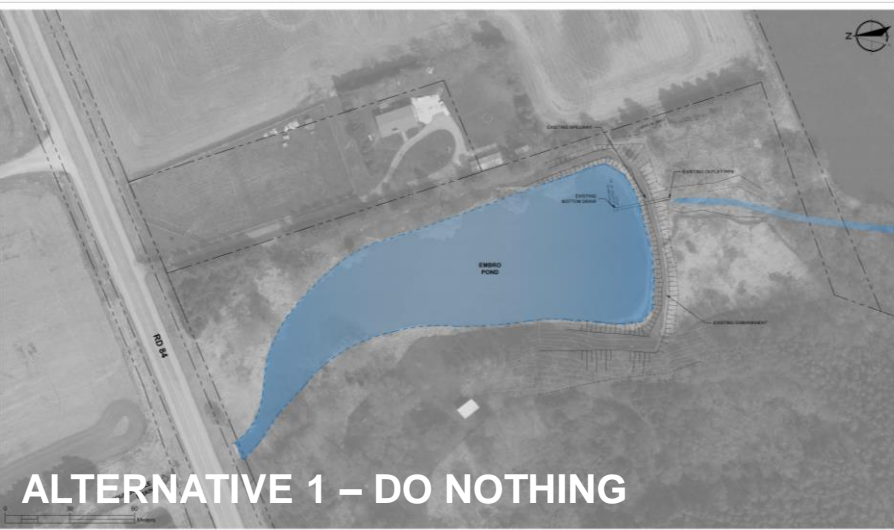
Embro Dam- Issues

Dam

- Does not meet current safety or stability standards
- 2007/2008 geotechnical assessments determined that upstream and downstream embankment slopes do not meet slope stability acceptance criteria
- 2015 Hazard Classification: **Threat levels for Life Safety, Property Losses, Environmental Losses, and Cultural-Built Heritage were considered LOW.**
- Date of last repair is unknown

MNRF requires a review of the Hazard Potential Classification every 10 years to determine if a change is warranted

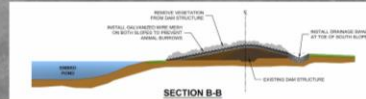




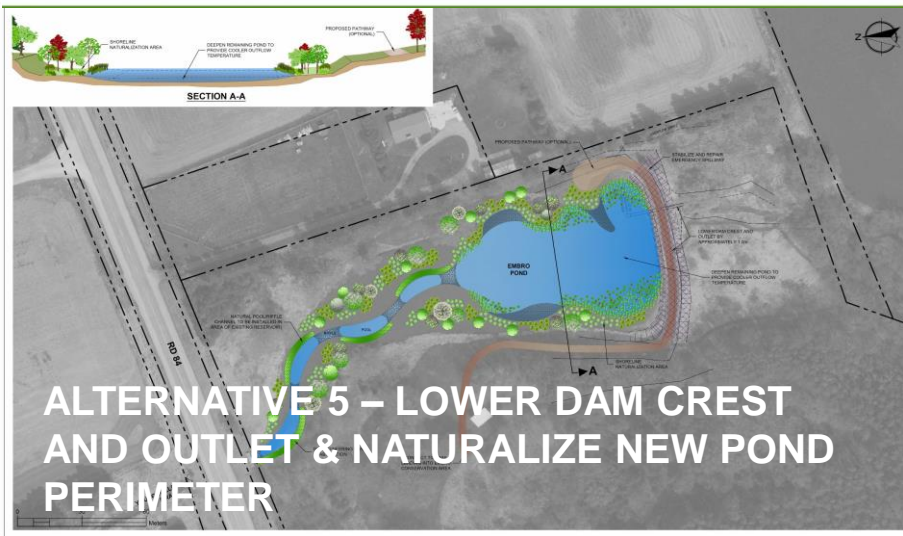
ALTERNATIVE 1 – DO NOTHING



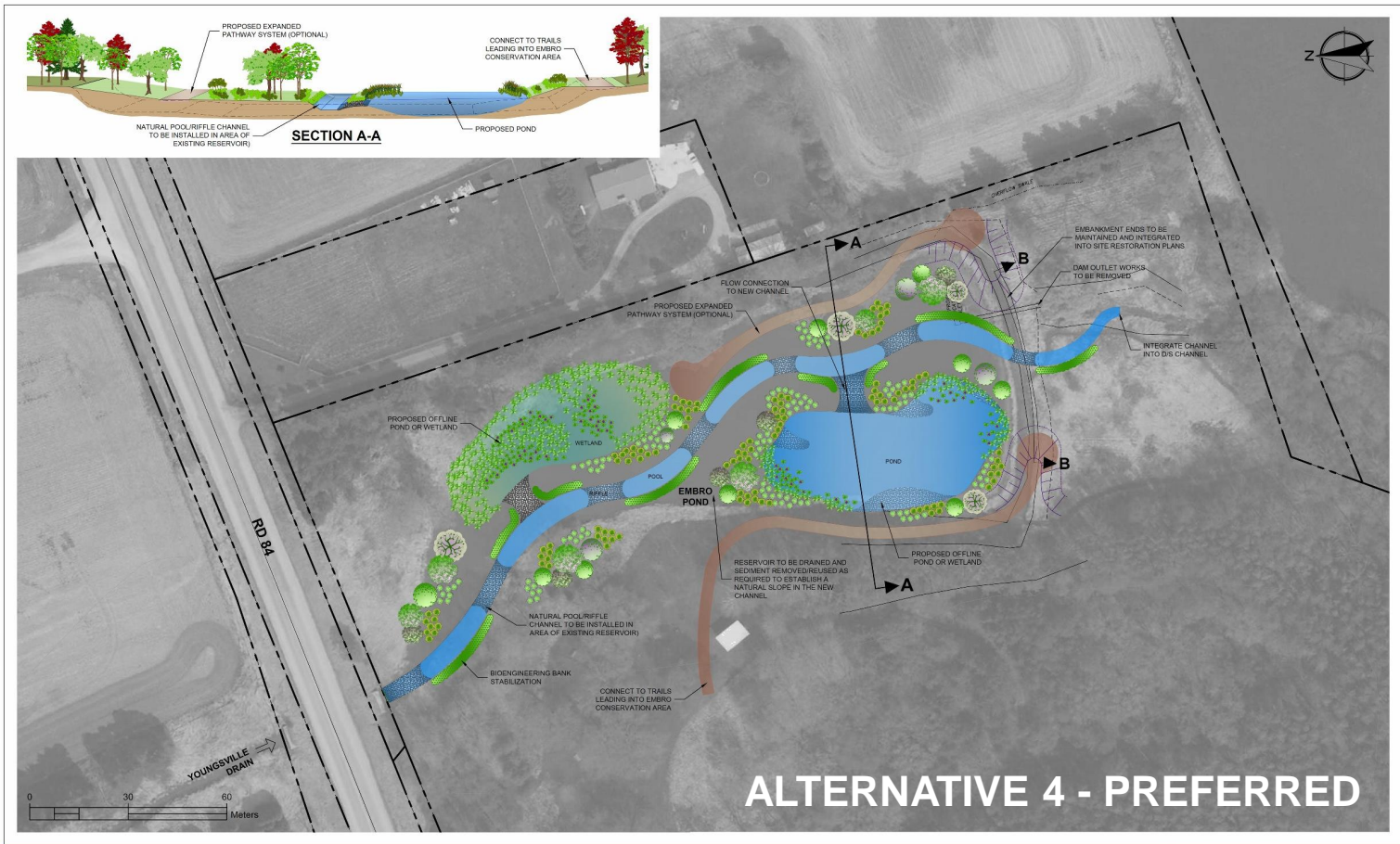
ALTERNATIVE 2 – REPAIR / RECONSTRUCT EXISTING DAM



ALTERNATIVE 3 – REMOVE DAM & CONSTRUCT NATURAL CHANNEL



ALTERNATIVE 5 – LOWER DAM CREST AND OUTLET & NATURALIZE NEW POND PERIMETER



IMPACTS OF PREFERRED ALTERNATIVE

Technical

- may interfere with nearby shallow groundwater wells
- eliminates dam safety hazard

Environmental

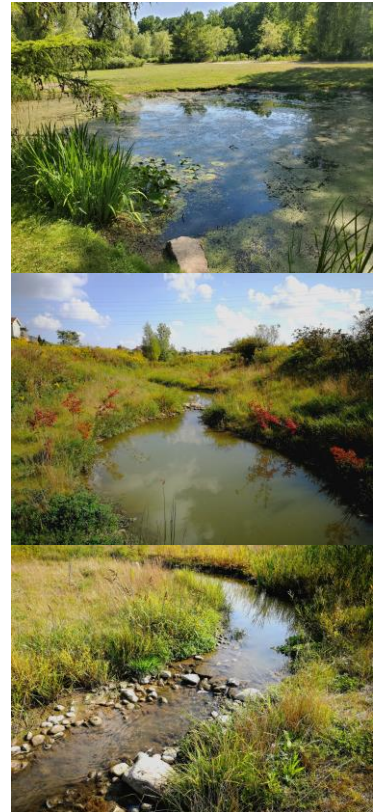
- enhances terrestrial corridor and vegetation diversity
- improved water cooling
- removes fish migration impediment, improve species diversity
- enhances aquatic habitat through channel restoration
- Re-adjustment to an unattenuated flow regime

Social/ Cultural

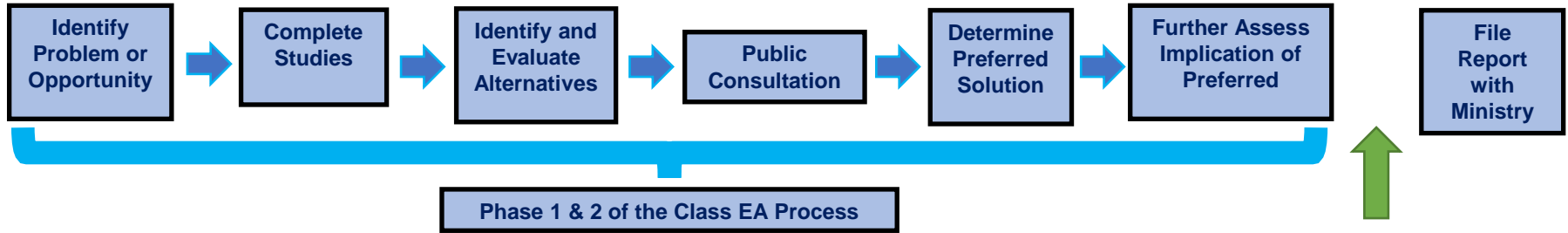
- recreational opportunities will change
- loss of still water fishing and recreation boating
- possible trail enhancement, educational signage, and “birding”/viewing of wildlife species

Financial

- larger capital outlay, reduced short- and long-term operational costs



CLASS ENVIRONMENTAL ASSESSMENT PROCESS



Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects

If implementation is not initiated within 5 years of Project Approval, it will require review in accordance with the EA planning and design process and the preparation of new documentation.

Project Implementation Plan - PRELIMINARY



Planning Steps

- Technical Assessments
- Continued Consultation
- Detailed Design
- Permits and Approvals
- Implementation
 - Site preparation
 - Fish rescue
 - Phased removal
 - Post-construction Monitoring/Management





Technical Studies

- Watershed hydrology review
- Archaeology – limited Stage 2
- Hydrogeology – adjacent wells (review records, monitor)
- Sediment characterization (if offsite transport required)
- Environmental – vegetation, reptiles

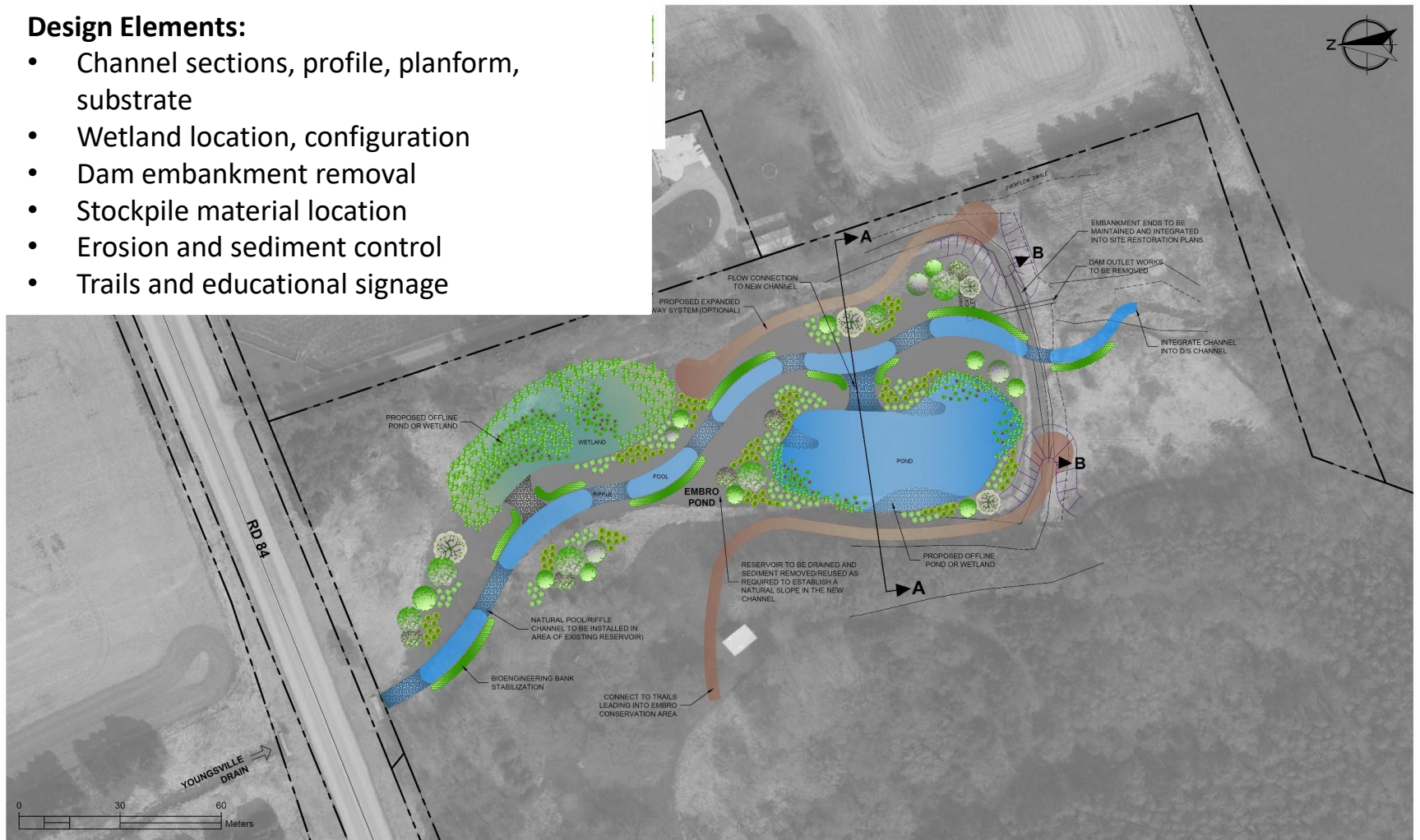
Continued Consultation

- Indigenous communities
- Community Liaison Committee (CLC)
- Regulatory agencies (MNRF, DFO, MECP, MCM, UTRCA)



Design Elements:

- Channel sections, profile, planform, substrate
- Wetland location, configuration
- Dam embankment removal
- Stockpile material location
- Erosion and sediment control
- Trails and educational signage



Implementation Strategy

Year 1 (UTRCA)

- Technical studies
- Agency consultation
- Staged removal of stoplogs within the outlet structure (late spring)
- Opportunity to seed exposed sediment during drawdown period
- Monitoring (UTRCA)

Year 2 (estimated construction: \$80,000)

- Open-up dam embankment
- Construction of outlet channel
- Monitoring (UTRCA)

Year 3 (estimated construction: \$60,000)

- Wetland
- Trail and Park amenities
- Monitoring (UTRCA)

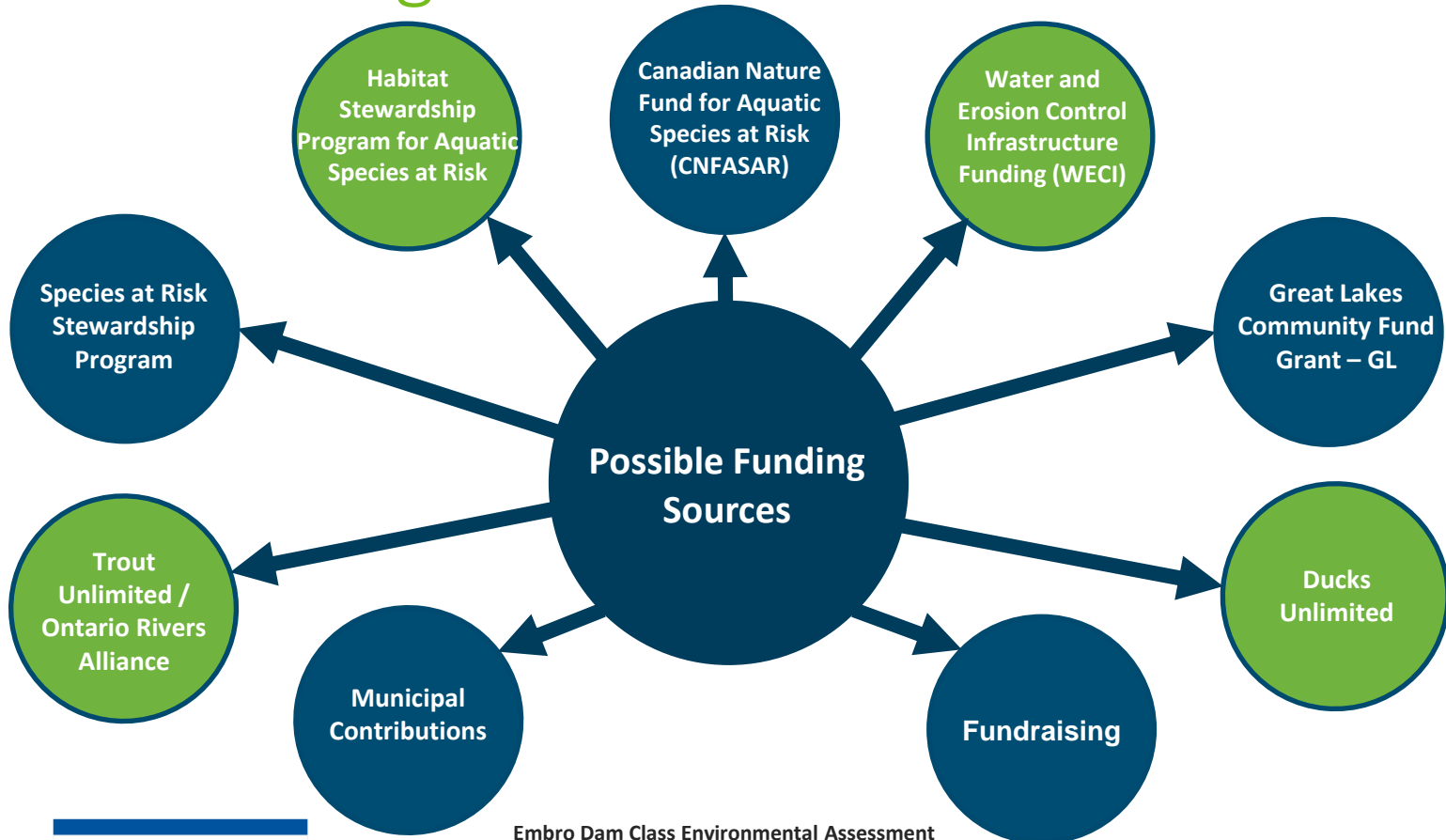
Note: for comparison, dam maintenance is projected to cost \$200,000 over the next 4 – 5 years, if ‘do-nothing’ is selected.

Monitoring/Adaptive Management

- Ensure disturbed areas/exposed sediments are stabilized/planted
- Water wells
- Monitor new (in pond)/existing (upstream/downstream) watercourses:
 - Sections, profile
 - Recovery of aquatic habitat and fish populations (diversity, species)
- Invasive species management (e.g., phragmites)
- Longer-term planning



Possible Funding Sources



Next Steps

- Update Project Plan
- Meet with UTRCA Board
- Finish and File EA
- Additional Studies
- Detailed Design
- Obtain Funding
- Construction
- Monitoring



QUESTIONS?

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