City of PIQUA

Stantec

Piqua Hydraulic Canal and Dam Safety Design Project

Citizen Advisory Committee (CAC) Meeting

4/25/24

CAC Members

CAC Members for the Piqua Hydraulic Canal and Dam Safety Design Project

Jeff Lange, Middle Great Miami Watershed Alliance and Resident on Swift Run Lake

Randy Kirchner, Middle Great Miami Watershed Alliance

Dan French, Resident on Echo Lake

Jim Sever, Resident on Echo Lake

Dasch Underwood, Resident on Franz Pond

Elizabeth Gutmann, Resident on Franz Pond

Shannon Brandon, City of Piqua Planning Commission Member

Chris Grissom, City of Piqua Ward 4 Commissioner

Cathy Oda, City of Piqua Parks Board Member

Steve Trostel, City of Piqua Utility Board and Tree Committee Member

Thomas Bueker, Resident on Echo Lake

Tim Johnston, Resident on Swift Run Lake

Dan Hemm, Resident on Swift Run Lake

Nancy Johnston, Resident on Swift Run Lake

Frank DeBrosse, Resident on Franz Pond

Kazy Hinds, City of Piqua Ward 5 Commissioner

Project Advisors and Managers

- City of Piqua
  - Paul Oberdorfer, City Manager
  - Kevin Krejny, Utility Director
  - Michelle Perry, Public Information Officer
  - Kenton Kiser, Engineering
  - Chris Schmiesling, Community and Economic Development Director
  - Krysten French, City Planner and Manager of Public Engagement
  - Kyle Hinkleman, Community Services Director
  - Amy Welker, Assistant City Manager
  - Melissa Kinney, Administrative Assistant
- Consultant Team (Stantec)
  - Eric Kistner, Project Manager
  - Dan Hoffman, Water Resources Engineer
  - Paul Cichocki, Geotechnical Engineer

Agenda

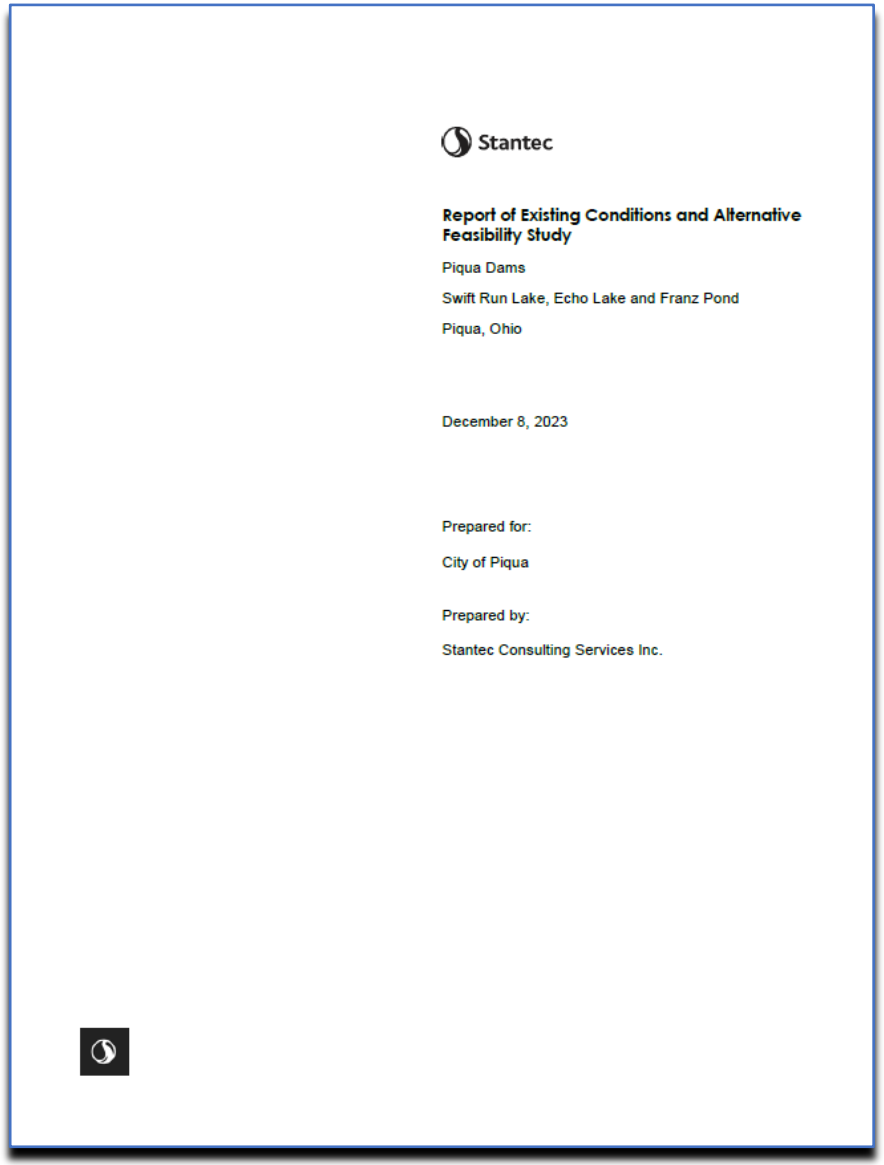
- Overview of ODNR Evaluations and Requirements
- December 2023 Report
  - Swift Run Existing Condition Evaluation & Reclassification Request
  - ODNR Response and Effects
- Updates
  - Grant Funding Tracking
  - Future Consultant Work Plan
- Conceptual Renderings
- Discussion

ODNR Evaluations and Requirements

- Evaluations - performed every 5 years, most recently in 2019
- Requirements (same as nationwide):
  - Design Storm Events (based on Height, Storage, and Hazard):
    - Class I (High Hazard) – 100% PMF (Probable Maximum Flood)
    - Class II (Medium Hazard) – 50% PMF
    - Class III (Low Hazard) – 25% PMF
    - Class IV (Exempt)
- Piqua Dams – All dams currently ODNR Class I
  - Compliance issues include:
    - Insufficient spillway capacity to pass design storm.
    - Ongoing maintenance of dams and hydraulic canal.

Report of Existing Conditions and Alternative Feasibility Study

- Issued December 2023 by Stantec
- Geotechnical Exploration – Swift Run Dam
- Structural Evaluation – Swift Run Dam
- Hydrology and Hydraulics Modelling
- Reclassification Request for Swift Run Dam – to Class III with modifications


Stantec

Report of Existing Conditions and Alternative Feasibility Study

Piqua Dams

Swift Run Lake, Echo Lake and Franz Pond

Piqua, Ohio

December 8, 2023

Prepared for:

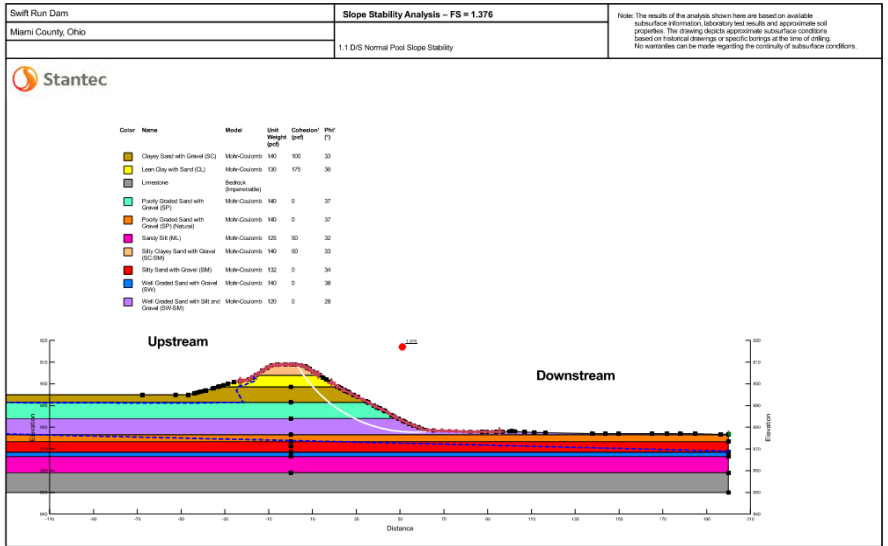
City of Piqua

Prepared by:

Stantec Consulting Services Inc.

Geotechnical Exploration – Swift Run Dam

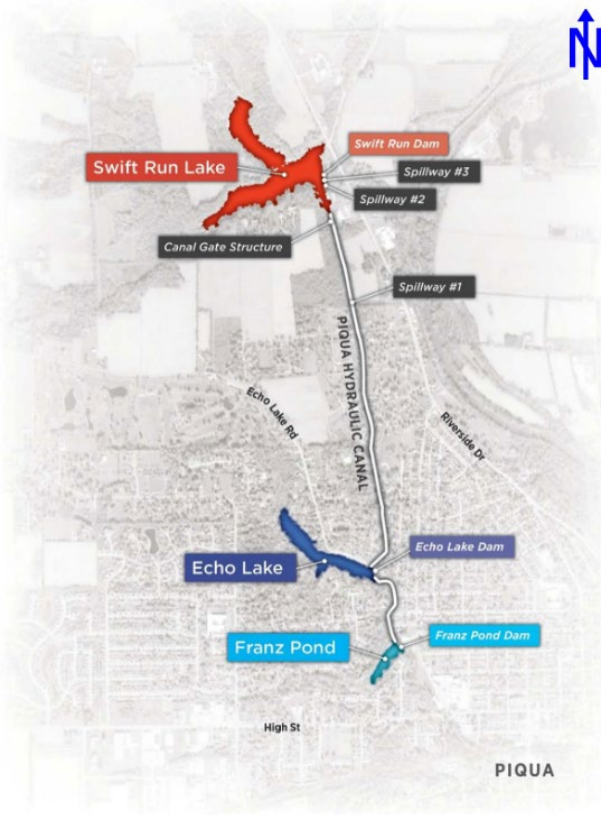
- Six geotechnical borings
- Nine piezometers to monitor water levels throughout Swift Run Dam
- Seepage and stability – models indicated slightly low factor of safety for Swift Run Dam embankment



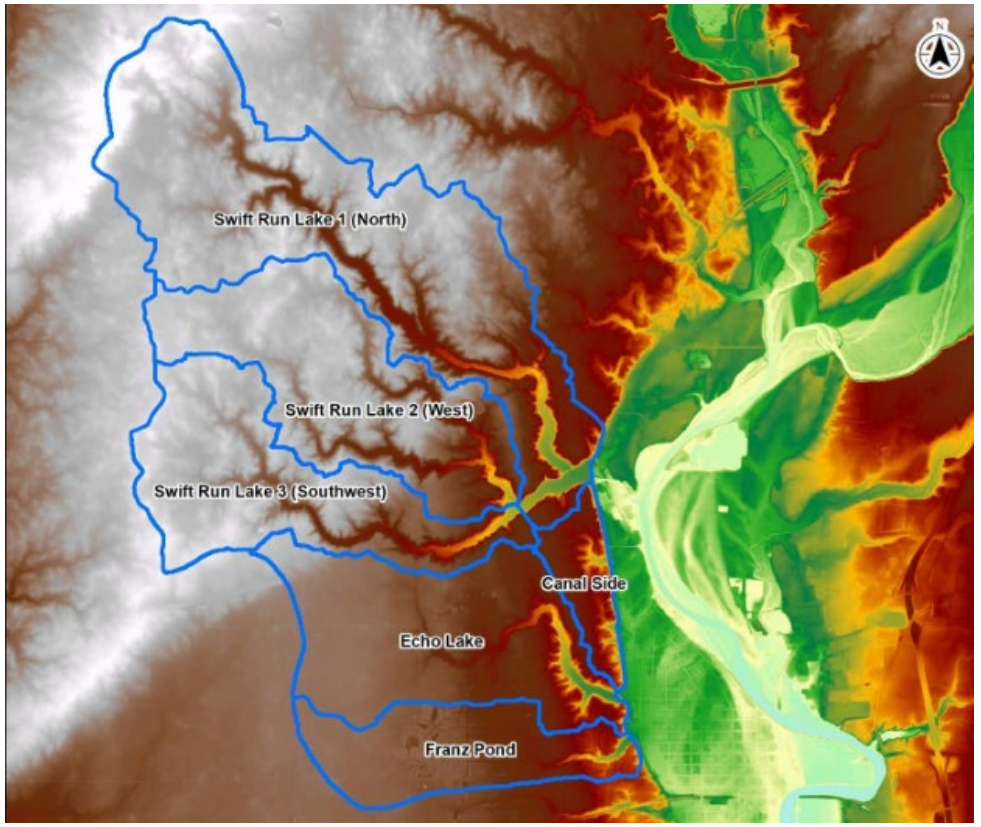
Structural Evaluation – Swift Run Dam

- Structural components of the dams ranged from fair to good
- Some cracking and delamination along spillway weirs and chutes with some areas of water seepage from the reservoir

Hydrology and Hydraulics Modelling



- System does not pass the required design flood for Class I dam
- Class I capacity may be achieved through combination of wider canal, larger spillway, and dam raises
- Hydraulic breach analyses modeling to assess downstream impact from failure



ODNR Response to Report

- Reclassification of Swift Run (with modifications) disapproved, mainly because it's considered a public water supply.
- Swift Run spillways needs to be replaced
  - inability to pass Class I or II design storm
  - deteriorating condition
- Swift Run Dam downstream embankment
  - Needs regraded to 3:1
  - Trees need to be removed

Cost estimated at $20M

- Echo and Franz Dams need further evaluation for consideration of alternatives

Future Consultant Work

- Mostly concentrated on Echo and Franz Dam and canal
- Geotechnical exploration, piezometer installations, stability analyses
- Further alternative evaluations and cost estimating

Grant Funding Tracking

Status	Grant Title	Project Number	Project Name	Start Date	End Date	Total Project Costs	Grant Costs	Piqua Costs	Piqua % Match	Total Amount Used to Date	Grant Funds to Date	Piqua Costs to Date	% Used
Complete	HHPD 2019	EMW-2019-GR-00025	Piqua Swift Run Lake Dam	9/2/2020	3/12/24	$371,211.00	$241,287.00	$129,924.00	35%	$347,683.97	$225,994.44	$121,689.53	94%
Almost Completed	HMGP 2019	HMGP DR-4447.04	Piqua Swift Run Lake Dam	5/5/2020	12/1/24	$196,000.00	$171,500.00	$24,500.00	12.5%	$186,896.95	$163,534.83	$23,362.12	95%
Beginning Now	HHPD 2022	EMW-2022-GR-00121-S01	Echo Lake Dam Evaluation and Design	9/15/2022	9/15/25	$550,000.00	$357,500.00	$192,500.00	35%				
Pending Final Approval	HHPD 2024		Swift Run Lake Dam Design	2024	2027	$333,333.33	$216,666.66	$116,666.67	35%				
Pending Final Approval	HHPD 2024		Echo Lake Dam Design	2024	2027	$333,333.33	$216,666.66	$116,666.67	35%				
Pending Final Approval	HHPD 2024		Franz Pond Dam Design	2024	2027	$333,333.33	$216,666.66	$116,666.67	35%				

Existing

Proposed – 3:1 slopes, trees removed, new spillway, widened canal

Existing

Proposed – 3:1 slopes, trees removed, embankment to isolate Swift Run, new labyrinth spillway

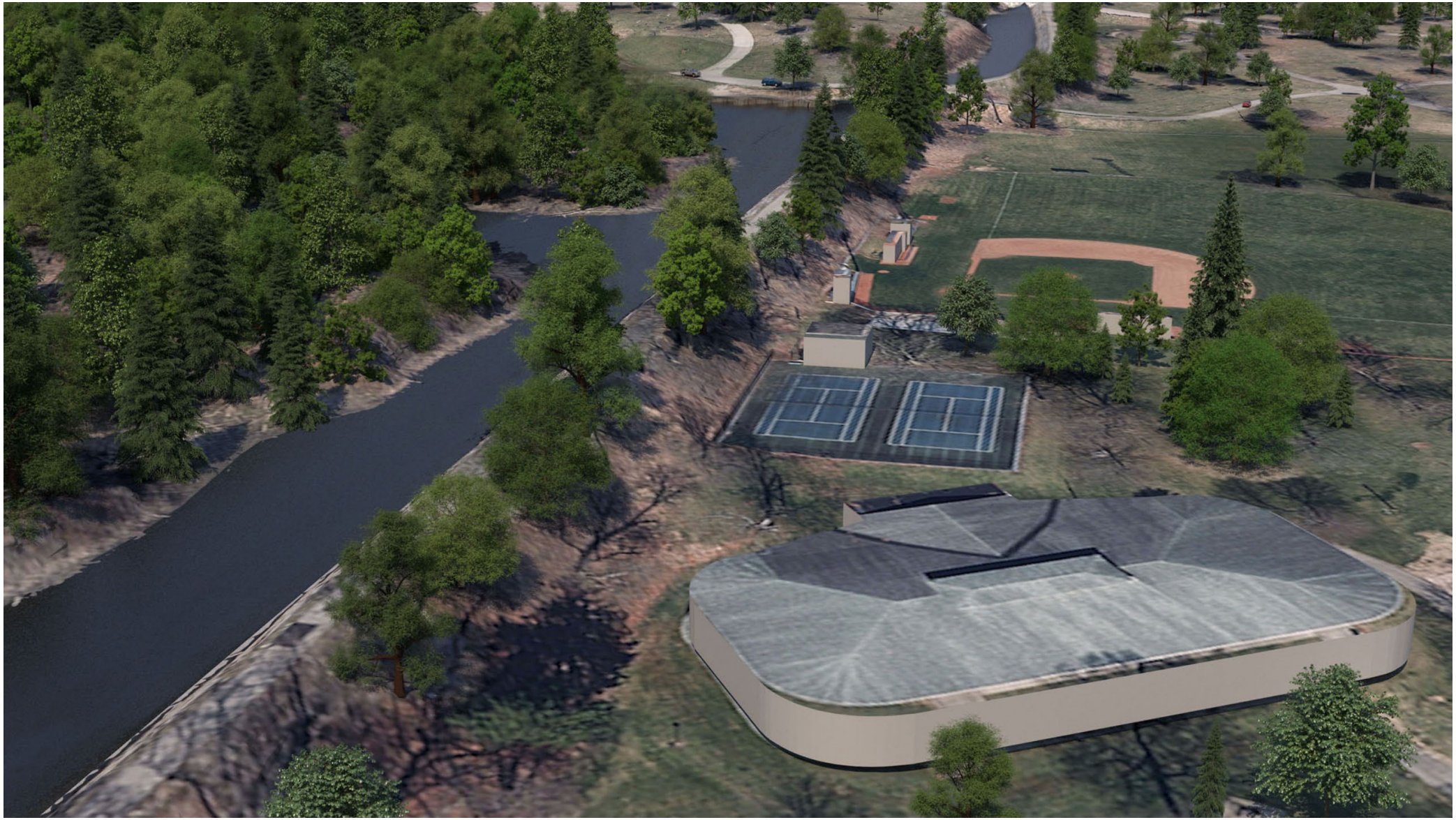
Questions?

Existing

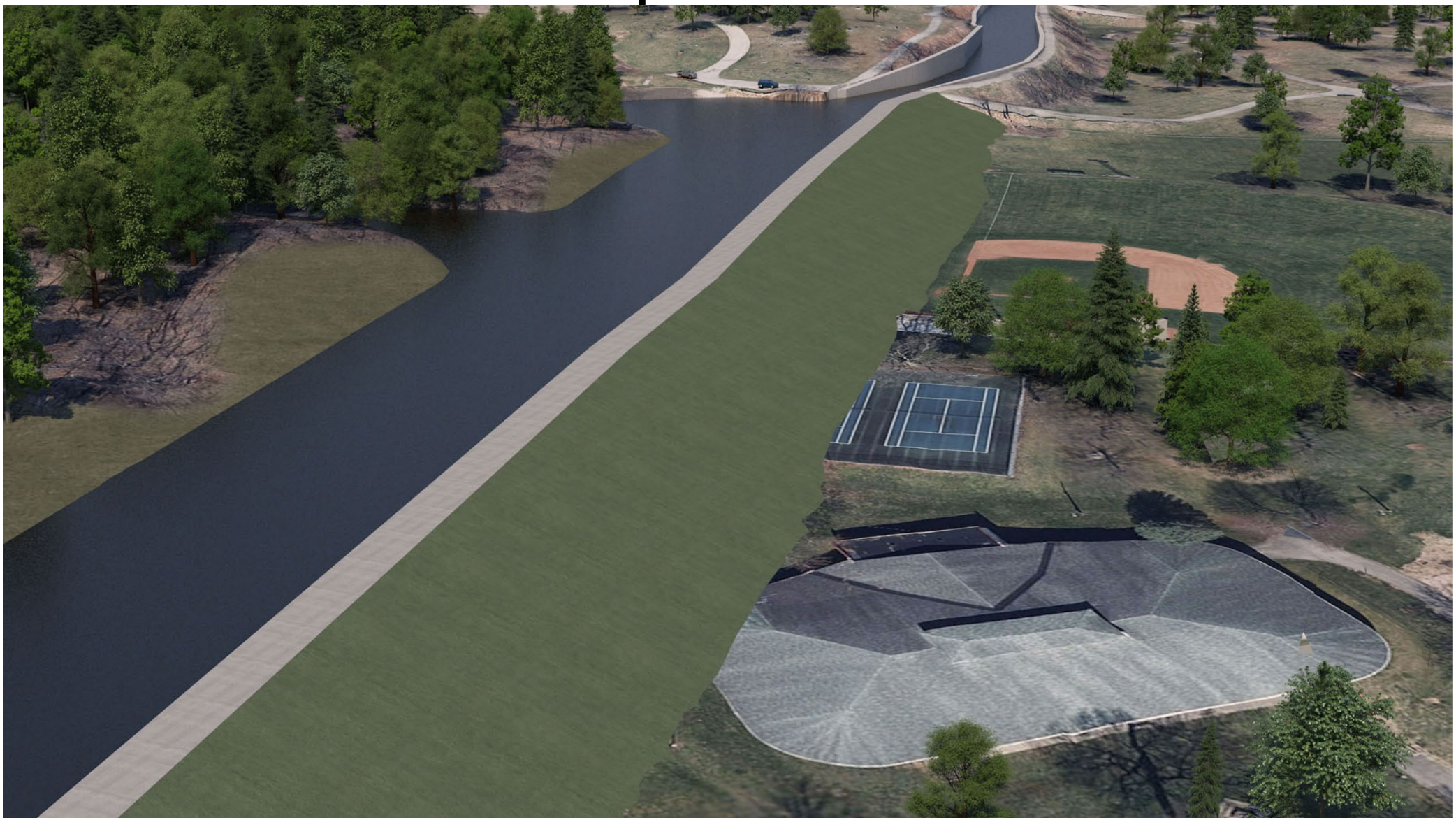
Proposed

Proposed with 25' LOW

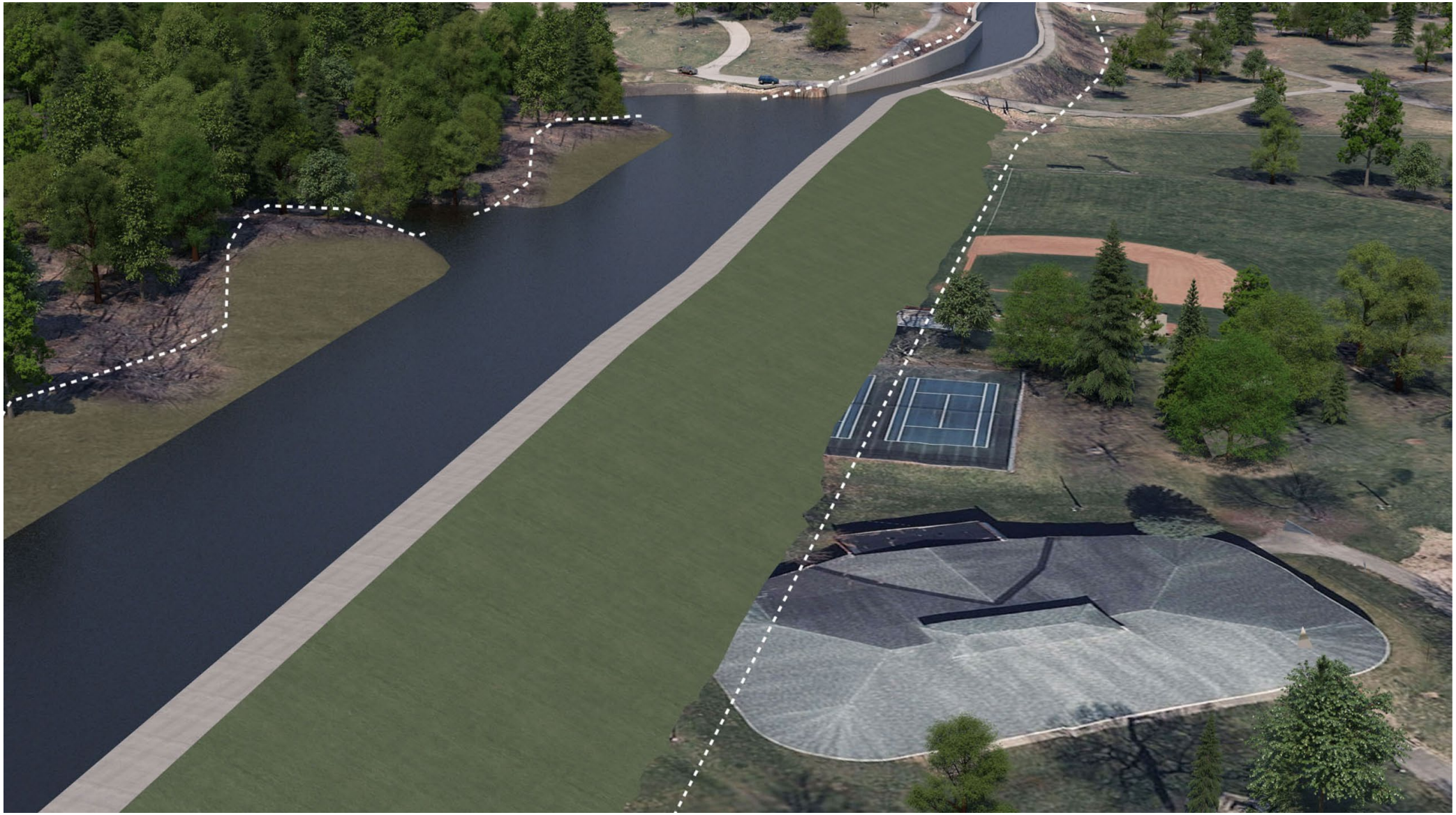
Existing



Proposed



Proposed with 25' LOW



Example of Alternatives

Labyrinth Spillway

Example of Alternatives

Roller Compacted Concrete (RCC) Overtopping Protection