— BUREAU OF —
RECLAMATION

Scoggins Safety of Dams Construction Project

Oct. 5, 2023
6-8 p.m.

Facilitator/Intro to Dam Safety: Chris Regilski
Technical Discussion: Randy Kuzniakowski
Emergency Management: Washington County EOC

Meeting Objectives

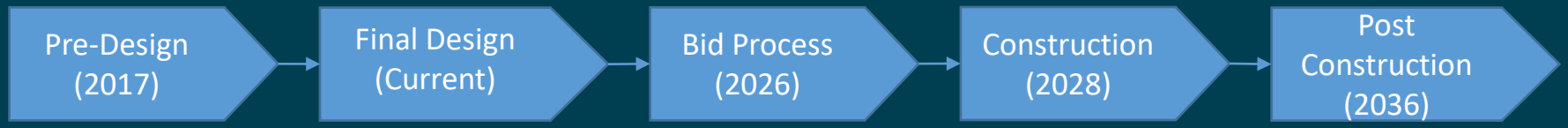
- Provide an overview of Reclamation Safety of Dams program and where Scoggins SOD project is at in the process
- What Reclamation is studying at Scoggins Dam, overview of inundation downstream of Scoggins Dam, and next steps
- Provide overview of Washington County Emergency Management, what you should do, and what you should know to prepare yourself for an emergency

Dam Safety Program

- Reclamation's Dam Safety Program was established in 1978 with the passage of the Reclamation Safety of Dams Act
- Reclamation has 361 high-hazard-potential dams
- The Dam Safety Program was created to help ensure that these dams do not pose an unreasonable risk to the public

Dam Safety Program

Scoggins Dam Safety Project



Scoggins Dam Purposes

- Irrigation
- Water supply
- Flood risk management
- Recreation
- Fish and wildlife
- Water quality

Ownership and Operation

- Ownership of Scoggins Dam
  - Reclamation owns the facility
- Operation and Maintenance of Scoggins Dam
  - Tualatin Valley Irrigation District maintains and operates the facility

Tualatin Project

- The construction of the Tualatin Project was authorized by the Congress by the Act of September 20, 1966 (80 Stat. 822, Public Law 89-596). Water quality was approved for inclusion as a project purpose for dilution water for public health considerations (Commissioner of Reclamation on March 7, 1969).

Tualatin Project

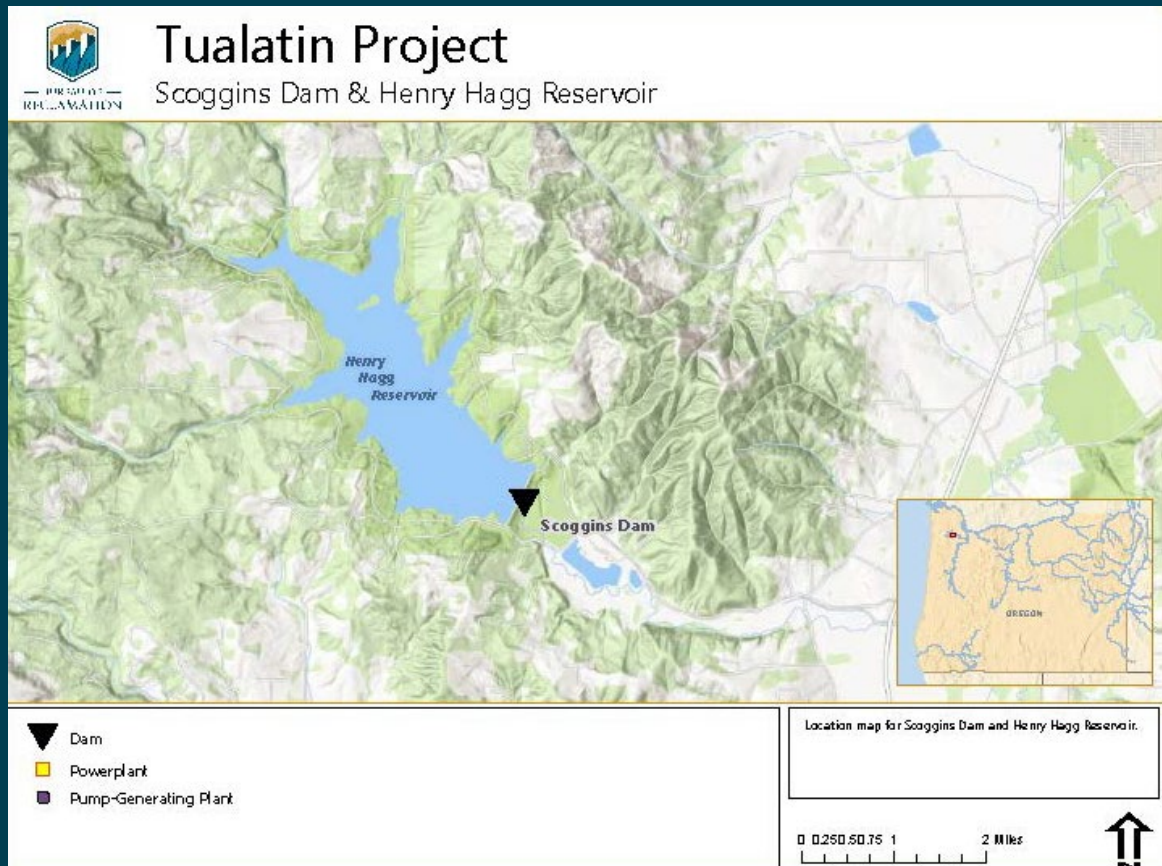
- The project serves approximately 17,000 acres of irrigable lands and 14,000 acre-feet of municipal and industrial water for fish and wildlife conservation, recreation, quality control, and flood risk management benefits.

BUREAU OF RECLAMATION

Scoggins Dam Safety Modification Project

Randy Kuzniakowski

- Geotechnical Engineer
- Technical Service Center
- Design Team Lead



Purpose of the Studies

- A potential seismic-related deficiency of Scoggins Dam and its appurtenant structures was identified in the early 2000s
  - Cascadia Subduction Zone earthquake
- Seismic Hazard Studies were completed in mid-2000s
- Reclamation's Dam Safety Office initiated additional engineering studies
- Concluded in 2009 that seismic-related deficiency of both the dam and the spillway existed, and confirmed several times since

Purpose of the Studies (cont.)

- Seismic Concerns for Scoggins Dam:
  - Embankment
    - Erosion
    - Overtopping
  - Spillway
    - Crest Structure Wall Failure

General Details

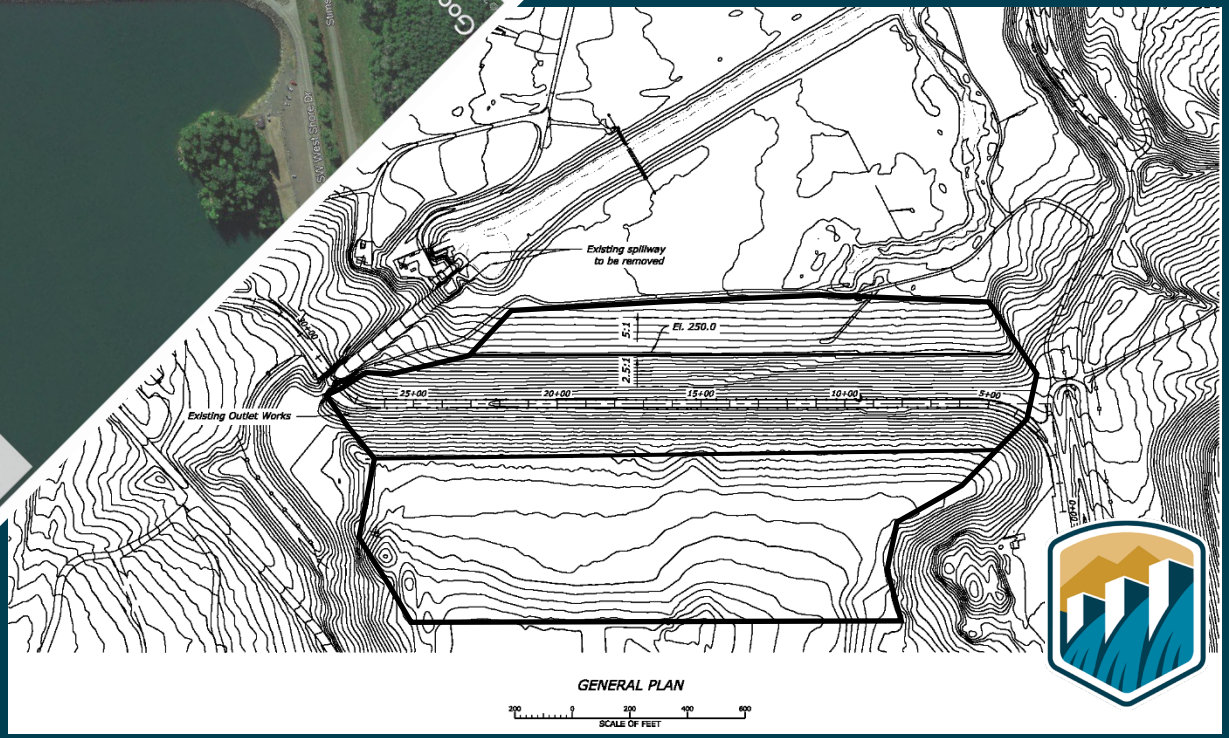
- Dam construction was completed in 1975

- Length of dam ~2,200 feet
- Hydraulic height of dam ~100 feet

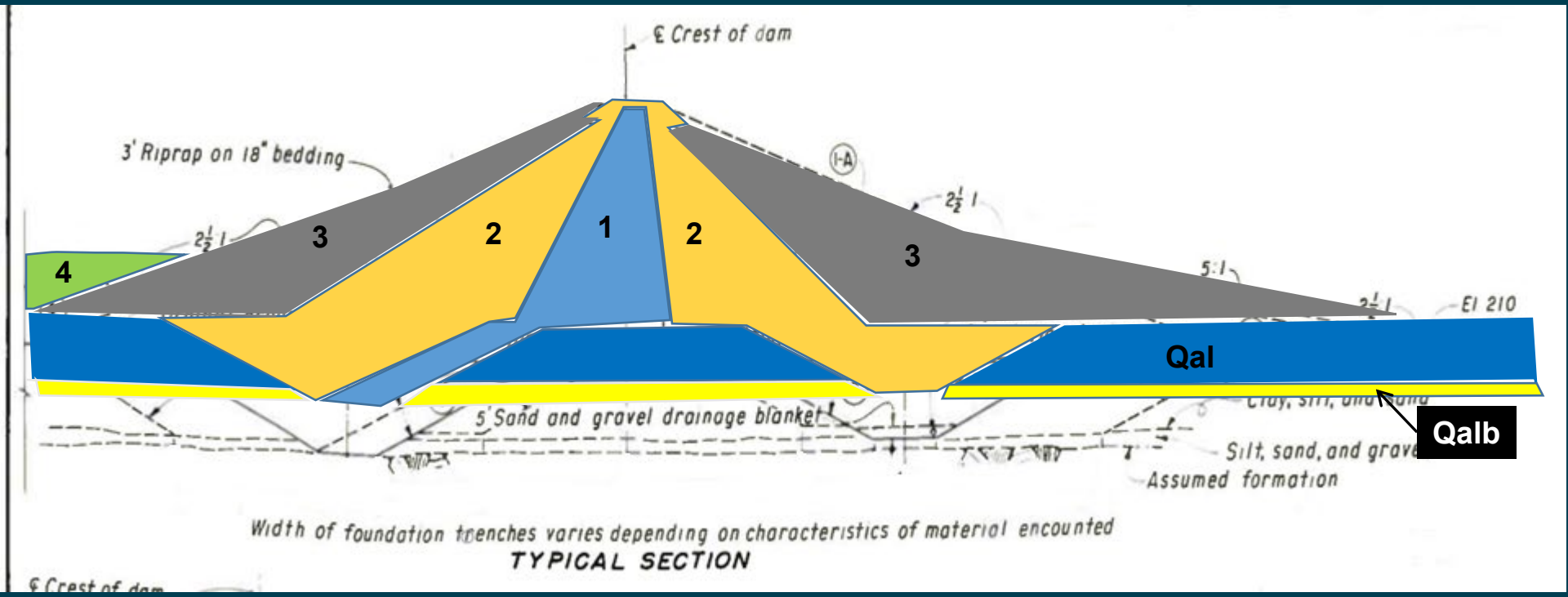
- Reservoir (Henry Hagg Lake) has a capacity of 53,323 ac-ft at the top of joint use, elev. 303.5 ft
  - 1 acre-foot = 326,000 gallons

- Structures at this facility include:
  - Zoned embankment dam
  - Gated concrete chute spillway
  - Tunnel outlet works

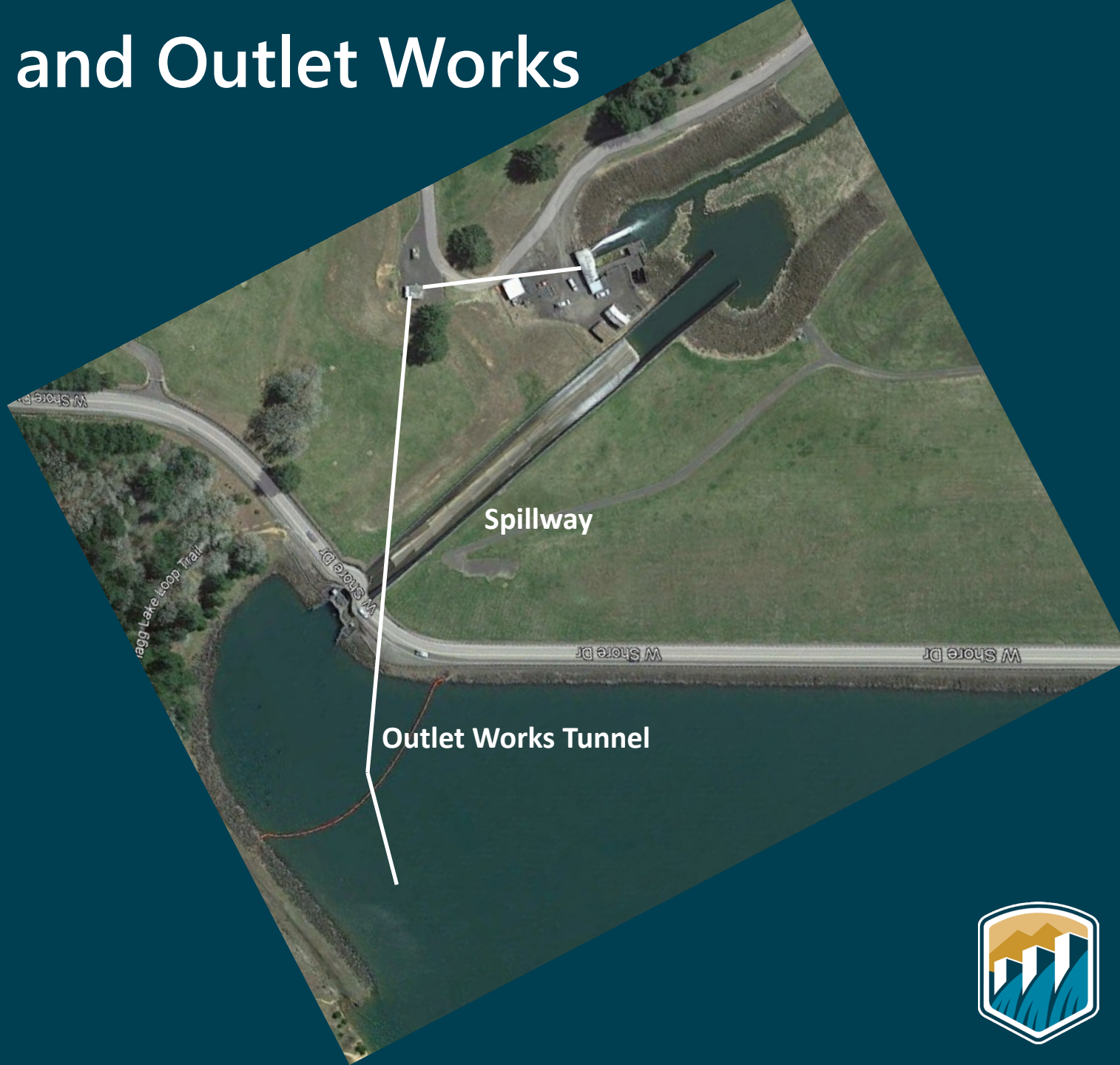
Existing Conditions Plan



Existing Dam Cross Section



Spillway and Outlet Works



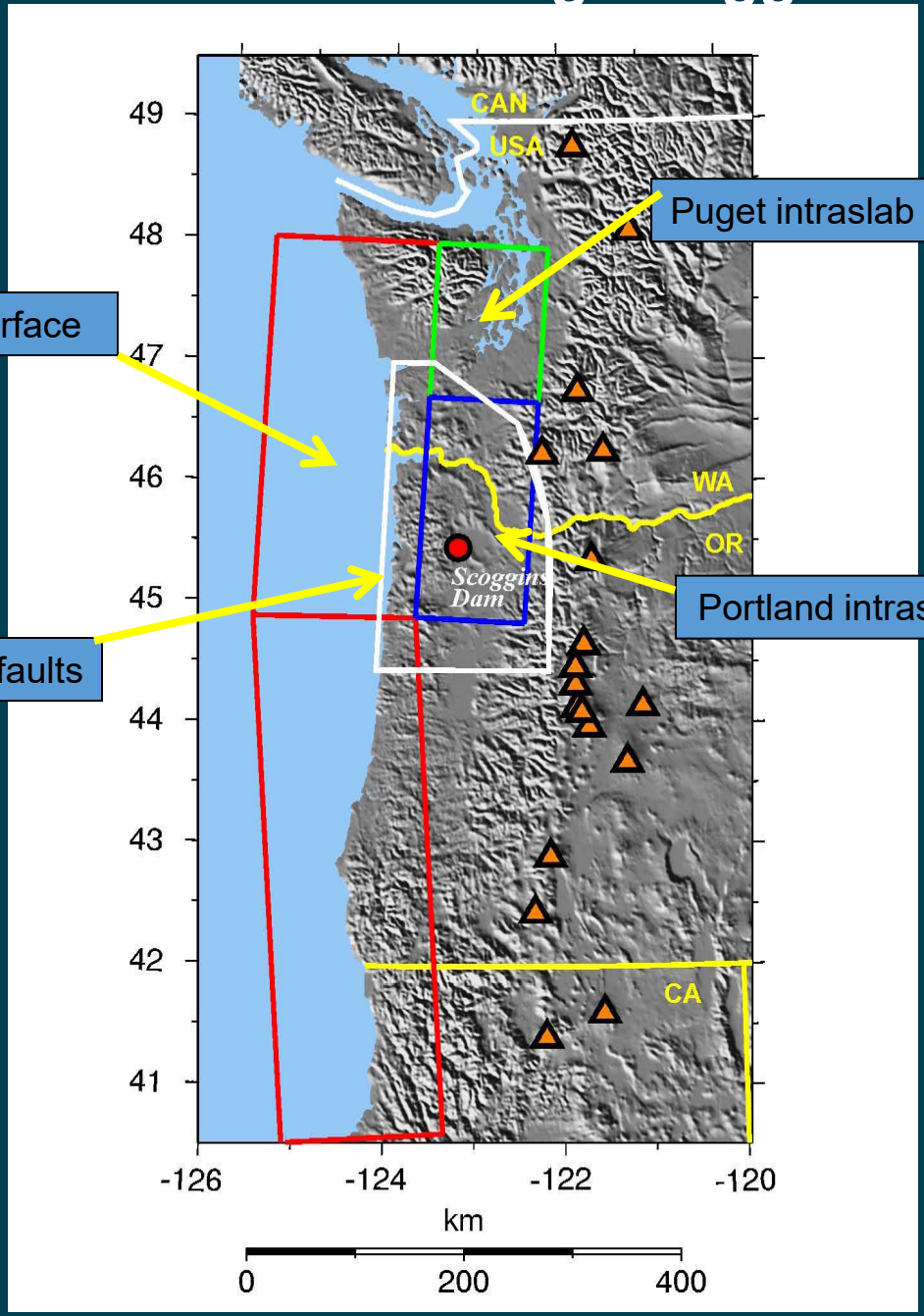
Study History

- Seismic studies began in about 2003
- Issue Evaluation (IE): 2008–2009 and Corrective Action Study (CAS): 2010–2012
- CAS 2
  - Appraisal-level studies: December 2014–2016
  - Feasibility-level studies: 2017–2020
  - Entered into Joint Project (TJP) with Clean Water Services (CWS): 2017
    - To provide additional benefits
  - 2020 DSAT: Concluded all Options technically feasible, no decision made for moving forward

Study History (cont.)

- Interim risk reduction study: 2020–2021
  - No interim measures implemented
- CWS indefinitely suspended the TJP: December 2021
- Final Design for structural proposal: January 2022–Current
  - Option 1, Alternative 1

Seismic Sources affecting Scoggins Dam used for PSHA



CSZ Interface

Puget intraslab

Crustal faults

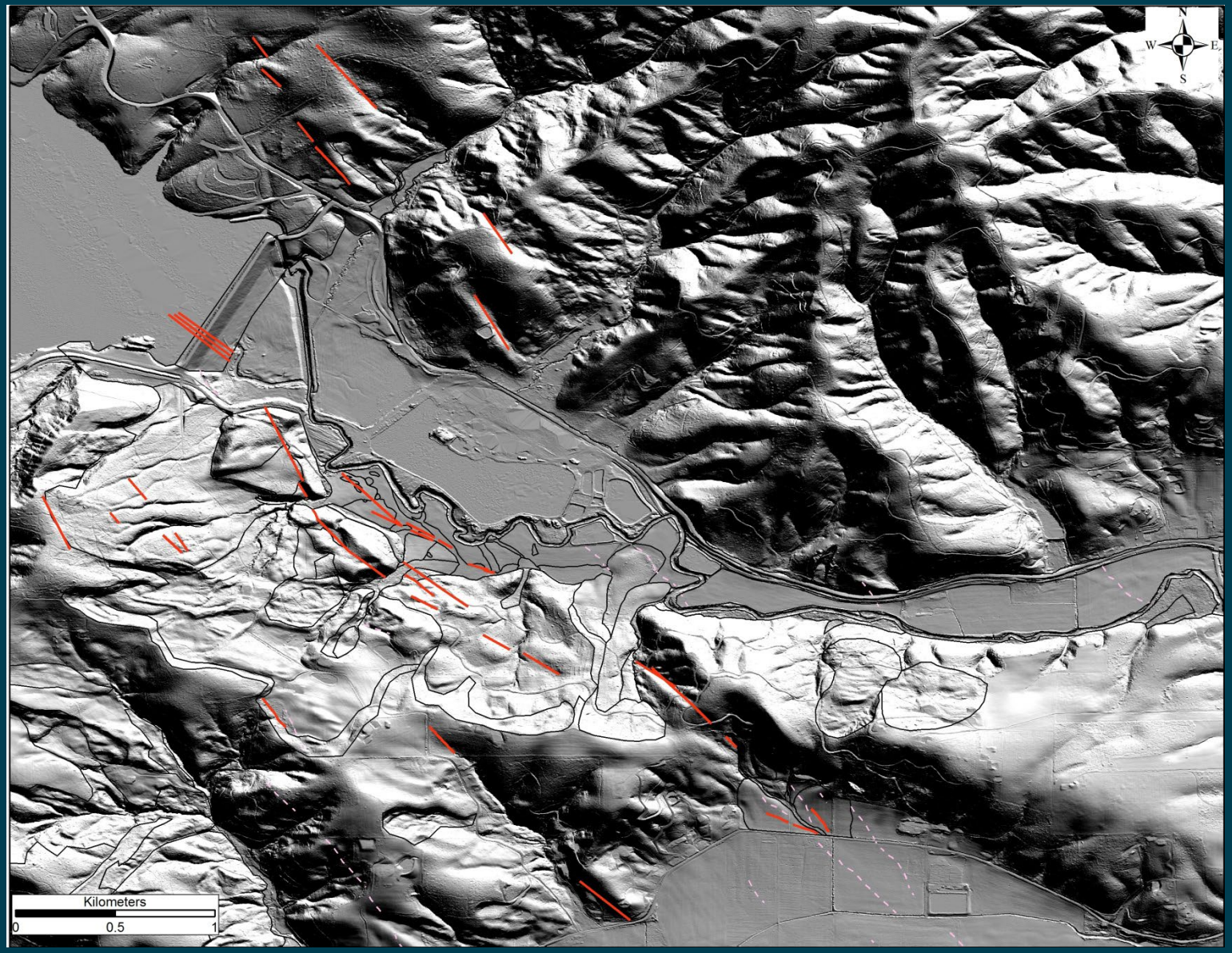
Portland intraslab

Seismic sources

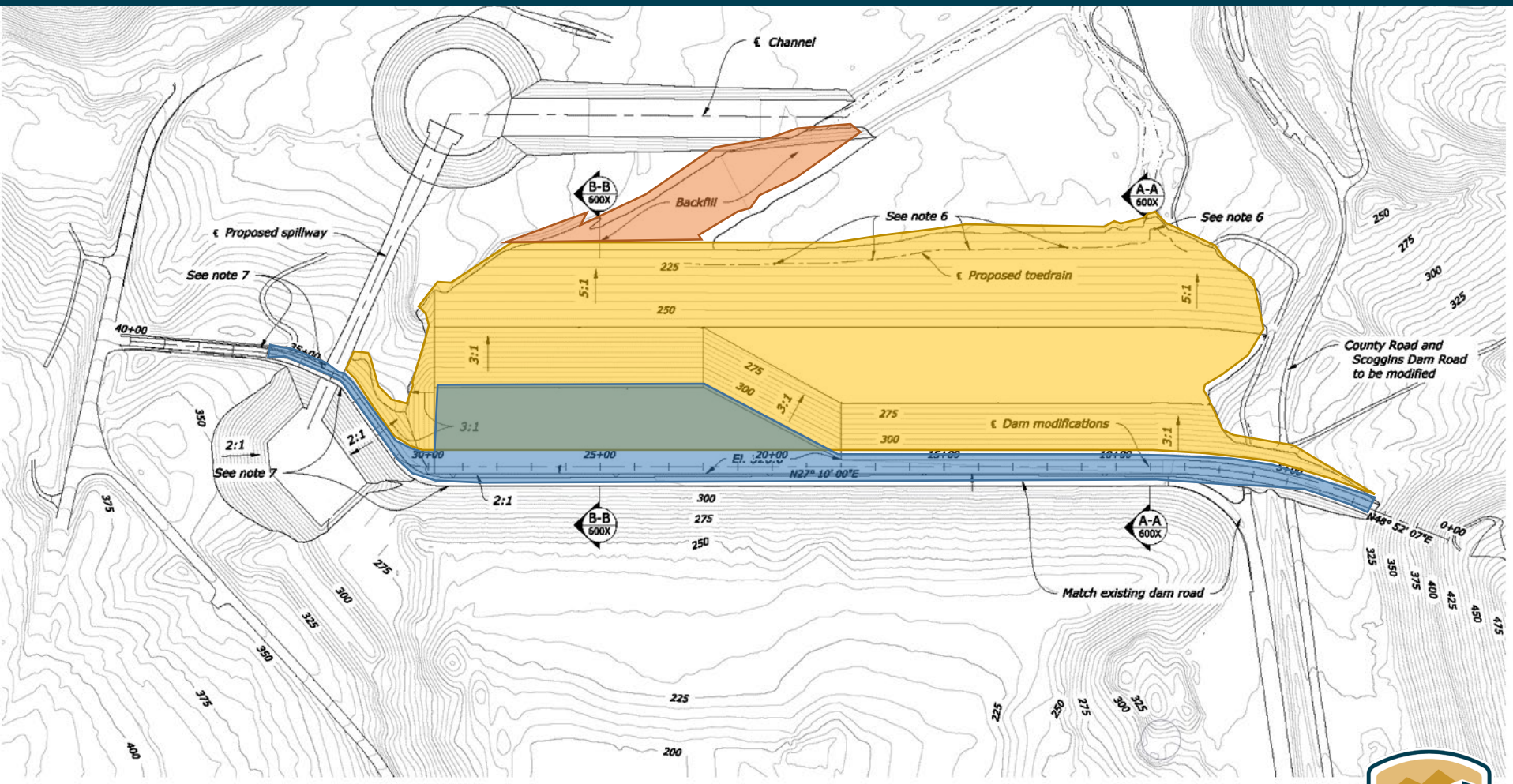
- Subduction zone interface
- Intra-slab (deep)
- Crustal: mapped faults and shallow background seismicity

Gales Creek fault zone

LiDAR imagery and possible lineaments

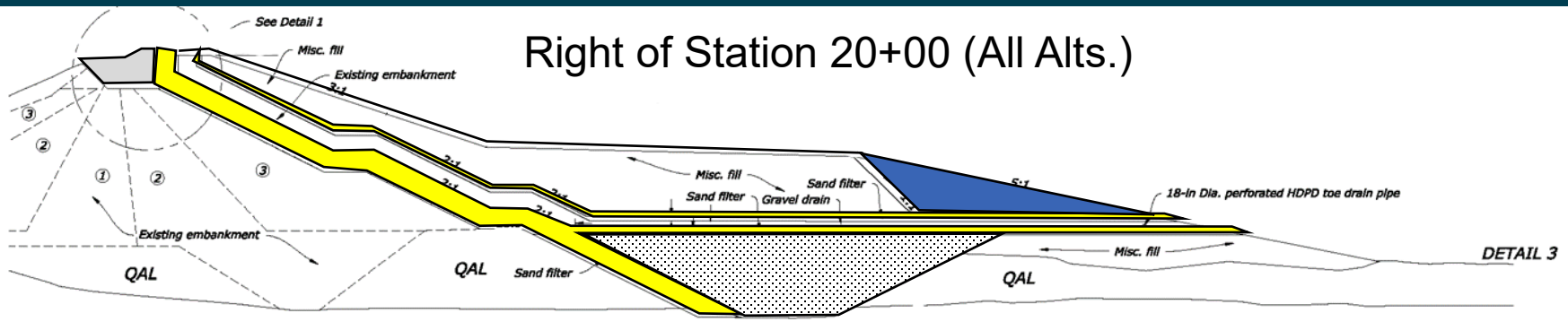


Structural Proposal - Embankment and Stability Berm Plan



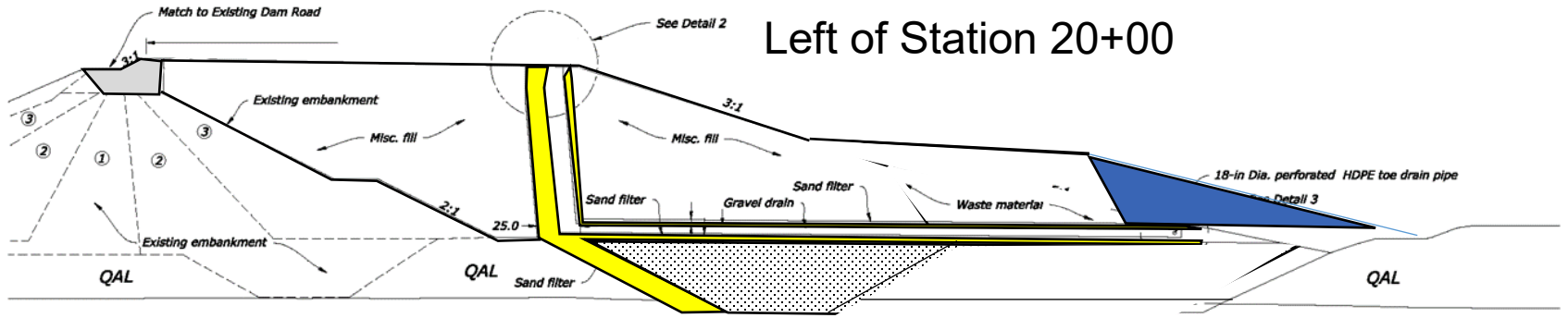
PLAN

Structural Proposal - Embankment and Stability Berm Sections



Right of Station 20+00 (All Alts.)

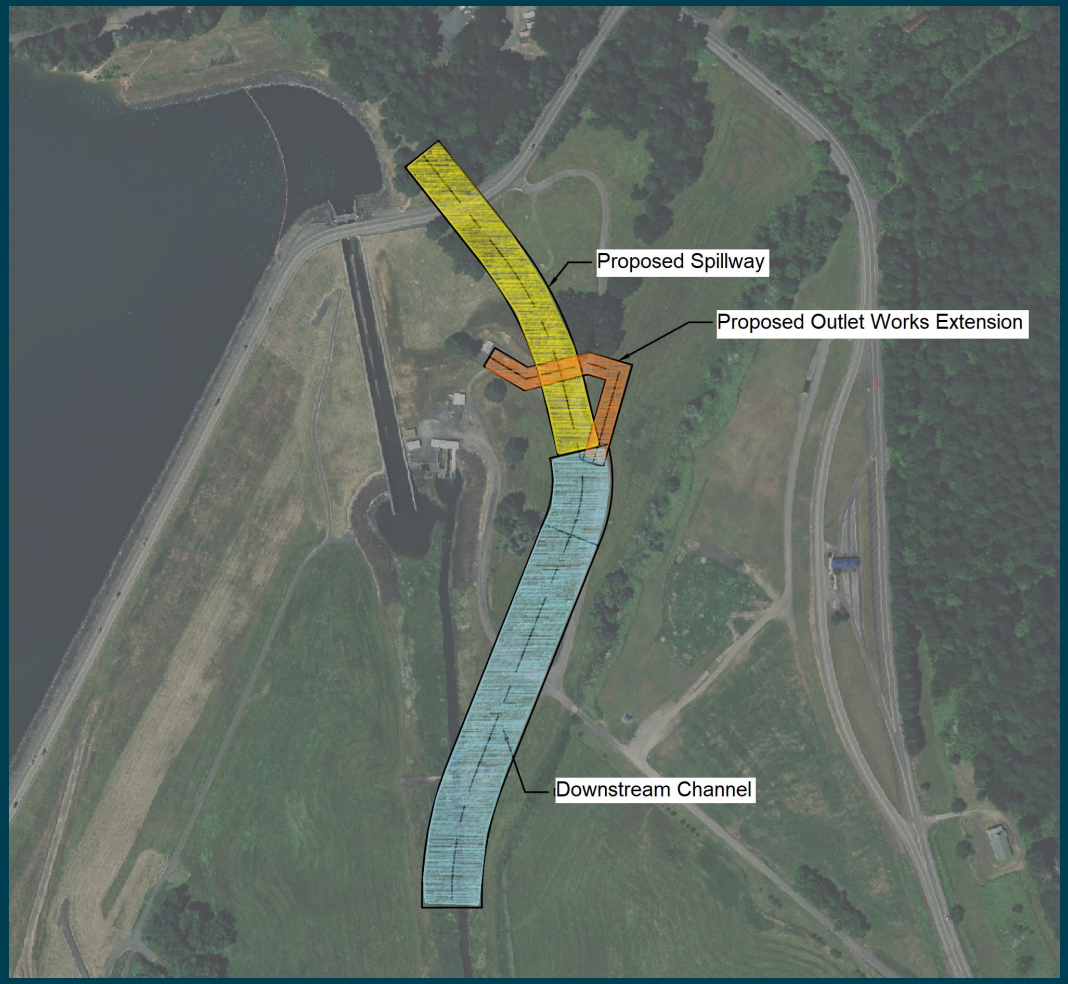
SECTION A-A STA. 7+00



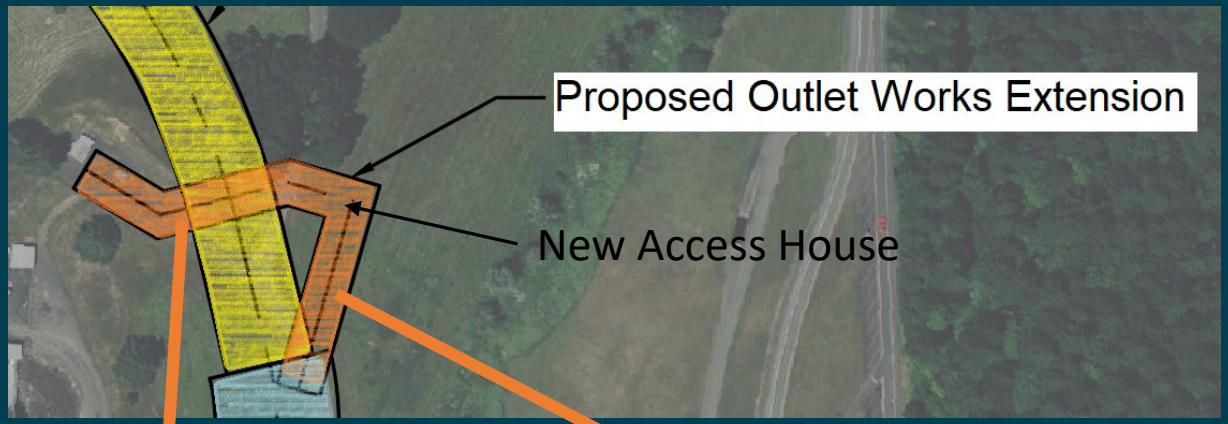
Left of Station 20+00

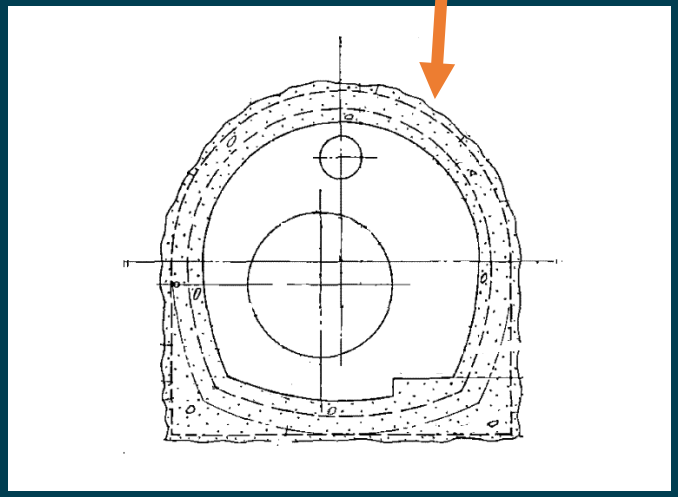
SECTION B-B STA. 23+00

Structural Proposal - New Spillway Alignment and Outlet Works Extension

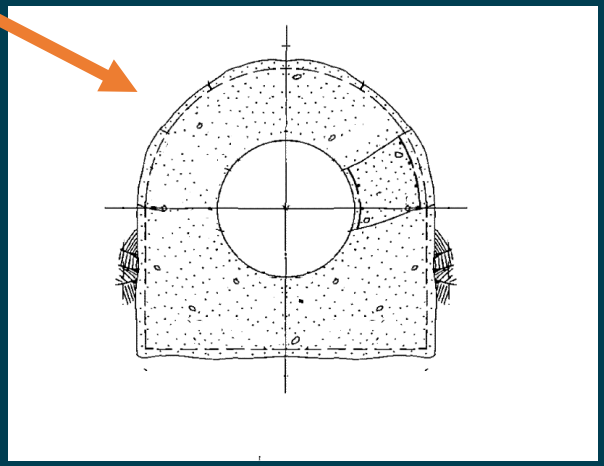


Outlet Works Extension Sections





Section before new Access House



Section after new Access House

Project Milestones/Next Steps

All times are projected and will be refined in time.

- Design & Environmental Compliance, including future Environmental Public Comment Meeting (2023):
  - Current–2027
- Contract Solicitation & Award:
  - 2027–2028
- Construction:
  - 2029–2035

Updated 11/2022