

Technical Projects Update

YRBWEP Workgroup Meeting
December 18, 2013



Presented by:

Andrew Graham, HDR Engineering, Inc.

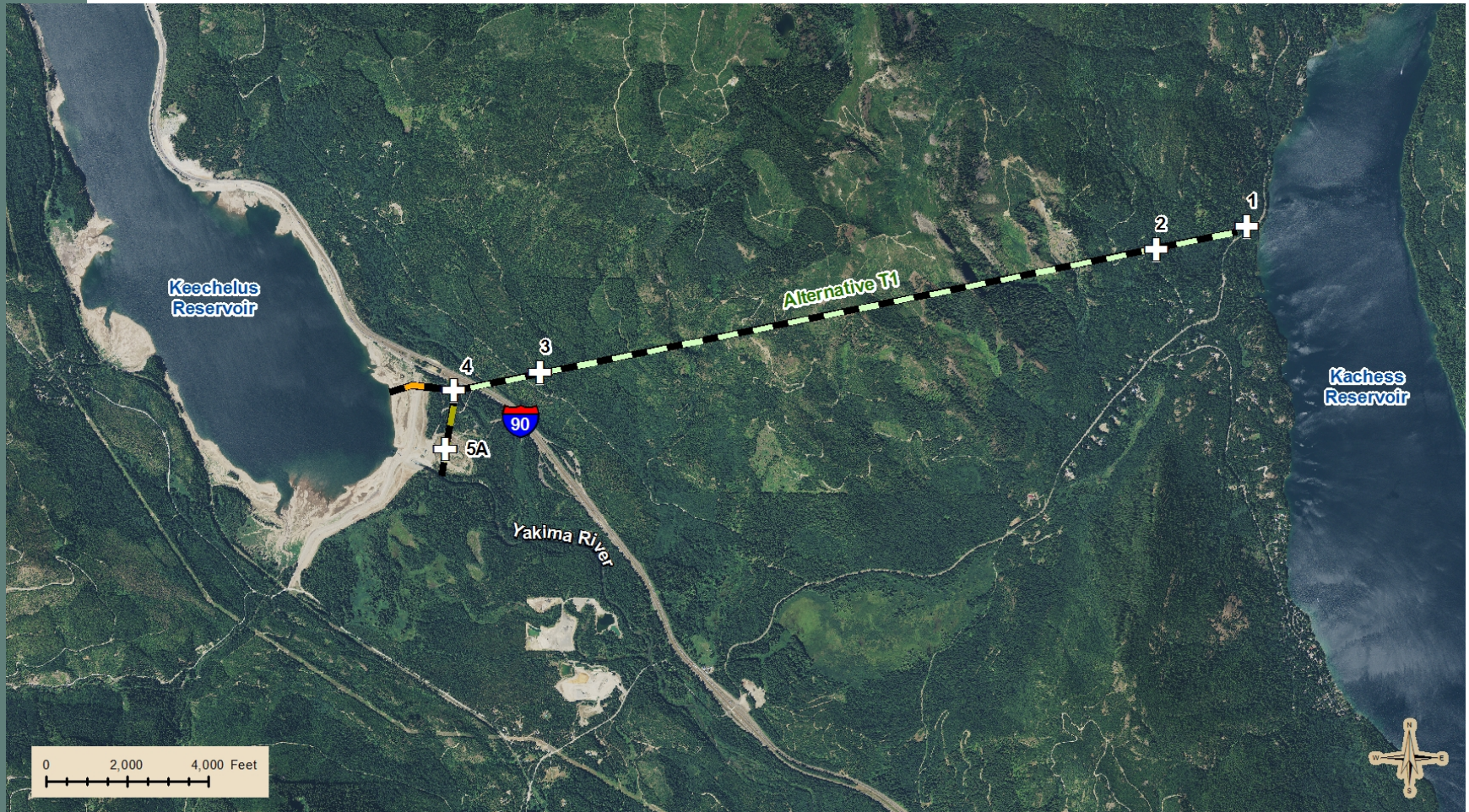
Walt Larrick, Reclamation



Keechelus-to-Kachess Conveyance



Keechelus-to-Kachess Conveyance Drill Hole Locations



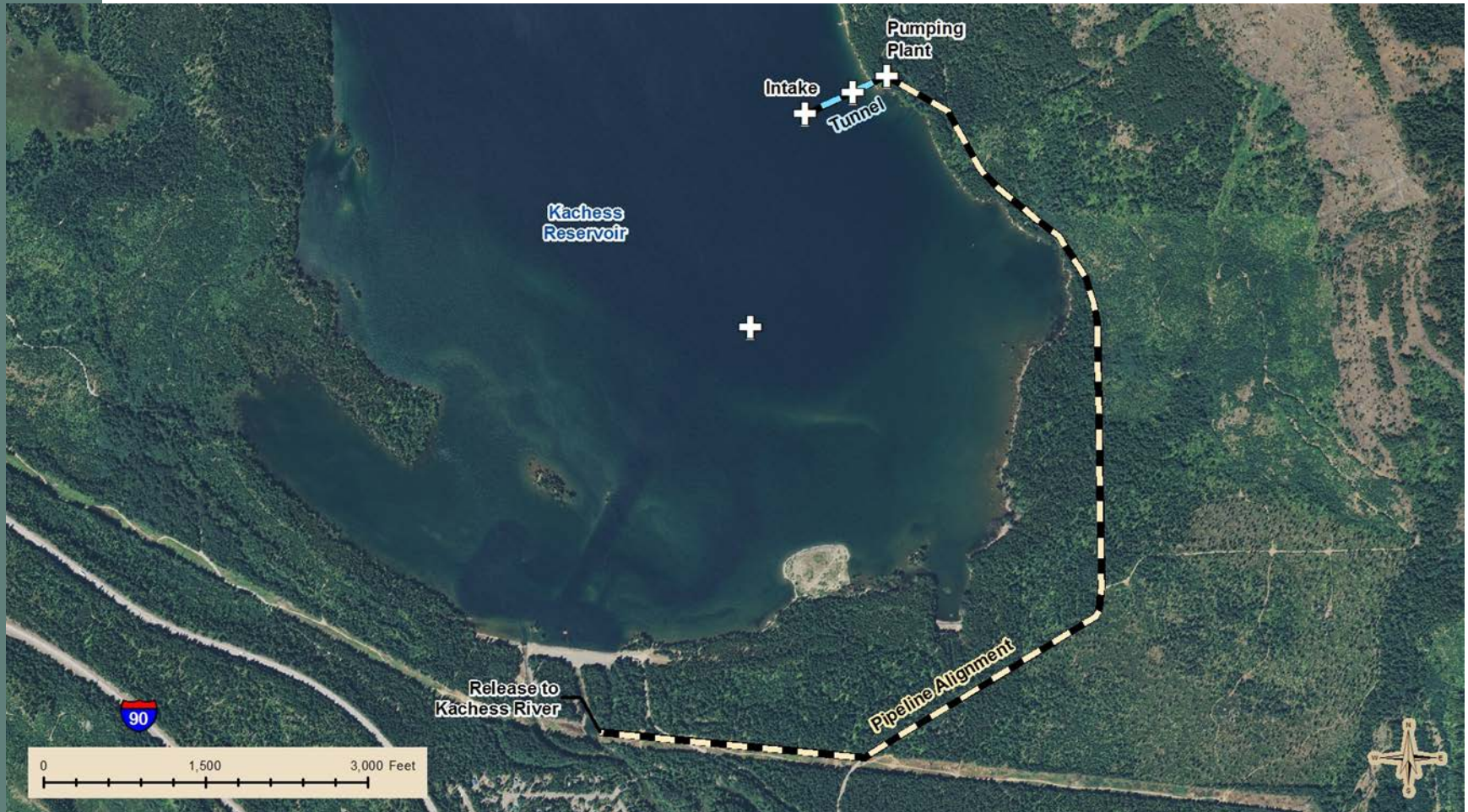
Keechelus-to-Kachess Drilling Operations



Kachess Drought Relief Pumping Plant



Kachess Drought Relief Pumping Plant Drill Hole Locations



Drill Rig on Kachess Reservoir

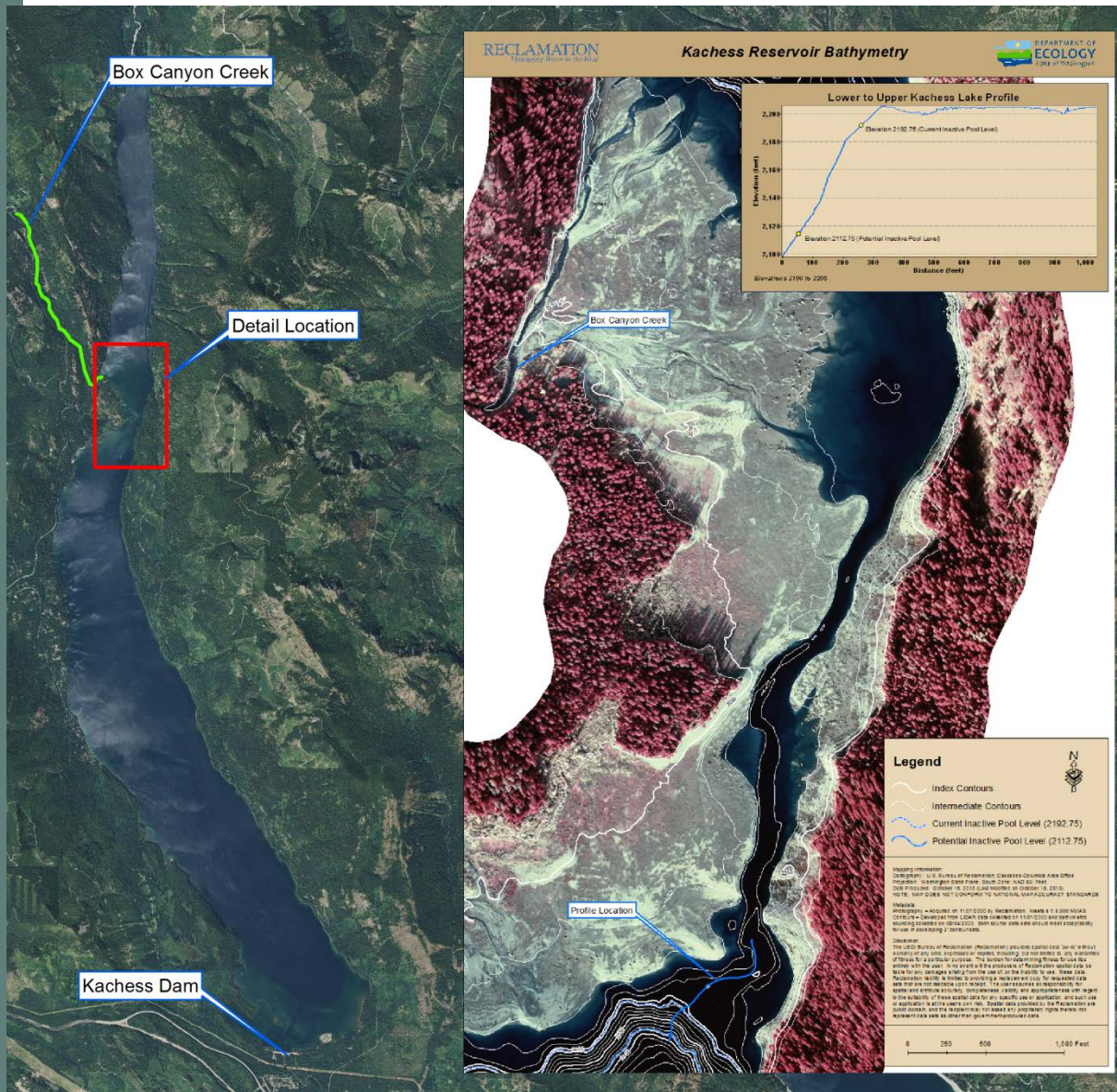


Drill Rig on Kachess Reservoir Shoreline



Box Canyon Creek





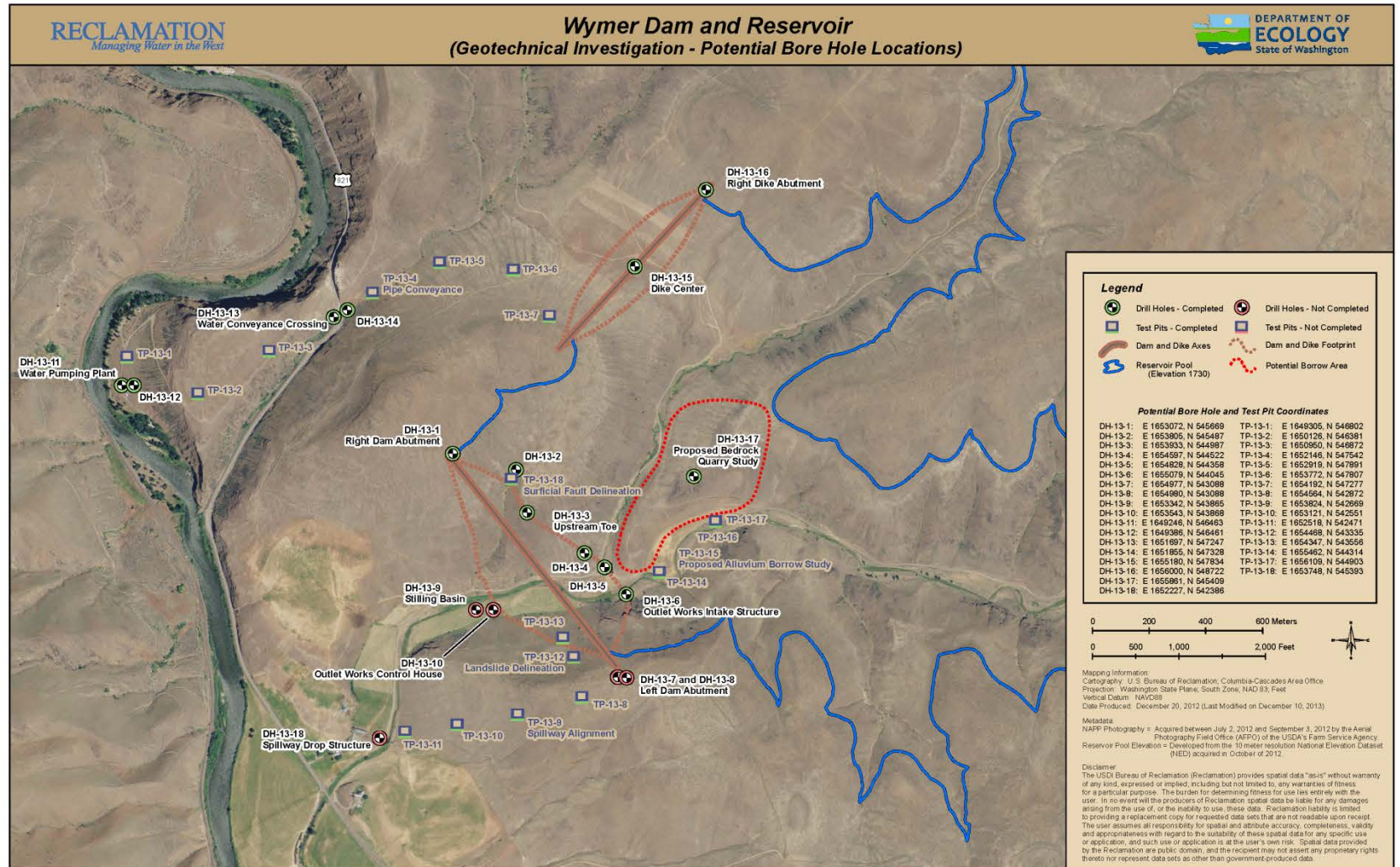
Box Canyon Creek

- Technical Workgroup met in October 2013 to discuss fish passage issues
- Conceptual Designs
 - Box Canyon
 - Lower to Upper Lake

Wymer Dam and Reservoir



Wymer Dam and Reservoir Drill Hole Locations



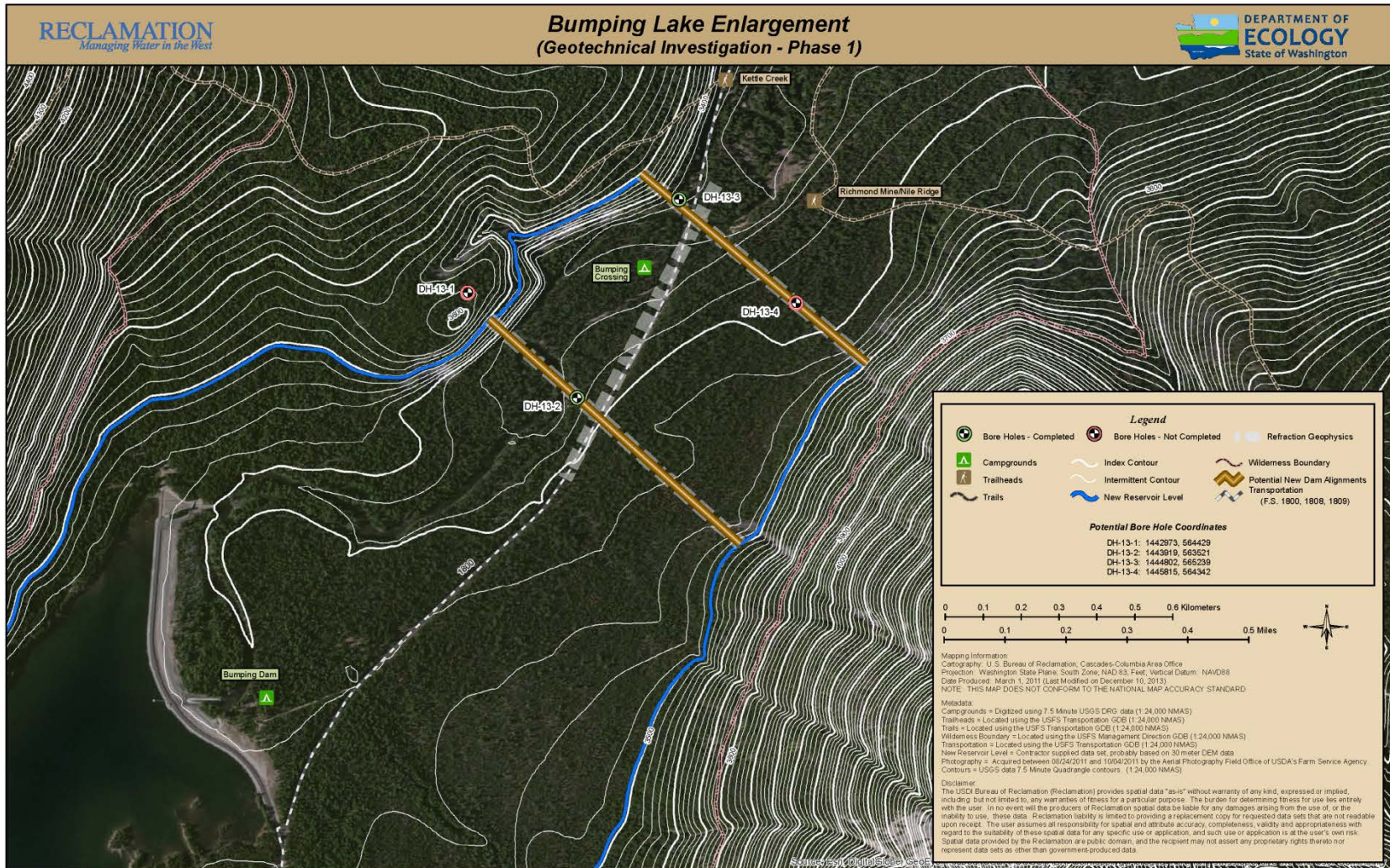
Wymer Dam and Reservoir Drilling Operations



Bumping Dam & Reservoir Enlargement



Bumping Dam and Reservoir Drill Hole Locations

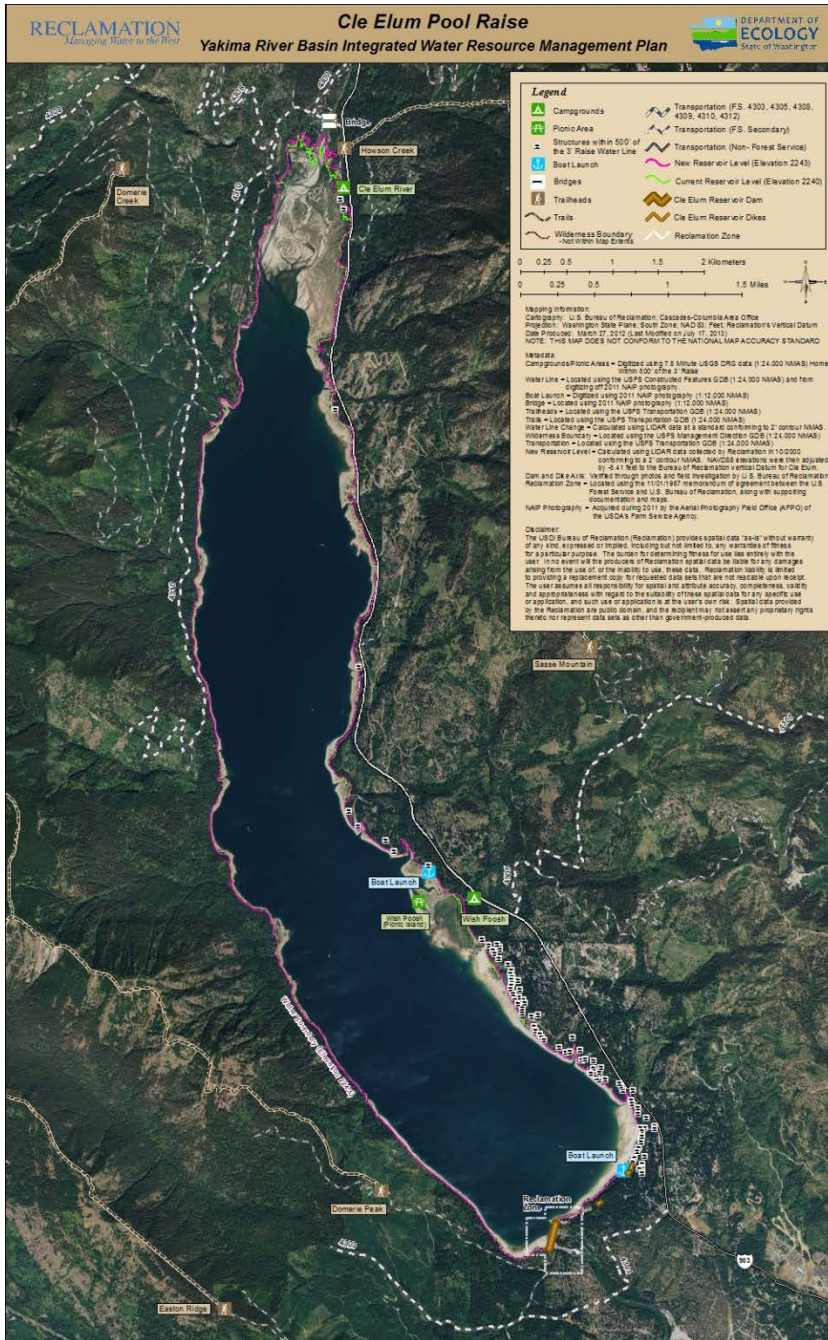


Bumping Dam and Reservoir Drilling Operations



Cle Elum Pool Raise



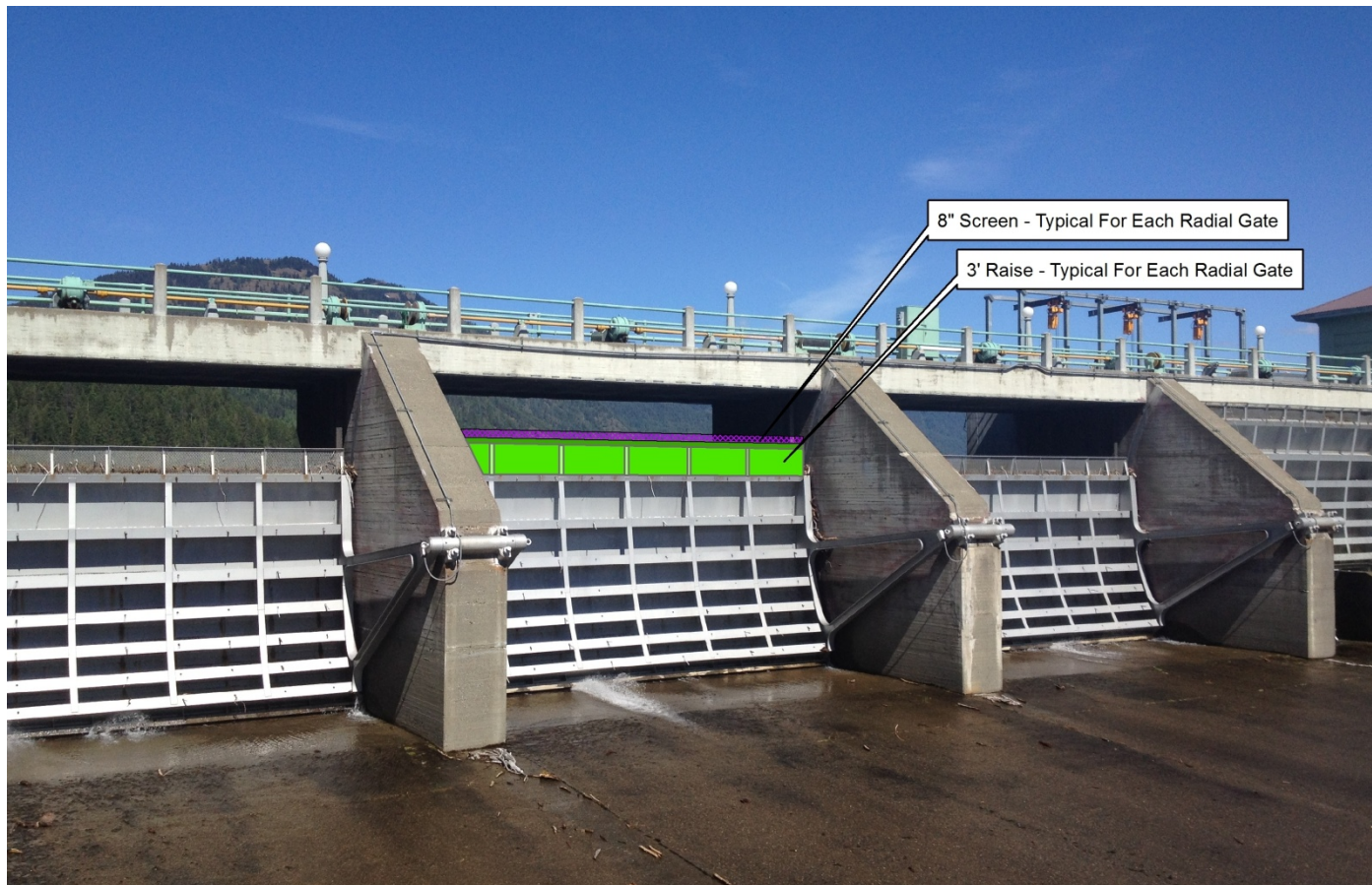


Cle Elum Pool Raise

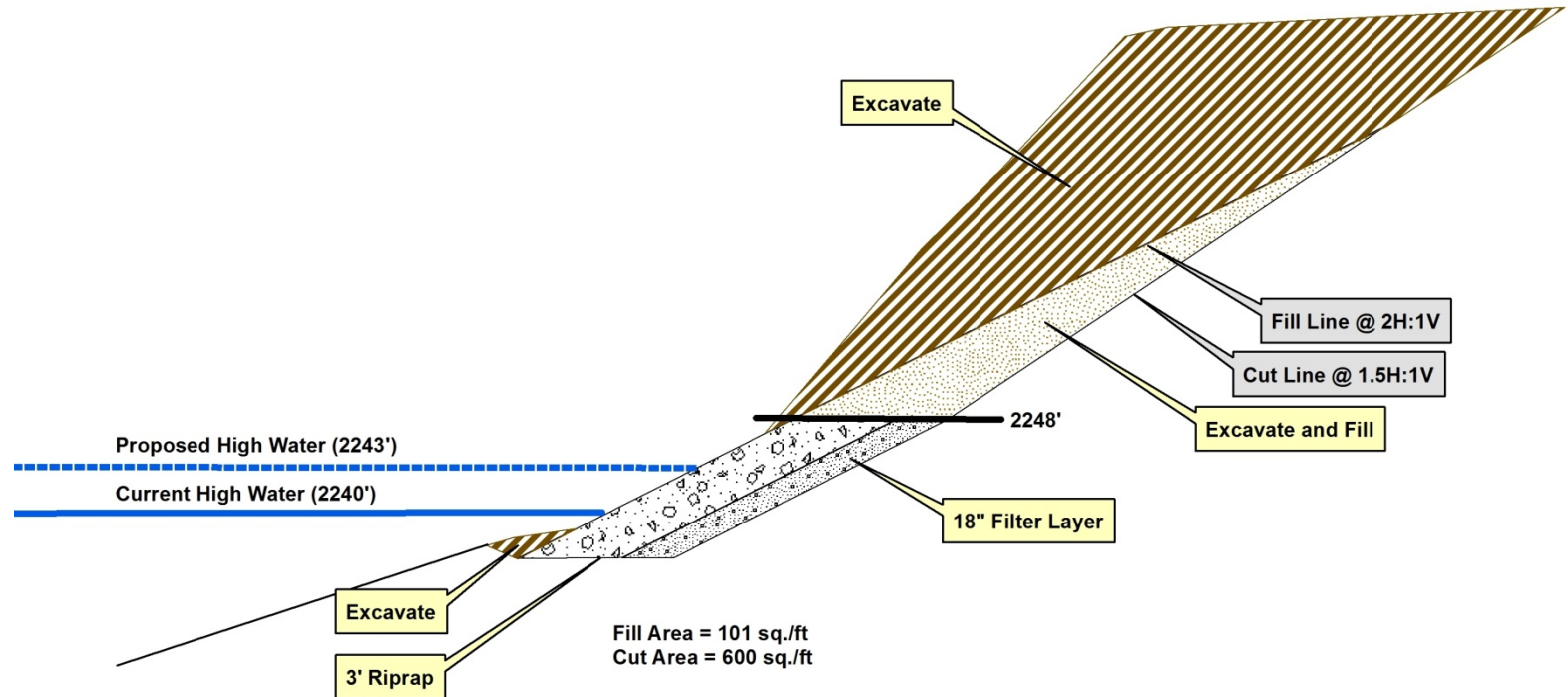
- Modify radial gates
- Shoreline protection/ Embankments
- Land acquisition



Cle Elum Radial Gates - Modifications



Cle Elum Pool Raise – Shoreline Protection Typical Cross-Section



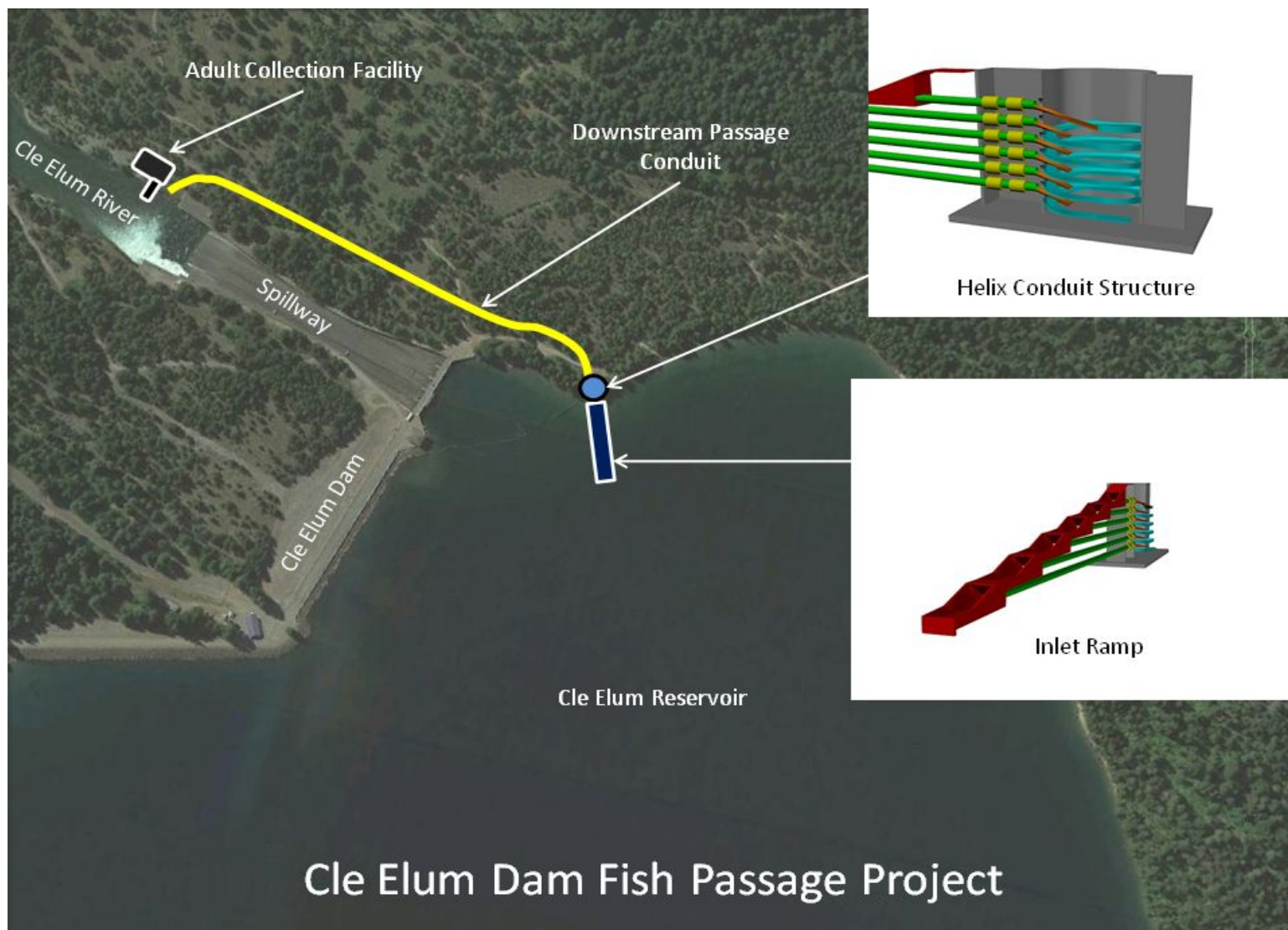
Cle Elum Reservoir Existing Shoreline



Cle Elum Dam Fish Passage Facilities

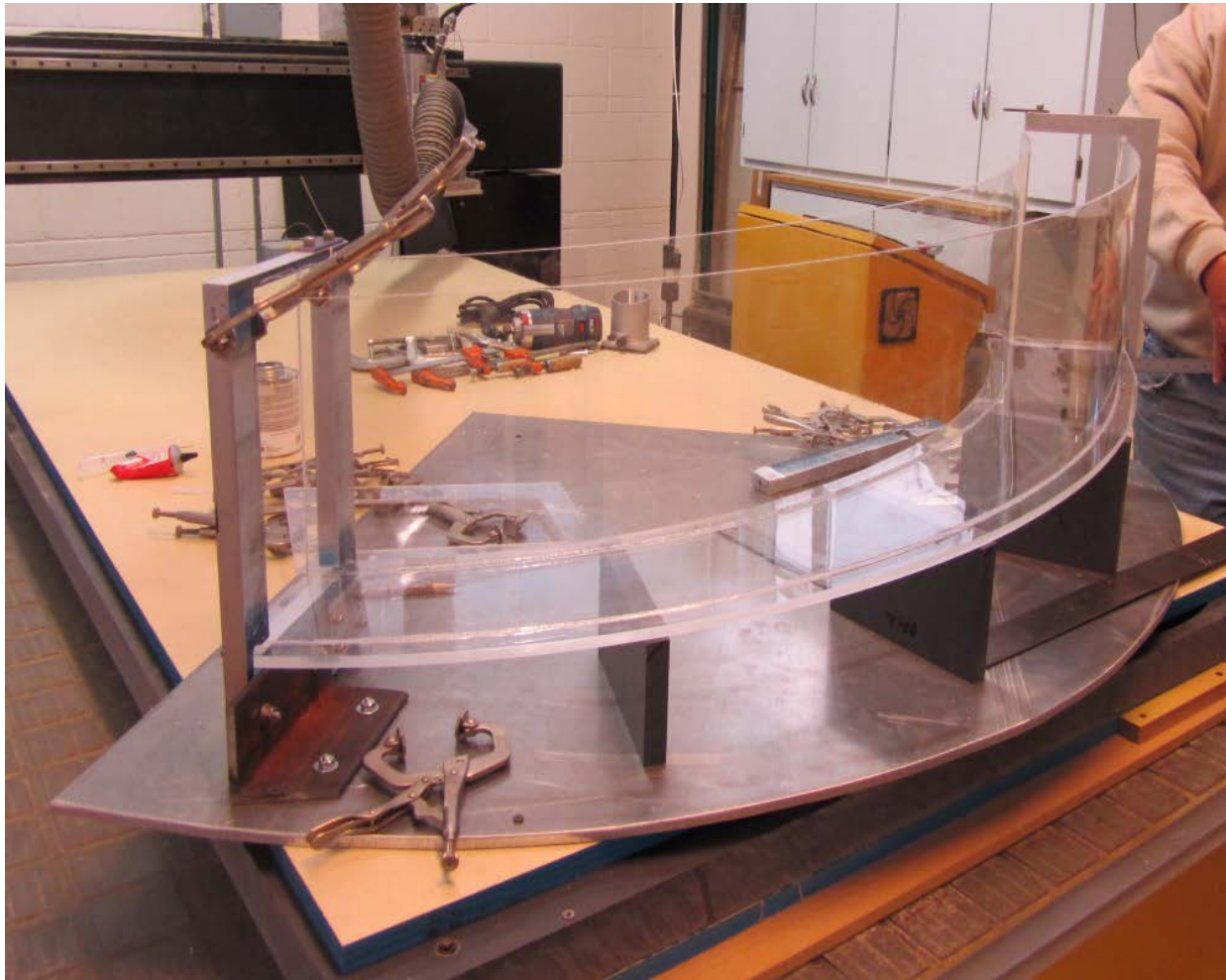


Cle Elum Dam Fish Passage Facilities



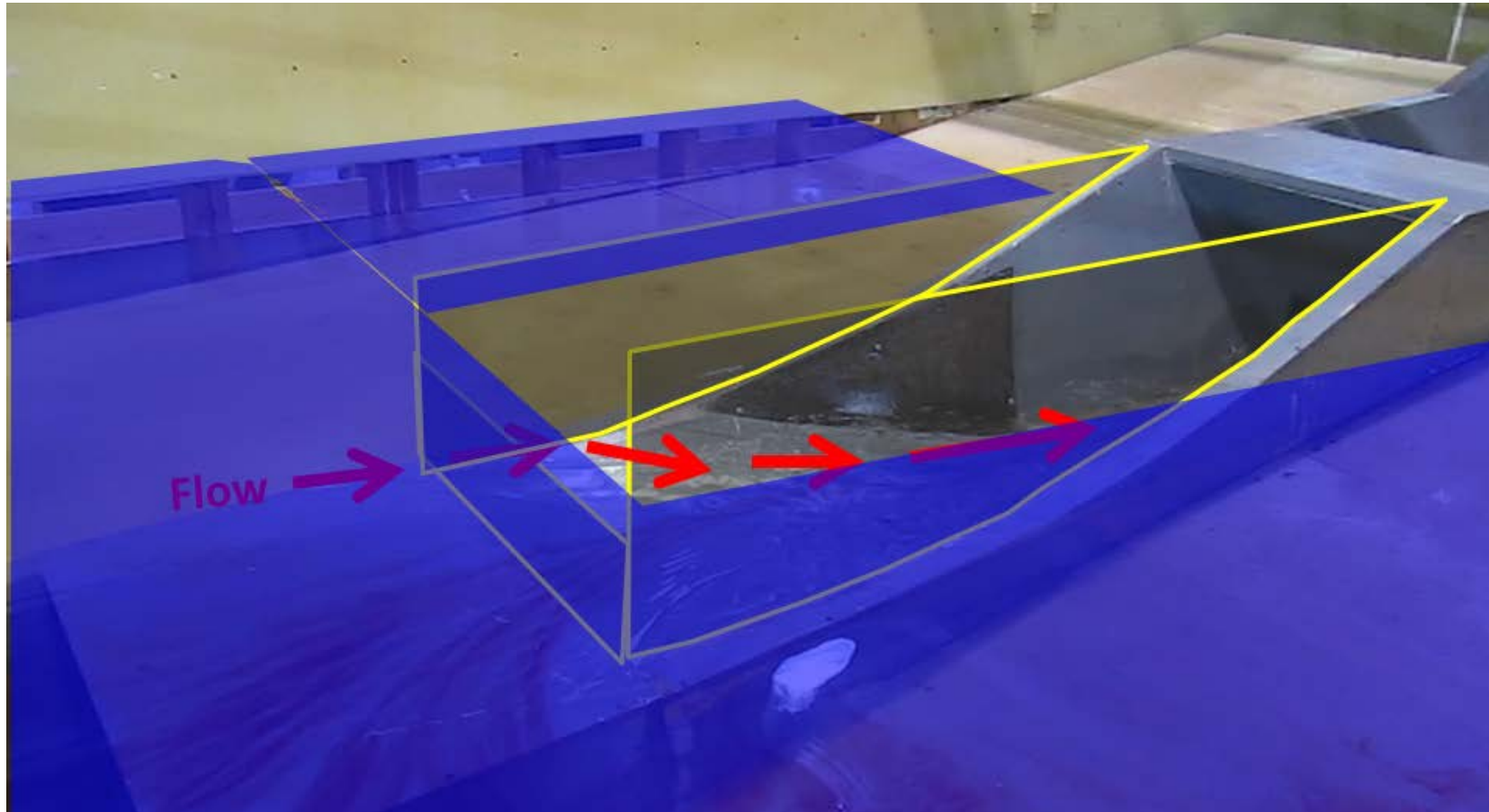
Cle Elum Modeling

Helix Model Quarter Section



Cle Elum Modeling

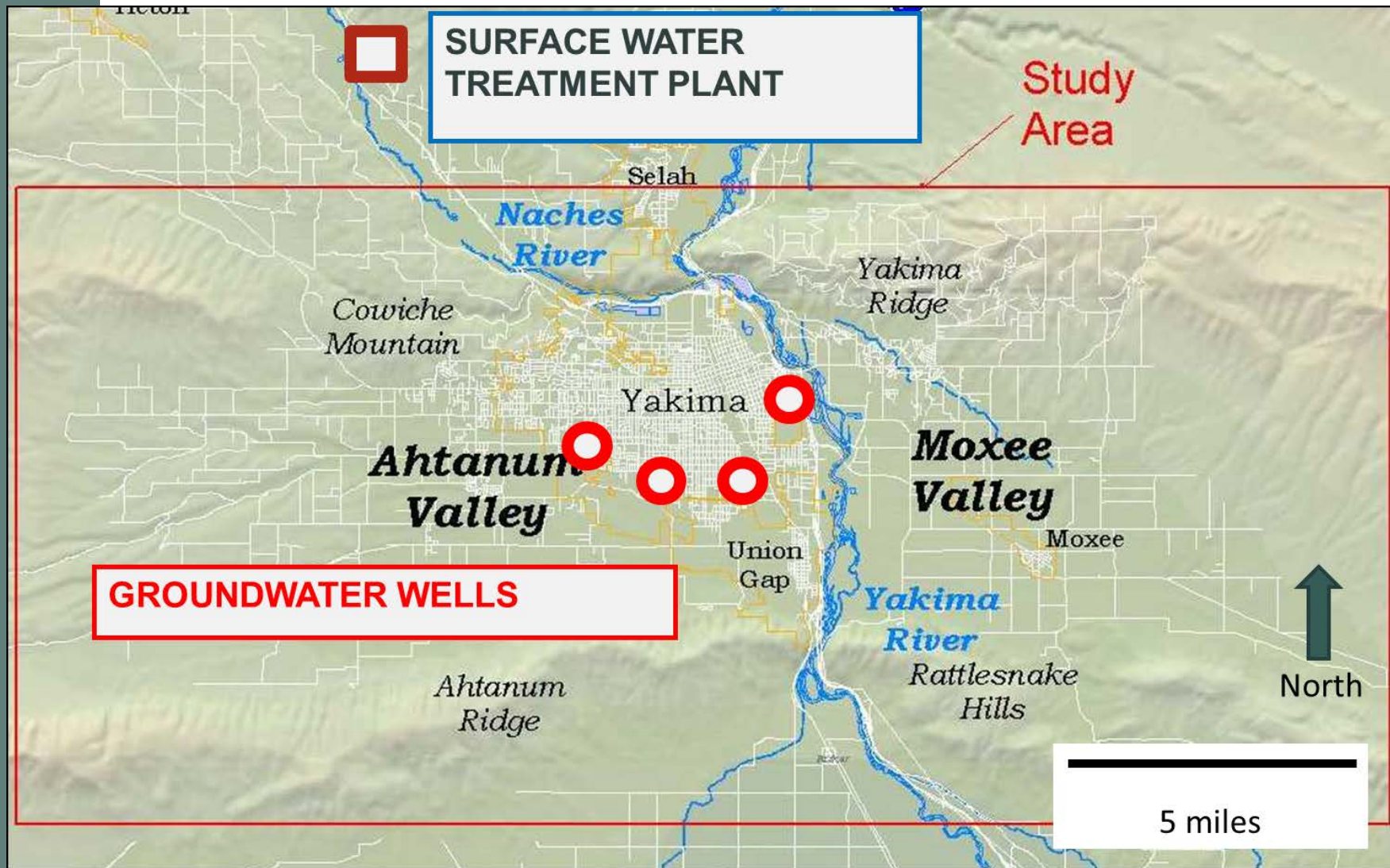
Proposed Modified Inlet Structure



Groundwater Storage City of Yakima Aquifer Storage & Recovery (ASR)

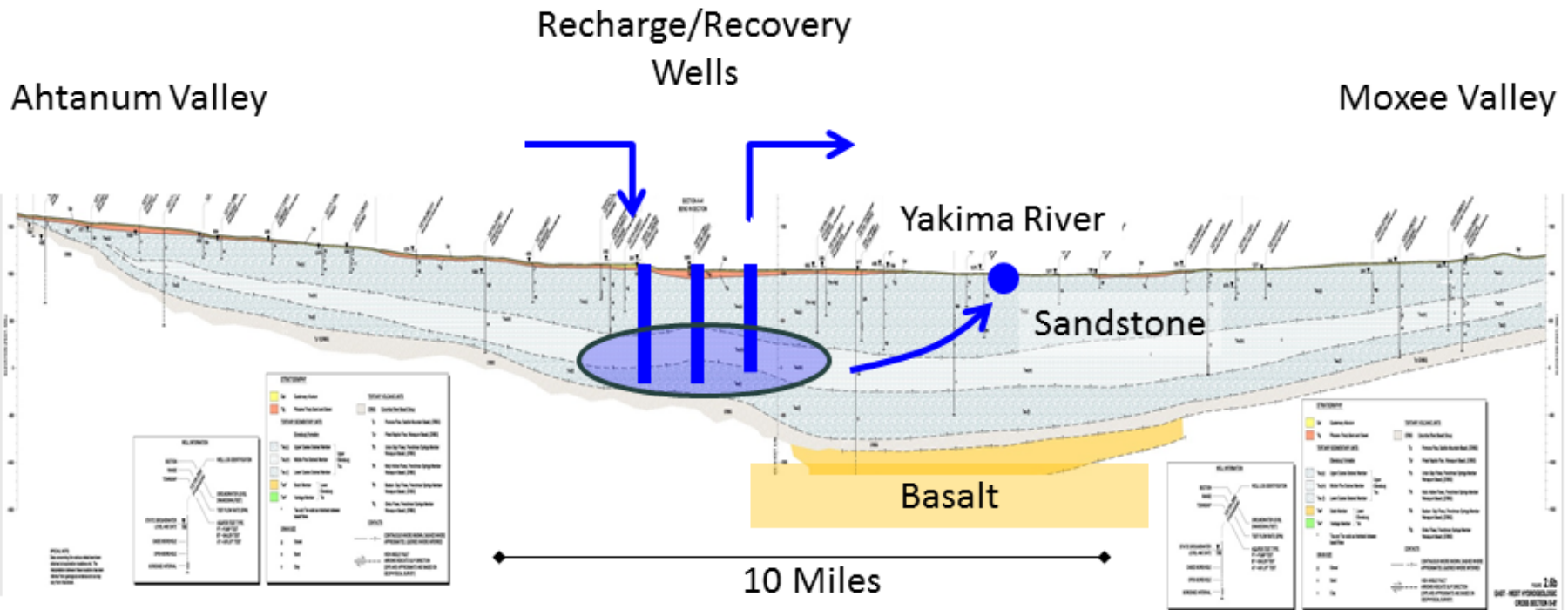


City of Yakima ASR Features



City of Yakima ASR

Recharge to the Ellensburg Formation Sandstone



City of Yakima ASR 2013/2014 Activities

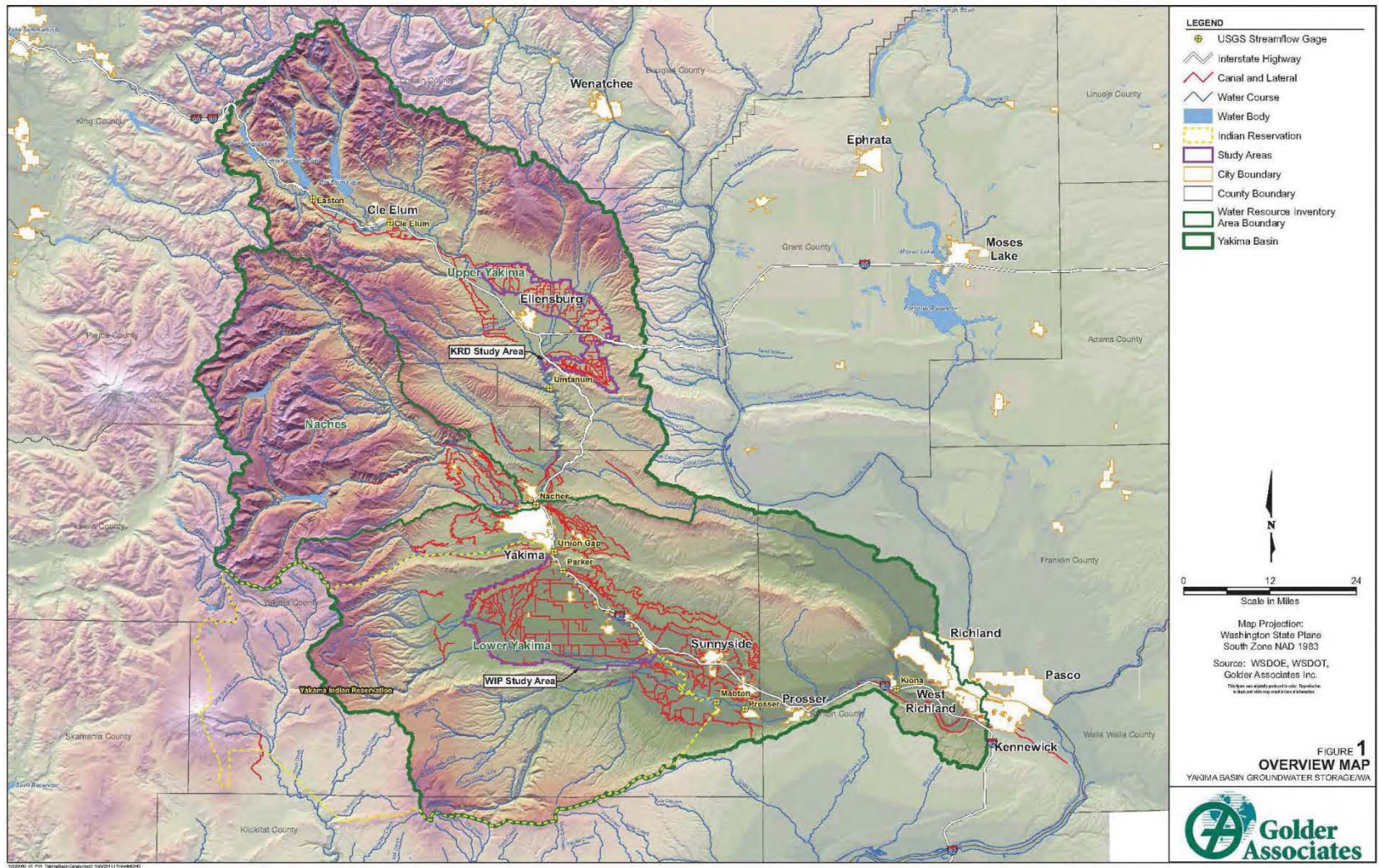
- **Develop program framework**
- **Outfit existing wells for monitoring network**
- **Reactivate permit application to Ecology**
- **Goal: Begin storing water by end of 2014**



Groundwater Storage Basinwide Analysis

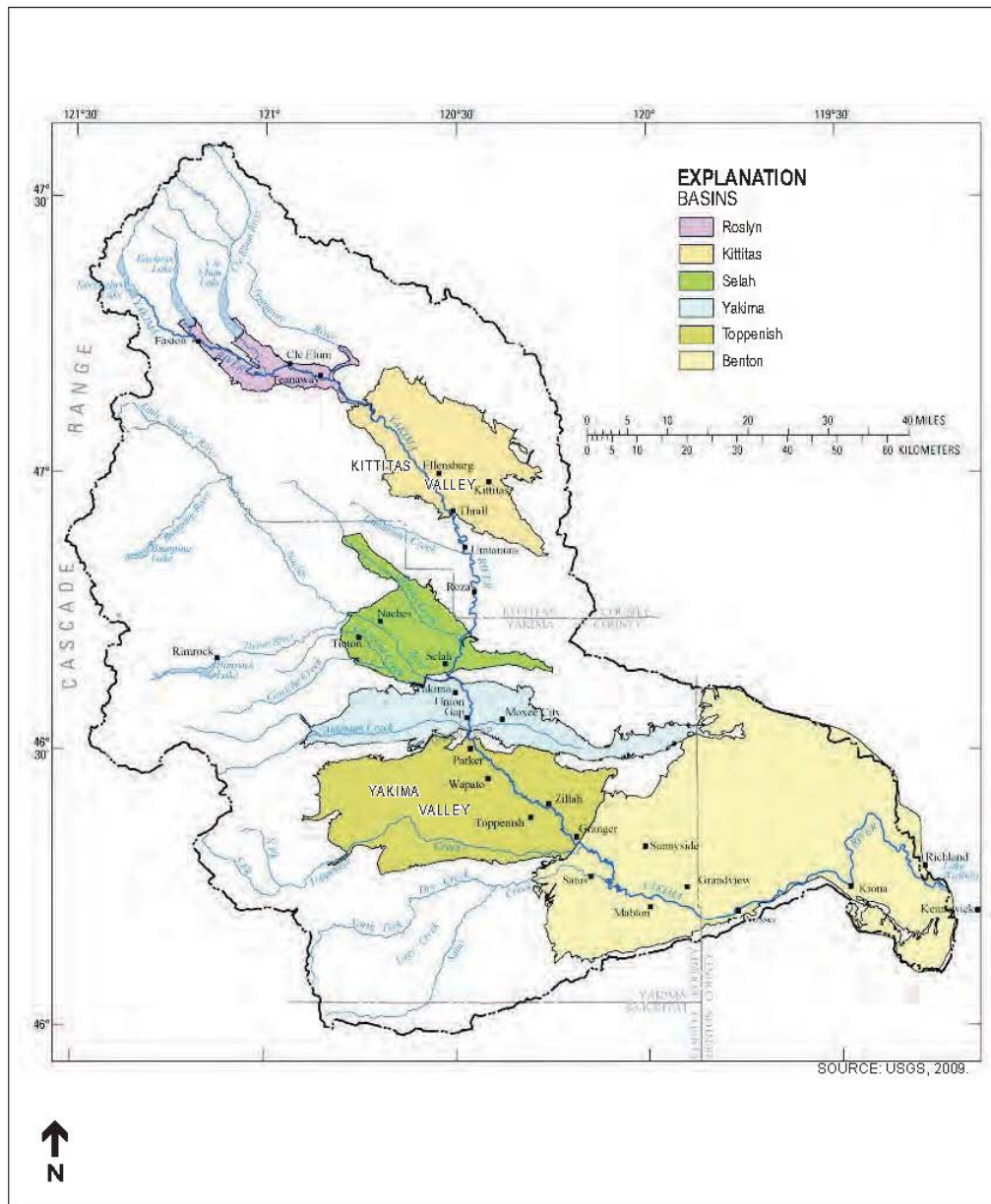


Groundwater – Overview Map



Irrigation Infrastructure





- Basinwide Analysis
- Using USGS Groundwater Model

Figure 3-2. Groundwater Basins

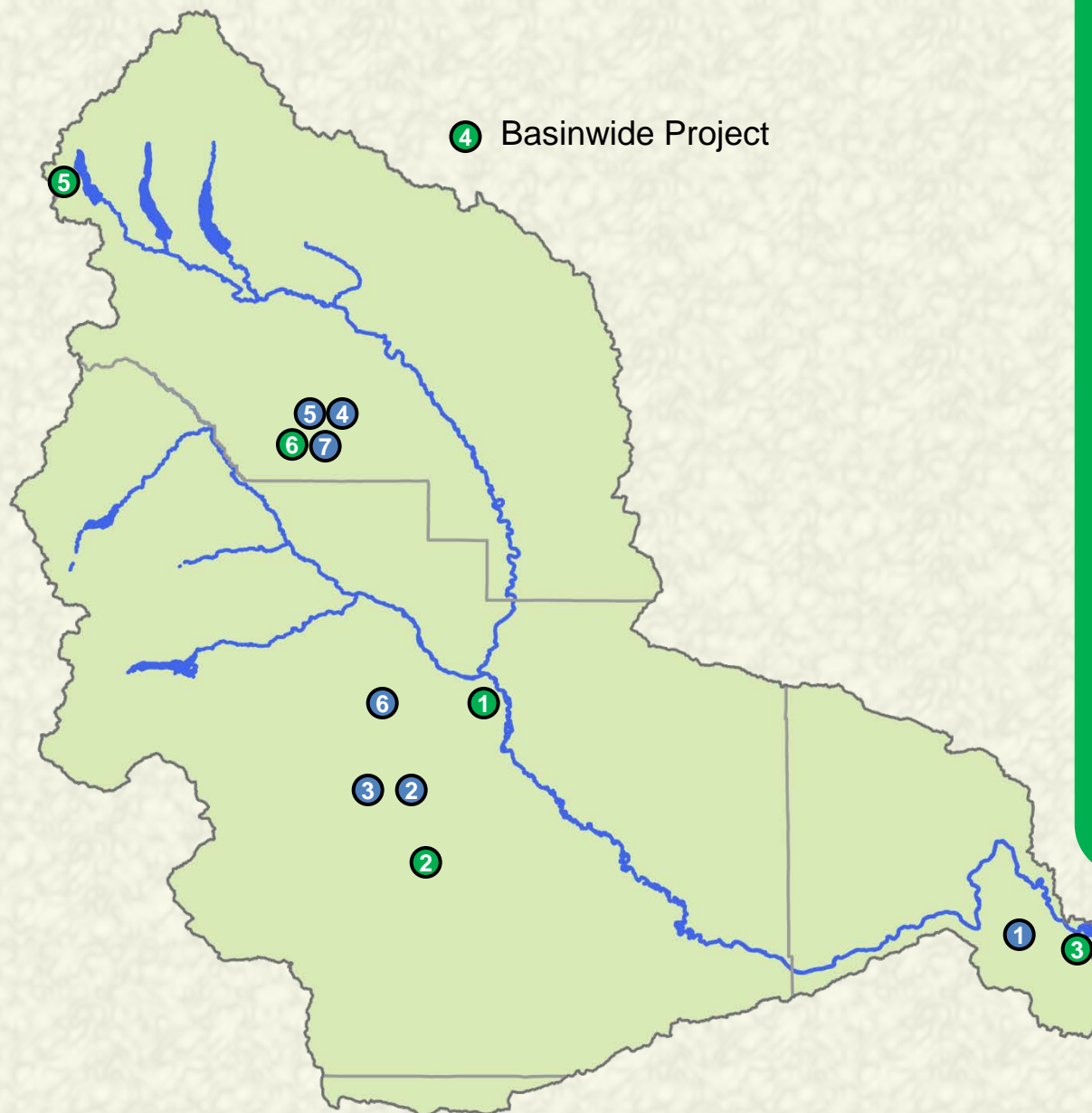


Habitat Enhancement and Agricultural Conservation Projects



Agricultural Conservation Projects

- 1 Kennewick Irrigation District (KID) Division IV Lining
- 2 Wapato Irrigation Project (WIP) Piping Lateral 4-414C
- 3 Wapato Irrigation Project Piping Satus East Lateral E73
- 4 Manastash Creek, Anderson Diversion Irrigation Water Acquisition
- 5 Manastash Creek Sprinkler Conversions
- 6 Yakima-Tieton Irrigation District (YTID) Feasibility Study – Tieton to Ahtanum Exchange
- 7 Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction



4 Basinwide Project

Habitat Enhancement Projects

- 1 Gap-to-Gap Outfall Relocation
- 2 Toppenish Fan
- 3 Bateman Island Causeway Modification Conceptual Design
- 4 Bull Trout Task Force Habitat Improvements
- 5 Gold Creek Habitat Assessment and Conceptual Design
- 6 Reed Diversion Removal