



WAPATO DIVERSION DAM

Physical Model Alternative Selection Stakeholder Meeting

December 4, 2025 | Yakima, WA

Meeting Agenda

- **9:00 AM Opening Remarks**
- **9:15 AM Background Information**
- **9:30 AM Concept Development:** Preliminary Preferred Alternative
- **10:15 AM Short Break**
- **10:30 AM Concept Development:** Alternate Concept Refinements
- **11:15 AM Concept Development:** Roughened Channel Concept
- **12:00 PM Lunch** (Provided)
- **1:15 PM Decision 1:** Which in-river screen alternative to advance to physical modeling
- **2:00 PM Sectional Modeling Summary**
 - Introduction and Treatment Schedule
 - Hydraulic Results
 - Live Fish Results
 - Sensor Fish Results
- **3:30 PM Short Break**
- **3:45 PM Decision 2:** Which gate configuration to advance to design development testing
- **4:15 PM Next Steps**
- **5:00 PM End Meeting**

Preliminary Preferred Alternative



1 Trash Rack

Replacing the trash rack and raking system would improve debris management, hydraulics, and operator safety.

2 Headworks

A reconstructed traditional headworks would be designed to address mortality and increase diversion capacity. The structure could use standard slide gates or split-leaf gates if found to better address fisheries goals.

3 Railroad Bridge

A new railroad bridge would accommodate a wider headworks structure and canal. Preferably, a new on-grade crossing would be constructed north of the headworks to improve site access.

4 Tailwater Control Structure

Regulating the canal tailwater may eliminate injuries associated with the headworks undershot gates. The sectional physical model will evaluate the effectiveness of the tailwater control structure.

5 Access Bridge

Installing a bridge across the trash rack, west dam, and east dam would allow WIP to safely access the trash rack, place bulkhead elements on the spillway, maintain crest gate equipment, and deliver materials to the island.

6 Crest Gates

Crest modifications and new gates are needed to flush sediment and debris, improve flood capacity, and increase the checked water surface elevation to the headworks at low flows.

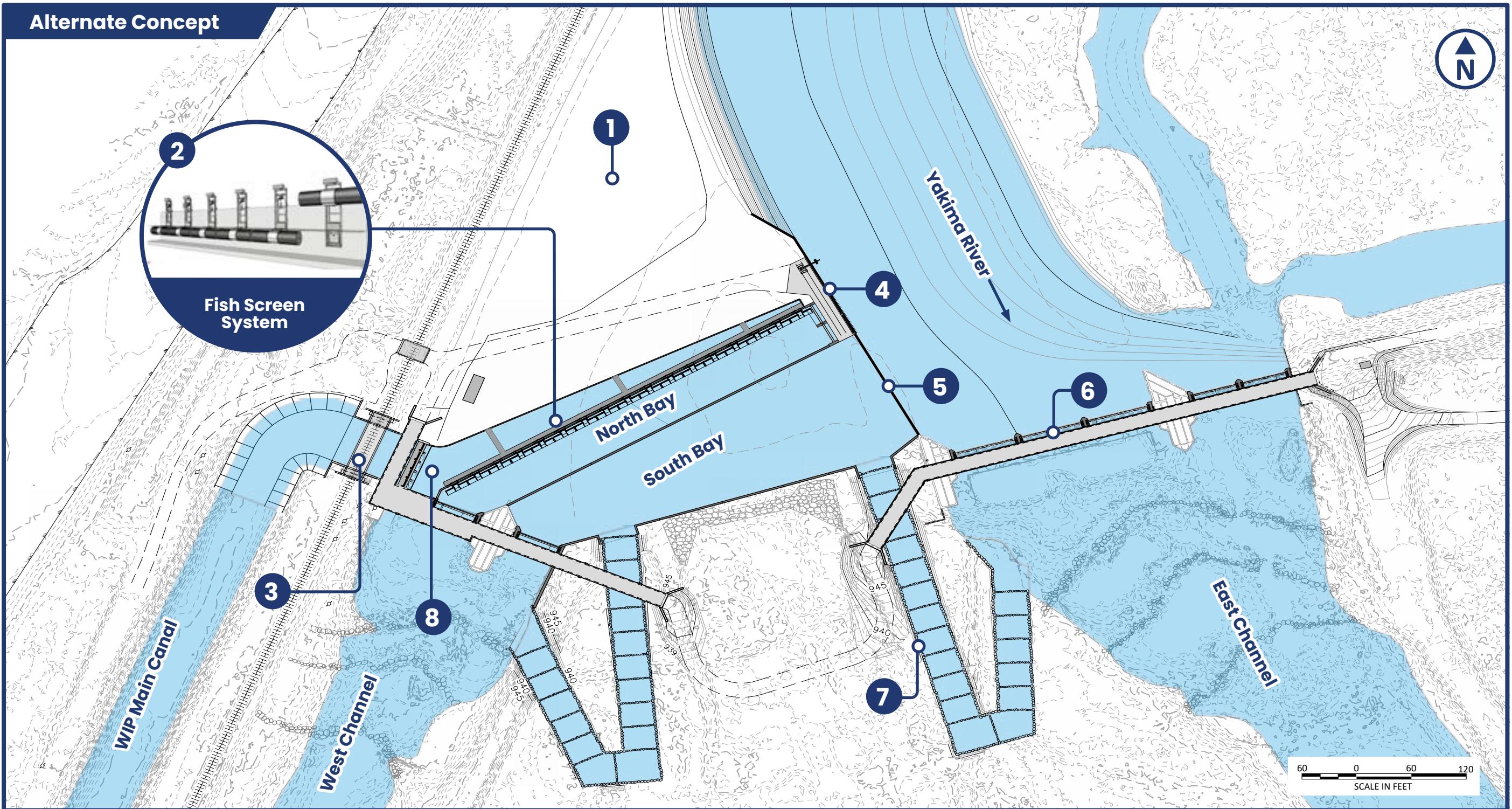
7 Fishway (Placeholder Arrangement for Illustrative Purposes Only)

A new fishway in the east channel (or elsewhere) would improve upstream passage for a variety of species. The feasibility-level design for this element will be completed under a separate agreement between YN and DOWL.

8 Fish Screen Bypass Improvements

The fish screen bypass system would be rehabilitated or replaced to address the fish survival concerns. In addition, reconstructing the river channel at the outlet would provide better fish dispersal and protection from aquatic predators.

Alternate Concept



1 West Channel Abandonment Area

The existing inlet of the west channel would be filled to route flows through the north and south bays in the existing island footprint. As currently depicted, the material excavated from the island would roughly balance with the fill for the abandonment area.

2 Fish Screen System

An array of cylindrical tee screens would be used to capture irrigation diversions, eliminating fish entrainment into the canal and associated fish injury.

3 Railroad Bridge

Similar to the preliminary preferred alternative, the railroad bridge would be replaced to reset the service life and improve hydraulics.

4 Trash Rack

A trash rack across the north bay would protect the screen system from debris and could include a debris raking system. The trash rack would include bulkheads or isolation gates to dewater the north bay for maintenance and sediment removal.

5 Sediment Wall

A sediment guide wall at the inlet of the north and south bays would be designed to help reduce the amount of sediment entering the bays.

6 Crest Gates

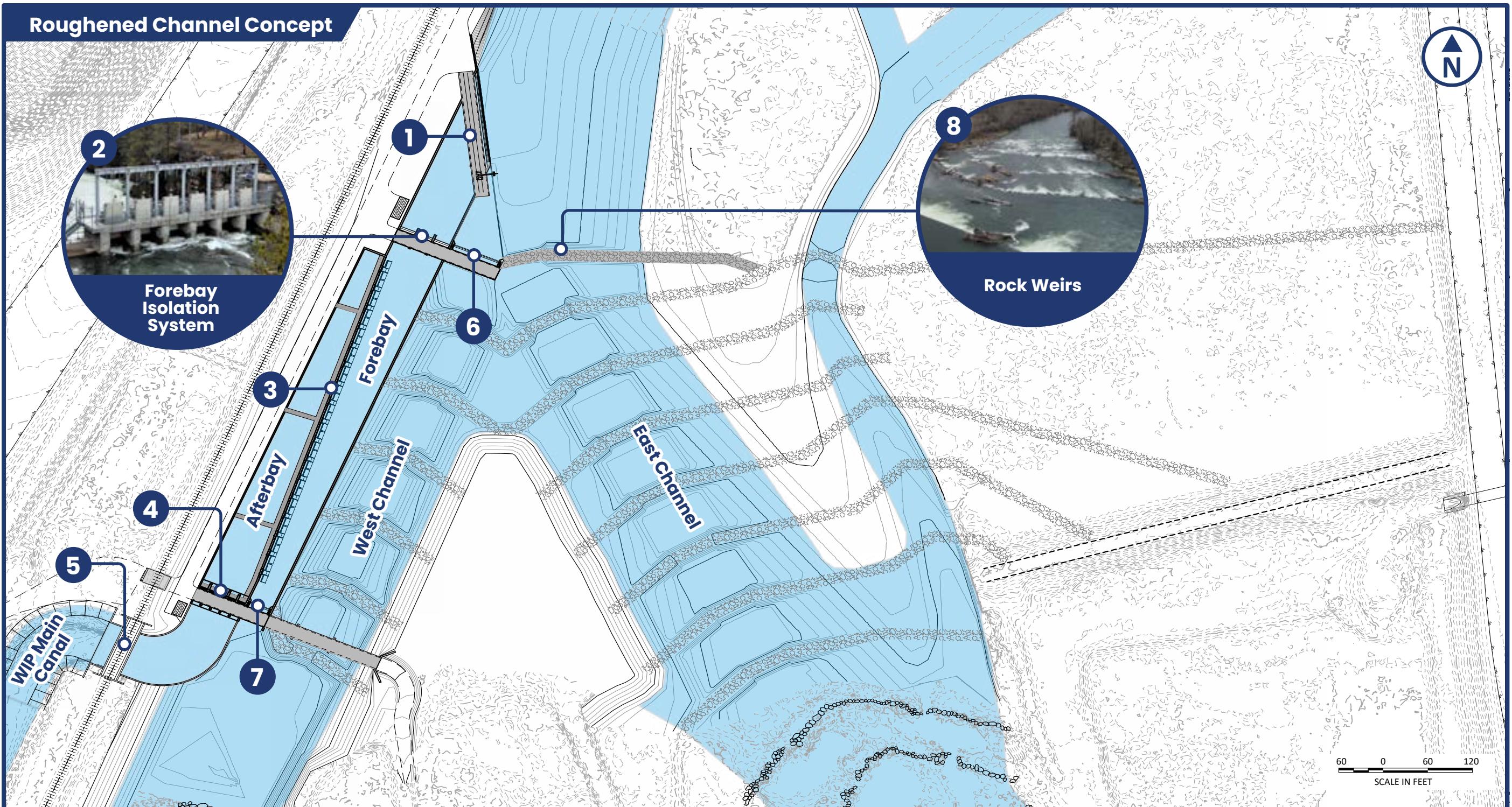
Crest gates could be installed across the entire east and west diversions to promote sediment continuity, control the flow split during operations, and mitigate upstream flood impacts. Conceptually, the river-right west diversion crest gate would have a full dam-height operational range.

7 Fish Passage

The west channel fish ladder would be modified to exclude upstream-migrating fish from the screen forebay, and discontinuing operations of the east channel fish ladder would simplify operations and allow more flow to other passage routes. Fish ladders and fishways offer complimentary fish passage benefits, and this arrangement provides one fish ladder and one fishway in each channel.

8 Flow Control Structure

This structure (represented with a slide gate headworks) regulates the total diverted flow rate and would accommodate a similar operating strategy as the existing headworks.



1 Trash Rack

A coarse-bar trash rack with an excavator-style raking system excludes debris from the screen forebay. A sediment guide wall at the base of the trash rack is intended to direct the river bed load away from the forebay

2 Forebay Isolation System

A gate or bulkhead system allows the forebay to be isolated and dewatered for O&M activities.

3 In-River Screen Array

An array of cylindrical tee screens (the same conceptual arrangement as the Alternate Concept) screens diverted water, eliminating fish entrainment into the canal.

4 Flow Control Structure

This structure (represented with slide gate headworks) regulates the total diverted flow rate and would accommodate a similar operating strategy as the existing headworks.

5 Railroad Bridge Replacement

The railroad bridge would be replaced to reset the service life and improve hydraulics.

6 River Crest Gate

A crest gate adjoining the first rock weir would provide some ability to actively manage the upstream water surface and may offer sediment transport benefits. The design team would evaluate the need and preferred location of this gate through further analysis.

7 Forebay Crest Gate

A gate at the downstream end of the forebay helps regulate the forebay WSE and screen sweeping flow.

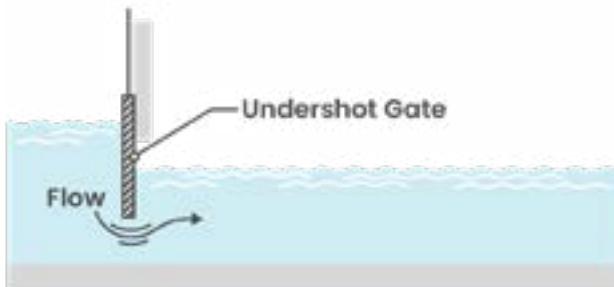
8 Rock Weirs

After removing the west and east dams, a passive rock crest would check the upstream water surface for irrigation diversions. A rock pool-and-weir arrangement (similar to the existing rock weirs) would provide fish passage in the west and east channels. Lowered notches in the weirs would improve sediment continuity, fish passage at low flows, and hydraulic diversity for the variety of species and life stages present.

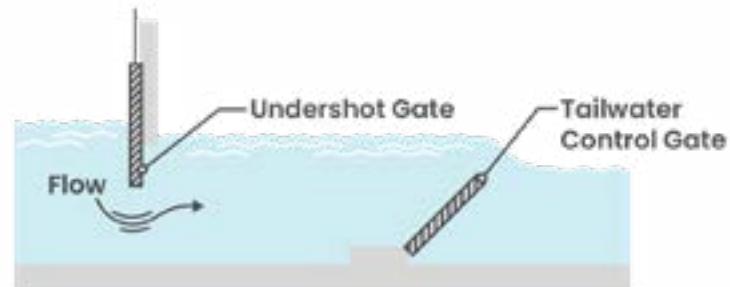
Wapato Headworks Sectional Model Treatments

Model Treatment = Model Condition + Flow Condition

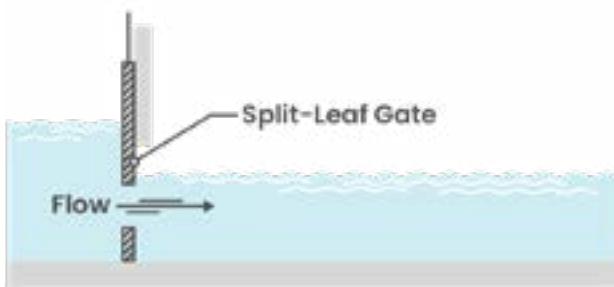
example: Treatment 0A = Model Condition 0 + Flow Condition A



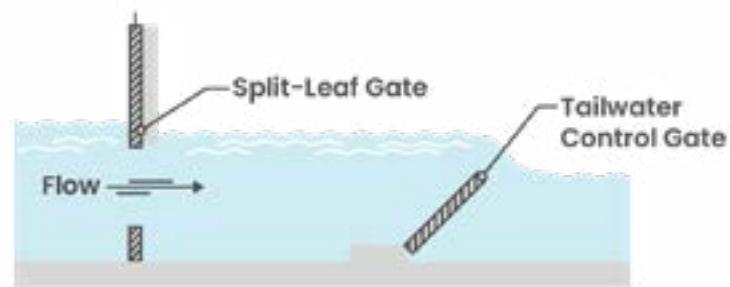
Model Condition 0 (Existing Condition)



Model Condition 1



Model Condition 2



Model Condition 3

Flow Condition A:

- Very high head differential
- Pairs low canal flow with high streamflow
- Representative of April irrigation ramp-up

Flow Condition B:

- High head differential
- Pairs moderate canal flow with moderate streamflow
- Representative of a pulsed May/June streamflow (i.e., freshet) + prorated canal flow
- Also representative of mid-to-late April

Flow Condition C:

- High head differential
- Pairs high canal flow with high streamflow
- Representative of max. May/June canal flow + max. prolonged May/June streamflow



Sectional Model in NHC Lab



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