ASRP Early Action Chehalis Board May 4, 2019

Early Action Project Overview Wynoochee Analysis and Design Process

- What are the impaired processes and how did we document them?
- What is our design approach and how will this translate to on-the-ground work?
- How did we engage with landowners and was this successful?



Wynoochee River Reaches



Upstream Wynoochee RM 14 - 16









Wynoochee River – RM 14 - 16

Wynoochee River – RM 14 - 16

Wynoochee River – RM 14 - 16

Wynoochee River RM 14 – 16 Historical Channel Occupation Zone

ASRP Chehalis Early Action Plan Wynoochee River - RM 14 - Sheet 3 Historical ChankO Locations

o 250 500 1,000 Feet

Historical Channel Locations 2017 2006 1040 2015 1090 2009 1900

Channel Migration Rates by land cover

- Forest Pasture - Tank Armoring Parcels C River Mile (NHD)

Topography: 2017 LIDAR DBM River Miles are from the National Nydrography Dataset Channel locations were digitized from bistorical aerial imagery

Map Channel Erosion and Avulsion Potential

Potential avulsion pathway

Existing Homes

Project this width across the valley to determine high probability erosion hazard areas

Wynoochee River RM 14 – 16 Erosion Risk Analysis

Historical Occupation Zone

High probability erosion hazards

Avulsion Hazard Zone

100 year erosion hazards

RM 14 - 16

2-Year Flood

Existing Homes

RM 14 - 16

10-Year Flood

Existing Homes

Landowner Outreach and Feedback

- Kickoff: GHCD coordinated meetings onsite with each landowner and the technical staff.
- Follow up: Local group meetings to present concepts and allow for neighbors to share concerns and ask questions.
 - Primary feedback:
 - Not typically concerned with flooding except in a few cases (i.e. EF Satsop).
 - Bank erosion and channel avulsion are primary concerns (i.e. loss of productive pasture, structures at risk).
 - Most seemed very comfortable with the Restoration Corridor approach given the erosion and flooding risks.
 - Several want to explore compensation options (i.e. purchase, easement, tax relief).
 - Key to move existing structures to outside of the restoration corridor with willing landowners.

Development of the Reach-Scale Restoration Corridor

Restoration Corridor

Focus on restoring the large wood cycle.

- **Long Term:** Reestablish floodplain forests.
- Immediate: Add engineered log jams to improve habitat and channel stability.
- Restore selfsustaining riverine and floodplain processes and habitats.

Key Elements of Restoration - Engineered Log Jams

- Place in arrays or individually.
- Increase lateral channel stability; maintain a dynamic channel.
- Increase side channel inundation duration.
- Improve and increase pool habitat.
- Create stable forested islands.

Engineered log jam on the Elwha River viewing downstream. Photo taken ~2018 by T. Abbe

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Example of ELJ Construction -Upper Quinault River

Key Elements – Engineered Log Jams

Completed Jam engaged with river channel

During low flow, about 1/3 of ELJs are exposed and 2/3 is buried into river bed

Williams River ELJ As-Built Conditions, 2000

During flood events ELJs were completely submerged.

Williams River during flow submerging structures by 2 m

After numerous floods ELJs are completely intact

Williams River after 6 over-topping flows, November 2002

Hoh River, Washington

Hoh River, Washington

2016: 12 years after construction

N47°46'58.08"

ELJ

ELJ

ELJ

E E

All ELJs are intact and performing as intended

ELJ

State Route 101

Google Earth

Wynoochee River Corridor – Existing Condition

Wynoochee River Corridor – Desired Future Condition

Proposed Conditions 2020-2040

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Miles

Lambert conformal conic projection, NAD 1983 State Plane Coordinate System (WA South Zone

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