

**Underwood Navigation Project:
Using Dredge Sediments to Recreate Diverse Riparian Habitat,
White Salmon River Delta, WA.**



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Yakama Nation Fisheries **Inter-Fluve**

April 17, 2018
2018 Gorge Fisheries & Watershed
Science Conference



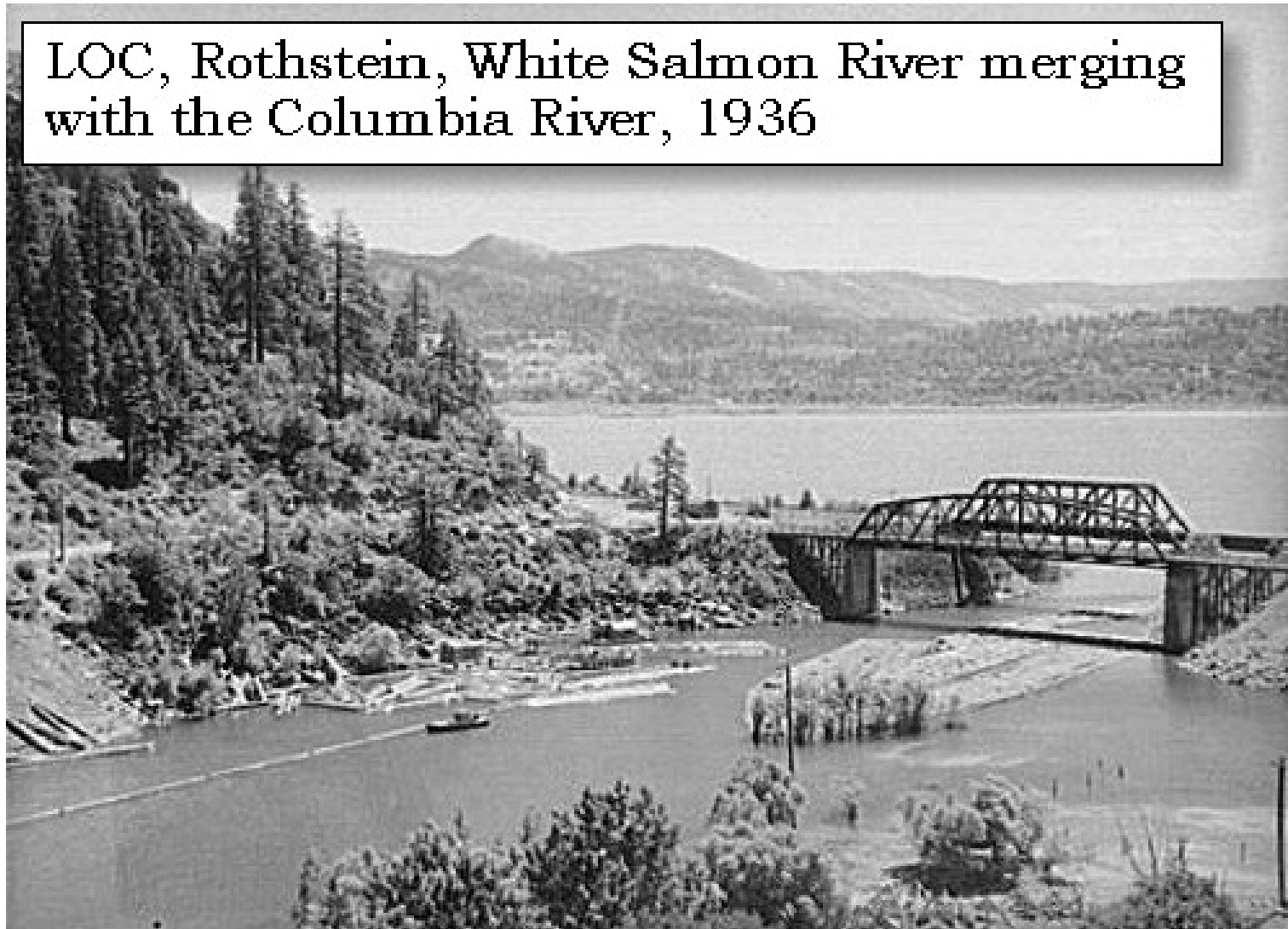
White Salmon Rivers – Pre-Bonneville Conditions



HONOR. PROTECT. RESTORE

White Salmon River – Pre-Bonneville Conditions

LOC, Rothstein, White Salmon River merging
with the Columbia River, 1936



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White Salmon River – 2011 Conditions



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White Salmon River – Condit Dam Breach, October 26, 2011



White Salmon River – Fall 2017 Conditions



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Project Permitting:

- **Skamania County Shorelines**
- **USACE 404**
- **WA. Dept. of Ecology, Sec. 401**
- **NOAA & USFWS, Sec. 7 Consultation**



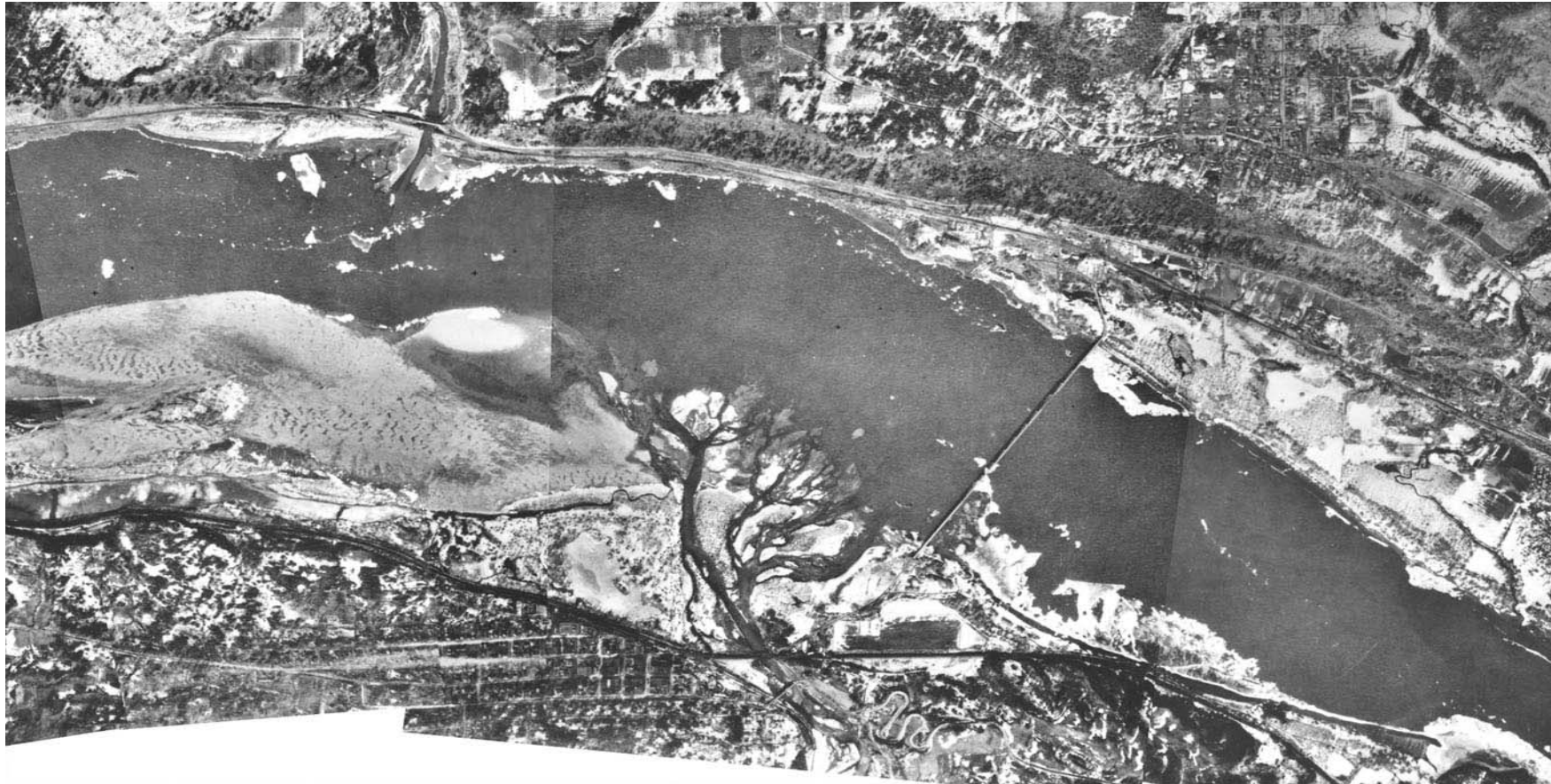
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Project Design:



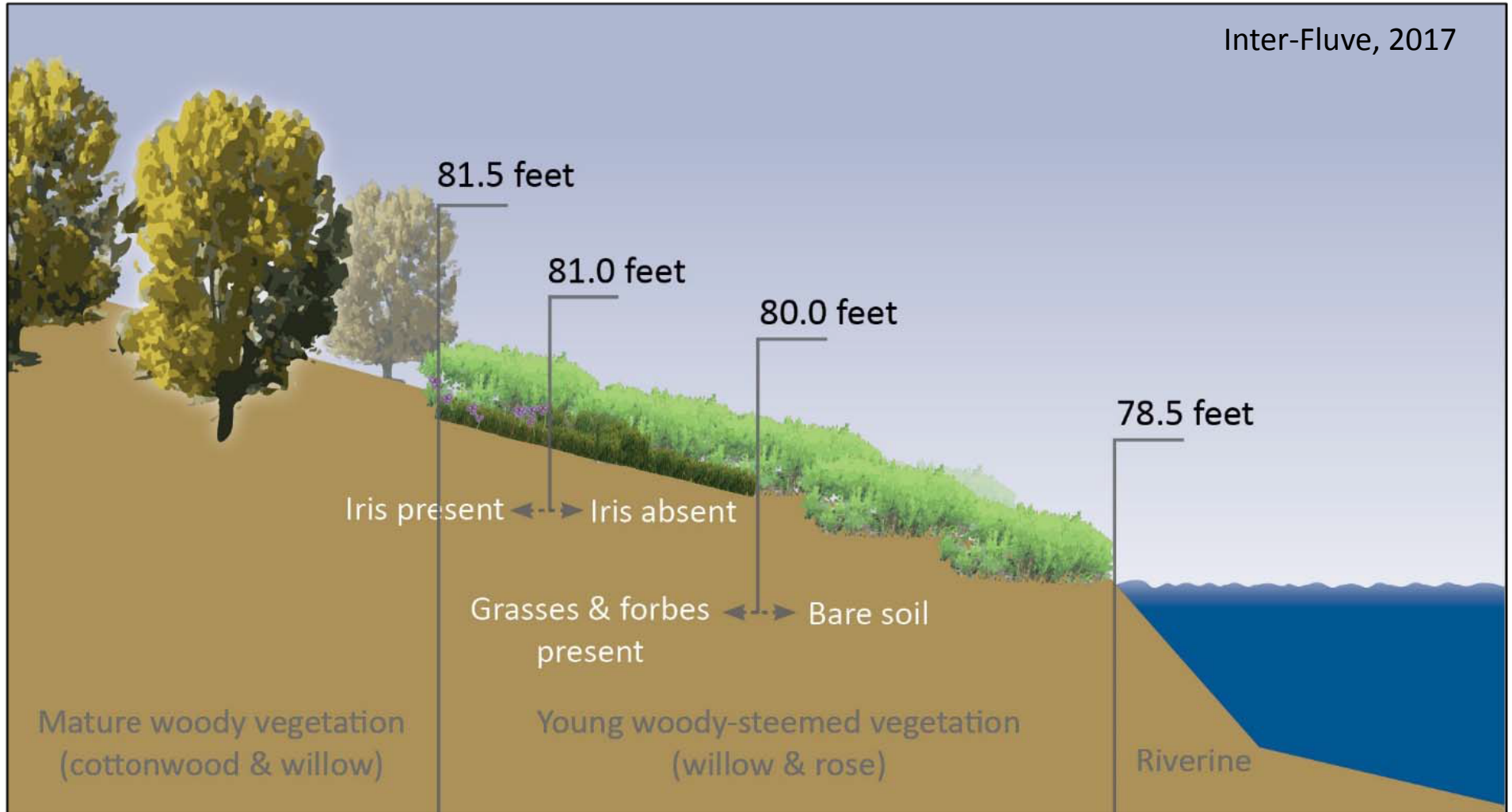
10/30/2017

Hood and White Salmon Rivers – Pre-Bonneville Conditions

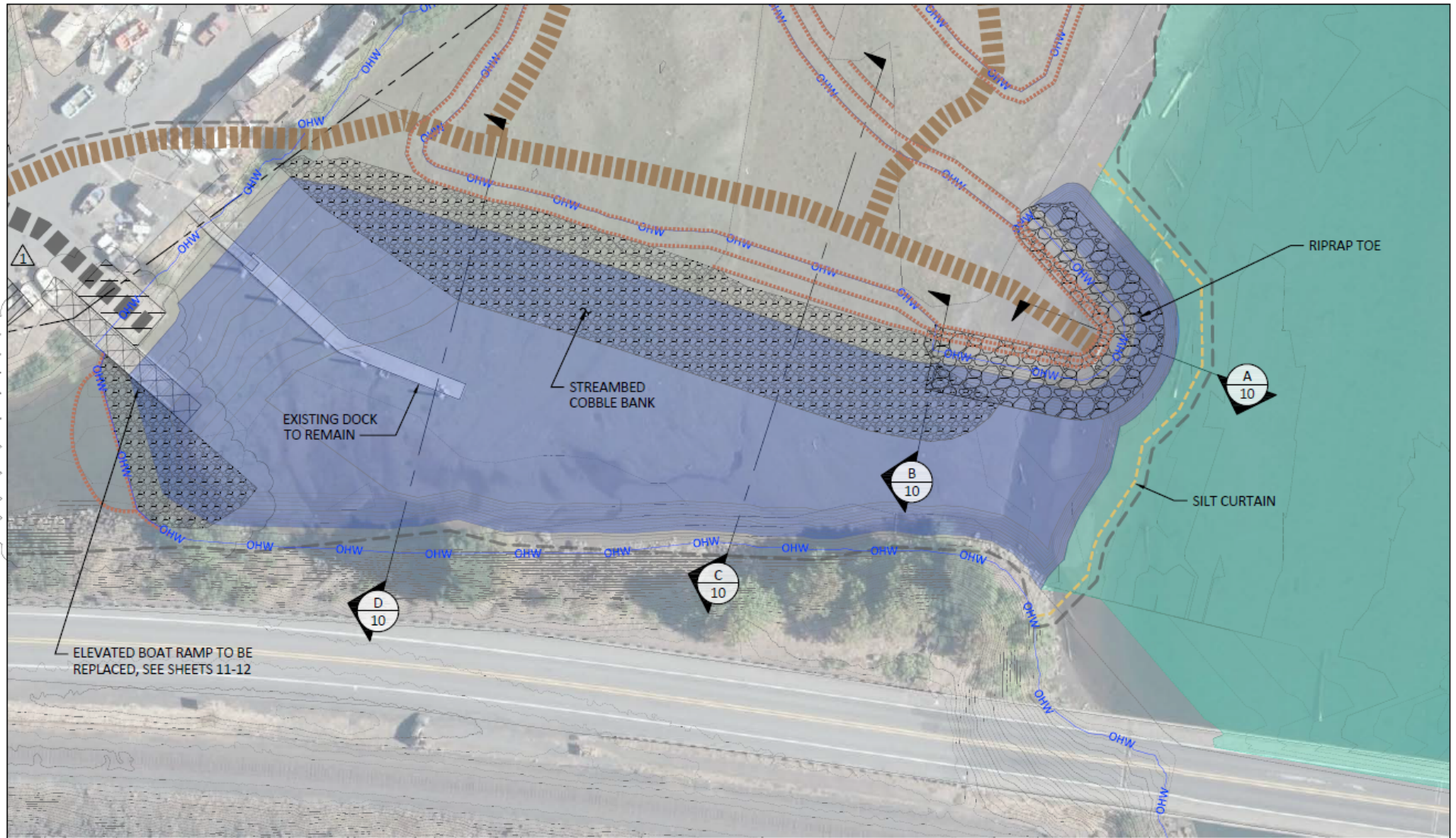


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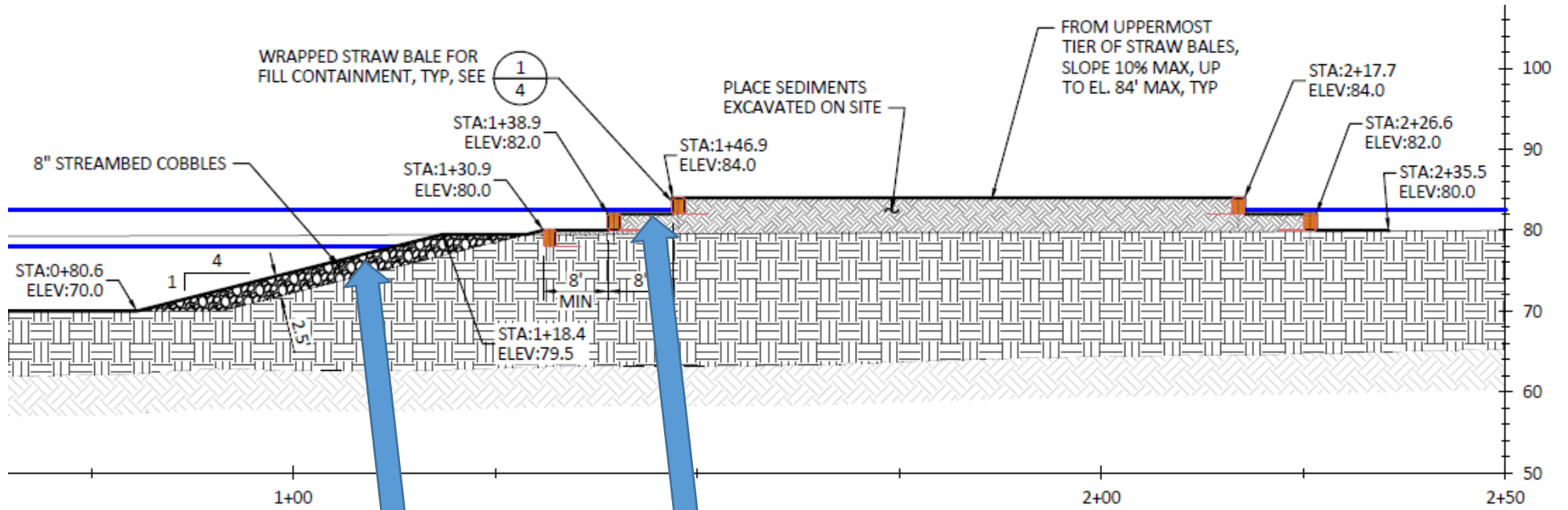
Riparian Island Restoration:



Navigation Channel & Banks:



Navigation Channel & Banks:







Navigation Channel & Banks:

- **Navigation Channel: 15,400 cy**
- **Riparian Island Restoration: 5.3 acres**
- **Streambed Cobble Bank Construction**
- **Rock protection**
- **Boat Ramp Improvement**



Photo Date: 1/20/2018



Photo: D. Lindley – Yakama Nation

Photo Date: 3/1/2018



Photo: D. Lindley – Yakama Nation



Photo Date: 2/13/2018

Photo: D. Lindley – Yakama Nation

Photo Date: 3/6/2018



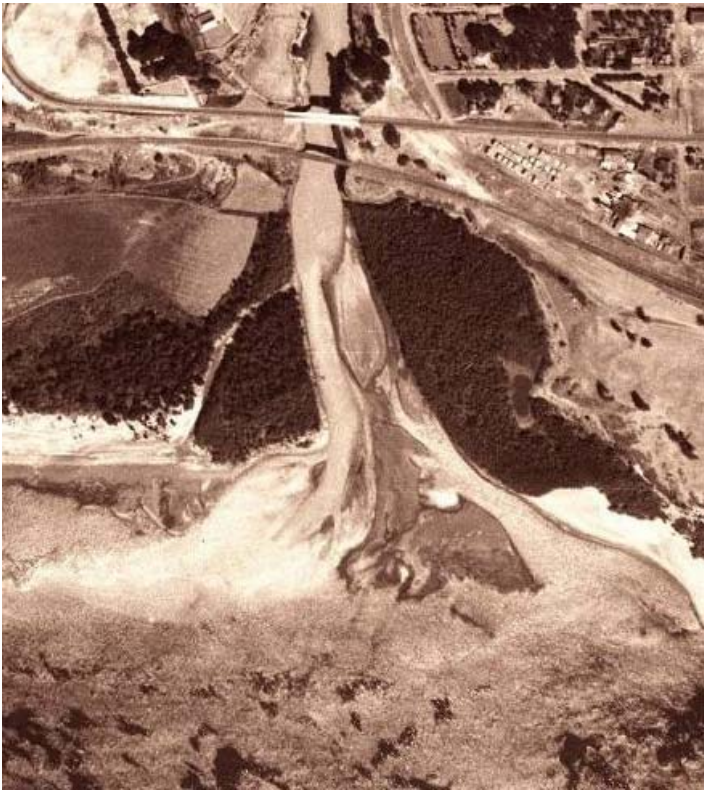
Photo: D. Lindley – Yakama Nation

Photo Date: 4/11/2018



Photo: D. Lindley – Yakama Nation

Klickitat River – Pre-Bonneville & Current Conditions



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Questions?





Navigation Channel & Banks:

