

Gold Creek Valley Restoration



Washington



Seattle

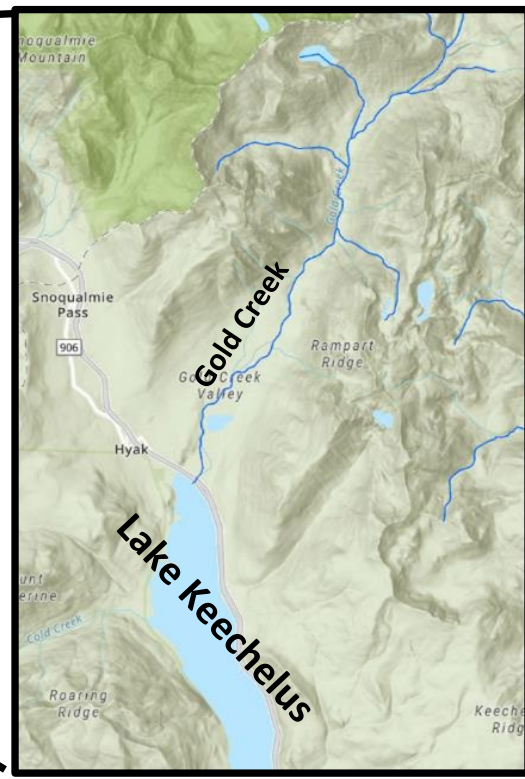
Spokane

Yakima

Portland

Gold Creek

WRIA 39, Upper Yakima
River Watershed

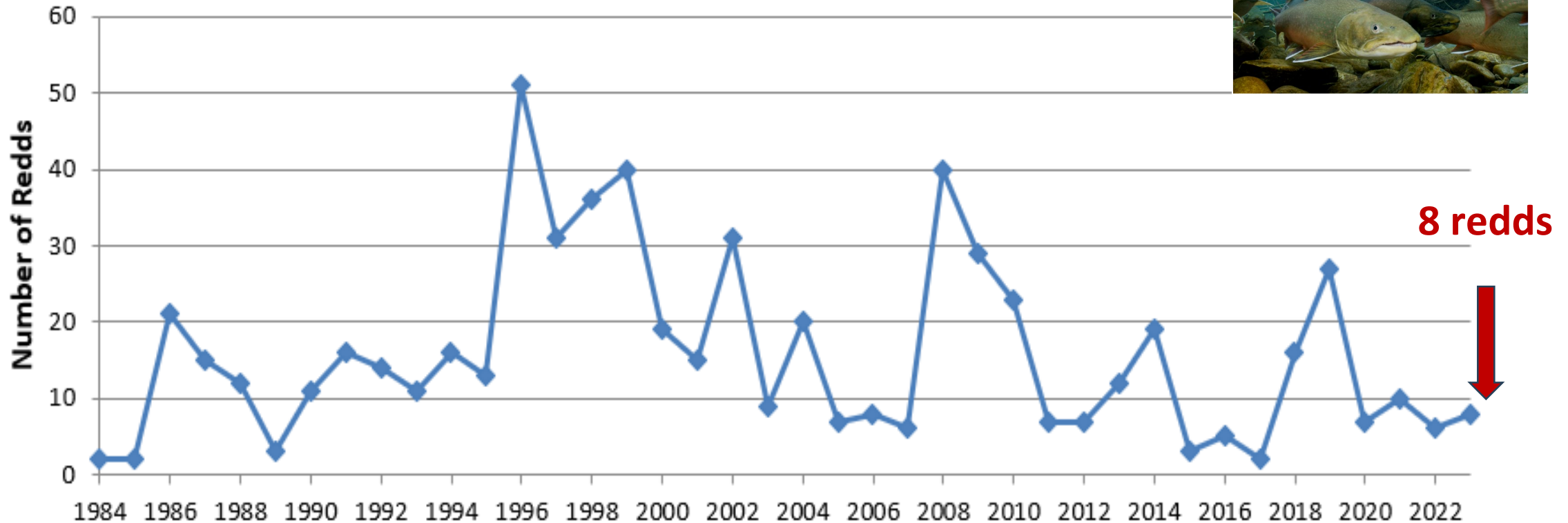


Gold Creek Bull Trout

*Federally Threatened
WA State Endangered*

*Estimated 50 adult
spawners left*

Gold Creek Bull Trout Annual Redd Counts 1984-2023



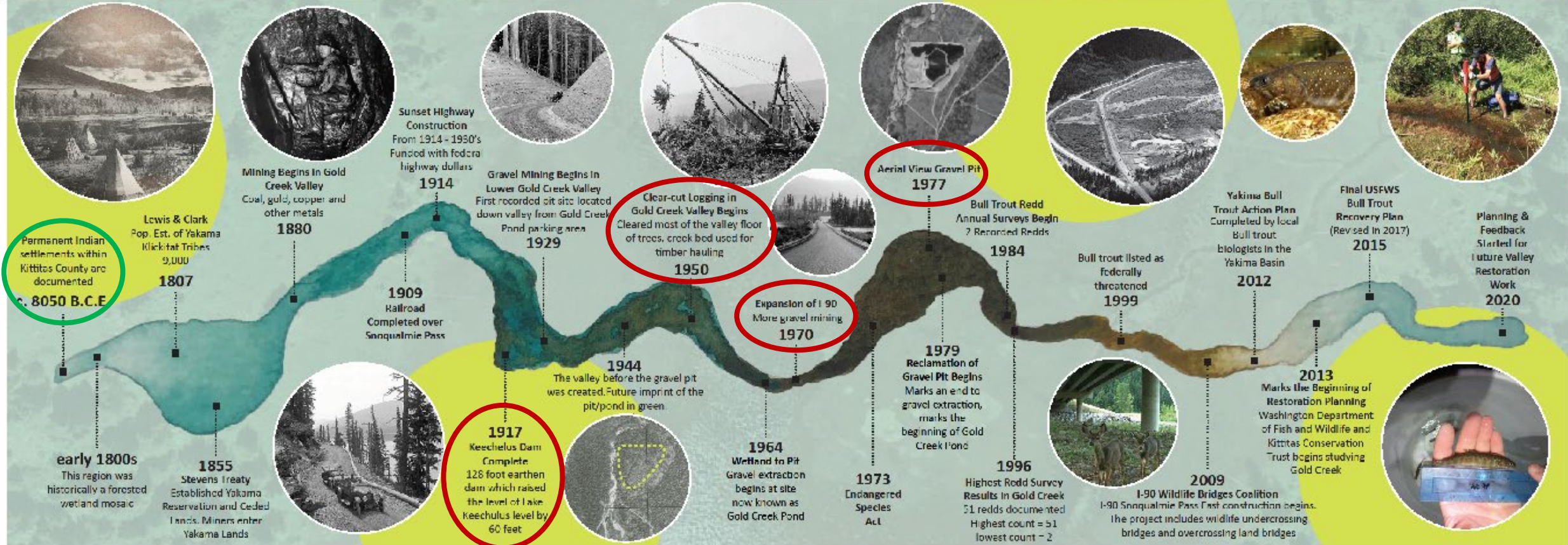


Ebb, Flow and Excavation

A Timeline of Events and Disturbances at Gold Creek Valley

The creation of the reservoir removed the creek's delta and miles of critical habitat. Timber harvest removed wood in the streams and led to the formation of an overly wide creek. In need, multiple pits were excavated in Gold Creek Valley lowering the water table until reclaimed. Initially when Gold Creek Pond formed, the area was considered restored. However, years of work and research now show that problems from these impacts persist can be addressed with more active forms of restoration.

Westward Expansion → Early Impacts → Continued Development → Age of Diagnosis and Healing

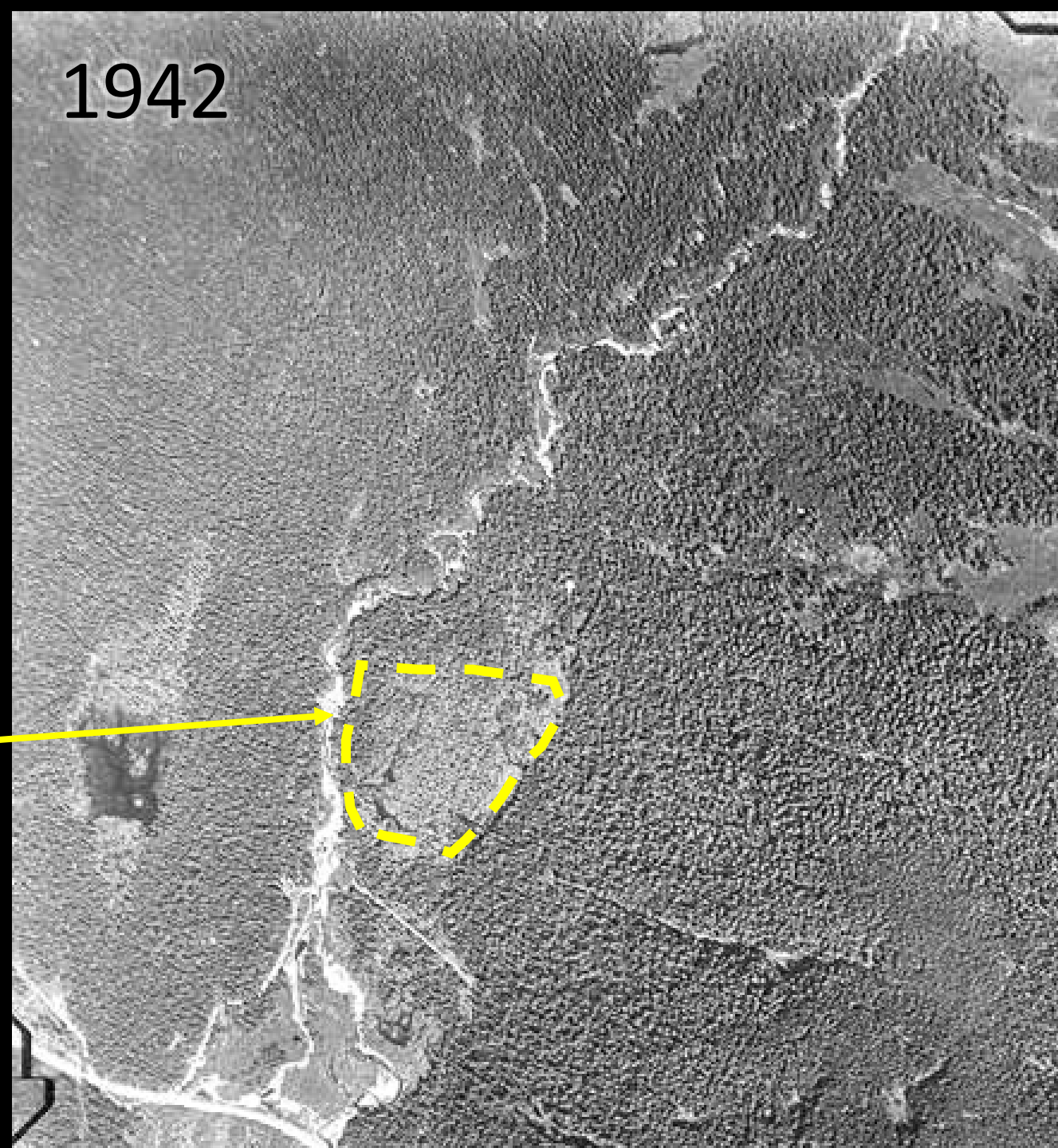


Historical Background

NO SIGNIFICANT LOGGING

Future site of large gravel borrow pit

1942

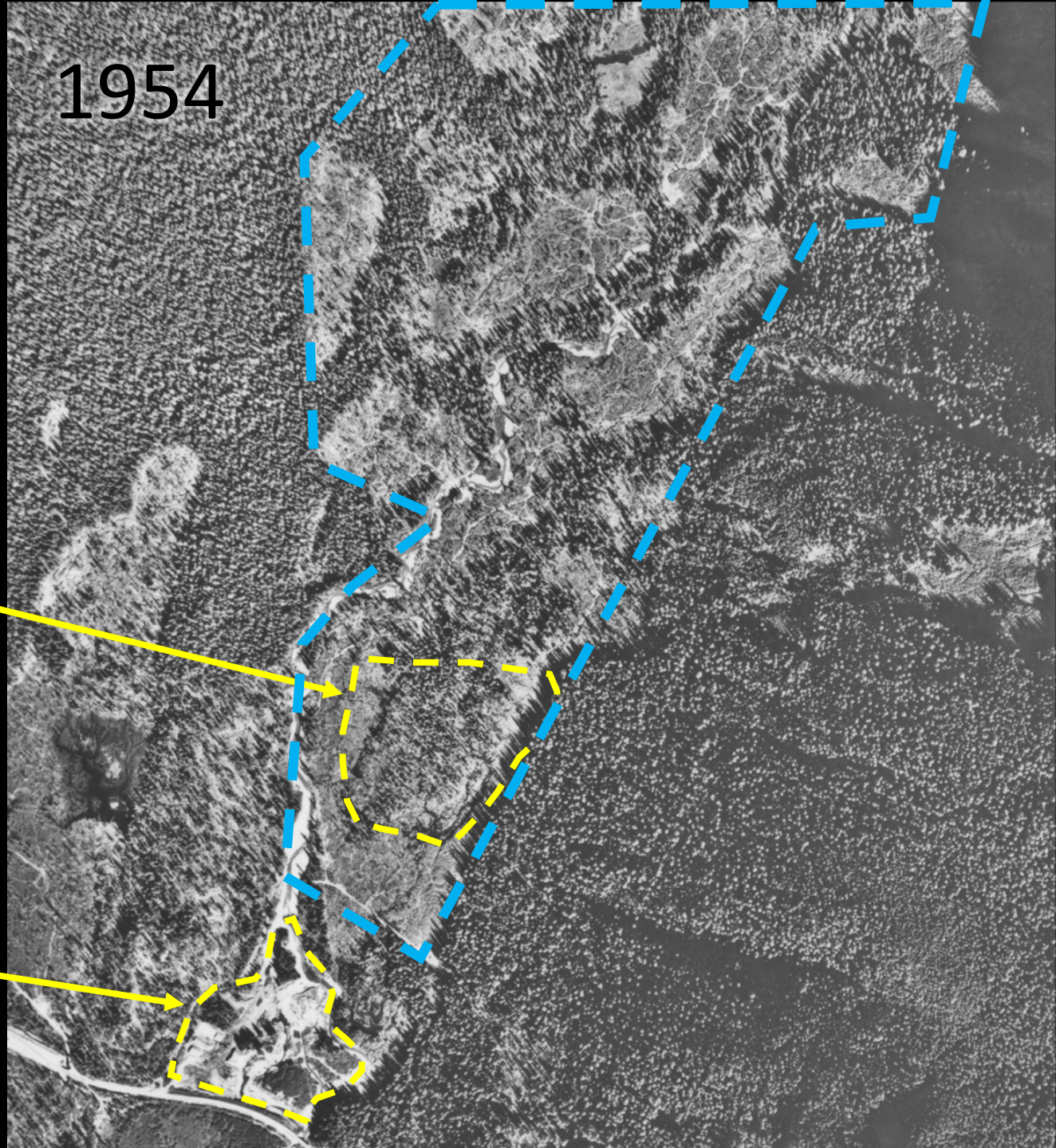


Significant early logging along creek

Future site of large gravel borrow pit

Initial State Highway gravel mining

1954



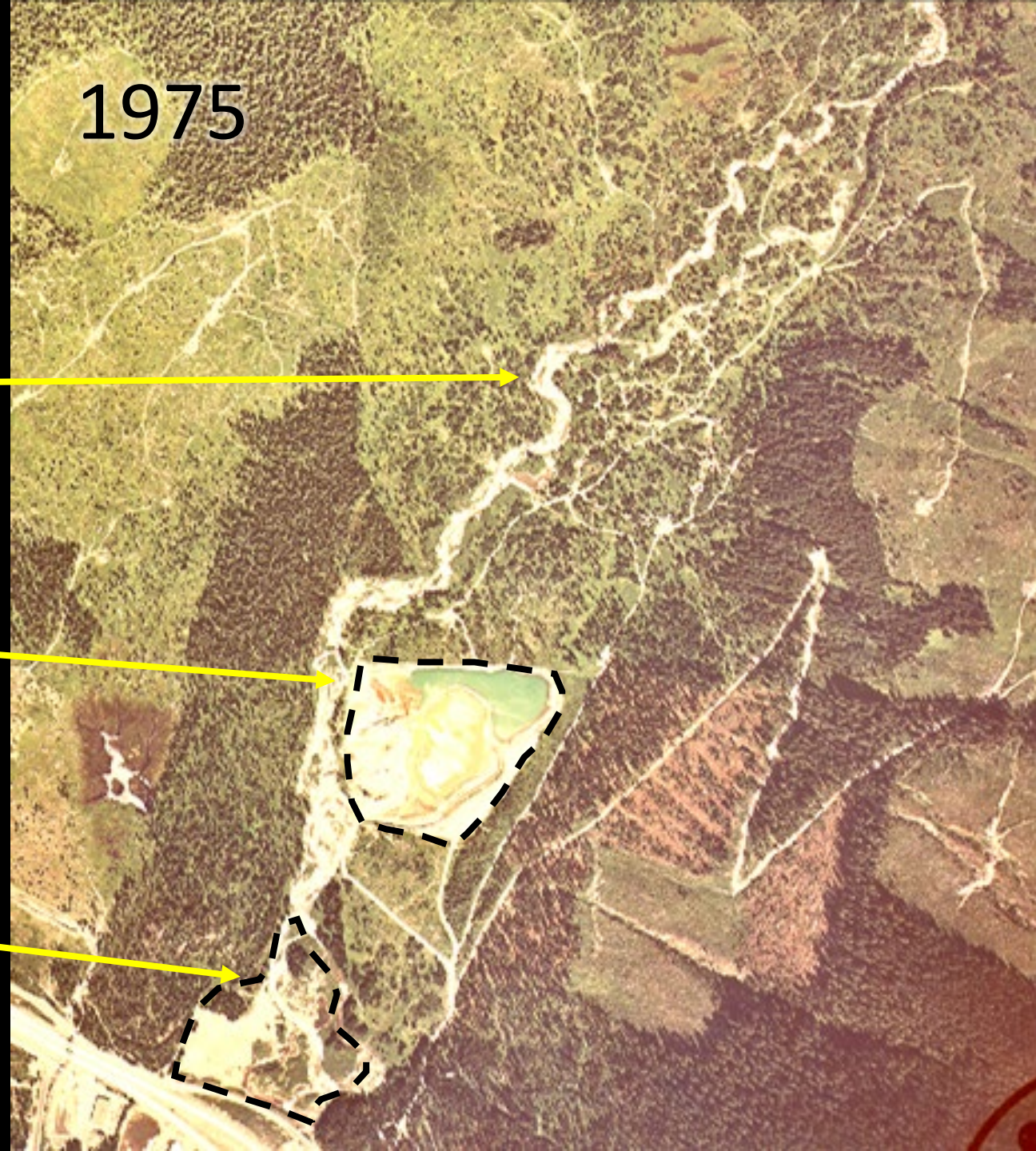
Extensive logging and road development

Gold Creek widening

Large gravel borrow pit

Initial State Highway gravel mining

1975



1986

616170

1085 228

Extensive logging and road development

Gold Creek over widened
Today it is 90% wider than in 1944

Large Gravel Borrow Pit
750,000 cubic yards

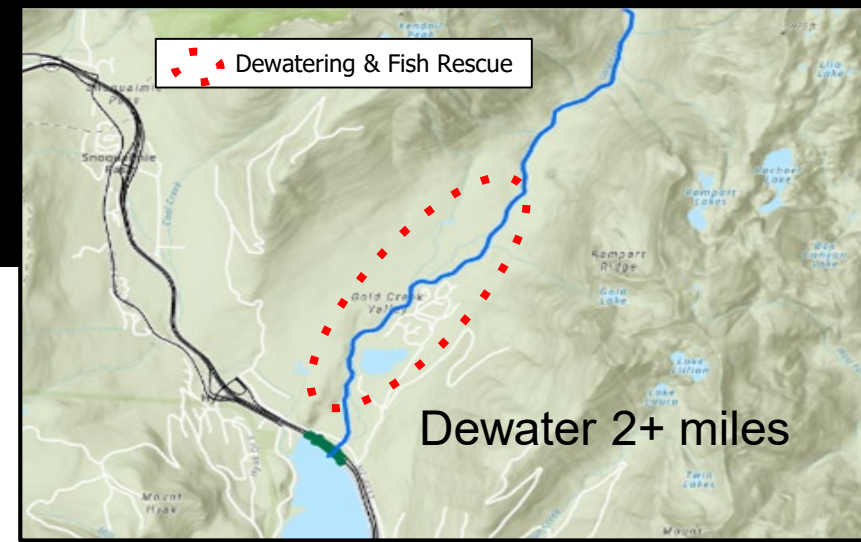
Limiting Factors for Bull Trout:



- Over widened channel
- Single thread channel
- Lack of instream habitat complexity
- Disconnected floodplain
- Channel seasonally dewater



Annual dewatering

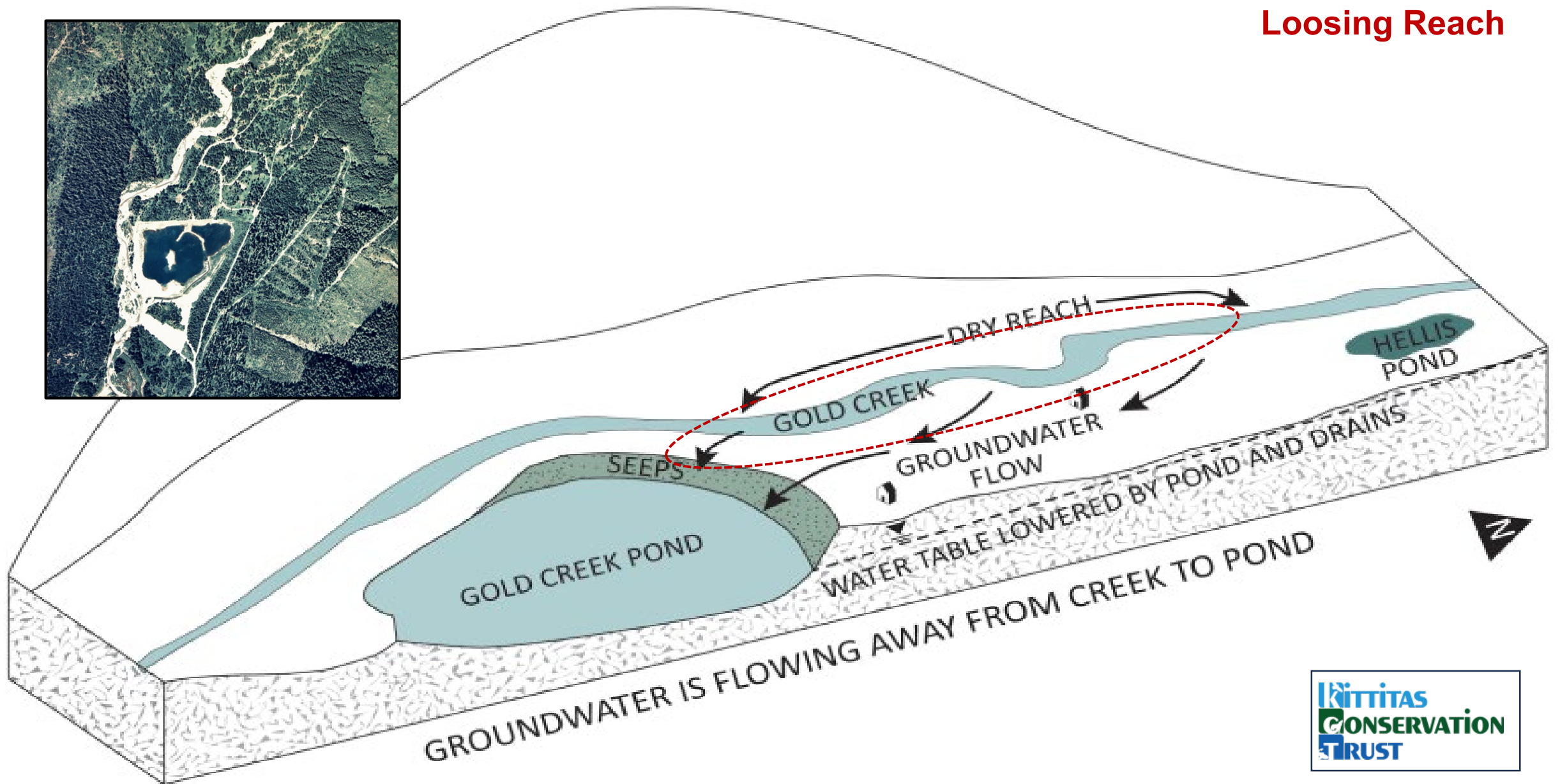


Fish passage barrier for spawning Bull Trout

Stranded adults and juveniles

Existing Conditions: Pond = 80% of floodplain

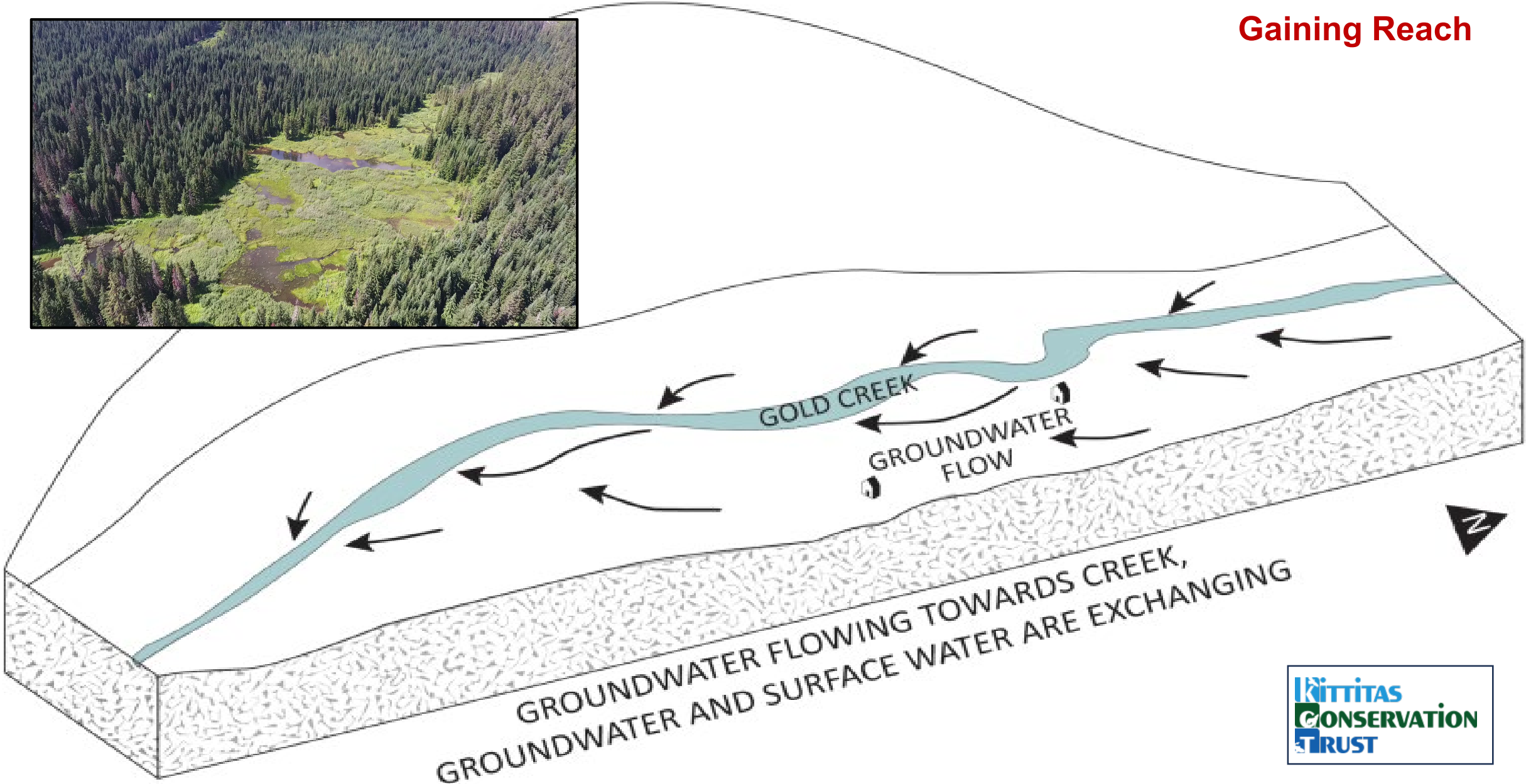
Loosing Reach



Natural Forested Wetland



Gaining Reach



FOUR RECOVERY PLANS -HIGH PRIORITY-



YAKIMA BASIN INTEGRATED PLAN

YAKIMA BASIN INTEGRATED PLAN: Bull Trout 10-year Plan for 2023–2033

In 2009, the U.S. Bureau of Reclamation (Reclamation) and the Washington Department of Ecology convened the Yakima River Basin Water Enhancement Project to thoroughly review studies and information produced over the past several years to formulate a comprehensive and integrated solution for the Yakima River Basin's problems and ecosystem restoration needs. Fish habitat enhancement projects were included in the preliminary Yakima Basin Integrated Plan (YBIP). Seven elements to include in the preliminary YBIP were developed by seven subcommittees. The Habitat Subcommittee was convened to provide input on the proposed YBIP and to develop the final YBIP. The fish Habitat Subcommittee was formed to coordinate and develop salmon, steelhead, and bull trout habitat restoration efforts. The Habitat Subcommittee considers many potential projects for multiple purposes, including fish passage, riparian support, partnership coordination, and technical assistance. The Habitat Subcommittee provides technical review of YBIP actions that have a positive or negative impact on bull trout.

This 10-year plan has the following purposes:

- Guide development of the state YBIP budget requests and the federal YBIP budget requests and allocations for restoration
- Serve as a vehicle for commitments by Reclamation and other agencies, Ecology and the Irrigation districts in Reclamation's bull trout habitat restoration

This 10-year plan is a living document, and the Habitat Subcommittee will make modifications to the plan prior to the development of the final YBIP. The Habitat Subcommittee works with project managers in the basin to coordinate projects and their benefits and cost estimates. This project tracks future projects are identified and considered by the Habitat Subcommittee.

This 10-year plan is intended to inform and provide synergy with other funding sources such as Salmon Recovery Funding Board (SRFB), Floodplains by Design, and Army Corps of Engineers funding, and a variety of other state and federal funding sources.

A key YBIP goal is to improve fisheries productivity. Enhancing and restoring population strongholds are critical to achieving the fisheries goals of the YBIP. Restoration of native fish populations such that these populations are harvestable. Reaching this goal is intended to be, and only can be, achieved through multiple elements of the YBIP, such as fish passage at reservoir dams, riparian habitat restoration, and structural and operational modifications at water management facilities. The interconnected nature of the projects and subcommittees, the benefits of these projects are synergistic and cumulative. The YBIP's habitat plan is a healthy, self-sustaining, and harvestable goal. This document outlines the actions the Habitat Subcommittee will accomplish from 2023–2033.

The Habitat Subcommittee has developed this updated 10-year plan to coordinate and to set the subcommittee up for successful budgeting.

U.S. Fish & Wildlife Service

Mid-Columbia Recovery Unit Implementation Plan for Bull Trout

(Salvelinus confluentus)



Above: Bull trout pair; Left: Bull trout habitat in Lostine River, Oregon; Photograph: Mary Edwards

Bull Trout Enhancement Kachess Drought Relief Pumping Plant and Keechelus-To-Kachess Conveyance Kittitas and Yakima Counties, Washington

A Component of the Yakima River Basin
Integrated Water Resource Management Plan

IMMEDIATE ACTION

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Columbia-Cascades Area Office
Yakima, Washington

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY
State of Washington
Department of Ecology
Office of Columbia River
Yakima, Washington

December

Yakima Bull Trout Action Plan

Final
September 2012

Yakima Bull Trout Action Plan
2017 Action Update

Narrow Channel Width

Instream and floodplain Habitat Restoration

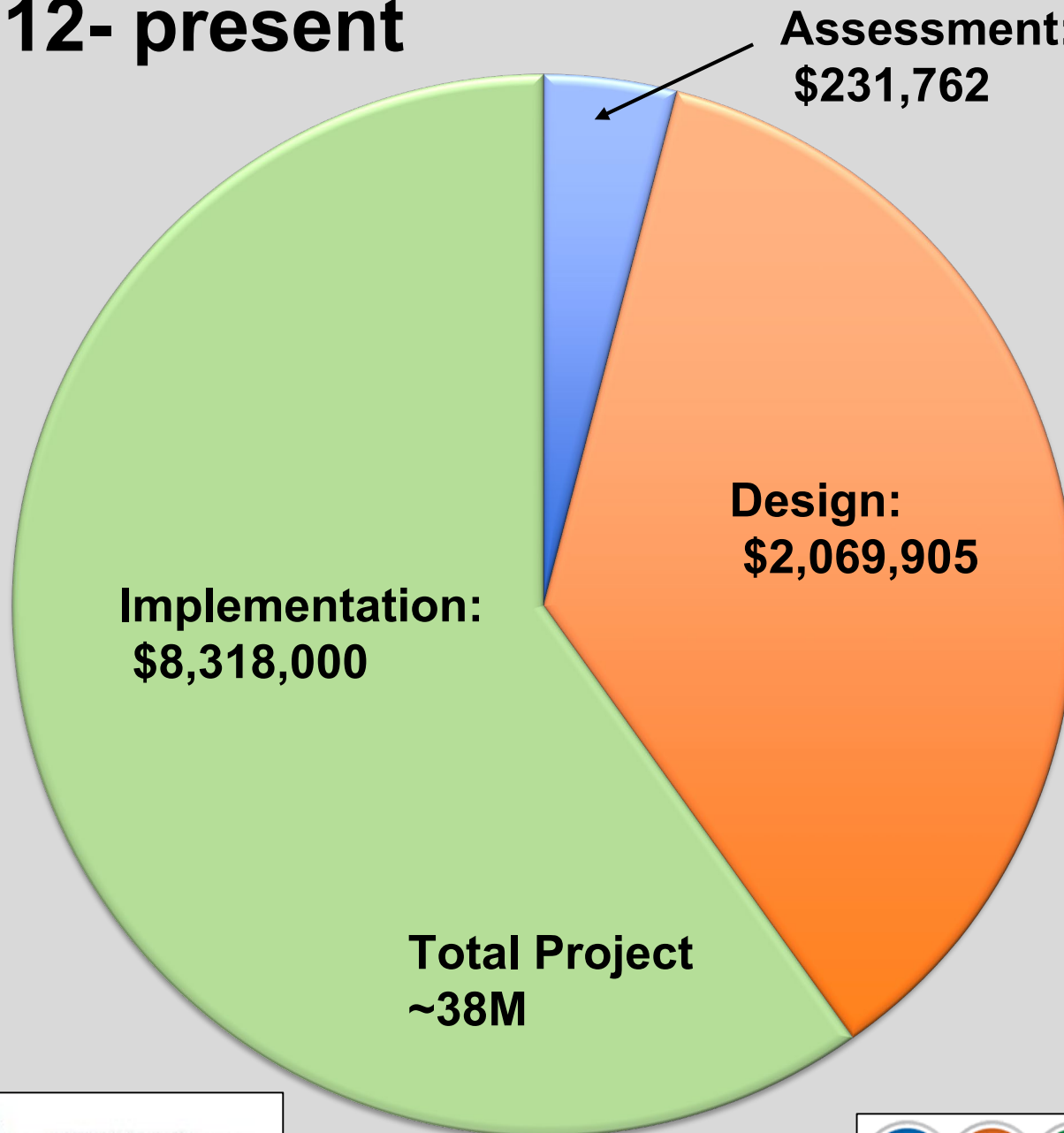
Restore Groundwater Hydrology

Reconfigure the large pit size

Fill the small pit

Investments 2012- present

\$10,619,667



Goals and Objectives

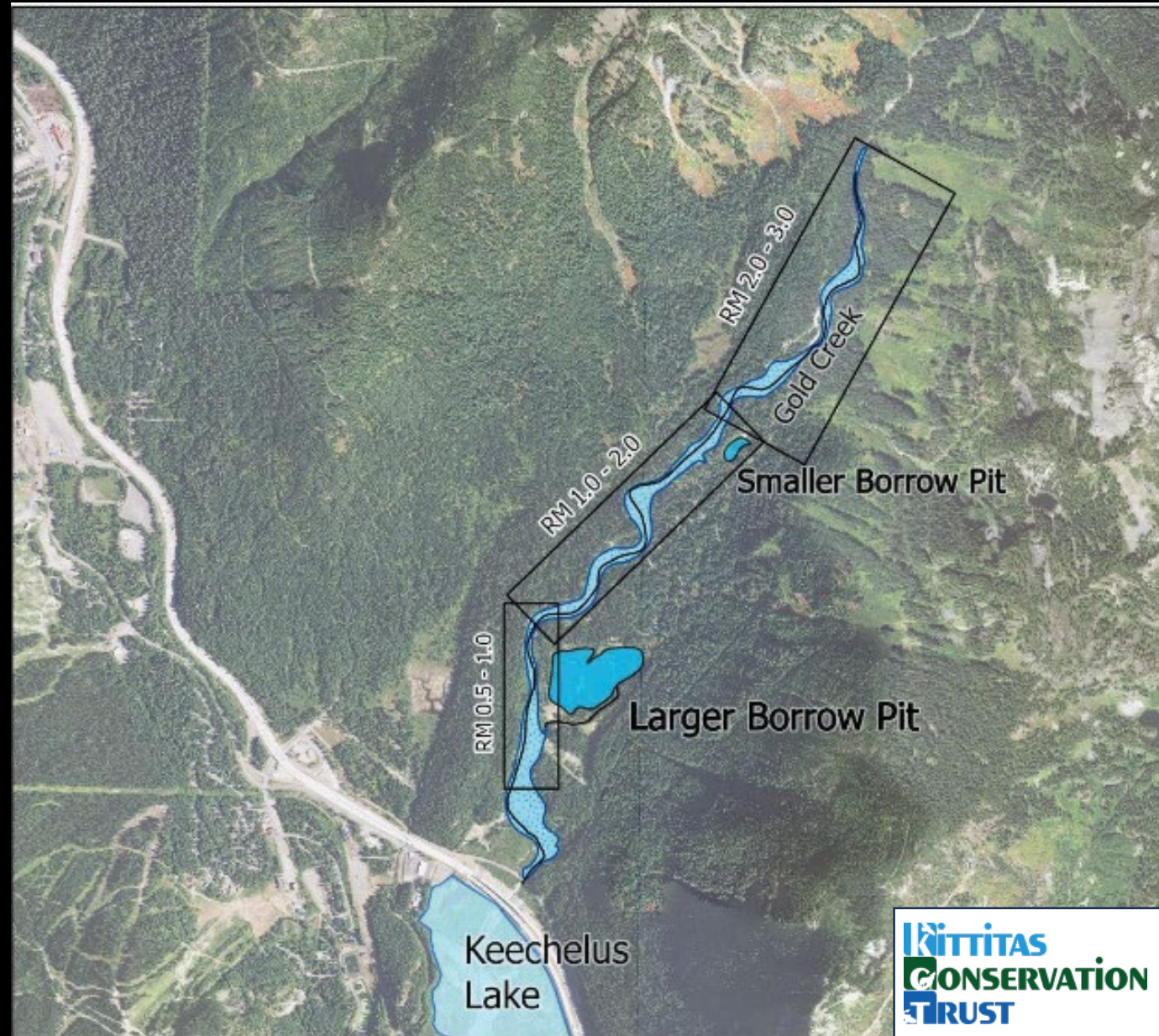


To reduce the extent and duration of dewatering & add habitat complexity

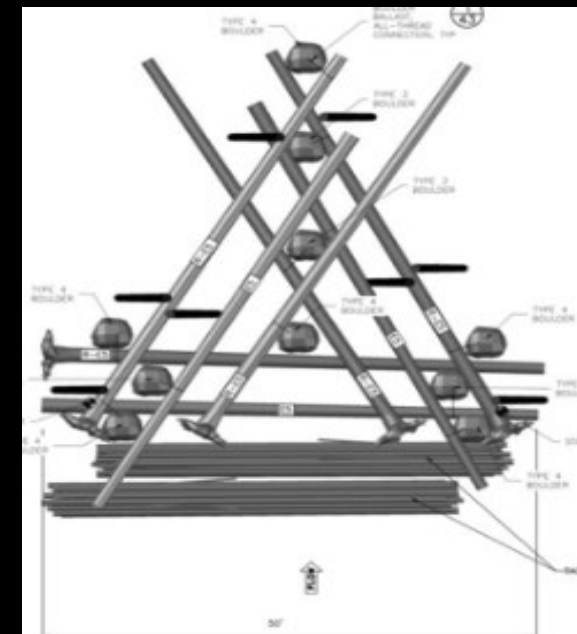
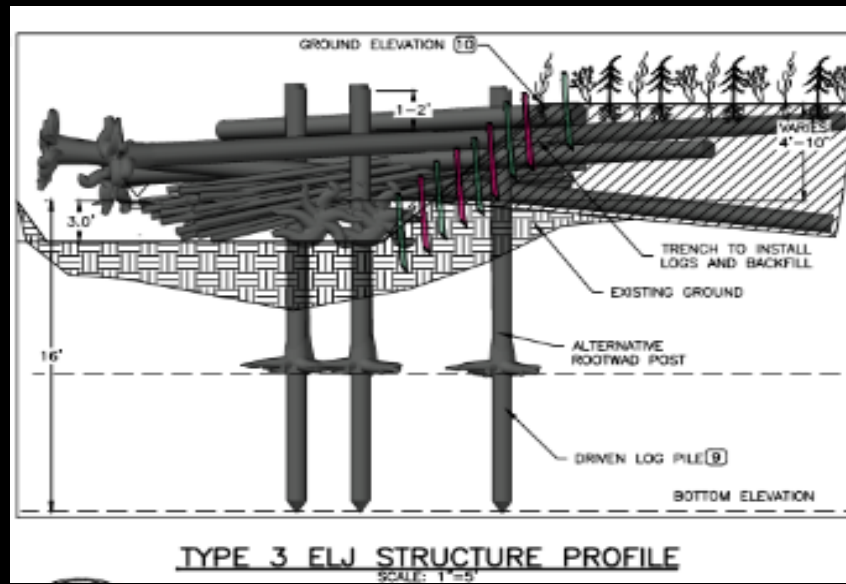
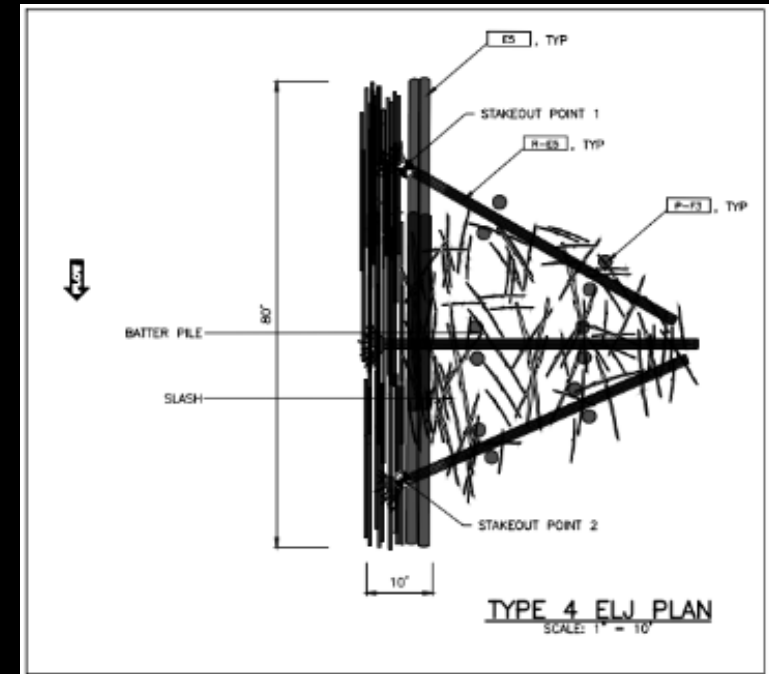
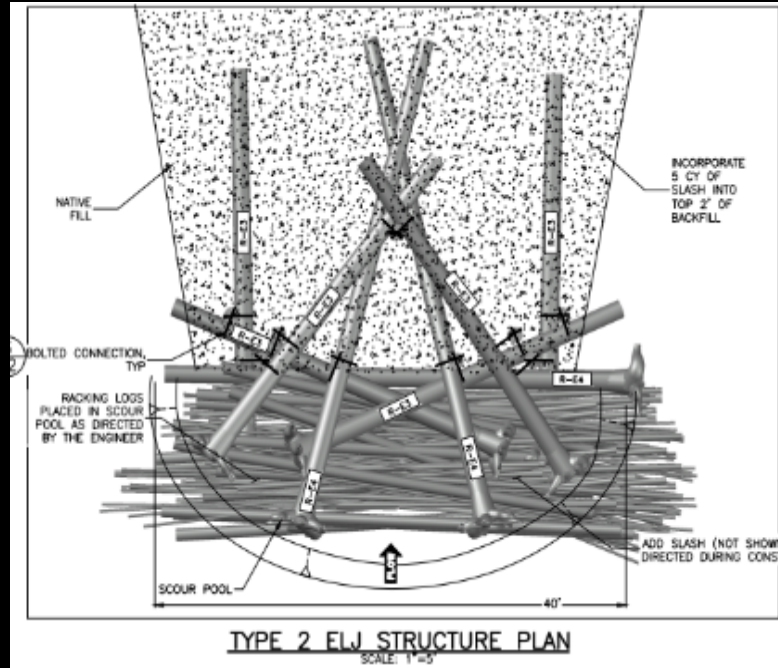
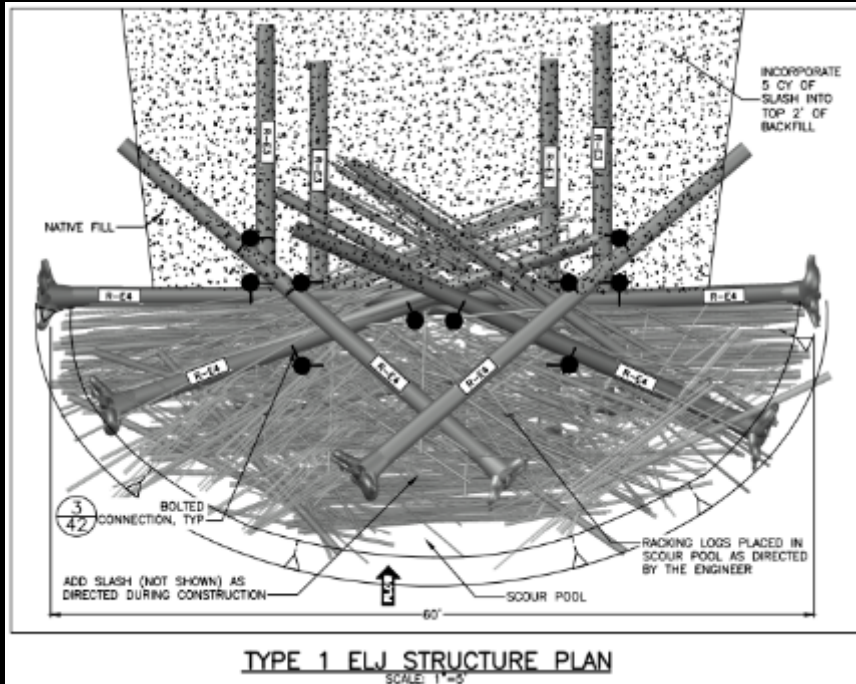
- 1) Restore historic channel width**
- 2) Increase instream habitat complexity**
- 3) Restore natural flow to Gold Creek**
- 4) Restore historic borrow pits to naturally functioning wetlands**
- 5) Restore native plant community**

Restoration Approach

1. RM 2-3
 - 28 ELJs (helicopter)
2. RM 0.5-2
 - 113 ELJs
 - 1.4 miles of side channels
 - Reveg
3. Partially small borrow pit
4. Partially fill large borrow pit
 - Reveg



Engineered Log Structures



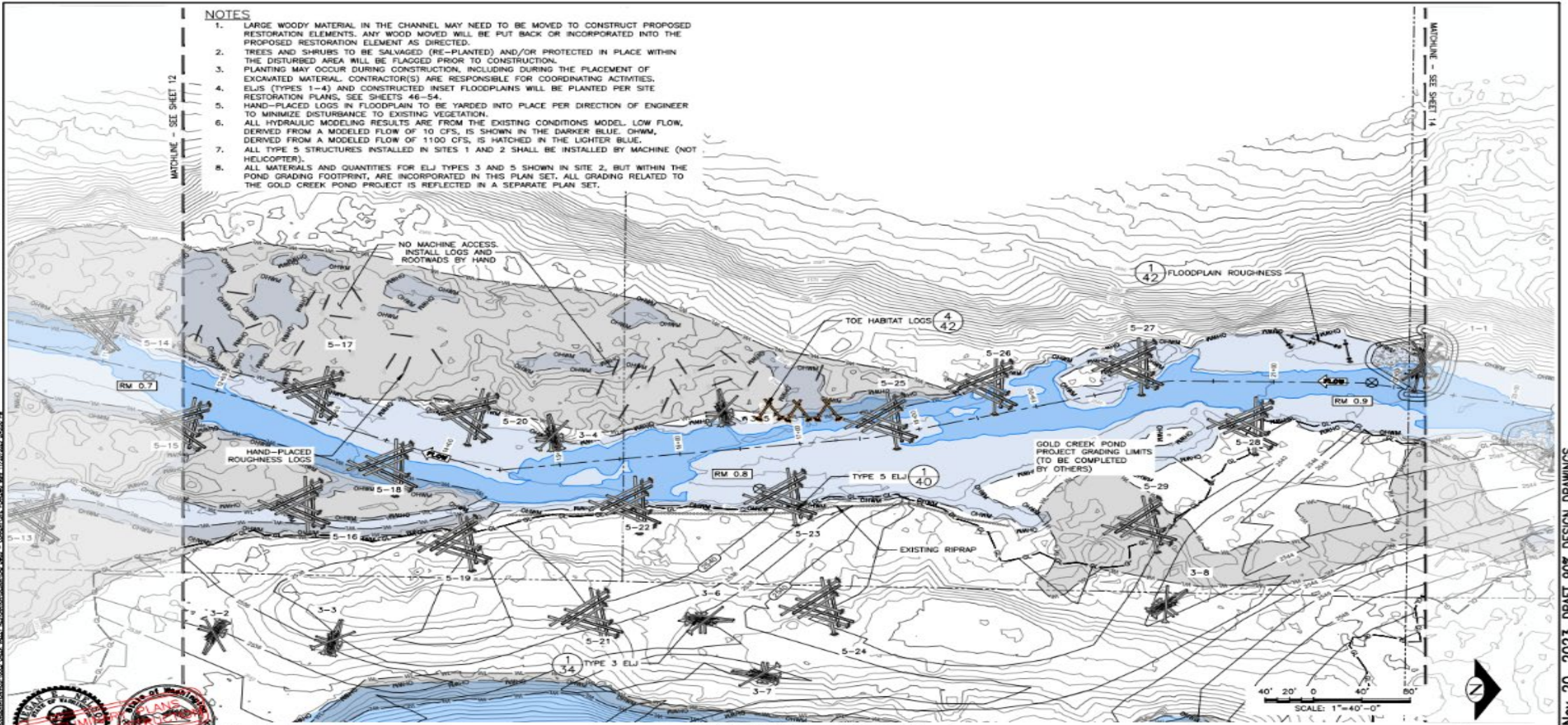
Simplified Channel / Wood Deficient



Complex Channel = Pools/ Wood

NOTES

1. LARGE WOODY MATERIAL IN THE CHANNEL MAY NEED TO BE MOVED TO CONSTRUCT PROPOSED RESTORATION ELEMENTS. ANY WOOD MOVED WILL BE PUT BACK OR INCORPORATED INTO THE PROPOSED RESTORATION ELEMENT AS DIRECTED.
2. TREES AND SHRUBS TO BE SALVAGED (RE-PLANTED) AND/OR PROTECTED IN PLACE WITHIN THE DISTURBED AREA WILL BE FLAGGED PRIOR TO CONSTRUCTION.
3. PLANTING MAY OCCUR DURING CONSTRUCTION, INCLUDING DURING THE PLACEMENT OF EXCAVATED MATERIAL. CONTRACTOR(S) ARE RESPONSIBLE FOR COORDINATING ACTIVITIES.
4. ELJS (TYPES 1-4) AND CONSTRUCTED INSET FLOODPLAINS WILL BE PLANTED PER SITE RESTORATION PLANS. SEE SHEETS 46-54.
5. HAND-PLACED LOGS IN FLOODPLAIN TO BE YARDED INTO PLACE PER DIRECTION OF ENGINEER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION.
6. ALL HYDRAULIC MODELING RESULTS ARE FROM THE EXISTING CONDITIONS MODEL. LOW FLOW, DERIVED FROM A MODELED FLOW OF 10 CFS, IS SHOWN IN THE DARKER BLUE. OHWM, DERIVED FROM A MODELED FLOW OF 1100 CFS, IS HATCHED IN THE LIGHTER BLUE.
7. ALL TYPE 5 STRUCTURES INSTALLED IN SITES 1 AND 2 SHALL BE INSTALLED BY MACHINE (NOT HELICOPTER).
8. ALL MATERIALS AND QUANTITIES FOR ELJ TYPES 3 AND 5 SHOWN IN SITE 2, BUT WITHIN THE POND GRADING FOOTPRINT, ARE INCORPORATED IN THIS PLAN SET. ALL GRADING RELATED TO THE GOLD CREEK POND PROJECT IS REFLECTED IN A SEPARATE PLAN SET.



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE	
DESIGNED	MS, TS, MS, MS
CHECKED	TS, MS, MS
DESIGNED	EL, MS, MS, MS, MS, MS, MS
CHECKED	MS, MS, MS

GEOGRAPHIC INFORMATION	
LATITUDE	47° 54' 22.80"N
LONGITUDE	122° 36' 31.11"W
TWNSHIP	22N/03E/15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0
COUNTY	SEASIDE

GOLD CREEK RM 0.5-3
INSTREAM RESTORATION

PROPOSED CONDITIONS -
SITE 2

13
SHEET 13 of 58

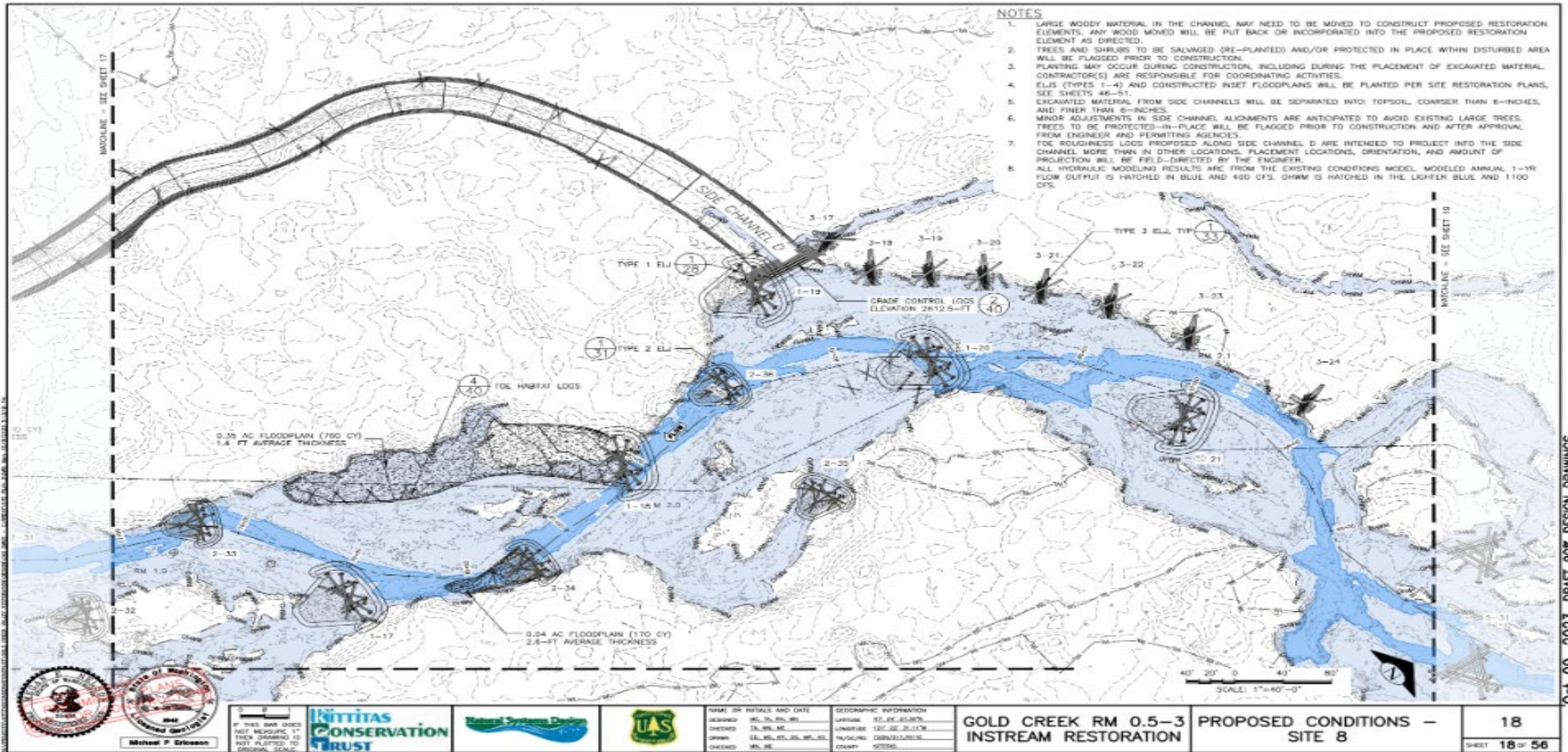
Single Thread Channel



Gold Creek

Gold Creek

Side Channels = Off Channel Habitat



Open Water Pit Siphoning Groundwater



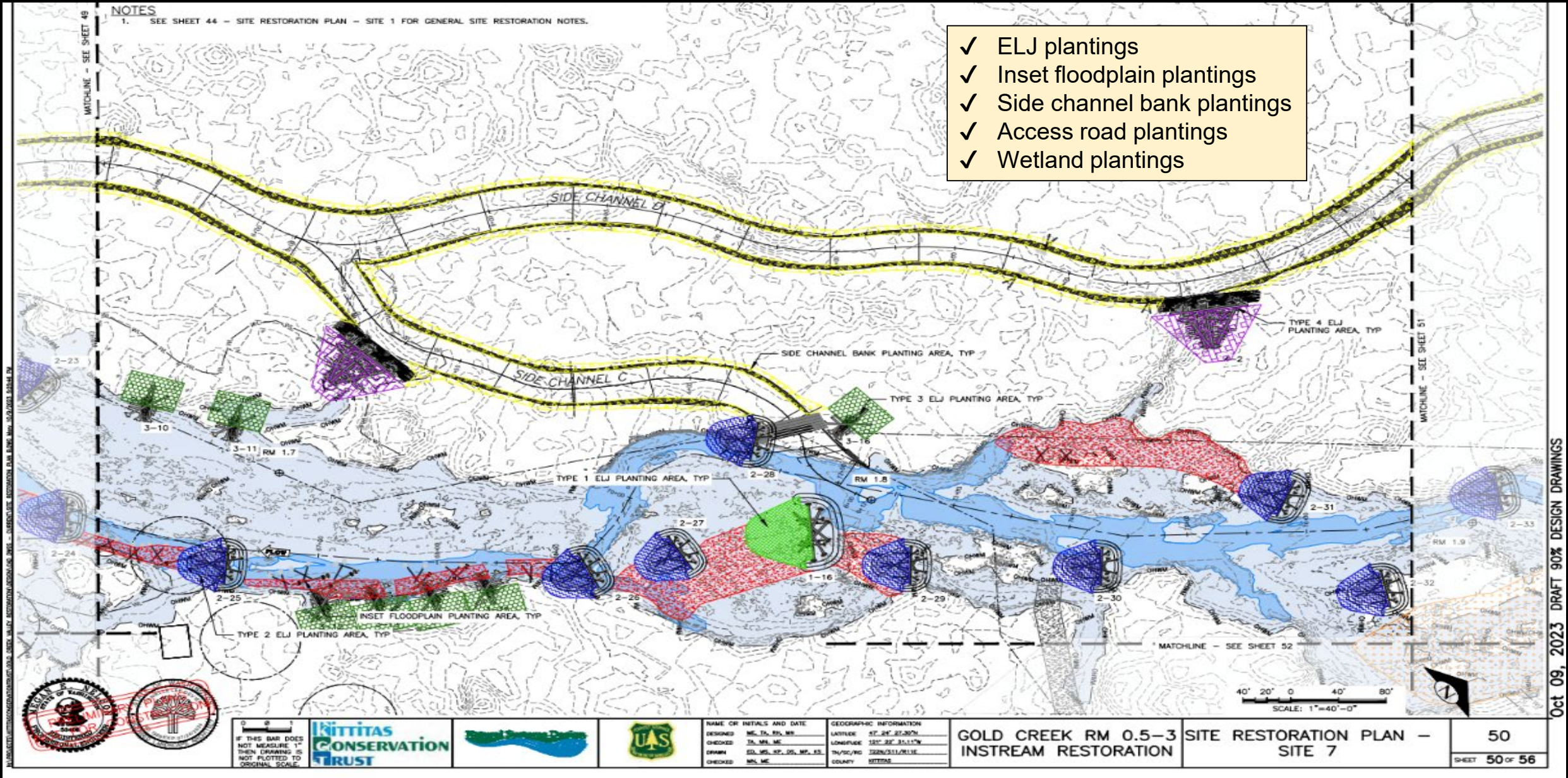
Forested Wetland Storing Groundwater



Lack of Shade and Large Wood Recruitment



Enhanced Riparian Vegetation



Oct 09, 2023 DRAFT 90% DESIGN DRAWINGS



Habitat Transformation



From this to this





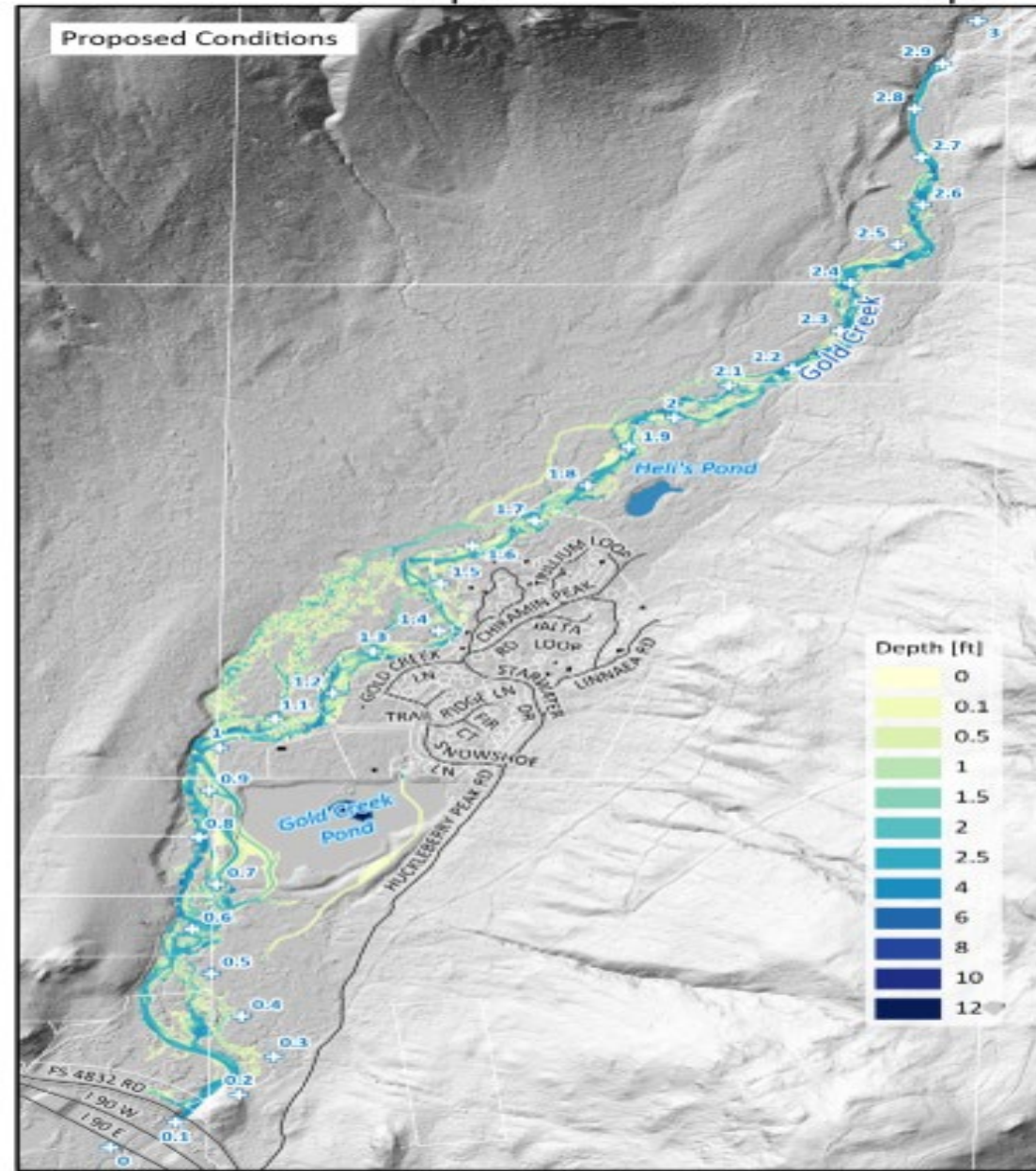
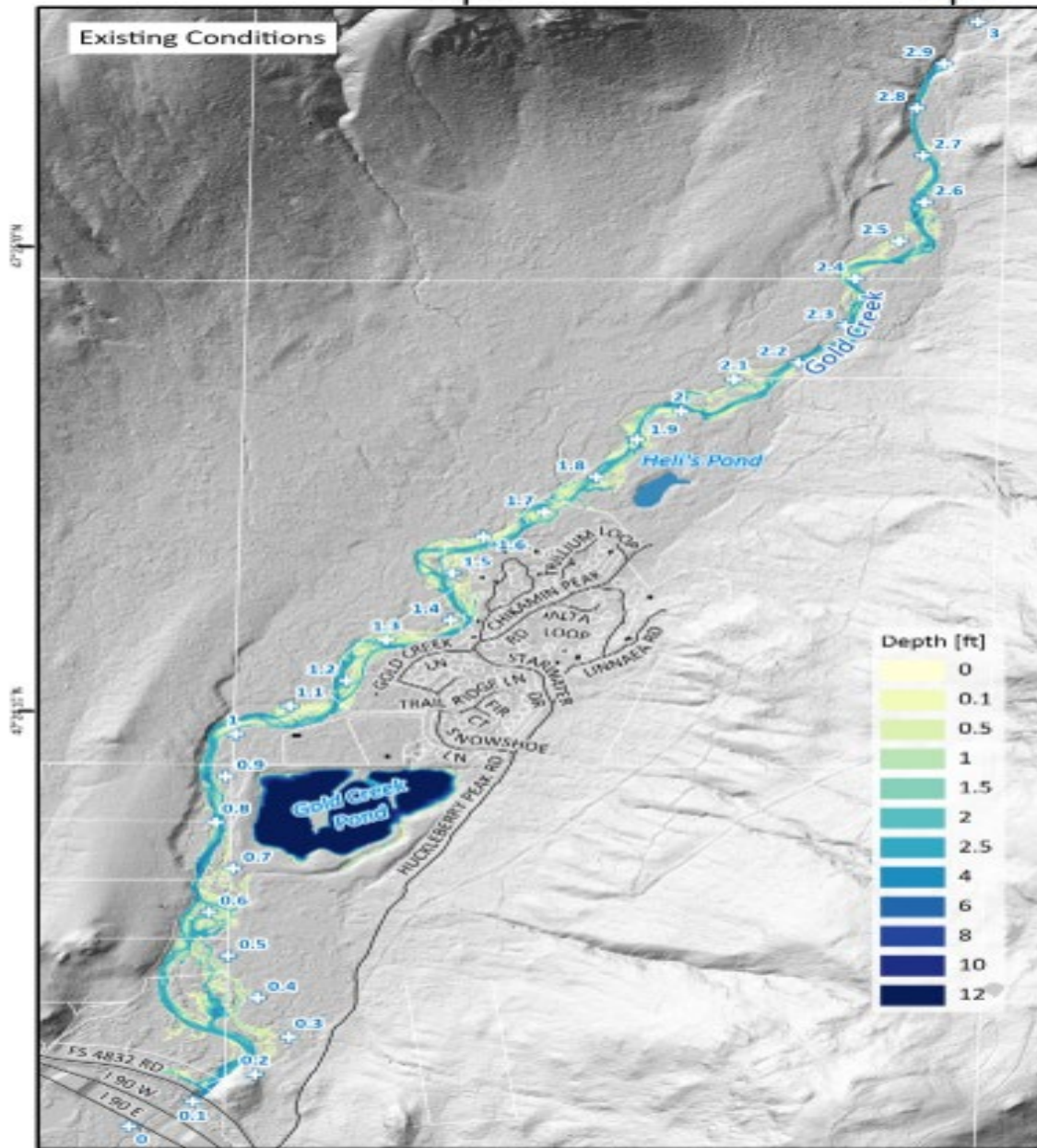
This River Runs Forever
Yakima Basin Integrated Plan



A huge THANK YOU to
our partners and
supporters of Gold
Creek Restoration!



Surface Water Modeling Q2 Depth



Gold Creek Valley Restoration
Modeled depths at Q2 flow (Overview)

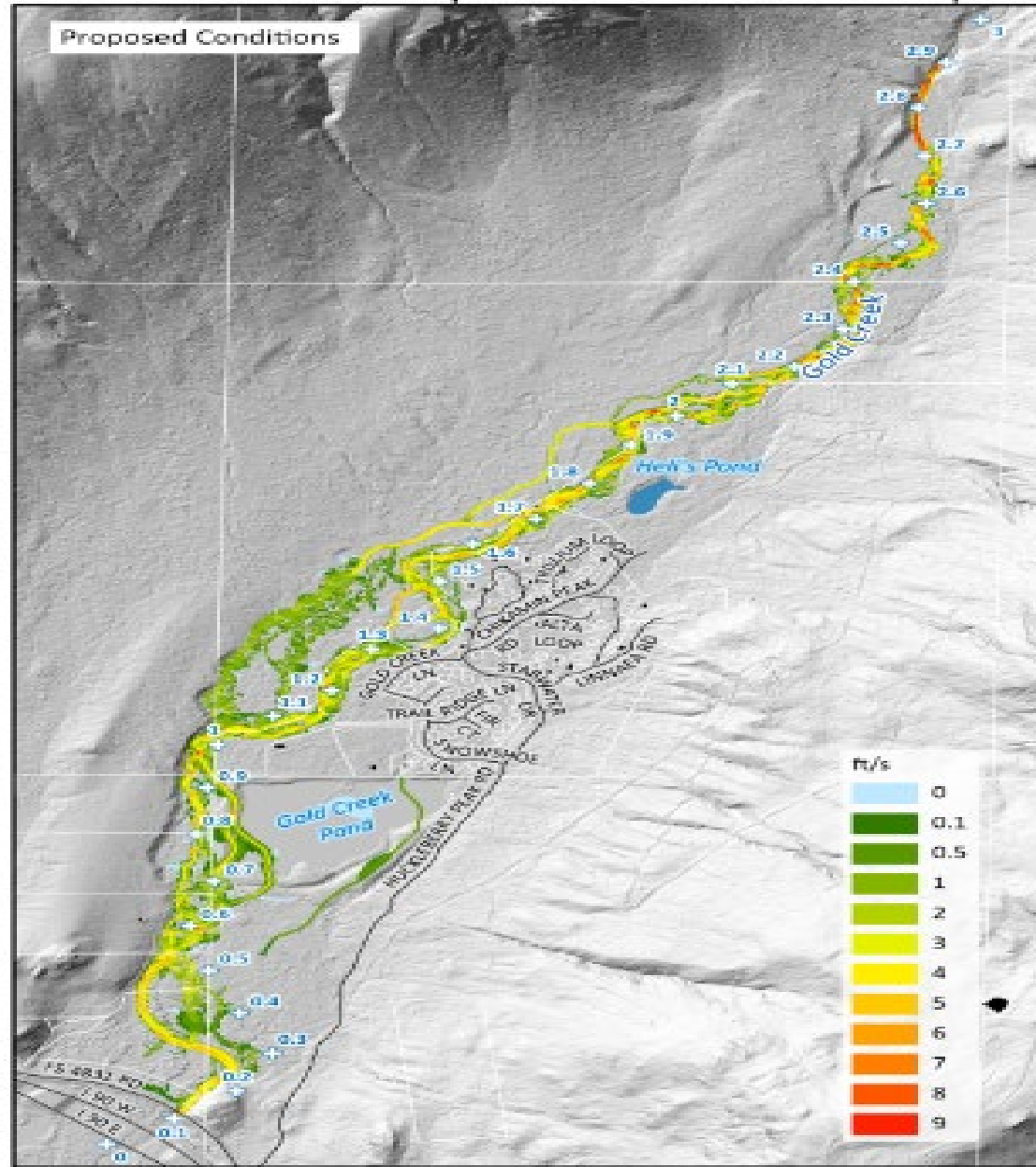
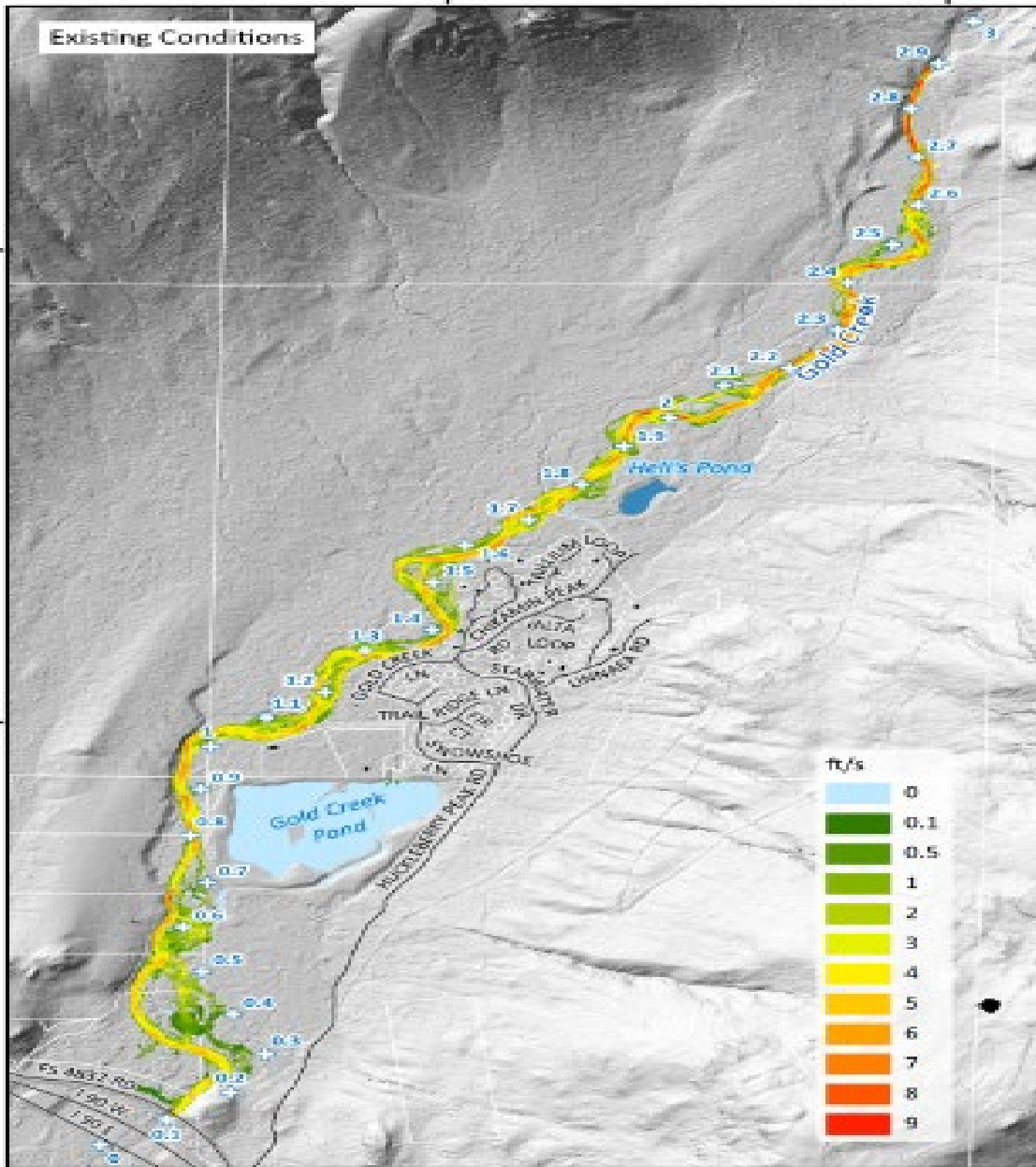
Lambert conformal conic projection, NAD 2011 State Plane Coordinate System (WA North Zone). Topographic data source: 2020 lidar DEM (WA Lidar Portal). HECRAS hydraulic modeling results of pre/post project flow depths are displayed for the 2-year flow. Inset map: ESRI basemap, NHD.



- Buildings
- Parcels (white)
- Roads
- RM (NHD)



Surface Water Modeling Q2 Velocity



Gold Creek Valley Restoration
Modeled velocities at Q2 flow (Overview)

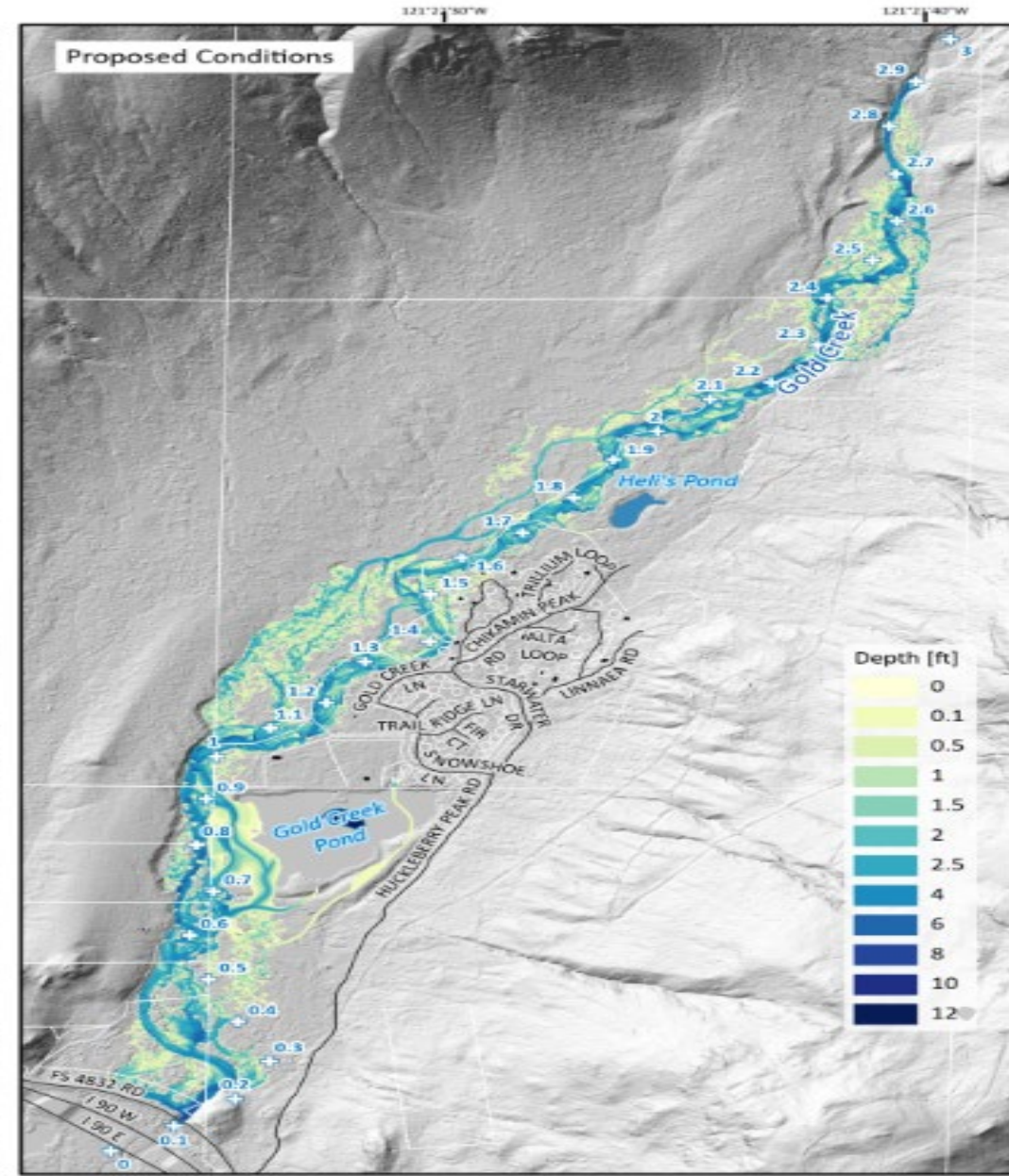
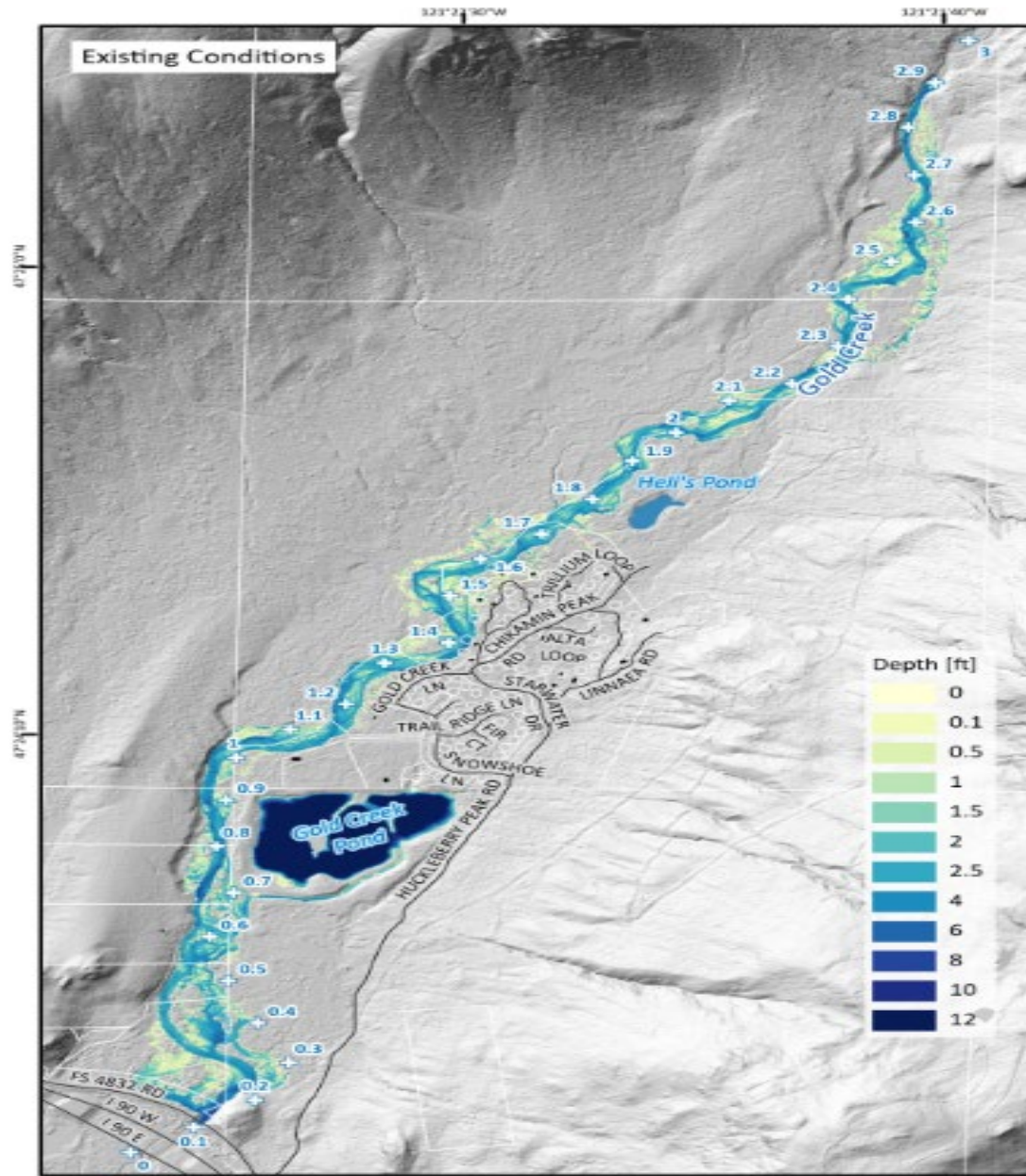
Lambert conformal conic projection, NAD 1983 State Plane Coordinate System (FWS North Zone), topographic data source: 2000 NAIP DEM (FWS Lidar points), HEC-RAS hydraulic modeling results of one-point project flow velocities are displayed for the 2-year flow (base map: 6881 basemap, NAD).



- RM (NHD)
- Roads
- Buildings
- Parcels (white)



Surface Water Modeling Q100 Depth



Gold Creek Valley Restoration
Modeled depths at Q100 flow (Overview)

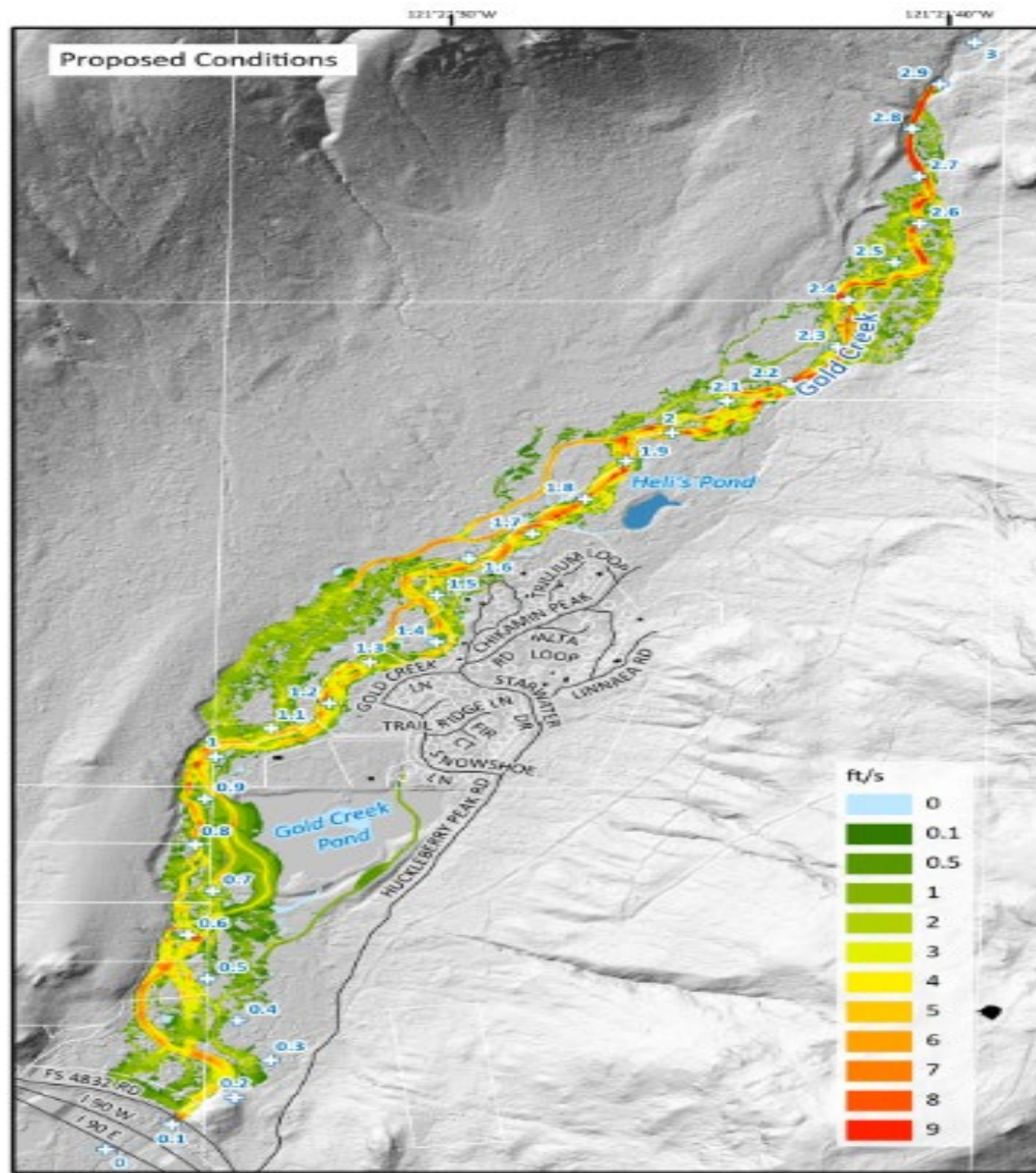
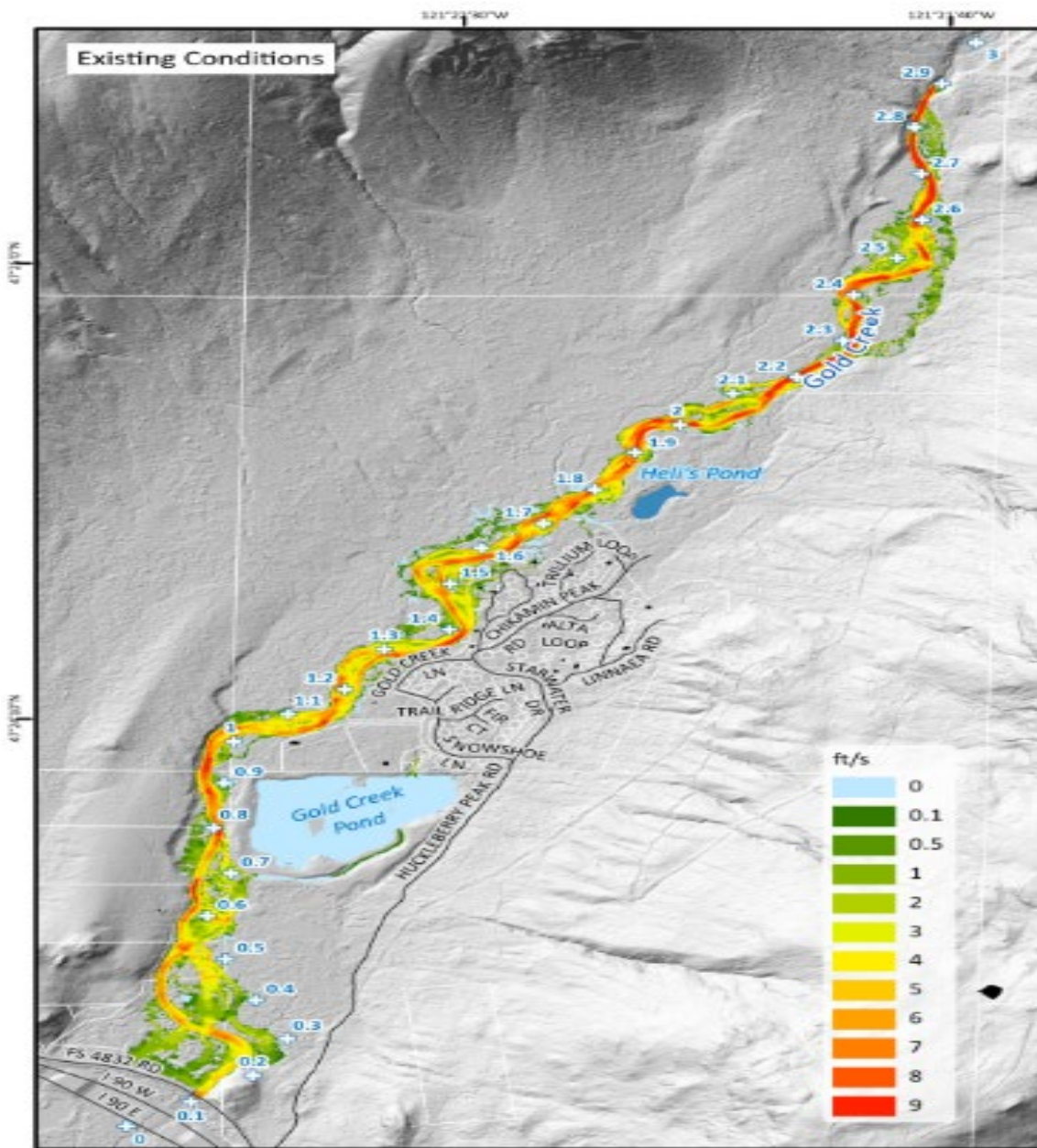
Lambert conformal conic projection, NAD 1983 State Plane Coordinate System (WA North Zone). Topographic data source: 3030 84r DEM (WA lidar Portal). HECRAS hydraulic modeling results of pre/post project flow depths are displayed for the 300-year flow. Inset map: 25% base map, NHD.



- RM (NHD)
- Roads
- Buildings
- Parcels (white)



Surface Water Modeling Q100 Velocity



Gold Creek Valley Restoration
Modeled velocities at Q100 flow (Overview)

Lambert conformal conic projection, NAD 1983 State Plane Coordinate System (WA North Zone). Topographic data source: 2020 lidar DEM (WA Lidar Portal). HECRAS Hydraulic modeling results of pre/post project flow velocities are displayed for the 100-year flow. Inset map: ESRI basemap, NHD.



- RM (NHD)
- Roads
- Buildings
- Parcels (white)

