

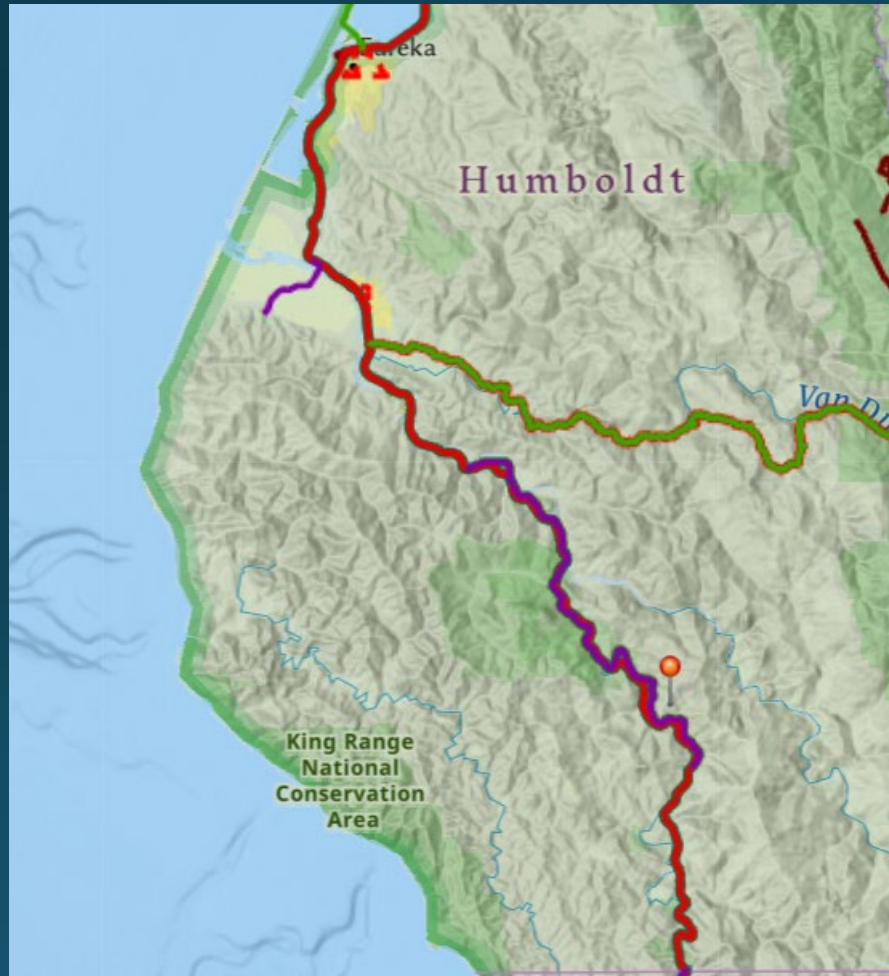
Fish Creek Fish Passage Project

01-0E790

California Department of Transportation – District 1

Fish Creek Fish Passage

The project is located in Humboldt County on State Route 254 at post mile 4.18 along the Avenue of the Giants in Humboldt Redwoods State Park.



Purpose and Need

The purpose of the project was to remove the fish passage barrier created by the reinforced concrete box culvert.

Fish Creek was the highest priority location for fish passage barrier remediation in District 1.

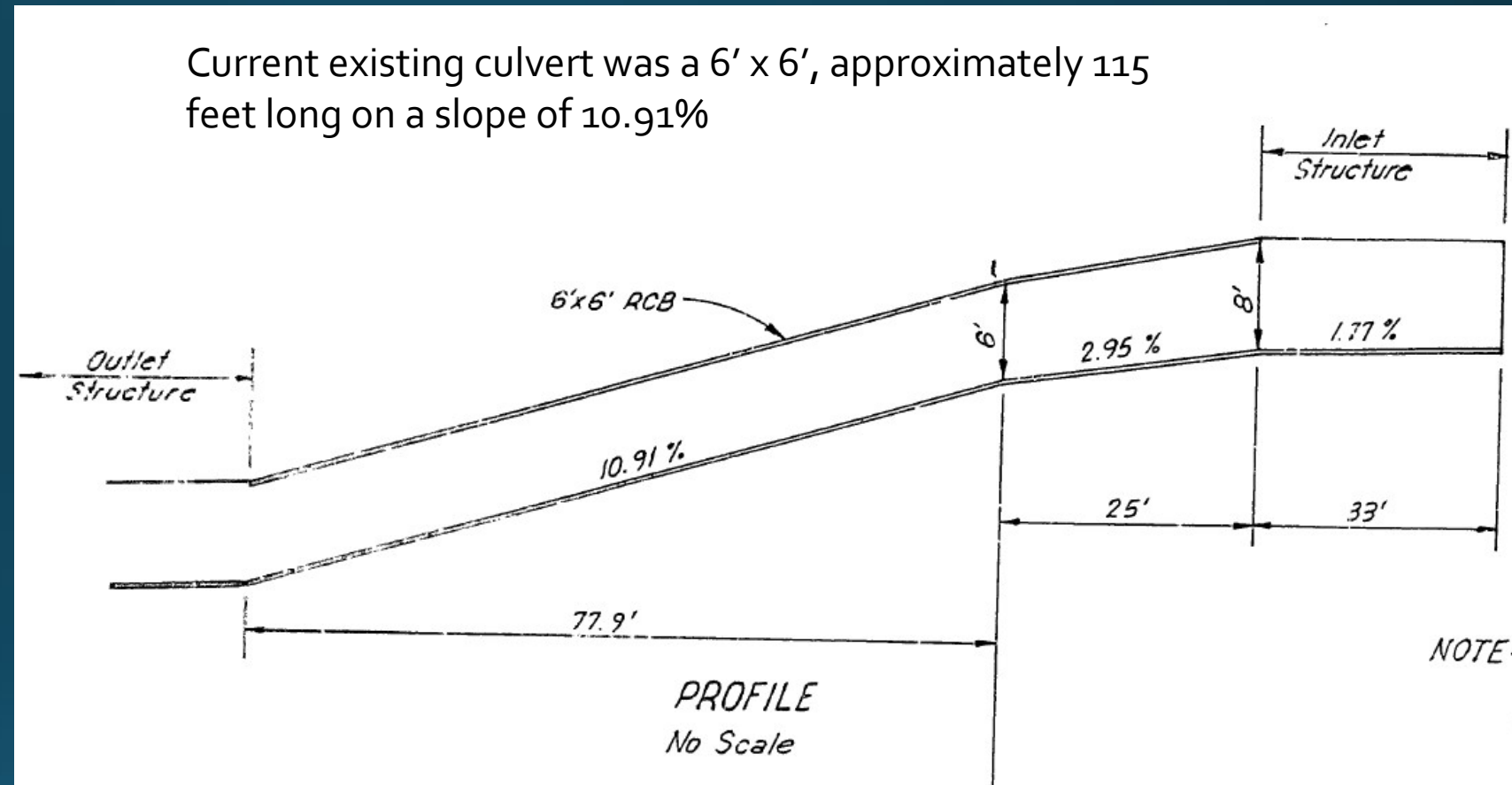


Culvert As-Built

1917: A 6' x 6' x 57'9" long RCB culvert was constructed.

1930: The culvert was extended at the inlet and a headwall and wingwalls were added.

1980: Invert paving and 8 concrete baffles were added for fish passage to the RCB culvert.



The culvert was considered a partial barrier to adult salmonids and a complete barrier to resident and juvenile salmonids. According to the Lang Report (2005), the culvert created a depth and velocity barrier to resident adults and juveniles and was only passable by anadromous adults during 15% of flows.

Fish Creek Inlet



Fish Creek Outlet



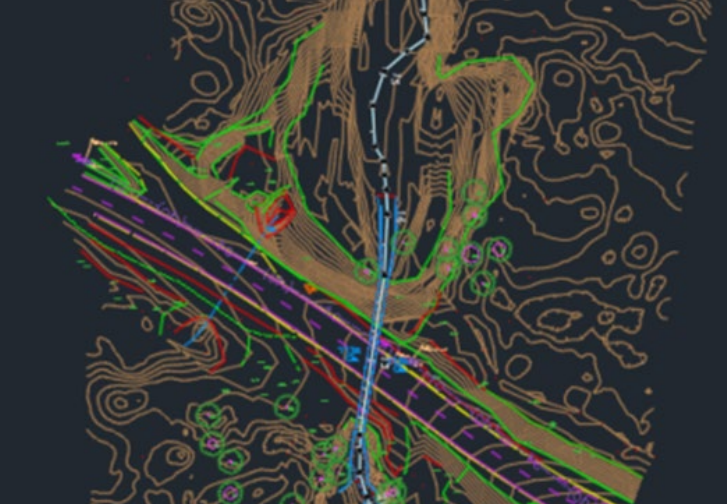
The bridge is approximately 550 feet upstream of the confluence of Fish Creek and the South Fork Eel River.



Mouth of Fish Creek



Downstream Amphitheater



Project History

Caltrans is the project lead for the project initiated in 2016 to remediate the fish passage barrier. However, there have been previous efforts to design a solution at Fish Creek.

Stakeholders in the previous design efforts included Trout Unlimited, Five Counties Salmonid Conservation Program (5C), CA State Parks, Caltrans, CDFW, and State Coastal Conservancy.



Project Funding

100% Department of Transportation funding through the State Highway Operation and Protection Program (SHOPP) – Stormwater Mitigation Funds (201.335) (2020)

Project Development
(including PA&ED and
PS&E): \$3,200,000

Construction Capital:
\$2,900,000

Construction Support:
\$1,700,000

Total Cost: \$9,592,000



Initial Study (Negative Declaration)

Project Initiation Report- June 2017

Draft IS/ND signed February 2021; Final IS/ND signed May 2021

Field visits and virtual meetings with the -agencies-CDFW,
NMFS, USFWS, WB, USACE-starting in 2019

Virtual Public Meeting-March 2021



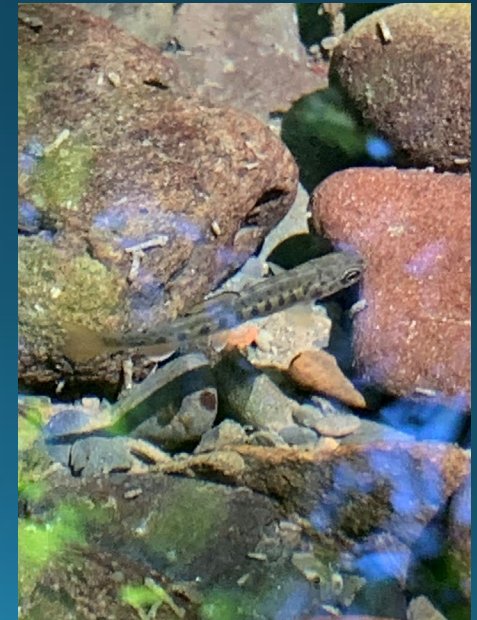
Anadromous Fish

Species and Status

Chinook salmon - California Coastal ESU – pop. 17 (*Oncorhynchus tshawytscha*): FT/SSC

Coho salmon - Southern Oregon/Northern California Coast ESU pop. 2 (*Oncorhynchus kisutch*): FT/ST

Steelhead-Northern California DPS – pop. 16 (*Oncorhynchus mykiss irideus*): FT/--

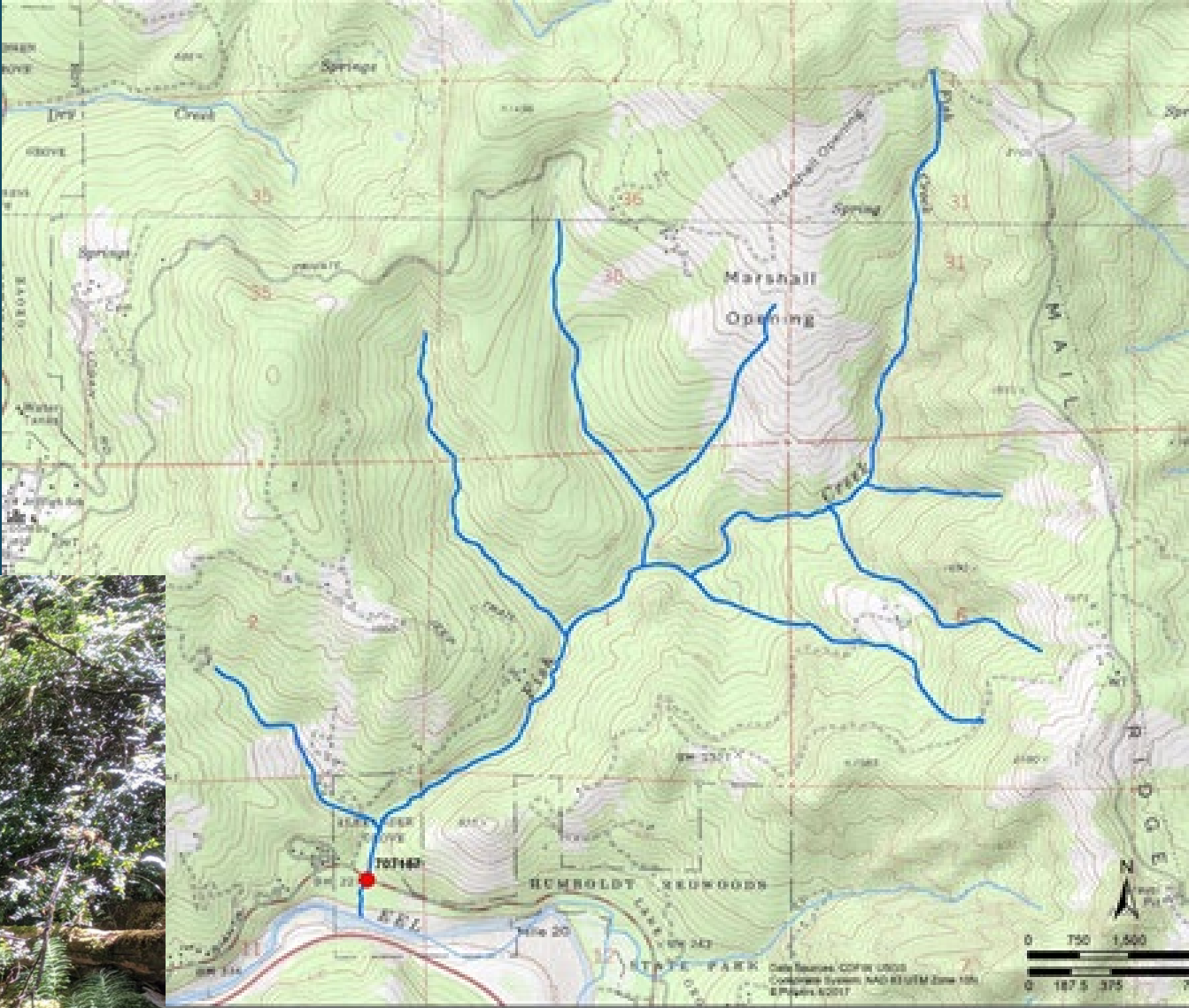


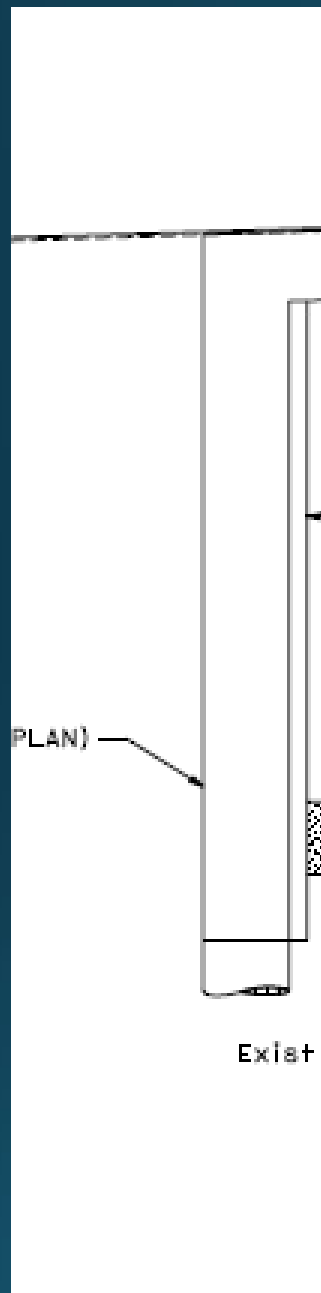
Fish Surveys

Species	6/28/19	7/11/19	5/1/20	8/14/20
Chinook Salmon	0	0	0	N/A
Coho Salmon	0	4 YOY found at mouth of culvert	0	N/A
Trout	9 Young of the year (YOY)	13 YOY and yearling, half of them upstream of culvert	3 yearlings below culvert at outlet	N/A
Additional Species	0	0	0	>20 Sacramento pike minnow (<i>Ptychocheilus grandis</i>)



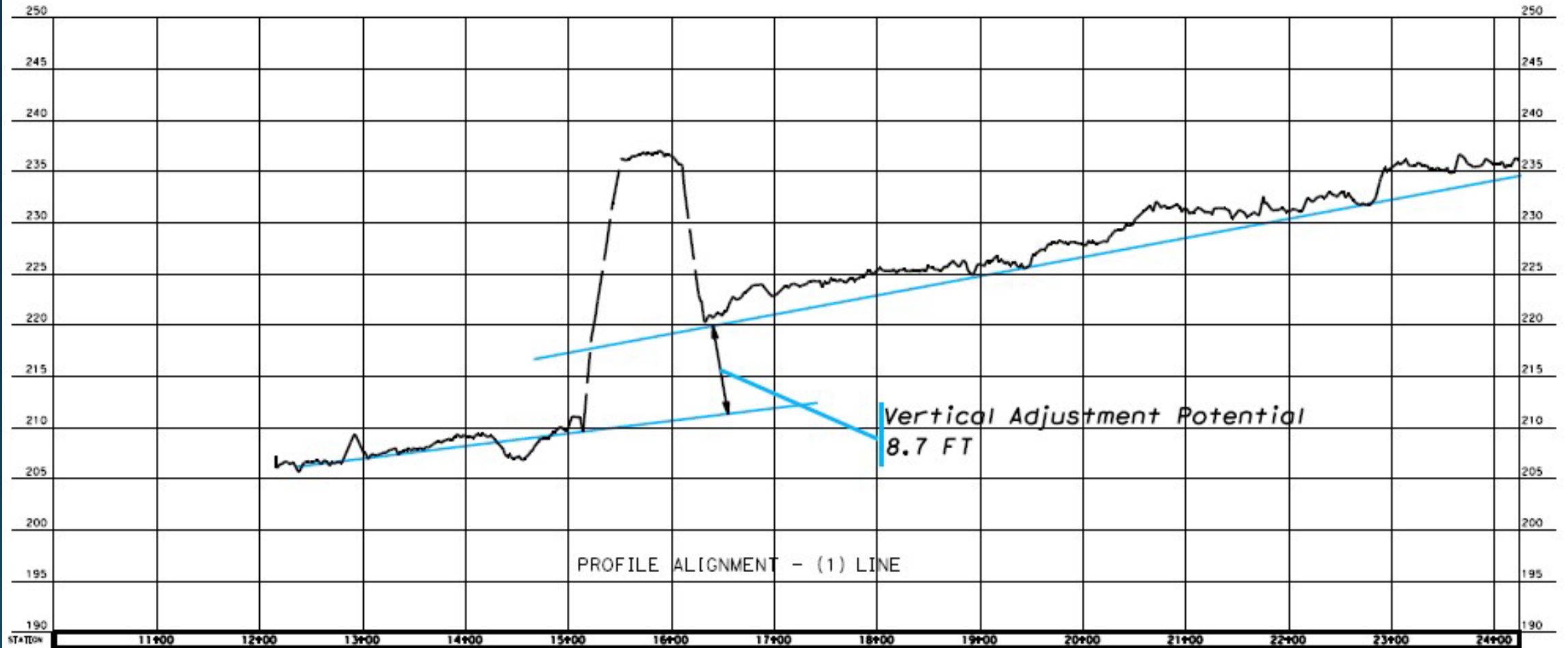
There are approximately 4 miles of fish habitat upstream of the bridge.





Engineering

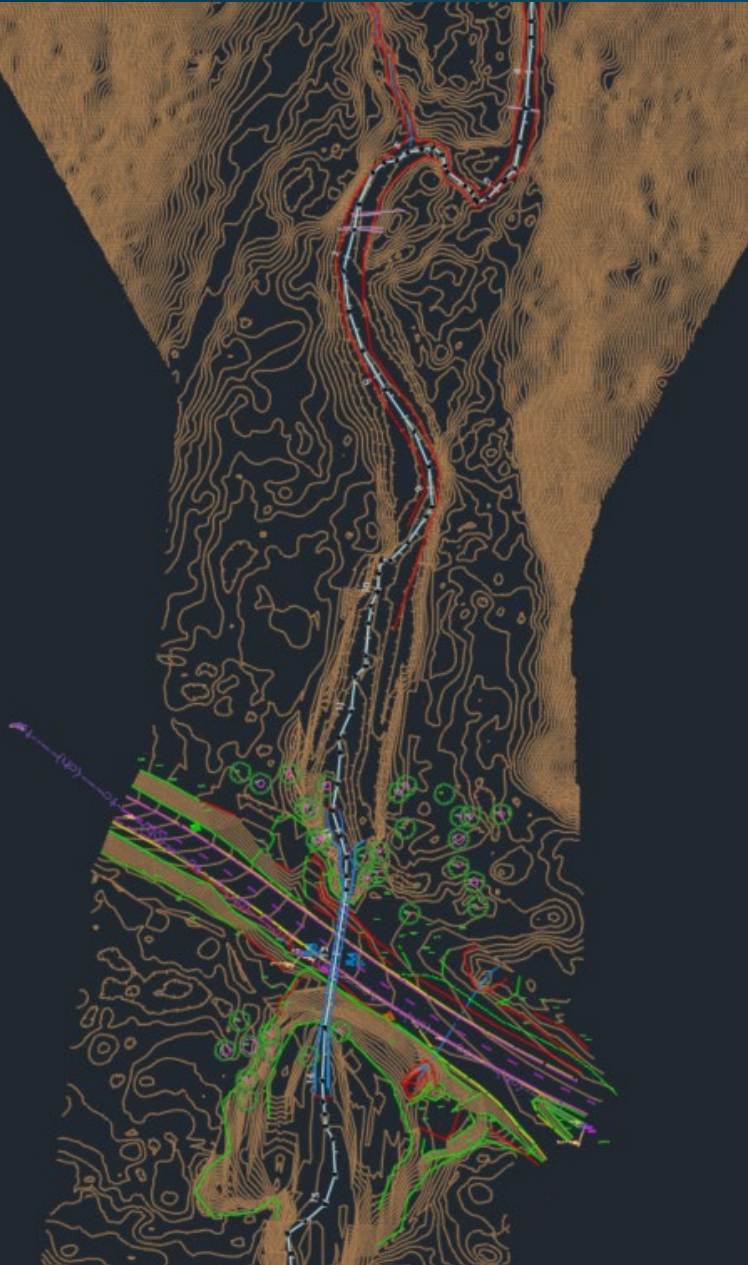
Vertical Adjustment Potential



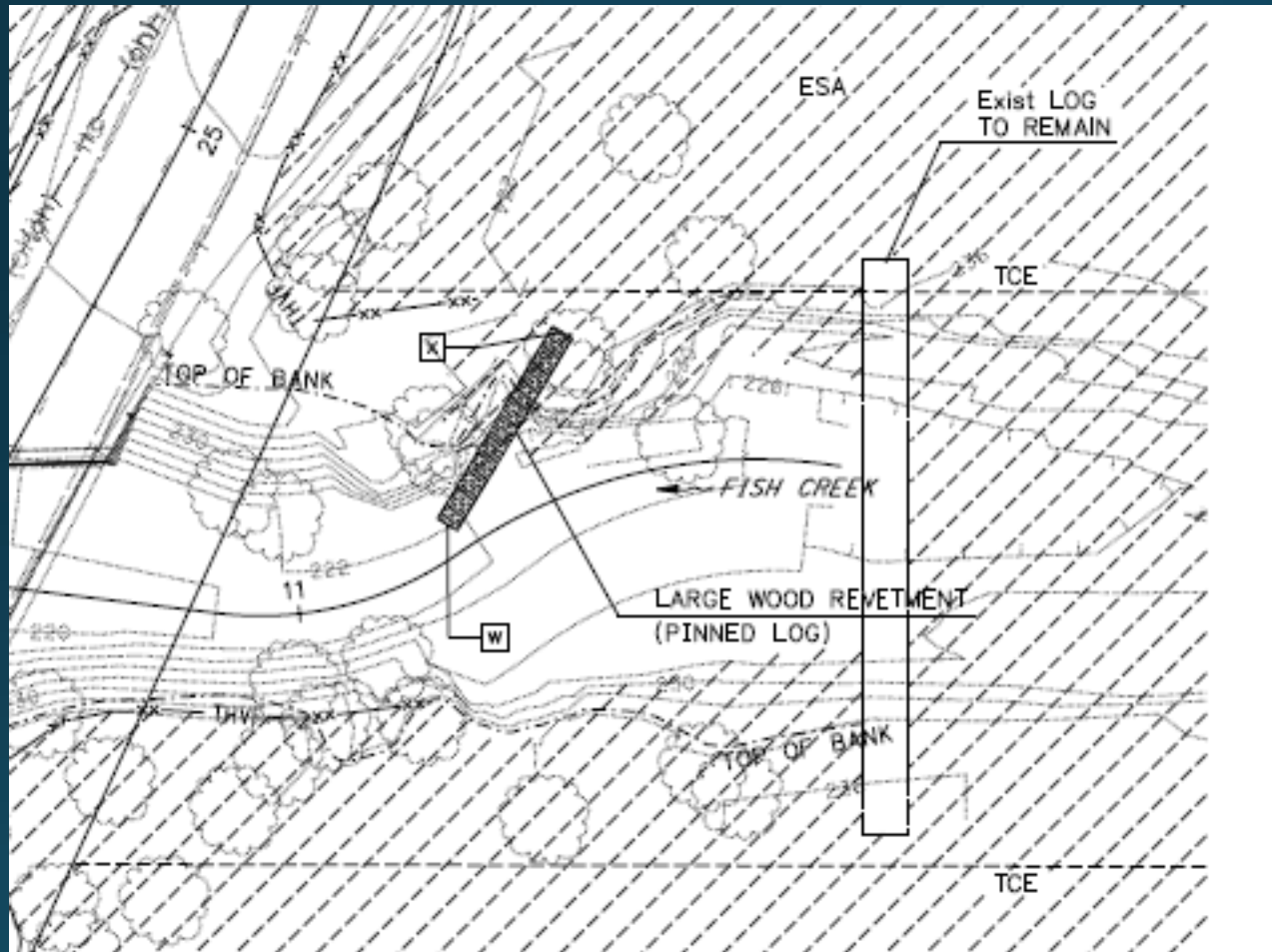
Hydraulic Engineering Data Collection



Lidar, cross section surveys with an auto level, pebble counts and grab samples, and reference reach measurements



Large wood revetment to protect redwood roots from potential scour



Permits and Agency Consultation

Waterboard: Small Habitat Restoration Project (SHRP)

CDFW: Habitat and Restoration Enhancement Act (HREA) Section 1653

State Parks: Right of Entry and Section 4(f) *De Minimis*

USACE: Nationwide Permit No. 27 for *Aquatic Habitat Restoration, Enhancement, and Establishment Activities*

NMFS: Biological Assessment/Biological Opinion

USFWS: Biological Assessment/Biological Opinion

Permit efficiencies

*HREA Section 1653- 30-day review time (includes 1600 and ITP)

*Able to use the SHRP despite the Environmental Document being an IS/ND



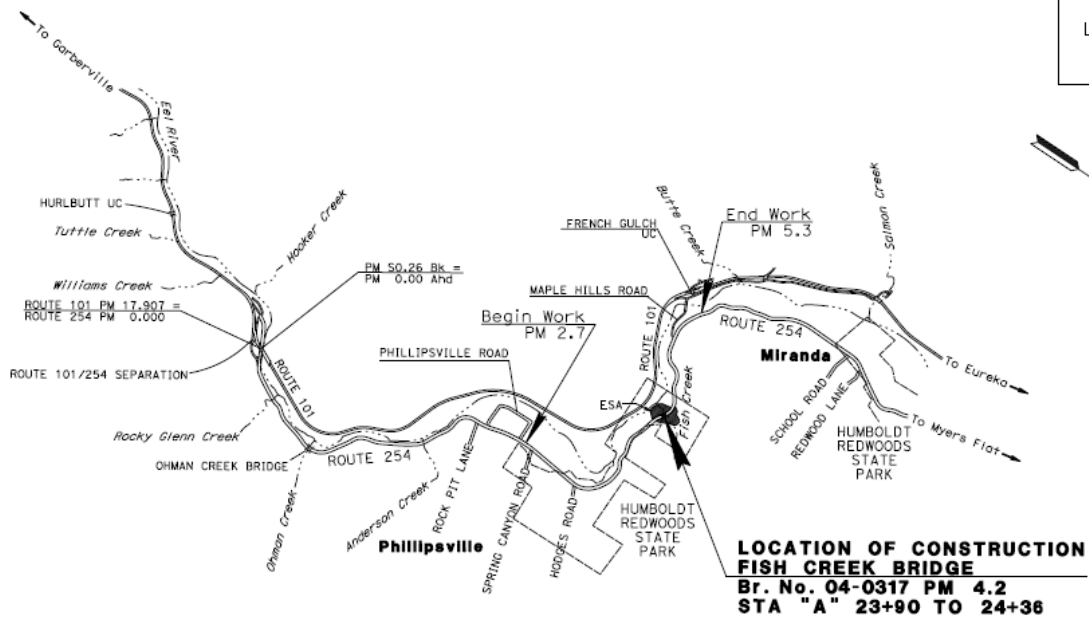
Fish Creek Bridge CONSTRUCTION

SHEET No.	INDEX OF PLANS DESCRIPTION
1	TITLE AND LOCATION MAP
2	TYPICAL CROSS SECTIONS
3	PROJECT CONTROL
4	LAYOUTS, PROFILES AND SUPERELEVATION DIAGRAMS
5-6	CONSTRUCTION DETAILS
7-14	DRAINAGE PLANS, PROFILES, DETAILS AND QUANTITIES
15	CONSTRUCTION AREA SIGNS
16-17	MOTORIST INFORMATION PLANS
18-21	TRAFFIC HANDLING PLANS AND QUANTITIES
22-23	PAVEMENT DELINEATION AND SIGN PLANS AND QUANTITIES
24	SUMMARY OF QUANTITIES
25-26	EROSION CONTROL PLANS
27-43	REVISED STANDARD PLANS
44-58	VENDOR DRAWINGS

STRUCTURE PLANS
59-76 FISH CREEK BRIDGE, Br No. 04-0317

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA **ACST-P254(009)E**
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN HUMBOLDT COUNTY
NEAR PHILLIPSVILLE
AT 3.3 MILES
NORTH OF OHMAN CREEK BRIDGE
 TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018



PROJECT ENGINEER DATE
 REGISTERED CIVIL ENGINEER
 T. LARK
 No. 52481
 Exp. 12/31/22
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

June 27, 2022

CONTRACT No. **01-0E7904**
 PROJECT ID **0115000021**

PROJECT MANAGER: JAMIE MATTEOLI
 DESIGN MANAGER: LENA P. ASHLEY
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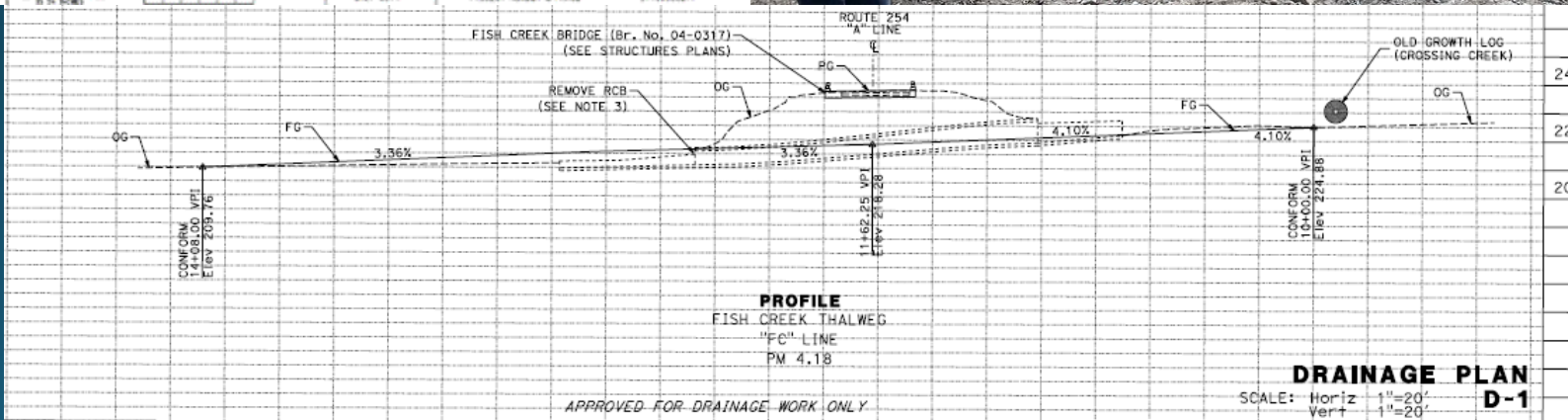
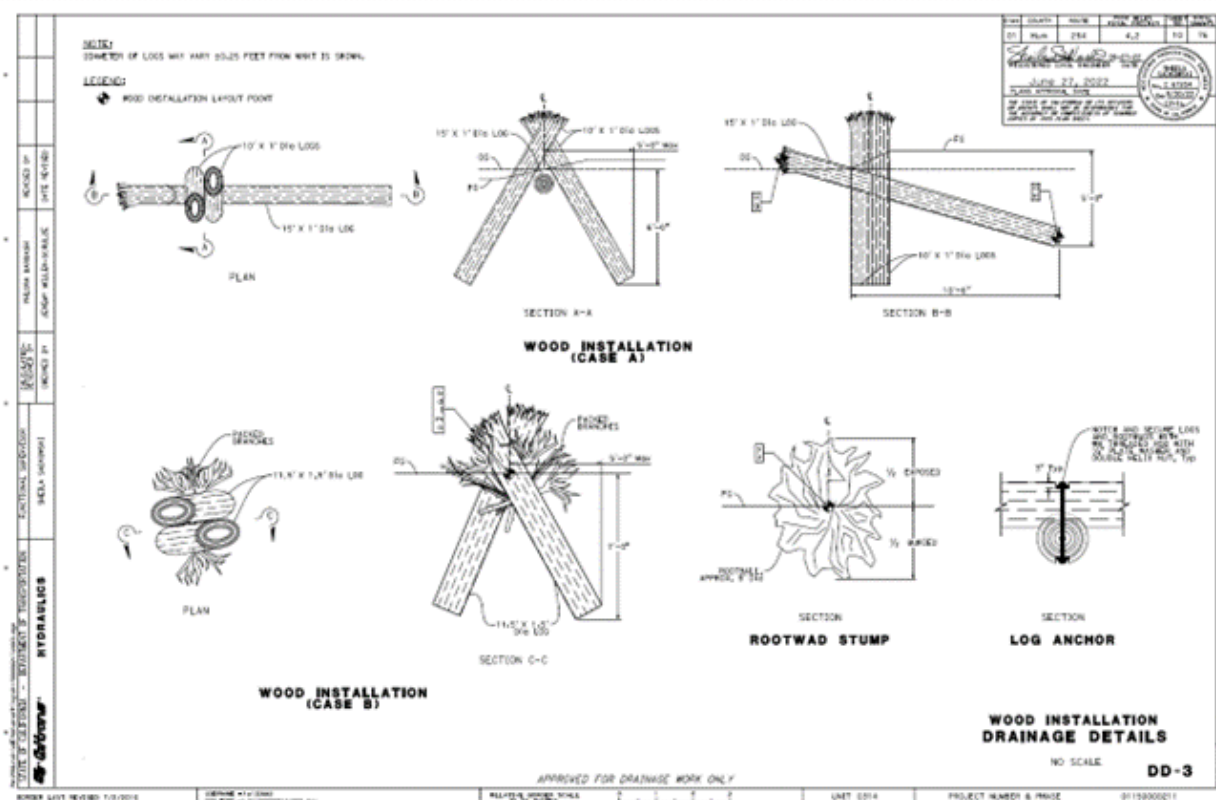
Construction started in June 2023



Culvert removal



Wood installation and channel restoration



CIDH foundation and CIP abutments



Surprise!

Unconsolidated fill
discovered during
construction of abutments



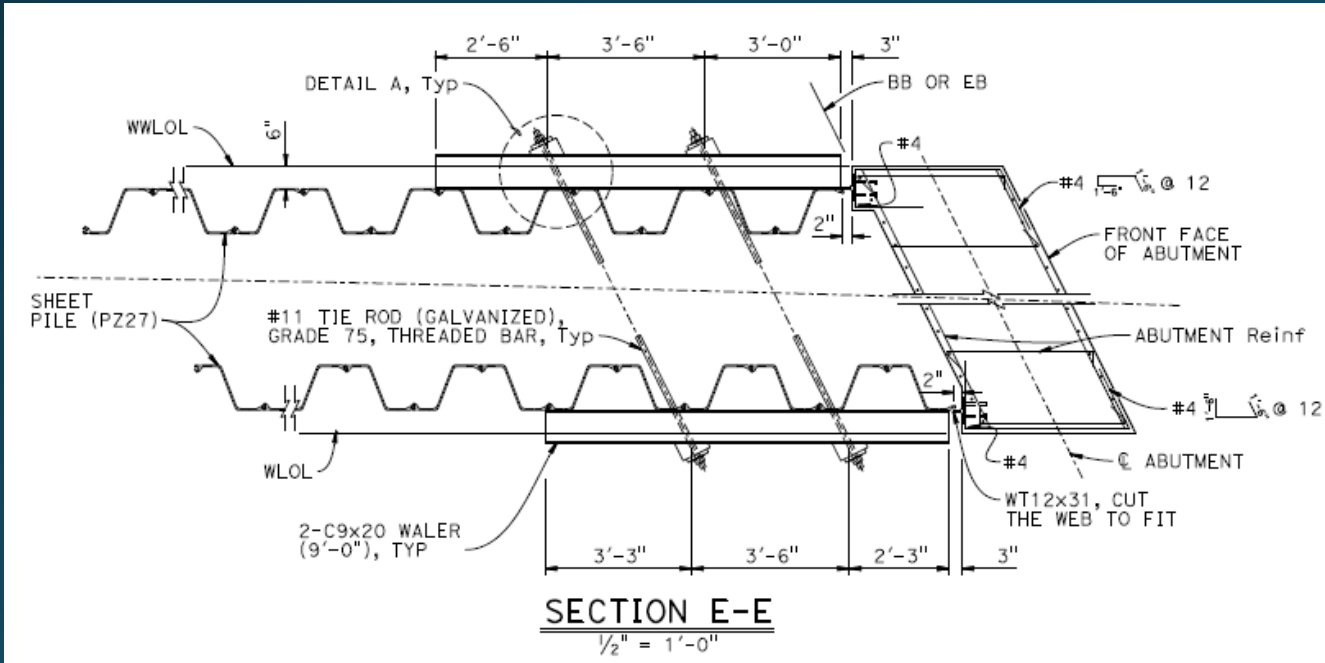
CIP bridge deck



Re-design during construction

The proposed concrete wingwall could not be constructed due to excavation concerns and redwood roots.

Sheet pile connection to abutment required a re-design



2023/2024 Winter



Surprise!



Project completed September 6, 2024!



Restoration can be messy and eventually we will reach *equilibrium*



12/3/24



9/6/25



Success Criteria

1. The ability of the regraded channel to adjust to an equilibrium grade.
2. No fish passage barriers (jumps greater than 1 feet) have resulted.
3. No abrupt changes in elevation or slope at the transition to the existing channel up or downstream.
4. Streambanks are stable.
5. The structures are not at risk of dislodging as a whole and moving downstream.

Hydraulic and Geomorphic Monitoring

Hydraulic inspection and longitudinal profile and cross section surveys would be conducted by or under the direction of a professional hydraulic engineer or professional transportation surveyor during a low flow period in years 1, 3, and 5.

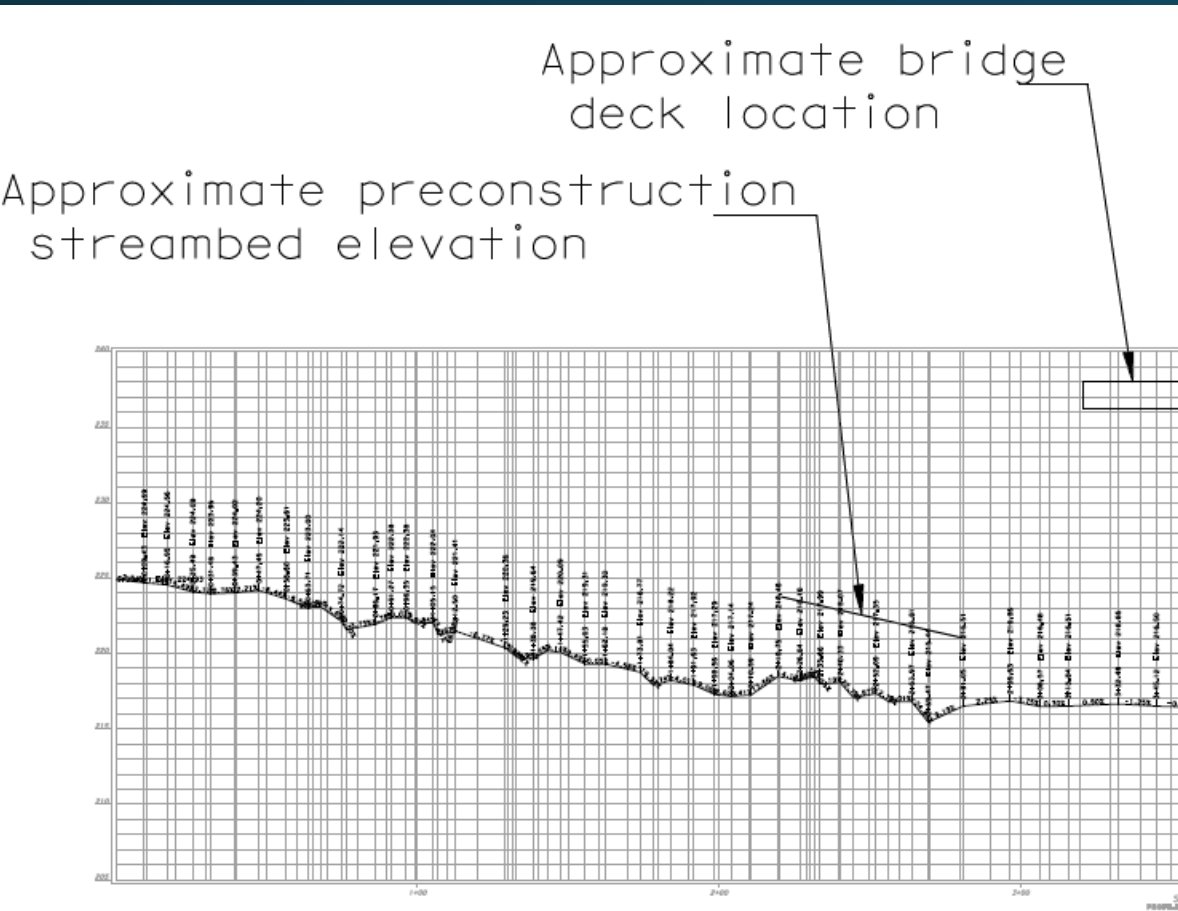
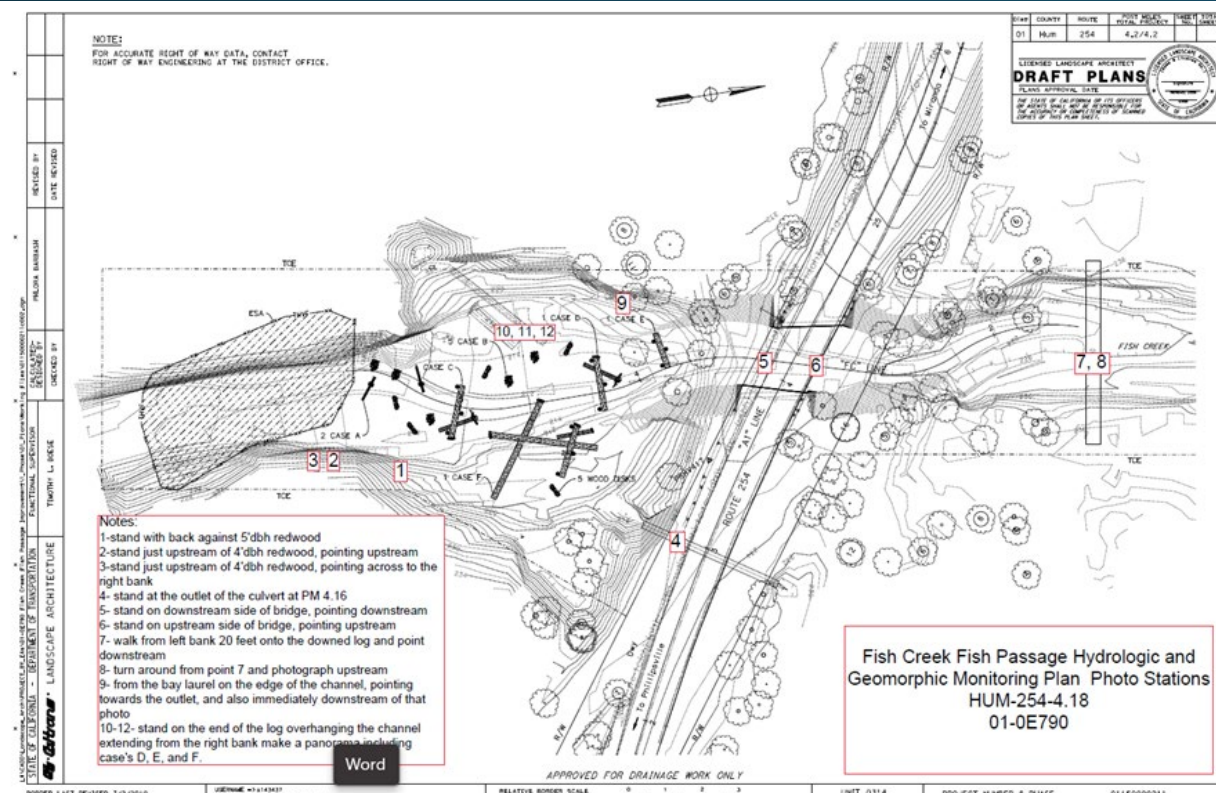


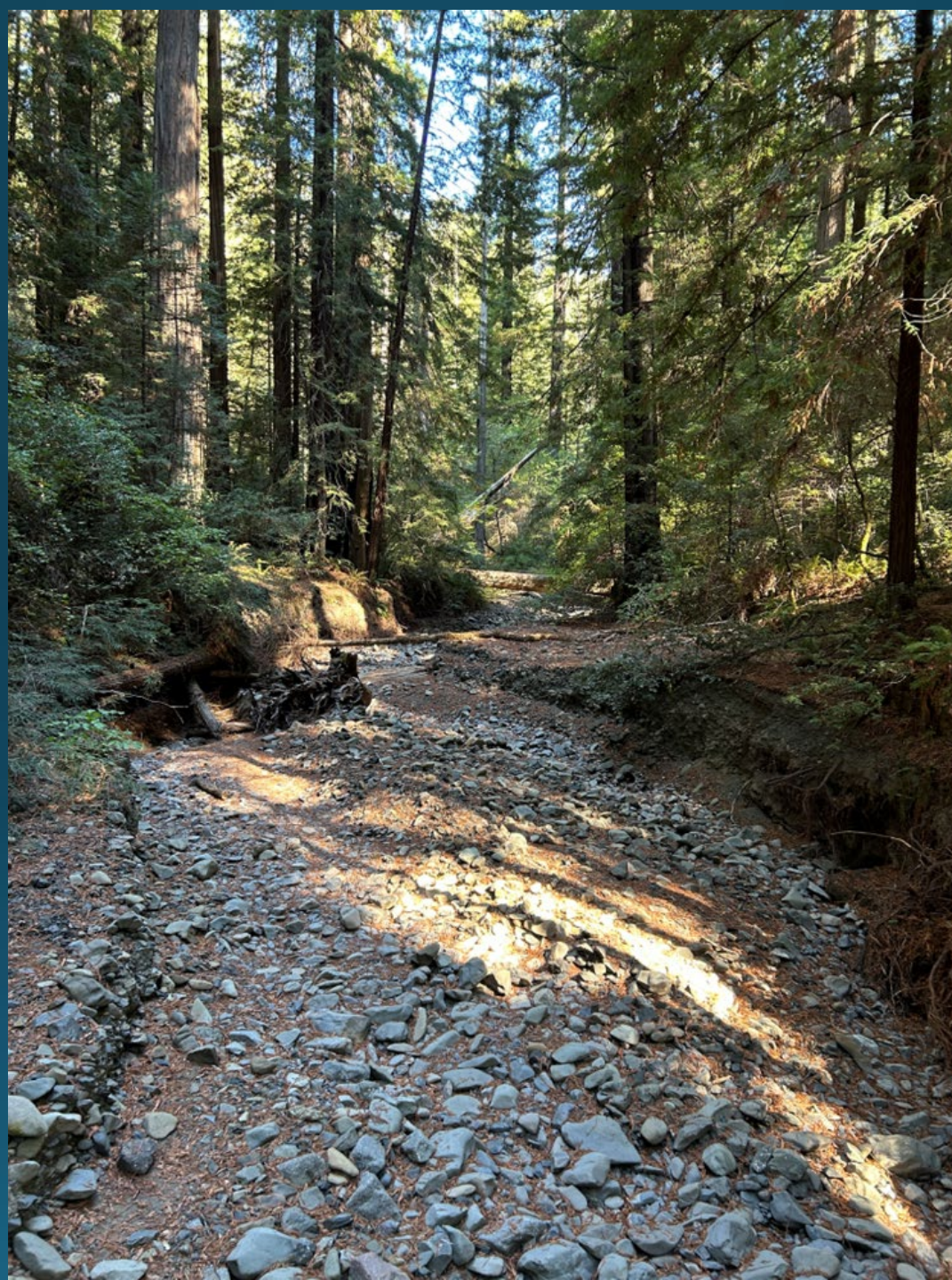
Photo Monitoring



Upstream VAP



5/9/24



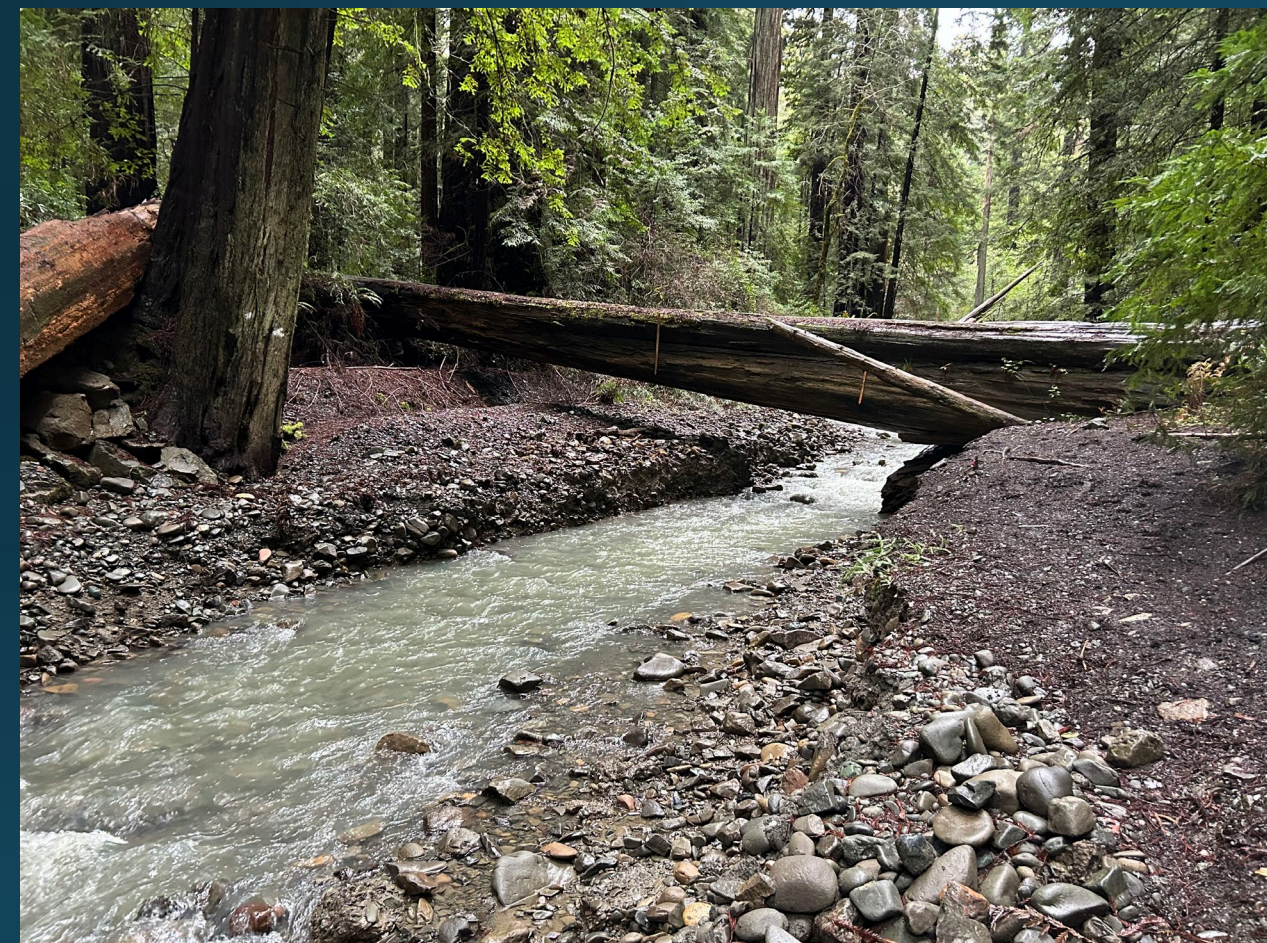
10/2/24



9/6/25



3/18/26



1/16/24

9/6/25

Downstream channel adjustment









Lessons Learned

It's a balancing act

Communicate

Surprise!



Of Special Note



A memorial plaque for Doug Menzmer, a longtime Caltrans engineer and FishPAC member who was instrumental in developing efficiencies for delivering full span solutions on fish passage projects.



Questions

Laurel Osborn
District 1 Fish Passage Coordinator
Laurel.Osborn@dot.ca.gov