Contact Information

2025 Upper Columbia Regional Project Pre-Application

* Pre-applications (SRFB & Monitoring) due March 12, 2025 (COB)

*Complete SRFB applications due in PRISM April 18, 2025 (COB)

*Complete Monitoring applications due in PRISM May 1, 2025 (COB)

*Revised SRFB proposals due in PRISM May 27, 2025 (COB)

*Final revised SRFB & Monitoring applications due in PRISM June 23, 2025 (noon)

Project Title	Entiat 1D Habitat Enhancement Final Design
Sponsor	Chelan County Natural Resources Department
Primary Contact	Mike Kane
E-Mail Address	mike.kane@co.chelan.wa.us

Project Summary

Please provide a description or summary of the proposed project, including project goals. The goal of the project should be to solve identified problems by addressing the root causes. Then clearly state the desired future condition.

This is a final design phase project and includes design development, preparation of a basis of design report, hydraulic modeling and other elements as per Manual 18 Requirements. Additionally included is a CLOMR, wetland delineation and cultural resource surveys. Preliminary Designs were completed in December of 2024 in a SRFB funded effort.
Human impacts within the lower Entiat River have had a large and detrimental effect on instream habitat (re-routing, channelization, levee building, etc.). Due to existing conditions the river lacks the ability to readily create new habitat through natural processes alone. As a result of the confined river channel and limited floodplain habitats, the majority of habitat that historically existed on the lower Entiat River was instream habitat; therefore, re-establishing instream habitat is vitally important to salmon and steelhead (Reclamation 2012).
Goals: Improve side channel hydraulic connectivity and habitat quality for juvenile salmonids. Improve instream habitat for juvenile salmonids. Increase riparian buffer structure and function related to stream shading and large wood recruitment potential. Reduce instream water temperatures.
The desired future condition for this site is to enhance the existing functional attributes like large wood structures and perennial and seasonal side channels.

What are the project objectives? Objectives support and refine biological goals, breaking them down into small steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound). Note: This exact question is included in the PRISM application. Example format: The project seeks to address [specify limiting factor(s)] for [limiting life stage(s)] by [specific actions proposed] to create an estimated [include specific target metrics, as described below] upon implementation in [estimated year].

Side channel connectivity-Objectives: Improve existing 920' of seasonal and perennial side channel features through the strategic construction of 9 ELJs to increase flow interaction and provide cover.
Instream habitat-Objective: Install 9 ELJs to provide cover, pool formation, and sediment sorting. Enhance hydraulic variability and provide instream cover along 1600' of the mainstem river.
Increase riparian buffer-Objective: Restore riparian mature riparian forested vegetation located within the 2-year floodplain or within 25 feet of the existing banks.
Reduce instream water temperatures-Objective: Increase main channel shade through riparian revegetation fill planting and long-term shading along 730' of the south bank. Increase hyporheic and floodplain flow storage and discharge through strategically constructing engineered log jams (ELJs) to deflect and increase flows into adjacent floodplain and gravel bar features along 1600' of mainstem and 920' of side channel habitat.

Budget Request

Values MAY be duplicative and do not have to equal TOTAL anticipated budget in pre-application.

Anticipated Request - SRFB (standard round)	260,345
Anticipated TOTAL Budget	260345

Project Location

Briefly describe the location of the project	This project is focused on Reach 1D between River Miles (RM) 4.3 – 4.8 of the Entiat River, bounded upstream by the Hanan-Detwiler diversion structure and downstream by Dinkelman Canyon Road bridge.
Latitude (decimal degrees)	47°40'24.08"N
Longitude (decimal degrees)	120°18'35.57"W
Project subbasin	Entiat
Entiat Assessment Unit(s)	Entiat River-Mills Creek
Does the proposed project span multiple assessment units?	No
Reach(es) Name	Entiat River Mills 05
Identify the reach(es) priority/ reach ranking. Note: If the project involves work in multiple reaches, select "Multiple" and include details in the text box that will appear below. Please reference the Prioritization Web Map: https://prioritization.ucsrb.org/.	Rank 2

Project Information

1. What species will the project benefit?

Spring Chinook | Steelhead | Bull Trout | Summer Chinook

2. Select the project's objectives and the associated tracking metrics

Design, Monitoring or Assessment

4. Does this project already exist in Salmon Recovery Portal or PRISM?

Yes

5. Has this project been submitted previously for funding through the SRFB and/or other process(es)?

Yes

Please explain which process(es) and how this proposal differs from the previous submission (e.g., different phase, modified scope, etc.)

It was previously submitted and funded through Preliminary Designs.

6. What category is the project?

Design

If applicable, what is the secondary project category?

N/A

Is the project eligible for Riparian Funding?

No

Design and Restoration Proposals

7. What project phase(s) are proposed for completion?

Final Design

8. Is your project within a completed (or soon-to-be completed) Reach Assessment or other type of assessment (e.g., Rapid Site Assessment, other)?

Lower Entiat Reach Assessment (BOR 2012)

9. Which limiting factors does the project propose to address?

Cover - Wood | Off-Channel - Floodplain | Off-Channel - Side-Channels | Pool Quantity & Quality | Riparian | Riparian - Canopy Cover | Riparian - Disturbance

10. Which life stages will the proposed project address?

Fry | Spawning and Incubation | Summer Rearing

Winter Rearing

11. Freshwater Benefits - Describe how your project will improve survival, capacity and/or distribution for target species at the reach scale?

The project will add 9 ELJ structures and associated pools thus increasing overall habitat capacity and distribution within the lower Entiat River. Polivka and Claeson (2020) found that restoration increased the habitat capacity of the reach at the scale of pools created by ELJ's.
Additionally, the strategic location of the ELJ's will enhance flows into side channel habitats, adding capacity by increasing the amount of wetted area. Some of the ELJ's are located within side channels, providing cover and improving survival. Over the long-term, fill-planting of forested clumps along the south shore will increase shading and provide relief to late summer in stream heating.

The Reach-based Ecosystem Indicators (REI) analysis (Reclamation 2012) found that within Lower Entiat River, water quality (temperature); habitat quality (large woody debris, pools, off-channel habitat), floodplain connectivity, and riparian vegetation were in an “at risk” condition due to historic anthropomorphic impacts, including floodplain development, bed armoring (embeddedness), and a lack of large wood recruitment potential.

12. Temporal Effect - Briefly describe how and to what extent the project would promote natural stream/watershed process consistent with the geomorphology of the stream?

In 2012, Reclamation concluded that habitat restoration in the lower Entiat River “should be aimed at improving and enhancing those forms and processes that currently exist, rather than attempting to create wholly new conditions that may not be appropriate or sustainable” (Reclamation 2012). Human impacts within the lower Entiat River have had a large and detrimental effect on instream habitat. Due to existing conditions the river lacks the ability to readily create new habitat through natural processes alone. As a result of the confined river channel and limited floodplain habitats, the majority of habitat that historically existed on the lower Entiat River was instream habitat; therefore, re-establishing instream habitat is vitally important to salmon and steelhead (Reclamation 2012).
The project has limited ability to promote any large scale natural stream process, but the localized benefits of large wood structures and associated pools, flow partitioning and sediment sorting provides a significant improvement in habitat conditions on a reach scale.

13. Temporal Effect - How long will it take for the project to achieve its intended response?

1-10 years

14. Temporal Effect - How long will the restoration action and its benefits persist?

50+ years

15. Temporal Effect - What level and/or interval of maintenance is anticipated? What is the plan for any anticipated maintenance?

The project will be designed to minimize maintenance needs, however a monitoring plan will be developed as part of the Final Designs to identify maintenance needs for ELJ's and plantings. Typically, three years of plant maintenance is required to address potential issues and comply with permitting requirements, especially for disturbed areas associated with access, staging and construction. Maintenance can include watering, mulching, fill planting, and weeding in planted areas. ELJ's typically do not require maintenance, but Monitoring includes checking threaded rods and bolts and whether the ELJ is causing an unintended consequence like excessive erosion, full span channel blockage or other changes not anticipated. Annual maintenance would be anticipated for at least the first three years post-construction.

16. Methods - Briefly describe the potential (for design) or proposed restoration methods and how they will achieve project objectives.

Currently, the Preliminary Design consists primarily of the construction of 9 ELJ's. This includes a reduction from earlier Concepts. The goals of the ELJs remain the same from the conceptual design; The deflector groups will provide cover, slow water down and increase pool habitat and be placed in sections

of the river that are deeper and slower, to have the most impact on river hydraulics and the maintain the scour pool that will be constructed. The smaller jams within the side channel will provide hydraulic complexity within the side channels and help form pools for resting areas while slowing down flows. Both types of jams include a scour pool that will be excavated in front of the structure to provide immediate pool habitat.
The ELJs will utilize rootwad posts with some installed at a batter angle. The ELJs will need to be excavated prior to post placement. Post elevations (10 ft below thalweg for the side channel ELJs, and 15 ft below thalweg for the deflector ELJs) were determined based on stability calculations. Rootwad posts are recommended to be used instead of piles due to the large cobbles within the streambed. For both the side channel and deflector ELJs, racking and slash material is placed particularly on the upstream end and flanks of the ELJ to provide complex instream cover. The structures are designed such that scour will not destabilize the structure. If scour occurs, the structure is intended to “self-settle”, essentially lowering the overall elevation of the structure in conjunction with scour; however the racking material at the front of the structure which is countersunk below the bed elevation should serve as a buffer against potential scour. The deflectors will include three bolted connections, at the final (top) layer of the ELJ with the large rootwads pinned to the rootwad posts. This is to prevent the top logs from floating away.

Assessment Proposals

Protection Proposals

Monitoring Proposals

Project Risk and Economic Benefits

1. What is the landownership?

The project is wholly within private lands except for the aquatic potion which is administered by Washington State Department of Natural Resources.

2. Have you secured landowner participation in or acceptance for this project?

Yes

Please explain

We have been working with landowners through the Conceptual Design Process up to completion of the Preliminary Designs. Landowners preferred to wait until Spring to review and comment on the current Preliminary Designs. Thier acceptance will be secured during this SRFB process.

3. Describe any land owner requirements (e.g., design elements, right-of-ways, access agreements, liability waivers, etc.) and if/how they could affect the project

The two main landowners on the Left and Right Bank of the river are Agricultural owners and as such use the adjacent uplands for grazing. Riparian buffer widths have been reduced in the Preliminary Designs to reflect their interest in maintaining grazing land. Additionally, at least one of the owners has expressed concern about creating thick forested areas along the shoreline that could promote crown fires and work against fire fuel reduction efforts.

4. Will the project raise potential concerns for interest groups (e.g., recreational users) or the community at large (including upstream/ downstream/ adjacent landowners)?

It is unlikely that the project will create concerns for river floaters which is mostly a small local group of kayakers that run during spring flows and a few local innertuber's that run during summer low flow. Sightlines are good in this area to minimize risk. Thier have been issues in the past with large wood structures being installed further upstream in the Entiat, but ELJ's in the lower Entiat have not been very controversial in the past.

5. Who will have the responsibility to manage and maintain the project? What is the responsibility of current or future landowners?

Chelan County Natural Resources Department will assume responsibility for managing and maintaining the project. Landowners primary responsibility will be to continue to allow some access for design, monitoring and maintenance. Irrigation of riparian plants may become a landowner responsibility if they are interested, once we have installed and maintained the infrastructure.

6. Are other projects being proposed immediately upstream or downstream of worksite?

Yes

7. Please describe the risk of failure associated with this project.

NSD applied the basic risk evaluation method as outlined in the Bureau of Reclamation (Reclamation) Large Woody Material - Risk Based Design Guidelines (Reclamation 2014) to broadly assess risk to the public and property associated with ELJ elements of the project. The Risk Guidelines make use of two risk matrices which quantify risk associated with ELJ project elements: The Property Damage Risk Matrix, and the Public Safety Risk Matrix. The Matrices quantify general characteristics of the project reach, structure setting, recreational use, and channel characteristics to categorize risk to the public and property as a result of project actions. Ratings for risks associated with public safety concerns and potential property damages result in a low or high and low, moderate, or high risks, respectively (Reclamation 2014). The ratings then result in recommended factors of safety for horizontal and vertical loads which are then applied to ELJ design.
The evaluation resulted in a public safety risk rating of “low”, and a property damage risk rating of “moderate”. Per the RBDG, these risk factors correspond to a 25-year design event with factors of safety of 1.5 and 1.75 for sliding and buoyancy, respectively. Factors of safety for rotation and overturning were determined to be not applicable for all structure types and were not considered.

8. Is there any public outreach planned during and/or after implementation? Does the project build community support for salmon recovery efforts?

Public outreach to date has been limited to project updates during the Entiat Planning Unit Meetings held quarterly. These are well-attended by local Entiat River Corridor residents. Prior to starting work in the 1D Reach, Chelan County was approached by landowners and asked when we were going to do some work in this section of the river.
This project overlaps with prior projects completed by the county and others, including the HD Weir and includes landowners who have historically been very active in Watershed Planning and salmon recovery, the Citizen's Committee and even one contractor.
The project builds on existing support for salmon recovery and the recent opening of fishing seasons where some fishers use the HD Weir to fish on the lower Entiat is especially effective at building support.

9. Does the project represent an opportunity for economic benefit? How much benefit does the project create for the dollars invested?

This proposal is a good investment of public funds because it supports salmon recovery by improving and expanding habitat in a 1/2 mile long reach. Since there are primarily two landowners to work with, it simplifies coordination while maximizing project benefits in the 1D reach.

10. Describe any partnerships, their experience, and types of contributions supporting the project.

The Voluntary Stewardship Program and the Salmon Recovery Funding Board funded the initial phases of the project, including Preliminary Designs. The US Bureau of Reclamation has played an active role in funding reach assessments, project concepts and designs in the Entiat River and is providing funding for Chelan County staff to continue work on this project.
Tom Desgroseillier, with the WDFW Science Program, is very familiar with this reach from years of conducting side channel studies in the lower Entiat. He has graciously contributed his time by reviewing and providing comment on the Preliminary Designs and has agreed to meet with landowners onsite to discuss scientific research conducted in this reach as a way to advance coordination between State and local agencies and landowners.

Optional Section - Preparation for PRISM (SRFB applications only)

The following questions are identical to the questions RCO requires in the PRISM application for SRFB projects. If desired, sponsors can complete associated questions early and copy responses into PRISM during the "Complete Application" phase due on April 18, 2025.
*please note, this section is not applicable for Monitoring proposals

Do you want to review and/or pre-populate PRISM questions? No

Supporting Documents

Upper Columbia Process Guide 2025

SRFB Manual 18 (2025)

RCO Application Resources (2025)

PROJECT: 25-1215 PLAN, ENTIAT 1D HABITAT ENHANCEMENT FINAL DESIGN

Sponsor: Chelan Co Natural Resource Program: Salmon State Projects Status: Application Returned

Parties to the Agreement

PRIMARY SPONSOR

Chelan County Natural Resources Department

Address 411 Washington St Ste 201

City Wenatchee **State** WA **Zip** 98801

Org Type County-Open Space/Nat Resources

Vendor # SWV0001231-12

UBI

Date Org created

Org Notes

link to Organization profile

✓Org data updated (by Amee Bahr 04/30/2025)

SECONDARY SPONSORS

No records to display

MANAGING AGENCY

Recreation and Conservation Office

LEAD ENTITY

Upper Columbia Salmon Rcy Bd L

QUESTIONS

#1: List project partners and their role and contribution to the project.

External Systems

SPONSOR ASSIGNED INFO

Sponsor-Assigned Project Number

Sponsor-Assigned Regions

LINK AN EXISTING SRP PROJECT

Unlink

25-1215, Entiat 1D Habitat Enhancement Final Design, Sa

Project Contacts

Contact Name Primary Org	Project Role	Work Phone	Work Email
Amee Bahr Rec. and Conserv. Office	Project Manager	(360) 867-8585	Amee.Bahr@rco.wa.gov
Doran Lower Rec. and Conserv. Office	MAgy Fiscal Contact	(360) 902-3007	doran.lower@rco.wa.gov
Mike Kane Chelan Co Natural Resource	Project Contact	(509) 885-2126	mike.kane@co.chelan.wa.us
Ariel Edwards Upper Columbia Salmon Rcy Bd L	Lead Entity Contact	(208) 540-2691	ariel.edwards@ucsrb.org

Worksites & Properties

#	Worksite Name
#1	Left and Right Bank Entiat River RM 4.3-4.8

Planning	Property Name
✓	Parcel 252010440050
✓	Parcel 252010420050

Project Application Report - 25-1215

Worksite Map & Description

Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8

WORKSITE ADDRESS

Street Address 317 Dinkelman LN
City, State, Zip Entiat WA 98822

Worksite Details

Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8

SITE ACCESS DIRECTIONS

Christensen Property: From State Highwat 97A, travel 4 miles up Entiat River Rd. Turn left onto Dinkleman Canyon Rd. Follow Dinkleman Canyon Rd for approximately 0.4 miles. turn Right onto a dirt two-track access road, continue for 0.1 miles.

Wick Property: From State Highway 97A, travel up Entiat River Rd for 4 miles. Wick Property is located on South side of Entiat River Road at Entiat River Road and Dinkleman Canyon Road intersection.

Both Properties are privately held and will required escort by landowner until otherwise noted.

TARGETED ESU SPECIES

Species by ESU	Egg Present	Juvenile Present	Adult Present	Population Trend
Chinook-Upper Columbia River Spring, Entiat River, Endangered		✓	✓	Declining
Steelhead-Upper Columbia River, Entiat River, Threatened	✓	✓	✓	Declining

Reference or source used

Lower Entiat Reach Assessment, January 2012; United States Bureau of Reclamation

TARGETED NON-ESU SPECIES

Species by Non-ESU	Notes
Bull Trout	
Cutthroat	
Lamprey	

Questions

#1: Give street address or road name and mile post for this worksite if available.

5618 Dinkleman Canyon Road, Entiat WA 9882

Project Application Report - 25-1215

Project Location

RELATED PROJECTS

Projects in PRISM

PRISM Number	Project Name	Program Name	Current Status	Relationship Type	Notes
22-1502 P	Entiat 4.6 (1D Reach) Prel. Design	Salmon Federal Projects	Closed Completed	Earlier Phase	Preliminary Design Completed

Related Project Notes

Questions

#1: Project location. Describe the geographic location, water bodies or habitat types, and the location of the project in the watershed, i.e. nearshore, tributary, main-stem, off-channel, etc.

This design project will look at both left and right banks of the Entiat River between river miles 4.3 and 4.8. This project will mainly focus on the main stem of the Entiat River but will also include investigation into reactivation of two smaller side channel along the right bank and one small side channel on the left bank. This project is located within the lower portion of the 1D reach of the Entiat River.

#2: How does this project fit within your regional recovery plan and/or local lead entity's strategy to restore or protect salmonid habitat? Cite section and page number.

This project is in accordance with proposed restoration efforts outlined in the Entiat Watershed Plan. Appendix A page A-3 outlines proposed system wide and specific location projects to be implemented in the Entiat Watershed. This effort aligns with proposed projects "1) Entiat River - Instream Habitat Diversification through investigation of optimal placement of Engineered Log Jams to assist in pool development and large woody debris recruitment. Proposed Project 2) Entiat River Corridor - Riparian Planting; this design effort will have a large riparian enhancement task. Riparian vegetation on the left bank is sparse and in need of improvement. Also project 3) Entiat River Bridge-to-Bridge Fish Habitat Restoration is immediately adjacent to this project area. Future implementation of this design will provide for an expansion of this previously conducted project.

#3: Is this project part of a larger overall project?

No

#4: Is the project on State Owned Aquatic Lands? Please contact the Washington State Department of Natural Resources to make a determination. **Aquatic Districts and Managers**

No

Property Details

Property: Parcel 252010440050 (Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8)

✓ **Planning**

LANDOWNER

Name	Bruce Wick
Address	20 Entiat Cemetary Road
City	Entiat
State	WA Zip 98822
Type	Private

CONTROL & TENURE

Instrument Type	Landowner Agreement
Timing	Proposed
Term Length	Fixed # of years
# Yrs	10
Expiration Date	04/30/2035
Note	

Property: Parcel 252010420050 (Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8)

✓ **Planning**

LANDOWNER

Name	Garn Christensen
Address	317 Dinkelman LN
City	Entiat
State	WA Zip 98822
Type	Private

CONTROL & TENURE

Instrument Type	Landowner Agreement
Timing	Proposed
Term Length	Fixed # of years
# Yrs	10
Expiration Date	04/30/2035
Note	

Project Proposal

Project Description

This is a final design phase project and includes design development, preparation of a basis of design report, hydraulic modeling and other elements as per Manual 18 Requirements. Additionally included is a CLOMR, wetland delineation and cultural resource surveys. Preliminary Designs were completed in December of 2024 in a SRFB funded effort (22-1502). Project is located on the lower Entiat River. Human impacts within the lower Entiat River have had a large and detrimental effect on instream habitat (re-routing, channelization, levee building, etc.). Due to existing conditions the river lacks the ability to readily create new habitat through natural processes alone. As a result of the confined river channel and limited floodplain habitats, the majority of habitat that historically existed on the lower Entiat River was instream habitat; therefore, re-establishing instream habitat is vitally important to salmon and steelhead (Reclamation 2012).
Goals: Improve side channel hydraulic connectivity and habitat quality for juvenile salmonids. Improve instream complexity habitat for juvenile salmonids. Increase riparian buffer structure and function related to stream shading and large wood recruitment potential. Reduce instream water temperatures.
The desired future condition for this site is to enhance the existing functional attributes like large wood structures and perennial and seasonal side channels.
Responses to comments during site tours area attached.

Project Questions

Project Application Report - 25-1215

#1: Problem statement. What are the problems your project seeks to address? Include the source and scale of each problem. Describe the site, reach, and watershed conditions. Describe how those conditions impact salmon populations. Include current and historic factors important to understand the problems.

The Lower Entiat Reach Assessment (BOR 2012) compared historical conditions to existing conditions and found large pools had declined from ~3.5-4.0 per mile to 0.5 per mile. This was attributed to a lack of large instream structures and LWD recruitment potential. This also corresponds to a high degree of impairment associated with LWD which historically had less than 10 logjams per mile to an existing condition of 2.3 logjams per mile or 132 individual pieces per mile. This has been attributed to logging and clearing of riparian corridors reducing the available wood for recruitment and lack of structure to retain wood. Floodplain connection has been reduced by 20% due to levees limiting the active 2-year floodplain, providing a medium degree of impairment compared to historical. Riparian condition falls into a medium to High degree of impairment based on reduction from an average width of 100' to one of about 25' as a result of clearing for development.

Within this section of the 1D reach, there are some log jams present as well as some side channel features. Upstream and downstream sections of 1D have less wood and off-channel features and less opportunities for those characteristics. Channel straightening has occurred in the 1C reach downstream. The legacy of logging, splash dams, LWD removal, agricultural development, and flood control activities (deepening and straightening) have affected pools, large wood and other habitat features at the site, reach and watershed scale.

#2: Describe the limiting factors, and/or ecological concerns, and limiting life stages (by fish species) that your project expects to address.

The project is within a Tier 1 AU for Steelhead Restoration and a Tier 2 for Spring Chinook and Bull Trout Restoration. Winter rearing is a high priority life stage for Spring Chinook and Steelhead, summer rearing is a high priority for Steelhead, and Steelhead spawning, fry colonization, and smolt emigration are medium priorities.
At risk limiting factors include: cover wood, floodplain connectivity, off-channel-side channels, pool quantity and quality. All of these limiting factors would be addressed by the project. Riparian canopy cover is an unacceptable limiting factor and the project will partially address this one due to the site constraints related to existing agricultural uses.

#3: What are the project goals? The goal of the project should be to solve identified problems by addressing the root causes. Then clearly state the desired future condition. Include which species and life stages will benefit from the outcome, and the time of year the benefits will be realized. **Example Goals and Objectives**

Goal: Improve side channel hydraulic connectivity and habitat quality for juvenile salmonids for summer and winter flows.
Goal: Improve instream habitat for juvenile salmonids.
Goal: Increase riparian buffer structure and function related to stream shading and large wood
recruitment potential which could benefit multiple salmonid life stages year-round.
Goal: Reduce instream water temperatures during summer juvenile rearing.

#4: What are the project objectives? Objectives support and refine biological goals, breaking them down into smaller steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound). **Example Goals and Objectives**

Objective: Improve existing seasonal and perennial side channel features through the strategic
construction of 7 ELJs to increase flow interaction and provide cover.
Objective: Install 9 ELJs to provide cover, pool formation, and sediment sorting.
Objective: Enhance hydraulic variability and provide instream cover over 1,320'.
Objective: Restore riparian mature riparian forested vegetation located within the 2-year
floodplain or within 50 feet of the existing banks (some areas will not be a full 50' wide but fill planting with conifers and cottonwood will enhance shading over long term).
Objective: Increase main channel shade through riparian revegetation planting and long-term
shading. (some areas will not be a full 50' wide but fill planting with conifers and cottonwood will enhance shading over long term).
Objective: Increase hyporheic and floodplain flow storage and discharge through strategically
constructing engineered log jams (ELJs) to deflect and increase flows into adjacent floodplain and gravel bar features over 1,320'.

#5: Scope of work and deliverables. Provide a detailed description of each project task/element. With each task/element, identify who will be responsible for each, what the deliverables will be, and the schedule for completion.

Task 1. Cultural Resource surveys and report
The Consultant will work with the CCNRD and lead agencies to initiate the Sec. 106 process based on APE, conduct a survey and write a report.
• Field survey
• Report

Task 2. Wetland Delineation
The Consultant will complete field work and a report on wetland and OHWM locations and characteristics in the Spring/Summer of 2026.
-Wetland Report.

Task 3. 90% Designs
Building on Phase 1 efforts, NSD will update the 60% design and develop a 90% design package to support CCNRD's regulatory review process. Revisions will incorporate wetland delineation data, feedback from landowners and permitting agencies, changes in field conditions, and updates to the hydraulic model based on proposed design features. Design modifications are expected to include updates to engineered log jam (ELJ) elevations and architecture, as well as refined access and staging locations based on stakeholder input and wetland features.

-90% design plans, a basis of design report, special provisions, and a construction cost estimate.

Task 4. Hydraulic Assessment
A Hydraulic Model will be modified to represent 90% design conditions within the study reach and used to evaluate hydraulic and floodplain processes, existing flood risks to private property, and aid in the development of restoration concepts.

To evaluate conditions a steady state simulation of the following flow events will be run:
• 100 year flood discharge.
• 10 year flood discharge.
• 1.01 year flood discharge.
• Typical winter flow discharge.
• Low summer flow discharge.

Task 5. CLOMR
The project reach is within a FEMA-designated Zone A2 Special Flood Hazard Area (SFHA) with a delineated floodway and defined base flood elevations (BFEs), subject to “zero rise” standards per Chelan County Flood Code and National Flood Insurance Program (NFIP) regulations. The 60% design hydraulic analysis suggests the project will be unlikely to meet “zero rise”, requiring a Conditional Letter of Map Revision (CLOMR) and subsequent Letter of Map Revision (LOMR). Consultant will perform final hydraulic analyses and prepare a complete CLOMR application package, including required FEMA forms, model files, maps, and supporting documentation.

Submittals for this task will include an MT-2 application consisting of:
• Riverine Hydrology & Hydraulics Form 2
• Digital data (e.g., hydraulic model, terrain, etc.)
• Certified topographic map
• Annotated FIRM and FBFM maps
• Narrative describing the project, methods, and analysis results

Task 6. 100% Design
Consultant will finalize a bid-ready design package incorporating feedback from CCNRD, stakeholders, and agencies on the 90% design to support the CCNRD construction bid process. Submittals will include 100% design plans, a basis of design report, special provisions, and a construction cost estimate.

Task 7. Permitting Support
Agency field visits and meetings and permit preparation by sponsor and consultant.

Task 8. Project Management/Coordination

#6: What are the assumptions and physical constraints that could impact whether you achieve your objectives? Assumptions and constrains are external conditions that are not under the direct control of the project, but directly impact the outcome of the project. These may include ecological and geomorphic factors, land use constraints, public acceptance of the project, delays, or other factors. How will you address these issues if they arise?

We have worked with left and right bank landowners to date, so they are familiar with the Preliminary Designs at this stage and we have had to make modifications already to accommodate landowner concerns including a reduction in Riparian Planting Area.
Based on our current designs and existing site conditions, we do not anticipate any issues with permit agencies at this time.
Geomorphic constraints in this reach include the large cobble substrate on banks and channels and challenges associated with these conditions related to restoration of natural processes and the creation and maintenance of pools. Our designs take this into account to create pools in locations that are best suited to sustain pools through a variety of flow conditions.
We do not anticipate any issues with public acceptance of the project but will work with the community to resolve issues if they do arise. The county has completed a number of projects in the lower and middle Entiat and have had to address a variety of issues during planning and implementation of these projects.

#7: How have lessons learned from completed projects or monitoring studies informed this project?

Historically the 1D reach has been a monitoring reach to assess success of projects implemented in other parts of the watershed as part of the Intensively Managed Watershed (IMW). USFWS completed a multi-year study of side channels in the lower Entiat to compare use in the PUD, Wilson and "San Ray" side channels. The sponsor has incorporated feedback from those studies and other large wood focused studies by Polivka and others into the designs. Review by the principal investigator in the side channel studies has been incorporated into the Preliminary Designs and he has even volunteered to meet onsite to discuss the scientific basis for habitat restoration in this reach with the landowner and sponsor.
Other lessons in methods for LWD construction in the lower Entiat have been learned from previous projects and Bureau of Reclamation project review completed in 2012.
For example, pile driving in large cobble dominated substrates is not effective, so excavated post methods for ELJ construction are preferred. Heavily vegetated side channels might utilize a rock collar type ballast to avoid excavation and vegetation disturbance.

#8: Describe the alternatives considered and why the preferred was chosen.

The conceptual design included 17 ELJs, divided into seven design groups. See p. 18 of Lower Entiat !D Reach Habitat Enhancement Project Preliminary Basis of Design Report (BDR) in attachments.

The preliminary design included the following analyses and updates:
- Updated hydraulic analysis and refinement of ELJ placement to further optimize desired hydraulic effects. This included building the ELJs into the surface to better understand expected effects.
- Refinement of ELJ structure design to improve structure stability and increase habitat benefits.

The hydraulic updates made during the preliminary design process show an increase in water surface elevation on the floodplain, with some rise to surrounding homeowners. Due to the confined area with private landowners on both sides of the river, water surface elevation rise is sensitive. To reduce rise, the ELJ count went from seventeen ELJs in conceptual to thirteen ELJs at the start of the preliminary process. After discussions with the County, these updates resulted in a final ELJ count of nine.

In summary, the following changes and updates were made for the final preliminary design:
-Keep the upstream cross vane in place to limit permitting hurdles and difficult construction access.
- Eliminate the boulder clusters that were proposed as they were planned to be sourced from the cross vane removal.
-The removal of the Group 1 right bank deflector ELJ, due to keeping the cross vane.
- The removal of the Group 3 deflectors because of increased water surface elevation rise at the
Firoved property.
- The removal of the Group 4 apex ELJ due to increased left bank floodplain water surface elevation rise.
- The removal of the most downstream Group 5 right bank deflector ELJ to encourage more flow to the downstream right bank side channel.
- The removal of the Group 6 deflector because of increased left bank floodplain water surface elevation rise.
- The removal of the Group 7 deflector due to a culturally sensitive area.

#9: How were stakeholders consulted in the development of this project? Identify the stakeholders, their concerns or feedback, and how those concerns were addressed.

The main landowner on the right bank, the San Ray Orchard property, changed during the Preliminary Design phase of the project. All orchards had been torn out and the land was fallow, when we started the design process. The new landowner is continuing to use the property for agriculture, so some of the project elements, like expanded riparian buffer widths had to be modified to accommodate the owner. The new owner also wants to ensure that the project design is driven by science, so the sponsor has provided him with local studies to show how the habitat is used and why enhancing pools and LWD is important.
The main left bank landowner also has an agricultural property with horses and mules occupying a large area adjacent to the river. His main concern is similar in that he does not want to lose grazing land, so the proposed riparian buffers on the left bank have been reduced.
Landowners and fisherman use the HD Wier at the upper extent of the project and feedback preferred no modifications to that structure, so that was removed after Conceptual Designs. (Modifying it was initially proposed along with LWD structures to enhance flow into the Right Bank seasonal side channel).

#10: Does your project address or accommodate the anticipated effects of climate change?

Yes

#10a: How will your project be climate resilient given future conditions?

Restoration and enhancement of the riparian corridor will combat the effects of increased drought occurrences and higher annual average temperatures by providing a greater amount of shading to the Entiat River over the long term. The potential to reactivate side channels within this section of reach 1D will also provide for greater flood plain connectivity and alluvial water transport to accommodate a possible increase in rain on snow type events.

#10b: How will your project increase habitat and species adaptability?

The project primarily focuses on increasing pools and associated complexity in the mainstem and side channel habitats. Along with fill planting and an increase in the riparian corridor width to enhance shading, this can provide thermal refuge habitat for salmonids and other aquatic species, improving adaptability.

#11: Describe the sponsor's experience managing this type of project. Describe other projects where the sponsor has successfully used a similar approach.

CCNRD has implemented over 60 salmon habitat restoration projects in the Wenatchee and Entiat sub-basins. These projects range in complexity from small riparian planting projects on private land to fish barrier removals on both public and private land to large floodplain reconnection projects requiring multiple years of planning and design with multiple entity coordination and negotiated agreements. CCNRD has successfully completed projects with BNSF Railways, WA Department of Transportation, US Forest Service, large organized private landowner groups, individual private landowners, irrigation districts and other local and state government landowners.
The sponsor has connected side channel habitats and added complexity in the lower Wenatchee and Entiat Rivers, including CMZ 11,12/13, and Monitor Side Channel, and the Harrison Side Channel where similar conditions existed. Monitoring of those projects has shown extensive juvenile fish use and pool development.

#12: Will veterans (including the veterans conservation corps) be involved in the project? If yes, please describe.

No

Planning Supplemental

#1: Is the project an assessment / inventory?
No

#2: Is your project a Barrier / Screening Diversion Inventory Project?
No

#3: Is this a fish passage design / screening design project?
No

#4: Will the project develop a design?
Yes

#4a: Will a licensed professional engineer design of the project?
Yes

#4b: Will you apply for permits as part of the project scope?

Cultural resource surveys and wetland delineations will be completed and permitting meetings and field visits will be held during the final design process. Permits will be drafted but the sponsor will not apply for permits until construction funding has been secured, so it could be after completion of the project.

Planning Metrics

Worksite: Left and Right Bank Entiat River RM 4.3-4.8 (#1)

Area Encompassed (acres) (B.0.b.1)	13.4
Miles of Stream and/or Shoreline Affected (B.0.b.2)	0.50

DESIGN FOR SALMON RESTORATION

Final design and permitting (B.1.b.11.a RCO)

Total cost for Final design and permitting	$239,345
Project Identified in a Plan or Watershed Assessment. (1221) (B.1.b.11.a)	Chelan County Conservation District, 2004, Entiat Water Resource Inventory Area (WRIA) 46 Management Plan.
Priority in Recovery Plan (1223) (B.1.b.11.b)	Chelan County Conservation District, 2004, Entiat Water Resource Inventory Area (WRIA) 46 Appendix A, pA-3 Priority 1: Instream Habitat Diversification. Priority 2: Riparian Planting

EQUIPMENT

Purchase miscellaneous equipment

Total cost for Purchase miscellaneous equipment	$1,000
Number of miscellaneous equipment items	1 **Note:** This amount is only a portion of the total
Describe the miscellaneous equipment being purchased	Anzu Robotics Raptor T drone

CULTURAL RESOURCES

Cultural resources

Total cost for Cultural resources	$20,000
Acres surveyed for cultural resources	10.00

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Overall Project Metrics

COMPLETION DATE	
Projected date of completion	09/30/2027

Planning Cost Estimates

Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8

Category	Work Type	Estimated Cost	Note
Cultural Resources	Cultural resources	$20,000	
Design for Salmon restoration	Final design and permitting (B.1.b.11.a RCO)	$239,345	
Equipment	Purchase miscellaneous equipment	$1,000	
	Subtotal:	$260,345	
	Total Estimate For Worksite:	$260,345	

Summary

Total Estimated Costs:	$260,345
Total Estimated Planning Costs:	$260,345

Cost Summary

	Estimated Cost	Project %	Admin/AA&E %
Planning Costs			
Planning	$260,345		
SUBTOTAL	$260,345	100.00 %	
Total Cost Estimate	$260,345	100.00 %	

Funding Request and Match

FUNDING PROGRAM		
Salmon State Projects	$260,345	100.000000

SPONSOR MATCH

Questions

#1: Explain how you determined the cost estimates

This cost estimate is based off quotes developed by qualified design consultants experienced in these types of planning and design projects. The remainder of the estimate is based of the departments known staff and survey requirements to successfully conduct projects of this nature. Currently this cost estimate does not include indirect since it is listed as State funding. If it changes to Federal funding, indirect costs will be added at that time.

Other Funding

OTHER FUNDING DETAILS

Cultural Resources

Cultural Resource Areas

Worksite #1: Left and Right Bank Entiat River RM 4.3-4.8

Area: Love Left Bank Area

#1: Describe any planned ground disturbing pre-construction/restoration work. This includes geo-technical investigation, fencing, demolition, decommissioning roads, etc.

No ground disturbing activity at this phase of the project. A detailed APE will be developed at this phase.

#2: Describe the existing project area conditions. The description should include existing conditions, current and historic land uses and previous excavation/fill (if depths and extent is known, please describe).

The existing project area has a recent history of agricultural use and this is mostly the current use as well. Portions of the lower Entiat had bulldozers driven down the stream bed, but no definitive record has been found to show that has occurred in this location. The banks appear armored, but no levees are not evident. Instream work was completed at the downstream boundary, Dinkelman Weir, and the upstream boundary, HD Weir, of the project area.

#3: Will a federal permit be required to complete the scope of work on the project areas located within this worksite?

No

#4: Are you utilizing Federal Funding to complete the scope of work? This includes funds that are being shown as match or not.

Unknown

#5: Do you have knowledge of any previous cultural resource review within the project boundaries during the past 10 years?

No

#6: Are there any structures over 45 years of age within this worksite? This includes structures such as buildings, tidegates, dikes, residential structures, bridges, rail grades, park infrastructure, etc.

Unknown

Area: Right Bank access and staging

#1: Describe any planned ground disturbing pre-construction/restoration work. This includes geo-technical investigation, fencing, demolition, decommissioning roads, etc.

No ground disturbing activities planned in this phase.

#2: Describe the existing project area conditions. The description should include existing conditions, current and historic land uses and previous excavation/fill (if depths and extent is known, please describe).

The existing project area has a recent history of agricultural use and this is mostly the current use as well. Portions of the lower Entiat had bulldozers driven down the stream bed, but no definitive record has been found to show that has occurred in this location. The banks appear armored, but no levees are not evident. Instream work was completed at the downstream boundary, Dinkelman Weir, and the upstream boundary, HD Weir, of the project area.

#3: Will a federal permit be required to complete the scope of work on the project areas located within this worksite?

No

#4: Are you utilizing Federal Funding to complete the scope of work? This includes funds that are being shown as match or not.

Unknown

#5: Do you have knowledge of any previous cultural resource review within the project boundaries during the past 10 years?

No

#6: Are there any structures over 45 years of age within this worksite? This includes structures such as buildings, tidegates, dikes, residential structures, bridges, rail grades, park infrastructure, etc.

Unknown

Area: Wick Left Bank

#1: Describe any planned ground disturbing pre-construction/restoration work. This includes geo-technical investigation, fencing, demolition, decommissioning roads, etc.

No ground disturbing activities planned in this phase.

#2: Describe the existing project area conditions. The description should include existing conditions, current and historic land uses and previous excavation/fill (if depths and extent is known, please describe).

The existing project area has a recent history of agricultural use and this is mostly the current use as well. Portions of the lower Entiat had bulldozers driven down the stream bed, but no definitive record has been found to show that has occurred in this location. The banks appear armored, but no levees are not evident. Instream work was completed at the downstream boundary, Dinkelman Weir, and the upstream boundary, HD Weir, of the project area.

#3: Will a federal permit be required to complete the scope of work on the project areas located within this worksite?

No

#4: Are you utilizing Federal Funding to complete the scope of work? This includes funds that are being shown as match or not.

Unknown

#5: Do you have knowledge of any previous cultural resource review within the project boundaries during the past 10 years?

No

#6: Are there any structures over 45 years of age within this worksite? This includes structures such as buildings, tidegates, dikes, residential structures, bridges, rail grades, park infrastructure, etc.

Unknown

Project Permits

Permits and Reviews	Issuing Organization	Applied Date	Received Date	Expiration Date	Permit #
Archaeological & Cultural Resources (EO 21-02)	DAHP				

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Attachments

Required Attachments	7 out of 7 done
Applicant Resolution/Authorizations	✓
CCA Tribal Notification	✓
Cost Estimate	✓
Landowner acknowledgement form	✓
Map: Planning Area	✓
Photo	✓
RCO Fiscal Data Collection Sheet	✓

PHOTOS (JPG, GIF)

Photos (JPG, GIF)

666671 Primary # 666672 Secondary

PROJECT DOCUMENTS AND PHOTOS

Project Documents and Photos

File Type	Attach Date	Attachment Type	Title	Person	File Name, Number Associations	Shared
	05/28/2025	Application Review Report	Grant Manager Comments, 25-1215P(rtnd 05/28/25 10:40)	AmeeB	Grant Manager Comments Report - 25-1215 (rtnd 05-28-2025_10-40-26).pdf, 670581	✓
	05/27/2025	Project Review Comments	Entiat 1D Response to comments.pdf	MikeK	Entiat 1D Response to comments.pdf, 670554	✓
	05/27/2025	Design document	Planting examples from Harrison Final Plans.pdf	MikeK	Planting examples from Harrison Final Plans.pdf, 670551	✓
	05/27/2025	Visuals	Entiat 4.6 Final Design SRFB-RTT_Tour_Presentation_2025.pdf	MikeK	Entiat 4.6 Final Design SRFB-RTT_Tour_Presentation_2025.pdf, 670545	✓
	05/27/2025	CCA Tribal Notification	CCA-TribalNotice_Yakama.pdf	MikeK	CCA-TribalNotice_Yakama.pdf, 670516	✓
	05/27/2025	CCA Tribal Notification	CCA-TribalNotice_Colville.pdf	MikeK	CCA-TribalNotice_Colville.pdf, 670515	✓
	04/18/2025	Project Application Report	Project Application Report, 25-1215P (sub 04/18/25 12:03:41)	MikeK	Project Application Report - 25-1215 (submitted 04-18-2025_12-03-41).pdf, 666729	✓
	04/18/2025	Application Document	Entiat-River-Mills-05-Entiat-1D-Habitat-Enhancement-Final-De	MikeK	Entiat-River-Mills-05-Entiat-1D-Habitat-Enhancement-Final-Design (002).pdf, 666705	✓
	04/18/2025	Design document	Lower Ent Prelim BOD_small.pdf	MikeK	Lower Ent Prelim BOD_small.pdf, 666683	✓
	04/18/2025	Map: Planning Area	Location Map.pdf	MikeK	Location Map.pdf, 666681	✓
	04/18/2025	Design document	Entiat1D_Preliminary Plans.pdf	MikeK	Entiat1D_Preliminary Plans.pdf, 666680	✓
	04/18/2025	Visuals	Visuals of Reach Ent 4.6.pdf	MikeK	Visuals of Reach Ent 4.6.pdf, 666678	✓
	04/18/2025	Photo	LWD structure pano.jpg (1).JPG	MikeK	LWD structure pano.jpg (1).jpg, 666672	✓
	04/18/2025	Photo	Harrison LWD pool.jpg	MikeK	Harrison LWD pool.jpg, 666671	✓
	04/18/2025	RCO Fiscal Data Collection Sheet	SRFB 2025_FiscalDataCollectionSheet_final.pdf	MikeK	SRFB 2025_FiscalDataCollectionSheet_final… 666661	
	04/18/2025	Landowner acknowledgement form	Garn Christensen_LandownerAcknowledgement	MikeK	Garn Christensen_LandownerAcknowledge… 666660	
	04/18/2025	Landowner acknowledgement form	BRUCE_WICK_LandownerAcknowledgem	MikeK	BRUCE_WICK_LandownerAcknowled… 666659	
	04/18/2025	Cost Estimate	Ent 1D-CostEstimate (2).xlsx	MikeK	Ent 1D-CostEstimate (2).xlsx, 666655	✓
	04/18/2025	Applicant Resolution/Authorizations	SRFB2025_CCNRD_ApplicantAuthorizatic	MikeK	SRFB2025_CCNRD_ApplicantAuthori… 666653	✓

Application Status

Application Due Date: 06/23/2025

Status Name	Status Date	Submitted By	Submission Notes
Application Returned	05/28/2025	Amee Bahr	Thanks for submitting your application. The Review Panel Needs More Information to clear your project for funding. Please respond to the panel and grant manager comments and resubmit the application by the June 23rd deadline. We will schedule a follow up call for any clarifying questions you may have for the Review Panel regarding comments. Let me know if you have any questions.
Application Submitted	04/18/2025	Mike Kane	Thanks Amee and Ariel!
Preapplication	04/02/2025		

I certify that to the best of my knowledge, the information in this application is true and correct. Further, all application requirements due on the application due date have been fully completed to the best of my ability. I understand that if this application is found to be incomplete, it will be rejected by RCO. I understand that I may be required to submit additional documents before evaluation or approval of this project and I agree to provide them. (Mike Kane, 04/18/2025)

Date of last change: 05/28/2025

DESIGN PROJECTS

The costs on this page are for design projects, not for the design phase of a restoration grant.

				OVERALL PROJECT	GRANT REQUEST	MATCH			
				Budget must account for all costs to complete the project	*Enter only the amount of the grant request*	*The Grant Request and Match should equal the total project cost and Budget Check cell should be 0. Sponsors must account for all sources and types of match need to complete the project.*			
				Amount	Grant Amount	Match in PRISM	Funding not reported in PRISM	Source (Grant, Cash, Materials, Labor, Volunteers, etc)	Match Type (federal, state, local)
Design Costs									
Category	Task Description	Qty	Rate						
Cultural resources	*Cultural Resource survey and report*	**1.00**	$ 20,000.00	$ 20,000	$ 20,000	$ -	$ -		
Wetland Delineation	*Wetland inventory and report*	1.00	$ 28,157.00	$ 28,157	$ 28,157	$ -	$ -		
Designs 90%	*Plans and BDR*	1.00	$ 41,651.00	$ 41,651	$ 41,651	$ -	$ -		
Hydraulic Modeling	*Proposed conditions model*	1.00	$ 14,474.00	$ 14,474	$ 14,474	$ -	$ -		
Permit Support	*Site visit, meetings and support*	1.00	$ 21,739.00	$ 21,739	$ 21,739	$ -	$ -		
Designs 100%	*Final Plans, and specs and BDR*	1.00	$ 28,440.00	$ 28,440	$ 28,440	$ -	$ -		
CLOMR		1.00	$ 47,652.00	$ 47,652	$ 47,652	$ -	$ -		
Project Management (Consultant)	*Meetings, travel, admin*	1.00	$ 17,432.00	$ 17,432	$ 17,432	$ -	$ -		
Permits (Sponsor)		1.00	$ 9,600.00	$ 9,600	$ 9,600	$ -	$ -		
Project Management (Sponsor)	*Design meetings, coordination, admin*	1.00	$ 30,200.00	$ 30,200	$ 30,200	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
Other-CCNRD	*Anzu Robotics Raptor T*	1.00	$ 1,000.00	$ 1,000	$ 1,000	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			STotal	**$ 260,345**	**$ 260,345**	**$ -**	**$ -**		
Indirect Costs				Amount	Grant amount	Match in PRISM	Funding not reported in PRISM	Match Source	Match Type (federal, state, local)
	Description	Approved Rate	Total Project Base						
	Indirect	0.000%	$ -	$ -	$ -	$ -	$ -		
	Indirect	0.000%	$ -	$ -	$ -	$ -	$ -		
			STotal	**$ -**	**$ -**	**$ -**	**$ -**		
			Totals	**$ 260,345**	**$ 260,345**	**$ -**	**$ -**		

CUMULATIVE TOTALS

This sheet contains automatic calculations

Project Name	Entiat 1D Habitat Enhancement Final Design
SRFB #	25-1215
Sponsor	Chelan Co Natural Resource

	OVERALL PROJECT Cost	GRANT REQUEST Amount	PRISM MATCH Amount	MATCH NOT IN PRISM Amount	*Budget Check*
Sheet #1 Acquisition					
Property Costs	$ -	$ -	$ -	$ -	0
Incidental Costs	$ -	$ -	$ -	$ -	0
Administrative Costs	$ -	$ -	$ -	$ -	0
Indirect Costs	$ -	$ -	$ -	$ -	
STotal	$ -	$ -	$ -	$ -	0
Sheet #2 Design					
Design Costs	$ 260,345	$ 260,345	$ -	$ -	
Indirect Costs	$ -	$ -	$ -	$ -	
STotal	$ 260,345	$ 260,345	$ -	$ -	0
Sheet #3 Restoration					
Construction Costs	$ -	$ -	$ -	$ -	0
AA&E	$ -	$ -	$ -	$ -	0
Indirect Costs	$ -	$ -	$ -	$ -	
STotal	$ -	$ -	$ -	$ -	0
Totals	$ 260,345	$ 260,345	$ -	$ -	0

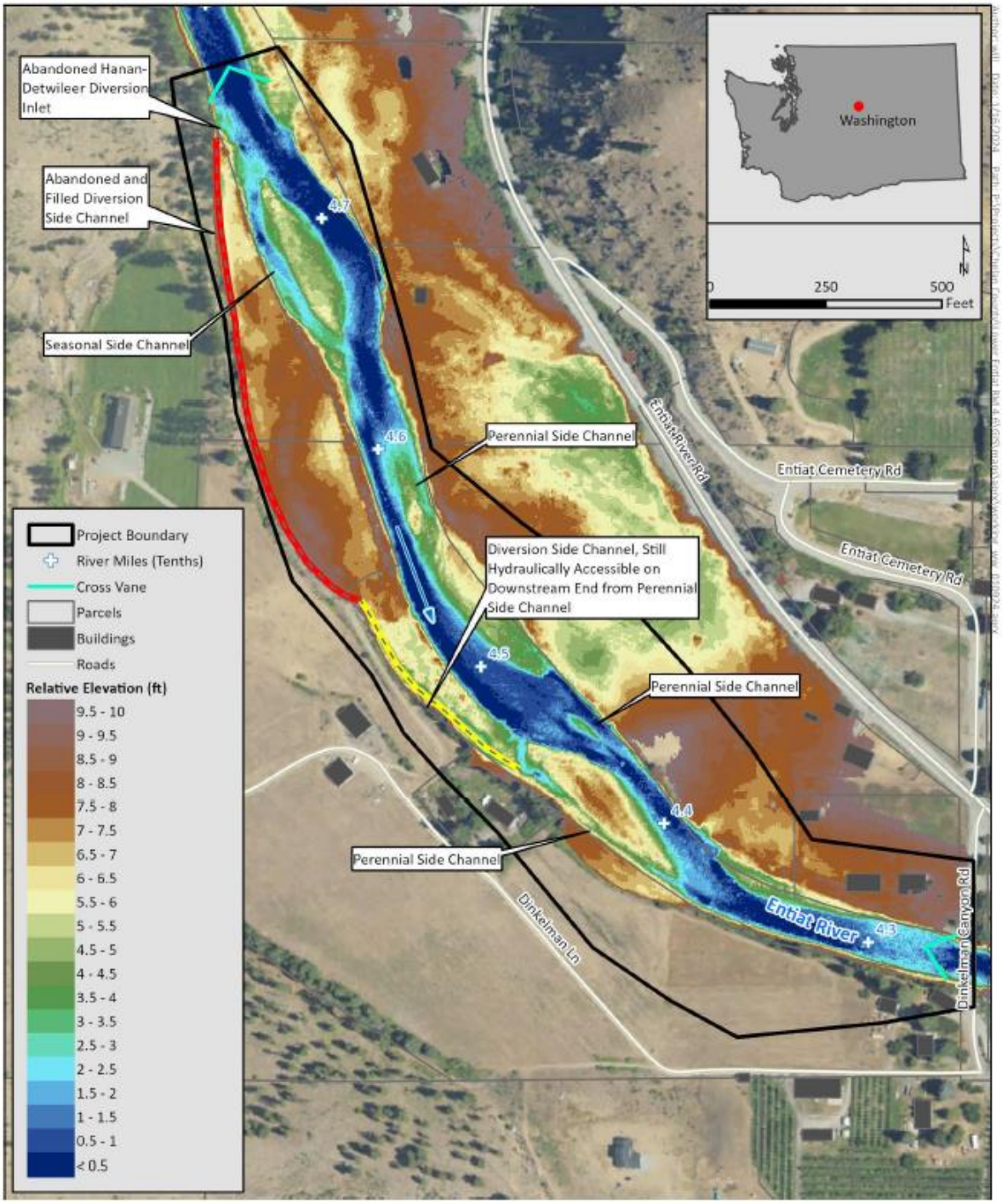

Figure 1: Project Area Existing Conditions

Harrison LWD pool

LWD structure Panorama


Existing side channel inlet and jam
on river right RM 4.5


Existing perennial side channel
Right bank RM 4.45


RM 4.6 Left bank island and flow split


Looking upstream from Dinkelman Bridge

#25-1215 Entiat 1D Habitat Enhancement Final Design

Responses to Site Tour Presentation comments and questions

The Preliminary Design Plans include a Revegetation Plan sheet showing access, staging areas for restoration and polygons of 25' buffer width, but no plant list or details for planting.

- Why isn't the plant list and quantities included in the Preliminary Design Plans?

We did not get final approval from landowners on the buffer widths and plant lists prior to completion of the Preliminary Designs in December 2024. At the next stage of design, the species and polygons to be planted will be finalized. A planting plan example is also attached in PRISM from a project completed one mile downstream (Reach 1D) on the Entiat River to give a sense of the species of plants, sizes and type of arrangement that would be implemented in the 1D Reach ("Planting examples from Harrison Final Plans"). Additionally, we would likely include cottonwood (P. balsamifera) in this planting palette.

- Is there a risk that the change in floodplain depths on the left bank as a result of the 100yr flow will reduce the additions of wood structures?

There is a risk and we may have to remove one of the structures to mitigate rise in the design/CLOMR process (existing left bank structures are currently inundated during the 100-year event and that is increased by 0.25' under proposed conditions). The next phase of design will clarify these changes and we will likely have to design the structures to be overtopped at the 2 yr flow to mute the flood effects shown in the model. Additionally, at the Preliminary Design stage they were modeled as solid objects with back fill and they could be designed to be porous without backfill to further reduce increases in 100 yr floodplain depths.

Both comments will be addressed early in the next design phase.