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	Upper Methow - Salmon Cassel Final Design and Implementation
Sponsor	Methow Salmon Recovery Foundation
Primary Contact	Brian Fisher
E-Mail Address	brian@methowsalmon.org

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 project would complete final designs and implementation for the Upper Methow-Salmon Cassel project. The project will to create thermally and geomorphically stable pools and backwater habitats to provide refugia and cover in the Upper Methow-Fawn reach on two MSRF-owned parcels and adjacent private properties with willing landowners. This project builds on preliminary design developed under RCO 23-1276. The project will build 9 low-profile habitat structures to scour pools and provide complex cover adjacent to hyporheic cold groundwater, and create 2 perennial alcoves along seasonally connected floodplain channels. The project will produce final designs and implement habitat restoration actions that provide cover and complexity for ESA-listed Upper Columbia Spring Chinook Salmon, UCR Steelhead, and Bull Trout in and around these sources of cold- water.

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].

The project seeks to provide high quality rearing habitat adjacent to identified thermal refugia by constructing 9 instream habitat structures and 2 perennial alcoves at the lower end of seasonally connected side channels. The project will increase fish access to at least 2000 square feet of thermal refuge and provide at least 4000 square feet of complex cover upon implementation.

Budget Request

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

Anticipated Request - SRFB (standard round)	$634,316
Tributary Committee - Anticipated or Actual	$200,008
Anticipated TOTAL Budget	$834,324

Project Location

Briefly describe the location of the project	The project will occur in the Methow River between RM 61.75 and 62.7.
Latitude (decimal degrees)	48.5513
Longitude (decimal degrees)	-120.333
Project subbasin	Methow
Methow Assessment Unit(s)	Methow River-Fawn Creek
Does the proposed project span multiple assessment units?	No
Reach(es) Name	Methow River Fawn 6 & 7
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/.	Multiple reaches (provide details below)

Please detail the reach-ranking of the reaches below

Methow River Fawn 6 is Reach Rank 1

Methow River Fawn 7 is Reach Rank 2

Project Information

1. What species will the project benefit?

Spring Chinook | Steelhead | Bull Trout

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

Design, Monitoring or Assessment

Instream Habitat (Includes Floodplain & Off-Channel Reconnection)

Water Quality

Instream Habitat: Reporting Code

Total miles of instream habitat treated

Miles of off-channel stream created or connected

Acres of channel/off-channel connected or added

Number of structures placed in channel

Pools created through channel structure placement

Water Quality: Reporting Code

Water quality limitation treated

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.)

This project seeks to finalize and implement designs developed under design project 23-1276 (Upper Methow Preliminary Design).

6. What category is the project?

Restoration

If applicable, what is the secondary project category?

Design

Is the project eligible for Riparian Funding?

No

Design and Restoration Proposals

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

Final Design | Construction

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)?

Upper Methow Reach Assessment - December 2015

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

Cover - Wood | Off-Channel - Side-Channels | Temperature - Rearing

10. Which life stages will the proposed project address?

Subadult Rearing (Bull Trout) | 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?

This project seeks to increase rearing capacity within the project reach by increasing the quantity of deep pools with complex cover and access to emerging groundwater.
In this reach of the Methow River, background density of juvenile spring Chinook and steelhead is very low in areas without complex structure and scour pool habitat. Instream wood structures are designed to scour pools that support higher rearing densities of these target species.

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?

Project features are designed to fit within the geomorphic context of the reach by mimicking natural structures. Channel complexity and instream wood levels in this reach are limited by more than a century of logging, vegetation clearing, road building and channelization. This project will mimic aspects of natural wood jams that would be expected under more natural stream and watershed processes.

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?

10-50 years

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

This project is designed to be self-maintaining. Wood structures are low-profile and pile secured so they are stable and maintain scour pools. Side channel cuts are designed to limit the potential for both siltation and capture.

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

Build 9 instream wood structures to promote pool scour and provide complex hiding cover. Construct 2 perennial backwater alcoves at the lower end of seasonally active side channels that connect with cold groundwater. Add cover wood in alcove habitats to increase habitat capacity within these side-channels.

Assessment Proposals

Protection Proposals

Monitoring Proposals

Project Risk and Economic Benefits

1. What is the landownership? Private, DNR State Owned Aquatic Lands

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

Please explain

Primary activities are on land owned by Methow Salmon Recovery Foundation

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

None identified

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

This project is designed to meet FEMA No-Rise requirements and not increase chances of channel avulsions. Wood structures are consistent with existing recreational hazards in the project area.

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

This project is designed to be self-maintaining with out having extensive maintenance and management requirements. Structures are designed to break apart if they fail to minimize risk and concerns to downstream landowners.

6. Are other projects being proposed immediately upstream or downstream of worksite? No

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

Project structures are designed to be relatively low risk. Wood structures are designed to be consistent with existing recreational hazards in the project area, and to break apart if they are undermined. Low profile structures are designed to not increase flood risks.

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

No specific public outreach is planned as part of this project. The project will seek to employ local and regional contractors where possible to help build support for salmon recovery efforts within our community.

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

The project will favor local and regional contractors where practical. Projects that employ local contractors support local economic communities, because local contractors represent local jobs and tend to spend more money within the local and regional economy.

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

This project was designed under a SRFB grant with an experienced engineering team from Anchor QEA.

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: 25-1219 PLAN,REST, UPPER METHOW SALMON CASSEL FINAL DESIGN & IMPLEMEN

Sponsor: Methow Salmon Recovery Found Program: Salmon State Projects Status: Application Submitted

Parties to the Agreement

PRIMARY SPONSOR

Methow Salmon Recovery Foundation
Address PO Box 755
City Twisp **State** WA **Zip** 98856-0755
Org Type Non-Gov-Nonprofit
Vendor # SWV0091539-00
UBI 602134958
Date Org created
Org Notes

link to Organization profile
☐ Org data updated

QUESTIONS - PRIMARY SPONSOR

#1: What date was your organization created?

2002

#2: Is your organization registered as a non-profit with the Washington Secretary of State?

Yes

#2a: Please confirm the Unified Business Identifier (UBI) shown above is correct or provide if blank.

The UBI above is correct

#3: How long has your organization been involved in salmon and habitat conservation?

20 years

#4: Do your organizational documents (charter, bylaws, or articles of incorporation) include the authority for the protection or enhancement of natural resources or related activities?

Yes

#5: Do your organizational documents (charter, bylaws, or articles of incorporation) provide for an equivalent successor organization in case the nonprofit dissolves?

No

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.

Methow Salmon Recovery Foundation is the project proponent and landowner. MSRF is providing project management, stakeholder outreach, and design support services to the project. MSRF will hire construction contractors and coordinate final design and construction of the project.
AnchorQEA is providing engineering and design services to the project.

External Systems

SPONSOR ASSIGNED INFO

Sponsor-Assigned Project Number

Sponsor-Assigned Regions

LINK AN EXISTING SRP PROJECT

Unlink
25-1219, Upper Methow Salmon Cassel Final Design & Im

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
Brian Fisher Methow Salmon Recovery Found	Project Contact	(509) 429-4928	brian@methowsalmon.org
Jessica Goldberg Methow Salmon Recovery Found	Alt Project Contact		jessica@methowsalmon.org
Chris Johnson Methow Salmon Recovery Found	Agreement	(509) 429-1232	ChrisJ@methowsalmon.org
Ariel Edwards Upper Columbia Salmon Rcy Bd L	Lead Entity Contact	(208) 540-2691	ariel.edwards@ucsrb.org
Katy Williams Methow Salmon Recovery Found	Billing	(509) 433-8880	katy@methowsalmon.org
Marlene Fuchs Methow Salmon Recovery Found	Billing	(541) 231-0813	marlene@methowsalmon.org

Worksites & Properties

#	Worksite Name
#1	Salmon Cassel

Planning/Restoration	Property Name
✓	MSRF Fawn 1
✓	MSRF Fawn 2

Worksite Map & Description

Worksite #1: Salmon Cassel

WORKSITE ADDRESS

Street Address Goat Creek Rd
City, State, Zip Winthrop WA 98862

Worksite Details

Worksite #1: Salmon Cassel

SITE ACCESS DIRECTIONS

From Winthrop, head NW on State Route 20 for approximately 8 miles. Turn right onto Goat Creek Road. The project is along Goat Creek Road on the southwest side between the road and the river for approximately 1.8 miles.

TARGETED ESU SPECIES

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

Reference or source used

NMFS 2016

TARGETED NON-ESU SPECIES

Species by Non-ESU	Notes
Bull Trout	Migratory adults and juveniles; population trend declining. USFWS designated FMO habitat.
Lamprey	Pacific lamprey ammocoetes, potentially adults and eggs. Population possibly declining.

Questions

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

No street address available. The project is on the southwest side of Goat Creek Road approximately 1/2 mile northwest from the intersection with State Route 20.

Project Location

RELATED PROJECTS

Projects in PRISM

PRISM Number	Project Name	Program Name	Current Status	Relationship Type	Notes
23-1276 P	Upper Methow Preliminary Design RM 61.75-62.7	Salmon State Supplemental Sm	Active	Earlier Phase	In progress. Deliverables from 23-1276 expected by early summer

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.

The project is located in the Methow Watershed in Okanogan County, withing the Methow Fawn Creek Assessment Unit in reaches 6 & 7 between RM 61.75-62.75. The project will work in mainstem, floodplain and side channel locations.

#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.

The Biological Strategy for restoring habitat for Upper Columbia Spring Chinook and Steelhead (last updated 2017), prioritizes actions that address identified limiting factors and prioritized ecological concerns in high priority reaches. The Methow Fawn Assessment Unit is prioritized as Tier 1 for restoration of both Spring Chinook and Steelhead. Methow Fawn Reaches 06 and 07 are identified as Rank 1 and Rank 2, respectively, for restoring reach function. Cover from large wood, floodplain connectivity and pool quantity and quality are all identified as limiting factors currently functioning at unacceptable levels. Restoring functional banks and improving instream complexity are recommended actions in these reaches.
This project will design and construct features intended to increase instream complexity, support hyporheic exchange, and increase the area of accessible cold water refugia. These actions will address priority limiting factors and increase habitat capacity in this important reach. This project presents a unique opportunity to increase the quantity, quality, and access to thermal refuge habitat. Thermal refuge habitat for rearing spring-run Chinook and Steelhead is a high priority limiting factor that is challenging to address through site-scale restoration projects.

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

Yes

#3a: How does this project fit into the sequencing of the larger project?

This project builds on prior land acquisitions and easement protection and data collection efforts as well as the preliminary designs completed under RCO 23-1276. The project will complete final designs and construct a habitat restoration project to benefit ESA-listed salmonids in the Upper Methow.

#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**

Yes

Property Details

Property: MSRF Fawn 1 (Worksite #1: Salmon Cassel)

✓ **Planning/Restoration**

LANDOWNER

Name	Methow Salmon Recovery Foundation
Address	PO Box 755
City	Twisp
State	WA Zip 98856-0755
Type	Private

CONTROL & TENURE

Instrument Type	Sponsor owned property (deed)
Timing	Existing
Term Length	Perpetuity
# Yrs	
Expiration Date	
Note	

Property: MSRF Fawn 2 (Worksite #1: Salmon Cassel)

✓ **Planning/Restoration**

LANDOWNER

Name	Methow Salmon Recovery Foundation
Address	PO Box 755
City	Twisp
State	WA Zip 98856-0755
Type	Private

CONTROL & TENURE

Instrument Type	Sponsor owned property (deed)
Timing	Existing
Term Length	Perpetuity
# Yrs	
Expiration Date	
Note	

Project Proposal

Project Description

Project funding would allow MSRF to complete final designs and implementation for the Upper Methow-Salmon Cassel project. The project will enhance existing identified thermal refuge areas by creating thermally and geomorphically stable pools and backwater habitats to provide refugia and cover in the Upper Methow-Fawn reach on two MSRF-owned parcels and adjacent private properties with willing landowners. This project builds on preliminary design developed under RCO 23-1276. The project will build 9 low-profile habitat structures to scour pools and provide complex cover adjacent to persistent hyporheic cold groundwater, and create 2 perennial alcoves along seasonally connected floodplain channels. The project will produce final designs and implement habitat restoration actions that provide cover and complexity for ESA-listed Upper Columbia Spring Chinook Salmon, UCR Steelhead, and Bull Trout in and around these sources of cold- water.

Project Questions

Project Application Report - 25-1219

#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.

Water temperature is a limiting factor throughout the Upper Columbia. During summer months high water temperatures increase stress and mortality for both rearing juveniles and migrating adults. In winter months, low temperatures limit growth and presents risk of icing related stress and injury. Thermal refuge habitats, which are generally connected to hyporheic groundwater, provide critical refugia for both rearing juveniles and migrating adults.

In 2022, the "Methow Thermal Refugia Restoration Assessment" surveyed summertime cold-water patches identified from the 2009 thermal imagery to evaluate persistence and describe habitat conditions. This assessment identified the project reach as having the highest concentration of persistent thermal refugia in the Methow Subbasin. The assessment also found that throughout the basin, thermal refuge patches generally lacked both habitat quality and accessibility. Many of the cold-water patches are small and shallow, reducing their value to fishes. In addition, many of these cold-water patches lack the complex cover, such as provided by woody debris, that can help reduce predation and increase fish density.

This project is designed to increase the amount of thermal refuge habitat by scouring pools and expanding alcove channels in an area known to have an abundance of near-surface hyporheic flows. Scour pools are expected to concentrate this cold groundwater so fish can rear in these thermally adventitious conditions. This is expected to expand the size and extent of cold-water patches in the project area.

In addition, this project will add complex cover in the form of persistent woody debris to improve the habitat conditions within both existing and new cold-water patches.

The project site is located just downstream of the Upper Methow losing reach and consequently has an abundance of near-surface hyporheic flows. Site visits found emerging groundwater that runs up to 4°C warmer in the winter and a similar amount cooler in the summer. Many of these patches emerge in areas like bar margins, where water depths are less than 6” deep and are more than 10m from useable fish cover. This project site also includes several seasonal side channels that can maintain backwater alcoves at the downstream end. These features offer unique opportunities for a habitat project to increase the availability and accessibility of thermal refuge habitat in the Methow Subbasin.

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

This project seeks to address Water Temperature- Rearing, Cover-Wood, Floodplain Connectivity, Off-channel – Side Channels, and Pool Quality. Building wood habitat structures designed to scour pools in contact with hyporheic groundwater, will provide rearing habitat for juvenile spring-run Chinook, and steelhead, as well as potentially sub-adult bull trout. The project will increase the connectivity of two seasonal side channels that flow into the top of backwater alcoves. Scour pools and backwater alcoves are designed to be perennially connected with the main channel flow. Larger scour pools may also be used by migrating adults of all three listed species.

#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**

Project Goal: improve the quality, quantity, & accessibility of thermal refuge habitat in the Methow Fawn Creek Reaches 6-7 to improve UCR spring Chinook & Steelhead rearing habitat. The reaches are extensively simplified by road development and bank armoring to protect property & infrastructure, and have also been cleared of wood following significant floods. The resulting habitat has low persistence of meaningful wood jams & is largely static with little channel variability resulting in loss of planform complexity with fewer opportunities for juvenile rearing.

Wood placements will increase habitat quality by providing complex cover in & around both existing & constructed thermal refugia. Proposed wood structures are designed to maintain scour pools that tap into existing hyporheic flows, increasing the quantity of accessible thermal refugia that offer important rearing areas during summer high temperatures & cold winter low-flows. Juvenile Chinook and Steelhead are expected to use these thermal habitats extensively during these key periods.

Persistent scour pools & alcove habitats connected with main channel flows will improve access to thermal refugia during low-flows, including periods of summer & winter thermal stress. Desired future condition: an increase in complex wood structures to a historically appropriate level, increased activity and connectivity of side channel and backwater areas, & persistence of established scour pools at identified thermal refugia.

#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**

Final designs will be completed in 2026 that clearly show construction needed to implement project as designs and secure all permits and authorizations.

Upon project completion, the project will construct 9 wood habitat structures and two alcoves.
A minimum of 5 of the wood habitat structures will maintain scour pools of at least 100 ft2 with at least 1 ft of residual depth for at least 5 years after construction. Pools will have complex hiding cover consisting of small diameter woody material with at least 25 ft2 of areal coverage.
Alcoves will hold at least 1 foot of perennial depth over at least 2000 ft2.

Scour pools and alcoves will have areas with water temperatures that are at least 2°C colder during the summer high temperature periods and 2°C warmer during winter months.

#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.

1. Complete final designs: Project team will advance designs from preliminary to final.
2. Permit applications: Project team will compile and submit required permit applications including ESA, Clean Water Act (section 404 and 401), state hydraulics code (HPA), as well as local codes (e.g. Floodplain development permit) and for entry to State Owned Aquatic Lands.
3. Public outreach and landowner engagement: MSRF will engage with landowners and other stakeholders prior, during, and following construction.
4. Project Management: MSRF staff will manage project construction contracting, materials procurement, construction, and post-construction activities
5. Materials acquisition: MSRF will purchase and have materials delivered to the site.
6. Contracting: MSRF will advertise and complete bid process and hire construction contractor.
7. Project Construction: Selected construction contractor will construct project as designed under guidance from project engineer.
8. Site restoration and revegetation: Planting contractor will reseed disturbed areas and plant native riparian species.
9. Project complete: As-built designs will be completed and submitted to stakeholders and funders.
10. Final report and invoices to RCO leading to final approval and payment.
11. Post construction monitoring plan.

#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?

The project is dependent on maintaining support from the key landowners. The project is designed to avoid impacts to public and private infrastructure, in particular the Weeman Bridge and Goat Creek Road.

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

Lessons learned from completed projects and monitoring efforts are highlighted below:
• No such thing as one and done – All projects require monitoring; most require adaptive adjustments.
• Don’t expect the river to do the work for you – Modelling may suggest that sediment transport or high flows will occur within a period of time. But models do not suffer from the lack of patience that adjacent landowners do.
• Public/stakeholder tolerance for lengthy assessment/development/design/construction processes is very limited and requires continual engagement.
• Identifying opportunities to strategically acquire properties in priority reaches is the best way to increase certainty of success.
• More than a decade of site knowledge is invaluable to inform project design team.

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

This project site was selected based on the findings of the "Methow Thermal Refugia Restoration Assessment" published December 2022 by Methow Salmon Recovery Foundation (MSRF) prepared by John Crandall. The Assessment documents multiple cold-water pockets within the project area, but the benefits of these cold-water seeps are limited by lack of depth and habitat complexity. This design project will produce designs for a habitat restoration project that will provide cover and complexity in around the cold-water seeps found in the project area.

During the conceptual design phase, we considered a range of actions that included more aggressive approaches and included more work on the upstream portion of the project. This approach was deemed to have excessive risk of channel instability that could threaten habitat values as well as private and public infrastructure.

The selected actions tie into and build on prior public funding for protection acquisitions as well as establishment of conservation easements that preclude residential development. Working on these previously protected properties provides a higher level of certainty and tolerance for variability

Conceptual designs were also limited by the need to comply with FEMA no-rise provisions and constraints relating to the existing Hwy 20 bridge (the Weeman Bridge). The selected approach was selected based on the ability to maximize habitat improvements will minimizing the risk to existing public and private infrastructure.

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

Methow Salmon Recovery Foundation owns key properties to either side of the acquisition
property in the project area. The MSRF properties abut common ownership properties managed by a homeowners association (Edelweiss Maintenance Commission). The Edelweiss Board of Directors is supportive of the MSRF's efforts and has committed to assist in restoration and protection efforts. The Association is currently collaborating with MSRF on a side channel Beaver study in the reach and with outreach efforts to address trespass issues that have historically impacted shorelines in the reach.

MSRF has begun coordination with the Methow Conservancy over work on easement properties.

#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?

Climate change is expected to increase water temperatures during summer & increase the duration and severity of low flow periods. In these more extreme conditions, juvenile salmonids will become more dependent on thermal refuge, and cold-water patches will become more important for migrating adult Chinook. The project is designed to provide increased resilience to instream habitat & floodplain features in the face of changing environmental conditions by enhancing the amount of hyporheic exchange in the project area & expanding the amount of thermal refugia available. Project actions are designed to extend both the quantity & quality of accessible habitat in and around the cold water patches. This is intended to provide fish opportunities to mitigate expected higher water temperature. Increasing the amount & accessibility of thermal refuge will provide habitat that rearing juveniles can use to escape higher water temperatures to conserve energy in the face of worsening conditions.

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

The project is designed to provide refuge habitat that is becoming increasingly important as a changing climate imposes greater challenges to UCR spring Chinook, Steelhead and Columbia River Bull trout. Providing diverse and complex habitat around cold water refugia is anticipated to offer fish opportunities to avoid negative impacts and maximize growth. This should help reduce pre-spawn mortality and allow fish ways to adapt to changing climate.

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

Methow Salmon Recovery Foundation has over 20 years of experience planning, developing, implementing, and maintaining complex habitat restoration projects. Some recent similar habitat projects completed by MSRF include the Barkley Bear Phase 1-3 Project (2020-2022), Twisp River Floodplain Habitat Project Phase 1 and 2 (2015-2018), Upper Beaver Creek Channel Relocation (2013), Middle Methow (M2) WDFW Floodplain Project (2013), M2 3R Habitat Restoration Project (2014), M2 Whitefish Island Habitat Project (2012), Upper Beaver Creek Final Design and Restoration (2019-2023), and Sugar Reach Restoration (2020-Current).

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

No

Planning/Restoration Supplemental

#1: Is the project an assessment / inventory?

No

#2: What level of design (per Appendix D) have you completed? Please attach.

Preliminary

#2a: What level of design will be produced prior to construction?

Final

#3: Will (or did) a licensed professional engineer design the project?

Yes

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

#5: Does the project include measures to stabilize an eroding stream bank?
No

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

#7: Is the primary activity of the project invasive species removal?
No

#8: Is the primary activity of the project riparian planting?
No

#9: Describe the steps you will take to minimize the introduction of invasive species during construction and restoration. Consider how you will use un-infested materials and clean equipment entering and leaving the project area.

We will use best practices to minimize the chances that the project will introduce invasive species to the site, including:
• All heavy equipment will be cleaned and inspected before coming onto the site.
• Disturbance will be confined to the minimum necessary to complete the work.
• All disturbed soils will be re-seeded and replanted immediately following work completion.
• All seed used will be certified weed-free and planting materials will be sourced locally and inspected for invasive species prior to use on site.
• Wood materials will be screened for invasive species prior to being brought on site.
• Any slash imported to the site will be native or non-invasive species.

#10: Will the project develop a design?
Yes

#10a: Will a licensed professional engineer design of the project?
Yes

#10b: Will you apply for permits as part of the project scope?

Yes, the project scope includes securing permits necessary for project implementation

#11: Describe the long-term stewardship and maintenance obligations for the project.

This project is designed to be self-maintaining. Disturbed areas will be reseeded and replanted as appropriate. Plantings will be maintained until established and self-sufficient. Site conditions are expected to have lower than average plant maintenance requirements.

Wood structures are designed to mimic natural processes & are designed to avoid significant increases to risk for existing infrastructure. Wood structures will be monitored for a minimum of 3 years & after large flow events. There is a level of unavoidable risk that wood structures fail due to greater than expected scour or flows. Proposed wood structures are designed solely to provide habitat, & will be designed to break apart rather than leaving as a single unit. These attributes are intended to minimize the potential for moderate to long-term stewardship & maintenance obligations. MSRF ownership allows greater opportunities to assess maintenance needs based on habits benefit rather than perceived landowner concerns.

Planning/Restoration Metrics

Project Application Report - 25-1219

Worksite: Salmon Cassel (#1)

Area Encompassed (acres) (B.0.b.1)	47.4
Miles of Stream and/or Shoreline Affected (B.0.b.2)	1.49
Miles of Stream and/or Shoreline Treated or Protected (C.0.b)	1.49
Project Identified In a Plan or Watershed Assessment (C.0.c)	A biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region (RTT 2017) Upper Methow River Reach Assessment: River Miles 61-80 (InterFluve 2015) Upper Columbia Prioritization Framework (RTT 2021)
Priority in Recovery Plan	Addresses priority actions, in Tier 1 area, targets priority species
Type Of Monitoring (C.0.d.1)	None
Monitoring Location (C.0.d.2)	No monitoring completed

DESIGN FOR SALMON RESTORATION

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

Total cost for Final design and permitting	$121,420
Project Identified in a Plan or Watershed Assessment. (1221) (B.1.b.11.a)	A biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region (RTT 2017) Upper Methow River Reach Assessment: River Miles 61-80 (InterFluve 2015) Upper Columbia Prioritization Framework (RTT 2021)
Priority in Recovery Plan (1223) (B.1.b.11.b)	Addresses priority actions, in Tier 1 area, targets priority species

INSTREAM HABITAT PROJECT

Total Miles Of Instream Habitat Treated (C.4.b)	1.49

Channel reconfiguration and connectivity (C.4.c.1)

Total cost for Channel reconfiguration and connectivity	$68,418
Type of change to channel configuration and connectivity (C.4.c.2)	Creation/Connection to Off-Channel Habitat
Miles of Stream Treated for channel reconfiguration and connectivity (C.4.c.3)	0.51
Miles of Off-Channel Stream Created or Connected (C.4.c.4)	0.39
Acres Of Channel/Off-Channel Connected Or Added (C.4.c.5)	0.3
Instream Pools Created/Added (C.4.c.6)	2

Channel structure placement (C.4.d.1)

Total cost for Channel structure placement	$386,479
Material Used For Channel Structure (C.4.d.2)	Individual Logs (Anchored) Logs Fastened Together (Logjam)
Miles of Stream Treated for channel structure placement (C.4.d.3)	1.49
Acres Of Streambed Treated for channel structure placement (C.4.d.4)	18.0
Pools Created through channel structure placement (C.4.d.5)	9
Number of structures placed in channel (C.4.d.7)	9

RIPARIAN HABITAT PROJECT

Total Riparian Miles Streambank Treated (C.5.b.1)	0.50
Total Riparian Acres Treated (C.5.b.2)	0.8

Planting (C.5.c.1)

Total cost for Planting	$27,200
Species Of Plants planted in riparian (C.5.c.2)	Cottonwood (Populus trhcocarpa), dogwood (Cornus alba), water birch (Betula occidentalis), alder (Alnus incana), chokecherry (Prunus virginiana), Pacific willow (Salix lucida)

Acres Planted in riparian (C.5.c.3)	0.8
Miles of streambank planted (C.5.c.4)	0.10
Average Riparian Width	200
Site Potential Tree Height at 200 years (SPTH-200)	174

ARCHITECTURAL & ENGINEERING

Architectural & Engineering (A&E)

Total cost for Architectural & Engineering (A&E)	$14,940

AGENCY INDIRECT COSTS

Agency Indirect

Total cost for Agency Indirect	$15,867

Project Application Report - 25-1219

Overall Project Metrics

COMPLETION DATE	
Projected date of completion	9/30/2029

Planning/Restoration Cost Estimates

Worksite #1: Salmon Cassel

Category	Work Type	Estimated Cost	Note
Agency Indirect Costs	Agency Indirect	$15,867	
Design for Salmon restoration	Final design and permitting (B.1.b.11.a RCO)	$121,420	
Instream Habitat Project	Channel reconfiguration and connectivity (C.4.c.1)	$68,418	
	Channel structure placement (C.4.d.1)	$386,479	
Riparian Habitat Project	Planting (C.5.c.1)	$27,200	
	Subtotal:	$619,384	
Admin, Architecture, and Engineering		$14,940	
	Total Estimate For Worksite:	$634,324	

Summary

Total Estimated Costs Without AA&E:	$619,384
Total Estimated AA&E:	$14,940
Total Estimated Planning/Restoration Costs:	$634,324

Cost Summary

	Estimated Cost	Project %	Admin/AA&E %
Planning/Restoration Costs			
Planning/Restoration	$619,384		
Admin, Architecture, and Engineering	$14,940		2.48 %
SUBTOTAL	$634,324	100.00 %	
Total Cost Estimate	$634,324	100.00 %	

Funding Request and Match

FUNDING PROGRAM		
Salmon State Projects	$634,324	100.000000

SPONSOR MATCH

Questions

#1: Explain how you determined the cost estimates

> Cost estimates are based on our experience with recently completed and in-process design and restoration projects including the Eagle Rocks, M2 3R, and Upper Beaver Creek projects. The design costs are based off anticipated work required to finalize the existing designs with AnchorQEA. Construction costs are based off proposed designs and recent projects.

Other Funding

OTHER FUNDING DETAILS

Cultural Resources

Cultural Resource Areas

Worksite #1: Salmon Cassel

Area: Uploaded APE

#1: Provide a description of the project actions at this worksite (acquisition, development and/or restoration activities that will occur as a part of this project)

> This project includes active restoration within the provided APE. Project implementation includes establishing and removing temporary access routes, constructing wood habitat structures and excavation for proposed secondary channels and alcoves.

#2: Describe all ground disturbing activities (length, width and depth of disturbance and equipment utilized) that will take place in the Area of Potential Effect (APE). Include the location of any construction staging or access roads associated with your project that will involve ground disturbance.

> Proposed wood habitat structures will be pile supported and include pre-formed scour pools. Construction will include excavation to subgrade depths up to 4 feet, driving piles, placing natural un-treated logs and slash, and backfilling with native material. Disturbance for each structure will be up to 50 feet long by 30 feet wide.
>
> Secondary channel and alcove construction includes excavation to finish grades shown on the plan, with channel widths up to 20 feet and cut depths up to 5 feet. A total of 2000 linear feet of channel with total footprint of about 30,000 square feet.
>
> Establishing access and staging includes clearing and grubbing paths and laying down material. Disturbance depths will be shallow, generally less than 1 foot, with widths up to 20 feet. The project includes about 1500 linear feet of access routes. Once construction is complete temporary access routes will be decommissioned, which requires disturbance at depths up to 1 foot.

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

> All planned ground disturbing activities are described in the previous section.

#4: 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 project site is within a naturally unconfined valley floor segment with cottonwood riparian gallery forest. Several of the properties on the west side of the river have been cleared for residential or agricultural development. The properties east of the river are undeveloped and are currently managed as open space and active floodplain.

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

Yes

#5a: List the agency that will be issuing the permit and the date you anticipate applying for and receiving the permit. Will the federal permit cover ALL proposed ground disturbing activities included in the project?

Army Corps of Engineers (applying spring 2026, anticipating receipt in fall 2026). Nationwide permits are expected to cover all proposed ground disturbing activities in the project scope.

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

Unknown

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

No

#8: Is the worksite located within an existing park, wildlife refuge, natural area preserve, or other recreation or habitat site?

No

#9: 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.

No

Project Permits

Permits and Reviews	Issuing Organization	Applied Date	Received Date	Expiration Date	Permit #
Cultural Assessment [Section 106]	DAHP				
Endangered Species Act Compliance [ESA]	US Fish & Wildlife				
Hydraulics Project Approval [HPA]	Dept of Fish & Wildlife				
Nationwide Permit	Army Corps of Eng.				

Permit Questions

#1: Are you planning on using the federal permit streamlining process? **Limit 8**

No

Attachments

Required Attachments	8 out of 8 done
Applicant Resolution/Authorizations	✓
CCA Tribal Notification	✓
Cost Estimate	✓
Landowner acknowledgement form	✓
Map: Planning Area	✓
Map: Restoration Worksite	✓
Photo	✓
RCO Fiscal Data Collection Sheet	✓

PHOTOS (JPG, GIF)

Photos (JPG, GIF)


666840


666841

PROJECT DOCUMENTS AND PHOTOS

Project Documents and Photos

File Type	Attach Date	Attachment Type	Title	Person	File Name, Number Associations	Shared
	04/18/2025	Application Document	Methow-River-Fawn-6-7-Upper-Methow-Salmon-Cassel-Final-Desig	BrianF	Methow-River-Fawn-6-7-Upper-Methow-Salmon-Cassel-Final-Design-and-Implementation.pdf, 666858	✓
	04/18/2025	Preliminary design report	Draft Preliminary Design repor_ Salmon Cassel_04082025.pdf	BrianF	MSRF_DesignMethodMemo_0408202… 666856	✓
	04/18/2025	Landowner acknowledgement form	25-1219 UpperMethowSalmonCassel SAL-LandownerAckForm_MSRF.pd	JessicaG	25-1219 UpperMethowSalmonCassel SAL-LandownerAckForm_MSRF.pdf, 666855	
	04/18/2025	CCA Tribal Notification	MSRF Placeholder CCA Tribal Notification.docx	JessicaG	MSRF Placeholder CCA Tribal Notification.docx, 666853	✓
	04/18/2025	RCO Fiscal Data Collection Sheet	MSRF Placeholder RCO Fiscal Data Collection Sheet.docx	JessicaG	MSRF Placeholder RCO Fiscal Data Collection Sheet.docx, 666852	
	04/18/2025	Applicant Resolution/Authorizations	MSRF Placeholder Applicant Resolution Authorizations.docx	JessicaG	MSRF Placeholder Applicant Resolution Authorizations.docx, 666851	✓
	04/18/2025	Map: Area of Potential Effect (APE)	Salmon Cassel APE 4-18-2025.zip	BrianF	Salmon Cassel APE 4-18-2025.zip, 666845	✓
	04/18/2025	Photo	2024-02-23 12.29.17.jpg	BrianF	2024-02-23 12.29.17.jpg, 666841	✓
	04/18/2025	Photo	2024-02-23 12.33.31.jpg	BrianF	2024-02-23 12.33.31.jpg, 666840	✓
	04/18/2025	Map: Planning Area	Location Map Salmon Cassel.pdf	BrianF	Location Map Salmon Cassel.pdf, 666826	✓
	04/18/2025	Map: Restoration Worksite	Salmon Cassel Site Map.pdf	BrianF	Salmon Cassel Site Map.pdf, 666824	✓
	04/18/2025	CCA Tribal Notification	Tribal Notification.docx	BrianF	Tribal Notification.docx, 666821	✓
	04/18/2025	Cost Estimate	Salmon Cassel Cost Estimate 4-18-2025.xlsx	BrianF	Salmon Cassel Cost Estimate 4-18-2025.xlsx, 666797	✓
	04/08/2025	Project Review Comments	Project Review Comments Report, 25-1219C (04/08/25 10:24:38)	AmeeB	Project Review Comments Report - 25-1219 (04-08-2025_10-24-38).pdf, 665255	✓
	04/08/2025	Project Application Report	Project Application Report, 25-1219C (04/08/25 10:24:38)	AmeeB	Project Application Report - 25-1219 (04-08-2025_10-24-38).pdf, 665254	✓

Application Status

Project Application Report - 25-1219

Application Due Date: 06/23/2025

Status Name	Status Date	Submitted By	Submission Notes
Application Submitted	04/18/2025	Jessica Goldberg	
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. (Jessica Goldberg, 04/18/2025)

Date of last change: 04/18/2025

RESTORATION

				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)
Construction									
Category (choose one)	**Task Description**	**Qty**	**Rate**						
Construction supervision	*Contracting and Construction management*	1.00	$ 22,960.00	$ 22,960	$ 17,460	$ -	$ 5,500		
Construction	*Project construction (Contractor)*	1.00	$ 436,037.00	$ 436,037	$ 331,437	$ -	$ 104,600		
Materials	*Construction materials*	1.00	$ 139,500.00	$ 139,500	$ 106,000	$ -	$ 33,500		
Materials	*Planting Materials*	1.00	$ 28,500.00	$ 28,500	$ 21,700	$ -	$ 6,800		
Construction labor	*Planting Labor*	1.00	$ 7,300.00	$ 7,300	$ 5,500	$ -	$ 1,800		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			STotal	**$ 634,297**	**$ 482,097**	**$ -**	**$ 152,200**		

Administrative, Architechtural & Engineering				Amount	Grant amount	Match in PRISM	Funding not reported in PRISM	Match Source	Match Type (federal, state, local)
Category	**Task Description**	**Qty**	**Rate**						
Administrative	*Project management*	1.00	$ 11,040.00	$ 11,040.00	$ 8,440	$ -	$ 2,600		
Administrative	*Overhead and reporting*	1.00	$ 8,600.00	$ 8,600.00	$ 6,500	$ -	$ 2,100		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			STotal	**$ 19,640**	**$ 14,940**	**$ -**	**$ 4,700**		

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	25.410%	$ 42,600.00	$ 10,825	$ 8,225	$ -	$ 2,600		
	Indirect	0.000%	$ -	$ -	$ -	$ -	$ -		
			STotal	**$ 10,825**	**$ 8,225**	**$ -**	**$ 2,600**		

AA&E Budget Check	
A&E maximum allowed in PRISM	*$ 144,629.10*
A&E validation	129,689

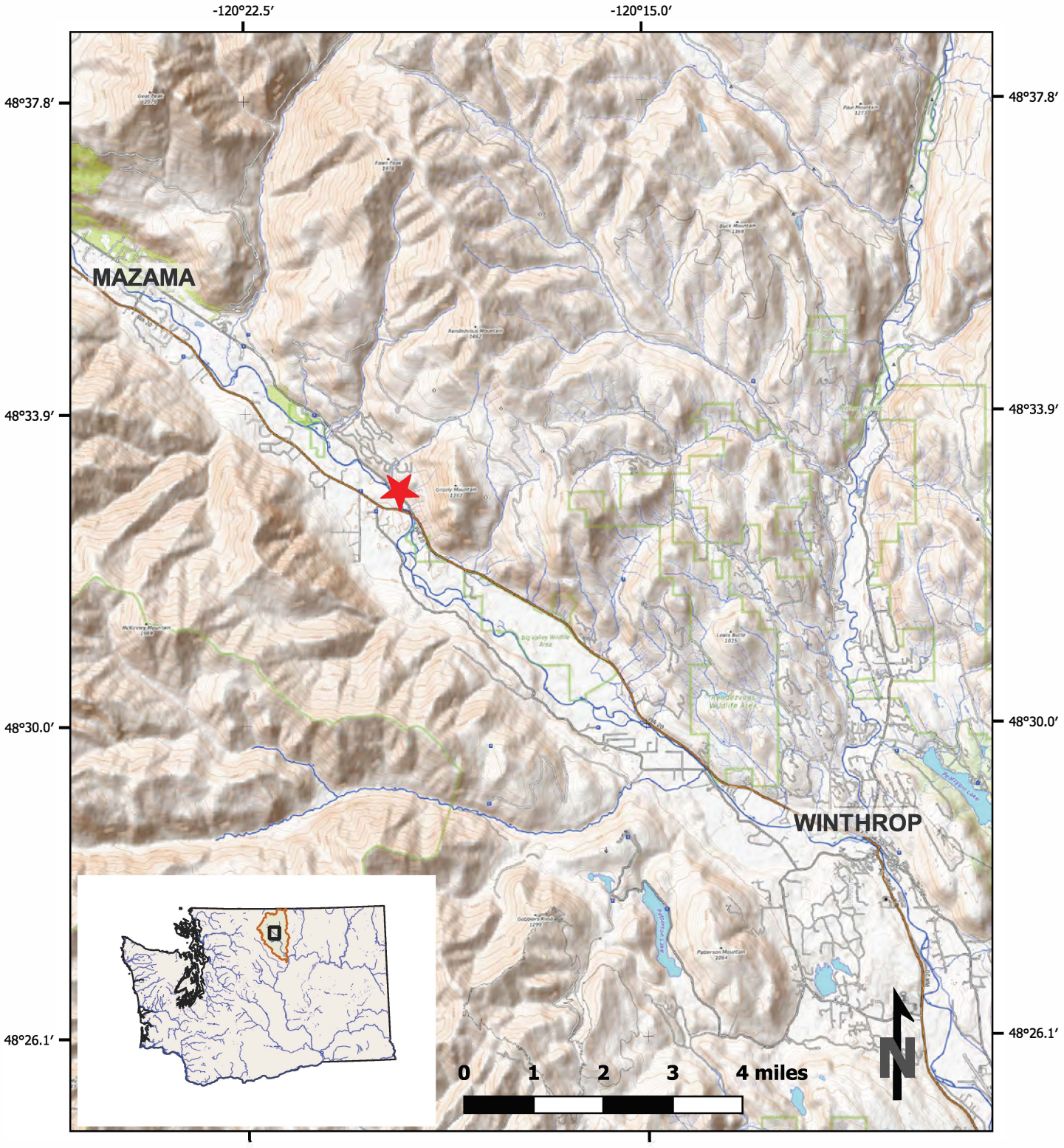
Totals	**$ 664,762**	**$ 505,262**	**$ -**	**$ 159,500**
		PRISM Project Total	$ 505,262	
		RCO Percentage	**Match Percentage**	
		100.000000%	**0.000000%**	

CUMULATIVE TOTALS

This sheet contains automatic calculations

Project Name	Upper Methow - Salmon Cassel Final Design and Implementation
SRFB #	25-1219
Sponsor	Methow Salmon Recovery Foundation

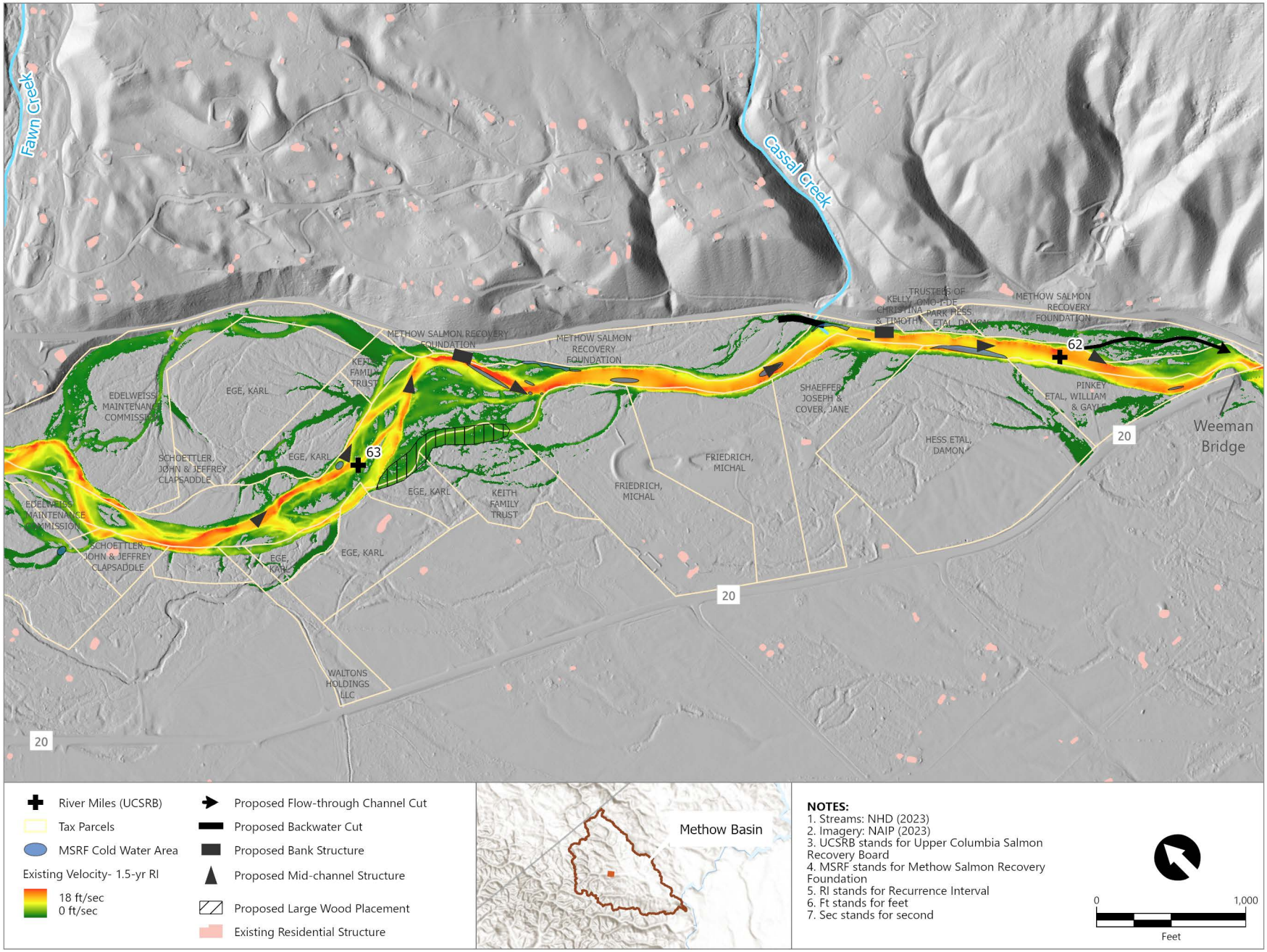
	OVERALL PROJECT Cost	GRANT REQUEST Amount	PRISM MATCH Amount	MATCH NOT IN PRISM Amount	*Budget Check*
Sheet #1 Acquisition					
Property Costs	$ -	$ -	$ -	$ -	0
Incidental Costs	$ -	$ -	$ -	$ -	0
Administrative Costs	$ -	$ -	$ -	$ -	0
Indirect Costs	$ -	$ -	$ -	$ -	
STotal	$ -	$ -	$ -	$ -	0
Sheet #2 Design					
Design Costs	$ 159,520	$ 121,420	$ -	$ 38,100	
Indirect Costs	$ 10,042	$ 7,642	$ -	$ 2,400	
STotal	$ 169,562	$ 129,062	$ -	$ 40,500	0
Sheet #3 Restoration					
Construction Costs	$ 634,297	$ 482,097	$ -	$ 152,200	0
AA&E	$ 19,640	$ 14,940	$ -	$ 4,700	0
Indirect Costs	$ 10,825	$ 8,225	$ -	$ 2,600	
STotal	$ 664,762	$ 505,262	$ -	$ 159,500	0
Totals	$ 834,324	$ 634,324	$ -	$ 200,000	0



Upper Methow Salmon Cassel
SRFB #25-1219
Project Location Map

Project Location

METHOW SALMON
RECOVERY FOUNDATION



Publish Date: 2025/02/25, 1:24 PM | User: gsutherland
Filepath: \\gstfile01\gis\Jobs\MethowSalmon_0612\Analysis\Salmon_Cassal\MethowSalmonCassel.aprx | Design Memo Fig 2 Base Restoration

ANCHOR QEA

Figure 2
Base Restoration Conceptual Design
Design Concepts Memorandum
Salmon Cassal Project Feasibility and Preliminary Design

14 North Wenatchee Avenue, Suite 139
Wenatchee, Washington 98801
360.791.1440

ANCHOR QEA

Memorandum

April 8, 2025

To: Chris Johnson, Methow Salmon Recovery Foundation

From: Gregory Stewart, Grace Sutherland, and Andy Brew, Anchor QEA

Re: Salmon Cassal Project Objectives Relative to Habitat Action Prioritization Within the Upper Columbia River Basin

Introduction

Located in the Upper Methow River Valley, the Samon Cassal project encompasses River Miles 61 to 64 and aims to address previously identified priority actions. Regional objectives for salmonid habitat restoration are evaluated in *A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region* by the Upper Columbia Salmon Recovery Board (UCSRB 2014). The strategy provides a framework for approaching habitat protection and restoration. The *Habitat Action Prioritization Within the Upper Columbia River Basin* by the Upper Columbia Regional Technical Team (UCRTT 2021) outlines a prioritization assessment approach and identifies reach tier and priority actions. This project aims to create geomorphically stable pools that will provide cold water refugia and cover for salmonids. Cold water refugia is particularly important during low summer flows and periods of higher temperatures for both adult and juvenile salmonids.

Priority Restoration Reaches

The project covers two identified priority restoration reaches: Methow River Fawn 06 (Reach Rank 1) and Methow River Fawn 07 (Reach Rank 2). Key limiting factors and priority actions have been identified by UCRTT (2021) as follows:

Methow River Fawn 06 limiting factors

- Bank stability, cover (wood), floodplain connectivity, off-channel habitat, side channels, riparian canopy cover, channel stability, summer base flow, pool quantity and quality, riparian disturbance

Methow River Fawn 07 limiting factors

- Bank stability, cover (wood), summer base flow, floodplain connectivity, off-channel habitat, side channels, pool quantity, riparian canopy cover, channel stability and quality, riparian disturbance

Previously identified priority actions for both reaches

- Bank restoration, channel complexity restoration, channel modification, fine sediment management, floodplain reconnection, instream flow enhancement, riparian restoration and management, side channel and off-channel habitat restoration, and upland management

Restoration Goals

Through a restoration approach that builds upon and enhances geomorphic work being done by beavers and other natural river processes, the Salmon Cassal project aims to maximize the benefits of identified cold groundwater inputs driven by hyporheic exchange. The proposed structures will provide cold water refugia and habitat, as well as cover from predators, and are designed to evolve through different flow events and to maintain habitat at low summer baseflows. During periods of high flows, the pools will be scoured by the resulting shear stress, which will help maintain the pools year-round. This process-based approach will increase pool quality and quantity in this reach. These efforts are particularly important in light of projected future climate impacts, as this cyclical scouring of the structures and preservation of pools is expected to be maintained with changing hydrologic regimes. The proposed design also includes two starter side-channel cuts, which will increase floodplain connectivity, enhance floodplain disturbance, assist with fine sediment management, and increase off-channel habitat.

References

UCRTT (Upper Columbia Regional Technical Team), 2021. *Habitat Action Prioritization Within the Upper Columbia River Basin*. September 2021. Available at: https://www.ucsrb.org/mdocs-posts/habitat-action-prioritization-strategy-v-3/.

UCSRB (Upper Columbia Salmon Recovery Board), 2014. *A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region*. Draft report. Prepared for the Upper Columbia Salmon Recovery Board.