Grande Ronde Model Watershed

1114 J Avenue

La Grande, OR

(541)-663-0570

GRMW PROPOSAL APPLICATION - DRAFT

Project/Application Title: Little Creek Buffalo Flats Restoration

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GRMW Request Amount: 1705783.00

Total Cost Share: 421793.00

Total Project Cost: 2127575.00

Invoice Information (If GRMW is the fiscal agent)

Mary Estes GRMW Fiscal Manager

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This proposal is for a RESTORATION type project!

Location/Abstract

General Location	Downstream Extent	Upstream Extent
Latitude: 45.2088490	Latitude: 45.2163570	Latitude: 45.2034470
Longitude: 117.8454410	Longitude: 117.8551510	Longitude: 117.8345510

Due to a limitation of the framework tool used to create PDFs, we are unable to display the opportunity map within this document. However, you may still view the opportunity map using the following link:
Opportunity Map Link

The Little Creek Buffalo Flats Restoration project is located on the Buffalo Peak Land and Livestock property east and adjacent to the City of Union, Oregon and within the Catherine Creek Watershed. The project area is 268-acres in size and includes approximately 97 acres of historic floodplain of Little Creek as it enters the Grande Ronde River valley. This is a portion of the larger 628-acre cattle ranch owned by Buffalo Peak Land and Livestock LLC. The property has been managed under private ownership for over a century for farming and ranching, with most of the historic floodplain in hay and pasture production. The river channels and floodplains have been negatively impacted by channel straightening, bank erosion, and downcutting. The project will increase the quality and quantity of in-stream and floodplain habitats for ESA-listed Snake River (SR) Chinook, SR Steelhead and Bulltrout by increasing sinuosity of the primary channels, addition of secondary and side channels, creation of connected floodplain surfaces, and addition of large woody material and planting.

The property was purchased in 2018 by owners that plan to use a holistic working lands approach to raise livestock while improving ecological conditions for fish and wildlife populations. The Union SWCD is developing a Land Mangement Plan with the landowners that spells out the monitoring methodolgy and management plan the landowners will use for maintaining and achieving the ecological condition goals that restoring the natural process function and aquatic habitat conditions this restoration project is designed to achieve in support of ESA-listed salmonids. The Land Management Plan will become part of the property deed so that the restoration project investment will be protected into perpetuity.

Stepwise & Atlas

Prospectus submitted and review by Atlas Implementation Team: Yes

Project prospectus title and/or ID# (if applicable): Buffalo Flats Floodplain Planning

Associated Subwatershed: CC3B1

Associated Opportunity: CC2C - Buffalo Flats Floodplain Project - Little Creek

Problem Statement & Opp Score

The problem statement described the critical/limiting life stages and limiting habitat factors identified in the Atlas for the subwatershed in which this project is located and explain which of these species, life stages and limiting factors will be addressed in this project (how the problems will be addressed should be discussed in the 'Proposed Solution' section). This includes past land use history with respect to the project reach and larger watershed—especially any land use that has led to the current impaired condition.

Limiting factors within this reach were identified in the Atlas process, and include (1) reduced instream flows;(2) high summer temperatures; (3) limited instream structural complexity; and (4) limited availability of peripheral and transitional habitats (side channels, floodplains, and wetlands).

The Little Creek channel, within the Buffalo Flats project reach, has incised segments upwards of 5 to 6 feet deep, disconnecting the stream from the floodplain and creating bank erosion through the project reach. Past actions to reduce bank erosion have included installing rock, concrete riprap, and automobiles on stream banks.

Riparian vegetation is lacking from large portions of the streambank, and vegetation, where it exists, is confined to the top of bank and consists of a narrow buffer of mature cottonwoods and non-native willows with a heavily overutilized and trampled understory due to past continuous grazing that occurred throughout much of the year. Instream habitat complexity is also limited with infrequent and shallow pools. The stream reach is lacking large wood with most of the wood being small and transient.

Little Creek within and downstream of the project area has been heavily impaired by a history of agricultural land use, grazing, channel straightening, and road building. In-channel complexity is low, and floodplain connectivity and habitat quality are also impaired. Water temperature in Little Creek has been evaluated by ODFW, and remained within the thermal ranges preferred by salmonids (below 18°C) in all stream reaches, with the exception of the lowest reach where stream temperatures were a few degrees warmer. These findings, along with the detection of juvenile Chinook salmon in Little Creek despite a lack of spawning in the basin, suggest that Little Creek is an important cool-water refuge for salmonids during hot summer months.

The project area is known to provide habitat for ESA-listed Chinook salmon, steelhead, and bull trout at various life stages. This project is designed to address limiting factors for ESA-listed Chinook juvenile and adult life stages and will also benefit steelhead and bulltrout in the project area, as well as other native fish and aquatic life by improving sediment and temperture water quality conditions, increasing instream structural complexity, and increasing availability of peripheral and transitional habitats (side channels, floodplains, and wetlands).

Final Opportunity Score (Atlas opportunity score)

None

Restoration Actions

Below is a list of all restoration actions applicable to this project.

Restoration Action	Justification
2. Channel Reconstruction	
3. Pool Development	
4. Riffle Construction	
5. Meander (Oxbow) Re-connect - Reconstruction	
7. Levee Modification: Removal, Setback, Breach	
8. Remove - Relocate Floodplain Infrastructure	
9. Restoration of Floodplain Topography and Vegetation	
10. Floodplain Construction	
11. Perennial Side Channel	
12. Secondary (non-perrenial) Channel	
13. Floodplain Pond - Wetland	
14. Alcove	
15. Hyporheic Off-Channel Habitat (Groundwater)	
18. Riparian Buffer Strip, Planting	
20. Remove non-native plants	
27. LWD Placement	
28. Modification or Removal of Bank Armoring	
29. Restore banklines with LWD - Bioengineering	
31. Improve Thermal Refugia (spring reconnect, other)	
32. Irrigation System Upgrades -Water Management	
34. Upland Vegetation Treatment - Management	
35. Road Decomissionsing or abandonment	
36. Road Grading - Drainage Improvments	

Proposed Solution

The proposed solution states the project goals and articulates the expected outcomes of the project. It explains how the restorations actions selected will address the problems stated in the problem statement.

The project goals are as follows:

1) Enhance and restore aquatic habitat conditions and increase habitat diversity and complexity for salmonids;

2) Improve water quality conditions (temperature and sediment) for salmonids;

3) Promote conditions for restoring ecological function and improving soil health within the project area;

4) Improve riparian corridor and floodplain vegetative diversity and function within the project area;

5) Reconnect Little Creek with its associated floodplains and expand quality floodplain habitat availability for salmonids within the project boundaries;

6) Increase streambank and floodplain storage of water and ice; thereby, increasing the potential for attenuating flows, and reducing ice formation within the project reach.

The proposed restoration actions will address the problems identified in the Problem Statement as detailed below.

Grade Multi-thread Channel and Alcove/Swale Complex: The project aims to

restore natural floodplain connectivity and in-stream habitat complexity that was likely found in this area historically, and that would be naturally self-sustaining and dynamic. As observed in various other restoration projects and functioning floodplains, raising the water-table to support a robust aquatic and riparian vegetation community was a key determinant of the grading. The proposed new channel planform and sizing were evaluated extensively at the conceptual and preliminary design stage using a 2D hydraulic model. With consideration to existing hydrologic records, observed site conditions during floods, species and life stages likely to use the site, and native vegetation that will interact with the physical processes of the channel to support ongoing habitat complexity.

Instream Habitat Complexity Treatments: Instream habitat complexity will complement the channel grading. The intention is to increase roughness, drive geomorphic dynamism, provide habitat cover for aquatic organisms, support an aquatic and riparian plant community associated with a high water table. The proposed treatments include: habitaat wood placement (in stream), willow trenches and flood fences (on the floodplain). These habitat features will be located throughout the project area.

Riparian, Floodplain and Wetland Planting: Woody and herbaceous plants will be installed in the project area based on anticipated inundation patterns. Stream shading, geomorphic function, ecological complexity, and soil regeneration are key objectives guiding the riparian planting. All areas of disturbance will be planted with a native mix of herbaceous and woody plants that are appropriate to the site and post-project inundation patterns.

Remove Crossing: Near the middle of the project area an existing farm crossing is causing a constriction and a grade break in the channel. This will be removed and graded as needed.

Relocate State Ditch Diversion and Headgate: The diversion point of the State Ditch from Little Creek and a new headgate will be relocated upstream from the current location as shown in the plans. A channel matching the dimensions of the current ditch will connect the new diversion point to the existing ditch. ODFW will design and install a new fish screen.

Constructed Riffle: A riffle is proposed associated with the new headgate at the State Ditch to provide a fish passable diversion structure.

Remove Riprap: Riprap that exists within the existing channel will be removed throughout the project area.

Land management plan: The landowners operate a holistic ranching operation at the project area and monitor the ecosystem using a methodology called Ecological Outcome Verification designed by the Savory Institute. The landowners have been involved in the project design since its conception and are committed to supporting endangered species recovery and overall ecological function on their property. A Land Management Plan has been drafted, including a monitoring and adaptive management plan component designed to ensure the restoration project objectives are achieved and maintained.

Objectives

The table below quantifies the appropriate indicators this project will include. Each indicator has a measured current condition, an action taken, a restored condition (post-restoration), a set target condition, and justification/citation explaining why the action will work. Each indicator also includes whether or not the objective will be monitored.

Indicator	Current Condition	Action Taken	Restored Condition	Target Condition	Citation	Monitored?
New main channel length	5300.0	None	6500.0	N/A		Yes
Side channel length (Meters)	0.0	None	10368.0	N/A		Yes
Connected floodplain area (% Increase)	97.5	None	184.5	20% Increase		Yes
Large wood frequency bankfull (Pieces/100m)	1.0	None	33.0	20 Pieces/100m		Yes

Reporting Requirements: In addition to the objectives outlined above, sponsors who receive funding through GRMW understand they will be required to resubmit the indicators/objectives table and budget after implementation to verify that work was completed as proposed and on budget. If there were any deviations from the proposed actions or budget they will be asked to explain those deviations at that time. If they plan to submit a completion report to BPA or a similar organization, they may include this table as a part of the completion report to meet this requirement. Please note that if they wish to recreate this table in their own document that it must include "proposed" and "actual" columns to accurately reflect the work completed.

Objectives Narrative

Objective Narrative: This block explains why the objectives selected are relevant to this project and why/how the actions selected in the Restoration Actions section should result in the restored condition proposed.

The selected objectives will be a direct result of the restoration actions that were identified. They are important indicators for ensuring we have addressed the intended limiting factors for ESA-listed Chinook in this project reach and will benefit other native fish and aquatic species. Adding LWD, increasing connected floodplain area, and creating side channels and alcoves are natural process functions that contribute to the development of diverse habitats that create instream habitat complexity.

Explain Target Condition: This block explains why any of the restored conditions of any objectives selected do not meet the target condition. If all restored conditions meet the corresponding target condition, then this field will appear blank.

Additional Objectives: This block includes any additional objectives not captured in the objectives table. Objectives should be specific, measureable, achievable, relevant, and time-bound.

Climate Change Concerns: This block explains considerations made regarding how this proposed work may address climate change concerns.

The project goals are designed to promote conditions for restoring natural process function. When ecological conditions are functioning properly they are naturally more resilient to changes in climate and extreme weather events. Improving water quality conditions (temperature and sediment), improving riparian corridor and floodplain vegetative diversity and function within the project area, and reconnecting Little Creek with its associated floodplains and expanding quality floodplain habitat availability for salmonids within the project boundaries will also increase species' resilience for changing climate conditions. Additionally, increasing streambank and floodplain storage of water and ice; thereby, increasing the potential for attenuating flows, and reducing ice formation within the project reach will also increase species' resilience for changing climate conditions while also benefiting the people living downstream during flooding events, which may increase in severity in the face of climate change.

Previous Work: This block describes any previous work implemented in this reach and how this project connects to or builds upon those previous efforts.

There are currently two diversion structures being replaced on Little Creek (LC5 and LC6) just downstream of the project reach that will allow passage of Chinook and and all other native fish and aquatic species back into the project reach. Additionally, in 2011, Little Creek diversion 1 (LC 1) was replaced and fish screens were installed to restore fish passage. The SWCD has plans in the next few years to address fish passage at Little Creek diversions 2, 3, and 4 to ensure there is unimpeded fish passage throughout Little Creek.

Other Species: If there any other sensitive or listed species, aquatic or terrestrial, impacted by this project, this block lists them and explains how they might be impacted by this project.

Freshwater mussels may be impacted by the restoration project. In an effort to minimize this impact from project implementation, the SWCD and partners salvaged 10,000 freshwater mussels from the project area and relocated them with USFWS assistance.

Is this a phased project?

No

If this is a phased project, can this phase be a standalone project?

None

Monitoring

This table shows all objectives specified for monitoring. It explains who will be performing this montitoring, how it will be implemented, how long it will take place for, whether or not it will be shared or available to Atlas partners, and how that data will be shared/made available.

Monitoring Indicator	Monitor	Protocol	Time Monitored (yrs)	Availability/Sharing
Ecological Condition	Landowners	Using the The Savory Institute’s Ecological Outcome Verification (EOV) monitoring protocol.	Annually and every five years	Yes, monitoring data will be available to Atlas partners via the SWCD. The land management approach includes annual planning, monitoring, controlling, or adjusting, and re-planning if necessary. As part of the short-term monitoring, every year there will be an Ecological Health Index (EIH) assessment calibrated to the ecoregion based on four ecosystem processes of water cycle, mineral cycle, energy flow, and community dynamics. The EHI score gives the distance to the potential of that ecosystem in relation to the reference area and serves as a combined measure of ecosystem health. Every five-years there will be an EOV long-term monitoring effort to detect structural changes of the land and track the functionality of the ecosystem processes which cannot be assessed through short-term monitoring for all of the attributes. Both the short-term and long-term monitoring procedures are used for the Ecological Health Index. These two tools will ensure the achievement of the restoration goals, objectives, and outcomes.

Landowner Engagement

The following table is applicable to projects which take place on private property. It lists the relavant landowners involved in the project, the landowner agreement, whether or not neighboring landowners have been contacted, and whether or not there were any issues identified (resolved or unresolved) concerning the landowner.

Landowner	File (Click to Download)	Neighbors Contacted?	issues
	Open File in Web Browser	Yes	
Tony and Andrea Malmberg	None	Yes	

Timeline

Will this project be completed within 2 years if awarded funding? Projects that will be completed in the first year of the contract in-water work window will be given funding priority over out-year projects (applies to restoration projects only).

Yes

Project Elements

The table below identifies the major work elements of this project, when the work for each element is proposed to begin, and when that work is expected to end.

Project Element	Proposed Start Date	Proposed End Date
Mobilize construction equipment, excavate new ditch segment	June 1, 2025	None
Divert flow, instream excavation and filling, wood placement, crossing removal, riprap removal, sod salvage, headgate install	July 15, 2025	Aug. 15, 2025
Install willow trenches and flood fencing, seed, stabilize site, and demobilize	Sept. 1, 2025	Oct. 30, 2025
Observe flow patterns and growth of plants in the limits of disturbance and adjacent project areas. Determine woody and herbaceous plants to incorporate into the project	May 8, 2026	Aug. 8, 2026
Install plantings	Oct. 8, 2026	Nov. 8, 2026

Designs

Level of Current Designs:

80%

Alternatives Analysis:

Three alternatives were presented to meet project goals. The alternatives were developed based on available information and discussions with project partners. Estimates of potential floodplain inundation were made using topographic mapping and professional judgement. For further analysis, hydraulic modeling was performed and included in the 80% design. The alternatives ranged from more immediate floodplain benefits, resulting from reconstructing an extensive channel network within the historical floodplain of Little Creek, to relying on process-based restoration for long-term floodplain benefits through placement of large wood and gravels along with revegetation of the existing channel and riparian corridor.

All alternatives attempt to restore floodplain connectivity within the project area by constructing floodplain surfaces at a lower elevation and engaging the floodplain annually during spring high flow events, thereby restoring dynamic processes and native vegetation recruitment to the project reach. A moderately aggressive approach was selected that's expected to rapidly restore physical processes to the project area, primarily within the channel reconstruction areas. This alternative is expected to benefit aquatic habitat and ecological functioning by re-connecting Little Creek to its historic floodplain in select locations. The project will provide immediate salmonid habitat benefits by providing low-flow rearing habitat and off-channel habitat during high flows that would have swept them downstream and into the Grande Ronde River under existing conditions.

Additional Comments:

Designs File:

Download Designs File: Open File in Web Browser

Budget

Download Budget File: Open File in Web Browser

Cost Share

The table below outlines all cost share included for this project including: the organization/source of the cost share, the amount of the cost share (in dollars), whether or not the funds have been secured, whether the funding is cash or in kind, and the reference or contract number if available.

Organization/Cost Share Source	Amount ($)	Secured?	Cash/In Kind?	Reference/Contract # (If Available)
OWEB	$380,385	No	Cash	
Bureau of Reclamation	$41,407	Yes	In Kind	R22AC00397

Additional Files

File Name (Click to Download)	Description
Open File in Web Browser	The Union SWCD is developing a Land Mangement Plan with the landowners that spells out the monitoring methodology and management plan the landowners will use for maintaining and achieving the ecological condition goals that restoring the natural process function and aquatic habitat conditions this restoration project is designed to achieve in support of ESA-listed salmonids. The Land Management Plan will become part of the property deed so that the restoration project investment will be protected into perpetuity.

Signature

Signature	Accepted Terms	Draft Signed	Final Signed	Date Signed
Jim Webster, Union SWCD	Yes	Yes	No	Oct. 15, 2024

The signature below affirms everything the applicant has entered into this document is true and accurate to the best of their knowledge and that they agree to stipulations previously outlined in this application such as the sharing of media and reporting requirements should the project be approved by the GRMW Board of Directors.

Jim Webster, Union SWCD
Applicant Digital Signature

Oct. 15, 2024
Date Signed (Most Recent)