21-1013, Plan, Walla Walla Co Cons Dist
Mill Creek RM 1.75 Design, RCO Grant Request: $112,300

BASICS

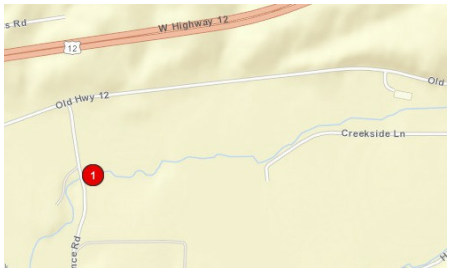
FUNDING

Costs

RCO	$112,300	85%
Sponsor Match	$20,000	15%
Total	$132,300	100%

Sponsor Match Breakdown

Grant - State	$20,000
Total	$20,000



DESCRIPTION

The Walla Walla County Conservation District will create an engineered design to restore instream, floodplain, and riparian habitat for portions of Segments 1 and 2 as identified in the Lower Mill Creek Fish Habitat and Passage Assessment and Strategic Action Plan (CTUIR 2017). These segments are located between RM 1.75 and RM 4.0 (46.0580, -118.4217) downstream of the cities of College Place and Walla Walla and below the flood control channel area. The site is a major spawning area, which has experienced damage from high-flow events. Several landowners have expressed interest in the restoration of this reach. The engineered design will include a series of engineered log structures, floodplain reconnections (using setback levees, if necessary), and riparian plantings to benefit mid-Columbia steelhead, bull trout and reintroduced Chinook salmon. The design will include multiple Hec-Ras modeling as has been requested by past RCO peer reviews.

Project Application

LOCATION

Project Location Questions

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

This design project is on the main stem of Mill Creek in Walla Walla County, Washington, in WRIA 32. It consists of portions of Segments 1 and 2 as identified in the Lower Mill Creek Fish Habitat and Passage Assessment and Strategic Action Plan (CTUIR 2017). The segments are located between RM 1.75 and RM 4 (46.0580, -118.4217), downstream of the cities of College Place and Walla Walla and below the flood control channel area. It is not anticipated that the design will include the entire 2.25 mile stretch. The portions to be included depend on a combination of willing landowners and the greatest potential for habitat improvement.

#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.

Our lead entity is the Snake River Salmon Recovery Board. The Snake River Salmon Recovery Region Provisional 3-5 Year Work Plan (updated March 28, 2018) states that the Mill Creek major spawning area "is designated as priority protection from its confluence with the Walla Walla River up to the Bennington Dam Diversion" (RM 0 to 11.4) (p. 14). The design will address the limiting factors shown on page 14 and listed elsewhere in this application.
In addition, the Lower Mill Creek Final Habitat and Passage Assessment and Strategic Action Plan (June 2017), has included the following under the Strategic Action Plan's "Urgent Actions": "Identifying, prioritizing, and implementing land acquisition and protection, in-stream flow acquisition, floodplain protection and restoration, and habitat enhancement (ongoing) opportunities on lower Mill Creek, including enhancing its distributaries and tributaries." (Section 5.7.2, 9b, p. 5-93).

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

No

METRICS/COSTS

OVERALL PROJECT METRICS

PLANNING METRICS

Worksite: Mill Creek RM 1.75 (#1)

COSTS

Category	Work Type	Estimated Cost	Note
Agency Indirect Costs	Agency Indirect	$24,300	
Design for Salmon restoration	Preliminary design	$108,000	
	Subtotal:	$132,300	
	Total Estimate For Worksite:	$132,300	

METRICS

Miles of Stream and/or Shoreline Affected (B.0.b.2)	2.25

Total Planning Cost	$132,300

PROJECT PROPOSAL

Targeted ESU Species

Worksites	Species by ESU	Egg Present	Juvenile Present	Adult Present	Population Trend
1	Chinook-Middle Columbia River Spring, Not Warranted	✔	✔	✔	Unknown
1	Steelhead-Middle Columbia River, Walla Walla River, Threatened	✔	✔	✔	Stable

Reference or source used
Lower Mill Creek Final Habitat and Passage Assessment and Strategic Action Plan (June 2017)

Targeted Non-ESU Species

Worksites	Species by Non-ESU	Notes
1	Bull Trout	
1	Lamprey	
1	Rainbow	

PROPOSAL QUESTIONS

#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.

High water events, most recently the February 2020 flood, have caused significant lateral migration of the channel and loss of established vegetation in the project reach. The project site has simplified instream habitat features. The Salmonid Habitat Limiting Factors Water Resource Inventory Area 32 Walla Walla Watershed (Kuttle, 2001 for WSCC, pages 88-90 and 137), states that the Mill Creek: Bennington Lake Dam to mouth reach (which includes the project site) has poor or “Not Properly Functioning” ratings for fish passage, riparian and streambank conditions, floodplain connectivity, off-channel habitat, water quality and temperature, water quantity/dewatering, and change in flow regime. Width to depth ratio, substrate embeddedness, woody debris, pool frequency and quality, and biological processes are also in poor condition (professional knowledge of WRIA 32 TAG members). The intensity of the limiting factors that were present before the February 2020 flood may have increased and may cause further stress for federally-listed salmonids.

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

Steelhead, Chinook salmon (re-introduced), and bull trout have been documented at the site (WDFW website). All are state candidates for status as threatened or endangered species, are identified as Species of Greatest Conservation Need under the State Wildlife Action Plan, and/or are WDFW Priority Species. At the federal level, all are ESA threatened species.
Summer steelhead have been documented as spawning in this stretch (WDFW's SalmonScape interactive map). According to the Northwest Salmon and Steelhead Recovery, Middle Columbia River Steelhead DPS Recovery Plan (Pg. 3, NOAA, 2009) "summer steelhead enter freshwater between May and October and require several months to mature before spawning". This project will implement restoration techniques aimed to restore ecosystem functions and improve key habitats for the listed salmonids by reducing limiting factors. (See the detailed list under "Problem Statement".)
The restoration will include bioengineered structures to promote sediment sorting and accumulation and provide fish cover and forage. Large wood, by reducing erosion and fine sediment input, will reduce impacts on salmonid redds. Large wood structures will provide pools for adult holding, prey habitat, and juvenile rearing. Riparian zone plantings will provide cover for all life stages and species, shade to reduce water temperature, and source material for large wood inputs to the river in the future. In addition, larger riparian areas will slow and filter more runoff from croplands and capture more soil carried in floodwaters. Reconnecting floodplains will help dissipate floodwater energy, provide juvenile rearing habitat and refuge from high flow events (winter/spring), and allow for the slow release of flood water back into the river. In summary, this project will improve habitat conditions, including spawning conditions, for all life stages of salmonids.

#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**

The restoration, when implemented, will improve instream fish habitat conditions and restore natural stream processes through portions of the 2.25-mile project reach. The following sub-goals will be realized:
• Improvement of instream spawning, rearing, and overwintering habitat for mid-Columbia steelhead, mid-Columbia Chinook (re-introduced), and bull trout.
• Improved riparian habitat in the project reach via planting; and
• Improvement of sustainable riverine processes to further enhance/maintain instream habitat.

#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, Achieveable, Relevant, and Time-bound). **Example Goals and Objectives**

This project will provide a final engineered design for river restoration within 18 months of funding. The design process will encourage participation by stakeholders such as landowners, the Department of Fish and Wildlife, the Snake River Salmon Recovery Board, the Walla Walla County Planning Department, and the Confederated Tribes of the Umatilla Indian Reservation.
Specific objectives were identified in the 2010 Geomorphic Assessment (08-2087) and include the following:
• Promote pool formation and sediment sorting through strategically placed bioengineered structures, increasing the frequency of pools to >21 per river mile in order to add to the complexity of fish habitat.
• Reconnect historic side channels, if present, to provide high-flow refugia and increase habitat for salmonid rearing during median flows in the winter rearing season.
• Reconstruct floodplain connections (installing setback levees, if necessary) which will have inundation recurrence at approximately 2-year intervals.
• Increase LWD key piece density of >50 pieces per river mile.
• Improve wood recruitment and water quality by improving riparian habitat.
• Plant native riparian vegetation in bare or thinly vegetated areas. Where the riparian buffer is to be expanded, the density will be 250 stems per acre. A plant species list with quantities will be included.

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

The Walla Walla County Conservation District (WWCCD) will:
• Coordinate with willing landowners within two months of funding.
• Develop an engineered design for a series of in-stream structures and floodplain reconnection (possibly using setback levees). The design will use the USACE Hydrologic Engineering Center's River Analysis System (Hec-Ras) for water flow modeling and computing water surface profiles. The design will consider features upstream that may be influencing the project reach and sites farther downstream (by affecting hyporheic flow or flood resistance, for example). The bioengineered log structures will be selected based on decades of prior watershed planning efforts as described in the Walla Walla Subbasin Plan (2004), Walla Walla Multi-Jurisdictional Hazard Mitigation Plan (2018) and Flood Response documents, the Snake River Salmon Recovery Region Provisional 3-5 Year Work Plan (2018), and Ecology TMDL documents.
Bioengineered structures will be placed in strategic locations to reconnect floodplains, promote bar formation and to add channel complexity. All bioengineered structures will enhance habitat complexity via cover, pool formation, and sediment sorting and will be designed to survive 100-year floods. Installment will occur during the instream work window, mid-July through September and will provide water quality benefit for 15 to 30 years after installation.
• Include a detailed plan for native riparian plantings to improve water quality and to provide woody debris inputs for the future. Plantings will follow established Conservation Reserve Enhancement Program (CREP) planting guidelines. A site-specific planting list is uploaded. The WWCCD will assess the riparian buffer within 3 years after planting by measuring mortality, plant vigor, growth, and weed prevalence. Replanting may occur to maintain the goal of 250 plant stems per acre.
• Review the design with WDFW, RCO and applicable agencies within 18 months of funding.
• Complete the cultural review within 6 months after completion of the design, and within 24 months of funding.
• Use grant funds to perform additional water testing for nitrogen, dissolved oxygen (DO), temperature, and turbidity pre- and post-construction and planting. Biennial measurements will be taken at the upstream and downstream boundaries of the project. The measurements will provide the TMDL-level tracking necessary to determine the impact of the project.

#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?

Constraints on the project are predominantly time. Parts of the project are susceptible to extreme changes during high flows and designs will be “field fit” as river conditions change. Minor adjustments to the design may be required before implementation; these would be made in consultation with the local Snake River Salmon Recovery Funding Board team. Prompt implementation of the work will reduce the likelihood of change orders. Funding constraints are always a concern and finding match for implementation can be problematic. The Walla Walla County Conservation District (WWCCD) will pursue funding for implementation from multiple sources including the United States Fish and Wildlife Service (USFWS), the Bonneville Power Administration and the Washington State Conservation Commission and other opportunities as they arise.

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

Results of previous projects have helped fine-tune the engineering of in-stream structures. Design changes and field adjustments are not unusual which makes our strong working relationship with Washington Department of Fish and Wildlife (WDFW) and the Snake River Salmon Recovery Board a must.

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

The selection of the specific portions of the reach to be restored will be based on landowner willingness and the potential for alignment with SRFB goals. So far, there are seven interested landowners. Alternative practices are discussed in the Walla Walla Subbasin Plan (NW Power and Conservation Council, 2004) and bioengineered large wood structures were determined to be the most suitable alternative for the basin. Beaver Dam Analogs are not strong enough to withstand high water events that have recently occurred. Concrete armoring can have detrimental effects on floodplain function. Bioengineered structures are selected based on decades of prior watershed planning efforts as described in the Walla Walla Subbasin Plan (2004), Walla Walla County Multi-Jurisdictional Hazard Mitigation Plan (2018) and Flood Response documents, Salmon Recovery Plans (2011), and Ecology TMDL documents.

#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 Snake River Salmon Recovery Board was notified by the WWCCD’s District Manager that the WWCCD would be completing a grant application for this project.

#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 will likely have complex and far-reaching effects on fluvial processes and will increase variability in timing and magnitude of flows. The restoration actions that will allow natural process such as sediment and large wood transport, floodplain connection, channel migration, and riparian growth to occur all help maintain a dynamic equilibrium that promotes more favorable habitat conditions at all levels of flow timing and magnitudes. This project aims to restore natural hydrologic processes of Mill Creek through actions designed to improve resiliency, habitat diversity and ecosystem functions. Improving floodplain connectivity will make this reach more resilient by providing better water storage, shallow aquifer recharge, cold water refugia and increase key habitats. Improving the riparian zone will improve the canopy cover, provide shade, food, habitat and wood for future recruitment.

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

A more intact and functioning riparian area will prove to be more resilient to changes in temperatures and flows providing habitat for aquatic and terrestrial species. Revegetating the floodplain and uplands with native grasses, trees and shrubs will help prevent invasions of invasive species, fine sediments from entering the waterways and provide long term food, habitat and shade for terrestrial and aquatic species. Reactivating historical flood plains via bioengineered large woody debris structures will provide refuge for juvenile anadromous fish and more habitat for rearing and overwintering. Planting species that can withstand changing flow timing and duration, temperature and access to water will ensure the success of the project.

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

The Walla Walla County Conservation District has designed and implemented several habitat restoration projects with bioengineered structures. Most of these involved collaborating with the Snake River Salmon Recovery Board and RCO under previous grants, such as the Touchet River Mile 42 Restoration Project and the McCaw Reach Fish Habitat Restoration Project.

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

No

PLANNING SUPPLEMENTAL QUESTIONS

#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?

No. This project is the design phase only.

ATTACHMENTS

PHOTOS (JPG, GIF)


461837 Primary

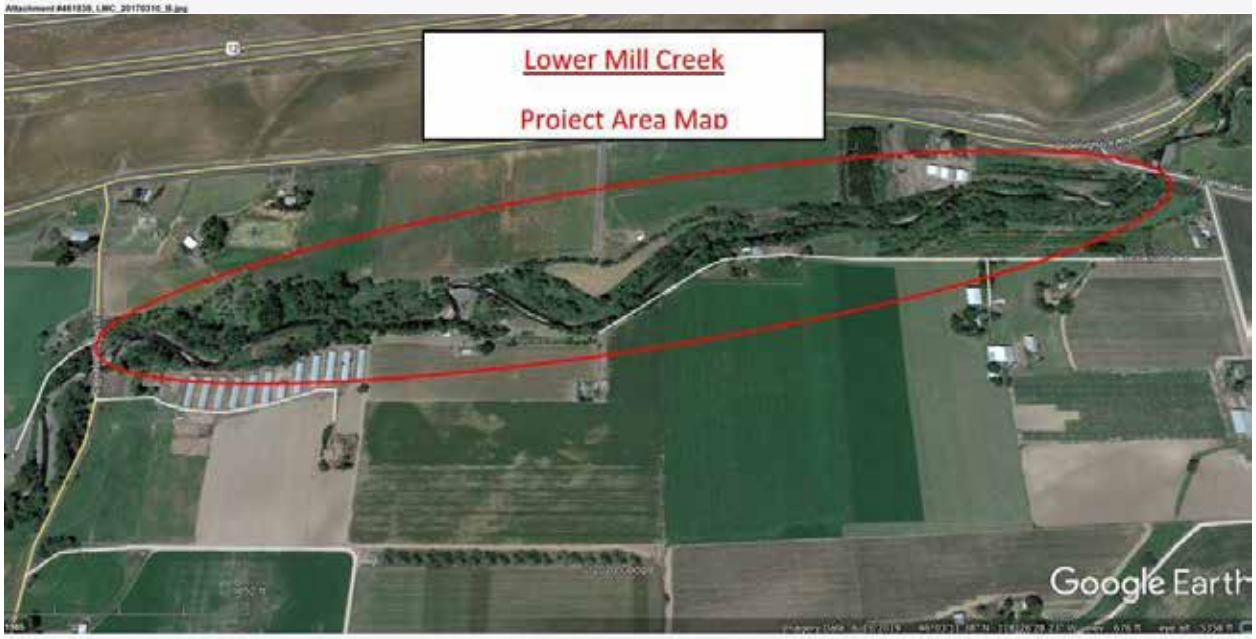

461838


461877


461878

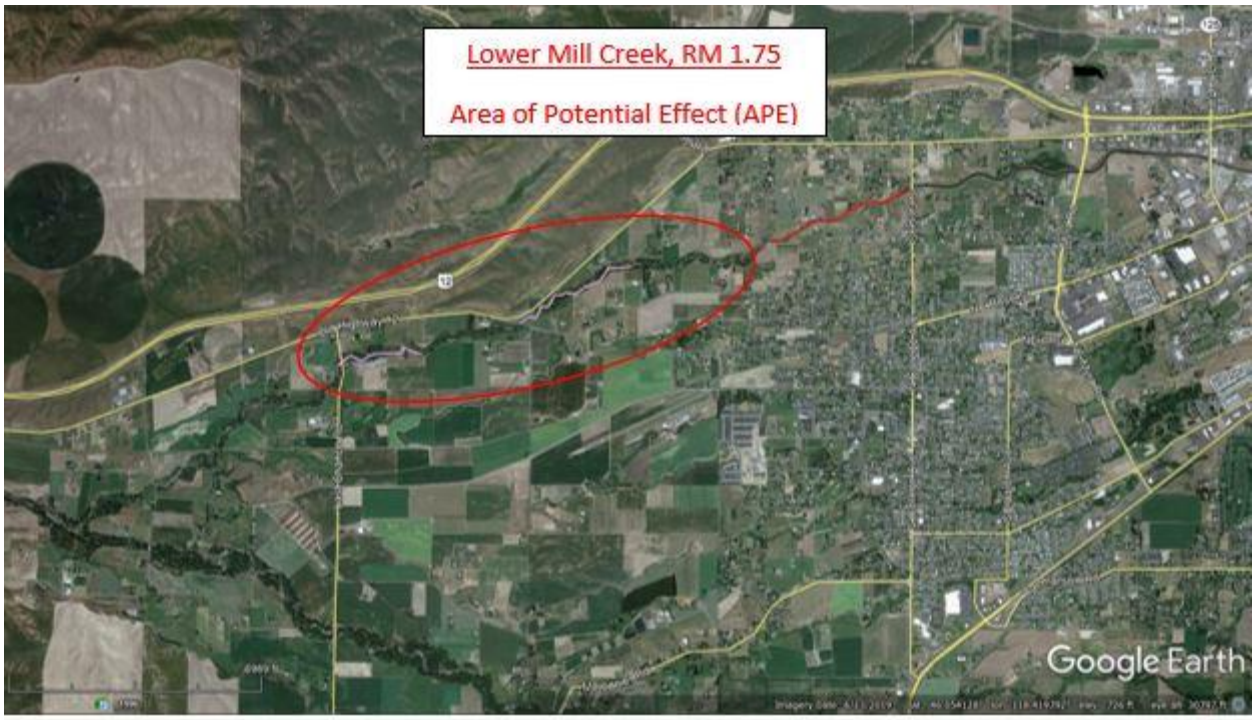
RELEVANT DOCUMENTS

File Type	Attach Date	Attachment Type	Title
	02/02/2021	Map: Area of Potential Effect (APE)	LMC_RM4_APE Map.JPG
	02/02/2021	Map: Planning Area	LMC_Project Area Map.JPG
	02/02/2021	Photo	LMC_20170310_B.jpg
	02/02/2021	Photo	LMC_20170310_A.jpg



Walla Walla Co Cons Dist; Mill Creek RM 1.75 Design (#21-1013)

Attachment #461877, LMC_Project Area Map.JPG



Walla Walla Co Cons Dist; Mill Creek RM 1.75 Design (#21-1013)

Attachment #461878, LMC_RM4_APE Map.JPG

DESIGN PROJECTS

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

See Manual 18, Appendix D for additional information regarding allowable costs.

				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	Amount	Match	Funding not reported in PRISM	Source (Grant, Cash, Materials, Labor, Volunteers, etc)	Match Type (federal, state, local)
Design Costs									
Category	Task Description	Qty	Rate						
Preliminary design	*Hire outside engineer to complete des*	1.00	$ 95,000.00	$ 95,000	$ 85,000	$ 10,000	$ -		
Administrative	*Project Management & contracting*	1.00	$ 8,000.00	$ 8,000	$ 3,000	$ 5,000	$ -		
Other	*Landowner Facilitation*	1.00	$ 5,000.00	$ 5,000	$ -	$ 5,000	$ -	grant	state
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
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			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			$ -	$ -	$ -	$ -	$ -		
			STotal	$ 108,000	$ 88,000	$ 20,000	$ -		
Indirect Costs									
	Description	Approved Rate	Total Project Base						
	Indirect	22.500%	$ 108,000.00	$ 24,300	$ 24,300	$ -	$ -		
	Indirect	0.000%	$ -	$ -	$ -	$ -	$ -		
			STotal	$ 24,300	$ 24,300	$ -	$ -		
			GTOTAL	**$ 132,300**	**$ 112,300**	**$ 20,000**	**$ -**		