

Loving Creek Tributaries Restoration and Water Conservation Project

Submitted by The Nature Conservancy, Idaho State Office



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Table of Contents

Executive Summary.....	3
Project Location	3
Technical Project Description	4
PHASE 1: Stream Restoration, Fish Barrier Removal, Water Efficiency, and Agricultural Conservation in Upper Loving Creek at the Gardner Ranch	4
PHASE 2: Restoration of lower Loving Creek at TNC’s Silver Creek Preserve.....	10
PHASE 3: Butte Creek Restoration (Tributary of Loving Creek) State-owned land at IDFG Hayspur Fish Hatchery.....	13
PHASE 4: Streamflow Enhancements, Water Conservation and Headwaters Habitat Restoration at Loving Springs Ranch	14
Applicant Category and Eligibility of Applicant.....	16
Performance Measures.....	16
Project Metrics Listed by Project Phase.....	17
Evaluation Criteria.....	17
E.1.1 Evaluation Criterion A: Project Benefits (25 Points)	17
E.1.1.1.1 General Project Benefits	17
E.1.1.1.2 Water Conservation and Efficiency Project Benefits	22
E.1.1.1.3 Water Management and Infrastructure Improvements Benefits.....	23
E.1.1.2 Subcriterion A.2: Multiple Benefits.....	23
E.1.2 Evaluation Criterion B: Collaborative Planning (20 Points).....	23
E.1.3 Evaluation Criterion C: Stakeholder Support for Proposed Project (15 Points).....	26
E.1.4 Evaluation Criterion D: Readiness to Proceed (20 Points).....	27
E.1.5 Evaluation Criterion E: Performance Measures (5 Points).....	29
E.1.6 Evaluation Criterion F: Presidential and DOI Priorities (15 points).....	30
E.1.6.1 Subcriterion No. E1: Climate Change	30
E.1.6.2 Subcriterion No. E2: Disadvantaged or Underserved Communities.....	31
References	32
D.2.2.4 Pre-Award Costs	33
D.2.2.5 Environmental and Cultural Resources Compliance (all phases)	33
D.2.2.11.1 OMB Form 4040-0019: Project Abstract Summary.....	34

Executive Summary

March 28, 2023

The Nature Conservancy (TNC)

Hailey, Blaine County, Idaho

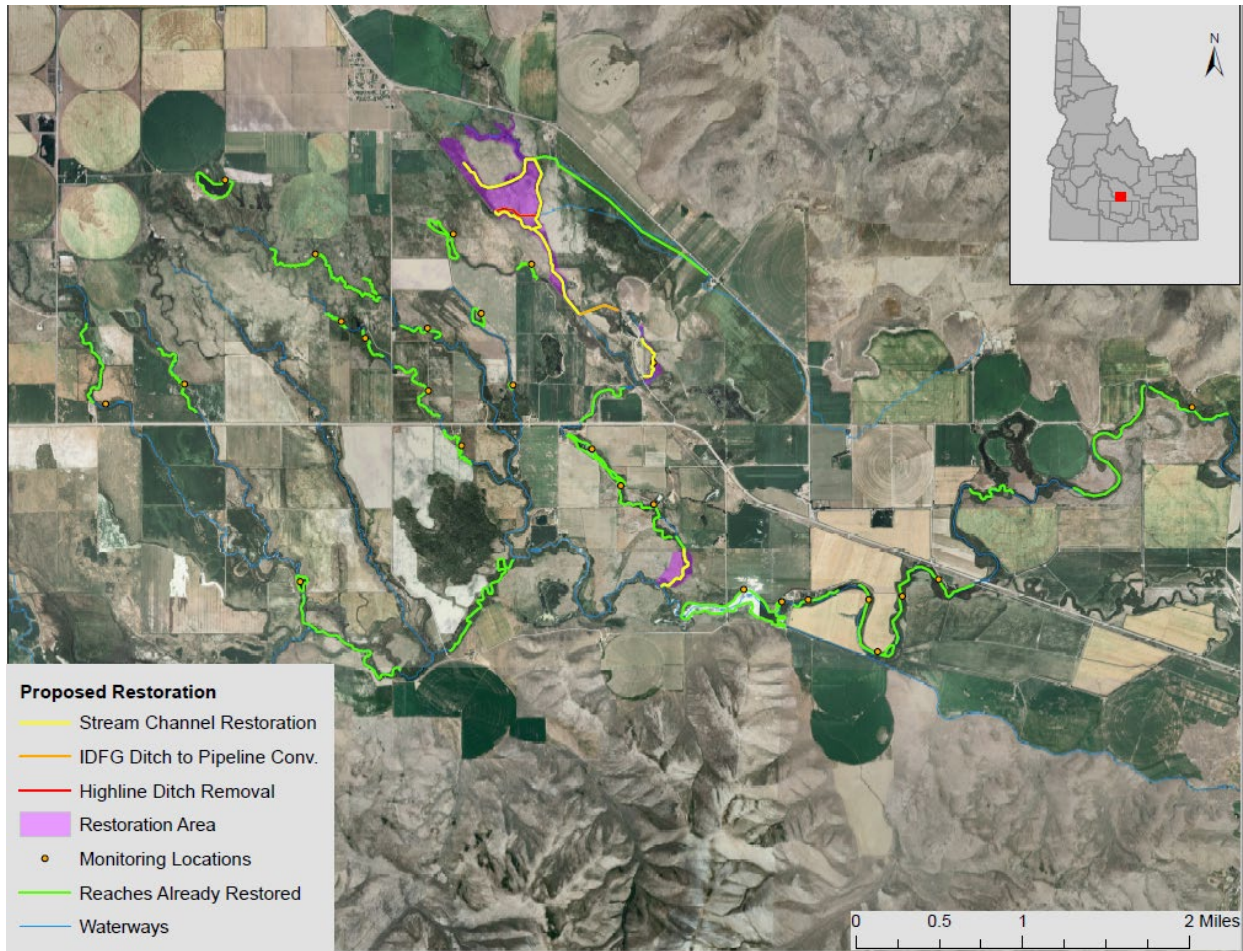
Applicant Type: Category B applicant working with Category A partner

Category A Partner: State of Idaho, Department of Fish and Game (IDFG)

Loving Creek is a high-desert, spring-fed creek located in the Big Wood River Valley of central Idaho and is a major tributary to Silver Creek, a world-class, blue-ribbon trout fishery. Under the Loving Creek Tributaries Restoration and Water Conservation Project, the Conservancy, State of Idaho, and partners will restore ecological functions and habitat on Loving Creek from the headwaters to the confluence with Silver Creek. Elements of this project include: channel restoration, floodplain reconnections, irrigation ditch consolidation and conversions from open ditch to pipelines, agricultural buffer strips and native revegetation, riparian fencing, and removal of a fish barrier. Project partners include: the State of Idaho's Department of Fish and Game (IDFG) – our Category A partner, Silver Creek Alliance, Trout Unlimited, multiple landowners, the Blaine County Soil and Water Conservation District, and USDA Natural Resource Conservation Service (NRCS). Despite many improvements in agricultural management and land use practices over the past several decades, water quality and habitat conditions in Silver Creek and its tributaries remain degraded from legacy impacts. The watershed is also threatened by climate change and the impacts of heat and drought on timing and availability of water for ecological and agricultural needs. Our project will address these concerns by restoring ecosystem and aquifer functions and enhancing streamflow, reducing irrigation demands, reducing sediment loading, and improving habitat conditions. The Loving Creek Tributaries Restoration and Water Conservation Project will directly address high priorities outlined in the 2020 Silver Creek Watershed Assessment Report and will also help support the objectives of the Big Wood Groundwater Management Area Management Plan adopted in 2022, as well as stakeholder-driven goals of the Wood River Water Collaborative, our local watershed group. We anticipate the entire project will take three years, with completion by June 30, 2026. The restoration work is focused on private and state lands and does not involve federal lands or a federal facility.

Project Location

Loving Creek Tributaries Restoration and Water Conservation Project is in Blaine County, Idaho, located approximately five miles west of the town of Picabo and ten miles south of Bellevue, Idaho. The latitude of the project center point is 43° 20.5' N and the longitude is 114° 9.2' W.



Technical Project Description

PHASE 1: Stream Restoration, Fish Barrier Removal, Water Efficiency, and Agricultural Conservation in Upper Loving Creek at the Gardner Ranch

Upper Loving Creek and North Fork Loving Creek are valuable tributaries to Silver Creek and critical to the system’s wild trout fishery, but fish migration access is currently blocked to these tributaries due to an irrigation barrier placed on the property more than 60 years ago. Current issues with water quality in the reach are the result of lack of stream shading and limited riparian cover as well as over-widened, shallow channels and ponding that expose slow-moving water to prolonged solar heating, which is further exacerbated by drought and climate change.

The goal of the Upper Loving Creek Gardner Ranch project is to restore aquatic ecosystem functions and enhance stream flows from the spring-fed creek and wetland headwaters to the lower tributary that feeds Silver Creek. To accomplish these goals, we will remove an irrigation dam fish barrier to restore unfettered fish migration, remove legacy sedimentation that has collected above dam, and restore natural hydrology to the creek. Removal of the passage barrier will ultimately reconnect fish access to the upper spring-fed headwaters, replete with cool water refugia, with the rest of the Silver Creek system. We will also conserve water in Loving Creek by improving the efficiency of water delivery to the Hayspur Hatchery, with water savings remaining in Loving Creek as instream flow. This project will also

restore and enhance stream and riparian functions, reconnect the creek to its floodplain, and restore native wildlife and songbird habitat through conversion of agricultural fields to sagebrush, wet meadows and wetlands.

Project objectives and ecological outcomes for upper Loving Creek include the following:

- 1 mile of instream channel habitat and hydrologic functions restored
- 1 fish passage barrier eliminated
- 5.72 miles of currently disconnected headwater streams reopened for fish migration, providing access to upstream spawning and rearing habitat in the Loving Springs headwater tributaries.
- 3 acres of floodplain restored
- 9 acre feet of water conserved, to remain in Loving Creek as instream flow
- 4.5 acres of new/enhanced wetlands and wet meadows
- 1 acre of agricultural field buffer strips created
- 1 acre of trees planted for stream shading
- 3 acres of croplands converted to upland habitat (sagebrush and grasslands)

To accomplish project goals, the Gardner Ranch is converting agricultural hay fields into stream and riparian habitat to bypass the dam. Hay fields will be converted into riparian and sagebrush habitat meeting targeted goals for other federal and state programs such as Working Lands for Wildlife, Sagebrush Conservation Strategy, and the State Wildlife Action Plan, among others. These improvements will reduce agricultural impacts to the creek such as runoff and sediment transport, while also enhancing upland wildlife habitat and migration corridors for big game species, including elk, mule deer, and moose. These actions will also create habitat for Greater Sage-grouse (which have documented leks on adjacent BLM lands), migrating songbirds, pollinators, and other wildlife.

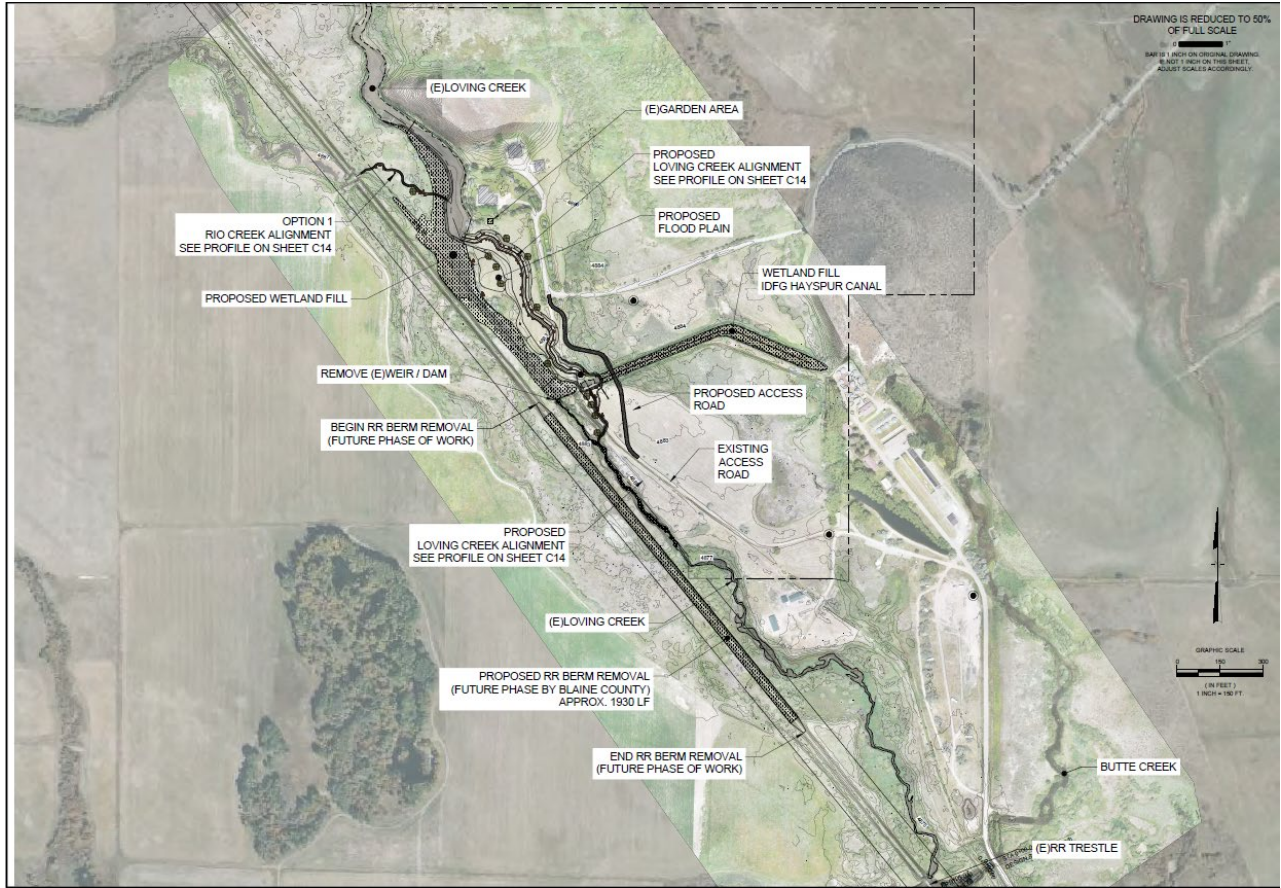


Figure 1: Phase 1 Loving Creek at Gardner Ranch, Geographic Extent and Planned Restoration Activities

Restoration activities and objectives for this Phase 1 Project:

This project will remove the fish barrier (irrigation dam) that limits migration and access to upper reaches of spring-fed, cool water habitat. (See Figure 2) This will be done by restoring a natural process-based stream and riparian floodplain through converted agricultural lands.



Figure 2: Irrigation Dam to be Removed



Figure 3: 2022 Aerial of Phase 1 Project Area, Looking North

We will improve fish habitat and improve water quality by removing legacy fine sediments that have aggraded above the irrigation dam through scooping with an excavator (while working in the dewatered channel) to uncover spawning gravels and improve pool habitat depths. We will deposit and stabilize the excavated silt in an upland field, then reseed with native upland species.

This project will also improve water efficiency and achieve water conservation by converting a 1200' long canal to a buried water delivery pipeline (Figure 4). The canal is wide and sediment-laden, loses nine acre-feet of water each year to evaporation, and acts as a heat sink. By removing the canal and delivering the water to the Hayspur Fish Hatchery via a buried pipe, we will achieve water savings of at least nine acre-feet. IDFG is the water rights holder, and they have agreed that the conserved water will remain in Loving Creek as instream flow rather than being diverted.

Figure 4: Location of canal to be converted to 30" buried pipe, then wetlands reconnected

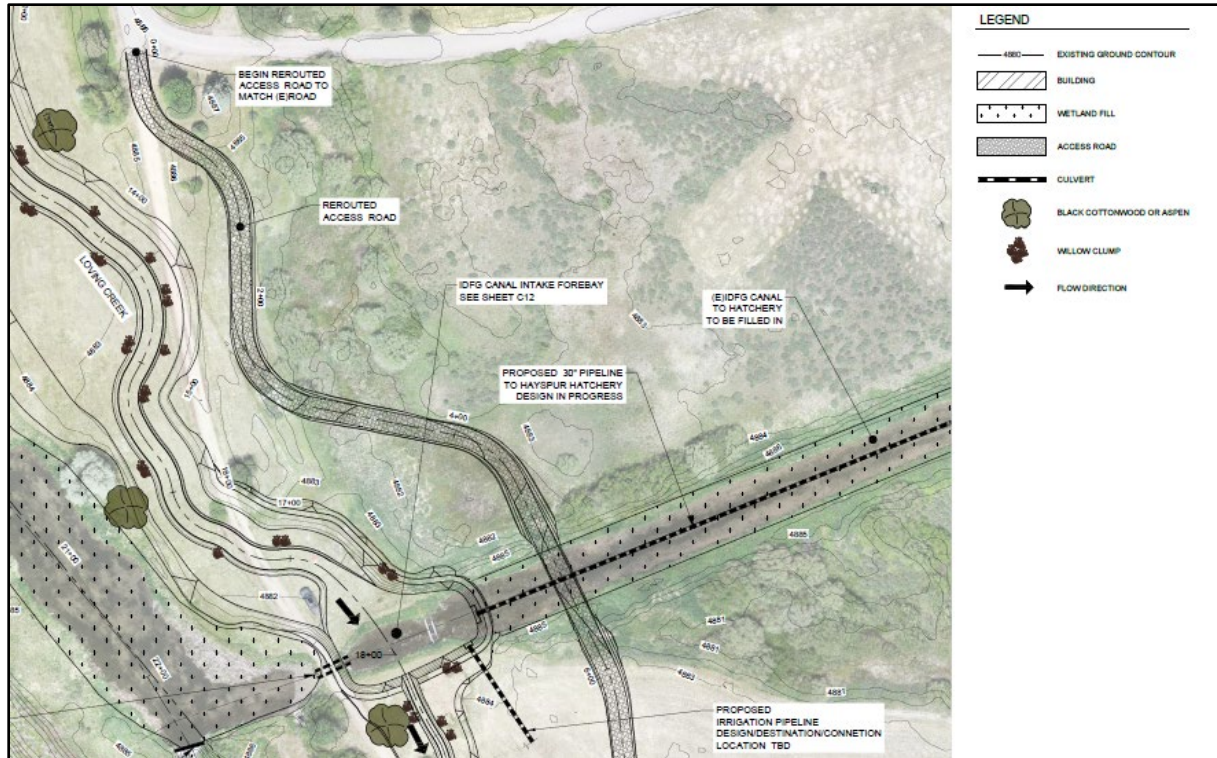


Figure 4: Location of canal to be converted to buried pipe, with wetland hydrology restored

To achieve project goals for habitat enhancement and water quality improvement, we will restore natural channel hydrology and streamflow functions, as well as reconnect the stream with the floodplain by building new stream alignments to increase sinuosity and add meander bends. This project will narrow the active channel by building new banks closer to channel centerline and backfilling to reconstruct the floodplain (Figure 5). This will reduce the width-to-depth ratio and reverse the effects of artificial channel widening that occurred as part of the agricultural farming practices on this property during the last half of the 20th century. These techniques will increase the stream velocity gradient to uncover and enhance spawning gravels and maintain flushing of fine sediments throughout the reach. They will also provide more heterogeneous habitat complexity, creating backwater pools, eddies, and improved lateral rearing and foraging habitat (Figure 6). We will further improve summer pool habitat by adding instream cover and removing aggraded sediment that currently restricts spring upwelling, exposing backwater pools to groundwater seepage and cooler spring-water throughout the reach.

Following channel work, we will restore the streambank margin habitat and riparian zones with diverse native plant communities (woody shrubs, native riparian forbs and wildflowers, perennial grasses, and lateral sedge alcoves). The project will use Blaine County-approved native wetland, riparian, and floodplain species. These activities will also result in improved water quality, i.e., decreased late summer stream temperatures and improved dissolved oxygen concentrations.

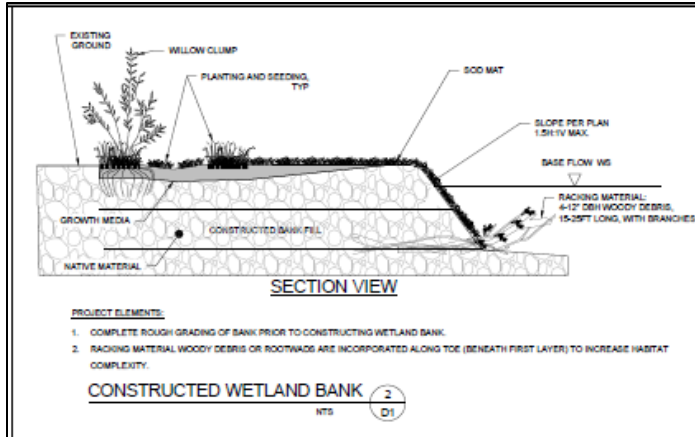


Figure 5: Constructed Bank Technique (excerpt from 80% design plans)



Figure 6: Example of Restored Spring Creek Channel with Lateral Wetland Habitat

We have an 80% design completed for this phase. Our engineering contractor, RivHab, is working with the landowner, IDFG, TNC and other partners to complete the design this spring. The landowner submitted the permit applications in March 2023 and will finalize all permitting this summer. We are ready to hire a construction contractor as soon as implementation funding is secured. If we receive this WaterSMART grant, we will complete environmental compliance in cooperation with BOR staff and be ready to begin construction as soon as fall 2023.

Mitigations and BMPs: We have considered the potential impacts of reopening unimpeded fish access and migration to this stretch of headwater streams. There are no documented invasive species such as brook trout that would be provided new access upstream or downstream to outcompete resident populations of native fish. Rainbow trout are found throughout the system, including in these headwater streams, but despite genetic sampling and research by IDFG, they have not found a resident strain of native redband trout in either reach. IDFG is not concerned that reopening fish access upstream would displace native redband populations.

We will avoid impacts to water quality and fish during construction by using temporary cofferdams to dewater stream sections, so the work can be done outside the active channel. Silt screens and erosion control supplies will also be used to minimize turbidity. Outside the active channel, we will cut new channel segments into the fallowed farm fields and will fully construct the new channels before introducing streamflow from the creek. Silt screens will be installed downstream to capture any sediment from the new channel. Once the new alignment is complete, it will become the active channel, and then we will fully dewater and decommission the existing channel, creating new floodplain. The landowner will work with IDFG fisheries staff to net and remove fish from the reach prior to dewatering. This bypass method of working “in the dry” outside the active channel will enable us to minimize impacts to stream flow and avoid significant turbidity during construction. We will use erosion control materials such as coir logs, sediment screens, and cofferdams to further mitigate potential impacts to water quality during precipitation events.

PHASE 2: Restoration of lower Loving Creek at TNC's Silver Creek Preserve

This stream reach is immediately upstream from the confluence with Silver Creek, and the project site is located on The Nature Conservancy's Silver Creek Preserve. This creek segment was straightened and widened early in the 20th century. The creek, floodplain and adjacent grasslands were impacted by historic agricultural activities such as wetland filling and floodplain clearing, leading to relatively low sinuosity, poor riparian conditions, a high width to depth ratio, and excessive sedimentation. Instream habitat for fish is currently subpar in the reach due to a lack of habitat complexity and minimal instream cover for fish.

Our goal is to create a reach with more diverse fish habitat (more pools, riffles, and backwater habitats for young-of-the-year fish), naturally functioning floodplains and streambanks that are stabilized by riparian planting, and improved flows with cooler water throughout the hot summer month to improve water quality in the reach and downstream. Our restoration activities on Loving Creek at the Preserve will restore ecological functions, reconnect the stream with its floodplain, and increase fish habitat complexity throughout the entire 0.35 mile reach.

Project objectives and ecological outcomes for lower Loving Creek include:

- 0.35 miles of stream channel habitat and hydrologic functions restored
- Removal of 1,000 cubic yards of silt from the streambed
- Addition of at least a dozen instream wood structures for fish habitat and channel complexity
- 1.3 acres of floodplain restored
- 5 acres of upland grasslands and pollinator-friendly meadows restored
- 9 acres of riparian habitat enhanced, including planting of mature riparian shade trees and shrubs
- 2.5 acres of new/enhanced wetlands and wet meadows
- Improved water quality and enhanced stream flows at the confluence with Silver Creek

Using heavy equipment, our construction contractor will narrow the channel by rebuilding banks and backfilling with soils to rebuild a natural floodplain terrace. We will reconnect the channel with the floodplain by carving out new channel segments and realigning sections of channel to increase sinuosity, adding meander bends to the unnaturally straight, wide channel. The design principles and methods are outlined in the Lower Loving Creek 30% Conceptual Design (Figure 7) and the streambank construction and stabilization techniques are shown in Figures 8 and 9.

These techniques will reduce the width-to-depth ratio and improve stream flows through the reach, scouring pools and uncovering riffles. TNC has used this restoration technique on a similar project completed on nearby Stalker Creek in 2022. That ½ mile project is already showing signs of measurable success with new scour pool creation, increased habitat diversity (more riffles and deeper pools), and significant reductions in sedimentation.

In order to minimize the mobilization of excess legacy sediments in lower Loving Creek and to keep them out of Silver Creek downstream, we will remove much of the aggraded silt from the streambed, uncovering the underlying gravels. We will move these fine sediments and unconsolidated materials to key locations in the uplands and away from the floodplain into permanently fallowed fields to the northwest. There they will be spread and stabilized to minimize erosion, then seeded in native grasses and pollinator-friendly forbs.

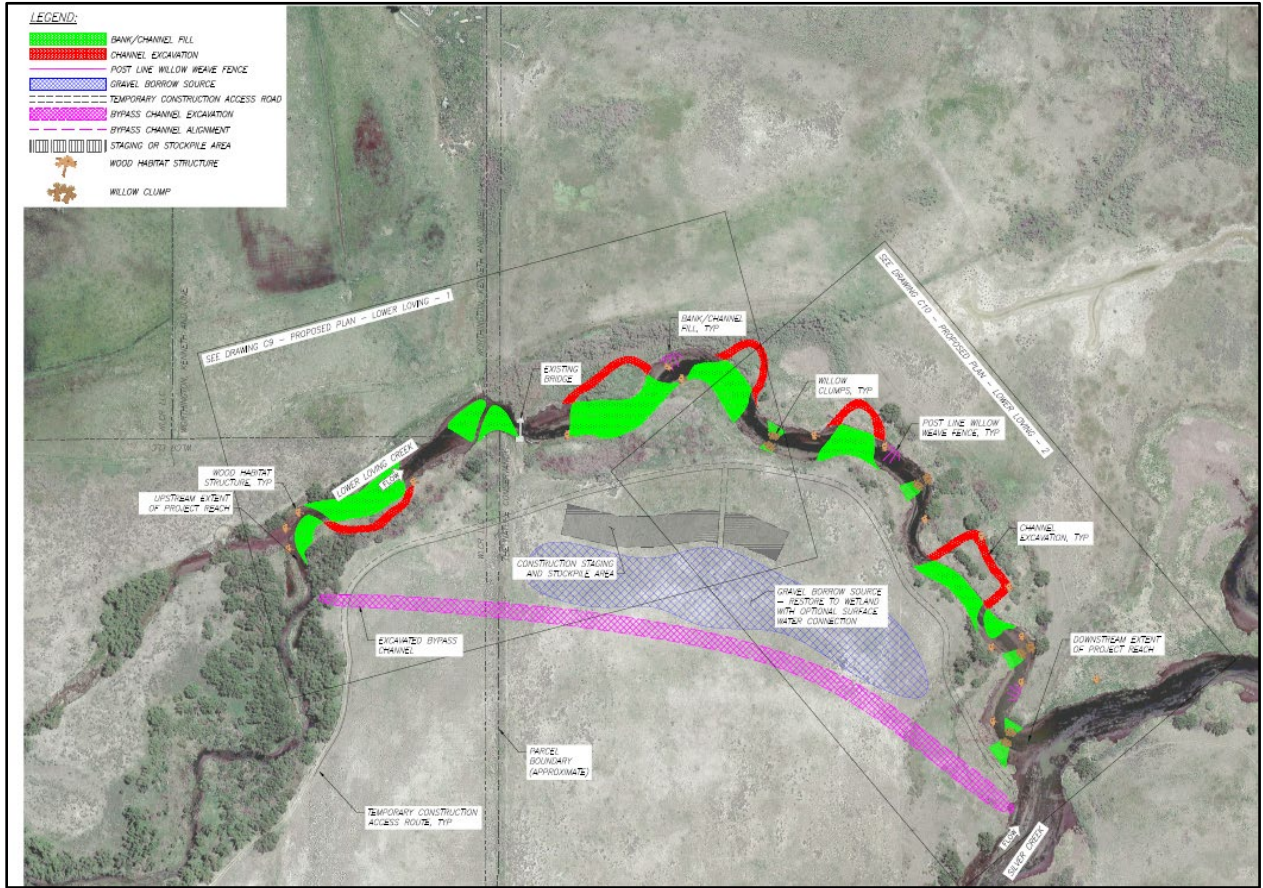


Figure 7: Lower Loving Creek Stream Restoration Conceptual Design (30%)

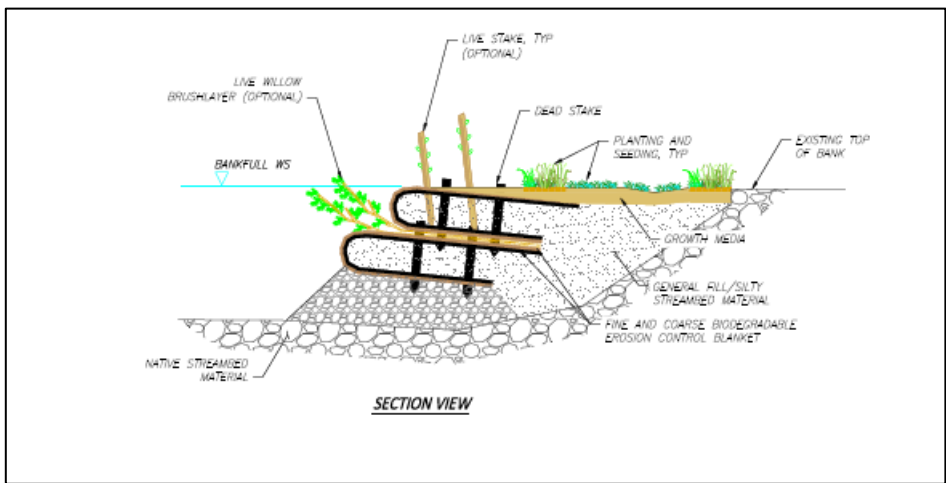
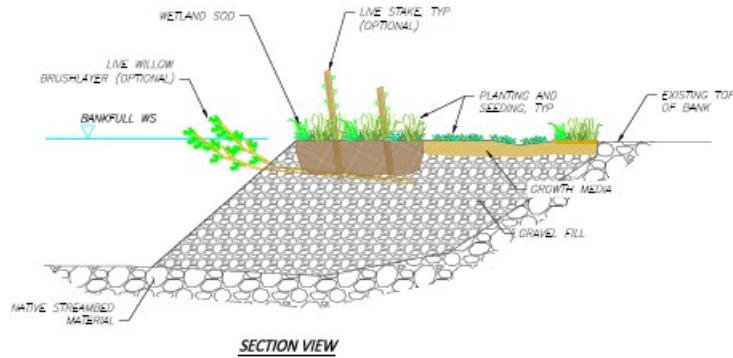


Figure 8: Technique to build new, stable streambank using fabric encapsulated soil lifts (FESL)



APPLICATIONS AND EFFECTIVENESS:

- USED TO REDUCE CHANNEL WIDTH
- QUICKLY ESTABLISH RIPARIAN VEGETATION
- PRODUCE A NEWLY CONSTRUCTED, WELL-REINFORCED STREAMBANK
- USEFUL IN RESTORING INSIDE BENDS WHERE EROSION IS LESS PROBLEMATIC
- CAPTURE SEDIMENT AND ENHANCES CONDITIONS FOR COLONIZATION OF NATIVE SPECIES
- SLOPE STABILITY ANALYSES ARE RECOMMENDED
- TYPICALLY REQUIRE A STABLE FOUNDATION

DESIGN INTENT:

- STABILIZE NEW OR EXISTING STREAMBANKS USING BIOENGINEERING TECHNIQUES

DESIGN CONSIDERATIONS:

- UTILIZE NATIVE SPECIES FOR BRUSH LAYER, FASCINES, BRANCH CUTTINGS, AND PLANTINGS



ABOVE: WETLAND SOD BANK IMMEDIATELY POST-CONSTRUCTION (BIG SPRINGS CREEK, ID).

BELOW: BANK FILL WITH WETLAND SOD BANK 1-YEAR POST-CONSTRUCTION (LENNY RIVER, ID)



ABOVE: BANK FILL WITH WETLAND SOD BANK IMMEDIATELY AFTER CONSTRUCTION (BIG SPRINGS CREEK, ID)



Figure 9: Bank-building Technique Used on Stalker Creek Project with great effectiveness

TNC and partners have successfully used these restoration techniques elsewhere on Loving Creek, including in the reach just upstream, completed in 2013, as well as on nearby Stalker Creek, completed in fall 2022, to reduce channel widths, improve channel geometry, and increase sinuosity to target levels. This completed restoration has created naturally functioning, complex stream habitat and improved water quality, especially water temperature. These past projects provide good reference reaches for the section of Loving Creek we will restore on Silver Creek Preserve.

Once the channel is narrowed, we will add instream structure and cover for fish through use of natural wood materials – root wads, small logjams, and willow clumps. We will stabilize the new streambanks with transplanted wetland sod mats. We will also improve riparian buffer by auger planting native shrubs and trees (i.e., black cottonwood, willow, water birch, currant, hawthorn, Wood’s rose) that would have been present in the stream margins and floodplains prior to settlement. By creating riparian canopy shading and narrowing the existing over-widened areas that serve as heat sinks, we will improve water temperatures in the reach. We will also create depressional-wetland habitats in the floodplain to

increase habitat diversity for amphibians, songbirds, and invertebrates. Once the stream project is complete, we will clean up the staging areas and rehabilitate the borrow pit and bypass channel, including recontouring to create mesic meadows and seasonal wetlands like those that were present along Loving Creek before the area was farmed. We will also reseed the upland with native grassland mixes and pollinator-friendly forbs to enhance habitat for grassland birds, monarch butterflies, and native bees.

Our design contractor completed a conceptual 30% design (available for [download here](#)) for lower Loving Creek that includes hydrologically appropriate techniques, including these techniques described. Once we have funding for the project, our 30% conceptual design will be developed into a full, complete design with signed, stamped engineering plans ready for permitting and construction.

This reach has high fish use potential (RioASE and ESF 2020) due to good habitat connectivity and adequate flow; however, summer stream temperatures are often elevated due to lack of shading and a wide channel with slow moving water. Restoration feasibility on this reach is high based on geomorphic response potential (low gradient and unconfined valley), the ability to easily address impacts to the reach (channel over-widening, poor riparian vegetation, and lack of instream structure), and TNC's commitment as the landowner to restore the reach and then conserve the restored ecosystem.

Mitigations and BMPs: We will avoid impacts to water quality and fish during construction by using a streamflow bypass channel and working with IDFG fisheries staff and volunteers from Trout Unlimited to net and remove fish from the reach prior to dewatering. This bypass will enable us to minimize impacts to stream flow and turbidity during construction as we work "in the dry" without operating heavy equipment in the wetted channel. We will also use erosion control materials such as coir logs, sediment screens, cofferdams, and coconut fiber wattles.

PHASE 3: Butte Creek Restoration (Tributary of Loving Creek) State-owned land at IDFG Hayspur Fish Hatchery

Butte Creek provides some of the coldest water to the Loving Creek system; however, it also has some of the most degraded habitat. Based on a decade of water quality monitoring data, Butte Creek has had the most significant fluctuations in dissolved oxygen over the course of each year, as well as the lowest recorded dissolved oxygen concentrations of any tributary in the Silver Creek watershed. By addressing instream conditions such as over-widened channels and removing excessive legacy sediment depositions, this project will improve habitat conditions and water quality, which will increase fish population resilience, especially during periods of warm temperatures and low flows.

Project goals and ecological outcomes for Butte Creek include:

- Rehabilitate channel morphology to alter flow rates and mobilize sediment in key locations.
- Increase habitat complexity by adding instream structure, constructing pools and riffles.
- Decrease aquatic macrophyte growth resulting in increased dissolved oxygen concentrations.
- 0.4 miles of cold-water fish habitat and hydrologic functions restored
- One acre of floodplain restored and enhanced
- Approximately 2.5 acres of riparian habitat and emergent wetlands restored and enhanced

In 2019, the Idaho Department of Fish and Game dredged Gaver's Lagoon, a water source for upper Butte Creek and a major source of sediment inputs into the creek. The goal of that project was to remove legacy sediments (due to historic farming practices and other anthropogenic sources) from the system and reduce future excess sediment transport downstream to Butte Creek and Loving Creek. Now that the dredging component of restoration is complete, IDFG and partners are ready to restore the natural hydrology of Butte Creek and remove the thick sediment depositions in that channel to finish restoring the ecological values and enhance the publicly accessible fishery.

IDFG and partners plan to rehabilitate and improve approximately 0.4 miles of Butte Creek. Primary treatments on Butte Creek will be to narrow the over-widened channel, enhance streambanks and add channel sinuosity. The reconstruction of a narrower channel will increase flow velocity, creating bed scour and mobilizing sediments. It will ultimately result in exposing and sorting spawning gravel. The removal of excess sediment from the system will also reduce the overabundance of macrophyte growth which currently impairs water quality. With more normal patterns of macrophyte growth, we expect a return to natural streambed conditions, with hydraulically moderated sediment deposition, and improved dissolved oxygen concentrations.

We will also add instream structure using native wood to increase habitat complexity and provide rearing and hiding places for small fish. Instream complexity will provide cover for endemic Wood River sculpin to evade predation from birds and other fishes while also creating flow diversity and limiting sediment deposition. Planting riparian vegetation will create shade cover, stabilize stream banks, decrease erosion, and add to the limited riparian buffer that is needed to decrease sediment deposition. Ultimately, we anticipate this project will have long term benefits to the entire Loving Creek system. Our project will help make this stream reach self-sustaining now that the upstream sediment source from Gaver's Lagoon has been mitigated. Our project will decrease sediment inputs to Butte Creek and downstream into Loving Creek, reduce the unnatural excessive aquatic macrophyte growth, thereby increasing dissolved oxygen concentrations, maintaining cooler water in late summer, and increasing stream and riparian habitat complexity.

The Idaho Department of Fish and Game owns and manages the parcel where the proposed habitat actions will occur, and the recreating public has free access to Butte Creek. We expect that the project will provide a better outdoor experience for our constituents as fish and wildlife populations respond to rehabilitated habitat and the intrinsic natural beauty of the resource is enhanced. It will also provide IDFG and partners an opportunity to educate the public about the benefits of stream restoration by showcasing science-based techniques and enabling people to see the benefits and outcomes first-hand.

PHASE 4: Streamflow Enhancements, Water Conservation and Headwaters Habitat Restoration at Loving Springs Ranch

Loving Springs Ranch is a working farm that is protected under a conservation easement held by The Nature Conservancy. The landowner, Brett Bashaw, is interested in restoring and enhancing wildlife habitat and aquatic resources on the ranch to benefit waterfowl, large game, and aquatic species. This property encompasses several springheads and seeps that feed the headwaters of Loving Creek with clean, cold water. Multiple tributaries of Loving Creek originate within the designated Natural Zone of the easement, which is protected from development of any kind. Farming is prohibited in this zone, which protects water quality and the integrity of the springs. However, the functions of springs and headwater creeks are impaired due to lingering impacts from historic grazing practices on the property.

Over the past two decades, the landowners and TNC have completed riparian planting projects, removed cattle from the riparian zones and springs, and installed riparian enclosure fencing across the property. This project will continue those cooperative efforts with a focus on water system consolidation, removal of relic canal and ditch hydrology, restoration of mesic meadows, and restoration of more stream flows in the headwaters of Loving Creek.

Project objectives and ecological outcomes for Loving Springs include:

- Restore 1.0 mile of cold-water fish habitat and hydrologic functions to benefit the ecosystem and water quality
- Improve 5.5 acres of riparian buffer, floodplains, and emergent wetlands to increase stream channel shading, wetland filtration, groundwater recharge, and carbon sequestration
- Restore one acre of upland meadow and grassland habitat to benefit birds, wildlife and pollinators
- Rehabilitate channel morphology to improve bank stability and reduce sedimentation
- Increase habitat complexity by adding instream structure and constructing pools and riffles

In addition to the natural water courses – springs, creeks, and wetlands -- present throughout the southern portion of this property, there are several relic ditches, canals, ponds and other man-made water conveyance structures that weave across the property and carry water. (A DEM, site overview and map of the property is available for [download here](#).) One of these canals, the Highline Ditch, is no longer used to convey an active water right. A section of Highline Ditch that carried water from North Fork Loving Creek east onto a neighboring property was decommissioned by the landowner a decade ago to keep more water in the creek. However, the western section of this ditch remains intact and acts as a slow moving, water-losing canal. A significant portion of streamflow from the west fork of Loving Creek water flows into the Highline Ditch, then the flowing ditch parallels the stream corridor for quite a distance. This ditch is hydrologically disconnected from the stream and riparian zone by an earthen berm. Eventually, the ditch cuts due east across a meadow and reconnects with the north fork of Loving Creek, where it empties the entirety of its flows back into the creek channel.

Our goal is to consolidate flows and keep a meaningful amount of cold, clean water in the active channel by decommissioning the rest of this ditch and ensuring the full streamflow remains in the natural channel. Fortunately, the site is very flat and the gradient from the inlet of the ditch to the outlet at North Fork Loving Creek is minimal. Elimination of the ditch will be straightforward and inexpensive relative to the gains achieved in water conservation and increased instream flows for ecological benefit.

Using construction equipment, we will build a small earthen dike to close off the inlet of the ditch and allow the water to drain out of the ditch naturally. Erosion control measures including wetland sod mats and potted plants will be used to stabilize the dike and prevent the streamflow from returning into the ditch. Because this spring-fed system doesn't have flashy flow events even during major rainstorms, there is a very low risk of the dike failing. Because it is not necessary to fill in the ditch, the landowner can choose to leave the remainder of it in place to act as a wetland in the springtime after snow melt and during rain events.

Restoring flows to the natural channel of West Fork Loving Creek will help improve streambed conditions, and we anticipate this action will expose spawning gravel and create more headwater pool habitat. Increased stream flows will benefit wild trout, dace, and aquatic invertebrates. The West Fork of Loving Creek is in good condition, with just a few over-widened shallow areas created by historic cattle grazing. We will use low impact techniques such as willow stakes, willow clump transplants and bank-building with wetland sod mat transplants to narrow these sections of creek. We will also stabilize the

banks in these areas with riparian plantings to further improve streamflow and enhance habitat in this headwater creek.

Applicant Category and Eligibility of Applicant

The Nature Conservancy is a Category B Applicant working in partnership with the State of Idaho, a Category A entity. Idaho Department of Fish and Game is a fully invested partner on this Loving Creek Tributaries Restoration and Water Conservation Project. IDFG has been engaged in project development since the onset, when Silver Creek Alliance, TNC, and IDFG began talking about these restoration needs and opportunities in 2019. IDFG continues to have a direct role in the planning and implementation of all phases, as well as direct ownership and management of the state land at Hayspur Hatchery where Phase 3: Butte Creek Restoration will be completed. IDFG also owns the water right that is delivered via the open ditch on Gardener's property to the Hayspur Hatchery. It is that ditch that will be converted to a buried pipeline to create water savings and increased instream flow in Loving Creek. IDFG has been a key advisor to TNC on past restoration projects, and agency staff served as technical subject matter experts and reviewers during the development of the 2020 Silver Creek Watershed Assessment, our system-wide restoration planning document. The State has provided a letter of commitment for this application, and they are fully supportive of all aspects of the proposed work.

Performance Measures

The Nature Conservancy will track and report completion metrics (i.e., stream miles restored, acres of wetland enhanced, number of trees planted, etc.) and we will also work with partners to monitor and evaluate long-term performance measures to determine project benefits to aquatic resources. Short-term measures will entail monitoring the construction and planting activities to ensure designs are implemented to specification and to estimate the geographic extent of areas restored. Long-term ecosystem performance measures include assessments of habitat functions, fish abundance, water quality attributes, and stream flow and are described in detail within each section:

- **Complexity of instream habitat restored** -- we will compare the complexity of instream habitats before and after implementation, looking at the number of pools available for rearing and overwintering, and the total length of riffles available for spawning.
- **Fish population response** -- Idaho Department of Fish and Game conducts routine fish population sampling, revisiting each creek triennially. Fish population monitoring will assess the response of fish populations to the removal of the fish migration barrier. Any observed changes in fish habitat usage within restored reaches and population responses in Loving Creek will be tracked and reported.
- **Water quality monitoring** – Temperature and dissolved oxygen concentrations. We will continue to monitor and track dissolved oxygen concentrations and water temperatures at several locations on Loving Creek as well as in Butte Creek. TNC and our partners monitor water quality using 38 continuous stream temperature loggers and 13 springhead loggers, plus ½ dozen dissolved oxygen loggers – including two on Loving Creek (one in a previously restored reach and one in a reach that will be restored through this project) plus one on Butte Creek. These sites are monitored to track water quality conditions and flag any changes in the system.
- **Stream flow monitoring** – Using remote data loggers launched on Loving Creek below each reach, we will track streamflows in real time, in 15-minute increments, then model the flows to

determine how the hydrograph responds over time to the components of our project that will benefit instream flows and accomplish water conservation.

Project Metrics Listed by Project Phase

Project Phase	Stream channel restored (mi.)	Stream reconnected (mi.)	Floodplain restored (ac.)	Riparian habitat Created or restored (ac.)	Non-riparian habitat restored (ac.)	Water conserved (ac/ft)
1- Upper Loving Creek	1	5.72	3	4.5	5.5	9
2- Lower Loving Creek	0.35		1.3	11.5	5	
3-Butte Creek	0.4		1	2.5		
4- Loving Springs Headwaters	1		0.5	5.5	1	
Total	2.75	5.72	5.8	24	11.5	9

Evaluation Criteria

E.1.1 Evaluation Criterion A: Project Benefits (25 Points)

We request that this proposal be evaluated under Category C: Restoration projects benefitting ecological values or watershed health that have a nexus to water resources or water resources management. The project meets all evaluation criteria set forth by the Bureau of Reclamation. The following sections address each of the evaluation criteria in order.

E.1.1.1.1 General Project Benefits

Ecological and Cultural Importance of Silver Creek Watershed

Silver Creek and its tributaries, including Loving Creek and Butte Creek are low gradient, spring-fed systems in rural central Idaho that are economically, socially, and ecologically significant to the community and the region. Silver Creek supports a wild trout fishery that draws recreational tourism from across the world and supports a vibrant guiding economy. The local farming and ranching community rely on the surface waters of Silver Creek Watershed for irrigation and agricultural production in the Bellevue Triangle, and downstream along the Little Wood River to the town of Richfield. Silver Creek water is also used to manage recharge of the Snake River Aquifer, a vitally important water resource that supplies drinking water, crop irrigation, and springs for private and government-funded aquaculture in southern Idaho communities. In addition to the world-class fishery, Silver Creek supports recreational floating, wildlife watching, birding and waterfowl hunting opportunities for locals and tourists.

Silver Creek and its tributaries provide significant ecosystem services in this arid, high mountain desert environment that support aquatic, amphibious, and terrestrial wildlife. The watershed supports large mammals including ungulates (i.e., mule deer, elk, and moose), pronghorn, mountain lions, wolves, coyotes, and foxes, and a diversity of species of greatest conservation need, including the endemic Wood River sculpin, western toad, American bittern, Caspian tern, sandhill crane, common nighthawk, ring-billed gull, long-billed curlew, short-eared owl, trumpeter swan, white-faced ibis, golden eagle, bald eagle, greater Sage-grouse, monarch butterfly (Endangered Species Act listing candidate), Hunt's bumble bee, American white pelican, and western pearlshell mussel (IDFG 2017). The actions proposed in this grant request will provide direct benefit to the aquatic and amphibious species listed above, and ancillary benefits to the terrestrial species are highly likely as ecosystem function is restored to treated stream reaches and riparian habitat.

Because of the ecological and cultural significance of the resources in the Silver Creek Watershed, The Nature Conservancy has been working with partners to conserve working lands and ecosystems in the Silver Creek Watershed for 40 years, culminating in the protection of more than 10,000 acres through conservation easements and TNC Idaho's flagship Silver Creek Preserve. However, the ecological integrity and function of Silver Creek and its blue-ribbon fishery is heavily influenced by factors beyond the borders of these conserved lands. Agricultural land and water management practices in the 68,000-acre watershed have direct and indirect impacts on the health of Silver Creek and its tributaries.

Historic, unsustainable overgrazing, though no longer a common practice in the watershed, caused widespread damage to riparian zones, destabilized streambanks, and widened the channels throughout the project area. Despite improvements in agricultural management and land use practices over the past several decades, water quality and habitat conditions in Silver Creek and its tributaries remain degraded from legacy and ongoing impacts. Current land use surrounding Silver Creek and Butte Creek is predominantly cultivated agriculture with traditional soil tilling and a mix of pivot and flood irrigation. Strong winds in the valley create dust storms, and runoff from fields during spring snow melt and rain events deposit large volumes of fine sediment from adjacent agricultural fields into streams. These sediments bury spawning gravel and promote aquatic macrophyte growth. Stream channels throughout the drainage remain disconnected from their floodplains and have impaired water quality. The over-widened channel cannot fix itself with natural ecological process, and it will only continue degrading as banks erode and more sediment is trapped by slowed flow and dense aquatic macrophyte growth. During summer periods, macrophyte growth peaks, which further slows streamflows, decreases dissolved oxygen concentrations, increases thermal loading, and traps more sediment. Silver Creek warms to over 70° F in the summer, which when sustained for long periods, can be lethal for wild trout and sculpin (Rio ASE and Ecosystem Sciences 2020; Ecosystem Sciences 2021). The watershed is also threatened by climate change and the potential impacts of heat and drought on the timing and availability of water for ecological and agricultural needs.

In the Idaho Department of Fish and Game's Fisheries Management Plan (IDFG 2019), the State's primary objective for Silver Creek watershed is to improve degraded stream habitats. The streams in this system have a history of anthropogenic disturbance through agricultural practices and grazing in riparian corridors. Despite improved management that protects streambanks from livestock grazing, the current

aquatic and riparian habitats lack complexity and will not recover to pre-development conditions without targeted interventions. Much of the system is currently characterized by dense aquatic macrophytes, fine silty substrate, an over-widened channel, and limited instream structure (Rio ASE and Ecosystem Sciences 2020). Some riparian zones are degraded, with thin buffers of willows, and a lack of canopy cover and stability, which increases thermal loading, affects aquatic macrophyte density, and provides minimal control of sediment runoff and deposition. The condition of the riparian corridor prior to development was characterized by dense canopy cover created by cottonwoods and other large deciduous tree species. In addition to shading, dense vegetation created a buffer to sediment inputs.

The Nature Conservancy and the Silver Creek Alliance funded the completion of the 2020 Silver Creek Watershed Assessment, (Rio ASE and Ecosystem Sciences 2020), a geomorphic-based watershed assessment that identified factors contributing to the current degraded conditions of the system and strategies to address those factors. The report summarizes past work related to fish population investigations and habitat rehabilitation. According to the authors, one reason that previous habitat projects have not fully addressed habitat issues is that they were completed opportunistically throughout the watershed. The assessment's goal was to outline priorities that project implementers could use to focus and prioritize habitat restoration work in Silver Creek and its tributaries (Rio ASE and Ecosystem Sciences 2020).

Restoration priorities from the assessment include:

1. Reduce channel width and rebalance width to depth ratio.
2. Reduce sediment sources, capture and retain fine sediment in designated ponds, low velocity areas, or remove from channel.
3. Add instream structure.
4. Increase channel sinuosity.
5. Improve riparian buffer and shading.

The Case for Restoring Loving Creek

The 2020 Silver Creek Watershed Assessment identifies Loving Creek and its tributaries as the highest priorities for restoration because it is a 303(d) listed stream in the subbasin TMDL due to elevated water temperatures, and the headwaters have been historically disconnected from the system by channel-spanning irrigation dams. Loving Creek is also the single largest source of sediment to Silver Creek. On the plus side, Loving Creek has a significant number of springheads and lotic wetlands that will create high quality cold-water refugia for fish as well as habitats for waterfowl and amphibians once restoration is complete.

Currently, the Loving Creek and headwater springs system is compromised by terrestrial nutrient and sedimentation loading and increased temperatures due to adjacent land uses, diversion into unconsolidated open ditches, impaired hydrologic functions, and inadequate riparian buffer zones and stream shading (Silver Creek Watershed Enhancement Strategy). These water quality problems are well-documented by the Silver Creek watershed long-term monitoring program, which is led by Ecosystem Sciences Foundation in cooperation with TNC, Silver Creek Alliance and landowners. This study uses in-situ sensors to monitor water temperature and dissolved oxygen. Supplemental water quality testing by volunteers with "Science on the Fly" citizen science project and the State of Idaho's Beneficial Use

Reconnaissance Program monitoring, as well as observational data, further help characterize the water quality conditions and dynamics of the watershed. This cooperative monitoring effort has documented persistent elevated water temperatures, low levels of dissolved oxygen and large deposits of sediment in the Loving Creek system.

To remedy these impaired conditions, TNC, IDFG, and our partners have set restoration targets for Loving Creek reaches, as identified in the 2020 Silver Creek Watershed Assessment. These targets include removal of fine silts, reducing width to depth channel ratio, increasing in-channel habitat complexity, improving riparian functions, and increasing buffer strips between stream channels and agricultural lands. Through active restoration of the channel, floodplains, wetlands and riparian zones, we will address the reach-specific limiting factors that affect ecosystem function and fisheries habitat, as identified in the 2020 Silver Creek Watershed Assessment, and actively restore Loving Creek and Butte Creek to meet these targets. The Loving Creek Tributaries Restoration and Water Conservation Project will address the following limiting factors:

1. Remove excess sediment depositions in the channel that resulted from legacy farming practices to uncover gravel beds, restore riffles and deeper pools and increase spawning habitat in degraded reaches;
2. Increase sinuosity of the stream channel to restore hydrology, reconnect the creek with its floodplains, improve natural sediment transport and stabilize channel conditions
3. Reconnect the floodplain and stream channel to improve riparian functions, supplemented by native riparian plantings of shrubs and trees to provide shading and bank stability;
4. Improve water quality by widening and enhancing riparian buffer strips between the channel and agricultural fields and residential development to reduce runoff, sediment loading and chemical deliveries to the creek. Enhancement of riparian and wetland buffers is expected to reduce nitrogen (Lowrance et al. 1984; Peterjohn and Correll 1984; Mayer et al. 2007), phosphorus (Hoffman et al. 2009), and sediment inputs from anthropogenic activities in adjacent lands (Liu et al. 2008). Riparian buffer improvements are also expected reduce water temperatures via increasing riparian canopy cover, enhance the abundance of instream wood recruitment, and increase terrestrial insect abundance, thereby improving fish spawning and brood-rearing habitat (Kocher and Harris 2007). Riparian habitats also benefit migrating songbirds, waterfowl, and other wildlife.

This multifaceted project will provide ecological benefits to Loving Creek and its tributaries, as well as to the springheads and wetlands that are co-located with the creek. Because Loving Creek is a major tributary of Silver Creek, the ecological benefits of the project will enhance the greater Silver Creek system, via improvements in fish habitat connectivity, stream flows, water quality and water temperatures. Our goal is to improve ecological functions and habitats for fish and wildlife, which will improve ecosystem resiliency to future climate variability and lessen impacts from groundwater pumping and land-use conversion.

The aquatic restoration activities included in this proposal will accomplish the following outcomes: 2.75 miles of active stream channel restoration, enhancement and restoration of at least 24 acres of riparian and wetland habitat, and removal of one fish passage barrier to restore connectivity to 5.72 miles of upstream habitat. The project will additionally restore 11.5 acres of upland and/or agricultural buffer habitat and will make conveyance improvements that will conserve at least 9-acre feet of water.

Collectively, these restoration and water conservation activities will provide significant aquatic ecosystem benefits for the Silver Creek Watershed.

In addition to the direct ecosystem benefits of this proposed project, our work will also result in improvements to water delivery infrastructure, water management, and groundwater recharge. Consolidation of ditches and conversion of open ditches to pipelines will reduce evaporative losses and increase stream flows, thereby maintaining spring system connectivity and improving groundwater recharge. Water conservation and water efficiency measures will achieve measurable water savings that will remain in the creek to benefit downstream flows, further restoring watershed function and contributing to groundwater recharge. This will also improve the reliability of sub-irrigation to benefit local agricultural producers who would otherwise depend on groundwater pumping from the aquifer to sustain their crops in the late summer. Water conservation and improved groundwater recharge will also help ensure that more water will flow downstream to benefit stream resources and the fishery in the lower Silver Creek system as well as the Little Wood River. Combined, these two project goals -- restored ecosystem functions and water conservation -- will also provide clear, interconnected benefits for water quality by providing consistent flows of clean, cooler water (especially during hot summer periods) and reducing sediment and nutrient inputs into the watershed.

Climate Resiliency and Drought

The need for more stable stream flows is critical because Silver Creek is a groundwater dependent ecosystem in a high mountain, arid climate. While the Silver Creek Watershed is a spring fed system, it is highly dependent upon the snowpack from the surrounding mountain ranges, which replenishes the aquifer that feeds the springheads of Silver Creek's tributaries. Climate change continues to disrupt water cycles with earlier peak run-off dates and higher peak season temperatures. Disruptions to snowpack, such as rain on snow events and higher early season temperatures, create a hydrologic system that is often described as "flashy" meaning snow melts rapidly, running off the mountains and downstream to the Big Wood River. In the Silver Creek Watershed and Wood River Basin, infiltration functions have been degraded and/or disconnected, causing water to move through the system quickly rather than infiltrating through wetlands and functional soils. This impacts the recharge of the aquifer.

This flashiness of the system and the impacts on groundwater recharge are further exacerbated by legacy effects of traditional farming practices, which include historic conversion of wetlands, straightening and damming of stream channels to simplify irrigation water delivery and dry up lands for farming. Despite improvements in land use practices across the watershed, Silver Creek remains susceptible to water quantity and water quality impacts caused by continued surface water diversions, surface water pumping, canals, and ditching, as well as groundwater depletion due to irrigation pumping from wells during drought years, which water users in the basin use to supplement surface water rights following late season curtailments, especially during drought years. The groundwater depletion impacts springheads and reduces groundwater upwelling. (Ecosystem Sciences 2021). Slowing the movement of water through the system and improving aquifer recharge are key functions that will directly improve resiliency of the watershed, both for ecological function and for agricultural systems, which are highly dependent on availability of water resources, particularly in late summer periods, when flows tend to be at their lowest.

This project will use restoration to improve ecosystem resilience and function to maintain more stable year-round stream flows in Silver Creek and its tributaries. This action will facilitate groundwater recharge and help minimize the impacts of drought and groundwater over-allocation. We will reconnect channels with floodplains, rehabilitate and reconstruct impaired riparian zones and emergent wetlands, and restore functional floodplain hydrology. Restoration of wetlands and reconnection of floodplains

will allow snowpack run-off to disperse through the landscape, allowing it to infiltrate and recharge the aquifer, which is critical to a spring system. Additionally, restoring riparian structure and vegetation will slow water movement and increase residency time for water in the upper reaches of the system. Altogether, these outcomes will improve watershed resiliency to continued climatic impacts such as drought by improving cold water springs storage in wetlands and wet meadows, recharging the lower aquifer, and sustaining seasonal stream flows that maintain water quality and fish habitat.

Species of Greatest Concern found in the Silver Creek Drainage

According to the US Fish and Wildlife Service IPAC (Project Code 2023-0056501), there are a total of three threatened, endangered, or candidate fish, wildlife, or invertebrate species that may be present in the Silver Creek Watershed. (USFWS 2023) These species are the North American Wolverine, *Gulo gulo luscusre* (Proposed Threatened, no Critical Habitat is designated); Monarch Butterfly, *Danaus plexippus* (Candidate Species, no Critical Habitat); and Ute Ladies'-tresses, *Spiranthes diluvialis* (Threatened, no critical habitat designated). Silver Creek Watershed also lies within an important migratory bird flyway. More than 150 species of birds have been documented at Silver Creek Preserve, located on the south end of the proposed project.

This project seeks to provide direct and indirect benefits to migratory and resident bird species, improving the availability of nesting and brooding habitat, as well as providing plentiful foraging resources and cover. This will be accomplished through riparian habitat and wetland enhancements, floodplain reconnections, conversion of agricultural fields to native upland meadow and sagebrush steppe. Project components are also anticipated to benefit monarch butterflies by adding breeding and migratory stop-over habitat. We will be seeding and planting several acres of wet meadows and upland meadow habitats with pollinator-friendly native wildflower species including milkweed. Additionally, riparian shrub and tree plantings are expected to provide cover and roost sites for adults. Shade from plantings will also create thermal refugia for larvae during the heat of summer days (Western Association of Fish and Wildlife Agencies).

Because we have not observed Ute Ladies'-Tresses plants in the project area, we will work with BOR environmental compliance staff to determine what surveys are needed. This species is usually associated with moist environments – wetlands, wet meadows, floodplains, sub-irrigated and spring-fed channels and valleys, irrigated canals and irrigated meadows. If individuals or communities of this species are present, we will avoid and protect all plant occurrences. It is our hope that if the species is present somewhere in the Loving Creek drainage, our broad restoration work will create new and improved habitats that would be beneficial for the species.

Apart from the above ESA-listed and proposed species, the Silver Creek Watershed Ecological Enhancement Strategy (Ecosystem Sciences, 2011) documents Blue Grouse and Greater Sage-grouse as Silver Creek Avian Species of significance. Additionally, IDFG is currently revising its State Wildlife Action Plan (SWAP), and the endemic Wood River Sculpin is listed as a candidate Species of Greatest Conservation Need (SGCN) in that revised plan. There have also been samples of genetically unique redband trout (a subspecies of rainbow trout) in the Little Wood River, with more data collection ongoing (IDFG), and Mountain whitefish were once prevalent in the Silver Creek system, but the species has not been found in over twenty years despite extensive sampling (IDFG pers comm).

E.1.1.1.2 Water Conservation and Efficiency Project Benefits

Phase 1 of our project on upper Loving Creek will improve the efficiency of a water delivery system and achieve water conservation, resulting in more water retained in the stream channel year round. We will accomplish this by converting a 1200-foot long canal to a buried water delivery pipeline (Figure 4). The

canal is wide and sediment-laden, loses nine acre-feet of water per year to evaporation, and acts as a heat sink. By removing the canal and delivering the water to the Hayspur Fish Hatchery via a buried pipe, we will achieve water savings of at least nine acre feet. This projection is based on calculated seepage and evaporation losses on one acre of exposed water, considering local soil types as mapped, as well as climactic conditions modeled for the Picabo weather station. Water loss calculations are estimated as 8,124 gallons per day (RivHab 2022). For reference the water savings model is included in the supporting grant documents (available for [download here](#)). This water savings will directly benefit the ecosystem. IDFG is the water rights holder, and they have agreed that all the conserved water will remain in the creek as instream flow to benefit the aquatic ecosystem.

E.1.1.1.3 Water Management and Infrastructure Improvements Benefits

The proposed project will contribute to the goals of the Big Wood River Ground Water Management Area Management Plan (BWRGWMAMP). This stakeholder-driven plan was adopted by the Idaho Department of Water Resources in 2022 in response to continued severe drought conditions that created water shortages in the Wood River Basin. The main objective of the plan is to create a balanced water budget in the Basin between surface and groundwater resources. By improving the Silver Creek system's ability to recharge groundwater and maintain late-season streamflows, paired with direct water savings through improved water delivery efficiencies, the project will contribute to improved water supplies in the Silver Creek system.

E.1.1.2 Subcriterion A.2: Multiple Benefits

Actions in this proposal to consolidate dispersed open ditches and centralize delivery of irrigation water to water users will result in improved diversion efficiency and increased water availability in natural stream systems. The project will also restore natural hydrological function in stream, wetland floodplains and riparian systems resulting in improved infiltration and groundwater recharge. These actions will benefit local agricultural producers who depend on sub-irrigation for livestock pasture production, barley and forage crop production. Consolidation of distribution infrastructure will also result in greater predictability and consistency of water to irrigators. Water infrastructure upgrades and removal of migratory fish barriers will also provide predictable water supply, improved water quality, enhanced habitat connectivity to bolster spawning, and brood rearing within the world-class trout fishery in Silver Creek. *Other Project Benefits*

As an ancillary benefit, this project will provide an opportunity for TNC, IDFG and partners to showcase science-based techniques that restore ecological functions to create sustainable, meaningful change. TNC has designated Lower Loving Creek as a stream restoration demonstration site where we will share science-based, ecologically, and geomorphologically appropriate restoration actions with landowners. Because the property is open to public access and catch-and-release fly fishing, the public will be able to see tangible benefits to fishing as habitat is improved and more fish are utilizing this reach. Stream restoration work has already been completed on several reaches of the creek. The focus of restoration was increasing meanders and pools, narrowing the channel widths to a natural width to depth ratio, and increasing riparian cover to provide shading and channel stability. These reaches can serve as reference reaches, helping us to evaluate the success of different techniques, tools and designs.

E.1.2 Evaluation Criterion B: Collaborative Planning (20 Points)

This project is the culmination of more than four years of planning, site assessments, resource monitoring, building relationships and trust with landowners, and developing project designs that

provide a multitude of benefits to the ecosystem, water quality, fish, wildlife, and quality of life for residents and visitors to the watershed. The suite of restoration actions proposed for funding were identified as high priority needs in the 2010 Silver Creek Watershed Enhancement Strategy Plan (TNC and Ecosystem Sciences Foundation) and the subsequent 2020 Silver Creek Watershed Assessment. The 2020 assessment is a science-based, reach-scale restoration planning document developed by TNC, Silver Creek Alliance, Rio Applied Science and Engineering, and Ecosystem Sciences Foundation, with funding support from many donors – anglers, birders, landowners, philanthropists – all of whom are united by their love of Silver Creek. A link to this document is provided in the appendices.

The overarching purpose of the 2020 Silver Creek Watershed Assessment was to develop a comprehensive report of stream conditions, comparing existing stream functions, hydrology and habitat with what should be expected to exist in the system based on geomorphology and known historic conditions. The document was intended to guide restoration planning and implementation strategies for restoration and enhancement projects across the system. The report provides recommendations for high priority restoration projects that will provide measurable benefits to fish, wildlife, the aquatic ecosystem, stream functions and water quality. The assessment includes reach-scale evaluations for the entire system, as well as a detailed assessment and conceptual designs for top priority reaches, including Loving Creek.

Stream restoration needs and objectives for Lower Loving Creek, as identified in the 2020 Assessment:

Lower Loving Creek has two parts – an upper subreach that was restored in 2011 by reconstructing the channel, increasing the sinuosity, narrowing the channel width, excavating pools and planting riparian vegetation, and a lower subreach that is over-widened (approximately 100 ft wide) and relatively deep (approximately 3.4 ft). The channel in the lower, unrestored portion of the reach is over-widened due to historic land management and discontinued grazing practices. There is excessive silt deposition along the streambed. The over-widened channel conveys most high flows within the banks, precluding frequent floodplain connection. Evidence of poor floodplain connectivity is additionally provided by the lack of observed riparian vegetation on the floodplain and by hydraulic modeling results. Some small trees and shrubs were observed alongside the bank, but for the most part the vegetation does not shade the stream enough to prevent high water temperatures in the summer. These elevated water temperatures, combined with an abundance of native aquatic vegetation, directly impact dissolved oxygen concentrations, and degrade the habitability of the reach for cold water fish species. Summarized in Table 4 (*Excerpt from 2020 Watershed Assessment Report*) are existing and target conditions for the portion of lower Loving Creek proposed for restoration.

Table 4. Lower Loving Creek Existing and Target Conditions Downstream of Existing Restoration

Condition	Existing (min, avg, max)	Target (min, avg, max)
Bankfull Discharge (cfs)	65.0 (avg)	65.0 (avg)
Width (ft)	32, 58, 71	15, 25, 35
Width/depth ratio	17 (avg)	12.5 (avg)
Sinuosity	1.2	1.5
Planform	Single thread	Single thread
Meander Amplitude (ft)	138, 166, 213	125 (avg)
Meander Wavelength (ft)	296, 358, 423	275 (avg)
Bend Radius of Curvature (ft)	57, 105, 158	70 (avg)
Pool Spacing	N/A – No discernable pools observed	Every meander

Restoration needs in Upper Loving Creek (and its tributaries), as identified in the 2020 Assessment:

“Upper Loving Creek has been heavily impacted by human activity. Many irrigation diversions, artificial ponds, ditches, and legacy effects from a relic railroad grade have significantly altered the natural planform of the reach. Pond impoundments may also block fish passage. Temperatures are high in many portions of the reach, particularly in the North Fork of Loving Creek and dissolved oxygen levels are a concern in Butte Creek. Large portions of the channel are characterized with poor riparian conditions, and much of the reach is significantly over-widened. Loving Creek also has the highest documented sediment accumulation of any measured reach other than lower Silver Creek. It is unclear to what extent these sediments are a result of legacy conditions or ongoing accumulation associated with agriculture, cattle grazing, and/or local roads.

High stream temperatures and poor habitat connectivity indicate low fish use potential within this reach, though both restoration feasibility and habitat uplift potential are high. Because much of the temperature increase and fine sediment concerns in this stream are produced within this reach, restoration actions have potential for positive downstream impacts on Lower Loving Creek. Restoration should focus on reducing stream width-to-depth ratio, adding channel sinuosity where previously straightened, improving instream habitat and riparian buffers, and eliminating unnecessary stream diversions, ditches, and ponds. Existing ponds, where maintained, can be used to retain sediment to reduce sediment loads in downstream reaches. Any remaining pond impoundments should also be evaluated for fish passage barriers and appropriate passage provided to establish/maintain habitat connectivity.” (RioASE and Ecosystem Sciences 2020). Existing conditions and our target restoration conditions for this stream are listed in Table 8 below (*excerpt from the 2020 Silver Creek Watershed Assessment*).

Table 8. Upper Loving Creek

Reach Condition	Existing	Target
Sinuosity	1 to 1.2	Increased Sinuosity
Gradient	Varies	Reduced according to sinuosity
Average Stream Width (ft)	Varies	Reduced
Hydrology (Changes)	Gaining	Gaining
Riparian Conditions	Poor	Minimum riparian buffer of 2X the restored stream width
Sedimentation	High	Reduced
Human Features	Channel straightening, road and railroad crossings	Add sinuosity where previously straightened; increase in-stream structure
Temperature: Average # of days between 70–78°F (average # of days >78°F)	14 (0) Data Logger: Upper Loving Crk	Reduced
Habitat Connectivity	Poor	High

The Loving Creek Restoration and Water Conservation project also ties directly into the planning efforts of the Wood River Water Collaborative, a watershed group whose research into water conservation needs and restoration opportunities in the Wood River Basin and Silver Creek was funded by a BOR Cooperative Watershed Management Program (CWMP) grant in 2019. This collaborative watershed group is comprised of water users, water managers, non-profit organizations including TNC, Trout Unlimited and Wood River Land Trust, State agencies (Idaho Department of Water Resources and Idaho Department of Fish and Game), federal agencies (US Forest Service and Bureau of Land Management),

Blaine County and the local municipalities. One of the outcomes of the Collaborative's planning effort is a long-term water quality study of the connections between aquifer recharge, groundwater use, stream flows and water quality in the Silver Creek system. Researchers have completed more than a decade of monitoring in the Silver Creek system and have observed direct connections between streamflow variability and water quality metrics including temperature and dissolved oxygen. We will use this long-term monitoring data as reach-specific baselines for comparison to track results and measure success after project completion.

This project will be an opportunity for TNC and our partners to put all our management plans and resource studies to use. We are working collaboratively towards meaningful on-the-ground outcomes for water quality, water conservation and ecosystem health that benefit the community and a wide range of stakeholders.

E.1.3 Evaluation Criterion C: Stakeholder Support for Proposed Project (15 Points)

Partners and direct supporters of this Loving Creek Restoration and Water Conservation project include: Idaho Department of Fish and Game, Silver Creek Alliance, Trout Unlimited, the private landowners who own the properties where portions of the project will occur (Gardner Family and the Bashaws – two prominent families in the agricultural community who hold senior water rights and hundreds of acres of farm and ranch lands in the Wood River Valley), Blaine Soil Conservation District, NRCS, USFWS, and the Wood River Land Trust. Letters of support from several partners are attached.

Idaho Department of Fish and Game (IDFG) is a key partner and collaborator on this project. The State owns land adjacent to Loving Creek and Butte Creek and manages Hayspur Fish Hatchery at this site. The department is fully supportive of this project and grant proposal. Loving Creek is an important tributary to Silver Creek, a popular fishery that is renowned for its wild trout. The recreational activity in this system has led to important cultural and economic benefits for the local communities of Picabo, Carey, and the towns in the Wood River Valley. Loving Creek and Butte Creek provide spawning and rearing habitats for the trout populations that reside in Silver Creek. Improving the habitat connectivity and ecological functions in this system will help retain quality fishing opportunities found within Silver Creek. **IDFG has pledged \$242,087 in match** for the completion of this project.

TNC has demonstrated success in working with landowners in the Silver Creek Watershed for the past four decades and has worked with many landowners on successful stream and riparian restoration projects in the system. TNC has been a leader in addressing issues and needs at the intersection of human and environmental systems. TNC holds 22 conservation easements within the watershed and has led efforts in collaborative planning and project implementation in cooperation with the Silver Creek Alliance, IDFG, Trout Unlimited, and stakeholders to provide benefits to the Silver Creek Watershed, agricultural producers, water users, and recreational users. Silver Creek Alliance is a project partner that is contributing TNC is an active participant in developing community-based solutions through the Wood River Water Collaborative and the Big Wood River Ground Water Management Area Management Plan. We continue to work with landowners, water rights holders, water managers, and agricultural managers to implement water conservation transactions, regenerative agriculture partnerships, and science-based ecosystem restoration with the intent to sustain adequate year-round streamflows in the Silver Creek system. It is our intent that a more robust water supply and stream flows, combined with improved ecological functions, will benefit natural resources and the human community. Our collaborative water conservation and restoration work seeks to benefit aquatic species and ecosystems, improve water quality, and in turn benefit anglers and other recreationists, as well as community members who work in the outfitter and guiding industry, landowners who hold property along Silver Creek and tributaries, and

others who live, work and play in the watershed, as well as communities downstream. By working collaboratively with stakeholders on projects that benefit Silver Creek and the Wood River aquifer, we are also building greater ecosystem resiliency to drought and the effects of climate change.

E.1.4 Evaluation Criterion D: Readiness to Proceed (20 Points)

Project Implementation status, planning, and timelines by project phase

PHASE 1 – Gardner’s Ranch Restoration, Water Efficiencies and Pipeline Project – 2023

This project is ready to go once funding is secured.

- Landowner, Robert Gardner, is committed and has pledged \$100,000 in match.
- IDFG, the owner of the diversion dam that will be eliminated, is committed to project.
- RivHab, the contractor for design, engineering and project management has been hired.
- 80% design is completed.
- Permit applications were submitted to the State of Idaho (IDWR) and the Army Corps of Engineers on March 15, 2023.
- Project fundraising for construction is currently underway by landowner, IDFG, TNC and partners.
- Archaeological/cultural surveys for all phases of the Loving Creek Restoration and Water Conservation project will be completed concurrently with this permitting process in spring/summer 2023.
- Remainder of design work and final, stamped drawings for bid package will be completed in summer 2023 after cultural surveys and any additional resource surveys are complete.
- Once full funding for construction has been raised, RivHab will release the RFP for a Construction Contractor and get the project out to bid. The anticipated RFP release date is May 1, 2023.
- Once permits are secured, environmental compliance is completed and a construction contractor is hired, we will be ready to start construction.
- Construction will begin in late fall or winter 2023 with all construction completed by summer 2024.
- Planting projects will be completed in spring 2024 with seeding in late fall 2024.
- Post-implementation monitoring summer/fall 2024 and spring 2025.

PHASE 2 – Loving Creek on TNC-owned land at Silver Creek Preserve – 2024

- 30% Conceptual Design and Restoration Approach is complete.
- TNC is landowner and committed to the project; it has been approved by our organization.
- TNC has identified the staff project manager who will hire a design contractor to develop the design, engineering plans and construction bid package.
- Once full project funding is secured, TNC will release RFP for the Design Contract in winter 2023.
- Design contractor will complete engineering surveys in spring 2024, then develop 60% design by June 2024; TNC will release draft for stakeholder review.
- Project will be ready for permitting summer 2024, with submittal of applications completed July 1, 2024.
- Remainder of design work and final, stamped drawings for bid package will be completed in fall 2024 after permitting is complete.
- TNC will release RFP for construction contractor in July 2024.
- TNC will hire construction contractor to begin construction in fall 2024.
- Construction complete by May 20, 2025. Riparian planting and upland revegetation completed June 2025 or October 2025 dependent on weather and planting contractor availability.
- Post-implementation monitoring summer/fall 2025 and spring 2026.

PHASE 3 – Butte Creek Restoration (Tributary of Loving Creek) on State-owned land at IDFG Hayspur Fish Hatchery – 2025

- Landowner is State of Idaho. IDFG, land management agency, is committed and has pledged funding for design as match. IDFG will also contribute staff time for planning, pre-project monitoring, and project oversight as grant match.
- RivHab, the contractor for design, engineering and project management has been hired.
- Project fundraising currently underway by IDFG, the Alliance, and TNC.
- Once full funding is secured, RivHab will complete the design and engineering plans. Design work could be done concurrently with TNC’s design of Phase 2.
- 60% Design fall 2024.
- Permitting anticipated fall/winter 2024.
- Hiring of construction contractor anticipated fall/winter 2024.
- Construction start date July 31, 2025.
- Construction completed late fall 2025.
- Seeding fall 2025.
- Planting projects completed in spring 2026.
- Post-implementation monitoring spring/summer 2026.

PHASE 4 – Streamflow Enhancements, Water Conservation and Headwaters Habitat Restoration at Loving Springs Ranch – 2025 or 2026

- Landowner, Brett Bashaw, is committed to the project and will provide in-kind match.
- TNC holds a conservation easement on this property, and is an active stakeholder in this project. Proposed project will be consistent with easement terms.
- Landowner and TNC hosted site visits and planning meetings with IDFG, US Fish and Wildlife Service, Silver Creek Alliance, NRCS, Blaine Soil Conservation District, and Ducks Unlimited in summer and fall 2022. Additional planning meetings took place winter 2022.
- Bid for Design, engineering, project management, permitting has been provided by RivHab.
- Once full funding for the project has been secured, a design/engineering firm will be contracted by TNC to complete the design in cooperation with landowner and with input from the other stakeholders. Timing for design completion is TBD, probably in 2024.
- Permitting and Construction in 2025.
- Post-project monitoring spring/summer 2026.

TNC will hire a contractor to complete all cultural clearances (heritage surveys, coordination with Tribes, and generating documents for SHPO compliance), which will be completed concurrently with the kickoff of BOR’s NEPA process. TNC and our project partners will also complete all state, federal, and county permitting requirements including Army Corps 404 Permits, State of Idaho IDWR Stream Alteration Permits, 401 Water Quality Certification, and Blaine County Stream Alteration Permits.

We have included the recommended amount of funding in our project budget (\$50,000) to cover the estimated BOR-incurred costs for environmental compliance. Please note that the timeline for construction of Phase 1 of this project is contingent on the extent of BOR’s environmental compliance process and NEPA findings and timing for completion of that process. We have developed the following

timelines with the assumption that once a grant agreement is in place, NEPA will begin and take less than 6 months. As soon as the Environmental Assessment is complete and we have incorporated all BMPs and project modifications into our plans, we will be ready to start construction. If the process takes longer than anticipated, we will adjust our timelines accordingly.

E.1.5 Evaluation Criterion E: Performance Measures (5 Points)

The primary metric we will track to evaluate habitat restoration success is the **number of miles of instream habitat restored**. We anticipate this will be a relatively straightforward metric with limited challenges or limitations. We will compare the complexity of instream habitats before and after implementation, looking at the number of pools available for rearing and overwintering, and the total length of riffles available for spawning. Integrated and collaborative monitoring will be implemented to ensure that project outcomes are met and maintained. This monitoring effort will utilize existing partnerships and long-term datasets collected through collaborative watershed monitoring efforts (led by Silver Creek Alliance) to assess the beneficial outcomes of water conservation measures and restoration activities on stream flows and water quality. Through this partnership, we will continue to monitor and track dissolved oxygen concentrations and water temperatures at several locations on Loving Creek as well as in Butte Creek, comparing conditions before and after restoration.

A second metric, **water quality (water temperatures, dissolved oxygen)** will be used to determine how the stream channel improvements affect water quality in the creek. TNC and our partners currently monitor water quality using 38 stream temperature loggers and 13 springhead loggers, plus six dissolved oxygen loggers throughout the Silver Creek Watershed. Two dissolved oxygen loggers are installed on Loving Creek (one in a previously restored reach and one in a reach that will be restored through this project) with another on Butte Creek. These sites are monitored by Ecosystem Sciences of Boise, Idaho under contract with Silver Creek Alliance and with funding from TNC. These permanent sensors have measured dissolved oxygen levels and temperatures every 15 minutes between June and late October for the last decade to record data and track changes in the system. TNC downloads and models the data throughout the summer months to study summertime trends and help identify any periods of concern for fish and other resources, especially during drought years. Ecosystem Sciences and the “Save Silver Creek” research program also model the data to look at trends and anomalies in stream conditions. Using these data outputs, we determine if there are resource concerns and implement adaptive management.

Monitoring sites will be left in place after restoration and water conservation project completion. Long-term data sets provide a picture of pre-treatment conditions that we can use to compare post-treatment levels against. The past data suggests that mid-to-late summertime water temperatures are elevated above optimal levels, especially during periods of drought and heat. In addition, during most late nights through dawn from July through the end of August, dissolved oxygen levels drop to levels that can be stressful for fish (Ecosystem Sciences 2021). We anticipate tracking these water quality parameters will be straightforward given the degree of experience of the monitoring crew and the robustness of the dataset.

We will also **monitor stream flows** on Loving Creek to determine how the hydrograph responds over time to the components of our work that will benefit instream flows -- our water conservation work (ditch removals, flow consolidation, conversions from open canal to pipeline, and following/conversion of a farm field on Gardner’s Ranch to native uplands), springhead and wetland restoration, and

groundwater recharge. TNC has already purchased flow monitoring equipment, which we will install this spring at the bottom end of Loving Creek, just upstream of the confluence with Silver Creek. This remote monitoring station will log streamflows in 30-minute increments and send the data to the cloud for download in real-time. This streamflow monitoring station will complement two other stations we are installing in the system, one on Stalker Creek, immediately downstream of a channel reach TNC will finish restoring in July 2023, and one on Grove Creek, a tributary that was already partially restored a decade ago. We also have several streamflow gauges in the system, plus two mobile streamflow sensors that we will install downstream of the Gardner's reach and downstream on Butte Creek.

The streamflow and water quality data we collect will also be analyzed by researchers at Boise State and University of Montana who are working with the Wood River Water Collaborative to track the relationship between surface water flows, groundwater levels, and water quality in Silver Creek. [Research website [Silver Creek & Big Wood River Water Quantity and Quality Forecasting Tools • RED!](#) (boisestate.edu)]

IDFG Fisheries staff will continue monitoring fish populations, and any population response to the removal of the fish migration barrier and other restoration work will be tracked and reported. Silver Creek and its tributaries are a management priority for the Jerome Region of IDFG, and routine fish population sampling has occurred triennially across the system since 2004.

TNC's participation in the Wood River Water Collaborative and continued partnership with conservation easement landowners (on properties where projects will take place) will ensure consistent and bidirectional community expectations, and communication of project milestones, and related outcomes. Throughout the project, TNC will engage partners, community members, and subject matter experts to establish realistic and locally meaningful project objectives and metrics. We will also coordinate presentations at local meetings and working groups for review and iterative monitoring and community learning to best implement project actions and adaptive management. If monitoring results suggests that outcomes are not being met, we will leverage our existing relationships to engage the community to develop and implement adaptive management.

E.1.6 Evaluation Criterion F: Presidential and DOI Priorities (15 points)

E.1.6.1 Subcriterion No. E1: Climate Change

The enhancement of riparian habitat within the project area will provide terrestrial carbon sinks for atmospheric carbon. Based on minimum estimates for carbon capture of restored riparian areas in similar systems, activities in this proposal have the potential to capture 7,531 Mg C ha⁻¹/yr (Ofosu et al. 2022).

The actions in this proposal support the Biden-Harris E.O. 14008 by implementing improvements to infrastructure, management, and ecological conditions that will restore watershed function and benefit water quality by reducing sediment and nutrient inputs (pollution) into the Loving Creek and Silver Creek watershed from adjacent agricultural areas. Our proposed actions will also improve groundwater recharge and enhance the reliability of sub-irrigation in prime cropland, thereby improving drought resilience in adjacent farmlands and reducing local dependence on already over-allocated surface and groundwater rights.

This project will occur in Blaine County, Idaho. According to the Blaine County Labor Force and Economic Profile for June 2022, Blaine County has 22,729 residents of which 74.0% identify as white, 22.9% identify as Hispanic or Latino, 0.9% identify as Native American, 0.6% identify as Black or African American, and 0.5% identify as Asian. Compared to Idaho, Blaine County's population has a higher percentage of residents that identify as Hispanic or Latino (22.9% in Blaine County versus 12.7% in Idaho). The unemployment rate in Blaine County is 2.4% which is similar to the statewide rate. The median household income is \$64,627 which is similar to the national average, but the cost-of-living index in 2023 is 134.2 and the cost of housing is 226% of the national average. The poverty rate is 12.6% which is higher than Idaho as a whole (10.1%) and the national rate (11.4%; U.S. Census 2020). The median age in Blaine County (43.7 years) is higher than Idaho (36.6 years) and the US (38.2 years). The primary labor sectors in Blaine County are Leisure and Hospitality, Trade, Transportation, and Utilities, and Construction (22.5%, 15.7%, and 15.8% of the labor force) suggesting that one main economic driver in the county is tourism and recreation, both of which will benefit from the implementation of this project (Idaho Department of Labor 2022).

Direct beneficiaries of this stream restoration effort are the outdoor recreating public of Idaho, as well as community members who rely on recreational amenities like Silver Creek for their livelihood. Silver Creek is a destination for anglers from the community, the state, the nation, and the world. Additionally, residents of the surrounding Wood River Valley use Silver Creek for non-consumptive recreational opportunities. Improving water quality and streamflows will enhance the natural beauty, increase the species richness, and enhance wildlife viewing opportunities. Adjacent private landowners may also benefit from decreased trespassing as we enhance the condition and beauty of the public access sites that the Idaho Department of Fish and Game and The Nature Conservancy manage on Silver Creek.

E.1.6.2 Subcriterion No. E2: Disadvantaged or Underserved Communities

Tribal Consultation and TNC's Commitment to Respecting Diversity and Promoting Equity, Inclusion and Social Justice in our Conservation Work support priorities of E.O. 13985: Advancing Racial Equity and Support for Underserved Communities.

Because of the historic and ongoing connections of the Shoshone-Bannock people to the lands and waters of the Wood River Valley and Silver Creek, TNC is committed to engaging with the Tribe during our conservation and restoration planning, especially on TNC-owned lands. Prior to the arrival of Euro-American settlers in the late 19th century, the Silver Creek watershed was part of the ancestral homeland of the Shoshone-Bannock people. The Shoshone-Bannock people maintain a connection to the land and resources of Silver Creek, which lies along the historic travel corridor from the Tribal Reservation of Fort Hall located to the east, through the Wood River Valley and on to the Camas Prairie to our west. The Camas Prairie is an important cultural, historical and ethnobotanical resource for the Shoshone-Bannock Tribes. According to Lionel Boyer, former chairman of the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation in southeastern Idaho, his ancestors migrated in and around the Wood River region for thousands of years. They relied on natural resources for subsistence including plants, animals, fish and big game. (Walsworth 2021)

We want to ensure that their voices are heard and that Tribal sovereignty is considered as we make decisions that could impact their access and connections to cultural resources and the natural resources that are part of their heritage. As part of that engagement, TNC will be sharing our project concept for all phases of Loving Creek Restoration with the Tribe for review and comment, and will invite their resource specialists to visit the project site as we plan and implement our project. On previous projects,

TNC has sought ways to meaningfully honor the heritage of the Tribes. On Stalker Creek, TNC made arrangements to include culturally valuable plants in our riparian planting plans. We collaborated with a member of the Tribe who collected camas lily bulbs, and we planted the lilies in our project area. We hope to engage the Shoshone-Bannock people in similar ways on this project, so that the outcomes of restoration work will provide meaningful benefits to the Tribe and support their connection with Silver Creek for future generations.

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Project Support Documents for Download (Available in [BOX Folder](#)):

- Phase 1 [Restoration Design](#) and [Permitting](#) Documents
- Phase 2 [30% Design Document](#)
- Phase 3 [Design Cost Estimate/Bid](#)
- Phase 4 [Planning](#) and [Design Cost Estimate](#)

Pre-Award Costs - Costs Incurred Prior to Award

1. Phase 1: Restoration Design – costs incurred as of March 28, 2023 were paid by Silver Creek Alliance to RivHab (Restoration Engineering firm) for engineering, surveys, and design services for the planning and permitting of Phase 1: Gardner Restoration.

Task Order Issued: 7/12/2022. **All costs were incurred after July 1, 2022.**

Invoice 10/08/22 **\$17,796.70** for bathymetric surveys, surface modeling, design contract services.

Invoice 11/20/22 **\$13,509.00** for 30% design, hydraulic modeling, design contract services.

Invoice 1/29/23 **\$7,739.58** for drafting, design development, professional engineering services

2. Molyneux Canal/Hayspur Pipeline Design and Engineering – costs incurred as of March 28, 2023 were paid by Silver Creek Alliance to RivHab for the planning of the canal to pipeline conversion, including design, modeling, engineering services.

Task Order Issued: 10/04/2022. **All costs were incurred after July 1, 2022.**

Invoice Issued: 10/08/22 **\$2,405.00** for bathymetric surveys, surface modeling, design contract services

Environmental and Cultural Resources Compliance (all phases)

TNC met with staff from Bureau of Reclamation (Rich Jackson, Selena Moore, Leah Meeks), Snake River Area Office (Boise, Idaho) on March 10, 2023, to discuss project plans and identify environmental compliance needs and costs. Based on our conversation and given the scale of the project, BOR staff thought the NEPA requirement would be met with an Environmental Assessment rather than a Categorical Exclusion.

TNC has requested an IPAC from US Fish and Wildlife Service, Idaho Office, that can be used by BOR staff to determine what species surveys are needed. This document is included in the grant application files. TNC will hire a contractor to complete all cultural clearances (heritage surveys, coordination with Tribes, and generating documents for SHPO compliance), which will be completed concurrently with the kickoff of BOR's NEPA process. TNC and our project partners will also complete all state, federal, and County permitting requirements including Army Corps 404 Permits, State of Idaho IDWR Stream Alteration Permits, 401 Water Quality Certification, and Blaine County Stream Alteration Permits. Our construction contractors will be required to adhere to water quality standards, and TNC-established Best

Management Practices to protect natural resources and water quality. The contractors will also develop construction SWPPPs and submit to EPA for approvals and clearance.

Permit applications for Phase 1 of the project were submitted to Army Corps of Engineers (404 Permit) and Idaho Department of Water Resources (Stream Alteration Permit) on March 17, 2023. The permit application for the Blaine County Stream alteration Permit will be submitted in April 2023. A heritage survey for SHPO clearance will be completed later this spring or summer after the snow has melted and the site is cleared. Permit applications for Phases 2-4 will be submitted once the designs are complete, and no later than 4 months prior to our anticipated construction start dates.

OMB Form 4040-0019: Project Abstract Summary

The Loving Creek Tributaries Restoration and Water Conservation Project is a collaborative, community-based project in the Silver Creek Watershed. The Nature Conservancy, Idaho Department of Fish and Game, landowners, and other partners will complete a suite of aquatic ecosystem restoration projects on four reaches of Loving Creek and tributaries from the headwaters to the outlet at Silver Creek. This project will accomplish the following outcomes: 2.75 miles of active stream channel restoration, enhancement, and restoration of at least 24 acres of riparian and wetland habitat, and removal of one fish passage barrier to restore connectivity to 5.72 miles of upstream habitat. The project will also restore an additional 11.5 acres of upland and agricultural buffer habitat and improve water conveyance systems to conserve at least 9-acre feet of water, which will remain in the creeks as instream flow. Collectively, these restoration and water conservation activities will provide significant aquatic ecosystem benefits for the Silver Creek Watershed.

ATTACHMENT B: Budget Narrative – Project Budget

Funding Plan and Letters of Commitment

Committed Partners Providing Project Funding and In-kind Match:

- **The Nature Conservancy** (applicant), funds available immediately, will provide balance of non-federal match. Funds raised through private donations.
- **Idaho Department of Fish and Game** (Category A Partner), funds committed, will be available for project costs upon finalization of grant, letter of commitment provided. State funds to be spent on project are non-federal in origin.
- **Silver Creek Alliance**, funds available immediately, letter of commitment provided.
- **Robert Gardner** (Project partner and cooperating landowner), private funds available immediately, letter of commitment provided.

Budget Proposal

Table 1. Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
The Nature Conservancy	\$140,056
Silver Creek Alliance - <i>funding</i>	\$151,263
Idaho Department of Fish and Game - <i>funding</i>	\$195,500
Idaho Department of Fish and Game – <i>in-kind</i>	\$46,587*
Robert Gardner (Project Partner) - <i>funding</i>	\$50,000
Robert Gardner (Project Partner) – <i>in-kind</i>	\$50,000*
Non-Federal Subtotal	\$633,406
REQUESTED Reclamation Funding	\$1,900,217

* *In-kind contributions*

Table 2. Total Project Cost Table

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$1,900,217
Costs to be paid by the applicant	\$140,056
Value of third-party contributions	\$493,350
TOTAL project cost	\$2,533,623

Budget Narrative

A. Personnel. Applicant Cumulative Budget (\$25,009).

1. **Erika Phillips, Watershed Manager and Project Lead** will devote 450 hours total in Years 1-3 to managing the project. Erika will provide oversight of daily activities for TNC staff; manage the grant, including reporting; coordinate with partners; and ensure all project milestones are met. She will also organize and manage the contracting for multiple project phases, leading the project toward accomplishment of the objectives. Base salary rate is (\$39/hr) with a 2% annual increase starting in Year 2. Total budgeted salary for the project is (\$17,824).
2. **Stewardship Manager** will devote 120 hours total to assist in the design and planning of restoration projects, restoration activities by contractors, and monitoring and evaluation (MRV) of project sites. Base salary rate is (\$36.78/hr) with a 2% annual increase starting in Year 2. Total budgeted salary for the project is (\$4,507).
3. **Farm Strategy Manager** will devote 45 hours total to assist in restoration planning and design for agricultural fields. Base salary rate is (\$33/hr) with a 2% annual increase starting in Year 2. Total budgeted salary for the project is (\$1,515).
4. **Agriculture Program Manager** will devote 20 hours total to assist in the implementation and verification of agricultural practice implementation, project management and reporting. Base salary rate is (\$38/hr) with a 2% annual increase starting in Year 2. Total budgeted salary for the project is (\$1,163).

B. Fringe Benefits. Applicant Cumulative Budget (\$11,192)

The fringe benefit rate is 44.749% based on the FY23 Indirect Cost Negotiated Agreement and includes payroll taxes, insurance, retirement, and leave benefits. Total fringe budgeted for TNC staff is \$11,192.

C. Travel. Applicant Cumulative Budget (\$2,811)

Travel costs are based on the FY23 Federal Mileage Rate of \$0.65 per mile. TNC staff will use either TNC or personal vehicles to travel to project sites.

TNC project manager: budget includes \$988.00 in travel costs to and from the project site for stakeholder meetings and site visits, contractor meetings, and to provide direct project oversight and ensure permitting compliance by driving to the site multiple times per week during active construction. The round-trip distance from the TNC State Office in Hailey to the project site is 38 miles. The number of site visits and meetings are not known at this time, but the estimate is based on travel costs for 40 round trips. (40 trips x 38 miles round trip x 0.65 per mile = \$988.)

TNC Stewardship Manager, Farm Strategy Manager and Agriculture Program Manager: budget of \$1,823 for travel to project sites for site visits, stakeholder meetings and monitoring. These staff are based in TNC Boise Office (282 miles round trip to project area) and Idaho Falls (278 miles round trip to project area). Travel costs are calculated at the most recent federal mileage rate of \$0.655/mile and distances from staff locations including Idaho Falls (4 trips x 278 miles x \$0.65 per mile = \$723) and Boise (6 x 282 miles x \$0.65 per mile = \$1100).

D. Equipment. (\$0)

Not applicable.

E. Supplies. Cumulative Budget (\$26,936)

Funds are requested for the following project materials and supplies:

Fencing Materials: 2,800 linear feet of wildlife friendly fencing to exclude livestock from riparian areas. Materials expected to include wood posts, steel t-posts, smooth wiring, barbed wiring. Estimated fencing costs are based on NRCS EQIP Idaho approved cost share rate per linear foot for Protection, Sensitive Areas / Threatened, Endangered, and/or Sensitive Species. Fencing cost per linear foot \$6.11, not including installation costs (2800 x \$6.11 = \$17,115).

Native riparian vegetation plantings: Revegetation of six acres of riparian buffer and mesic meadows, utilizing native grass/sedge/forbs and woody plant species. Seed mix costs estimated at \$799/acre based on NRCS EQIP Idaho approved cost share rate per linear foot for native seeding (6 x \$799 = \$4,796).

Streambank stabilization and woody plant species restoration of 0.5 miles of streambanks:

- 50 containerized riparian shrubs (5 Gallon) at \$40/plant (50 x \$40 = \$2,000)
- 25 containerized riparian trees (10 gallon) at \$91/plant (25 x \$91 = \$2,275)
- 500 bare root riparian plants at (\$1.50/plant (500 x \$1.50 = \$750).

F. Contractual. (\$0)

Not applicable. All contracts are construction-related, and therefore are included in "G. Construction."

G. Construction. Cumulative Budget (\$1,781,156)

Construction budgets will cover all aspects of contracts for engineering and design plans (Phases 2-4), permitting fees, cultural heritage surveys and submittal of heritage reports for BOR NEPA process and SHPO clearance, construction implementation contracts, planting contracts, equipment rentals, contractor costs, and other direct expenses related to implementation. It will also fund all materials and supplies directly related to implementation of the restoration work. These costs will be built into construction contracts when we put them out for bids. The construction budget will also cover engineering staking, engineering oversight, permit compliance, field reports, BMPs, final construction surveys and documentation, and aerial drone monitoring.

H. Other. Cumulative Budget (\$222,850)

Environmental Compliance - Includes **\$50,000** for Bureau of Reclamation NEPA and Environmental Assessment. Cost estimate provided by BOR Idaho staff.

Phase 1 design costs (funds already committed, design work in progress by RIVHAB, PLLC): **\$88,735** as in-kind donations of design, engineering, permitting contract for Phase 1a: Gardner fish passage and restoration (\$63,790) and Phase 1b: canal to pipeline conversion (\$24,945). The total design and engineering cost for Phases 1a + 1b has already been committed by IDFG and Silver Creek Alliance to be paid directly to contractor. A portion of this funding has already been spent to develop the 80% designs, but all expenses were incurred after November 1, 2022. A portion has also been spent on permitting fees for State and federal permits, (less than \$100) which was spent in March 2023.

Phase 1 in-kind donation of materials to be used for restoration and dam removal, including 1000 sq yds wetland sod, 13,250 cu yds topsoil and native fill material, willow clumps and woody material for instream structure. Donation **valued at over \$50,000** based on costs from recent nearby projects, contributed by Robert Gardner (landowner).

Idaho Department of Fish and Game In-kind donation: **\$34,115** salary + fringe for two staff

Salary 1 (\$40/hr x 320 hrs) + Fringe (40% rate) = \$12,938 + \$5,175

Salary 2 (\$36/hr x 320 hrs) + Fringe (40% rate) = \$11,430 + \$4,572

I. Total Direct Costs. (\$2,069,953).

J. Indirect Costs. (\$463,670).

The Nature Conservancy's approved NICRA for FY2023 is 22.40% of direct costs. The NICRA is negotiated annually with our cognizant agency, Department of Interior. Fringe benefit rates are included in the NICRA.

Total Direct and Indirect Costs Project Budget (\$2,533,623).

COST-SHARE JUSTIFICATION

TOTAL PROJECT COST: (\$2,533,623)

TOTAL FEDERAL GRANT REQUEST: (\$1,900,217)

TOTAL PROJECT MATCH Non-federal: (\$633,406)

The Nature Conservancy (Project Applicant) will contribute **\$140,056** as match and the third-party Project Partners will provide cost-share (funds and in-kind) of **\$493,350** as detailed below:

A. Third-party Personnel In-Kind Contributions. Cumulative Total (\$34,115).

Idaho Department of Fish and Game: **\$34,115** In-kind match in the form of staff time.

Staffing costs will be incurred by IDFG to oversee planning and construction of Phase 3: Butte Creek; conduct post-completion monitoring and reporting across all phases.

1. Regional Fisheries Manager salary match \$12,938 (320 hours x \$40/hour = \$12,938) + fringe \$5,175 (40% of salary x 320 hours)
2. Regional Habitat Biologist salary match \$11,430 (320 hours x \$36/hour = \$11,430) + fringe \$4,572 (40% of salary x 320 hours)

B. Third-party Construction In-kind (materials, contracts) Contributions. Cumulative Total (\$138,735)

1. Silver Creek Alliance: **\$76,262.50** in the form of two direct contracts/work orders with RivHab Engineering firm (1) \$63,790 for Phase 1: Gardner fish passage and restoration (design, engineering plans, permitting). Silver Creek Alliance contracted directly with RivHab to design project; and (2) \$12,472.50, which is 50% of full cost for RivHab design contract (split with IDFG) to plan, design and engineer the canal to pipeline conversion. Contract includes engineering and

permitting, construction bid package and plan sheets. All contracted tasks are necessary to complete Phase 1 of the project.

2. IDFG: \$12,472.50 direct contract with RivHab for design of Phase 1. This is 50% of full, contracted cost for design and engineering by RivHab to plan the canal to pipeline water conversion. Contract includes engineering and permitting, construction bid package and plan sheets. All work is necessary to get project ready for construction and to solicit contractor bids. Funds have already been obligated to RivHab, but not yet spent.
3. Private Landowners: \$50,000 in kind. Private landowners whose property will be locations for restoration will provide in-kind match in the form of construction equipment time and wetland restoration materials including wetland sod, topsoil, and fill materials as well as riparian revegetation materials including native seed and willows. Equipment and operator time on backhoe/auger or other farm equipment to plant riparian shrubs and trees for bank stabilization and install riparian fencing. Total In-kind match amount valued at \$50,000.

C. Third-party Cash Match. Cumulative Total (\$320,500)

1. Silver Creek Alliance: \$75,000 Cash match will be provided by SCA for design and construction costs.
2. Idaho Department of Fish and Game: \$195,500 for materials and installation costs for Phase 1 construction of canal to pipeline conversion project and water efficiency; Portion of design and construction of Phase 3 Butte Creek restoration.
3. Private Landowner: \$50,000 Cash. Match will be provided by Robert Gardner, a private landowner, for construction of Phase 1 fish passage and stream restoration at Gardner Ranch.

Pre-Award Costs - Costs Incurred Prior to Award

- A. Phase 1: Restoration Design – costs incurred as of March 28, 2023 were paid by Silver Creek Alliance to RIVHAB, PLLC (Restoration Engineering firm) for engineering, surveys, and design services for the planning and permitting of Phase 1: Gardner Restoration. Costs included as in-kind, third-party match in grant budget. Task Order Issued: 7/12/2022.

All costs were incurred after July 1, 2022.

1. Invoice 10/08/22 **\$17,796.70** for bathymetric surveys, surface modeling, design contract services.
2. Invoice 11/20/22 **\$13,509.00** for 30% design, hydraulic modeling, design contract services.
3. Invoice 1/29/23 **\$7,739.58** for drafting, design development, professional engineering services.

- B. Molyneux Canal/Hayspur Pipeline Design and Engineering – costs incurred as of March 28, 2023 were paid by Silver Creek Alliance to RIVHAB, PLLC for the planning of the canal conversion to pipeline. Tasks include: design, modeling, engineering services. Task Order Issued: 10/04/2022.

All costs were incurred after July 1, 2022.

1. Invoice Issued: 10/08/22 **\$2,405.00** for bathymetric surveys, surface modeling, design contract professional services.



IDAHO DEPARTMENT OF FISH AND GAME

600 S Walnut / P.O. Box 25
Boise, Idaho 83707

Brad Little / Governor
Jim Fredericks / Director

Lance Hebdon
Chief of Fisheries
Idaho Department of Fish and Game

Bureau of Reclamation
Financial Assistance Operations
Section
P.O. Box 25007, MS 84-27133
Denver, Colorado 80225

3/16/2023

To whom it may concern,

The Idaho Department of Fish and Game intends to provide \$195,500 of match, \$34,115 in the form of in-kind personnel time, and \$12,472.50 in the form of in-kind design work towards the non-Federal match requirement for the 2023 Bureau of Reclamation WaterSMART grant (federal award number R23AS000089). The total match from IDFG will be \$242,087.50.

We acknowledge that the non-Federal match, whether cash or in-kind, is expected to be paid out at the same general rate as awarded funds. We acknowledge that the cost share commitment will be met over the life of the award (three years or less), and that the same Federal compliance requirements that apply to the Federal fund awards, apply to the non-Federal match.

We acknowledge that non-Federal match used to meet this requirement may not be included as contribution for any other federally assisted project or program.

Sincerely,

A handwritten signature in black ink, appearing to read "Lance Hebdon".

Lance Hebdon



IDAHO DEPARTMENT OF FISH AND GAME

600 S Walnut / P.O. Box 25
Boise, Idaho 83707

Brad Little / Governor
Jim Fredericks / Director

3/23/2023

Bureau of Reclamation
Financial Assistance Operations Section
P.O. Box 25007, MS 84-27133
Denver, Colorado 80225

To Whom it May Concern,

The Idaho Department of Fish and Game, as a Category A entity, is partnering with The Nature Conservancy to develop and fund aquatic habitat restoration and conservation efforts on Silver Creek tributaries. This effort is part of a landscape level rehabilitation project to address factors limiting ecological function in the Silver Creek watershed. The Idaho Department of Fish and Game recognizes the importance this project as one of several that are part of a broader effort, led by a diverse group of stakeholders, to restore Silver Creek.

We strongly support The Nature Conservancy's WaterSMART grant application and appreciate the improvements this project will make to water infrastructure, stream function, and in-stream fish habitat in Silver Creek.

Sincerely,

A handwritten signature in black ink, appearing to read "Lance Hebdon".

Lance Hebdon
Chief of Fisheries
Idaho Department of Fish and Game

Silver Creek Alliance Inc.

Dedicated to the Preservation of Silver Creek, Idaho



March 17, 2023

Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Subject: WaterSMART EWRP Application for Funding Opportunity R23AS00089

Dear Application Review Committee:

Silver Creek Alliance (the Alliance) is pleased to provide this Letter of Partnership and pledge of \$151,263.00 match (cash and in-kind) in support of The Nature Conservancy's (TNC) application for an Environmental Water Resources Project under BOR's WaterSMART program. Silver Creek Alliance is a non-profit 501(c)3 comprised of landowners, anglers, and engaged members of the community who are committed to the continuing preservation of the Silver Creek watershed, its trout fishery and wildlife habitat. One of our core values is a commitment to working with landowners, stakeholders, and the public to achieve stream conservation and restoration goals.

The Alliance supports the submittal and content of the application, and we are invested in the success of the project. The Alliance has played a critical role in the planning and development of all aspects of this Loving Creek Restoration project. We have been involved since the beginning, when representatives of our organization met with landowners, TNC and Idaho Department of Fish and Game (IDFG) to begin crafting a plan for system-wide, "headwaters to confluence" restoration and water conservation on this important tributary of Silver Creek. We are excited to help this project become reality, working in partnership with TNC, IDFG, the Gardner Family, and other engaged landowners to accomplish collaborative, meaningful outcomes for Silver Creek and its fishery.

The project will provide a variety of restoration benefits to the Silver Creek Watershed, such as:

- Increased instream flows and improved water quality
- Restored fish passage to cold-water spawning habitats
- Stream channels reconnected with floodplains to improve streambank vegetation, stream shading, streambank stability and reduced sediment deposition into the stream channels
- Enhanced habitat for wild trout that support our world class fishery, waterfowl and other wildlife
- Engaging landowners to play an active role in improving the creek resources that intersect their lands and fostering a sense of shared stewardship

This restoration project is a critical piece of a much broader restoration effort that our organizations have accomplished across the watershed over the past decade. To-date, through collaborative work, the Alliance, The Nature Conservancy, and partners have restored many stream miles of fish habitat and ecosystem functions on Silver Creek and multiple tributaries in the watershed. The partners on this project have a proven track record for success, and we are confident that this project will achieve significant outcomes with Bureau of Reclamation's support.

Thank you for your consideration of this grant application and our collaborative project.

Sincerely,


Nick Purdy
President of the Board of Directors
Silver Creek Alliance

Hemingway Chapter
Trout Unlimited
1340 Northridge Drive
Hailey, ID 83333
202-256-0163
Nickpmiller2011@gmail.com
www.hemingwaytu.org



MARCH 15, 2023

**Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225**

Subject: WaterSMART EWRP Application for Funding Opportunity R23AS00089

Dear Bureau of Reclamation,

The Hemingway Chapter of Trout Unlimited submits these comments in support of the Silver Creek Alliance and The Nature Conservancy's grant application to obtain a WaterSMART Grant toward funding stream restoration work on important Silver Creek tributaries.

Trout Unlimited Hemingway is the local Trout Unlimited Chapter which claims Silver Creek as part of its "home waters." The Hemingway Chapter has over 600 active Trout Unlimited members and Silver Creek is a primary source of recreation and fishing for our members. This remarkable ecosystem is known internationally for its wildlife productivity and challenging fishing. Unfortunately, recent years have not been kind to Silver Creek as reduced water flows attributable to the great drought in the Intermountain West has changed the temperature profile of Silver Creek's water and aggravated siltation problems damaging the micro-invertebrate habitat. The Silver Creek Alliance and The Nature Conservancy have taken the lead in finding solutions. The requested WaterSMART grant is a primary step to improve the natural water course of Loving Creek and Butte Creek and other floodplain restoration.

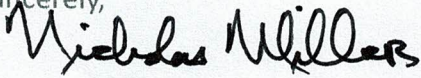
Trout Unlimited Hemingway Chapter strongly supports efforts of The Nature Conservancy and the Silver Creek Alliance to improve the ecosystem of Silver Creek. The restoration of upstream Loving Creek and Butte Creek will generate a substantial improvement in the ecosystem and open both creeks to fish migration and essential spawning grounds.

We strongly support the grant application. If granted, the project will improve this important ecosystem and will remediate the siltation and water heating of Silver Creek. Loving Creek and Butte

Trout Unlimited Hemingway
Re WaterSmart grant Application R23AS00089
March 15, 2023

Creek are important water sources and tributaries of the Silver Creek Preserve. The purpose of the grant is to improve the entire system's resiliency to drought and water shortages. It will remove the existing human-caused degradations and improve flood plain action in the two creeks which will reduce sediment buildup, increase channel complexity, improve in-stream flows, improve habitat for birds and improve the riparian vegetation. Rebuilding the natural channel will also reduce heat absorption and improve macroinvertebrate habitat in this portion of the Silver Creek system.

Sincerely,

A handwritten signature in black ink that reads "Nicholas Miller". The signature is written in a cursive style with a large initial "N".

Nicholas Miller, President, Hemingway Chapter of Trout Unlimited

WOOD RIVER LAND TRUST



March 22th, 2023

Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Subject: WaterSMART EWRP Application for Funding Opportunity R23AS00089

Board of Directors

Chair:
Roland Wolfram

Vice Chair:
Karen de Saint Phalle

Secretary:
Barry Bunshoft

Asst Secretary:
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Gayle Stevenson

Advisory Council

David Anderson
Ed Cutter
Ranney Draper
Jeff Johnson
Jack Kueneman
Kathie Levison
Sue Orb

Executive Director
Scott Boettger

Dear Application Review Committee:

I am writing on behalf of the Wood River Land Trust in support of The Nature Conservancy of Idaho's application for an Environmental Water Resources Project under BOR's WaterSMART program. The Wood River Land Trust and The Nature Conservancy have a shared mission to restore, preserve and protect critical habitat along the rivers throughout the Wood River Valley.

We respect the deep knowledge and experience of The Nature Conservancy in addressing the restoration of Silver Creek. The project will provide restoration solutions to multiple water management issues faced in the Silver Creek Watershed and the greater Wood River Valley Watershed, including:

- Helping irrigators resolve urgent water supply issues
- Increasing instream flows
- Improving water quality in a world class trout fishery
- Reconnecting stream channels with floodplains to restore natural functions
- Restoring fish passage to key cold-water habitats in Silver Creek tributaries
- Enhancing aquatic habitats for wild trout, the endemic Wood River sculpin, and waterfowl
- Restoring native plants in floodplains and riparian areas to provide stream stability and create habitat for songbirds and other wildlife
- Increasing resilience to drought and climate variability

The Nature Conservancy and the Wood River Land Trust continue to work in collaboration and we have a history of partnering in protecting land and water in our community. Together we protected 10,000 acres and the watershed of Rock Creek. We share a common commitment to protect important open space and actively conduct river restoration projects that enhance fish habitat, floodplain and connectivity. The Wood River Land Trust is pleased to support the revegetation and creek restoration work on Loving Creek Restoration and the Water Conservation Project.

Thank you for your consideration of this project application. If awarded, the project will bring many benefits to our watershed and our community.

Sincerely,


Scott Boettger
Executive Director



119 E. Bullion Street
Hailey, Idaho 83333
Phone: 208.788.3947

WoodRiverLandTrust.org
Federal ID: 82-0474191

March 15, 2023

Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Subject: WaterSMART EWRP Application for Funding Opportunity R23AS00089

Dear Application Review Committee:

I am writing on behalf of Blaine Soil Conservation District in support of The Nature Conservancy of Idaho's application for an Environmental Water Resources Project under BOR's WaterSMART program. The Blaine Soil Conservation District works with landowners and partners with local agencies to improve our District's lands and further conservation efforts. The Silver Creek Watershed and Wood River Valley Watershed are in the heart of our District. Should this grant be awarded, the improvements and restoration efforts regarding the stream buffers will directly improve two important watersheds within our District.

The project will provide restoration solutions to multiple water management issues faced in the Silver Creek Watershed and the greater Wood River Valley Watershed, including:

- Helping irrigators resolve urgent water supply issues
- Improving water quality in a world class trout fishery
- Reconnecting stream channels with floodplains to restore natural functions
- Restoring native plants in floodplains and riparian areas to provide stream stability and create habitat for songbirds and other wildlife
- Increasing resilience to drought and climate variability

Throughout the last year, we have developed a relationship with The Nature Conservancy and would like to continue helping them in their projects wherever we are able.

Thank you for your consideration of this project application. If awarded, the project will bring many benefits to our watershed and our community.

Sincerely,



Chris Johnson
Chairman
Blaine Soil Conservation District

January 18, 2023

Potential Funding Partners

To Whom It May Concern,

This letter is an acknowledgement of our commitment to participate in the project entitled "Stream Restoration, Fish Barrier Removal, Water Efficiency, and Agricultural Conservation in Upper Loving Creek at the Gardner Ranch".

As multi-generational landowners, we have had the privilege of living in close proximity to Loving Creek and are very familiar with its ecosystem and would like to express our support for this effort. Please know that we are committed through conversion of less efficient water practices to increase habitat abundance and quality. We are also donating live plantings, wetland sod, and topsoil to ensure a successful project. In addition, we are willing to commit up to \$50,000 of private funding to support this ecosystem restoration project that will enhance and protect critical cool headwater habitat of Loving Creek. Our engineer has indicated this level of commitment, combining in-kind donations with cash, is equivalent to a \$100,000 landowner contribution. We are actively seeking grants to supplement our private donations.

Thank you,

Robert Gardner

Kathryn Gardner

Robert and Kathryn Gardner
PO Box 1200
Hailey, Idaho 83333